# 12 NR sidelink

## 12.1 PC5-only operation

### 12.1.1 PC5-only operation / Sidelink communication

#### 12.1.1.1

#### 12.1.1.2 PC5-only operation / Sidelink communication / Reception

12.1.1.2.1 Test Purpose (TP)

(1)

**with** { UE being authorized for performing NR sidelink Communication }

**ensure that** {

**when** { UE is configured by upper layer to perform NR sidelink reception }

**then** { UE is able to monitor NR sidelink transmission using sl-RxPool included in pre-configuration }

}

12.1.1.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.7. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, subclause 5.8.7]

A UE capable of NR sidelink communication that is configured by upper layers to receive NR sidelink communication shall:

1> if the conditions for NR sidelink communication operation as defined in 5.8.2 are met:

2> if the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *RRCReconfiguration* message or *sl-FreqInfoList* included in *SIB12*:

3> if the UE is configured with *sl-RxPool* included in *RRCReconfiguration* message with *reconfigurationWithSync* (i.e. handover):

4> configure lower layers to monitor sidelink control information and the corresponding data using the pool of resources indicated by *sl-RxPool*;

3> else if the cell chosen for NR sidelink communication provides *SIB12*:

4> configure lower layers to monitor sidelink control information and the corresponding data using the pool of resources indicated by *sl-RxPool in SIB12*;

2> else:

3> configure lower layers to monitor sidelink control information and the corresponding data using the pool of resources that were preconfigured by *sl-RxPool* in *SL-PreconfigurationNR*, asdefined in sub-clause 9.3;

12.1.1.2.3 Test description

12.1.1.2.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 uses GNSS as the synchronization reference source.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE uses GNSS as the synchronization reference source.

- The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4] clause 4.8.3.3.3).

Table 12.1.1.2.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | Service n°119 (V2X) supported |  |
| EFVST |  | As per TS 38.508-1 [4] clause 4.8.3.3.3 |  |
| EFV2XP\_PC5 |  | *SL-PreconfigurationNR* field as defined in TS 38.508-1 [4], table 4.10.1-1 |  |

Preamble:

- The UE is in state 0-A as defined in TS 38.508-1 [4].

12.1.1.2.3.2 Test procedure sequence

Table 12.1.1.2.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
| U - S | Message |
| 1 | Power on the UE. | - | - | - | - |
| 2 | Trigger UE to reset or clear the current UTC time that has been calculated from GNSS.  NOTE: The UTC time can be reset or clear on the UE using AT command (+CUTCR). | - | - | - | - |
| 3 | The NR-SS-UE1 transmits a DIRECT LINK ESTABLISHMENT REQUEST message using the pool of resources that were preconfigured by *sl-TxPoolSelectedNormal* in *SL-PreconfigurationNR*. | <-- | PC5-S: DIRECT LINK ESTABLISHMENT REQUEST | - | - |
| 4 | Check: Does the UE transmit a DIRECT LINK SECURITY MODE COMMAND message? | --> | PC5-S: DIRECT LINK SECURITY MODE COMMAND | 1 | P |
| 5 | The NR-SS-UE1 transmits a DIRECT LINK SECURITY MODE COMPLETE message. | <-- | PC5-S: DIRECT LINK SECURITY MODE COMPLETE | - | - |
| 6 | The UE transmits a DIRECT LINK ESTABLISHMENT ACCEPT message. | --> | PC5-S: DIRECT LINK ESTABLISHMENT ACCEPT | - | - |
| 7 | The NR-SS-UE1 transmits an *RRCReconfigurationSidelink* message. | <-- | PC5-RRC: RRCReconfigurationSidelink | - | - |
| 8 | Check: Does the UE transmit an *RRCReconfigurationCompleteSidelink* message? | --> | PC5-RRC: RRCReconfigurationCompleteSidelink | 1 | P |

12.1.1.2.3.3 Specific message contents

**Table 12.1.1.2.3.3-1: DIRECT LINK ESTABLISHMENT REQUEST (step 3, Table 12.1.1.2.3.2-1)**

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.4-7 with condition Rx |

**Table 12.1.1.2.3.3-2: DIRECT LINK SECURITY MODE COMMAND (step 4, Table 12.1.1.2.3.2-1)**

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.4-18 with condition Tx |

Table 12.1.1.2.3.3-3: Message DIRECT LINK SECURITY MODE COMPLETE (step 5, Table 12.1.1.2.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-19 with condition Rx |

Table 12.1.1.2.3.3-4: Message DIRECT LINK ESTABLISHMENT ACCEPT (step 6, Table 12.1.1.2.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-8 with condition Tx |

Table 12.1.1.2.3.3-5: RRCReconfigurationSidelink (step 7, Table 12.1.1.2.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3, conditions RX and SL\_DRB |

Table 12.1.1.2.3.3-6: RRCReconfigurationCompleteSidelink (steps 8, Table 12.1.1.2.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-4, conditions TX |

### 12.1.2 PC5-only operation / Sidelink synchronization related procedure

#### 12.1.2.1 PC5-only operation / Sidelink synchronization related procedure / Synchonization reference source (re-)selection

12.1.2.1.1 Test Purpose (TP)

(1)

**with** { UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnss in pre-configuration }

**ensure that** {

**when** { GNSS signal is reliable and a SyncRef UE which directly synchronized to GNSS is detected }

**then** { UE selects GNSS as synchonization reference source }

}

(2)

**with** { UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnss in pre-configuration }

**ensure that** {

**when** { two SyncRef UEs, one directly synchronized to GNSS and the other indirectly synchronized to GNSS, are detected }

**then** { UE selects the SyncRef UE directly synchronized to GNSS as synchonization reference source }

}

(3)

**with** { UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnss in pre-configuration }

**ensure that** {

**when** { two SyncRef UEs, one indirectly synchronized to GNSS and the other neither directly nor indirectly synchronized to GNSS, are detected }

**then** { UE selects the SyncRef UE indirectly synchronized to GNSS as synchonization reference source }

}

(4)

**with** { UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnss in pre-configuration }

**ensure that** {

**when** { a SyncRef UE which neither directly nor indirectly synchronized to GNSS is detected }

**then** { UE selects the SyncRef UE which neither directly nor indirectly synchronized to GNSS as synchonization reference source }

}

(5)

**with** { UE configured by upper layer to perform sidelink transmission, and configured with sl-SyncPriority = gnss in pre-configuration }

**ensure that** {

**when** { no SyncRef UE is detectable. }

**then** { UE uses its internal clock as synchronization reference source }

}

12.1.2.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.2. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.2]

The UE shall perform NR sidelink communication operation only if the conditions defined in this clause are met:

…

1> if the UE has no serving cell (RRC\_IDLE);

[TS 38.331, clause 5.8.5.1]



Figure 5.8.5.1-1: Synchronisation information transmission for NR sidelink communication, in (partial) coverage



Figure 5.8.5.1-2: Synchronisation information transmission for NR sidelink communication, out of coverage

The purpose of this procedure is to provide synchronisation information to a UE.

[TS 38.331, clause 5.8.5.2]

A UE capable of NR sidelink communication and SLSS/PSBCH transmission shall, when transmitting NR sidelink communication, and if the conditions for NR sidelink communication operation are met and when the following conditions are met:

…

1> else:

2> for the frequency used for NR sidelink communication, if *syncTxThreshOoC* is included in *SidelinkPreconfigNR*; and the UE is not directly synchronized to GNSS, and the UE has no selected SyncRef UE or the PSBCH-RSRP measurement result of the selected SyncRef UE is below the value of *syncTxThreshOoC*; or

2> for the frequency used for NR sidelink communication, if the UE selects GNSS as the synchronization reference source:

3> transmit sidelink SSB on the frequency used for NR sidelink communication in accordance with TS 38.211 [16], including the transmission of SLSS as specified in 5.8.5.3 and transmission of *MasterInformationBlockSidelink* as specified in 5.8.9.4.3;

[TS 38.331, clause 5.8.5.3]

The UE shall select the SLSSID and the slot in which to transmit SLSS as follows:

…

1> else if triggered by NR sidelink communication and the UE has GNSS as the synchronization reference:

2> select SLSSID 0;

…

2> else:

3> select the slot(s) indicated by *sl-SSB-TimeAllocation1*;

1> else:

2> select the synchronisation reference UE (i.e. SyncRef UE) as defined in 5.8.6;

2> if the UE has a selected SyncRef UE and *inCoverage* in the *MasterInformationBlockSidelink* message received from this UE is set to *true*; or

2> if the UE has a selected SyncRef UE and *inCoverage* in the *MasterInformationBlockSidelink* message received from this UE is set to *false* while the SLSS from this UE is part of the set defined for out of coverage, see TS 38.211 [16]:

3> select the same SLSSID as the SLSSID of the selected SyncRef UE;

3> select the slot in which to transmit the SLSS according to the *sl-SSB-TimeAllocation1* or *sl-SSB-TimeAllocation2* included in the preconfigured sidelink parameters corresponding to the concerned frequency, such that the timing is different from the SLSS of the selected SyncRef UE;

…

2> else if the UE has a selected SyncRef UE:

3> select the SLSSID from the set defined for out of coverage having an index that is 336 more than the index of the SLSSID of the selected SyncRef UE, see TS 38.211 [16];

3> select the slot in which to transmit the SLSS according to *sl-SSB-TimeAllocation1* or *sl-SSB-TimeAllocation2* included in the preconfigured sidelink parameters corresponding to the concerned frequency, such that the timing is different from the SLSS of the selected SyncRef UE;

2> else (i.e. no SyncRef UE selected):

3> if the UE has not randomly selected an SLSSID:

4> randomly select, using a uniform distribution, an SLSSID from the set of sequences defined for out of coverage except SLSSID 336 and 337, see TS 38.211 [16];

4> select the slot in which to transmit the SLSS according to the *sl-SSB-TimeAllocation1* or *sl-SSB-TimeAllocation2* (arbitrary selection between these) included in the preconfigured sidelink parameters in *SidelinkPreconfigNR* corresponding to the concerned frequency;

[TS 38.331, clause 5.8.6.2]

The UE shall:

…

1> else if the frequency used for NR sidelink communication is included in *SL-PreconfigurationNR*, and *sl-SyncPriority* in *SidelinkPreconfigNR* is set to *gnss* and GNSS is reliable in accordance with TS 38.101-1 [15] and TS 38.133 [14]:

2> select GNSS as the synchronization reference source;

1> else:

2> perform a full search (i.e. covering all subframes and all possible SLSSIDs) to detect candidate SLSS, in accordance with TS 38.133 [14]

2> when evaluating the one or more detected SLSSIDs, apply layer 3 filtering as specified in 5.5.3.2 using the preconfigured *sl-filterCoefficient*, before using the PSBCH-RSRP measurement results;

2> if the UE has selected a SyncRef UE:

…

3> if the PSBCH-RSRP of the current SyncRef UE is less than the minimum requirement defined in TS 38.133 [14]:

4> consider no SyncRef UE to be selected;

2> if the UE has selected GNSS as the synchronization reference for NR sidelink communication:

…

3> if GNSS becomes not reliable in accordance with TS 38.101-1 [15] and TS 38.133 [14]:

4> consider GNSS not to be selected;

…

2> if the UE has not selected any synchronization reference:

3> if the UE detects one or more SLSSIDs for which the PSBCH-RSRP exceeds the minimum requirement defined in TS 38.133 [14] by *sl-SyncRefMinHyst* and for which the UE received the corresponding *MasterInformationBlockSidelink* message (candidate SyncRef UEs), or if the UE detects GNSS that is reliable in accordance with TS 38.101-1 [15] and TS 38.133 [14], or if the UE detects a cell, select a synchronization reference according to the following priority group order:

…

4> if *sl-SyncPriority* corresponding to the concerned frequency is set to *gnss*, and *sl-NbAsSync* is set to *false:*

5> UEs of which SLSSID is 0, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *true*, or of which SLSSID is 0 and SLSS is transmitted on slot(s) indicated by *sl-SSB-TimeAllocation3*, starting with the UE with the highest PSBCH-RSRP result (priority group 1);

5> UEs of which SLSSID is 0 and SLSS is not transmitted on slot(s) indicated by *sl-SSB-TimeAllocation3*, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCHS-RSRP result (priority group 2);

…

5> Other UEs, starting with the UE with the highest PSBCH-RSRP result (priority group 3);

[TS 38.331, clause 5.8.9.4.3]

The UE shall set the contents of the *MasterInformationBlockSidelink* message as follows:

…

1> else if out of coverage on the frequency used for NR sidelink communication as defined in TS 38.304 [20]; and the UE selects GNSS as the synchronization reference and *sl-SSB-TimeAllocation3* is not configured for the frequency used in *SidelinkPreconfigNR*:

2> set *inCoverage* to *true*;

2> set *reservedBits* to the value of the corresponding field included in the preconfigured sidelink parameters (i.e. *sl-PreconfigGeneral* in *SidelinkPreconfigNR* defined in 9.3);

2> set *sl-TDD-Config* to the value representing the same meaning as that is included in the corresponding field included in the preconfigured sidelink parameters (i.e. *sl-PreconfigGeneral* in *SL-PreconfigurationNR* defined in 9.3) as described in TS 38.213, clause 16.1 [13];

1> else if the UE has a selected SyncRef UE (as defined in 5.8.6):

2> set *inCoverage* to *false*;

2> set *sl-TDD-Config* and *reservedBits* to the value of the corresponding field included in the received *MasterInformationBlockSidelink*;

1> else:

2> set *inCoverage* to *false*;

2> set *reservedBits* to the value of the corresponding field included in the preconfigured sidelink parameters (i.e. *sl-PreconfigGeneral* in *SidelinkPreconfigNR* defined in 9.3);

2> set *sl-TDD-Config* to the value representing the same meaning as that is included in the corresponding field included in the preconfigured sidelink parameters (i.e. *sl-PreconfigGeneral* in *SL-PreconfigurationNR* defined in 9.3) as described in TS 38.213, clause 16.1 [13];

1> set *directFrameNumber* and *slotIndex* according to the slot used to transmit the SLSS, as specified in 5.8.5.3;

1> submit the *MasterInformationBlockSidelink* to lower layers for transmission upon which the procedure ends;

[TS 38.331, clause 5.8.12]

When the UE selects GNSS as the synchronization reference source, the DFN, the subframe number within a frame and slot number within a frame used for NR sidelink communication are derived from the current UTC time, by the following formulae:

*DFN*= Floor (0.1\*(*Tcurrent* –*Tref–OffsetDFN*)) mod 1024

*SubframeNumber*= Floor (*Tcurrent* –*Tref–OffsetDFN*) mod 10

*SlotNumber*= Floor ((*Tcurrent* –Tref–*OffsetDFN*)\*2μ) mod (10\*2μ)

Where:

***Tcurrent*** is the current UTC time obtained from GNSS. This value is expressed in milliseconds;

***Tref*** is the reference UTC time 00:00:00 on Gregorian calendar date 1 January, 1900 (midnight between Thursday, December 31, 1899 and Friday, January 1, 1900). This value is expressed in milliseconds;

***OffsetDFN*** is the value *sl-OffsetDFN* if configured, otherwise it is zero. This value is expressed in milliseconds.

μ=0/1/2/3 corresponding to the 15/30/60/120 kHz of SCS for SL, respectively.

NOTE 1: In case of leap second change event, how UE obtains the scheduled time of leap second change to adjust *Tcurrent* correspondingly is left to UE implementation. How UE handles to avoid the sudden discontinuity of DFN is left to UE implementation.

NOTE 2: Void.

12.1.2.1.3 Test description

12.1.2.1.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE 1, 2 and 3 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE 1 transmits SL-SSB with SLSSID = 0, *inCoverage* = true in slots determined by *sl-SSB-TimeAllocation1* and GNSS timing.

- NR-SS-UE 2 transmits SL-SSB with SLSSID = 0, *inCoverage* = false in slots determined by *sl-SSB-TimeAllocation2* and GNSS timing.

- NR-SS-UE 3 transmits SL-SSB with SLSSID = 336, *inCoverage* = false in slots determined by *sl-SSB-TimeAllocation1* and GNSS timing.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4]) except for those listed in Table 12.1.2.1.3.1-1.

Table 12.1.2.1.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | As per TS 36.508 [18] clause 4.9.3.4 |  |
| EFVST |  | Service n°119 is "available" |  |
| EFV2XP\_PC5 |  | As per TS 38.508-1[4] clause 4.8.3.3.3  SL-PreconfigurationNR included in V2X data policy over PC5 is defined in Table 12.1.2.1.3.3-1, Table 12.1.2.1.3.3-1A and Table 12.1.2.1.3.3-2 |  |

Preamble:

- The UE is in state 4-A as defined in TS 38.508-1 [4], subclause 4.4A, using generic procedure parameter Sidelink (On), test mode (On) and GNSS Sync (On) as defined in TS 38.508-1 [4], subclause 4.5.1.

12.1.2.1.3.2 Test procedure sequence

Table 12.1.2.1.3.2-1 illustrates the sidelink power levels to be applied for NR-SS-UE 1, 2 and 3 at various time instants of the test execution. Row marked "T0" denotes the conditions after the preamble, while the configuration marked "T1", "T2" and "T3", are applied at the point indicated in the Main behaviour description in Table 12.1.2.1.3.2-2.

Table 12.1.2.1.3.2-1: Time instances of NR-SS-UE power level and parameter changes in conducted test environment

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR-SS-UE 1 | NR-SS-UE 2 | NR-SS-UE 3 | Remark |
| T0 | NR-SS-UE power | dBm/  SCS | -85 | OFF | OFF | Priority of NR-SS-UE 1 is lower than GNSS |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | 0 | - | - |
| T1 | NR-SS-UE power | dBm/  SCS | -85 | -85 | OFF | Priority of NR-SS-UE 2 is lower than Priority of NR-SS-UE 1 |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | 0 | 0 | - |
| T2 | NR-SS-UE power | dBm/  SCS | OFF | -85 | -85 | Priority of NR-SS-UE 3 is lower than Priority of NR-SS-UE 2 |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | - | 0 | 0 |
| T3 | NR-SS-UE power | dBm/  SCS | OFF | OFF | -85 | Priority of UE internal clock is lower than NR-SS-UE 3 |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | - | - | 0 |

**Table 12.1.2.1.3.2-2: Main behaviour**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **St** | **Procedure** | **Message Sequence** | | **TP** | **Verdict** |
|  |  | **U - S** | **Message** |  |  |
| 1 | The SS triggers UE to close UE test loop mode E (Transmit Mode).  NOTE: Closing of UE test loop mode E may be performed by MMI or AT command (+CCUTLE). | - | - | - | - |
| 1A | The UE starts broadcasting continuously. | - | - | - | - |
| 2 | The SS waits 10 seconds | - | - | - | - |
| 3 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID = 0; * inCoverage = true in SL-MIB; * slotIndex and directFrameNumber in SL-MIB are consistent with the slot index and DFN calculated based on the UTC time obtained from GNSS as specified in TS 38.331 [22] clause 5.8.12; * transmitted in slots determined by sl-SSB-TimeAllocation1and GNSS timing; * reserveBits in SL-MIB is consistent with reserveBits in pre-configuration. | - | - | 1 | P |
| 4 | The SS powers off GNSS simulator. | - | - | - | - |
| 5 | The SS re-adjusts the NR-SS-UE power level according to row "T1" in table 12.1.2.1.3.2-1. | - | - | - | - |
| 6 | The SS waits 10 seconds | - | - | - | - |
| 7 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID = 0; * inCoverage = false in SL-MIB; * slotIndex and directFrameNumber in SL-MIB are consistent with the slot index and DFN of NR-SS-UE 1; * transmitted in slots determined by sl-SSB-TimeAllocation2and NR-SS-UE 1 timing; * reserveBits in SL-MIB is consistent with reserveBits in SL-MIB of NR-SS-UE 1. | - | - | 2 | P |
| 8 | The SS re-adjusts the NR-SS-UE power level according to row "T2" in table 12.1.2.1.3.2-1. | - | - | - | - |
| 9 | The SS waits 10 seconds | - | - | - | - |
| 10 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID = 336; * inCoverage = false in SL-MIB; * slotIndex and directFrameNumber in SL-MIB are consistent with the slot index and DFN of NR-SS-UE 2. * transmitted in slots determined by sl-SSB-TimeAllocation1and the NR-SS-UE 2 timing? * reserveBits in SL-MIB is consistent with reserveBits in SL-MIB of NR-SS-UE 2. | - | - | 3 | P |
| 11 | The SS re-adjusts the NR-SS-UE power level according to row "T3" in table 12.1.2.1.3.2-1. | - | - | - | - |
| 12 | The SS waits 10 seconds | - | - | - | - |
| 13 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID is consistent with SLSSID of NR-SS-UE 3; * inCoverage = false in SL-MIB; * slotIndex and directFrameNumber in SL-MIB are consistent with the slot index and DFN of NR-SS-UE 3; * transmitted in slots determined by sl-SSB-TimeAllocation2and NR-SS-UE 3 timing; * reserveBits in SL-MIB is consistent with reserveBits in SL-MIB of NR-SS-UE 3. | - | - | 4 | P |
| 14 | The SS re-adjusts the NR-SS-UE power level according to row "T0" in table 12.1.2.1.3.2-1. | - | - | - | - |
| 15 | The SS waits 10 seconds | - | - | - | - |
| 16 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID is larger than 335; * inCoverage = false in SL-MIB; * reserveBits in SL-MIB is consistent with reserveBits in pre-configuration. | - | - | 5 | P |
| 17 | The SS triggers UE to open UE test loop mode E.  NOTE: Opening of UE test loop mode E may be performed by MMI or AT command (+CCUTLE). | - | - | - | - |

12.1.2.1.3.3 Specific message contents

Table 12.1.2.1.3.3-1: V2X service identifier to default mode of communication mapping rule (Pre-configuration, UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.5.5-53 | | | |
| Information Element | | Value/remark | Comment | Condition |
| DMC | | '10'B | Default mode of communication is set to broadcast |  |

Table 12.1.2.1.3.3-1A: SL-SDAP-Config (Pre-configuration, UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-30 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SL-SDAP-Config-r16 ::= SEQUENCE { | |  |  |  |
| sl-CastType-r16 | | broadcast |  |  |
| } | |  |  |  |

Table 12.1.2.1.3.3-2: SL-SyncConfig (Pre-configuration, UE under test)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-31 | | | | |
| Information Element | Value/remark | Comment | Condition | |
| SL-SyncConfig-r16 ::= SEQUENCE (SIZE (1..maxSL-SyncConfig-r16)) OF SL-SyncConfig-r16 { | 1 entry |  |  | |
| SL-SyncConfig-r16[1] SEQUENCE { |  |  | |  | |
| txParameters-r16 SEQUENCE { |  |  | |  | |
| syncTxThreshOoC-r16 | 13 | actual threshold is +infinity | |  | |
| } |  |  | |  | |
| } |  |  |  | |

Table 12.1.2.1.3.3-3: +CCUTLE (Table 12.1.2.1.3.2-2, step 1)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7B-1 with condition Close and Transmit |

Table 12.1.2.1.3.3-4: MasterInformationBlockSidelink (Table 12.1.2.1.3.2-2, NR-SS-UE 1, 2 and 3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-1 | | | |
| Information Element | | Value/remark | Comment | Condition |
| MasterInformationBlockSidelink ::= SEQUENCE { | |  |  |  |
| inCoverage-r16 | true |  | NR-SS-UE 1 |
|  | false |  | NR-SS-UE 2  NR-SS-UE 3 |
| directFrameNumber-r16 | DFN determined based on the formula given in 38.331 [22] clause 5.8.12. |  |  |
| slotIndex-r16 | slot index determined based on the formula given in 38.331 [22] clause 5.8.12. |  |  |
| reservedBits-r16 | 01 |  | NR-SS-UE 1 |
|  | 10 |  | NR-SS-UE 2 |
|  | 11 |  | NR-SS-UE 3 |
| } | |  |  |  |

Table 12.1.2.1.3.3-5: MasterInformationBlockSidelink (Table 12.1.2.1.3.2-2, steps 3, 7, 10, 13 and 16, UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-1 with condition TX | | | |
| Information Element | | Value/remark | Comment | Condition |
| MasterInformationBlockSidelink ::= SEQUENCE { | |  |  |  |
| inCoverage-r16 | true |  | Step 3 |
|  | false |  | Step 7, 10, 13, 16 |
| directFrameNumber-r16 | DFN determined based on the formula given in 38.331 [22] clause 5.8.12 |  | Step 3, 7, 10, 13 |
|  | Not checked |  | Step 6 |
| slotIndex-r16 | slot index determined based on the formula given in 38.331 [22] clause 5.8.12 |  | Step 3, 7, 10, 13 |
|  | Not checked |  | Step 6 |
| reservedBits-r16 | 00 | Same as preconfiguration | Step 3, 16 |
|  | 01 | Same as NR-SS-UE 1 | Step 7 |
|  | 10 | Same as NR-SS-UE 2 | Step 10 |
|  | 11 | Same as NR-SS-UE 3 | Step 13 |
| } | |  |  |  |

Table 12.1.2.1.3.3-6: +CCUTLE (Table 12.1.2.1.3.2-2, step 17)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7B-1 with condition Open |

#### 12.1.2.2 PC5-only operation / Sidelink synchronization related procedure / SL-SSB transmission Initiation and Cease

12.1.2.2.1 Test Purpose (TP)

(1)

**with** { UE configured by upper layer to perform sidelink transmission }

**ensure that** {

**when** { UE selects GNSS as synchonization reference source }

**then** { UE keeps transmitting SL-SSB }

}

(2)

**with** { UE configured by upper layer to perform sidelink transmission and configured with syncTxThreshOoC in pre-configuration }

**ensure that** {

**when** { UE selects SyncRef UE as synchronization reference source and PSBCH-RSRP of the SyncRef UE is lower than syncTxThreshOoC }

**then** { UE starts transmitting SL-SSB }

}

(3)

**with** { UE configured by upper layer to perform sidelink transmission and configured with syncTxThreshOoC in pre-configuration }

**ensure that** {

**when** { UE selects SyncRef UE as synchronization reference source and PSBCH-RSRP of the SyncRef UE is above syncTxThreshOoC }

**then** { UE stops transmitting SL-SSB }

}

(4)

**with** { UE configured by upper layer to perform sidelink transmission and configured with syncTxThreshOoC in pre-configuration }

**ensure that** {

**when** { UE selects SyncRef UE as synchronization reference source and PSBCH-RSRP of the SyncRef UE is below syncTxThreshOoC }

**then** { UE starts transmitting SL-SSB }

}

12.1.2.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.2. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.2]

The UE shall perform NR sidelink communication operation only if the conditions defined in this clause are met:

…

1> if the UE has no serving cell (RRC\_IDLE);

[TS 38.331, clause 5.8.5.1]



Figure 5.8.5.1-1: Synchronisation information transmission for NR sidelink communication, in (partial) coverage



Figure 5.8.5.1-2: Synchronisation information transmission for NR sidelink communication, out of coverage

The purpose of this procedure is to provide synchronisation information to a UE.

[TS 38.331, clause 5.8.5.2]

A UE capable of NR sidelink communication and SLSS/PSBCH transmission shall, when transmitting NR sidelink communication, and if the conditions for NR sidelink communication operation are met and when the following conditions are met:

…

1> else:

2> for the frequency used for NR sidelink communication, if *syncTxThreshOoC* is included in *SidelinkPreconfigNR*; and the UE is not directly synchronized to GNSS, and the UE has no selected SyncRef UE or the PSBCH-RSRP measurement result of the selected SyncRef UE is below the value of *syncTxThreshOoC*; or

2> for the frequency used for NR sidelink communication, if the UE selects GNSS as the synchronization reference source:

3> transmit sidelink SSB on the frequency used for NR sidelink communication in accordance with TS 38.211 [16], including the transmission of SLSS as specified in 5.8.5.3 and transmission of *MasterInformationBlockSidelink* as specified in 5.8.9.4.3;

12.1.2.2.3 Test description

12.1.2.2.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE 1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE 1 transmits SL-SSB with SLSSID = 0, *inCoverage* = true in slots determined by *sl-SSB-TimeAllocation1* and GNSS timing.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4]) except for those listed in Table 12.1.2.2.3.1-1.

Table 12.1.2.2.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | As per TS 36.508 [18] clause 4.9.3.4 |  |
| EFVST |  | Service n°119 is "available" |  |
| EFV2XP\_PC5 |  | As per TS 38.508-1[4] clause 4.8.3.3.3  SL-PreconfigurationNR included in V2X data policy over PC5 is defined in Table 12.1.2.2.3.3-1 Table 12.1.2.2.3.3-1A |  |

Preamble:

- The UE is in state 4-A as defined in TS 38.508-1 [4], subclause 4.4A, using generic procedure parameter Sidelink (On), test mode (On) and GNSS Sync (On) as defined in TS 38.508-1 [4], subclause 4.5.1.

12.1.2.2.3.2 Test procedure sequence

Table 12.1.2.2.3.2-1 illustrates the sidelink power levels to be applied for NR-SS-UE 1 at various time instants of the test execution. Row marked "T0" denotes the conditions after the preamble, while the configuration marked "T1" and "T2", are applied at the point indicated in the Main behaviour description in Table 12.1.2.2.3.2-2.

Table 12.1.2.2.3.2-1: Time instances of NR-SS-UE power level and parameter changes in conducted test environment

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR-SS-UE 1 | Remark |
| T0 | NR-SS-UE power | dBm/  SCS | OFF | NR-SS-UE 1 is powered off. |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | - |
| T1 | NR-SS-UE power | dBm/  SCS | -106 | The power level to ensure that PSBCH-RSRP of NR-SS-UE 1 is lower than syncTxThreshOoC |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | 0 |
| T2 | NR-SS-UE power | dBm/  SCS | -94 | The power level to ensure that PSBCH-RSRP of NR-SS-UE 1 is higher than syncTxThreshOoC |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | 0 |

**Table 12.1.2.2.3.2-2: Main behaviour**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **St** | **Procedure** | **Message Sequence** | | **TP** | **Verdict** |
|  |  | **U - S** | **Message** |  |  |
| 1 | The SS triggers UE to close UE test loop mode E (Transmit Mode).  NOTE: Closing of UE test loop mode E may be performed by MMI or AT command (+CCUTLE). | - | - | - | - |
| 1A | The UE starts broadcasting continuously. | - | - | - | - |
| 2 | The SS waits 10 seconds | - | - | - | - |
| 3 | Check: Does the UE transmit SL-SSBs in slots determined by sl-SSB-TimeAllocation1and GNSS timing? | - | - | 1 | P |
| 4 | The SS powers off GNSS simulator. | - | - | - | - |
| 5 | The SS re-adjusts the NR-SS-UE power level according to row "T1" in table 12.1.2.2.3.2-1. | - | - | - | - |
| 6 | The SS waits 10 seconds | - | - | - | - |
| 7 | Check: Does the UE transmit SL-SSBs in slots determined by sl-SSB-TimeAllocation2and NR-SS-UE 1 timing? | - | - | 2 | P |
| 8 | The SS re-adjusts the NR-SS-UE power level according to row "T2" in table 12.1.2.2.3.2-1. | - | - | - | - |
| 9 | The SS waits 10 seconds | - | - | - | - |
| 10 | Check: Does the UE transmit SL-SSBs in the next 1s? | - | - | 3 | F |
| 11 | The SS re-adjusts the NR-SS-UE power level according to row "T0" in table 12.1.2.2.3.2-1. | - | - | - | - |
| 12 | The SS waits 10 seconds | - | - | - | - |
| 13 | Check: Does the UE transmit SL-SSBs in slots determined by sl-SSB-TimeAllocation2 and NR-SS-UE 1 timing? | - | - | 4 | P |
| 14 | The SS triggers UE to open UE test loop mode E.  NOTE: Opening of UE test loop mode E may be performed by MMI or AT command (+CCUTLE). | - | - | - | - |

12.1.2.2.3.3 Specific message contents

Table 12.1.2.2.3.3-1: V2X service identifier to default mode of communication mapping rule (Pre-configuration, UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.5.5-53 | | | |
| Information Element | | Value/remark | Comment | Condition |
| DMC | | '10'B | Default mode of communication is set to broadcast |  |

Table 12.1.2.2.3.3-1A: SL-SDAP-Config (Pre-configuration, UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-30 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SL-SDAP-Config-r16 ::= SEQUENCE { | |  |  |  |
| sl-CastType-r16 | | broadcast |  |  |
| } | |  |  |  |

Table 12.1.2.2.3.3-2: +CCUTLE (Table 12.1.2.2.3.2-2, step 1)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7B-1 with condition Close and Transmit |

Table 12.1.2.2.3.3-3: MasterInformationBlockSidelink (Table 12.1.2.2.3.2-2, NR-SS-UE 1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-1 | | | |
| Information Element | | Value/remark | Comment | Condition |
| MasterInformationBlockSidelink ::= SEQUENCE { | |  |  |  |
| inCoverage-r16 | true |  |  |
| directFrameNumber-r16 | DFN determined based on the formula given in 38.331 [22] clause 5.8.12. |  |  |
| slotIndex-r16 | slot index determined based on the formula given in 38.331 [22] clause 5.8.12. |  |  |
| } | |  |  |  |

Table 12.1.2.2.3.3-5: MasterInformationBlockSidelink (Table 12.1.2.2.3.2-2, step 3, 7, 13, UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-1 with condition TX | | | |
| Information Element | | Value/remark | Comment | Condition |
| MasterInformationBlockSidelink ::= SEQUENCE { | |  |  |  |
| inCoverage-r16 | true |  | Step 3 |
|  | false |  | Step 7, 13 |
| directFrameNumber-r16 | DFN determined based on the formula given in 38.331 [22] clause 5.8.12 |  | Step 3, 7 |
|  | Not checked |  | Step 13 |
| slotIndex-r16 | slot index determined based on the formula given in 38.331 [22] clause 5.8.12 |  | Step 3, 7 |
|  | Not checked |  | Step 13 |
| } | |  |  |  |

Table 12.1.2.2.3.3-6: +CCUTLE (Table 12.1.2.2.3.2-2, step 17)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7B-1 with condition Open |

### 12.1.3 PC5-only operation / Measurement configuration and reporting via PC5 RRC

#### 12.1.3.1 PC5-only operation / Measurement configuration and reporting via PC5 RRC / PSBCH-RSRP measurement configuration

12.1.3.1.1 Test Purpose (TP)

(1)

**with** { UE having established PC5 RRC connection with peer UE on unicast sidelink }

**ensure that** {

**when** { UE is configured by upper layer to configure periodical PSBCH-RSRP measurement}

**then** { UE sends a RRCReconfigurationSidelink message to peer UE }

}

12.1.3.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.1, 5.8.9.1.3, 5.8.9.1.9. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.1]

The PC5-RRC signalling, as specified in sub-clause 5.8.9, can be initiated after its corresponding PC5 unicast link establishment (TS 23.287 [55]).

[TS 38.331, clause 5.8.9.1.2]

The UE shall set the contents of *RRCReconfigurationSidelink* message as follows:

1> for each sidelink DRB that is to be released, according to sub-clause 5.8.9.1a.1.1, due to configuration by *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR* or by upper layers:

2> set the *SLRB-PC5-ConfigIndex* included in the *slrb-ConfigToReleaseList* corresponding to the sidelink DRB;

1> for each sidelink DRB that is to be established or modified, according to sub-clause 5.8.9.1a.2.1, due to receiving *sl-ConfigDedicatedNR,* *SIB12* or *SidelinkPreconfigNR*:

2> set the *SLRB-Config* included in the *slrb-ConfigToAddModList*, according to the received *sl-RadioBearerConfig* and *sl-RLC-BearerConfig* corresponding to the sidelink DRB;

1> set the *sl-MeasConfig* as follows:

2> If the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or included in *sl-ConfigCommonNR* within SIB12:

3> if UE is in RRC\_CONNECTED:

4> set the *sl-MeasConfig* according to stored NR sidelink measurement configuration information for this destination;

3> if UE is in RRC\_IDLE or RRC\_INACTIVE:

4> set the *sl-MeasConfig* according to stored NR sidelink measurement configuration received from *SIB12*;

2> else:

3> set the sl-MeasConfig according to the sl-MeasPreconfig in SidelinkPreconfigNR;

1> start timer T400 for the destination associated with the sidelink DRB;

1> set the sl-CSI-RS-Config;

1> set the sl-LatencyBoundCSI-Report,

NOTE 1: How to set the parameters included in *sl-CSI-RS-Config* and *sl-LatencyBoundCSI-Report* is up to UE implementation.

The UE shall submit the *RRCReconfigurationSidelink* message to lower layers for transmission.

[TS 38.331, clause 5.8.9.1.3]

The UE shall perform the following actions upon reception of the *RRCReconfigurationSidelink*:

1> if the RRCReconfigurationSidelink includes the sl-ResetConfig:

2> perform the sidelink reset configuration procedure as specified in 5.8.9.1.10;

1> if the RRCReconfigurationSidelink includes the slrb-ConfigToReleaseList:

2> for each *SLRB-PC5-ConfigIndex* value included in the *slrb-ConfigToReleaseList* that is part of the current UE sidelink configuration;

3> perform the sidelink DRB release procedure, according to sub-clause 5.8.9.1a.1;

1> if the RRCReconfigurationSidelink includes the slrb-ConfigToAddModList:

2> for each *slrb-PC5-ConfigIndex* value included in the *slrb-ConfigToAddModList* that is not part of the current UE sidelink configuration:

3> if sl-MappedQoS-FlowsToAddList is included:

4> apply the SL-PQFI included in sl-MappedQoS-FlowsToAddList;

3> perform the sidelink DRB addition procedure, according to sub-clause 5.8.9.1a.2;

2> for each *slrb-PC5-ConfigIndex* value included in the *slrb-ConfigToAddModList* that is part of the current UE sidelink configuration:

3> if sl-MappedQoS-FlowsToAddList is included:

4> add the *SL-PQFI* included in *sl-MappedQoS-FlowsToAddList* to the corresponding sidelink DRB;

3> if sl-MappedQoS-FlowsToReleaseList is included:

4> remove the *SL-PQFI* included in *sl-MappedQoS-FlowsToReleaseList* from the corresponding sidelink DRB;

3> if the sidelink DRB release conditions as described in sub-clause 5.8.9.1a.1.1 are met:

4> perform the sidelink DRB release procedure according to sub-clause 5.8.9.1a.1.2;

3> else if the sidelink DRB modification conditions as described in sub-clause 5.8.9.1a.2.1 are met:

4> perform the sidelink DRB modification procedure according to sub-clause 5.8.9.1a.2.2;

1> if the RRCReconfigurationSidelink message includes the sl-MeasConfig:

2> perform the sidelink measurement configuration procedure as specified in 5.8.10;

1> if the RRCReconfigurationSidelink message includes the sl-CSI-RS-Config:

2> apply the sidelink CSI-RS configuration;

1> if the RRCReconfigurationSidelink message includes the sl-LatencyBoundCSI-Report:

2> apply the configured sidelink CSI report latency bound;

1> if the UE is unable to comply with (part of) the configuration included in the *RRCReconfigurationSidelink* (i.e. sidelink RRC reconfiguration failure):

2> continue using the configuration used prior to the reception of the *RRCReconfigurationSidelink* message;

2> set the content of the *RRCReconfigurationFailureSidelink* message;

3> submit the *RRCReconfigurationFailureSidelink* message to lower layers for transmission;

1> else:

2> set the content of the *RRCReconfigurationCompleteSidelink* message;

3> submit the *RRCReconfigurationCompleteSidelink* message to lower layers for transmission;

NOTE 1: When the same logical channel is configured with different RLC mode by another UE, the UE handles the case as sidelink RRC reconfiguration failure.

[TS 38.331, clause 5.8.9.1.9]

The UE shall perform the following actions upon reception of the *RRCReconfigurationCompleteSidelink*:

1> stop timer T400 for the destination, if running;

1> consider the configurations in the corresponding *RRCReconfigurationSidelink* message to be applied.

12.1.3.1.3 Test description

12.1.3.1.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 uses GNSS as the synchronization reference source.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE uses GNSS as the synchronization reference source.

- The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4] clause 4.8.3.3.3) except for those listed in Table 12.1.3.1.3.1-1.

Table 12.1.3.1.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | service no. 119 is available |  |
| EFVST |  | Service no.2 V2X policy configuration data over PC5 is supported, i.e. value is '01 02' HEX |  |
| EFV2XP\_PC5 |  | As per TS 38.508-1[4] clause 4.8.3.3.3  SL-PreconfigurationNR included in V2X data policy over PC5 is defined in Table 12.1.3.1.3.3-1 |  |

Preamble:

- The UE is in state 4-A as defined in TS 38.508-1 [4], subclause 4.4A, using generic procedure parameter Sidelink (On), Cast Type (Unicast), GNSS Sync (On) using UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.22.

12.1.3.1.3.2 Test procedure sequence

Table 12.1.3.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | UE is configured by upper layer to initiate the sidelink RRC reconfiguration procedure to configure periodical PSBCH-RSRP measurement  Note: This step is triggered by MMI or AT command. | -- |  |  |  |
| 2 | Check: Does UE send a *RRCReconfigurationSidelink* message to NR-SS-UE1? | --> | PC5 RRC: RRCReconfigurationSidelink | 1 | P |
| 3 | NR-SS-UE1 sends a RRCReconfigurationCompleteSidelink message | <-- | PC5 RRC: RRCReconfigurationCompleteSidelink |  |  |

12.1.3.1.3.3 Specific message contents

Table 12.1.3.1.3.3-1: SL-PreconfigurationNR

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.10.1-1 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-PreconfigurationNR-r16 ::= SEQUENCE { |  |  |  |
| sidelinkPreconfigNR-r16 SEQUENCE { |  |  |  |
| sl-MeasPreConfig-r16 | SL-MeasConfigCommon |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.3.1.3.3-2: SL-MeasConfigCommon (Table 12.1.3.1.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-13 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-MeasConfigCommon-r16 ::= SEQUENCE { |  |  |  |
| sl-MeasObjectListCommon-r16 ::= SEQUENCE (SIZE (1..maxNrofSL-ObjectId-r16)) OF SL-MeasObjectInfo-r16{ | 1 entry |  |  |
| SL-MeasObjectInfo-r16[1] SEQUENCE { |  | entry 1 |  |
| sl-MeasObjectId-r16 | 1 |  |  |
| sl-MeasObject-r16 SEQUENCE { |  |  |  |
| frequencyInfoSL-r16 | ARFCN-ValueNR as defined in TS 38.508-1 [4], Table 4.6.3-5 with condition SL\_SSB of NRf1 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.3.1.3.3-3: RRCReconfigurationSidelink (step 2, Table 12.1.3.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 with condition SL\_MEASand TX | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| sl-MeasConfig-r16 CHOICE { |  |  |  |
| setup SEQUENCE { |  |  |  |
| sl-ReportConfigToAddModList-r16 | SL-ReportConfigList-r16 as defined in TS 38.508-1 [4], Table 4.6.6-24 with condition PERIODICAL |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.3.1.3.3-4: RRCReconfigurationCompleteSidelink (step 3, Table 12.1.3.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-4 with condition RX |

#### 12.1.3.2 PC5-only operation / Measurement configuration and reporting via PC5 RRC / PSBCH-RSRP measurement reporting / Event S1 and S2

12.1.3.2.1 Test Purpose (TP)

(1)

**with** { UE configured to perfv

form event S1 PSBCH-RSRP measurement on SL-SSB via PC5 RRC }

**ensure that** {

**when** { PSBCH-RSRP measurement results of SL SSB are below threshold }

**then** { UE does not trigger PSBCH-RSRP measurement reporting }

}

(2)

**with** { UE configured to perform event S1 PSBCH-RSRP measurement on SL-SSB via PC5 RRC }

**ensure that** {

**when** { PSBCH-RSRP measurement results of SL SSB are above threshold }

**then** { UE triggers PSBCH-RSRP measurement reporting }

}

(3)

**with** { UE configured to perform event S2 PSBCH-RSRP measurement on SL-SSB via PC5 RRC }

**ensure that** {

**when** { PSBCH-RSRP measurement results of SL SSB are above threshold }

**then** { UE does not trigger PSBCH-RSRP measurement reporting }

}

(4)

**with** { UE configured to perform event S2 PSBCH-RSRP measurement on SL-SSB via PC5 RRC }

**ensure that** {

**when** { PSBCH-RSRP measurement results of SL SSB are below threshold }

**then** { UE triggers PSBCH-RSRP measurement reporting }

}

12.1.3.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.9.1.3, 5.8.10.2.1, 5.8.10.2.5, 5.8.10.2.7, 5.8.10.3.1, 5.8.10.4.2, 5.8.10.4.3 and 5.8.10.5.1. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, subclause 5.8.9.1.3]

The UE shall perform the following actions upon reception of the *RRCReconfigurationSidelink*:

…

1> if the RRCReconfigurationSidelink message includes the sl-MeasConfig:

2> perform the sidelink measurement configuration procedure as specified in 5.8.10;

…

1> else:

2> set the content of the *RRCReconfigurationCompleteSidelink* message;

3> submit the *RRCReconfigurationCompleteSidelink* message to lower layers for transmission;

NOTE 1: When the same logical channel is configured with different RLC mode by another UE, the UE handles the case as sidelink RRC reconfiguration failure.

[TS 38.331, subclause 5.8.10.2.1]

The UE shall:

…

1> if the received sl-MeasConfig includes the sl-MeasObjectToAddModList in the RRCReconfigurationSidelink:

2> perform the sidelink measurement object addition/modification procedure as specified in 5.8.10.2.5;

…

1> if the received sl-MeasConfig includes the sl-ReportConfigToAddModList in the RRCReconfigurationSidelink:

2> perform the sidelink reporting configuration addition/modification procedure as specified in 5.8.10.2.7;

1> if the received sl-MeasConfig includes the sl-QuantityConfig in the RRCReconfigurationSidelink:

2> perform the sidelink quantity configuration procedure as specified in 5.8.10.2.8;

…

1> if the received sl-MeasConfig includes the sl-MeasIdToAddModList in the RRCReconfigurationSidelink:

2> perform the sidelink measurement identity addition/modification procedure as specified in 5.8.10.2.3;

[TS 38.331, subclause 5.8.10.2.5]

The UE shall:

1> for each sl-MeasObjectId included in the received sl-MeasObjectToAddModList:

2> if an entry with the matching *sl-MeasObjectId* exists in the *sl-MeasObjectList* within the *VarMeasConfigSL*, for this entry:

3> for each *sl-MeasId* associated with this *sl-MeasObjectId* included in the *sl-MeasIdList* within the *VarMeasConfigSL*, if any:

4> remove the measurement reporting entry for this *sl-MeasId* from the *VarMeasReportListSL*, if included;

4> stop the periodical reporting timer and reset the associated information (e.g. *sl-TimeToTrigger*) for this *sl-MeasId*;

3> reconfigure the entry with the value received for this *sl-MeasObject*;

2> else:

3> add a new entry for the received *sl-MeasObject* to the *sl-MeasObjectList* within *VarMeasConfigSL*.

[TS 38.331, subclause 5.8.10.2.7]

The UE shall:

1> for each sl-ReportConfigId included in the received sl-ReportConfigToAddModList:

2> if an entry with the matching *sl-ReportConfigId* exists in the *sl-ReportConfigList* within the *VarMeasConfigSL*, for this entry:

3> reconfigure the entry with the value received for this *sl-ReportConfig*;

3> for each *sl-MeasId* associated with this *sl-ReportConfigId* included in the *sl-MeasIdList* within the *VarMeasConfigSL*, if any:

4> remove the measurement reporting entry for this *sl-MeasId* from the *VarMeasReportListSL*, if included;

4> stop the periodical reporting timer and reset the associated information (e.g. *sl-TimeToTrigger*) for this *sl-MeasId*;

2> else:

3> add a new entry for the received *sl-ReportConfig* to the *sl-ReportConfigList* within the *VarMeasConfigSL*.

[TS 38.331, subclause 5.8.10.3.1]

A UE shall derive NR sidelink measurement results by measuring one or multiple DMRS associated per PC5-RRC connection as configured by the peer UE associated, as described in 5.8.10.3.2. For all NR sidelink measurement results the UE applies the layer 3 filtering as specified in sub-clause 5.5.3.2, before using the measured results for evaluation of reporting criteria and measurement reporting. In this release, only NR sidelink RSRP can be configured as trigger quantity and reporting quantity.

The UE shall:

1> for each *sl-MeasId* included in the *sl-MeasIdList* within *VarMeasConfigSL*:

2> if the *sl-MeasObject* is associated to NR sidelink and the *sl-RS-Type* is set to *dmrs*:

3> derive the layer 3 filtered NR sidelink measurement result based on DMRS for the trigger quantity and each measurement quantity indicated in *sl-ReportQuantity* using parameters from the associated *sl-MeasObject*, as described in 5.8.10.3.2.

2> perform the evaluation of reporting criteria as specified in 5.8.10.4.

[TS 38.331, subclause 5.8.10.4.2]

The UE shall:

1> consider the entering condition for this event to be satisfied when condition S1-1, as specified below, is fulfilled;

1> consider the leaving condition for this event to be satisfied when condition S1-2, as specified below, is fulfilled;

1> for this NR sidelink measurement, consider the NR sidelink frequency corresponding to the associated *sl-MeasObject* associated with this event.

Inequality S1-1 (Entering condition)

Ms – Hys > Thresh

Inequality S1-2 (Leaving condition)

Ms + Hys < Thresh

The variables in the formula are defined as follows:

***Ms*** is the NR sidelink measurement result of the NR sidelink frequency, not taking into account any offsets.

***Hys*** is the hysteresis parameter for this event (i.e. *sl-Hysteresis* as defined within *sl-ReportConfig* for this event).

***Thresh*** is the threshold parameter for this event (i.e. *s1-Threshold* as defined within *sl-ReportConfig* for this event).

***Ms*** is expressed in dBm in case of RSRP.

***Hys*** is expressed in dB.

***Thresh*** is expressed in the same unit as ***Ms***.

[TS 38.331, subclause 5.8.10.4.3]

The UE shall:

1> consider the entering condition for this event to be satisfied when condition S2-1, as specified below, is fulfilled;

1> consider the leaving condition for this event to be satisfied when condition S2-2, as specified below, is fulfilled;

1> for this NR sidelink measurement, consider the NR sidelink frequency indicated by the *sl-MeasObject* associated to this event.

Inequality S2-1 (Entering condition)

Ms + Hys < Thresh

Inequality S2-2 (Leaving condition)

Ms – Hys > Thresh

The variables in the formula are defined as follows:

***Ms*** is the NR sidelink measurement result of the NR sidelink frequency, not taking into account any offsets.

***Hys*** is the hysteresis parameter for this event (i.e. *sl-Hysteresis* as defined within *sl-ReportConfig* for this event).

***Thresh*** is the threshold parameter for this event (i.e. *s2-Threshold* as defined within *sl-ReportConfig* for this event).

***Ms*** is expressed in dBm in case of RSRP.

***Hys*** is expressed in dB.

***Thresh*** is expressed in the same unit as ***Ms***.

[TS 38.331, subclause 5.8.10.5.1]



Figure 5.8.10.5.1-1: NR sidelink measurement reporting

The purpose of this procedure is to transfer measurement results from the UE to the peer UE associated.

For the *sl-MeasId* for which the NR sidelink measurement reporting procedure was triggered, the UE shall set the *sl-MeasResults* within the *MeasurementReportSidelink* message as follows:

1> set the *sl-MeasId* to the measurement identity that triggered the NR sidelink measurement reporting;

1> if the *sl-ReportConfig* associated with the *sl-MeasId* that triggered the NR sidelink measurement reporting is set to *sl-EventTriggered* or *sl-Periodical*:

2> set *sl-ResultDMRS* within *sl-MeasResult* to include the NR sidelink DMRS based quantity indicated in the *sl-ReportQuantity* within the concerned *sl-ReportConfig*;

1> increment the *sl-NumberOfReportsSent* as defined within the *VarMeasReportListSSL* for this *sl-MeasId* by 1;

1> stop the periodical reporting timer, if running;

1> if the *sl-NumberOfReportsSent* as defined within the *VarMeasReportListSL* for this *sl-MeasId* is less than the *sl-ReportAmount* as defined within the corresponding *sl-ReportConfig* for this *sl-MeasId*:

2> start the periodical reporting timer with the value of *sl-ReportInterval* as defined within the corresponding *sl-ReportConfig* for this *sl-MeasId*;

1> else:

2> if the sl-ReportType is set to sl-Periodical:

3> remove the entry within the *VarMeasReportListSL* for this *sl-MeasId*;

3> remove this sl-MeasId from the sl-MeasIdList within VarMeasConfigSL;

1> submit the *MeasurementReportSidelink* message to lower layers for transmission, upon which the procedure ends.

12.1.3.2.3 Test description

12.1.3.2.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 uses GNSS as the synchronization reference source.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE uses GNSS as the synchronization reference source.

- The UE is equipped with a below information in UE or in USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

Table 12.1.3.2.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | Service n°119 (V2X) supported |  |
| EFVST |  | As per TS 38.508-1 [4] clause 4.8.3.3.3 |  |
| EFV2XP\_PC5 |  | *SL-PreconfigurationNR* field as defined in TS 38.508-1 [4], table 4.10.1-1, except *SL-SyncConfig-r16* field as defined in table 12.1.3.2.3.3-0 |  |

Preamble:

- The UE is in state 4-A as defined in TS 38.508-1 [4], subclause 4.4A using generic procedure parameter Sidelink (*On*), Cast Type (*Unicast*), GNSS Sync (*On*) using NR-SS-UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.23.

12.1.3.2.3.2 Test procedure sequence

Table 12.1.3.2.3.2-1 illustrates the downlink power levels and other, if any, changing parameters to be applied for the NR-SS-UE at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described elsewhere in the present clause.

Table 12.1.3.2.3.2-1: Time instances of simulated NR-SS-UE power level and parameter changes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR-SS-UE1 | Comment |
| T0 | S-RSRP | dBm/SCS | -98 | Power level is such that entering condition for event S1 *Ms – Hys > Thresh* is not satisfied and entering condition for event S2 *Ms + Hys < Thresh* is satisfied. |
| T1 | S-RSRP | dBm/SCS | -76 | Power level is such that entering condition for event S1 *Ms – Hys > Thresh* is satisfied and entering condition for event S2 *Ms + Hys < Thresh* is not satisfied. |

Table 12.1.3.2.3.2-2: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
| U - S | Message |
| 0 | The NR-SS-UE1 transmits SLSS & *MasterInformationBlockSidelink* (Note 1). | <-- | PC5 RRC: SLSS & MasterInformationBlockSidelink | - | - |
| 1 | The NR-SS-UE1 transmits an *RRCReconfigurationSidelink* message including sl-*MeasConfig* to setup event S1 triggered PSBCH-RSRP measurement and reporting. | <-- | PC5 RRC: RRCReconfigurationSidelink | - | - |
| 2 | The UE transmits an *RRCReconfigurationCompleteSidelink* message. | --> | PC5 RRC: *RRCReconfigurationCompleteSidelink* | - | - |
| 3 | Check: Does the UE transmit a *MeasurementReportSidelink* message to report event S1 within the next 10s? | - | - | 1 | F |
| 4 | The NR-SS-UE1 re-adjusts the power level according to row "T1" in Table 12.1.3.2.3.2-1. | - | - | - | - |
| - | EXCEPTION: Step 5 below is repeated until 2 *MeasurementReportSidelink* messages are received from the UE*.* | - | - | - | - |
| 5 | Check: Does the UE transmit a *MeasurementReportSidelink* message to report event S1? | --> | PC5 RRC: *MeasurementReportSidelink* | 2 | P |
| 6 | The NR-SS-UE1 transmits an *RRCReconfigurationSidelink* message including sl-*MeasConfig* to setup event S2 triggered PSBCH-RSRP measurement and reporting. | <-- | PC5 RRC: *RRCReconfigurationSidelink* | - | - |
| 7 | The UE transmits an Table 12.1.3.2.3.2-2 message. | --> | PC5 RRC: Table 12.1.3.2.3.2-2 | - | - |
| 8 | Check: Does the UE transmit a *MeasurementReportSidelink* message to report event S2 within the next 10s? | - | - | 3 | F |
| 9 | The NR-SS-UE1 re-adjusts the power level according to row "T0" in Table 12.1.3.2.3.2-1. | - | - | - | - |
| - | EXCEPTION: Step 10 below is repeated until 2 *MeasurementReportSidelink* messages are received from the UE*.* | - | - | - | - |
| 10 | Check: Does the UE transmit a *MeasurementReportSidelink* message to report event S2? | --> | PC5 RRC: *MeasurementReportSidelink* | 4 | P |
| Note 1: UE is using TS 38.508-1 [4] Table 4.6.6-31: *SL-SyncConfig* parameters to transmit SLSS. | | | | | |

12.1.3.2.3.3 Specific message contents

Table 12.1.3.2.3.3-0: *SL-SyncConfig* (step 0, Table 12.1.3.2.3.2-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-31 | | | |
| Information Element | Value/remark | Comment | Condition |
| SL-SyncConfig-r16 ::= SEQUENCE { |  |  |  |
| gnss-Sync-r16 | true |  |  |
| } |  |  |  |

Table 12.1.3.2.3.3-0A: *MasterInformationBlockSidelink* (step 0, Table 12.1.3.2.3.2-2)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-1 with condition RX AND GNSS\_SYNC |

Table 12.1.3.2.3.3-1: RRCReconfigurationSidelink (step 1, Table 12.1.3.2.3.2-2)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-3 with condition RX and SL\_MEAS |

Table 12.1.3.2.3.3-2: SL-ReportConfigList (69) (Table 12.1.3.2.3.3-1)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-24 with condition EVENT\_S1 |

Table 12.1.3.2.3.3-3: MeasurementReportSidelink (step 5, 10, Table 12.1.3.2.3.2-2)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-2 with condition TX |

Table 12.1.3.2.3.3-4: RRCReconfigurationSidelink (step 6, Table 12.1.3.2.3.2-2)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-3 with condition RX and SL\_MEAS |

Table 12.1.3.2.3.3-5: SL-ReportConfigList (69) (Table 12.1.3.2.3.3-4)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-24 with condition EVENT\_S2 |

#### 12.1.3.3 PC5-only operation / Measurement configuration and reporting via PC5 RRC / PSBCH-RSRP measurement reporting / Periodical reporting

12.1.3.3.1 Test Purpose (TP)

(1)

**with** { UE being configured to perform periodical PSBCH-RSRP measurement reporting on SL SSB via PC5 RRC }

**ensure that** {

**when** { The first measurement result is available and thereafter every time periodical timer expires until *sl-NumberOfReportsSent* is equal to *sl-ReportAmount* }

**then** { UE triggers PSBCH-RSRP measurement reporting }

}

12.1.3.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.10.2.1, 5.8.10.2.3, 5.8.10.2.5, 5.8.10.2.7, 5.8.10.3.1, 5.8.10.3.2, 5.8.10.4.1 and 5.8.10.5.1. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, subclause 5.8.10.2.1]

The UE shall:

….

1> if the received sl-MeasConfig includes the sl-MeasObjectToAddModList in the RRCReconfigurationSidelink:

2> perform the sidelink measurement object addition/modification procedure as specified in 5.8.10.2.5;

…

1> if the received sl-MeasConfig includes the sl-ReportConfigToAddModList in the RRCReconfigurationSidelink:

2> perform the sidelink reporting configuration addition/modification procedure as specified in 5.8.10.2.7;

1> if the received sl-MeasConfig includes the sl-QuantityConfig in the RRCReconfigurationSidelink:

2> perform the sidelink quantity configuration procedure as specified in 5.8.10.2.8;

…

1> if the received sl-MeasConfig includes the sl-MeasIdToAddModList in the RRCReconfigurationSidelink:

2> perform the sidelink measurement identity addition/modification procedure as specified in 5.8.10.2.3;

[TS 38.331, subclause 5.8.10.2.3]

The UE shall:

1> for each *sl-MeasId* included in the received *sl-MeasIdToAddModList*:

2> if an entry with the matching *sl-MeasId* exists in the *sl-MeasIdList* within the *VarMeasConfigSL*:

3> replace the entry with the value received for this *sl-MeasId*;

2> else:

3> add a new entry for this *sl-MeasId* within the *VarMeasConfigSL*;

2> remove the measurement reporting entry for this *sl-MeasId* from the *VarMeasReportListSL*, if included;

2> stop the periodical reporting timer and reset the associated information (e.g. *sl-TimeToTrigger*) for this *sl-MeasId*;

[TS 38.331, subclause 5.8.10.2.5]

The UE shall:

1> for each sl-MeasObjectId included in the received sl-MeasObjectToAddModList:

2> if an entry with the matching *sl-MeasObjectId* exists in the *sl-MeasObjectList* within the *VarMeasConfigSL*, for this entry:

3> for each *sl-MeasId* associated with this *sl-MeasObjectId* included in the *sl-MeasIdList* within the *VarMeasConfigSL*, if any:

4> remove the measurement reporting entry for this *sl-MeasId* from the *VarMeasReportListSL*, if included;

4> stop the periodical reporting timer and reset the associated information (e.g. *sl-TimeToTrigger*) for this *sl-MeasId*;

3> reconfigure the entry with the value received for this *sl-MeasObject*;

2> else:

3> add a new entry for the received *sl-MeasObject* to the *sl-MeasObjectList* within *VarMeasConfigSL*.

[TS 38.331, subclause 5.8.10.2.7]

The UE shall:

1> for each sl-ReportConfigId included in the received sl-ReportConfigToAddModList:

2> if an entry with the matching *sl-ReportConfigId* exists in the *sl-ReportConfigList* within the *VarMeasConfigSL*, for this entry:

3> reconfigure the entry with the value received for this *sl-ReportConfig*;

3> for each *sl-MeasId* associated with this *sl-ReportConfigId* included in the *sl-MeasIdList* within the *VarMeasConfigSL*, if any:

4> remove the measurement reporting entry for this *sl-MeasId* from the *VarMeasReportListSL*, if included;

4> stop the periodical reporting timer and reset the associated information (e.g. *sl-TimeToTrigger*) for this *sl-MeasId*;

2> else:

3> add a new entry for the received *sl-ReportConfig* to the *sl-ReportConfigList* within the *VarMeasConfigSL*.

[TS 38.331, subclause 5.8.10.3.1]

A UE shall derive NR sidelink measurement results by measuring one or multiple DMRS associated per PC5-RRC connection as configured by the peer UE associated, as described in 5.8.10.3.2. For all NR sidelink measurement results the UE applies the layer 3 filtering as specified in sub-clause 5.5.3.2, before using the measured results for evaluation of reporting criteria and measurement reporting. In this release, only NR sidelink RSRP can be configured as trigger quantity and reporting quantity.

The UE shall:

1> for each *sl-MeasId* included in the *sl-MeasIdList* within *VarMeasConfigSL*:

2> if the *sl-MeasObject* is associated to NR sidelink and the *sl-RS-Type* is set to *dmrs*:

3> derive the layer 3 filtered NR sidelink measurement result based on DMRS for the trigger quantity and each measurement quantity indicated in *sl-ReportQuantity* using parameters from the associated *sl-MeasObject*, as described in 5.8.10.3.2.

2> perform the evaluation of reporting criteria as specified in 5.8.10.4.

[TS 38.331, subclause 5.8.10.3.2]

The UE may be configured by the peer UE associated to derive NR sidelink RSRP measurement results per PC5-RRC connection associated to the NR sidelink measurement objects based on parameters configured in the *sl-MeasObject* and in the *sl-ReportConfig*.

The UE shall:

1> for each NR sidelink measurement quantity to be derived based on NR sidelink DMRS:

2> derive the corresponding measurement of NR sidelink frequency indicated quantity based on DMRS as described in TS 38.215 [9] in the concerned *sl-MeasObject*;

2> apply layer 3 filtering as described in 5.5.3.2;

[TS 38.331, subclause 5.8.10.4.1]

The UE shall:

1> for each *sl-MeasId* included in the *sl-MeasIdList* within *VarMeasConfigSL*:

…

2> if *sl-ReportType* is set to *sl-Periodical* and if a (first) NR sidelink measurement result is available:

3> include a NR sidelink measurement reporting entry within the *VarMeasReportListSL* for this *sl-MeasId*;

3> set the sl-NumberOfReportsSent defined within the VarMeasReportListSL for this sl-MeasId to 0;

3> initiate the NR sidelink measurement reporting procedure, as specified in 5.8.10.5, immediately after the quantity to be reported becomes available for the NR sidelink frequency:

2> upon expiry of the periodical reporting timer for this *sl-MeasId*:

3> initiate the NR sidelink measurement reporting procedure, as specified in 5.8.10.5.

[TS 38.331, subclause 5.8.10.5.1]



Figure 5.8.10.5.1-1: NR sidelink measurement reporting

The purpose of this procedure is to transfer measurement results from the UE to the peer UE associated.

For the *sl-MeasId* for which the NR sidelink measurement reporting procedure was triggered, the UE shall set the *sl-MeasResults* within the *MeasurementReportSidelink* message as follows:

1> set the *sl-MeasId* to the measurement identity that triggered the NR sidelink measurement reporting;

1> if the *sl-ReportConfig* associated with the *sl-MeasId* that triggered the NR sidelink measurement reporting is set to *sl-EventTriggered* or *sl-Periodical*:

2> set *sl-ResultDMRS* within *sl-MeasResult* to include the NR sidelink DMRS based quantity indicated in the *sl-ReportQuantity* within the concerned *sl-ReportConfig*;

1> increment the *sl-NumberOfReportsSent* as defined within the *VarMeasReportListSSL* for this *sl-MeasId* by 1;

1> stop the periodical reporting timer, if running;

1> if the *sl-NumberOfReportsSent* as defined within the *VarMeasReportListSL* for this *sl-MeasId* is less than the *sl-ReportAmount* as defined within the corresponding *sl-ReportConfig* for this *sl-MeasId*:

2> start the periodical reporting timer with the value of *sl-ReportInterval* as defined within the corresponding *sl-ReportConfig* for this *sl-MeasId*;

1> else:

2> if the sl-ReportType is set to sl-Periodical:

3> remove the entry within the *VarMeasReportListSL* for this *sl-MeasId*;

3> remove this sl-MeasId from the sl-MeasIdList within VarMeasConfigSL;

1> submit the *MeasurementReportSidelink* message to lower layers for transmission, upon which the procedure ends.

12.1.3.3.3 Test description

12.1.3.3.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE1: operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 uses GNSS as the synchronization reference source.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

- The UE uses GNSS as the synchronization reference source.

Preamble:

- The UE is in state 4-A as defined in TS 38.508-1 [4] subclause 4.4A using generic procedure defined in TS 38.508-1[4] clause 4.5.7 with parameters Sidelink (*On*), Cast Type (*Unicast*), GNSS Sync (*On*) using UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.22.

12.1.3.3.3.2 Test procedure sequence

Table 12.1.3.3.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 0 | The NR-SS-UE1 transmits SLSS & *MasterInformationBlockSidelink* (Note 1). | <-- | PC5 RRC: SLSS & MasterInformationBlockSidelink | - | - |
| 1 | The NR-SS-UE1 transmits a *RRCReconfigurationSidelink* message on SL-SRB3. | <-- | PC5 RRC: RRCReconfigurationSidelink | - | - |
| 2 | The UE transmits a *RRCReconfigurationCompleteSidelink* message on SL-SRB3. | --> | PC5 RRC: RRCReconfigurationCompleteSidelink | - | - |
| 3 | Check: Does the UE transmit a *MeasurementReportSidelink* message to perform periodical reporting? | --> | PC5 RRC: MeasurementReportSidelink | 1 | P |
| - | EXCEPTION: After the 1st *MeasurementReportSidelink* message at step 3 is received, step 4 below is repeated until 15 *MeasurementReport* messages are received from the UE. The interval between two *MeasurementReportSidelink* shall be as specified by the IE *sl-ReportInterval* | - | - | - | - |
| 4 | Check: Does the UE transmit a *MeasurementReportSidelink* message to perform periodical reporting? | --> | PC5 RRC: MeasurementReportSidelink | 1 | P |
| Note 1: UE is using TS 38.508-1 [4] Table 4.6.6-31: *SL-SyncConfig* parameters to transmit SLSS. | | | | | |

12.1.3.3.3.3 Specific message contents

Table 12.1.3.3.3.3-0: *SL-SyncConfig* (step 0, Table 12.1.3.3.3.2-1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-31 | | | | |
| Information Element | Value/remark | Comment | Condition | |
| SL-SyncConfig-r16 ::= SEQUENCE { |  |  | |  | |
| gnss-Sync-r16 | true |  | |  | |
| } |  |  | |  | |

Table 12.1.3.3.3.3-0A: *MasterInformationBlockSidelink* (step 0, Table 12.1.3.3.3.2-1)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-1 with condition RX AND GNSS\_SYNC |

Table 12.1.3.3.3.3-1: *RRCReconfigurationSidelink* (step 1, Table 12.1.3.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-3 with condition SL\_MEAS and RX | | | |
| Information Element | Value/remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| sl-MeasConfig-r16 CHOICE { |  |  |  |
| setup SEQUENCE { |  |  |  |
| sl-ReportConfigToAddModList-r16 | SL-ReportConfigList-r16 | Table 12.1.3.3.3.3-2 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.3.3.3.3-2: *SL-ReportConfigList-r16* (Table 12.1.3.3.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-24 with condition PERIODICAL | | | |
| Information Element | Value/remark | Comment | Condition |
| SL-ReportConfigList-r16 ::= SEQUENCE (SIZE (1..maxNrofSL-ReportConfigId-r16)) OF SL-ReportConfigInfo-r16 { | 1 entry |  |  |
| SL-ReportConfigInfo-r16[1] SEQUENCE { |  | entry 1 |  |
| sl-ReportConfig-r16 SEQUENCE { |  |  |  |
| sl-ReportType-r16 CHOICE { |  |  |  |
| sl-Periodical-r16 SEQUENCE { |  |  |  |
| sl-ReportAmount-r16 | r16 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.3.3.3.3-3: RRCReconfigurationCompleteSidelink (step 2, Table 12.1.3.3.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-4 with condition TX |

Table 12.1.3.3.3.3-4: MeasurementReportSidelink (step 3, step 4, Table 12.2.5.3.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-2 with condition TX |

### 12.1.4 PC5-only operation / Sidelink Reconfiguration via PC5 RRC

#### 12.1.4.1 PC5-only operation / Sidelink Reconfiguration via PC5 RRC / SL-DRB management / initiating UE side

12.1.4.1.1 Test Purpose (TP)

(1)

**with** { UE having established PC5 RRC connection with peer UE }

**ensure that** {

**when** { UE is configured by higher layer to transmit a PC5 RRCReconfiguration message to establish a unicast SL-DRB }

**then** { UE sends a RRCReconfigurationSidelink message to peer UE }

}

(2)

**with** { UE having established PC5 RRC connection with peer UE }

**ensure that** {

**when** { UE is configured by higher layer to transmit a PC5 RRCReconfiguration message to modify a unicast SL-DRB }

**then** { UE sends a RRCReconfigurationSidelink message to peer UE }

}

(3)

**with** { UE having established PC5 RRC connection with peer UE }

**ensure that** {

**when** { UE is configured by higher layer to transmit a PC5 RRCReconfiguration message to release a unicast SL-DRB }

**then** { UE sends a RRCReconfigurationSidelink message to peer UE }

}

12.1.4.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 , subclause 5.8.9.1a.1.2, 5.8.9.1a.2.1, 5.8.9.1a.2.2. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, subclause 5.8.9.1a.1.2]

For each sidelink DRB, whose sidelink DRB release conditions are met as in sub-clause 5.8.9.1a.1.1, the UE capable of NR sidelink communication that is configured by upper layers to perform NR sidelink communication shall:

1> for groupcast and broadcast; or

1> for unicast, if the sidelink DRB release was triggered after the reception of the *RRCReconfigurationSidelink* message; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB release was triggered due to the configuration received within the *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR* or indicated by upper layers:

2> release the PDCP entity for NR sidelink communication associated with the sidelink DRB;

2> if SDAP entity for NR sidelink communication associated with this sidelink DRB is configured:

3> indicate the release of the sidelink DRB to the SDAP entity associated with this sidelink DRB (TS 37.324 [24], clause 5.3.3);

2> release SDAP entities for NR sidelink communication, if any, that have no associated sidelink DRB as specified in TS 37.324 [24] clause 5.1.2;

1> for groupcast and broadcast; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB release was triggered due to the configuration received within the *sl-ConfigDedicatedNR*:

2> for each *sl-RLC-BearerConfigIndex* included in the received *sl-RLC-BearerToReleaseList* that is part of the current UE sidelink configuration:

3> release the RLC entity and the corresponding logical channel for NR sidelink communication, associated with the *sl-RLC-BearerConfigIndex*.

1> for unicast, if the sidelink DRB release was triggered due to the reception of the *RRCReconfigurationSidelink* message; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB release was triggered due to the configuration received within the *SIB12*, *SidelinkPreconfigNR* or indicated by upper layers:

2> release the RLC entity and the corresponding logical channel for NR sidelink communication associated with the sidelink DRB;

2> perform the sidelink UE information procedure in sub-clause 5.8.3 for unicast if needed.

1> if the sidelink radio link failure is detected for a specific destination:

2> release the PDCP entity, RLC entity and the logical channel of the sidelink DRB for the specific destination.

[TS 38.331, subclause 5.8.9.1a.2.1]

For NR sidelink communication, a sidelink DRB addition is initiated only in the following cases:

1> if any sidelink QoS flow is (re)configured by *sl-ConfigDedicatedNR*, *SIB12*, *SidelinkPreconfigNR* and is to be mapped to one sidelink DRB*,* which is not established; or

1> if any sidelink QoS flow is (re)configured by *RRCReconfigurationSidelink* and isto be mapped to a sidelink DRB, which is not established;

For NR sidelink communication, a sidelink DRB modification is initiated only in the following cases:

1> if any of the sidelink DRB related parameters is changed by *sl-ConfigDedicatedNR*, *SIB12*, *SidelinkPreconfigNR* or *RRCReconfigurationSidelink* for one sidelink DRB*,* which is established;

[TS 38.331, subclause 5.8.9.1a.2.2]

For the sidelink DRB, whose sidelink DRB addition conditions are met as in sub-clause 5.8.9.1a.2.1, the UE capable of NR sidelink communication that is configured by upper layers to perform NR sidelink communication shall:

1> for groupcast and broadcast; or

1> for unicast, if the sidelink DRB addition was triggered due to the reception of the *RRCReconfigurationSidelink* message; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB addition was triggered due to the configuration received within the *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR* or indicated by upper layers:

2> if an SDAP entity for NR sidelink communication associated with the destination and the cast type of the sidelink DRB does not exist:

3> establish an SDAP entity for NR sidelink communication as specified in TS 37.324 [24] clause 5.1.1;

2> (re)configure the SDAP entity in accordance with the *sl-SDAP-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-SDAP-Config* received in *sl-ConfigDedicatedNR*, *SIB12*, *SidelinkPreconfigNR*, associated with the sidelink DRB;

2> establish a PDCP entity for NR sidelink communication and configure it in accordance with the *sl-PDCP-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-PDCP-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, associated with the sidelink DRB;

2> establish a RLC entity for NR sidelink communication and configure it in accordance with the *sl-RLC-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-RLC-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, associated with sidelink DRB;

2> if this procedure was due to the reception of a *RRCReconfigurationSidelink* message:

3> configure the MAC entity with a logical channel in accordance with the *sl-MAC-LogicalChannelConfigPC5* received in the *RRCReconfigurationSidelink* associated with the sidelink DRB, and perform the sidelink UE information procedure in sub-clause 5.8.3 for unicast if need;

2> else:

3> configure the MAC entity with a logical channel associated with the sidelink DRB, by assigning a new logical channel identity, in accordance with the *sl-MAC-LogicalChannelConfig* received in the *sl-ConfigDedicatedNR*, *SIB12*, *SidelinkPreconfigNR*.

NOTE 1: When a sidelink DRB addition is due to the configurationby *RRCReconfigurationSidelink*, it is up to UE implementation to select the sidelink DRB configuration as necessary transmitting parameters for the sidelink DRB, from the received *sl-ConfigDedicatedNR* (if in RRC\_CONNECTED), *SIB12* (if in RRC\_IDLE/INACTIVE), *SidelinkPreconfigNR* (if out of coverage) with the same RLC mode as the one configured in *RRCReconfigurationSidelink*.

For the sidelink DRB, whose sidelink DRB modification conditions are met as in sub-clause 5.8.9.1a.2.1, the UE capable of NR sidelink communication that is configured by upper layers to perform NR sidelink communication shall:

1> for groupcast and broadcast; or

1> for unicast, if the sidelink DRB modification was triggered due to the reception of the *RRCReconfigurationSidelink* message; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB modification was triggered due to the configuration received within the *sl-ConfigDedicatedNR,* *SIB12* or *SidelinkPreconfigNR*:

2> reconfigure the SDAP entity of the sidelink DRB, in accordance with the *sl-SDAP-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-SDAP-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, if included;

2> reconfigure the PDCP entity of the sidelink DRB, in accordance with the *sl-PDCP-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-PDCP-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, if included;

2> reconfigure the RLC entity of the sidelink DRB, in accordance with the *sl-RLC-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-RLC-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, if included;

2> reconfigure the logical channel of the sidelink DRB, in accordance with the sl-MAC-LogicalChannelConfigPC5 received in the RRCReconfigurationSidelink or sl-MAC-LogicalChannelConfig received in sl-ConfigDedicatedNR, SIB12, SidelinkPreconfigNR, if included.

12.1.4.1.3 Test description

12.1.4.1.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

- NR-SS-UE 1 is synchronised on GNSS.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

- UE is synchronised on GNSS.

Preamble:

- The UE is in state 0-A as defined in TS 38.508-1 [4].

12.1.4.1.3.2 Test procedure sequence

Table 12.1.4.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | Power on the UE. | - | - | - | - |
| 2 | Trigger UE to reset or clear the current UTC time that has been calculated from GNSS.  NOTE: The UTC time can be reset or clear on the UE using AT command (+CUTCR). | - | - | - | - |
| 3 | The UE is configured by upper layer to establish unicast mode link.  NOTE: This can be done by sending AT COMMAND +CCUTLE to close test loop function. | - | - | - | - |
| 4 | The UE sends a DIRECT LINK ESTABLISHMENT REQUEST message. | --> | PC5-S: DIRECT LINK ESTABLISHMENT REQUEST | - | - |
| 5 | The NR-SS-UE1 sends a DIRECT LINK SECURITY MODE COMMAND message. | <-- | PC5-S: DIRECT LINK SECURITY MODE COMMAND | - | - |
| 6 | The UE sends a DIRECT LINK SECURITY MODE COMPLETE message. | --> | PC5-S: DIRECT LINK SECURITY MODE COMPLETE | - | - |
| 7 | The NR-SS-UE1 sends a DIRECT LINK ESTABLISHMENT ACCEPT message. | <-- | PC5-S: DIRECT LINK ESTABLISHMENT ACCEPT | - | - |
| 8 | Check: Does the UE send an RRCReconfigurationSidelink message to establish a unicast mode SL-DRB? | --> | PC5-RRC: RRCReconfigurationSidelink | 1 | P |
| 9 | The NR-SS-UE1 sends an RRCReconfigurationCompleteSidelink message. | <-- | PC5-RRC: RRCReconfigurationCompleteSidelink | - | - |
| 10 | The SS sends AT COMMAND +CCUTLE to open test loop function | - | - | - | - |
| 11 | UE is configured by upper layer to modify SL-DRB to NR-SS-UE1.  NOTE: This step is triggered by MMI or AT command. | - | - | - | - |
| 12 | Check: Does the UE send an RRCReconfigurationSidelink message to modify the unicast mode SL-DRB? | --> | PC5-RRC: RRCReconfigurationSidelink | 2 | P |
| 13 | The NR-SS-UE1 sends an RRCReconfigurationCompleteSidelink message. | <-- | PC5-RRC: RRCReconfigurationCompleteSidelink | - | - |
| 14 | UE is configured by upper layer to release SL-DRB to NR-SS-UE1.  Note: This step is triggered by MMI or AT command. | -- | - | - | - |
| 15 | Check: Does the UE send an *RRCReconfigurationSidelink* message to NR-SS-UE1 to indicate SL-DRB release? | --> | PC5 RRC: RRCReconfigurationSidelink | 3 | P |
| 16 | The NR-SS-UE1 sends an RRCReconfigurationCompleteSidelink message to confirm SL-DRB release. | <-- | PC5-RRC: RRCReconfigurationCompleteSidelink | - | - |

12.1.4.1.3.3 Specific message contents

Table 12.1.4.1.3.3-1: DIRECT LINK ESTABLISHMENT REQUEST (step 4, Table 12.1.4.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-7 with condition Tx |

Table 12.1.4.1.3.3-2: Message DIRECT LINK SECURITY MODE COMMAND (step 5, Table 12.1.4.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-18 with condition Rx |

Table 12.1.4.1.3.3-3: Message DIRECT LINK SECURITY MODE COMPLETE (step 6, Table 12.1.4.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-19 with condition Tx |

Table 12.1.4.1.3.3-4: Message DIRECT LINK ESTABLISHMENT ACCEPT (step 7, Table 12.1.4.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-8 with condition Rx |

Table 12.1.4.1.3.3-5: RRCReconfigurationSidelink (step 8, Table 12.1.4.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.9.22.3-7 |

Table 12.1.4.1.3.3-6: RRCReconfigurationCompleteSidelink (steps 9, 13 & 16, Table 12.1.4.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-4, conditions RX |

Table 12.1.4.1.3.3-7: RRCReconfigurationSidelink (step 12, Table 12.1.4.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.9.22.3-7 | | | |
| Information Element | Value/remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| slrb-ConfigToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-Config-r16 { | 1 entry |  |  |
| SLRB-Config-r16[1] SEQUENCE { |  | entry 1 |  |
| sl-SDAP-ConfigPC5-r16 | Not checked |  |  |
| sl-PDCP-ConfigPC5-r16 | Not checked |  |  |
| sl-RLC-ConfigPC5-r16 | Not checked |  |  |
| sl-MAC-LogicalChannelConfigPC5-r16 | Not checked |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.4.1.3.3-8: RRCReconfigurationSidelink (step 15, Table 12.1.4.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3, condition TX | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| slrb-ConfigToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-PC5-ConfigIndex-r16 { | 1 entry |  |  |
| SLRB-PC5-ConfigIndex-r16 [1] | 1 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

#### 12.1.4.2 PC5-only operation / Sidelink Reconfiguration via PC5 RRC / SL DRB management / Peer UE side

12.1.4.2.1 Test Purpose (TP)

(1)

**with** { UE having established PC5 RRC connection with peer UE}

**ensure that** {

**when** { UE receives an RRCReconfigurationSidelink that can comply to add an unicast SL-DRB}

**then** { UE applies the parameters in RRCReconfigurationSidelink and sends a RRCReconfigurationCompleteSidelink message to peer UE}

}

(2)

**with** { UE having established PC5 RRC connection with peer UE }

**ensure that** {

**when** { UE receives an RRCReconfigurationSidelink that can comply to modify an unicast SL-DRB}

**then** {UE applies the parameters in RRCReconfigurationSidelink and sends a RRCReconfigurationCompleteSidelink message to peer UE }

}

(3)

**with** { UE having established PC5 RRC connection with peer UE }

**ensure that** {

**when** { UE receives an RRCReconfigurationSidelink that can comply to release an unicast SL-DRB}

**then** { UE applies the parameters in RRCReconfigurationSidelink and sends a RRCReconfigurationCompleteSidelink message to peer UE}

}

12.1.4.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 , subclause 5.8.9.1a.1.2, 5.8.9.1a.2.1, 5.8.9.1a.2.2. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, subclause 5.8.9.1a.1.2]

For each sidelink DRB, whose sidelink DRB release conditions are met as in sub-clause 5.8.9.1a.1.1, the UE capable of NR sidelink communication that is configured by upper layers to perform NR sidelink communication shall:

1> for groupcast and broadcast; or

1> for unicast, if the sidelink DRB release was triggered after the reception of the *RRCReconfigurationSidelink* message; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB release was triggered due to the configuration received within the *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR* or indicated by upper layers:

2> release the PDCP entity for NR sidelink communication associated with the sidelink DRB;

2> if SDAP entity for NR sidelink communication associated with this sidelink DRB is configured:

3> indicate the release of the sidelink DRB to the SDAP entity associated with this sidelink DRB (TS 37.324 [24], clause 5.3.3);

2> release SDAP entities for NR sidelink communication, if any, that have no associated sidelink DRB as specified in TS 37.324 [24] clause 5.1.2;

1> for groupcast and broadcast; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB release was triggered due to the configuration received within the *sl-ConfigDedicatedNR*:

2> for each *sl-RLC-BearerConfigIndex* included in the received *sl-RLC-BearerToReleaseList* that is part of the current UE sidelink configuration:

3> release the RLC entity and the corresponding logical channel for NR sidelink communication, associated with the *sl-RLC-BearerConfigIndex*.

1> for unicast, if the sidelink DRB release was triggered due to the reception of the *RRCReconfigurationSidelink* message; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB release was triggered due to the configuration received within the *SIB12*, *SidelinkPreconfigNR* or indicated by upper layers:

2> release the RLC entity and the corresponding logical channel for NR sidelink communication associated with the sidelink DRB;

2> perform the sidelink UE information procedure in sub-clause 5.8.3 for unicast if needed.

1> if the sidelink radio link failure is detected for a specific destination:

2> release the PDCP entity, RLC entity and the logical channel of the sidelink DRB for the specific destination.

[TS 38.331, subclause 5.8.9.1a.2.1]

For NR sidelink communication, a sidelink DRB addition is initiated only in the following cases:

1> if any sidelink QoS flow is (re)configured by *sl-ConfigDedicatedNR*, *SIB12*, *SidelinkPreconfigNR* and is to be mapped to one sidelink DRB*,* which is not established; or

1> if any sidelink QoS flow is (re)configured by *RRCReconfigurationSidelink* and isto be mapped to a sidelink DRB, which is not established;

For NR sidelink communication, a sidelink DRB modification is initiated only in the following cases:

1> if any of the sidelink DRB related parameters is changed by *sl-ConfigDedicatedNR*, *SIB12*, *SidelinkPreconfigNR* or *RRCReconfigurationSidelink* for one sidelink DRB*,* which is established;

[TS 38.331, subclause 5.8.9.1a.2.2]

For the sidelink DRB, whose sidelink DRB addition conditions are met as in sub-clause 5.8.9.1a.2.1, the UE capable of NR sidelink communication that is configured by upper layers to perform NR sidelink communication shall:

1> for groupcast and broadcast; or

1> for unicast, if the sidelink DRB addition was triggered due to the reception of the *RRCReconfigurationSidelink* message; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB addition was triggered due to the configuration received within the *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR* or indicated by upper layers:

2> if an SDAP entity for NR sidelink communication associated with the destination and the cast type of the sidelink DRB does not exist:

3> establish an SDAP entity for NR sidelink communication as specified in TS 37.324 [24] clause 5.1.1;

2> (re)configure the SDAP entity in accordance with the *sl-SDAP-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-SDAP-Config* received in *sl-ConfigDedicatedNR*, *SIB12*, *SidelinkPreconfigNR*, associated with the sidelink DRB;

2> establish a PDCP entity for NR sidelink communication and configure it in accordance with the *sl-PDCP-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-PDCP-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, associated with the sidelink DRB;

2> establish a RLC entity for NR sidelink communication and configure it in accordance with the *sl-RLC-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-RLC-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, associated with sidelink DRB;

2> if this procedure was due to the reception of a *RRCReconfigurationSidelink* message:

3> configure the MAC entity with a logical channel in accordance with the *sl-MAC-LogicalChannelConfigPC5* received in the *RRCReconfigurationSidelink* associated with the sidelink DRB, and perform the sidelink UE information procedure in sub-clause 5.8.3 for unicast if need;

2> else:

3> configure the MAC entity with a logical channel associated with the sidelink DRB, by assigning a new logical channel identity, in accordance with the *sl-MAC-LogicalChannelConfig* received in the *sl-ConfigDedicatedNR*, *SIB12*, *SidelinkPreconfigNR*.

NOTE 1: When a sidelink DRB addition is due to the configurationby *RRCReconfigurationSidelink*, it is up to UE implementation to select the sidelink DRB configuration as necessary transmitting parameters for the sidelink DRB, from the received *sl-ConfigDedicatedNR* (if in RRC\_CONNECTED), *SIB12* (if in RRC\_IDLE/INACTIVE), *SidelinkPreconfigNR* (if out of coverage) with the same RLC mode as the one configured in *RRCReconfigurationSidelink*.

For the sidelink DRB, whose sidelink DRB modification conditions are met as in sub-clause 5.8.9.1a.2.1, the UE capable of NR sidelink communication that is configured by upper layers to perform NR sidelink communication shall:

1> for groupcast and broadcast; or

1> for unicast, if the sidelink DRB modification was triggered due to the reception of the *RRCReconfigurationSidelink* message; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB modification was triggered due to the configuration received within the *sl-ConfigDedicatedNR,* *SIB12* or *SidelinkPreconfigNR*:

2> reconfigure the SDAP entity of the sidelink DRB, in accordance with the *sl-SDAP-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-SDAP-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, if included;

2> reconfigure the PDCP entity of the sidelink DRB, in accordance with the *sl-PDCP-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-PDCP-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, if included;

2> reconfigure the RLC entity of the sidelink DRB, in accordance with the *sl-RLC-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-RLC-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, if included;

2> reconfigure the logical channel of the sidelink DRB, in accordance with the sl-MAC-LogicalChannelConfigPC5 received in the RRCReconfigurationSidelink or sl-MAC-LogicalChannelConfig received in sl-ConfigDedicatedNR, SIB12, SidelinkPreconfigNR, if included.

12.1.4.2.3 Test description

12.1.4.2.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

- NR-SS-UE 1 is synchronised on GNSS.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

- UE is synchronised on GNSS.

Preamble:

- The UE is in state 0-A as defined in TS 38.508-1 [4].

12.1.4.2.3.2 Test procedure sequence

Table 12.1.4.2.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | Power on the UE. | - | - | - | - |
| 2 | Trigger UE to reset or clear the current UTC time that has been calculated from GNSS.  NOTE: The UTC time can be reset or clear on the UE using AT command (+CUTCR). | - | - | - | - |
| 3 | The NR-SS-UE1 sends a DIRECT LINK ESTABLISHMENT REQUEST message. | <-- | PC5-S: DIRECT LINK ESTABLISHMENT REQUEST |  |  |
| 4 | The UE sends a DIRECT LINK SECURITY MODE COMMAND message. | --> | PC5-S: DIRECT LINK SECURITY MODE COMMAND | - | - |
| 5 | The NR-SS-UE1 sends a DIRECT LINK SECURITY MODE COMPLETE message. | <-- | PC5-S: DIRECT LINK SECURITY MODE COMPLETE | - | - |
| 6 | The UE sends a DIRECT LINK ESTABLISHMENT ACCEPT message. | --> | PC5-S: DIRECT LINK ESTABLISHMENT ACCEPT | - | - |
| 7 | The NR-SS-UE1 sends an RRCReconfigurationSidelink message to establish a unicast mode SL-DRB. | <-- | PC5-RRC: RRCReconfigurationSidelink | - | - |
| 8 | Check: Does the UE send an RRCReconfigurationCompleteSidelink message? | --> | PC5-RRC: RRCReconfigurationCompleteSidelink | 1 | P |
| 9 | The NR-SS-UE1 sends an RRCReconfigurationSidelink message to indicate modification of unicast mode SL-DRB. | <-- | PC5-RRC: RRCReconfigurationSidelink | - | - |
| 10 | Check: Does the UE send an RRCReconfigurationCompleteSidelink message? | --> | PC5-RRC: RRCReconfigurationCompleteSidelink | 2 | P |
| 11 | The NR-SS-UE sends a RRCReconfigurationSidelink message to indicate release of unicast mode SL DRB. | <-- | PC5-RRC: RRCReconfigurationSidelink | - | - |
| 12 | Check: Does the UE send an RRCReconfigurationCompleteSidelink message? | --> | PC5-RRC: RRCReconfigurationCompleteSidelink | 3 | P |

12.1.4.2.3.3 Specific message contents

Table 12.1.4.2.3.3-1: RRCReconfigurationSidelink (step 7, Table 12.1.4.2.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 Conditions RX and SL\_DRB |

Table 12.1.4.2.3.3-2: RRCReconfigurationSidelink (step 9, Table 12.1.4.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 Conditions RX and SL\_DRB | | | |
| Information Element | | Value/remark | Comment | Condition | |
| RRCReconfigurationSidelink ::= SEQUENCE { | |  |  |  | |
| criticalExtensions CHOICE { | |  |  |  | |
| rrcReconfigurationSidelink-r16 SEQUENCE { | |  |  |  | |
| slrb-ConfigToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-Config-r16 { | | 1 entry |  |  | |
| SLRB-Config-r16[1] SEQUENCE { | |  | entry 1 |  | |
| sl-PDCP-ConfigPC5-r16 SEQUENCE { | |  |  |  | |
| sl-PDCP-SN-Size-r16 | | len12bits |  |  | |
| sl-OutOfOrderDelivery-r16 | | true |  |  | |
| } | |  |  |  | |
| } | |  |  |  | |
| } | |  |  |  | |
| } | |  |  |  | |
| } | |  |  |  | |

Table 12.1.4.2.3.3-3: RRCReconfigurationSidelink (step 11, Table 12.1.4.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 Condition RX | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| slrb-ConfigToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-PC5-ConfigIndex-r16 { | 1 entry |  |  |
| SLRB-PC5-ConfigIndex-r16 [1] | 1 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

### 12.1.5 PC5-only operation / Sidelink CSI reporting

#### 12.1.5.1 PC5-only operation / Sidelink CSI reporting / Configuration

12.1.5.1.1 Test Purpose (TP)

(1)

**with** { UE having established PC5 RRC connection with peer UE }

**ensure that** {

**when** { UE is configured by upper layer to configure SL CSI-RS resource to peer UE }

**then** { UE sends an RRCReconfigurationSidelink message including sl-CSI-RS-Config to peer UE }

}

(2)

**with** { UE having established PC5 RRC connection with peer UE }

**ensure that** {

**when** { UE is configured by upper layer to trigger SL CSI report and starts transmitting SL CSI-RS }

**then** { UE sends an SCI format 2-A to trigger SL CSI report }

}

12.1.5.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.9.1.1, 5.8.9.1.2, 5.8.9.1.3. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.9.1.1]

General



Figure 5.8.9.1.1-1: Sidelink RRC reconfiguration, successful



Figure 5.8.9.1.1-2: Sidelink RRC reconfiguration, failure

The purpose of this procedure is to modify a PC5-RRC connection, e.g. to establish/modify/release sidelink DRBs, to (re-)configure NR sidelink measurement and reporting, to (re-)configure sidelink CSI reference signal resources and CSI reporting latency bound.

The UE may initiate the sidelink RRC reconfiguration procedure and perform the operation in sub-clause 5.8.9.1.2 on the corresponding PC5-RRC connection in following cases:

- the release of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.1;

- the establishment of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.2;

- the modification for the parameters included in *SLRB-Config* of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.2;

- the (re-)configuration of the peer UE to perform NR sidelink measurement and report.

- the (re-)configuration of the sidelink CSI reference signal resources and CSI reporting latency bound.

In RRC\_CONNECTED, the UE applies the NR sidelink communications parameters provided in *RRCReconfiguration* (if any). In RRC\_IDLE or RRC\_INACTIVE, the UE applies the NR sidelink communications parameters provided in system information (if any). For other cases, UEs apply the NR sidelink communications parameters provided in *SidelinkPreconfigNR* (if any). When UE performs state transition between above three cases, the UE applies the NR sidelink communications parameters provided in the new state, after acquisition of the new configurations. Before acquisition of the new configurations, UE continues applying the NR sidelink communications parameters provided in the old state.

[TS 38.331, clause 5.8.9.1.2]

The UE shall set the contents of *RRCReconfigurationSidelink* message as follows:

1> for each sidelink DRB that is to be released, according to sub-clause 5.8.9.1a.1.1, due to configuration by *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR* or by upper layers:

2> set the *SLRB-PC5-ConfigIndex* included in the *slrb-ConfigToReleaseList* corresponding to the sidelink DRB;

1> for each sidelink DRB that is to be established or modified, according to sub-clause 5.8.9.1a.2.1, due to receiving *sl-ConfigDedicatedNR,* *SIB12* or *SidelinkPreconfigNR*:

2> set the *SLRB-Config* included in the *slrb-ConfigToAddModList*, according to the received *sl-RadioBearerConfig* and *sl-RLC-BearerConfig* corresponding to the sidelink DRB;

1> set the *sl-MeasConfig* as follows:

2> If the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or included in *sl-ConfigCommonNR* within SIB12:

3> if UE is in RRC\_CONNECTED:

4> set the *sl-MeasConfig* according to stored NR sidelink measurement configuration information for this destination;

3> if UE is in RRC\_IDLE or RRC\_INACTIVE:

4> set the *sl-MeasConfig* according to stored NR sidelink measurement configuration received from *SIB12*;

2> else:

3> set the sl-MeasConfig according to the sl-MeasPreconfig in SidelinkPreconfigNR;

1> start timer T400 for the destination associated with the sidelink DRB;

1> set the sl-CSI-RS-Config;

1> set the sl-LatencyBoundCSI-Report,

NOTE 1: How to set the parameters included in *sl-CSI-RS-Config* and *sl-LatencyBoundCSI-Report* is up to UE implementation.

The UE shall submit the *RRCReconfigurationSidelink* message to lower layers for transmission.

[TS 38.331, clause 5.8.9.1.3]

The UE shall perform the following actions upon reception of the *RRCReconfigurationSidelink*:

1> if the RRCReconfigurationSidelink includes the sl-ResetConfig:

2> perform the sidelink reset configuration procedure as specified in 5.8.9.1.10;

1> if the RRCReconfigurationSidelink includes the slrb-ConfigToReleaseList:

2> for each *SLRB-PC5-ConfigIndex* value included in the *slrb-ConfigToReleaseList* that is part of the current UE sidelink configuration;

3> perform the sidelink DRB release procedure, according to sub-clause 5.8.9.1a.1;

1> if the RRCReconfigurationSidelink includes the slrb-ConfigToAddModList:

2> for each *slrb-PC5-ConfigIndex* value included in the *slrb-ConfigToAddModList* that is not part of the current UE sidelink configuration:

3> if sl-MappedQoS-FlowsToAddList is included:

4> apply the SL-PQFI included in sl-MappedQoS-FlowsToAddList;

3> perform the sidelink DRB addition procedure, according to sub-clause 5.8.9.1a.2;

2> for each *slrb-PC5-ConfigIndex* value included in the *slrb-ConfigToAddModList* that is part of the current UE sidelink configuration:

3> if sl-MappedQoS-FlowsToAddList is included:

4> add the *SL-PQFI* included in *sl-MappedQoS-FlowsToAddList* to the corresponding sidelink DRB;

3> if sl-MappedQoS-FlowsToReleaseList is included:

4> remove the *SL-PQFI* included in *sl-MappedQoS-FlowsToReleaseList* from the corresponding sidelink DRB;

3> if the sidelink DRB release conditions as described in sub-clause 5.8.9.1a.1.1 are met:

4> perform the sidelink DRB release procedure according to sub-clause 5.8.9.1a.1.2;

3> else if the sidelink DRB modification conditions as described in sub-clause 5.8.9.1a.2.1 are met:

4> perform the sidelink DRB modification procedure according to sub-clause 5.8.9.1a.2.2;

1> if the RRCReconfigurationSidelink message includes the sl-MeasConfig:

2> perform the sidelink measurement configuration procedure as specified in 5.8.10;

1> if the RRCReconfigurationSidelink message includes the sl-CSI-RS-Config:

2> apply the sidelink CSI-RS configuration;

1> if the RRCReconfigurationSidelink message includes the sl-LatencyBoundCSI-Report:

2> apply the configured sidelink CSI report latency bound;

1> if the UE is unable to comply with (part of) the configuration included in the *RRCReconfigurationSidelink* (i.e. sidelink RRC reconfiguration failure):

2> continue using the configuration used prior to the reception of the *RRCReconfigurationSidelink* message;

2> set the content of the *RRCReconfigurationFailureSidelink* message;

3> submit the *RRCReconfigurationFailureSidelink* message to lower layers for transmission;

1> else:

2> set the content of the *RRCReconfigurationCompleteSidelink* message;

3> submit the *RRCReconfigurationCompleteSidelink* message to lower layers for transmission;

NOTE 1: When the same logical channel is configured with different RLC mode by another UE, the UE handles the case as sidelink RRC reconfiguration failure.

12.1.5.1.3 Test description

12.1.5.1.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 uses GNSS as the synchronization reference source.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE uses GNSS as the synchronization reference source.

- The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4] clause 4.8.3.3.3) except for those listed in Table 12.1.5.1.3.1-1.

Table 12.1.5.1.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | service no. 119 is available |  |
| EFVST |  | Service no.2 V2X policy configuration data over PC5 is supported, i.e. value is '01 02' HEX |  |
| EFV2XP\_PC5 |  | As per TS 38.508-1[4] clause 4.8.3.3.3  SL-PreconfigurationNR included in V2X data policy over PC5 is defined in Table 12.1.5.1.3.3-1 |  |

Preamble:

- The UE is in state 4-A as defined in TS 38.508-1 [4], subclause 4.4A, using generic procedure parameter Sidelink (On), Cast Type (Unicast), GNSS Sync (On) using UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.22.

12.1.5.1.3.2 Test procedure sequence

Table 12.1.5.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | UE is configured by upper layer to configure SL CSI-RS resource to NR-SS-UE1.  Note: This step is triggered by MMI or AT command. | - | - | - | - |
| 2 | Check: Does UE send a *RRCReconfigurationSidelink* message including sl-CSI-RS-Config? | --> | PC5 RRC: RRCReconfigurationSidelink | 1 | P |
| 3 | Void | - | - | - | - |
| 4 | NR-SS-UE1 sends a RRCReconfigurationCompleteSidelink message | <-- | PC5 RRC: RRCReconfigurationCompleteSidelink |  |  |
| 5 | UE is configured by upper layer to trigger SL CSI report and start transmitting SL CSI-RS.  Note: This step is triggered by MMI or AT command. | - | - | - | - |
| 6 | Check: Does the UE transmit an SCI format 2-A with CSI request = “1” to trigger SL CSI report? | --> | PSSCH (SCI 2-A) | 2 | P |

12.1.5.1.3.3 Specific message contents

Table 12.1.5.1.3.3-1: SL-PreconfigurationNR

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.10.1-1 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-PreconfigurationNR-r16 ::= SEQUENCE { |  |  |  |
| sidelinkPreconfigNR-r16 SEQUENCE { |  |  |  |
| sl-CSI-Acquisition-r16 | enabled |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.5.1.3.3-2: RRCReconfigurationSidelink (step 2, Table 12.1.5.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 with condition SL\_CSI and TX | | | |
| Information Element | Value/remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| sl-CSI-RS-Config-r16 CHOICE { |  |  |  |
| Setup SEQUENCE { |  |  |  |
| sl-CSI-RS-FreqAllocation-r16 | Any value |  |  |
| sl-CSI-RS-FirstSymbol-r16 | (3..12) |  |  |
| } |  |  |  |
| } |  |  |  |
| sl-LatencyBoundCSI-Report-r16 | (3..160) |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.5.1.3.3-3: RRCReconfigurationCompleteSidelink (step 4, Table 12.1.5.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-4 with condition RX |

#### 12.1.5.2 PC5-only operation / Sidelink CSI reporting / Reporting

12.1.5.2.1 Test Purpose (TP)

(1)

**with** { UE having established PC5 RRC connection with peer UE and configured by peer UE to perform CSI measurement}

**ensure that** {

**when** { UE receives a SCI format 2-A to trigger SL CSI report}

**then** { UE sends an CSI reporting MAC-CE to peer UE }

}

12.1.5.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.9.1.1,5.8.9.1.2,5.8.9.1.3, TS 38.321, clause 6.1.3.35. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.9.1.1]

General



Figure 5.8.9.1.1-1: Sidelink RRC reconfiguration, successful



Figure 5.8.9.1.1-2: Sidelink RRC reconfiguration, failure

The purpose of this procedure is to modify a PC5-RRC connection, e.g. to establish/modify/release sidelink DRBs, to (re-)configure NR sidelink measurement and reporting, to (re-)configure sidelink CSI reference signal resources and CSI reporting latency bound.

The UE may initiate the sidelink RRC reconfiguration procedure and perform the operation in sub-clause 5.8.9.1.2 on the corresponding PC5-RRC connection in following cases:

- the release of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.1;

- the establishment of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.2;

- the modification for the parameters included in *SLRB-Config* of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.2;

- the (re-)configuration of the peer UE to perform NR sidelink measurement and report.

- the (re-)configuration of the sidelink CSI reference signal resources and CSI reporting latency bound.

In RRC\_CONNECTED, the UE applies the NR sidelink communications parameters provided in *RRCReconfiguration* (if any). In RRC\_IDLE or RRC\_INACTIVE, the UE applies the NR sidelink communications parameters provided in system information (if any). For other cases, UEs apply the NR sidelink communications parameters provided in *SidelinkPreconfigNR* (if any). When UE performs state transition between above three cases, the UE applies the NR sidelink communications parameters provided in the new state, after acquisition of the new configurations. Before acquisition of the new configurations, UE continues applying the NR sidelink communications parameters provided in the old state.

[TS 38.331, clause 5.8.9.1.2]

The UE shall set the contents of *RRCReconfigurationSidelink* message as follows:

1> for each sidelink DRB that is to be released, according to sub-clause 5.8.9.1a.1.1, due to configuration by *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR* or by upper layers:

2> set the *SLRB-PC5-ConfigIndex* included in the *slrb-ConfigToReleaseList* corresponding to the sidelink DRB;

1> for each sidelink DRB that is to be established or modified, according to sub-clause 5.8.9.1a.2.1, due to receiving *sl-ConfigDedicatedNR,* *SIB12* or *SidelinkPreconfigNR*:

2> set the *SLRB-Config* included in the *slrb-ConfigToAddModList*, according to the received *sl-RadioBearerConfig* and *sl-RLC-BearerConfig* corresponding to the sidelink DRB;

1> set the *sl-MeasConfig* as follows:

2> If the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or included in *sl-ConfigCommonNR* within SIB12:

3> if UE is in RRC\_CONNECTED:

4> set the *sl-MeasConfig* according to stored NR sidelink measurement configuration information for this destination;

3> if UE is in RRC\_IDLE or RRC\_INACTIVE:

4> set the *sl-MeasConfig* according to stored NR sidelink measurement configuration received from *SIB12*;

2> else:

3> set the sl-MeasConfig according to the sl-MeasPreconfig in SidelinkPreconfigNR;

1> start timer T400 for the destination associated with the sidelink DRB;

1> set the sl-CSI-RS-Config;

1> set the sl-LatencyBoundCSI-Report,

NOTE 1: How to set the parameters included in *sl-CSI-RS-Config* and *sl-LatencyBoundCSI-Report* is up to UE implementation.

The UE shall submit the *RRCReconfigurationSidelink* message to lower layers for transmission.

[TS 38.331, clause 5.8.9.1.3]

The UE shall perform the following actions upon reception of the *RRCReconfigurationSidelink*:

1> if the RRCReconfigurationSidelink includes the sl-ResetConfig:

2> perform the sidelink reset configuration procedure as specified in 5.8.9.1.10;

1> if the RRCReconfigurationSidelink includes the slrb-ConfigToReleaseList:

2> for each *SLRB-PC5-ConfigIndex* value included in the *slrb-ConfigToReleaseList* that is part of the current UE sidelink configuration;

3> perform the sidelink DRB release procedure, according to sub-clause 5.8.9.1a.1;

1> if the RRCReconfigurationSidelink includes the slrb-ConfigToAddModList:

2> for each *slrb-PC5-ConfigIndex* value included in the *slrb-ConfigToAddModList* that is not part of the current UE sidelink configuration:

3> if sl-MappedQoS-FlowsToAddList is included:

4> apply the SL-PQFI included in sl-MappedQoS-FlowsToAddList;

3> perform the sidelink DRB addition procedure, according to sub-clause 5.8.9.1a.2;

2> for each *slrb-PC5-ConfigIndex* value included in the *slrb-ConfigToAddModList* that is part of the current UE sidelink configuration:

3> if sl-MappedQoS-FlowsToAddList is included:

4> add the *SL-PQFI* included in *sl-MappedQoS-FlowsToAddList* to the corresponding sidelink DRB;

3> if sl-MappedQoS-FlowsToReleaseList is included:

4> remove the *SL-PQFI* included in *sl-MappedQoS-FlowsToReleaseList* from the corresponding sidelink DRB;

3> if the sidelink DRB release conditions as described in sub-clause 5.8.9.1a.1.1 are met:

4> perform the sidelink DRB release procedure according to sub-clause 5.8.9.1a.1.2;

3> else if the sidelink DRB modification conditions as described in sub-clause 5.8.9.1a.2.1 are met:

4> perform the sidelink DRB modification procedure according to sub-clause 5.8.9.1a.2.2;

1> if the RRCReconfigurationSidelink message includes the sl-MeasConfig:

2> perform the sidelink measurement configuration procedure as specified in 5.8.10;

1> if the RRCReconfigurationSidelink message includes the sl-CSI-RS-Config:

2> apply the sidelink CSI-RS configuration;

1> if the RRCReconfigurationSidelink message includes the sl-LatencyBoundCSI-Report:

2> apply the configured sidelink CSI report latency bound;

1> if the UE is unable to comply with (part of) the configuration included in the *RRCReconfigurationSidelink* (i.e. sidelink RRC reconfiguration failure):

2> continue using the configuration used prior to the reception of the *RRCReconfigurationSidelink* message;

2> set the content of the *RRCReconfigurationFailureSidelink* message;

3> submit the *RRCReconfigurationFailureSidelink* message to lower layers for transmission;

1> else:

2> set the content of the *RRCReconfigurationCompleteSidelink* message;

3> submit the *RRCReconfigurationCompleteSidelink* message to lower layers for transmission;

NOTE 1: When the same logical channel is configured with different RLC mode by another UE, the UE handles the case as sidelink RRC reconfiguration failure.

[TS 38.321, clause 6.1.3.35]

The Sidelink CSI Reporting MAC CE is identified by a MAC subheader with LCID as specified in Table 6.2.4-1. The priority of the Sidelink CSI Reporting MAC CE is fixed to '1'. The Sidelink CSI Reporting MAC CE is defined as follows (Figure 6.1.3.35-1):

- RI: This field indicates the derived value of the Rank Indicator for sidelink CSI reporting as specified in clause 8.5 of TS 38.214 [7]. The length of the field is 1 bit;

- CQI: This field indicates the derived value of the Channel Quality Indicator for sidelink CSI reporting as specified in clause 8.5 of TS 38.214 [7]. The length of the field is 4 bit;

- R: Reserved bit, set to 0.



Figure 6.1.3.35-1: Sidelink CSI Reporting MAC CE

12.1.5.2.3 Test description

12.1.5.2.3.1 Pre-test conditions

System Simulator:

- SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 uses GNSS as the synchronization reference source.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE uses GNSS as the synchronization reference source.

- The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4] clause 4.8.3.3.3) except for those listed in Table 12.1.5.2.3.1-1.

Table 12.1.5.2.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | service no. 119 is available |  |
| EFVST |  | Service no.2 V2X policy configuration data over PC5 is supported, i.e. value is '01 02' HEX |  |
| EFV2XP\_PC5 |  | As per TS 38.508-1[4] clause 4.8.3.3.3  SL-PreconfigurationNR included in V2X data policy over PC5 is defined in Table 12.1.5.2.3.3-1 |  |

Preamble:

- The UE is in state 4-A as defined in TS 38.508-1 [4], subclause 4.4A, using generic procedure parameter Sidelink (On), Cast Type (Unicast), GNSS Sync (On) using UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.22.

12.1.5.2.3.2 Test procedure sequence

Table 12.1.3.2.3.2-0 illustrates the downlink power levels and other, if any, changing parameters to be applied for the NR-SS-UE at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble. The exact instants on which these values shall be applied are described elsewhere in the present clause.

Table 12.1.5.2.3.2-0: Time instances of simulated NR-SS-UE power level

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR-SS-UE1 | Comment |
| T0 | Reference NR-SS-UE power | dBm/SCS | -85 | SL CSI-RS is not transmitted until SCI format 2-A is transmitted. |
| EPRE ratio of SL CSI-RS to Reference NR-SS-UE power | dB | 0 |

Table 12.1.5.2.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | NR-SS-UE1 sends an *RRCReconfigurationSidelink* message including sl-CSI-RS-Config. | <-- | PC5 RRC: RRCReconfigurationSidelink | - | - |
| 2 | UE sends a RRCReconfigurationCompleteSidelink message | --> | PC5 RRC: RRCReconfigurationCompleteSidelink | - | - |
| 3 | NR-SS-UE1 sends a SCI format 2-A with CSI request = “1” to trigger SL CSI report and starts to transmit SL CSI-RS. | <-- | PSSCH (SCI 2-A) | - | - |
| 4 | Check: Does UE send a CSI reporting MAC-CE to NR-SS-UE1 within the latency limit indicated by sl-LatencyBoundCSI-Report-r16? | --> | MAC CE (sidelink CSI) | 1 | P |

12.1.5.2.3.3 Specific message contents

Table 12.1.5.2.3.3-1: SL-PreconfigurationNR

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.10.1-1 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-PreconfigurationNR-r16 ::= SEQUENCE { |  |  |  |
| sidelinkPreconfigNR-r16 SEQUENCE { |  |  |  |
| sl-CSI-Acquisition-r16 | enabled |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.5.2.3.3-2: RRCReconfigurationSidelink (step 1, Table 12.1.5.2.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 with condition RX and SL\_CSI |

Table 12.1.5.2.3.3-3: RRCReconfigurationCompleteSidelink (step 2, Table 12.1.5.2.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-4 with condition TX |

### 12.1.6 PC5-only operation / Sidelink failure

#### 12.1.6.1 PC5-only operation / Sidelink failure / PC5 RRC reconfiguration failure / Initiating UE side

12.1.6.1.1 Test Purpose (TP)

(1)

**with** { UE having established PC5 RRC connection with peer UE on unicast sidelink }

**ensure that** {

**when** { UE receives a RRCReconfigurationFailureSidelink from peer UE}

**then** { UE continues using the configuration used prior to corresponding RRCReconfigurationSidelink message}

}

12.1.6.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.9.1.1, 5.8.9.1.8. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, subclause 5.8.9.1.1]

…



Figure 5.8.9.1.1-2: Sidelink RRC reconfiguration, failure

[TS 38.331, subclause 5.8.9.1.8]

The UE shall perform the following actions upon reception of the *RRCReconfigurationFailureSidelink*:

1> stop timer T400 for the destination, if running;

1> continue using the configuration used prior to corresponding *RRCReconfigurationSidelink* message;

1> if UE is in RRC\_CONNECTED:

2> perform the sidelink UE information for NR sidelink communication procedure, as specified in 5.8.3.3 or sub-clause 5.10.15 in TS 36.331 [10];

12.1.6.1.3 Test description

12.1.6.1.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE 1 is as defined in TS 38.508-1 [4], configured for and operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE 1 is synchronised on GNSS.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

* UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

- UE is synchronised on GNSS.

Preamble:

- The UE is in state 4-A as defined in TS 38.508-1 [4], subclause 4.4A using generic procedure parameter Sidelink (*On*), Cast Type (*Unicast*), GNSS Sync (*On*) using UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.22.

12.1.6.1.3.2 Test procedure sequence

Table 12.1.6.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | UE is configured by upper layer to release SL-DRB to NR-SS-UE1.  Note: This step is triggered by MMI or AT command. | - | - | - | - |
| 2 | UE sends an *RRCReconfigurationSidelink* message to NR-SS-UE1 to indicate SL-DRB release? | --> | PC5 RRC: RRCReconfigurationSidelink | - | - |
| 3 | The NR-SS-UE1 sends a RRCReconfigurationFailureSidelink message. | <-- | PC5 RRC: RRCReconfigurationFailureSidelink | - | - |
| 4 | Check: Does the test result of generic test procedure in TS 38.508-1 subclause 4.9.31 indicate the UE still has SL-DRB configured in preamble? | - | - | 1 | - |

12.1.6.1.3.3 Specific message contents

Table 12.1.6.1.3.3-1: RRCReconfigurationSidelink (step 2, Table 12.1.6.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 with condition TX | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| slrb-ConfigToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-PC5-ConfigIndex-r16 { | 1 entry |  |  |
| SLRB-PC5-ConfigIndex-r16 [1] | 1 | Index value to refer to a different value than TS 38.508-1[4] Table 4.6.6-37 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.6.1.3.3-2: RRCReconfigurationFailureSidelink (step 3, Table 12.1.6.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-5 with condition RX |

#### 12.1.6.2 PC5-only operation / Sidelink failure / PC5 RRC reconfiguration failure / Peer UE side

12.1.6.2.1 Test Purpose (TP)

(1)

**with** { UE having established PC5 RRC connection with peer UE on unicast sidelink}

**ensure that** {

**when** { UE receives an RRCReconfigurationSidelink that UE cannot comply from peer UE }

**then** { UE continues using the configuration used prior to corresponding RRCReconfigurationSidelink message and sends a RRCReconfigurationFailureSidelink message }

}

12.1.6.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.9.1.1, 5.8.9.1.3. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, subclause 5.8.9.1.1]

…



Figure 5.8.9.1.1-2: Sidelink RRC reconfiguration, failure

[TS 38.331, subclause 5.8.9.1.3]

The UE shall perform the following actions upon reception of the *RRCReconfigurationSidelink*:

1> if the RRCReconfigurationSidelink includes the sl-ResetConfig:

2> perform the sidelink reset configuration procedure as specified in 5.8.9.1.10;

1> if the RRCReconfigurationSidelink includes the slrb-ConfigToReleaseList:

2> for each *SLRB-PC5-ConfigIndex* value included in the *slrb-ConfigToReleaseList* that is part of the current UE sidelink configuration;

3> perform the sidelink DRB release procedure, according to sub-clause 5.8.9.1a.1;

1> if the RRCReconfigurationSidelink includes the slrb-ConfigToAddModList:

2> for each *slrb-PC5-ConfigIndex* value included in the *slrb-ConfigToAddModList* that is not part of the current UE sidelink configuration:

3> if sl-MappedQoS-FlowsToAddList is included:

4> apply the SL-PQFI included in sl-MappedQoS-FlowsToAddList;

3> perform the sidelink DRB addition procedure, according to sub-clause 5.8.9.1a.2;

2> for each *slrb-PC5-ConfigIndex* value included in the *slrb-ConfigToAddModList* that is part of the current UE sidelink configuration:

3> if sl-MappedQoS-FlowsToAddList is included:

4> add the *SL-PQFI* included in *sl-MappedQoS-FlowsToAddList* to the corresponding sidelink DRB;

3> if sl-MappedQoS-FlowsToReleaseList is included:

4> remove the *SL-PQFI* included in *sl-MappedQoS-FlowsToReleaseList* from the corresponding sidelink DRB;

3> if the sidelink DRB release conditions as described in sub-clause 5.8.9.1a.1.1 are met:

4> perform the sidelink DRB release procedure according to sub-clause 5.8.9.1a.1.2;

3> else if the sidelink DRB modification conditions as described in sub-clause 5.8.9.1a.2.1 are met:

4> perform the sidelink DRB modification procedure according to sub-clause 5.8.9.1a.2.2;

1> if the RRCReconfigurationSidelink message includes the sl-MeasConfig:

2> perform the sidelink measurement configuration procedure as specified in 5.8.10;

1> if the RRCReconfigurationSidelink message includes the sl-CSI-RS-Config:

2> apply the sidelink CSI-RS configuration;

1> if the RRCReconfigurationSidelink message includes the sl-LatencyBoundCSI-Report:

2> apply the configured sidelink CSI report latency bound;

1> if the UE is unable to comply with (part of) the configuration included in the *RRCReconfigurationSidelink* (i.e. sidelink RRC reconfiguration failure):

2> continue using the configuration used prior to the reception of the *RRCReconfigurationSidelink* message;

2> set the content of the *RRCReconfigurationFailureSidelink* message;

3> submit the *RRCReconfigurationFailureSidelink* message to lower layers for transmission;

1> else:

2> set the content of the *RRCReconfigurationCompleteSidelink* message;

3> submit the *RRCReconfigurationCompleteSidelink* message to lower layers for transmission;

NOTE 1: When the same logical channel is configured with different RLC mode by another UE, the UE handles the case as sidelink RRC reconfiguration failure.

12.1.6.2.3 Test description

12.1.6.2.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE 1 is as defined in TS 38.508-1 [4], configured for and operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE 1 is synchronised on GNSS.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

* UE is authorised to perform NR sidelink communication.
* UE is synchronised on GNSS.
* The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

Preamble:

- The UE is in state 4-A as defined in TS 38.508-1 [4], subclause 4.4A using generic procedure parameter Sidelink (*On*), Cast Type (*Unicast*), GNSS Sync (*On*) using NR-SS-UE1 initiated unicast mode NR sidelink communication procedure in subclause 4.9.23.

12.1.6.2.3.2 Test procedure sequence

Table 12.1.6.2.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The NR-SS-UE1 sends a *RRCReconfigurationSidelink* message to UE to indicate SL-DRB release with SLRB-PC5-ConfigIndex-r16 pointing to SL-DRB which has not been configured yet? | <-- | PC5 RRC: RRCReconfigurationSidelink | - | - |
| 2 | Check: Does the UE sends an *RRCReconfigurationFailureSidelink* message. | --> | PC5 RRC: RRCReconfigurationFailureSidelink | 1 | P |
| 3 | Check: Does the test result of generic test procedure in TS 38.508-1 subclause 4.9.31 indicate the UE still has SL-DRB configured in preamble? | - | - | 1 | - |

12.1.6.2.3.3 Specific message contents

Table 12.1.6.2.3.3-1: RRCReconfigurationSidelink (step 1, Table 12.1.6.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 with condition RX | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| slrb-ConfigToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-PC5-ConfigIndex-r16 { | 1 entry |  |  |
| SLRB-PC5-ConfigIndex-r16 [1] | 2 | Index value to refer to a different value than TS 38.508-1[4] Table 4.6.6-37 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.6.2.3.3-2: RRCReconfigurationFailureSidelink (step 2, Table 12.1.6.2.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-5 with condition TX |

#### 12.1.6.3 PC5-only operation / Sidelink failure / Sidelink radio link failure / Transmission side

12.1.6.3.1 Test Purpose (TP)

(1)

**with** { UE having established PC5 RRC connection with peer UE on unicast sidelink and has sent an RRCReconfigurationSidelink message to peer UE }

**ensure that** {

**when** { UE does not receive RRCReconfigurationCompleteSidelink or RRCReconfigurationFailure before T400 expires}

**then** { UE releases PC5-RRC connection and indicates the release to upper layer}

}

(2)

**with** { UE having established PC5 RRC connection with peer UE on unicast sidelink and has established a AM SL-DRB}

**ensure that** {

**when** { Retransmission number of the AM SL-DRB reaches the maximum number of retransmissions}

**then** { UE releases PC5-RRC connection and indicates the release to upper layer.}

}

(3)

**with** { UE having established PC5 RRC connection with peer UE on unicast sidelink }

**ensure that** {

**when** { MAC detects that maximum number of consecutive HARQ DTX has been reached }

**then** { UE releases PC5-RRC connection and indicates the release to upper layer }

}

12.1.6.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.9.3. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, subclause 5.8.9.3]

The UE shall:

1> upon indication from sidelink RLC entity that the maximum number of retransmissions for a specific destination has been reached; or

1> upon T400 expiry for a specific destination; or

1> upon indication from MAC entity that the maximum number of consecutive HARQ DTX for a specific destination has been reached; or

1> upon integrity check failure indication from sidelink PDCP entity concerning SL-SRB2 or SL-SRB3 for a specific destination:

2> consider sidelink radio link failure to be detected for this destination;

2> release the DRBs of this destination, in according to sub-clause 5.8.9.1a.1;

2> release the SRBs of this destination, in according to sub-clause 5.8.9.1a.3;

2> discard the NR sidelink communication related configuration of this destination;

2> reset the sidelink specific MAC of this destination;

2> consider the PC5-RRC connection is released for the destination;

2> indicate the release of the PC5-RRC connection to the upper layers for this destination (i.e. PC5 is unavailable);

2> if UE is in RRC\_CONNECTED:

3> perform the sidelink UE information for NR sidelink communication procedure, as specified in 5.8.3.3;

NOTE: It is up to UE implementation on whether and how to indicate to upper layers to maintain the keep-alive procedure [55].

12.1.6.3.3 Test description

12.1.6.3.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE 1 is as defined in TS 38.508-1 [4], configured for and operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE 1 is synchronised on GNSS.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

* UE is authorised to perform NR sidelink communication.
* The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.
* UE is synchronised on GNSS.

Preamble:

- The UE is in state 4-A as defined in TS 38.508-1 [4], subclause 4.4A using generic procedure parameter Sidelink (*On*), Cast Type (*Unicast*), GNSS Sync (*On*) using UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.23.

12.1.6.3.3.2 Test procedure sequence

Table 12.1.6.3.3.2-1: Specific Parameters

|  |  |  |
| --- | --- | --- |
| Parameter | Value | Comment |
| sl-MaxRetxThreshold-r16 | 1 |  |
| sl-MaxNumConsecutiveDTX-r16 | 1 |  |

Table 12.1.6.3.3.2-2: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | UE is configured by upper layer to release SL-DRB to NR-SS-UE1.  Note: This step is triggered by MMI or AT command. | - | - | - | - |
| 2 | UE sends an *RRCReconfigurationSidelink* message to NR-SS-UE1 to indicate SL-DRB release | --> | PC5 RRC: RRCReconfigurationSidelink | - | - |
| 3 | NR-SS-UE1 does not respond and waits for the expiration of t\_400 (1 second). | - | - | - | - |
| 3A | 1 second after step 3, the NR-SS-UE1 sends a DIRECT LINK RELEASE REQUEST message. | <-- | PC5-S: DIRECT LINK RELEASE REQUEST | - | - |
| 4 | Check: Does the UE send a DIRECT LINK RELEASE ACCEPT message within the next 5 seconds. | --> | PC5-S: DIRECT LINK RELEASE ACCEPT | 1 | F |
| 5 | The UE is brought to state 4-A as defined in TS 38.508-1 [4], subclause 4.4A using generic procedure parameter Sidelink (*On*), Cast Type (*Unicast*), GNSS Sync (*On*), Test Mode = *On* using procedure in subclause 4.9.23. | - | - | - | - |
| 6 | The SS triggers UE to close UE test loop mode E (Transmission Mode).  NOTE: Closing of UE test loop mode E may be performed by MMI or AT command (+CCUTLE). | - | - | - | - |
| 7 | The UE transmits one AMD PDU#1 to NR-SS-UE1 on SL-DRB | --> | AMD PDU#1 (SN=0) | - | - |
| - | EXCEPTION: Steps 9-10 are repeated sl-maxRetxThreshold times | - | - | - | - |
| - | EXCEPTION: In parallel to steps 9-10 any additional AMD PDU’s received are ignored by the SS | - | - | - | - |
| 8 | The NR-SS-UE1 transmits an RLC STATUS PDU. ACK\_SN =1 and NACK\_SN =0. | <-- | STATUS PDU | - | - |
| 9 | The UE transmits one AMD PDU#1 to NR-SS-UE1 | --> | AMD PDU#1 (SN=0) | - | - |
| 10 | The NR-SS-UE1 transmits an RLC STATUS PDU. ACK\_SN =1 and NACK\_SN =0. | <-- | STATUS PDU | - | - |
| 11 | 1 second after step 10, the NR-SS-UE1 sends a DIRECT LINK RELEASE REQUEST message. | <-- | PC5-S: DIRECT LINK RELEASE REQUEST | - | - |
| 11A | Check: Does the UE send a DIRECT LINK RELEASE ACCEPT message within the next 5 seconds? | --> | PC5-S: DIRECT LINK RELEASE ACCEPT | 2 | F |
| 12 | The UE is brought to state 4-A as defined in TS 38.508-1 [4], subclause 4.4A using generic procedure parameter Sidelink (*On*), Cast Type (*Unicast*), GNSS Sync (*On*), Test Mode = *On* using procedure in subclause 4.9.23. | - | - | - | - |
| 13 | The SS triggers UE to close UE test loop mode E (Transmission Mode).  NOTE: Closing of UE test loop mode E may be performed by MMI or AT command (+CCUTLE). | - | - | - | - |
| 14 | The NR-SS-UE1 MAC is configured to not send HARQ feedback | - | - | - | - |
| - | EXCEPTION: Step 14 is repeated sl-MaxNumConsecutiveDTX-r16 times | - | - | - | - |
| - | EXCEPTION: In parallel to step 14 any additional MAC PDU’s received are ignored by the SS. | - | - | - | - |
| 15 | The UE transmits one MAC PDU to NR-SS-UE1 | --> | MAC PDU | - | - |
| 15A | 1 second after step 15, the NR-SS-UE1 sends a DIRECT LINK RELEASE REQUEST message. | <-- | PC5-S: DIRECT LINK RELEASE REQUEST |  |  |
| 16 | Check: Does the UE send a DIRECT LINK RELEASE ACCEPT message within the next 5 seconds? | --> | PC5-S: DIRECT LINK RELEASE ACCEPT | 3 | F |

12.1.6.3.3.3 Specific message contents

Table 12.1.6.3.3.3-1: RRCReconfigurationSidelink (step 2, Table 12.1.6.3.3.2-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 with condition TX | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| slrb-ConfigToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-PC5-ConfigIndex-r16 { | 1 entry |  |  |
| SLRB-PC5-ConfigIndex-r16 [1] | 1 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.6.3.3.3-2: DIRECT LINK RELEASE REQUEST (Steps 3A, 11 and 15A, Table 12.1.6.3.3.2-2)

|  |
| --- |
| Derivation Path: Table 4.7.4-11 with condition Rx |

### 12.1.7 PC5-only operation / Sidelink UE capability transfer via PC5 RRC

#### 12.1.7.1 PC5-only operation / Sidelink UE capability transfer via PC5 RRC / One-way and two-way transfer

12.1.7.1.1 Test Purpose (TP)

(1)

**with** { UE having established PC5 RRC connection with peer UE on unicast sidelink }

**ensure that** {

**when** { UE receives a UECapabilityEnquirySidelink message from peer UE }

**then** { UE sends a UECapabilityInformationSidelink message to peer UE }

}

(2)

**with** { UE having established PC5 RRC connection with peer UE on unicast sidelink }

**ensure that** {

**when** { UE is configured by upper layer to initiate capability transfer procedure }

**then** { UE sends a UECapabilityEnquirySidelink message to peer UE }

}

(3)

**with** { UE having established PC5 RRC connection with peer UE on unicast sidelink }

**ensure that** {

**when** { UE is configured by upper layer to initiate capability transfer procedure and to provide UE radio access capabilities }

**then** { UE sends a UECapabilityEnquirySidelink message with ue-CapabilityInformationSidelink to peer UE }

}

12.1.7.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.9.2.1, 5.8.9.2.2, 5.8.9.2.3 and 5.8.9.2.4. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, subclause 5.8.9.2.1]

This clause describes how the UE compiles and transfers its sidelink UE capability information for unicast to the initiating UE.



Figure 5.8.9.2.1-1: Sidelink UE capability transfer

[TS 38.331, subclause 5.8.9.2.2]

The UE may initiate the sidelink UE capability transfer procedure upon indication from upper layer when it needs (additional) UE radio access capability information.

[TS 38.331, subclause 5.8.9.2.3]

The initiating UE shall set the contents of *UECapabilityEnquirySidelink* message as follows:

1> include in UE radio access capabilities for sidelink within *ue-CapabilityInformationSidelink*, if needed;

NOTE 1: It is up to initiating UE to decide whether *ue-CapabilityInformationSidelink* should be included.

1> set *frequencyBandListFilterSidelink* to include frequency bands for which the peer UE is requested to provide supported bands and band combinations;

NOTE 2: The initiating UE is not allowed to send the *UECapabilityEnquirySidelink* message without including the field *frequencyBandListFilterSidelink.*

1> submit the *UECapabilityEnquirySidelink* message to lower layers for transmission.

[TS 38.331, subclause 5.8.9.2.4]

The peer UE shall set the contents of *UECapabilityInformationSidelink* message as follows:

1> include UE radio access capabilities for sidelink within *ue-CapabilityInformationSidelink*;

1> compile a list of "candidate band combinations" only consisting of bands included in *frequencyBandListFilterSidelink*, and prioritized in the order of *frequencyBandListFilterSidelink* (i.e. first include band combinations containing the first-listed band, then include remaining band combinations containing the second-listed band, and so on).

1> include into *supportedBandCombinationListSidelinkNR* as many band combinations as possible from the list of "candidate band combinations", starting from the first entry;

1> include the received *frequencyBandListFilterSidelink* in the field *appliedFreqBandListFilter* of the requested UE capability;

1> submit the *UECapabilityInformationSidelink* message to lower layers for transmission.

NOTE: If the UE cannot include all band combinations due to message size or list size constraints, it is up to UE implementation which band combinations it prioritizes.

12.1.7.1.3 Test description

12.1.7.1.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- Operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS UE uses GNSS as the synchronization reference source.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

* UE is authorised to perform NR sidelink communication.
* UE is equipped with USIM containing default value (as per TS 38.508-1[4] clause 4.8.3.3.3).
* UE is synchronised on GNSS

Preamble:

- The UE is in state 4-A as defined in TS 38.508-1 [4], subclause 4.4A using generic procedure parameter Sidelink (*On*), Cast Type (*Unicast*), GNSS Sync (*On*) using UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.22.

12.1.7.1.3.2 Test procedure sequence

Table 12.1.7.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The NR-SS-UE sends a UECapabilityEnquirySidelink message from NR-SS-UE on SL-SRB3. | <-- | PC5 RRC: UECapabilityEnquirySidelink | - | - |
| 2 | Check: Does the UE send a UECapabilityInformationSidelink message? | --> | PC5 RRC: UECapabilityInformationSidelink | 1 | P |
| 3 | The UE is configured by upper layers to initiate capability transfer procedure and to include only NR Sidelink operating band which is currently used in this TC for communication over PC5 interface.  Note: This step is triggered by MMI or AT command. | - | - | - | - |
| 4 | Check: Does the UE send on SL-SRB3 a UECapabilityEnquirySidelink message? | --> | PC5 RRC: UECapabilityEnquirySidelink | 2 | P |
| 5 | The NR-SS-UE sends a UECapbilityInformationSidelink message. | <-- | PC5 RRC: UECapabilityInformationSidelink | - | - |
| 6 | The UE is configured by upper layers to initiate capability transfer procedure, to include only the NR Sidelink operating band which is currently used in this TC for communication over PC5 interface and to provide UE radio access capabilities.  Note: This step is triggered by MMI or AT command. | - |  |  |  |
| 7 | Check: Does the UE send on SL-SRB3 a UECapabilityEnquirySidelink message with *ue-CapabilityInformationSidelink-r16* IE? | --> | PC5 RRC: UECapabilityEnquirySidelink | 3 | P |
| 8 | The NR-SS-UE sends a UECapabilityInformationSidelink message. | <-- | PC5 RRC: UECapabilityInformationSidelink | - | - |

12.1.7.1.3.3 Specific message contents

Editor’s Note: The specific message contents in some of the tables are still to be fully completed.

Table 12.1.7.1.3.3-1: *UECapabilityEnquirySidelink* (step 1, Table 12.1.7.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-6 with condition RX | | | |
| Information Element | Value/remark | Comment | Condition |
| UECapabilityEnquirySidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| ueCapabilityEnquirySidelink-r16 SEQUENCE { |  |  |  |
| frequencyBandListFilterSidelink-r16 SEQUENCE  (SIZE (1..maxBandsMRDC)) OF  FreqBandInformation { |  | Includes only the single frequency band and band combination NR Sidelink operating band which is currently used in this TC for communication over the PC5 interface |  |
| FreqBandInformation[1] CHOICE { |  |  |  |
| bandInformationNR SEQUENCE { |  |  |  |
| bandNR | FreqBandIndicatorNR of  the PC5 operating band |  | pc\_nrBandx  ('x' being the  band  number/type  related PICS  listed in TS  38.508-2, Table A.4.3.1-9) |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.7.2.3.3-2: *UECapabilityInformationSidelink* (step 2, Table 12.1.7.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-7 with condition TX | | | |
| Information Element | Value/remark | Comment | Condition |
| UECapabilityInformationSidelink ::= SEQUENCE { |  |  |  |
| rrc-TransactionIdentifier-r16 | Set to the same value as the rrc-TransactionIdentifier-r16 field in UECapabilityEnquirySidelink message in step 1 |  |  |
| criticalExtensions CHOICE { |  |  |  |
| ueCapabilityInformationSidelink-r16 SEQUENCE { |  |  |  |
| pdcp-ParametersSidelink-r16 SEQUENCE { |  |  |  |
| outOfOrderDeliverySidelink-r16 | Checked |  | pc\_outOfOrderDeliverySidelink\_r16 |
| } |  |  |  |
| rlc-ParametersSidelink-r16 SEQUENCE { |  |  |  |
| am-WithLongSN-Sidelink-r16 | Checked |  | pc\_amWithLongSN\_Sidelink\_r16 |
| um-WithLongSN-Sidelink-r16 | Checked |  | pc\_umWithLongSN\_Sidelink\_r16 |
| } |  |  |  |
| supportedBandCombinationListSidelinkNR-r16 SEQUENCE (SIZE (1..maxBandComb)) OF BandCombinationParametersSidelinkNR-r16 { | At least 1 entry | Includes all band combinations which the UE (= UE Under Test) supports for NR Sidelink acc. to the declared UE capabilities | FFS |
| BandCombinationParametersSidelinkNR-r16 [x] SEQUENCE (SIZE (1..maxSimultaneousBands)) OF BandParametersSidelink-r16 { | At least 1 entry | entry x |  |
| BandParametersSidelink-r16 [x] SEQUENCE { |  | entry x |  |
| freqBandSidelink-r16 | FreqBandIndicatorNR of band combination which the UE supports for NR Sidelink acc. to the declared UE capabilities |  |  |
| } |  |  |  |
| } |  |  |  |
| supportedBandListSidelink-r16 SEQUENCE  (SIZE (1..maxBands)) OF BandSidelinkPC5-r16 { | At least 1 entry | Includes all frequency bands which the UE (= UE Under Test) supports for NR Sidelink acc. to the declared UE capabilities | [FFS] |
| BandSidelinkPC5-r16[x] SEQUENCE { |  |  |  |
| freqBandSidelink-r16 | FreqBandIndicatorNR of frequency band which the UE supports for NR Sidelink acc. to the declared UE capabilities |  |  |
| sl-Reception-r16 SEQUENCE { |  |  |  |
| harq-RxProcessSidelink-r16 | Checked |  | pc\_harq\_RxProcessSidelink\_nX (X=16, 24, 32, 48, 64) |
| pscch-RxSidelink-r16 | [FFS] |  |  |
| scs-CP-PatternRxSidelink-r16 | [FFS] |  |  |
| extendedCP-RxSidelink-r16 | [FFS] |  |  |
| } |  |  |  |
| sl-Tx-256QAM-r16 | [FFS] |  |  |
| lowSE-64QAM-MCS-TableSidelink-r16 | [FFS] |  |  |
| csi-ReportSidelink-r16 | [FFS] |  |  |
| rankTwoReception-r16 | [FFS] |  |  |
| sl-openLoopPC-RSRP-ReportSidelink-r16 | [FFS] |  |  |
| sl-Rx-256QAM-r16 | [FFS] |  |  |
| } |  |  |  |
| } |  |  |  |
| appliedFreqBandListFilter-r16 SEQUENCE (SIZE (1..maxBandsMRDC)) OF FreqBandInformation { | At least one entry |  |  |
| FreqBandInformation [x] CHOICE { |  | entry x |  |
| bandInformationNR SEQUENCE { |  |  |  |
| bandNR | FreqBandIndicatorNR of the single frequency band and band combination which the SS-UE requested to include in the IE frequencyBandListFilterSidelink-r16 of UECapabilityEnquirySidelink message acc. to Table 12.1.7.2.3.3-1. |  |  |
| maxBandwidthRequestedDL | Not checked |  |  |
| maxBandwidthRequestedUL | Not checked |  |  |
| maxCarriersRequestedDL | Not checked |  |  |
| maxCarriersRequestedUL | Not checked |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.7.1.3.3-3: *UECapabilityEnquirySidelink* (step 4, Table 12.1.7.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-6 with condition TX | | | |
| Information Element | Value/remark | Comment | Condition |
| UECapabilityEnquirySidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| ueCapabilityEnquirySidelink-r16 SEQUENCE { |  |  |  |
| frequencyBandListFilterSidelink-r16 SEQUENCE  (SIZE (1..maxBandsMRDC)) OF  FreqBandInformation { | 1 entry | Includes only the NR Sidelink operating band which is currently used in this TC |  |
| FreqBandInformation[1] CHOICE { |  | entry 1 |  |
| bandInformationNR SEQUENCE { |  |  |  |
| bandNR | FreqBandIndicatorNR of  the PC5 operating band |  |  |
| maxBandwidthRequestedDL | Not checked |  |  |
| maxBandwidthRequestedUL | Not checked |  |  |
| maxCarriersRequestedDL | Not checked |  |  |
| maxCarriersRequestedUL | Not checked |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.1.7.1.3.3-4: *UECapabilityInformationSidelink* (steps 5 and 8, Table 12.1.7.1.3.2-1)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-7 with condition RX |

Table 12.1.7.1.3.3-5: *UECapabilityEnquirySidelink* (step 7, Table 12.1.7.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-6 with condition TX and TWO\_WAY\_ENQUIRY | | | |
| Information Element | Value/remark | Comment | Condition |
| UECapabilityEnquirySidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| ueCapabilityEnquirySidelink-r16 SEQUENCE { |  |  |  |
| frequencyBandListFilterSidelink-r16 SEQUENCE  (SIZE (1..maxBandsMRDC)) OF  FreqBandInformation { | 1 entry | Includes only the NR Sidelink operating band which is currently used in this TC |  |
| FreqBandInformation[1] CHOICE { |  | entry 1 |  |
| bandInformationNR SEQUENCE { |  |  |  |
| bandNR | FreqBandIndicatorNR of  the PC5 operating band |  |  |
| maxBandwidthRequestedDL | Not checked |  |  |
| maxBandwidthRequestedUL | Not checked |  |  |
| maxCarriersRequestedDL | Not checked |  |  |
| maxCarriersRequestedUL | Not checked |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| ue-CapabilityInformationSidelink-r16 | Checked, same content as in Table 12.1.7.2.3.3-2 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

## 12.2 Inter-carrier concurrent operation

### 12.2.1 Inter-carrier concurrent operation / Sidelink communication

#### 12.2.1.1

#### 12.2.1.2 Inter-carrier concurrent operation / Sidelink communication / RRC\_IDLE / Reception

12.2.1.2.1 Test Purpose (TP)

(1)

**with** { UE being in RRC\_IDLE state and the cell on which UE camps broadcasting SIB12 including no sl-FreqInfoList but anchor carrier configuration }

**ensure that** {

**when** { A neighbour cell on anchor carrier starts broadcasting SIB12 which includes sl-RxPool and UE is configured by upper layer to perform NR sidelink reception }

**then** { UE considers the anchor carrier to be the highest priority, reselects to neighbour cell on anchor carrier and is able to monitor NR sidelink transmission using the resource pool indicated by sl-RxPool in SIB12 }

}

(2)

**with** { UE being in RRC\_IDLE state and the cell on which UE camps not broadcasting SIB12 }

**ensure that** {

**when** { UE is configured by upper layer to perform NR sidelink reception }

**then** { UE is able to monitor NR sidelink transmission using the resource pool indicated by sl-RxPool in pre-configuration }

}

12.2.1.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.304, subclause 5.2.4.1 and 5.8.2, TS 38.331 [22], subclause 5.8.7. Unless otherwise stated these are Rel-16 requirements.

[TS 38.304, clause 5.2.4.1]

Absolute priorities of different NR frequencies or inter-RAT frequencies may be provided to the UE in the system information, in the *RRCRelease* message, or by inheriting from another RAT at inter-RAT cell (re)selection. In the case of system information, an NR frequency or inter-RAT frequency may be listed without providing a priority (i.e. the field *cellReselectionPriority* is absent for that frequency). If priorities are provided in dedicated signalling, the UE shall ignore all the priorities provided in system information. If UE is in *camped on any cell* state, UE shall only apply the priorities provided by system information from current cell, and the UE preserves priorities provided by dedicated signalling and *deprioritisationReq* received in *RRCRelease* unless specified otherwise. When the UE in camped normally state, has only dedicated priorities other than for the current frequency, the UE shall consider the current frequency to be the lowest priority frequency (i.e. lower than any of the network configured values). If the UE is configured to perform both NR sidelink communication and V2X sidelink communication, the UE may consider the frequency providing both NR sidelink communication configuration and V2X sidelink communication configuration to be the highest priority. If the UE is configured to perform NR sidelink communication and not perform V2X communication, the UE may consider the frequency providing NR sidelink communication configuration to be the highest priority. If the UE is configured to perform V2X sidelink communication and not perform NR sidelink communication, the UE may consider the frequency providing V2X sidelink communication configuration to be the highest priority.

NOTE 1: The frequency only providing the anchor frequency configuration should not be prioritized for V2X service during cell reselection, as specified in TS 38.331[3].

NOTE 2: When UE is configured to perform NR sidelink communication or V2X sidelink communication performs cell reselection, it may consider the frequencies providing the intra-carrier and inter-carrier configuration have equal priority in cell reselection.

NOTE 3: The prioritization among the frequencies which UE considers to be the highest priority frequency is left to UE implementation.

NOTE 4: The UE is configured to perform V2X sidelink communication or NR sidelink communication, if it has the capability and is authorized for the corresponding sidelink operation.

NOTE 5: When UE is configured to perform both NR sidelink communication and V2X sidelink communication, but cannot find a frequency which can provide both NR sidelink communication configuration and V2X sidelink communication configuration, UE may consider the frequency providing either NR sidelink communication configuration or V2X sidelink communication configuration to be the highest priority.

The UE shall only perform cell reselection evaluation for NR frequencies and inter-RAT frequencies that are given in system information and for which the UE has a priority provided.

…

[TS 38.304, clause 8.2]

The requirements defined in this clause for sidelink operation apply for UEs in RRC\_IDLE, RRC\_INACTIVE and in RRC\_CONNECTED.

When UE is interested to perform NR sidelink communication on non-serving frequency, it may perform measurements on that frequency or the frequencies which can provide inter carrier NR sidelink configuration for that frequency for cell selection and reselection purpose in accordance with TS 38.133[8]. When UE is interested to perform V2X sidelink communication on non-serving frequency, it may perform measurements on that frequency or the frequencies which can provide inter carrier V2X sidelink configuration for that frequency for cell selection and intra-frequency reselection purpose in accordance with TS 38.133[8].

If the UE detects at least one cell on the frequency which UE is configured to perform NR sidelink communication on fulfilling the S criterion in accordance with clause 8.2.1, it shall consider itself to be in-coverage for NR sidelink communication on that frequency. If the UE cannot detect any cell on that frequency meeting the S criterion, it shall consider itself to be out-of-coverage for NR sidelink communication on that frequency.

If the UE detects at least one cell on the frequency which UE is configured to perform V2X sidelink communication on fulfilling the S criterion in accordance with clause 8.2.1, it shall consider itself to be in-coverage for V2X sidelink communication on that frequency. If the UE cannot detect any cell on that frequency meeting the S criterion, it shall consider itself to be out-of-coverage for V2X sidelink communication on that frequency.

If the UE has selected a cell on a non-serving frequency for V2X sidelink communication, it shall perform additional intra-frequency reselection process to select a better cell for sidelink operation on that frequency in accordance with clause 8.2.1.

If the UE has selected a cell on a non-serving frequency for NR sidelink communication, it shall perform additional reselection process to select a better cell for sidelink operation in accordance with clause 8.2.1.

[TS 38.331, clause 5.8.7]

A UE capable of NR sidelink communication that is configured by upper layers to receive NR sidelink communication shall:

1> if the conditions for NR sidelink communication operation as defined in 5.8.2 are met:

2> if the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *RRCReconfiguration* message or *sl-FreqInfoList* included in *SIB12*:

3> if the UE is configured with *sl-RxPool* included in *RRCReconfiguration* message with *reconfigurationWithSync* (i.e. handover):

4> configure lower layers to monitor sidelink control information and the corresponding data using the pool of resources indicated by *sl-RxPool*;

3> else if the cell chosen for NR sidelink communication provides *SIB12*:

4> configure lower layers to monitor sidelink control information and the corresponding data using the pool of resources indicated by *sl-RxPool in SIB12*;

2> else:

3> configure lower layers to monitor sidelink control information and the corresponding data using the pool of resources that were preconfigured by *sl-RxPool* in *SL-PreconfigurationNR*, asdefined in sub-clause 9.3;

12.2.1.2.3 Test description

12.2.1.2.3.1 Pre-test conditions

System Simulator:

- SS-NW

- NR Cell 1, NR Cell 12.

- System information combination NR-4 as defined in TS 38.508-1 [4] clause 4.4.3.1 is used in NR Cell 1 and NR Cell 12.

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication transmitting device on the resources that UE is expected to use for transmission.

- NR-SS-UE1 is synchronised on GNSS.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

* UE is authorised to perform NR sidelink communication.
* The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3 except for those listed in Table 12.2.1.2.3.1-1.
* UE is synchronised on GNSS.

Table 12.2.1.2.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | service no. 119 is available |  |
| EFVST |  | Service no.2 V2X policy configuration data over PC5 is supported, i.e. value is '01 02' HEX |  |
| EFV2XP\_PC5 |  | SL-PreconfigurationNR field as defined in TS 38.508-1 [4], table 4.10.1-1, except SL-BWP-PoolConfigCommon field as defined in Table 12.2.1.2.3.3-1 |  |

Preamble:

- The UE is in state 1N-A as defined in TS 38.508-1 [4], subclause 4.4A on NR Cell 1.

12.2.1.2.3.2 Test procedure sequence

Table 12.2.1.2.3.2-1 and 12.2.1.2.3.2-2 illustrate the downlink power levels to be applied for NR Cell 1 and NR Cell 12 at various time instants of the test execution for FR1 and FR2 respectively. Row marked "T0" denotes the conditions after the preamble, while rows marked "T1" is to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 12.2.1.2.3.2-1: Time instances of cell power level and parameter changes in FR1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 12 | Remark |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | -88 | Off |  |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | -88 | -80 |  |

Table 12.2.1.2.3.2-2: Time instances of cell power level and parameter changes in FR2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 12 | Remark |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | -82 | Off |  |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | -82 | -72 |  |

Table 12.2.1.2.3.2-3: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
| U - S | Message |
| 1 | Check: Does the test result of generic test procedure in TS 38.508-1 [4] Table 4.9.23.2.2-1 indicate that the UE has established sidelink communication using the pool of resources indicated by sl-RxPool in pre-configuration? | - | - | 2 | P |
| 2 | The UE is switched off by executing generic procedure in Table 4.9.6.1-1 in TS 38.508-1 [4]. | - | - | - | - |
| 3 | The SS-NW adds SIB12 on NR Cell 1 and NR Cell 12, system information combination NR-14 as defined in TS 38.508-1 [4] clause 4.4.3.1 is used. | - | - | - | - |
| 4 | The UE is Switched ON. | - | - | - | - |
| 5-24a1 | Steps 1 to 20a1 of the generic test procedure described in TS 38.508-1 [4] table 4.5.2.2-2 are performed on NR Cell 1. | - | - | - | - |
| 25 | The SS adjusts cell levels according to row T1 of table 12.2.1.2.3.2-1/2. | - | - | - | - |
| 26 | Upper layers of the UE configure the UE to perform sidelink transmission.  Note: This step is triggered by MMI or AT command | - | - | - | - |
| - | EXCEPTION: In parallel with step 27, parallel behaviour defined in table 12.2.1.2.3.2-4 is executed. | - | - | - | - |
| 27 | Check: Does the test result of generic test procedure in TS 38.508-1 [4] Table 4.9.5.2.2-1 indicate that the UE is camped on NR Cell 12.  NOTE: The UE performs a registration for mobility procedure and the RRC connection is not released. | - | - | 1 | P |
| 28 | The NR-SS-UE1 transmits a DIRECT LINK ESTABLISHMENT REQUEST message using the pool of resources indicated by *sl-RxPool* in *SIB12* of NR Cell 12. | <-- | PC5-S: DIRECT LINK ESTABLISHMENT REQUEST | - | - |
| 29 | Check: Does the UE transmit a DIRECT LINK SECURITY MODE COMMAND message. | --> | PC5-S: DIRECT LINK SECURITY MODE COMMAND | 1 | P |
| 30 | The NR-SS-UE1 transmits a DIRECT LINK SECURITY MODE COMPLETE message. | <-- | PC5-S: DIRECT LINK SECURITY MODE COMPLETE | - | - |
| 31 | The UE transmits a DIRECT LINK ESTABLISHMENT ACCEPT message. | --> | PC5-S: DIRECT LINK ESTABLISHMENT ACCEPT | - | - |
| 32 | The NR-SS-UE1 transmits an *RRCReconfigurationSidelink* message. | <-- | PC5-RRC: RRCReconfigurationSidelink | - | - |
| 33 | Check: Does the UE transmit an RRCReconfigurationCompleteSidelink message? | --> | PC5-RRC: *RRCReconfigurationCompleteSidelink* | 1 | P |

Table 12.2.1.2.3.2-4: Parallel behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The UE sends a SidelinkUEInformationNR message. | --> | NR RRC: SidelinkUEInformationNR | - | - |

12.2.1.2.3.3 Specific message contents

Table 12.2.1.2.3.3-1: SL-BWP-PoolConfigCommon (Preamble)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-4 with condition RXPOOL and SELECTED |

Table 12.2.1.2.3.3-2: SIB12 for NR Cell 12 (Step 3, Table 12.2.1.2.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.2-14 | | | |
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| SIB12-r16 ::= SEQUENCE { |  |  |  |
| segmentContainer-r16 | OCTET STRING (CONTAINING SIB12-IEs-r16 or segment of SIB12-IEs-r16) |  |  |
| } |  |  |  |

Table 12.2.1.2.3.3-3: SIB12-IEs-r16 (Table 12.2.1.2.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.2-14A | | | |
| Information Element | Value/remark | Comment | Condition |
| SIB12-IEs-r16 ::= SEQUENCE { |  |  |  |
| sl-ConfigCommonNR-r16 SEQUENCE { |  |  |  |
| sl-FreqInfoList-r16 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-FreqConfigCommon-r16{ | 1 entry |  |  |
| SL-FreqConfigCommon-r16[1] | SL-FreqConfigCommon |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.2.3.3-4: *SL-FreqConfigCommon* (Table 12.2.1.2.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-11 | | | |
| Information Element | Value/remark | Comment | Condition |
| SL-FreqConfigCommon-r16 ::= SEQUENCE { |  |  |  |
| sl-ConfigCommonNR-r16 SEQUENCE { |  |  |  |
| sl-BWP-List-r16 SEQUENCE (SIZE (1..maxNrofSL-BWPs-r16)) OF SL-BWP-ConfigCommon-r16 { | 1 entry |  |  |
| SL-BWP-ConfigCommon-r16[1] | SL-BWP-ConfigCommon |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.2.3.3-5: *SL-BWP-ConfigCommon* (Table 12.2.1.2.3.3-4)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-2 | | | |
| Information Element | Value/remark | Comment | Condition |
| SL-BWP-ConfigCommon-r16 ::= SEQUENCE { |  |  |  |
| sl-BWP-PoolConfigCommon-r16 | SL-BWP-PoolConfigCommon |  |  |
| } |  |  |  |

Table 12.2.1.2.3.3-6: SL-BWP-PoolConfigCommon (Table 12.2.1.2.3.3-5)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-4 with condition RXPOOL and SELECTED |

Table 12.2.1.2.3.3-7: SL-ResourcePool (Table 12.2.1.2.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-25 | | | |
| Information Element | Value/remark | Comment | Condition |
| SL-ResourcePool-r16 ::= SEQUENCE { |  |  |  |
| sl-TimeResource-r16 | 0000000011 |  |  |
| } |  |  |  |

Table 12.2.1.2.3.3-8: SIB12 for NR Cell 1 (Step 3, Table 12.2.1.2.3.2-3)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.2-14 |

Table 12.2.1.2.3.3-9: SIB12-IEs-r16 (Table 12.2.1.2.3.3-8)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.2-14A | | | |
| Information Element | Value/remark | Comment | Condition |
| SIB12-IEs-r16 ::= SEQUENCE { |  |  |  |
| sl-ConfigCommonNR-r16 SEQUENCE { |  |  |  |
| sl-FreqInfoList-r16 | Not present |  |  |
| sl-NR-AnchorCarrierFreqList-r16 SEQUENCE (SIZE (1.. maxFreqSL-NR-r16)) OF ARFCN-ValueNR { | 1 entry |  |  |
| ARFCN-ValueNR[1] | ARFCN-ValueNR of NR Cell 12 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.2.3.3-10: SidelinkUEInformationNR (Step 1, Table 12.2.1.2.3.2-4)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-28A with condition SIDELINK\_TX |

#### 12.2.1.3 Inter-carrier concurrent operation / Sidelink communication / RRC\_CONNECTED / Transmission / Network scheduling

12.2.1.3.1 Test Purpose (TP)

(1)

**with** { UE is in RRC\_CONNECTED state and its serving cell broadcasts SIB12 including sl-ConfigCommonNR }

**ensure that** {

**when** { UE is configured by upper layers to perform sidelink transmission on the frequency included in sl-FreqInfoList }

**then** { UE sends a SidelinkUEInfomationNR message to indicate it requires sidelink transmission resources }

}

(2)

**with** { UE is in RRC\_CONNECTED state and is configured by upper layers to perform sidelink transmission }

**ensure that** {

**when** { UE receives an RRCReconfiguration message which includes sl-ScheduledConfig and no sl-ConfiguredGrantConfigList }

**then** { UE performs sidelink transmission based on dynamic scheduling }

}

(3)

**with** { UE is in RRC\_CONNECTED state }

**ensure that** {

**when** { UE is configured by upper layers to provide configured grant assistance information for NR sidelink communication }

**then** { UE sends a UEAssistanceInformation message including sl-UE-AssistanceInformationNR }

}

(4)

**with** { UE is in RRC\_CONNECTED state and is configured by upper layers to perform sidelink transmission }

**ensure that** {

**when** { UE receives an RRCReconfiguration message which includes sl-ConfiguredGrantConfigList }

**then** { UE performs sidelink transmission using the configured grant included in sl-ConfiguredGrantConfigList }

}

(5)

**with** { UE is in RRC\_CONNECTED state and is configured by upper layer to perform sidelink transmission }

**ensure that** {

**when** { UE is no longer configured by upper layers to perform sidelink transmission }

**then** { UE sends a SidelinkUEInfomationNR message to indicate it no longer requires sidelink transmission resources }

}

12.2.1.3.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 38.331, clause 5.3.5.3, 5.5.2, 5.5.4.1, 5.5.4.2, 5.5.4.3 and 5.5.5. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.3.5.3]

The UE shall perform the following actions upon reception of the *RRCReconfiguration,* or upon execution of the conditional reconfiguration (CHO or CPC):

...

1> if the *RRCReconfiguration* message includes the *otherConfig*:

2> perform the other configuration procedure as specified in 5.3.5.9;

...

1> if the RRCReconfiguration message includes the sl-ConfigDedicatedNR:

2> perform the sidelink dedicated configuration procedure as specified in 5.3.5.14;

...

1> else(*RRCReconfiguration* was received via SRB1):

2> submit the *RRCReconfigurationComplete* message via SRB1 to lower layers for transmission using the new configuration;

...

[TS 38.331, clause 5.3.5.14]

Upon initiating the procedure, the UE shall:

...

1> if sl-FreqInfoToAddModList is included in sl-ConfigDedicatedNR within RRCReconfiguration:

...

2> if configured to transmit NR sidelink communication:

3> use the resource pool(s) indicated by *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling* or *sl-TxPoolExceptional* for NR sidelink communication transmission, as specified in 5.8.8;

2> perform CBR measurement on the transmission resource pools indicated by *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling* or *sl-TxPoolExceptional* for NR sidelink communication transmission, as specified in 5.5.3;

2> use the synchronization configuration parameters for NR sidelink communication on frequencies included in *sl-FreqInfoToAddModList*, as specified in 5.8.5;

...

1> if sl-RadioBearerToAddModList or sl-RLC-BearerToAddModList is included in sl-ConfigDedicatedNR within RRCReconfiguration:

2> perform sidelink DRB addition/modification as specified in 5.8.9.1a.2;

1> if sl-ScheduledConfig is included in sl-ConfigDedicatedNR within RRCReconfiguration:

2> configure the MAC entity parameters, which are to be used for NR sidelink communication, in accordance with the received *sl-ScheduledConfig*;

...

[TS 38.331, clause 5.7.4.2]

...

A UE capable of providing configured grant assistance information for NR sidelink communication in RRC\_CONNECTED may initiate the procedure in several cases, including upon being configured to provide traffic pattern information and upon change of traffic patterns.

...

Upon initiating the procedure, the UE shall:

...

1> if configured to provide configured grant assistance information for NR sidelink communication:

2> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide configured grant assistance information for NR sidelink communication;

...

[TS 38.331, clause 5.7.4.3]

...

The UE shall set the contents of the *UEAssistanceInformation* message for configured grant assistance information for NR sidelink communication:

1> if configured to provide configured grant assistance information for NR sidelink communication:

2> include the sl-UE-AssistanceInformationNR;

...

1> else:

2> submit the *UEAssistanceInformation* message to lower layers for transmission.

[TS 38.331, clause 5.8.3.2]

Upon initiating this procedure, the UE shall:

1> if *SIB12* including *sl-ConfigCommonNR* is provided by the PCell:

2> ensure having a valid version of *SIB12* for the PCell;

...

2> if configured by upper layers to transmit NR sidelink communication on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell:

3> if the UE did not transmit a *SidelinkUEInformationNR* message since last entering RRC\_CONNECTED state; or

3> if since the last time the UE transmitted a *SidelinkUEInformationNR* message the UE connected to a PCell not providing *SIB12* including *sl-ConfigCommonNR*; or

3> if the last transmission of the *SidelinkUEInformationNR* message did not include *sl-TxResourceReqList*; or if the information carried by the *sl-TxResourceReqList* has changed since the last transmission of the *SidelinkUEInformationNR* message:

4> initiate transmission of the *SidelinkUEInformationNR* message to indicate the NR sidelink communication transmission resources required by the UE in accordance with 5.8.3.3;

2> else:

3> if the last transmission of the *SidelinkUEInformationNR* message included *sl-TxResourceReqList*:

4> initiate transmission of the *SidelinkUEInformationNR* message to indicate it no longer requires NR sidelink communication transmission resources in accordance with 5.8.3.3.

[TS 38.331, clause 5.8.3.3]

The UE shall set the contents of the *SidelinkUEInformationNR* message as follows:

1> if the UE initiates the procedure to indicate it is (no more) interested to receive NR sidelink communication or to request (configuration/ release) of NR sidelink communication transmission resources or to report to the network that a sidelink radio link failure or sidelink RRC reconfiguration failure has been declared (i.e. UE includes all concerned information, irrespective of what triggered the procedure):

2> if *SIB12* including *sl-ConfigCommonNR* is provided by the PCell:

...

3> if configured by upper layers to transmit NR sidelink communication:

4> include *sl-TxResourceReqList* and set its fields (if needed) as follows for each destination for which it requests network to assign NR sidelink communication resource:

5> set *sl-DestinationIdentity* to the destination identity configured by upper layer for NR sidelink communication transmission;

5> set *sl-CastType* to the cast type of the associated destination identity configured by the upper layer for the NR sidelink communication transmission;

...

5> set *sl-QoS-InfoList* to include QoS profile(s) of the sidelink QoS flow(s) of the associated destination configured by the upper layer for the NR sidelink communication transmission;

5> set *sl-InterestedFreqList* to indicate the frequency of the associated destination for NR sidelink communication transmission;

5> set *sl-TypeTxSyncList* to the current synchronization reference type used on the associated *sl-InterestedFreqList* for NR sidelink communication transmission.

...

...

1> else:

2> submit the *SidelinkUEInformationNR* message to lower layers for transmission;

[TS 38.331, clause 5.8.8]

A UE capable of NR sidelink communication that is configured by upper layers to transmit NR sidelink communication and has related data to be transmitted shall:

1> if the conditions for NR sidelink communication operation as defined in 5.8.2 are met:

2> if the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or includedin *sl-ConfigCommonNR* within *SIB12*:

3> if the UE is in RRC\_CONNECTED and uses the frequency included in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message:

4> if the UE is configured with *sl-ScheduledConfig*:

...

5> else:

6> configure lower layers to perform the sidelink resource allocation mode 1 for NR sidelink communication;

...

[TS 38.321, clause 5.22.1.1]

...

If the MAC entity has been configured with Sidelink resource allocation mode 1 as indicated in TS 38.331 [5], the MAC entity shall for each PDCCH occasion and for each grant received for this PDCCH occasion:

1> if a sidelink grant has been received on the PDCCH for the MAC entity's SL-RNTI:

...

2> else:

3> use the received sidelink grant to determine PSCCH duration(s) and PSSCH duration(s) for initial transmission and, if available, retransmission(s) of a single MAC PDU according to clause 8.1.2 of TS 38.214 [7].

...

1> else if a sidelink grant has been received on the PDCCH for the MAC entity's SLCS-RNTI:

2> if PDCCH contents indicate retransmission(s) for the identified HARQ process ID that has been set for an activated configured sidelink grant identified by *sl-ConfigIndexCG*:

3> use the received sidelink grant to determine PSCCH duration(s) and PSSCH duration(s) for one or more retransmissions of a single MAC PDU according to clause 8.1.2 of TS 38.214 [7].

...

The MAC entity shall for each PSSCH duration:

1> for each sidelink grant occurring in this PSSCH duration:

2> if the MAC entity has been configured with Sidelink resource allocation mode 1:

3> select a MCS which is, if configured, within the range that is configured by RRC between *sl-MinMCS-PSSCH* and *sl-MaxMCS-PSSCH* included in *sl-ConfigDedicatedNR*;

3> set the resource reservation interval to 0ms.

...

2> if the configured sidelink grant has been activated and this PSSCH duration corresponds to the first PSSCH transmission opportunity within this *sl-PeriodCG* of the configured sidelink grant:

3> set the HARQ Process ID to the HARQ Process ID associated with this PSSCH duration and, if available, all subsequent PSSCH duration(s) occurring in this *sl-PeriodCG* for the configured sidelink grant;

3> determine that this PSSCH duration is used for initial transmission;

3> if a dynamic sidelink grant associated to the HARQ Process ID has been received on the PDCCH for the MAC entity's SLCS-RNTI:

4> clear the dynamic sidelink grant.

2> deliver the sidelink grant, the selected MCS, and the associated HARQ information to the Sidelink HARQ Entity for this PSSCH duration.

...

[TS 38.321, clause 5.22.1.1]

...

A SL-BSR shall be triggered if any of the following events occur:

1> if the MAC entity has been configured with Sidelink resource allocation mode 1:

2> SL data, for a logical channel of a Destination, becomes available to the MAC entity; and either

3> this SL data belongs to a logical channel with higher priority than the priorities of the logical channels containing available SL data which belong to any LCG belonging to the same Destination; or

3> none of the logical channels which belong to an LCG belonging to the same Destination contains any available SL data.

in which case the SL-BSR is referred below to as 'Regular SL-BSR';

...

1> else:

2> Sidelink resource allocation mode 1 is configured by RRC and SL data is available for transmission in the RLC entity or in the PDCP entity, in which case the Sidelink BSR is referred below to as "Regular SL-BSR".

For Regular SL-BSR, the MAC entity shall:

1> if the SL-BSR is triggered for a logical channel for which *sl-logicalChannelSR-DelayTimerApplied* with value *true* is configured by RRC:

2> start or restart the sl-logicalChannelSR-DelayTimer.

1> else:

2> if running, stop the sl-logicalChannelSR-DelayTimer.

For Regular and Periodic SL-BSR, the MAC entity shall:

1> if *sl-PrioritizationThres* is configured and the value of the highest priority of the logical channels that belong to any LCG and contain SL data for any Destination is lower than *sl-PrioritizationThres*; and

1> if either *ul-PrioritizationThres* is not configured or *ul-PrioritizationThres* is configured and the value of the highest priority of the logical channels that belong to any LCG and contain UL data is equal to or higher than *ul-PrioritizationThres* according to clause 5.4.5:

2> prioritize the LCG(s) for the Destination(s).

1> if the Buffer Status reporting procedure determines that at least one BSR has been triggered and not cancelled according to clause 5.4.5 and the UL grant cannot accommodate a SL-BSR MAC CE containing buffer status only for all prioritized LCGs having data available for transmission plus the subheader of the SL-BSR according to clause 5.4.3.1.3, in case the SL-BSR is considered as not prioritized:

2> prioritize the SL-BSR for logical channel prioritization specified in clause 5.4.3.1;

2> report Truncated SL-BSR containing buffer status for as many prioritized LCGs having data available for transmission as possible, taking the number of bits in the UL grant into consideration.

1> else if the number of bits in the UL grant is expected to be equal to or larger than the size of a SL-BSR containing buffer status for all LCGs having data available for transmission plus the subheader of the SL-BSR according to clause 5.4.3.1.3:

2> report SL-BSR containing buffer status for all LCGs having data available for transmission.

1> else:

2> report Truncated SL-BSR containing buffer status for as many LCGs having data available for transmission as possible, taking the number of bits in the UL grant into consideration.

...

The MAC entity shall:

1> if the sidelink Buffer Status reporting procedure determines that at least one SL-BSR has been triggered and not cancelled:

2> if UL-SCH resources are available for a new transmission and the UL-SCH resources can accommodate the SL-BSR MAC CE plus its subheader as a result of logical channel prioritization according to clause 5.4.3.1:

3> instruct the Multiplexing and Assembly procedure in clause 5.4.3 to generate the SL-BSR MAC CE(s);

3> start or restart *sl-periodicBSR-Timer* except when all the generated SL-BSRs are Truncated SL-BSRs;

3> start or restart *sl-retxBSR-Timer*.

...

12.2.1.3.3 Test description

12.2.1.3.3.1 Pre-test conditions

System Simulator:

- SS-NW

- NR Cell 1

- System information combination FFS as defined in TS 38.508-1 [4] clause 4.4.3.1 is used in NR Cell 1.

- SS-UE

- Operating as NR sidelink communication receiving device on the resources that UE is expected to use for transmission.

UE:

* UE is authorised to perform NR sidelink communication.

Preamble:

- The UE is in state 3N-A as defined in TS 38.508-1 [4], subclause 4.4A on NR Cell 1 and Test Loop Function (*On*) with UE test loop mode FFS defined in 38.509 [6], subclause FFS.

12.2.1.3.3.2 Test procedure sequence

FFS

Table 12.2.1.3.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | Upper layers of the UE configures the UE to perform sidelink transmission.  Note: This step is triggered by MMI or AT command | - | - | - | - |
| 2 | Check: Does the UE send a SidelinkUEInformationNR message to request sidelink transmission resource? | --> | NR RRC: SidelinkUEInformationNR | 1 | P |
| 3 | SS-NW transmits an RRCReconfiguration message with sl-ConfigDedicatedNR to configure transmission resources and to configure the UE to perform network scheduling-based sidelink transmission | <-- | NR RRC: RRCReconfiguration | - | - |
| 4 | The UE transmits an RRCReconfigurationComplete message. | --> | NR RRC: RRCReconfigurationComplete |  |  |
| 5 | Check: Does the UE send a Sidelink BSR MAC-CE? | --> | MAC CE (sidelink BSR) | 2 | P |
| 5 | SS-NW sends a DCI format 3\_0 to configure sidelink grant for the UE | <-- | DCI format 3\_0 | - | - |
| 6 | Check: Does the UE transmit one STCH PDCP SDU over the PC5 interface using the resources scheduled by SS-NW? | --> | STCH PDCP SDU | 2 | P |
| 7 | Upper layers of the UE configures the UE to send a UEAssistanceInformation message.  Note: This step is triggered by MMI or AT command | - | - | - | - |
| 8 | Check: Does the UE send a UEAssistanceInformation message to provide configured grant assistance information? | --> | NR RRC: UEAssistanceInformation | 3 | P |
| 9 | SS-NW transmits an RRCReconfiguration message with sl-ConfiguredGrantConfigList to provide a Type 2 configure grant for the UE. | <-- | NR RRC: RRCReconfiguration | - | - |
| 10 | The UE transmits an RRCReconfigurationComplete message. | --> | NR RRC: RRCReconfigurationComplete | - | - |
| 11 | SS-NW transmits an DCI format 3\_0 to activate the configured grant. | <-- | DCI format 3\_0 | - | - |
| 12 | The UE sends a Sidelink Configured Grant Confirmation MAC CE | --> | MAC CE (Sidelink Configured Grant Confirmation) | - | - |
| 13 | Check: Does the UE transmit one STCH PDCP SDU over the PC5 interface using the resources indicated by the configured grant? | --> | STCH PDCP SDU | 4 | P |
| 14 | Upper layer of the UE configures the UE to stop sidelink transmission. | - | - | - | - |
| 15 | Check: Does the UE send a SidelinkUEInformationNR message to indicate that sidelink transmission resource is not needed? | --> | NR RRC: SidelinkUEInformationNR | 1 | P |

12.2.1.3.3.3 Specific message contents

FFS

#### 12.2.1.4

#### 12.2.1.5 Inter-carrier concurrent operation / Sidelink communication / RRC\_CONNECTED / Transmission / Exceptional pool

12.2.1.5.1 Test Purpose (TP)

(1)

**with** { UE being RRC\_CONNECTED state and performing NR sidelink transmission based on network scheduling with *sl-ScheduledConfig*, and *sl-TxPoolExceptional* is included in *sl-ConfigDedicatedNR* }

**ensure that** {

**when** { UE receives an *RRCReconfiguration* message including *reconfigurationWithSync* }

**then** { UE performs NR sidelink transmission using *sl-TxPoolExceptional* included in *sl-ConfigDedicatedNR* during handover procedure }

}

(2)

**with** { UE being RRC\_CONNECTED state and performing NR sidelink transmission based on network scheduling with *sl-ScheduledConfig*, and *sl-TxPoolExceptional* is included in *sl-ConfigDedicatedNR* }

**ensure that** {

**when** { UE detects physical layer problems by receiving N310 consecutive out-of-sync indications from lower layers }

**then** { UE performs NR sidelink transmission using *sl-TxPoolExceptional* included in *sl-ConfigDedicatedNR* until receiving *RRCReestablishment* message }

}

12.2.1.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.3.5.14 and 5.8.8. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, subclause 5.3.5.14]

Upon initiating the procedure, the UE shall:

….

1> if *sl-FreqInfoToAddModList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> if configured to receive NR sidelink communication:

3> use the resource pool(s) indicated by *sl-RxPool* for NR sidelink communication reception, as specified in 5.8.7;

2> if configured to transmit NR sidelink communication:

3> use the resource pool(s) indicated by *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling* or *sl-TxPoolExceptional* for NR sidelink communication transmission, as specified in 5.8.8;

[TS 38.331, subclause 5.8.8]

A UE capable of NR sidelink communication that is configured by upper layers to transmit NR sidelink communication and has related data to be transmitted shall:

1> if the conditions for NR sidelink communication operation as defined in 5.8.2 are met:

2> if the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or includedin *sl-ConfigCommonNR* within *SIB12*:

3> if the UE is in RRC\_CONNECTED and uses the frequency included in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message:

4> if the UE is configured with *sl-ScheduledConfig*:

5> if T310 for MCG or T311 is running; and if *sl-TxPoolExceptional* is included in *sl-FreqInfoList* for the concerned frequency in *SIB12* or included in *sl-ConfigDedicatedNR* in *RRCReconfiguration*; or

5> if T301 is running and the cell on which the UE initiated RRC connection re-establishment provides *SIB12* including *sl-TxPoolExceptional* for the concerned frequency; or

5> if T304 for MCG is running and the UE is configured with *sl-TxPoolExceptional* included in *sl-ConfigDedicatedNR* for the concerned frequency in *RRCReconfiguration*:

6> configure lower layers to perform the sidelink resource allocation mode 2 based on random selection using the pool of resources indicated by *sl-TxPoolExceptional* as defined in TS 38.321 [3];

5> else:

6> configure lower layers to perform the sidelink resource allocation mode 1 for NR sidelink communication;

5> if T311 is running, configure the lower layers to release the resources indicated by *rrc-ConfiguredSidelinkGrant* (if any);

4> if the UE is configured with *sl-UE-SelectedConfig*:

5> if a result of sensing on the resources configured in *sl-TxPoolSelectedNormal* for the concerned frequency included in *sl-ConfigDedicatedNR* within *RRCReconfiguration* is not available in accordance with TS 38.214 [19];

6> if *sl-TxPoolExceptional* for the concerned frequency is included in *RRCReconfiguration*; or

6> if the PCell provides *SIB12* including *sl-TxPoolExceptional* in *sl-FreqInfoList* for the concerned frequency:

7> configure lower layers to perform the sidelink resource allocation mode 2 based on random selection using the pool of resources indicated by *sl-TxPoolExceptional* as defined in TS 38.321 [3];

5> else, if the *sl-TxPoolSelectedNormal* for the concerned frequency is included in the *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

6> configure lower layers to perform the sidelink resource allocation mode 2 based on resource selection operation according to *sl-AllowedResourceSelectionConfig* (as defined in TS 38.321 [3] and TS 38.214 [19]) using the pools of resources indicated by *sl-TxPoolSelectedNormal* for the concerned frequency;

3> else:

4> if the cell chosen for NR sidelink communication transmission provides *SIB12*:

5> if *SIB12* includes *sl-TxPoolSelectedNormal* for the concerned frequency,and a result of sensing on the resources configured in the *sl-TxPoolSelectedNormal* is available in accordance with TS 38.214 [19]:

6> configure lower layers to perform the sidelink resource allocation mode 2 based on resource selection operation according to *sl-AllowedResourceSelectionConfig* using the pools of resources indicated by *sl-TxPoolSe lectedNormal* for the concerned frequency as defined in TS 38.321 [3];

5> else if *SIB12* includes *sl-TxPoolExceptional* for the concerned frequency:

6> from the moment the UE initiates RRC connection establishment or RRC connection resume, until receiving an *RRCReconfiguration* including *sl-ConfigDedicatedNR*, or receiving an *RRCRelease* or an *RRCReject*; or

6> if a result of sensing on the resources configured in *sl-TxPoolSelectedNormal* for the concerned frequency in *SIB12* is not available in accordance with TS 38.214 [19]:

7> configure lower layers to perform the sidelink resource allocation mode 2 based on random selection (as defined in TS 38.321 [3]) using one of the pools of resources indicated by *sl-TxPoolExceptional* for the concerned frequency;

2> else:

3> configure lower layers to perform the sidelink resource allocation mode 2 based on sensing (as defined in TS 38.321 [3] and TS 38.213 [13]) using the pools of resources indicated by *sl-TxPoolSelectedNormal* in *SidelinkPreconfigNR* for the concerned frequency.

12.2.1.5.3 Test description

12.2.1.5.3.1 Pre-test conditions

System Simulator:

- SS-NW

- NR Cell 1, NR Cell 2.

- System information combination NR-14 as defined in TS 38.508-1 [4] clause 4.4.3.1 is used in NR Cells.

- NR-SS-UE

- NR-SS-UE1: operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 uses GNSS as the synchronization reference source.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3 except for those listed in Table 12.2.1.5.3.1-1.

* The UE uses GNSS as the synchronization reference source.

Table 12.2.1.5.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | service no. 119 V2X is available |  |
| EFVST |  | Service no.2 V2X policy configuration data over PC5 is supported, i.e. value is '01 02' HEX |  |
| EFV2XP\_PC5 |  | SL-PreconfigurationNR field as defined in TS 38.508-1 [4] Table 4.10.1-1 |  |

Preamble:

- The UE is in state 3N-B RRC\_CONNECTED\_with\_SL and Test Mode (On) with UE test loop mode E as defined in TS 38.508-1 [4] subclause 4.4A on NR Cell 1 using generic procedure defined in TS 38.508-1[4] clause 4.5.4 with parameters Sidelink (*On*), Cast Type (*Unicast*), GNSS Sync (*On*) using UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.22.

12.2.1.5.3.2 Test procedure sequence

Table 12.2.1.5.3.2-1 illustrates the downlink power levels and other changing parameters to be applied for the NR cells at various time instants of the test execution. The exact instants on which these values shall be applied are described in the texts in this clause. The configuration "T0" indicates the initial conditions. Subsequent configurations marked "T1" and "T2" are applied at the points indicated in the Main behaviour description in Table 12.2.1.5.3.2-2.

Table 12.2.1.5.3.2-1: Time instances of cell power level and parameter changes for FR1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 2 | Remark |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | -85 | -91 |  |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | -85 | -79 |  |
| T2 | SS/PBCH  SSS EPRE | dBm/SCS | -85 | off |  |

Table 12.2.1.5.3.2-2: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | SS-NW sends an *RRCReconfiguration* message with *sl-ConfigDedicatedNR* including *sl-ScheduledConfig* and *sl-TxPoolExceptional*. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 2 | UE sends an *RRCReconfigurationComplete* message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 3 | The SS transmits a CLOSE UE TEST LOOP message | <-- | TC: CLOSE UE TEST LOOP | - | - |
| 4 | The UE transmits a CLOSE UE TEST LOOP COMPLETE message | --> | TC: CLOSE UE TEST LOOP COMPLETE | - | - |
| 5 | Check: Does UE send SDAP SDUs on SL DRB#n in slots included in exceptional resource pool within 20s? | - | - | 1 | F |
| 6 | SS-NW adjusts the cell-specific reference signal level according to row "T1". | - | - | - | - |
| 7 | The SS-NW transmits an *RRCReconfiguration* message including *reconfigurationWithSync* to order the UE to perform intra-frequency handover to NR Cell 2*.* | <-- | NR RRC: *RRCReconfiguration* | - | - |
| - | EXCEPTION: In parallel with step 8, parallel behaviour defined in table 12.2.1.5.3.2-3 is executed repeatedly. | - | - | - | - |
| 8 | Check: Does UE send SDAP SDUs on SL DRB#n in slots included in exceptional resource pool? | --> | - | 1 | P |
| 9 | The SS-NW transmits Random Access Response to respond to the received preamble on NR Cell 2. | <-- | Random Access Response |  |  |
| 10 | The UE transmits *RRCReconfigurationComplete* message in NR Cell 2. | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 11 | The SS transmits an OPEN UE TEST LOOP message | <-- | TC: OPEN UE TEST LOOP | - | - |
| 12 | The UE transmits an OPEN UE TEST LOOP COMPLETE message | --> | TC: OPEN UE TEST LOOP COMPLETE | - | - |
| 13 | SS-NW sends an *RRCReconfiguration* message with *sl-ConfigDedicatedNR* including *sl-ScheduledConfig* and *sl-TxPoolExceptional*. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 14 | UE sends an *RRCReconfigurationComplete* message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 15 | The SS transmits a CLOSE UE TEST LOOP message | <-- | TC: CLOSE UE TEST LOOP | - | - |
| 16 | The UE transmits a CLOSE UE TEST LOOP COMPLETE message | --> | TC: CLOSE UE TEST LOOP COMPLETE | - | - |
| 17 | Check: Does UE send SDAP SDUs on SL DRB#n in slots included in exceptional resource pool within 20s? | - | - | 2 | F |
| 18 | SS-NW adjusts the cell-specific reference signal level according to row "T2". | - | - | - | - |
| - | EXCEPTION: In parallel with step 19, parallel behaviour defined in table 12.2.1.5.3.2-4 is executed. | - | - | - | - |
| 19 | Check: Does UE send SDAP SDUs on SL DRB#n in slots included in exceptional resource pool? | --> | - | 2 | P |
| 20 | The SS-NW transmits *RRCReestablishment* message on NR Cell 1. | <-- | NR RRC: *RRCReestablishment* | - | - |
| 21 | The UE transmits *RRCReestablishmentComplete* message on NR Cell 1. | --> | NR RRC:  *RRCReestablishmentComplete* | - | - |
| 22 | The SS-NW transmits an *RRCReconfiguration* message to resume existing radio bearer on NR Cell 1. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 23 | The UE transmits an *RRCReconfigurationComplete* message on NR Cell 1. | --> | NR RRC: *RRCReconfigurationtComplete* | - | - |
| 24 | The SS transmits an OPEN UE TEST LOOP message | <-- | TC: OPEN UE TEST LOOP | - | - |
| 25 | The UE transmits an OPEN UE TEST LOOP COMPLETE message | --> | TC: OPEN UE TEST LOOP COMPLETE | - | - |

Table 12.2.1.5.3.2-3: Parallel behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| - | EXCEPTION: The steps 1 and 2 below are repeated 2 times. | - | *-* | - | - |
| 1 | The UE transmits preamble to NR Cell 2. | --> | (PRACH Preamble) | - | - |
| 2 | The SS does not respond. | - | *-* | - | - |
| 3 | The UE transmits preamble to NR Cell 2. | --> | (PRACH Preamble) | - | - |

Table 12.2.1.5.3.2-4: Parallel behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| - | EXCEPTION: The steps 1 and 2 below are repeated 2 times. | - | *-* | - | - |
| 1 | The UE transmits preamble to NR Cell 1. | --> | (PRACH Preamble) | - | - |
| 2 | The SS does not respond. | - | *-* | - | - |
| 3 | The UE transmits preamble to NR Cell 1. | --> | (PRACH Preamble) | - | - |
| 4 | The SS-NW transmits Random Access Response to respond to the latest preamble on NR Cell 1. | <-- | Random Access Response | - | - |
| 5 | The UE sends *RRCReestablishmentRequest* message on NR Cell 1. | --> | NR RRC: *RRCReestablishmentRequest* | - | - |

12.2.1.5.3.3 Specific message contents

Table 12.2.1.5.3.3-1: *SL-BWP-ConfigCommon* in *SIB12* for Cell 1 and Cell 2 (Preamble and all steps)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-2 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SL-BWP-ConfigCommon-r16 ::= SEQUENCE { | |  |  |  |
| sl-BWP-PoolConfigCommon-r16 | | SL-BWP-PoolConfigCommon with RXPOOL, SELECTED and EXCEPTIONAL |  |  |
| } | |  |  |  |

Table 12.2.1.5.3.3-2: *SIB1* for Cell 1 and Cell 2 (Preamble and all steps)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] table 4.6.1-28 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SIB1 ::= SEQUENCE { |  |  |  |
| ue-TimersAndConstants SEQUENCE { |  |  |  |
| t301 | ms2000 |  |  |
| t310 | ms2000 |  |  |
| t311 | ms30000 |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.5.3.3-3: *RLF-TimersAndConstants* (Preamble and all steps)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.6.1-150 | | | |
| Information Element | Value/remark | Comment | Condition |
| RLF-TimersAndConstants ::= SEQUENCE { |  |  |  |
| t310 | ms2000 |  |  |
| t311 | ms30000 |  |  |
| } |  |  |  |

Table 12.2.1.5.3.3-4: *RRCReconfiguration* (step 1 and step 13, Table 12.2.1.5.3.2-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1-13 | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfiguration SEQUENCE { |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| sl-ConfigDedicatedNR-r16 | SL-ConfigDedicatedNR with condition SCHEDULING |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.5.3.3-4A: SL-ConfigDedicatedNR (Table 12.2.1.5.3.3-4)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-7 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-ConfigDedicatedNR-r16 ::= SEQUENCE { |  |  |  |
| sl-PHY-MAC-RLC-Config-r16 SEQUENCE { |  |  |  |
| sl-FreqInfoToAddModList-r16 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-FreqConfig-r16 { |  |  |  |
| SL-FreqConfig-r16[1] | SL-FreqConfig |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.5.3.3-4B: SL-FreqConfig (Table 12.2.1.5.3.3-4A)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-1 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-FreqConfig-r16 ::= SEQUENCE { |  |  |  |
| sl-BWP-ToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSL-BWPs-r16)) OF SL-BWP-Config-r16 { |  |  |  |
| SL-BWP-Config-r16[1] | SL-BWP-Config | entry 1 |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.5.3.3-5: *SL-BWP-Config* (Table 12.2.1.5.3.3-4B)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-1 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-BWP-Config-r16 ::= SEQUENCE { |  |  |  |
| sl-BWP-PoolConfig-r16 | SL-BWP-PoolConfig with condition SCHEDULING and EXCEPTIONAL |  |  |
| } |  |  |  |

Table 12.2.1.5.3.3-6: *RRCReconfiguration* (step 7, Table 12.2.1.5.3.2-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.8.1-1A with condition RBConfig\_KeyChange | | | |
| Information Element | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfiguration SEQUENCE { |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| masterCellGroup | OCTET STRING (CONTAINING CellGroupConfig) | Table 12.2.1.5.3.3-7 |  |
| masterKeyUpdate SEQUENCE { |  |  |  |
| keySetChangeIndicator | True |  |  |
| nextHopChainingCount | 0 |  |  |
| nas-Container | NASContainer | Intra N1 mode NAS transparent container, Table 12.2.1.5.3.3-9 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.5.3.3-7: *CellGroupConfig* (Table 12.2.1.5.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 with condition PCell\_change and CFRA | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| reconfigurationWithSync SEQUENCE { |  |  |  |
| spCellConfigCommon SEQUENCE { | Same as default ServingCellConfigCommon |  |  |
| physCellId | Physical cell Id of NR Cell 2 |  |  |
| } |  |  |  |
| t304 | ms2000 |  |  |
| rach-ConfigDedicated CHOICE { |  |  |  |
| Uplink SEQUENCE { | Same as default RACH-ConfigDedicated |  |  |
| cfra SEQUENCE { |  |  |  |
| occasions SEQUENCE { |  |  |  |
| rach-ConfigGeneric | RACH-ConfigGeneric | Table 12.2.1.5.3.3-8 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| rlf-TimersAndConstants CHOICE { |  |  |  |
| setup | RLF-TimersAndConstants | Table 12.2.1.5.3.3-3 |  |
| } |  |  |  |
| spCellConfigDedicated | ServingCellConfig |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.5.3.3-8: *RACH-ConfigGeneric* (Table 12.2.1.5.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-130 | | | |
| Information Element | Value/remark | Comment | Condition |
| RACH-ConfigGeneric ::= SEQUENCE { |  |  |  |
| ra-ResponseWindow | sl80 |  |  |
| } |  |  |  |

Table 12.2.1.5.3.3-8A: *ServingCellConfig* (Table 12.2.1.5.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-167 | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfig ::= SEQUENCE { |  |  |  |
| initialDownlinkBWP | BWP-DownlinkDedicated with condition SIDELINK |  |  |
| } |  |  |  |

Table 12.2.1.5.3.3-9: NASContainer (Table 12.2.1.5.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 24.501, table 9.11.2.6 | | | |
| Information Element | Value/Remark | Comment | Condition |
| Message authentication code | The calculated value of MAC-I for this message. | The value of MAC-I is calculated by SS using COUNT = 0xFFFFFFFF( as per TS 33.501[20], 6.9.2.3.3) |  |
| Type of ciphering algorithm | Set according to PIXIT px\_NAS\_5GC\_CipheringAlgorithm for default ciphering algorithm |  |  |
| Type of integrity protection algorithm | Set according to PIXIT px\_NAS\_5GC\_IntegrityAlgorithm for default integrity protection algorithm | This value should not be equal to the null integrity algorithm. |  |
| KACF | ‘1’B | a new KAMF has been calculated by the network |  |
| TSC | '0'B | native security context (for KSIAMF) |  |
| Key set identifier in 5G | KSIAMF that was created when the UE last registered to 5GCN |  |  |
| Sequence number | The internal counter of the SS | eight least significant bits of the downlink NAS COUNT |  |

Table 12.2.1.5.3.3-10: CLOSE UE TEST LOOP (step 3 and step 15, Table 12.2.1.5.3.2-2)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4] Table 4.9.22.3-2 |

Table 12.2.1.5.3.3-11: *RRCReestablishmentRequest* (step 3, Table 12.2.1.5.3.2-4)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.6.1-12 | | | |
| Information Element | Value/remark | Comment | Condition |
| RRCReestablishmentRequest ::= SEQUENCE { |  |  |  |
| ue-Identity SEQUENCE { |  |  |  |
| c-RNTI | the value of the C-RNTI of the UE |  |  |
| physCellId | PhysicalCellIdentity of NR Cell 2 |  |  |
| shortMAC-I | The same value as the 16 least significant bits of the XMAC-I value calculated by SS-NW |  |  |
| } |  |  |  |
| reestablishmentCause | otherFailure |  |  |
| } |  |  |  |

#### 12.2.1.6 Inter-carrier concurrent operation / Sidelink communication / RRC\_CONNECTED / Reception

12.2.1.6.1 Test Purpose (TP)

(1)

**with** { UE being in RRC\_CONNECTED state and its serving cell not broadcasting SIB12 }

**ensure that** {

**when** { UE is configured by upper layer to perform NR sidelink reception}

**then** { UE is able to monitor NR sidelink reception using sl-RxPool included in pre-configuration}

}

(2)

**with** { UE being in RRC\_CONNECTED state and its serving cell broadcasting SIB12 }

**ensure that** {

**when** { UE is configured by upper layer to perform NR sidelink reception}

**then** { UE is able to monitor NR sidelink reception using sl-RxPool included in SIB12}

}

(3)

**Void**

(4)

**with** { UE being in RRC\_CONNECTED state and being configured by upper layer to perform NR sidelink reception }

**ensure that** {

**when** { UE receives a RRCReconfiguration including reconfigurationWithSync and sl-RxPool}

**then** { UE is able to monitor NR sidelink reception using sl-RxPool included in the received RRCReconfiguration message after handover procedure}

}

12.2.1.6.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331, clause 5.2.2.4.13, clause 5.3.5.14, clause 5.8.1, clause 5.8.7. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.2.2.4.13]

Upon receiving *SIB12*, the UE shall:

1> if the UE has stored at least one segment of *SIB12* and the value tag of *SIB12* has changed since a previous segment was stored:

2> discard all stored segments;

1> store the segment;

1> if all segments have been received:

2> assemble *SIB12-IEs* from the received segments;

2> if *sl-FreqInfoList* is included in *sl-ConfigCommonNR*:

3> if configured to receive NR sidelink communication:

4> use the resource pool(s) indicated by *sl-RxPool* for NR sidelink communication reception, as specified in 5.8.7;

3> if configured to transmit NR sidelink communication:

4> use the resource pool(s) indicated by *sl-TxPoolSelectedNormal*, or *sl-TxPoolExceptional* for NR sidelink communication transmission, as specified in 5.8.8;

4> perform CBR measurement on the transmission resource pool(s) indicated by *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* for NR sidelink communication transmission, as specified in 5.5.3.1;

4> use the synchronization configuration parameters for NR sidelink communication on frequencies included in *sl-FreqInfoList*, as specified in 5.8.5;

3> if configured to receive NR sidelink discovery:

4> use the resource pool(s) indicated by *sl-DiscRxPool* or *sl-RxPool* for NR sidelink discovery reception, as specified in 5.8.13.2;

3> if configured to transmit NR sidelink discovery:

4> use the resource pool(s) indicated by *sl-DiscTxPoolSelected*, *sl-TxPoolExceptional* or *sl-TxPoolSelectedNormal* for NR sidelink discovery transmission, as specified in 5.8.13.3;

4> perform CBR measurement on the transmission resource pool(s) indicated by *sl-TxPoolSelectedNormal*, *sl-DiscTxPoolSelected* or *sl-TxPoolExceptional* for NR sidelink discovery transmission, as specified in 5.5.3.1;

4> use the synchronization configuration parameters for NR sidelink discovery on frequencies included in *sl-FreqInfoList*, as specified in 5.8.5;

2> if *sl-RadioBearerConfigList* or *sl-RLC-BearerConfigList* is included in *sl-ConfigCommonNR*:

3> perform sidelink DRB addition/modification/release as specified in 5.8.9.1a.1/5.8.9.1a.2;

2> if *sl-MeasConfigCommon* is included in *sl-ConfigCommonNR*:

3> store the NR sidelink measurement configuration.

2> if *sl-DRX-ConfigCommonGC-BC* is included in *SIB12-IEs*:

3> store the NR sidelink DRX configuration and configure lower layers to perform sidelink DRX operation for groupcast and broadcast as specified in TS 38.321 [3].

1> if the UE is acting as L2 U2N Remote UE:

2> if the *ue-TimersAndConstantsRemoteUE* is included in *SIB12*:

3> use values for timers T300, T301 and T319 as included in the *ue-TimersAndConstantsRemoteUE* received in *SIB12*;

2> else:

3> use values for timers T300, T301 and T319 as included in the *ue-TimersAndConstants* received in *SIB1*;

The UE should discard any stored segments for *SIB12* if the complete *SIB12* has not been assembled within a period of 3 hours. The UE shall discard any stored segments for *SIB12* upon cell (re-)selection.

[TS 38.331, clause 5.3.5.14]

Upon initiating the procedure, the UE shall:

1> if *sl-FreqInfoToReleaseList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> for each entry included in the received *sl-FreqInfoToReleaseList* that is part of the current UE configuration:

3> release the related configurations from the stored NR sidelink communication/discovery configurations;

1> if *sl-FreqInfoToAddModList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> if configured to receive NR sidelink communication:

3> use the resource pool(s) indicated by *sl-RxPool* for NR sidelink communication reception, as specified in 5.8.7;

2> if configured to transmit NR sidelink communication:

3> use the resource pool(s) indicated by *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling* or *sl-TxPoolExceptional* for NR sidelink communication transmission, as specified in 5.8.8;

2> if configured to receive NR sidelink discovery:

3> use the resource pool(s) indicated by *sl-DiscRxPool* or *sl-RxPool* for NR sidelink discovery reception, as specified in 5.8.13.2;

2> if configured to transmit NR sidelink discovery:

3> use the resource pool(s) indicated by *sl-DiscTxPoolSelected*, *sl-DiscTxPoolScheduling*, *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling* or *sl-TxPoolExceptional* for NR sidelink discovery transmission, as specified in 5.8.13.3;

2> perform CBR measurement on the transmission resource pool(s) indicated by *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling*, *sl-DiscTxPoolSelected, sl-DiscTxPoolScheduling* or *sl-TxPoolExceptional* for NR sidelink communication/discovery transmission, as specified in 5.5.3;

2> use the synchronization configuration parameters for NR sidelink communication/discovery on frequencies included in *sl-FreqInfoToAddModList*, as specified in 5.8.5;

1> if *sl-RadioBearerToReleaseList* or *sl-RLC-BearerToReleaseList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> perform sidelink DRB release as specified in 5.8.9.1a.1;

1> if *sl-RadioBearerToAddModList* or *sl-RLC-BearerToAddModList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> perform sidelink DRB addition/modification as specified in 5.8.9.1a.2;

1> if *sl-ScheduledConfig* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> configure the MAC entity parameters, which are to be used for NR sidelink communication/discovery, in accordance with the received *sl-ScheduledConfig*;

1> if *sl-UE-SelectedConfig* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> configure the parameters, which are to be used for NR sidelink communication/discovery, in accordance with the received *sl-UE-SelectedConfig*;

1> if *sl-MeasConfigInfoToReleaseList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> for each *SL-DestinationIndex* included in the received *sl-MeasConfigInfoToReleaseList* that is part of the current UE configuration:

3> remove the entry with the matching *SL-DestinationIndex* from the stored NR sidelink measurement configuration information;

1> if *sl-MeasConfigInfoToAddModList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> for each *sl-DestinationIndex* included in the received *sl-MeasConfigInfoToAddModList* that is part of the current stored NR sidelink measurement configuration:

3> reconfigure the entry according to the value received for this *sl-DestinationIndex* from the stored NR sidelink measurement configuration information;

2> for each *sl-DestinationIndex* included in the received *sl-MeasConfigInfoToAddModList* that is not part of the current stored NR sidelink measurement configuration:

3> add a new entry for this *sl-DestinationIndex* to the stored NR sidelink measurement configuration.

1> if *sl-DRX-ConfigUC-ToReleaseList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> for each *SL-DestinationIndex* included in the received *sl-DRX-ConfigUC-ToReleaseList* that is part of the current UE configuration:

3> remove the entry with the matching *SL-DestinationIndex* from the stored NR sidelink DRX configuration information;

1> if *sl-DRX-ConfigUC-ToAddModList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> for each *sl-DestinationIndex* included in the received *sl-DRX-ConfigUC-ToAddModList* that is part of the current stored NR sidelink DRX configuration:

3> reconfigure the entry according to the value received for this *sl-DestinationIndex* from the stored NR sidelink DRX configuration information;

2> for each *sl-DestinationIndex* included in the received *sl-DRX-ConfigUC-ToAddModList* that is not part of the current stored NR sidelink DRX configuration:

3> add a new entry for this *sl-DestinationIndex* to the stored NR sidelink DRX configuration.

1> if *sl-RLC-ChannelToReleaseList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> perform PC5 Relay RLC channel release as specified in 5.8.9.7.1;

1> if *sl-RLC-ChannelToAddModList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> perform PC5 Relay RLC channel addition/modification as specified in 5.8.9.7.2;

[TS 38.331, clause 5.8.1]

The PC5-RRC signalling, as specified in sub-clause 5.8.9, can be initiated after its corresponding PC5 unicast link establishment (TS 23.287 [55]).

[TS 38.331, clause 5.8.7]

A UE capable of NR sidelink communication that is configured by upper layers to receive NR sidelink communication shall:

1> if the conditions for NR sidelink communication operation as defined in 5.8.2 are met:

2> if the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *RRCReconfiguration* message or *sl-FreqInfoList* included in *SIB12*:

3> if the UE is configured with *sl-RxPool* included in *RRCReconfiguration* message with *reconfigurationWithSync* (i.e. handover):

4> configure lower layers to monitor sidelink control information and the corresponding data using the pool of resources indicated by *sl-RxPool*;

3> else if the cell chosen for NR sidelink communication provides *SIB12*:

4> configure lower layers to monitor sidelink control information and the corresponding data using the pool of resources indicated by *sl-RxPool in SIB12*;

2> else:

3> configure lower layers to monitor sidelink control information and the corresponding data using the pool of resources that were preconfigured by *sl-RxPool* in *SL-PreconfigurationNR*, asdefined in sub-clause 9.3;

12.2.1.6.3 Test description

12.2.1.6.3.1 Pre-test conditions

System Simulator:

- SS-NW

- NR Cell 1 is the serving cell and NR Cell 3 is the inter-frequency neighbour cell of NR Cell 1.

- System information combination NR-4 as defined in TS 38.508-1 [4] clause 4.4.3.1.

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication receiving and transmitting device on the resources that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 is synchronised on GNSS.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4] clause 4.8.3.3.3) except for those listed in Table 12.2.1.6.3.1-1.

- UE is synchronised on GNSS.

Table 12.2.1.6.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | service no. 119 is available |  |
| EFVST |  | Service no.2 V2X policy configuration data over PC5 is supported, i.e. value is '01 02' HEX |  |
| EFV2XP\_PC5 |  | SL-PreconfigurationNR field as defined in TS 38.508-1 [4], table 4.10.1-1, except SL-BWP-PoolConfigCommon field as defined in Table 12.2.1.6.3.3-1 with condition SL-PRECONFIG |  |

Preamble:

- The UE is in state 3N-B RRC\_CONNECTED\_with\_SL and Test Mode (On) with UE test loop mode E as defined in TS 38.508-1 [4] subclause 4.4A on NR Cell 1, using generic parameters Sidelink (On), Cast Type (Unicast) using NR-SS-UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.23.

12.2.1.6.3.2 Test procedure sequence

Table 12.2.1.6.3.2-1 illustrate the downlink power levels to be applied for NR Cell 1 and NR Cell 3 at various time instants of the test execution. Row marked "T0" denotes the conditions after the preamble, while the configuration marked "T1" is applied at the point indicated in the Main behaviour description in Table 12.2.1.6.3.2-3.

Table 12.2.1.6.3.2-1: Power levels in FR1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR  Cell 3 | Remark |
| T0 | SS/PBCH SSS EPRE | dBm/  SCS | -88 | Off | Power levels are such that entry condition for event A3 is not satisfied for NR Cell 3 |
| T1 | SS/PBCH SSS EPRE | dBm/  SCS | -85 | -79 | Power levels are such that entry condition for event A3 is satisfied for NR Cell 3 |

Table 12.2.1.6.3.2-2: Void

Table 12.2.1.6.3.2-3: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | Check: Does the test result of generic test procedure in TS 38.508-1[4] subclause 4.9.31 indicate that the UE monitors NR sidelink reception using sl-RxPool included in pre-configuration? | --> |  | 1 | - |
| 2 | SS starts broadcasting SIB12 in NR Cell 1 using system information combination NR-14 | - |  | - | - |
| 3 | NR Cell 1 transmits a Short message on PDCCH using P-RNTI indicating a systemInfoModification. | - | PDCCH (DCI 1\_0): Short Message |  | - |
| 4 | Void | - | - | - | - |
| 5 | The UE transmits a *SidelinkUEInformationNR* message to indicate it is (interested in) receiving NR sidelink communication. | --> | NR RRC: SidelinkUEInformationNR | - | - |
| 6 | Check: Does the test result of generic test procedure in TS 38.508-1[4] subclause 4.9.31 indicate that the UE monitors NR sidelink reception using sl-RxPool included in SIB12? | - | - | 2 | - |
| 7-9 | Void | - |  | - | - |
| 10 | The SS changes NR Cell 3 parameters according to the row "T1" in Table 12.2.1.6.3.2-1. | - | - | - | - |
| 11 | SS-NW sends an *RRCReconfiguration* message including reconfigurationWithSync and sl-RxPool on NR Cell 1 to order the UE to perform intra handover to NR Cell 3. | <-- | NR RRC: RRCReconfiguration | - | - |
| 12 | UE sends an *RRCReconfigurationComplete* message on NR Cell 3 to confirm the successful handover. | --> | NR RRC: RRCReconfigurationtComplete | - | - |
| 13 | Check: Does the test result of generic test procedure in TS 38.508-1[4] subclause 4.9.31 indicate that the UE monitors NR sidelink reception using sl-RxPool included in the received RRCReconfiguration? | - | - | - | - |

12.2.1.6.3.3 Specific message contents

Table 12.2.1.6.3.3-1: SL-BWP-PoolConfigCommon (Preamble, Table 12.2.1.6.3.1-1 and Table 12.2.1.6.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-4 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SL-BWP-PoolConfigCommon-r16 ::= SEQUENCE { | |  |  |  |
| sl-RxPool-r16 SEQUENCE (SIZE (1..maxNrofRXPool-r16)) OF SL-ResourcePool-r16 { | | 1 entry |  |  |
| SL-ResourcePool-r16[1] | | SL-ResourcePool with condition SL-PRECONFIG as defined in Table 12.2.1.6.3.3-13 | entry 1 | SL-PRECONFIG |
| SL-ResourcePool-r16[1] | | SL-ResourcePool with condition SIB-12 as defined in Table 12.2.1.6.3.3-13 |  | SIB-12 |
| } | |  |  |  |
| sl-TxPoolSelectedNormal-r16 SEQUENCE (SIZE (1..maxNrofTXPool-r16)) OF SL-ResourcePoolConfig-r16 { | | 1 entry |  |  |
| SL-ResourcePoolConfig-r16[1] SEQUENCE { | |  | entry 1 |  |
| sl-ResourcePoolID-r16 | | 1 | Index of the resource pool for normal case |  |
| sl-ResourcePool-r16 | | SL-ResourcePool with condition SL-PRECONFIG as defined in Table 12.2.1.6.3.3-13 |  | SL-PRECONFIG |
| sl-ResourcePool-r16 | | SL-ResourcePool with condition SIB-12 as defined in Table 12.2.1.6.3.3-13 |  | SIB-12 |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.1.6.3.3-2: SIB12 (step 2, Table 12.2.1.6.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.2-14 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SIB12-r16 ::= SEQUENCE { |  |  |  |
| segmentContainer-r16 | OCTET STRING (CONTAINING SIB12-RESOURCEPOOL) |  |  |
| } |  |  |  |

Table 12.2.1.6.3.3-3: SIB12-RESOURCEPOOL (Table 12.2.1.6.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.2-14A | | | |
| Information Element | Value/Remark | Comment | Condition |
| SIB12-IEs-r16 ::= SEQUENCE { |  |  |  |
| sl-ConfigCommonNR-r16 SEQUENCE { |  |  |  |
| sl-FreqInfoList-r16 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-FreqConfigCommon-r16{ |  |  |  |
| SL-FreqConfigCommon-r16[1] | SL-FreqConfigCommon |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.6.3.3-4: SL-FreqConfigCommon (Table 12.2.1.6.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-11 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-FreqConfigCommon-r16 ::= SEQUENCE { |  |  |  |
| sl-BWP-List-r16 SEQUENCE (SIZE (1..maxNrofSL-BWPs-r16)) OF SL-BWP-ConfigCommon-r16 { |  |  |  |
| SL-BWP-ConfigCommon-r16[1] | SL-BWP-ConfigCommon |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.6.3.3-5: SL-BWP-ConfigCommon (Table 12.2.1.6.3.3-4)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-2 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-BWP-ConfigCommon-r16 ::= SEQUENCE { |  |  |  |
| sl-BWP-PoolConfigCommon-r16 | SL-BWP-PoolConfigCommon with condition SIB-12 as defined in Table 12.2.1.6.3.3-1 |  |  |
| } |  |  |  |

Table 12.2.1.6.3.3-6: Void

Table 12.2.1.6.3.3-7: SL-ConfigDedicatedNR (Table 12.2.1.6.3.3-11)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-7 with condition SCHEDULING | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-ConfigDedicatedNR-r16 ::= SEQUENCE { |  |  |  |
| sl-FreqInfoToAddModList-r16 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-FreqConfig-r16 { | one entry |  |  |
| SL-FreqConfig-r16[1] | SL-FreqConfig as defined in Tabe 12.2.1.6.3.3-8 |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.6.3.3-8: SL-FreqConfig (Table 12.2.1.6.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-10 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-FreqConfig-r16 ::= SEQUENCE { |  |  |  |
| sl-BWP-ToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSL-BWPs-r16)) OF SL-BWP-Config-r16 { | one entry |  |  |
| SL-BWP-Config-r16[1] | SL-BWP-Config as defined in Table 12.2.1.6.3.3-9 |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.6.3.3-9: SL-BWP-Config (Table 12.2.1.6.3.3-8)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-1 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-BWP-Config-r16 ::= SEQUENCE { |  |  |  |
| sl-BWP-PoolConfig-r16 SEQUENCE { |  |  |  |
| sl-RxPool-r16 SEQUENCE (SIZE (1..maxNrofRXPool-r16)) OF SL-ResourcePool-r16 { | 1 entry |  |  |
| SL-ResourcePool-r16[1] | SL-ResourcePool with condition RRCReconfig as defined in Table 12.2.1.6.3.3-13 | entry 1 |  |
| } |  |  |  |
| sl-TxPoolScheduling-r16 | Not Present |  |  |
| sl-TxPoolScheduling-r16 SEQUENCE { |  |  |  |
| sl-PoolToAddModList-r16 SEQUENCE (SIZE (1..maxNrofTXPool-r16)) OF SL-ResourcePoolConfig-r16 { | 1 entry |  |  |
| SL-ResourcePoolConfig-r16[1] SEQUENCE { |  | entry 1 |  |
| sl-ResourcePoolID-r16 | 1 |  |  |
| sl-ResourcePool-r16 | SL-ResourcePool with condition RRCReconfig as defined in Table 12.2.1.6.3.3-13 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| sl-TxPoolExceptional-r16 | Not Present |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.6.3.3-10: RRCReconfigurationComplete (step 12, Table 12.2.1.6.3.2-3)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1-14 |

Table 12.2.1.6.3.3-11: RRCReconfiguration-HO (step 11, Table 12.2.1.6.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.8.1-1A with condition RBConfig\_KeyChange | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfiguration SEQUENCE { |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| masterCellGroup | CellGroupConfig |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| sl-ConfigDedicatedNR-r16 | SL-ConfigDedicatedNR as defined in Table 12.2.1.6.3.3-7 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.6.3.3-11A: CellGroupConfig (Table 12.2.1.6.3.3-11)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-19 with conditions PCell\_change. | | | |
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.1.6.3.3-11B: ServingCellConfig (Table 12.2.1.6.3.3-11A)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-167 | | | |
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| ServingCellConfig ::= SEQUENCE { |  |  |  |
| initialDownlinkBWP | BWP-DownlinkDedicated with condition SIDELINK |  |  |
| } |  |  |  |

Table 12.2.1.6.3.3-12: SidelinkUEInformationNR (step 5, Table 12.2.1.6.3.2-3)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1-28A with condition SIDELINK\_RX |

Table 12.2.1.6.3.3-13: sl-ResourcePool (Table 12.2.1.6.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-25 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-ResourcePool-r16 ::= SEQUENCE { |  |  |  |
| sl-TimeResource-r16 | 1100000000 |  | SL-PRECONFIG |
| sl-TimeResource-r16 | 0011000000 |  | SIB-12 |
| sl-TimeResource-r16 | 0000110000 |  | RRCReconfig |
| } |  |  |  |

### 12.2.2 Inter-carrier concurrent operation / Sidelink synchronization related procedure

#### 12.2.2.1 Inter-carrier concurrent operation / Sidelink synchronization related procedure / Synchonization reference source (re-)selection

12.2.2.1.1 Test Purpose (TP)

(1)

**with** { UE in connected state. UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnss }

**ensure that** {

**when** { GNSS signal is reliable and a SyncRef UE directly synchronized to GNSS is detected }

**then** { UE selects GNSS as synchonization reference source }

}

(2)

**with** { UE in connected state. UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnss }

**ensure that** {

**when** { two SyncRef UEs, one directly synchronized to GNSS and the other indirectly synchronized to GNSS, are detected }

**then** { UE selects the SyncRef UE directly synchronized to GNSS as synchonization reference source }

}

(3)

**with** { UE in connected state. UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnss }

**ensure that** {

**when** { one SyncRef UE indirectly synchronized to GNSS is detected }

**then** { UE selects the SyncRef UE indirectly synchronized to GNSS as synchonization reference source }

}

(4)

**with** { UE in connected state. UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnbEnb }

**ensure that** {

**when** { a SyncRef UE directly synchronized to gNB is detected }

**then** { UE selects serving cell as synchonization reference source }

}

(5)

**with** { UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnbEnb in pre-configuration. }

**ensure that** {

**when** { two SyncRef UEs, one directly synchronized to gNB and the other indirectly synchronized to gNB, are detected }

**then** { UE selects the SyncRef UE directly synchrinized to gNB as synchonization reference source }

}

(6)

**with** { UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnbEnb in pre-configuration }

**ensure that** {

**when** { GNSS is reliable and one SyncRef UE indirectly synchronized to gNB is detected }

**then** { UE selects the SyncRef UE indirectly synchrinized to gNB as synchonization reference source }

}

(7)

**with** { UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnbEnb in pre-configuration }

**ensure that** {

**when** { GNSS is reliable and one SyncRef UE directly synchronized to GNSS is detected }

**then** { UE selects GNSS as synchonization reference source }

}

(8)

**with** { UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnbEnb in pre-configuration }

**ensure that** {

**when** { two SyncRef UEs, one directly synchronized to GNSS and the other indirectly synchronized to GNSS, are detected }

**then** { UE selects the SyncRef UE directly synchronized to GNSS as synchonization reference source }

}

(9)

**with** { UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnbEnb in pre-configuration. }

**ensure that** {

**when** { two SyncRef UEs, one indirectly synchronized to GNSS and the other one neither directly nor indirectly synchronized to GNSS or gNB, are detected }

**then** { UE selectthe SyncRef UE indirectly synchronized to GNSS as synchonization reference source }

}

(10)

**with** { UE configured by upper layer to perform sidelink transmission and is configured with sl-SyncPriority = gnbEnb in pre-configuration }

**ensure that** {

**when** { a SyncRef UE which neither directly nor indirectly synchronized to GNSS or gNB is detected }

**then** { UE selects the SyncRef UE which neither directly nor indirectly synchronized to GNSS or gNB as synchonization reference source }

}

12.2.2.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.2. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.2]

The UE shall perform NR sidelink communication operation only if the conditions defined in this clause are met:

1> if the UE's serving cell is suitable (RRC\_IDLE or RRC\_INACTIVE or RRC\_CONNECTED); and if either the selected cell on the frequency used for NR sidelink communication operation belongs to the registered or equivalent PLMN as specified in TS 24.587 [57] or the UE is out of coverage on the frequency used for NR sidelink communication operation as defined in TS 38.304 [20] and TS 36.304 [27]; or

…

1> if the UE has no serving cell (RRC\_IDLE);

[TS 38.331, clause 5.8.5.1]



Figure 5.8.5.1-1: Synchronisation information transmission for NR sidelink communication, in (partial) coverage



Figure 5.8.5.1-2: Synchronisation information transmission for NR sidelink communication, out of coverage

The purpose of this procedure is to provide synchronisation information to a UE.

[TS 38.331, clause 5.8.5.2]

A UE capable of NR sidelink communication and SLSS/PSBCH transmission shall, when transmitting NR sidelink communication, and if the conditions for NR sidelink communication operation are met and when the following conditions are met:

…

1> if out of coverage on the frequency used for NR sidelink communication, and the frequency used to transmit NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or includedin *sl-FreqInfoList* within *SIB12*; and has selected GNSS or the cell as synchronization reference as defined in 5.8.6.3:

2> if in RRC\_CONNECTED; and if *networkControlledSyncTx* is configured and set to *on*; or

…

3> transmit sidelink SSB on the frequency used for NR sidelink communication in accordance with 5.8.5.3 and TS 38.211 [16], including the transmission of SLSS as specified in 5.8.5.3 and transmission of *MasterInformationBlockSidelink* as specified in 5.8.9.4.3;

1> else:

2> for the frequency used for NR sidelink communication, if *syncTxThreshOoC* is included in *SidelinkPreconfigNR*; and the UE is not directly synchronized to GNSS, and the UE has no selected SyncRef UE or the PSBCH-RSRP measurement result of the selected SyncRef UE is below the value of *syncTxThreshOoC*; or

2> for the frequency used for NR sidelink communication, if the UE selects GNSS as the synchronization reference source:

3> transmit sidelink SSB on the frequency used for NR sidelink communication in accordance with TS 38.211 [16], including the transmission of SLSS as specified in 5.8.5.3 and transmission of *MasterInformationBlockSidelink* as specified in 5.8.9.4.3;

[TS 38.331, clause 5.8.5.3]

The UE shall select the SLSSID and the slot in which to transmit SLSS as follows:

…

1> if triggered by NR sidelink communication, and out of coverage on the frequency used for NR sidelink communication, and the concerned frequency is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or includedin *sl-FreqInfoList* within *SIB12*:

2> if the UE has selected GNSS as synchronization reference in accordance with 5.8.6.2:

3> select SLSSID 0;

3> use *sl-SSB-TimeAllocation1* included in the entry of configured *sl-SyncConfigList* corresponding to the concerned frequency, that includes *txParameters* and *gnss-Sync*;

3> select the slot(s) indicated by *sl-SSB-TimeAllocation1*;

2> if the UE has selected a cell as synchronization reference in accordance with 5.8.6.2:

3> select the SLSSID included in the entry of configured *sl-SyncConfigList* corresponding to the concerned frequency, that includes *txParameters* and does not include *gnss-Sync*;

3> select the slot(s) indicated by *sl-SSB-TimeAllocation1*;

1> else if triggered by NR sidelink communication and the UE has GNSS as the synchronization reference:

2> select SLSSID 0;

…

2> else:

3> select the slot(s) indicated by *sl-SSB-TimeAllocation1*;

1> else:

2> select the synchronisation reference UE (i.e. SyncRef UE) as defined in 5.8.6;

2> if the UE has a selected SyncRef UE and *inCoverage* in the *MasterInformationBlockSidelink* message received from this UE is set to *true*; or

2> if the UE has a selected SyncRef UE and *inCoverage* in the *MasterInformationBlockSidelink* message received from this UE is set to *false* while the SLSS from this UE is part of the set defined for out of coverage, see TS 38.211 [16]:

3> select the same SLSSID as the SLSSID of the selected SyncRef UE;

3> select the slot in which to transmit the SLSS according to the *sl-SSB-TimeAllocation1* or *sl-SSB-TimeAllocation2* included in the preconfigured sidelink parameters corresponding to the concerned frequency, such that the timing is different from the SLSS of the selected SyncRef UE;

…

2> else if the UE has a selected SyncRef UE:

3> select the SLSSID from the set defined for out of coverage having an index that is 336 more than the index of the SLSSID of the selected SyncRef UE, see TS 38.211 [16];

3> select the slot in which to transmit the SLSS according to *sl-SSB-TimeAllocation1* or *sl-SSB-TimeAllocation2* included in the preconfigured sidelink parameters corresponding to the concerned frequency, such that the timing is different from the SLSS of the selected SyncRef UE;

…

[TS 38.331, clause 5.8.6.2]

The UE shall:

1> if the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or includedin *sl-ConfigCommonNR* within *SIB12*, and *sl-SyncPriority* is configured for the concerned frequency and set to *gnbEnb*:

2> select a cell as the synchronization reference source as defined in 5.8.6.3:

1> else if the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or includedin *sl-ConfigCommonNR* within *SIB12*, and *sl-SyncPriority* for the concerned frequency is not configured or is set to *gnss*, and GNSS is reliable in accordance with TS 38.101-1 [15] and TS 38.133 [14]:

2> select GNSS as the synchronization reference source;

…

1> else:

2> perform a full search (i.e. covering all subframes and all possible SLSSIDs) to detect candidate SLSS, in accordance with TS 38.133 [14]

2> when evaluating the one or more detected SLSSIDs, apply layer 3 filtering as specified in 5.5.3.2 using the preconfigured *sl-filterCoefficient*, before using the PSBCH-RSRP measurement results;

2> if the UE has selected a SyncRef UE:

…

3> if the PSBCH-RSRP of the current SyncRef UE is less than the minimum requirement defined in TS 38.133 [14]:

4> consider no SyncRef UE to be selected;

…

2> if the UE has selected cell as the synchronization reference for NR sidelink communication:

3> if the PSBCH-RSRP of the candidate SyncRef UE exceeds the minimum requirement defined in TS 38.133 [14] by *sl-SyncRefMinHyst* and the candidate SyncRef UE belongs to a higher priority group than gNB/eNB; or

3> if the selected cell is not detected:

4> consider the cell not to be selected;

2> if the UE has not selected any synchronization reference:

3> if the UE detects one or more SLSSIDs for which the PSBCH-RSRP exceeds the minimum requirement defined in TS 38.133 [14] by *sl-SyncRefMinHyst* and for which the UE received the corresponding *MasterInformationBlockSidelink* message (candidate SyncRef UEs), or if the UE detects GNSS that is reliable in accordance with TS 38.101-1 [15] and TS 38.133 [14], or if the UE detects a cell, select a synchronization reference according to the following priority group order:

4> if *sl-SyncPriority* corresponding to the concerned frequency is set to *gnbEnb*:

5> UEs of which SLSSID is part of the set defined for in coverage, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *true*, starting with the UE with the highest PSBCH-RSRP result (priority group 1);

5> UE of which SLSSID is part of the set defined for in coverage, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCH-RSRP result (priority group 2);

5> GNSS that is reliable in accordance with TS 38.101-1 [15] and TS 38.133 [14] (priority group 3);

5> UEs of which SLSSID is 0, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *true,* or of which SLSSID is 0 and SLSS is transmitted on slot(s) indicated by *sl-SSB-TimeAllocation3*, starting with the UE with the highest PSBCH-RSRP result (priority group 4);

5> UEs of which SLSSID is 0 and SLSS is not transmitted on slot(s) indicated by *sl-SSB-TimeAllocation3*, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCH-RSRP result (priority group 5);

5> UEs of which SLSSID is 337 and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCH-RSRP result (priority group 5);

5> Other UEs, starting with the UE with the highest PSBCH-RSRP result (priority group 6);

4> if *sl-SyncPriority* corresponding to the concerned frequency is set to *gnss*, and *sl-NbAsSync* is set to *true:*

5> UEs of which SLSSID is 0, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *true*,or of which SLSSID is 0 and SLSS is transmitted on slot(s) indicated by *sl-SSB-TimeAllocation3*, starting with the UE with the highest PSBCH-RSRP result (priority group 1);

5> UEs of which SLSSID is 0 and SLSS is not transmitted on slot(s) indicated by *sl-SSB-TimeAllocation3*, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCHS-RSRP result (priority group 2);

5> UEs of which SLSSID is 337 and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCH-RSRP result (priority group 2);

5> the cell detected by the UE as defined in 5.8.6.3 (priority group 3);

5> UEs of which SLSSID is part of the set defined for in coverage, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *true*, starting with the UE with the highest PSBCH-RSRP result (priority group 4);

5> UE of which SLSSID is part of the set defined for in coverage, and *inCoverage*, included in the *MasterInformationBlockSidelink* message received from this UE, is set to *false*, starting with the UE with the highest PSBCH-RSRP result (priority group 5);

5> Other UEs, starting with the UE with the highest S-RSRP result (priority group 6);

…

[TS 38.331, clause 5.8.9.4.3]

The UE shall set the contents of the *MasterInformationBlockSidelink* message as follows:

…

1> else if out of coverage on the frequency used for NR sidelink communication as defined in TS 38.304 [20]; and the concerned frequency is included in *sl-FreqInfoToAddModList* in *RRCReconfiguration* or in *sl-FreqInfoList* within *SIB12*:

2> set *inCoverage* to *true*;

2> set *reservedBits* to the value of the corresponding field included in the preconfigured sidelink parameters (i.e. *sl-PreconfigGeneral* in *SidelinkPreconfigNR* defined in 9.3);

2> set *sl-TDD-Config* to the value representing the same meaning as that is included in the corresponding field included in the preconfigured sidelink parameters (i.e. *sl-PreconfigGeneral* in *SL-PreconfigurationNR* defined in 9.3) as described in TS 38.213, clause 16.1 [13];

1> else if out of coverage on the frequency used for NR sidelink communication as defined in TS 38.304 [20]; and the UE selects GNSS as the synchronization reference and *sl-SSB-TimeAllocation3* is not configured for the frequency used in *SidelinkPreconfigNR*:

2> set *inCoverage* to *true*;

2> set *reservedBits* to the value of the corresponding field included in the preconfigured sidelink parameters (i.e. *sl-PreconfigGeneral* in *SidelinkPreconfigNR* defined in 9.3);

2> set *sl-TDD-Config* to the value representing the same meaning as that is included in the corresponding field included in the preconfigured sidelink parameters (i.e. *sl-PreconfigGeneral* in *SL-PreconfigurationNR* defined in 9.3) as described in TS 38.213, clause 16.1 [13];

1> else if the UE has a selected SyncRef UE (as defined in 5.8.6):

2> set *inCoverage* to *false*;

2> set *sl-TDD-Config* and *reservedBits* to the value of the corresponding field included in the received *MasterInformationBlockSidelink*;

1> else:

2> set *inCoverage* to *false*;

2> set *reservedBits* to the value of the corresponding field included in the preconfigured sidelink parameters (i.e. *sl-PreconfigGeneral* in *SidelinkPreconfigNR* defined in 9.3);

2> set *sl-TDD-Config* to the value representing the same meaning as that is included in the corresponding field included in the preconfigured sidelink parameters (i.e. *sl-PreconfigGeneral* in *SL-PreconfigurationNR* defined in 9.3) as described in TS 38.213, clause 16.1 [13];

1> set *directFrameNumber* and *slotIndex* according to the slot used to transmit the SLSS, as specified in 5.8.5.3;

1> submit the *MasterInformationBlockSidelink* to lower layers for transmission upon which the procedure ends;

[TS 38.331, clause 5.8.12]

When the UE selects GNSS as the synchronization reference source, the DFN, the subframe number within a frame and slot number within a frame used for NR sidelink communication are derived from the current UTC time, by the following formulae:

*DFN*= Floor (0.1\*(*Tcurrent* –*Tref–OffsetDFN*)) mod 1024

*SubframeNumber*= Floor (*Tcurrent* –*Tref–OffsetDFN*) mod 10

*SlotNumber*= Floor ((*Tcurrent* –Tref–*OffsetDFN*)\*2μ) mod (10\*2μ)

Where:

***Tcurrent*** is the current UTC time obtained from GNSS. This value is expressed in milliseconds;

***Tref*** is the reference UTC time 00:00:00 on Gregorian calendar date 1 January, 1900 (midnight between Thursday, December 31, 1899 and Friday, January 1, 1900). This value is expressed in milliseconds;

***OffsetDFN*** is the value *sl-OffsetDFN* if configured, otherwise it is zero. This value is expressed in milliseconds.

μ=0/1/2/3 corresponding to the 15/30/60/120 kHz of SCS for SL, respectively.

NOTE 1: In case of leap second change event, how UE obtains the scheduled time of leap second change to adjust *Tcurrent* correspondingly is left to UE implementation. How UE handles to avoid the sudden discontinuity of DFN is left to UE implementation.

NOTE 2: Void.

12.2.2.1.3 Test description

12.2.2.1.3.1 Pre-test conditions

System Simulator:

- NR Cell

- NR Cell 1 is the serving cell.

- System information combination NR-14 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

- NR-SS-UE

- NR-SS-UE 1, 2, 3, 4 and 5 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE 1 transmits SL-SSB with SLSSID = 3, *inCoverage* = true in slots determined by *sl-SSB-TimeAllocation1* and NR Cell 1 timing.

- NR-SS-UE 2 transmits SL-SSB with SLSSID = 4, *inCoverage* = false in slots determined by *sl-SSB-TimeAllocation2* and NR Cell 1 timing.

- NR-SS-UE 3 transmits SL-SSB with SLSSID = 0, *inCoverage* = true in slots determined by *sl-SSB-TimeAllocation1* and GNSS timing.

- NR-SS-UE 4 transmits SL-SSB with SLSSID = 0, *inCoverage* = false in slots determined by *sl-SSB-TimeAllocation2* and GNSS timing.

- NR-SS-UE 5 transmits SL-SSB with SLSSID = 338, *inCoverage* = false in slots determined by *sl-SSB-TimeAllocation1* and arbitrary timing.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4]) except for those listed in Table 12.2.2.1.3.1-1.

Table 12.2.2.1.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | As per TS 36.508 [18] clause 4.9.3.4 |  |
| EFVST |  | Service n°119 is "available" |  |
| EFV2XP\_PC5 |  | As per TS 38.508-1[4] clause 4.8.3.3.3  SL-PreconfigurationNR included in V2X data policy over PC5 is defined in Table 12.2.2.1.3.3-1, Table 12.2.2.1.3.3-1A and Table 12.2.2.1.3.3-2 |  |

Preamble:

- The UE is in state 3N-B as defined in TS 38.508-1 [4], subclause 4.4A, using generic procedure parameter Sidelink (On), GNSS Sync (On) and Test Mode (On) as defined in TS 38.508-1 [4], subclause 4.5.1.

12.2.2.1.3.2 Test procedure sequence

Table 12.2.2.1.3.2-1 illustrates the sidelink power levels to be applied for NR-SS-UE 1, 2, 3, 4 and 5 at various time instants of the test execution. Row marked "T0" denotes the conditions after the preamble, while the configuration marked "T1" to "T7", are applied at the point indicated in the Main behaviour description in Table 12.2.2.1.3.2-2.

Table 12.2.2.1.3.2-1: Time instances of NR-SS-UE power level and parameter changes in conducted test environment

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR-SS-UE 1 | NR-SS-UE 2 | NR-SS-UE 3 | NR-SS-UE 4 | NR-SS-UE 5 | Remark |
| T0 | NR-SS-UE power | dBm/  SCS | OFF | OFF | -85 | OFF | OFF | Priority of NR-SS-UE 3 is lower than GNSS |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | - | - | 0 | - | - |
| T1 | NR-SS-UE power | dBm/  SCS | OFF | OFF | -85 | -85 | OFF | Priority of NR-SS-UE 4 is lower than priority of NR-SS-UE 3 |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | - | - | 0 | 0 | - |
| T2 | NR-SS-UE power | dBm/  SCS | OFF | OFF | OFF | -85 | OFF | Priority of NR Cell is lower than priority of NR-SS-UE 3 when GNSS has the highest priority |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | - | - | - | 0 | - |
| T3 | NR-SS-UE power | dBm/  SCS | -85 | OFF | OFF | OFF | OFF | Priority of NR-SS-UE 1 is lower than NR Cell. |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | 0 | - | - | - | - |
| T4 | NR-SS-UE power | dBm/  SCS | -85 | -85 | OFF | OFF | OFF | Priority of NR-SS-UE 2 is lower than priority of NR-SS-UE 1 |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | 0 | 0 | - | - | - |
| T5 | NR-SS-UE power | dBm/  SCS | OFF | -85 | OFF | OFF | OFF | Priority of GNSS is lower than priority of NR-SS-UE 2 when gNB has the highest priority |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | - | 0 | - | - | - |
| T6 | NR-SS-UE power | dBm/  SCS | OFF | OFF | OFF | -85 | -85 | Priority of NR-SS-UE 5 is lower than priority of NR-SS-UE 4 |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | - | - | - | 0 | 0 |
| T7 | NR-SS-UE power | dBm/  SCS | OFF | OFF | OFF | OFF | -85 | Priority of UE internal clock is lower than NR-SS-UE 5 |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | - | - | - | - | 0 |

**Table 12.2.2.1.3.2-2: Main behaviour**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **St** | **Procedure** | **Message Sequence** | | **TP** | **Verdict** |
|  |  | **U - S** | **Message** |  |  |
| 1 | The SS transmits an RRCReconfiguration message to configure sl-SyncPriority = gnss | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 2 | The UE transmits an RRCReconfigurationComplete message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 3 | The SS transmits a CLOSE UE TEST LOOP message to close UE test loop mode E (Transmit Mode). | <-- | NR RRC: *DLInformationTransfer*  TC: CLOSE UE TEST LOOP | - | - |
| 4 | The UE transmits a CLOSE UE TEST LOOP COMPLETE message | --> | NR RRC: *ULInformationTransfer*  TC: CLOSE UE TEST LOOP COMPLETE | - | - |
| 4A | The UE starts broadcasting continuously | - | - | - | - |
| 5 | The SS waits 10 seconds | - | - | - | - |
| 6 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID = 0; * inCoverage = true in SL-MIB; * slotIndex and directFrameNumber in SL-MIB are consistent with the slot index and DFN calculated based on the UTC time obtained from GNSS as specified in TS 38.331 [22] clause 5.8.12; * transmitted in slots determined by sl-SSB-TimeAllocation1and GNSS timing; * reserveBits in SL-MIB is consistent with reserveBits in pre-configuration. | - | - | 1 | P |
| 7 | The SS powers off GNSS simulator. | - | - | - | - |
| 8 | The SS re-adjusts the NR-SS-UE power level according to row "T1" in table 12.2.2.1.3.2-1. | - | - | - | - |
| 9 | The SS waits 10 seconds | - | - | - | - |
| 10 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID = 0; * inCoverage = false in SL-MIB; * slotIndex and directFrameNumber in SL-MIB are consistent with the slot index and DFN of NR-SS-UE 3; * transmitted in slots determined by sl-SSB-TimeAllocation2and the NR-SS-UE 3 timing; * reserveBits in SL-MIB is consistent with reserveBits in SL-MIB of NR-SS-UE 3. | - | - | 2 | P |
| 11 | The SS re-adjusts the NR-SS-UE power level according to row "T2" in table 12.2.2.1.3.2-1. | - | - | - | - |
| 12 | The SS waits 10 seconds | - | - | - | - |
| 13 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID = 336; * inCoverage = false in SL-MIB; * slotIndex and directFrameNumber in SL-MIB are consistent with the slot index and DFN of NR-SS-UE 4. * transmitted in slots determined by sl-SSB-TimeAllocation1and the NR-SS-UE 4 timing? * reserveBits in SL-MIB is consistent with reserveBits in SL-MIB of NR-SS-UE 4. | - | - | 3 | P |
| 14 | The SS transmits an RRCReconfiguration message to configure sl-SyncPriority = gnbEnb | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 15 | The UE transmits an RRCReconfigurationComplete message. | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 16 | The SS re-adjusts the NR-SS-UE power level according to row "T3" in table 12.2.2.1.3.2-1. | - | - | - | - |
| 17 | The SS waits 10 seconds | - | - | - | - |
| 18 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID is consistent with SLSSID in sl-ConfigDedicatedNR; * inCoverage = true in SL-MIB; * slotIndex and directFrameNumber in SL-MIB are consistent with the slot index and SFN of NR Cell 1. * transmitted in slots determined by sl-SSB-TimeAllocation1and the NR Cell 1 timing? * reserveBits in SL-MIB is consistent with reserveBits in pre-configuration. | - | - | 4 | P |
| 19 | The SS sends an RRCRelease message and powers off NR Cell 1. | <-- | NR RRC: RRCRelease | - | - |
| 20 | The SS re-adjusts the NR-SS-UE power level according to row "T4" in table 12.2.2.1.3.2-1. | - | - | - | - |
| 21 | The SS waits 10 seconds | - | - | - | - |
| 22 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID is consistent with SLSSID of NR-SS-UE 1; * inCoverage = false in SL-MIB; * slotIndex and directFrameNumber in SL-MIB are consistent with the slot index and DFN of NR-SS-UE 1; * transmitted in slots determined by sl-SSB-TimeAllocation2and NR-SS-UE 1 timing; * reserveBits in SL-MIB is consistent with reserveBits in SL-MIB of NR-SS-UE 1. | - | - | 5 | P |
| 23 | The SS powers on GNSS simulator. | - | - | - | - |
| 24 | The SS re-adjusts the NR-SS-UE power level according to row "T5" in table 12.2.2.1.3.2-1. | - | - | - | - |
| 25 | The SS waits 10 seconds | - | - | - | - |
| 26 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID equals to SLSSID of NR-SS-UE 2 plus 336; * inCoverage = false in SL-MIB; * slotIndex and directFrameNumber in SL-MIB are consistent with the slot index and DFN of NR-SS-UE 2; * transmitted in slots determined by sl-SSB-TimeAllocation1and NR-SS-UE 2 timing; * reserveBits in SL-MIB is consistent with reserveBits in SL-MIB of NR-SS-UE 2. | - | - | 6 | P |
| 27 | The SS re-adjusts the NR-SS-UE power level according to row "T0" in table 12.2.2.1.3.2-1. | - | - | - | - |
| 28 | The SS waits 10 seconds | - | - | - | - |
| 29 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID = 0; * inCoverage = true in SL-MIB; * slotIndex and directFrameNumber in SL-MIB are consistent with the slot index and DFN calculated based on the UTC time obtained from GNSS as specified in TS 38.331 [22] clause 5.8.12; * transmitted in slots determined by sl-SSB-TimeAllocation1and GNSS timing; * reserveBits in SL-MIB is consistent with reserveBits in pre-configuration. | - | - | 7 | P |
| 30 | The SS powers off GNSS simulator. | - | - | - | - |
| 31 | The SS re-adjusts the NR-SS-UE power level according to row "T1" in table 12.2.2.1.3.2-1. | - | - | - | - |
| 32 | The SS waits 10 seconds | - | - | - | - |
| 33 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID = 0; * inCoverage = false in SL-MIB; * slotIndex and directFrameNumber in SL-MIB are consistent with the slot index and DFN of NR-SS-UE 3; * transmitted in slots determined by sl-SSB-TimeAllocation2and NR-SS-UE 3 timing; * reserveBits in SL-MIB is consistent with reserveBits in SL-MIB of NR-SS-UE 3. | - | - | 8 | P |
| 34 | The SS re-adjusts the NR-SS-UE power level according to row "T6" in table 12.2.2.1.3.2-1. | - | - | - | - |
| 35 | The SS waits 10 seconds | - | - | - | - |
| 36 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID = 336; * inCoverage = false in SL-MIB; * slotIndex and directFrameNumber in SL-MIB are consistent with the slot index and DFN of NR-SS-UE 4; * transmitted in slots determined by sl-SSB-TimeAllocation1and NR-SS-UE 4 timing; * reserveBits in SL-MIB is consistent with reserveBits in SL-MIB of NR-SS-UE 4. | - | - | 9 | P |
| 37 | The SS re-adjusts the NR-SS-UE power level according to row "T7" in table 12.2.2.1.3.2-1. | - | - | - | - |
| 38 | The SS waits 10 seconds | - | - | - | - |
| 39 | Check: Does the UE transmit SL-SSBs which satisfy all following conditions?   * SLSSID is consistent with SLSSID of NR-SS-UE 5; * inCoverage = false in SL-MIB; * slotIndex and directFrameNumber in SL-MIB are consistent with the slot index and DFN of NR-SS-UE 5; * transmitted in slots determined by sl-SSB-TimeAllocation2and NR-SS-UE 5 timing; * reserveBits in SL-MIB is consistent with reserveBits in SL-MIB of NR-SS-UE 5. | - | - | 10 | P |
| 40 | The SS triggers UE to open UE test loop mode E.  NOTE: Opening of UE test loop mode E may be performed by MMI or AT command (+CCUTLE). | - | - | - | - |
| 41 | Void | - | - | - | - |

12.2.2.1.3.3 Specific message contents

Table 12.2.2.1.3.3-1: V2X service identifier to default mode of communication mapping rule (Pre-configuration, UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.5.5-53 | | | |
| Information Element | | Value/remark | Comment | Condition |
| DMC | | '10'B | Default mode of communication is set to broadcast |  |

Table 12.2.2.1.3.3-1A: SL-SDAP-Config (Pre-configuration, UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-30 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SL-SDAP-Config-r16 ::= SEQUENCE { | |  |  |  |
| sl-CastType-r16 | | broadcast |  |  |
| } | |  |  |  |

Table 12.2.2.1.3.3-2: SL-SyncConfig(Pre-configuration, UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-31 | | | |
| Information Element | Value/remark | Comment | Condition |
| SL-SyncConfig-r16 ::= SEQUENCE { |  |  |  |
| sl-SSID-r16 | Not present |  |  | |
| txParameters-r16 SEQUENCE { |  |  |  | |
| syncTxThreshOoC-r16 | 13 | actual threshold is +infinity |  | |
| } |  |  |  | |
| } |  |  |  |

Table 12.2.2.1.3.3-3: RRCReconfiguration (Table 12.2.2.1.3.2-2, Step 1 and 14)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 with condition SIDELINK | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| sl-ConfigDedicatedNR-r16 CHOICE { | |  |  |  |
| setup | | SL-ConfigDedicatedNR-r16 | Table 12.2.2.1.3.3-4 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.2.1.3.3-4: SL-ConfigDedicatedNR (Table 12.2.2.1.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-7 with condition SELECTED | | | |
| Information Element | | Value/remark | Comment | Condition |
| SL-ConfigDedicatedNR-r16 ::= SEQUENCE { | |  |  |  |
| sl-PHY-MAC-RLC-Config-r16 SEQUENCE { | |  |  |  |
| sl-FreqInfoToAddModList-r16 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-FreqConfig-r16 { | | 1 entry |  |  |
| SL-FreqConfig-r16[1] SEQUENCE { | | SL-FreqConfig-r16 | entry 1 |  |
| sl-SyncConfigList-r16 SEQUENCE (SIZE (1..maxSL-SyncConfig-r16)) OF SL-SyncConfig-r16 { | | 1 entry |  |  |
| SL-SyncConfig-r16[1] SEQUENCE { | |  | entry 1 |  |
| sl-SSID-r16 | | 2 |  |  |
| } | |  |  |  |
| } | |  |  |  |
| sl-SyncPriority-r16 | | gnss |  | Step 1 |
|  | | gnbEnb |  | Step 14 |
| } | |  |  |  |
| } | |  |  |  |
| networkControlledSyncTx-r16 | | on |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.2.1.3.3-5: CLOSE UE TEST LOOP (Table 12.2.2.1.3.2-2, Step 3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 36.508 [7] Table 4.7A-3 with condition UE TEST LOOP MODE E(V2X Transmission) | | | |
| Information Element | | Value/remark | Comment | Condition |
| UE test loop mode E LB setup | |  |  |  |
| Communication Transmit or Receive | | 0 0 0 0 0 0 0 1 | ‘01’ indicates V2X UE triggered to transmit NR sidelink communication with single spatial layer. |  |

Table 12.2.2.1.3.3-6: MasterInformationBlockSidelink (NR-SS-UE 1, 2, 3, 4 and 5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-1 | | | |
| Information Element | | Value/remark | Comment | Condition |
| MasterInformationBlockSidelink ::= SEQUENCE { | |  |  |  |
| inCoverage-r16 | true |  | NR-SS-UE 1, 3 |
|  | false |  | NR-SS-UE 2, 4, 5 |
| directFrameNumber-r16 | DFN determined based on the formula given in 38.331 [22] clause 5.8.12. |  | NR-SS-UE 3, 4 |
|  | SFN of NR Cell 1 |  | NR-SS-UE 1, 2, 5 |
| slotIndex-r16 | slot index determined based on the formula given in 38.331 [22] clause 5.8.12. |  | NR-SS-UE 3, 4 |
|  | slot index of NR Cell 1 |  | NR-SS-UE 1, 2, 5 |
| reservedBits-r16 | 01 |  | NR-SS-UE 1, 3 |
|  | 10 |  | NR-SS-UE 2, 4 |
|  | 11 |  | NR-SS-UE 5 |
| } | |  |  |  |

Table 12.2.2.1.3.3-7: MasterInformationBlockSidelink (Table 12.2.2.1.3.2-2, step 6, 10, 13, 18, 22, 26, 29, 33, 36 and 39 UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-1 with condition TX | | | |
| Information Element | | Value/remark | Comment | Condition |
| MasterInformationBlockSidelink ::= SEQUENCE { | |  |  |  |
| inCoverage-r16 | true |  | Step 6, 18, 29 |
|  | false |  | Step 10, 13, 22, 26, 33, 36, 39 |
| directFrameNumber-r16 | DFN determined based on the formula given in 38.331 [22] clause 5.8.12 |  | Step 6, 10, 13, 29, 33, 36, |
|  | SFN of NR Cell 1 |  | Step 18, 22, 26, 39 |
| slotIndex-r16 | slot index determined based on the formula given in 38.331 [22] clause 5.8.12 |  | Step 6, 10, 13, 29, 33, 36, |
|  | Slot index of NR Cell 1 |  | Step 18, 22, 26, 39 |
| reservedBits-r16 | 00 | Same as pre-configuration | Step 6, 18, 29 |
|  | 01 | Same as NR-SS-UE 1 | Step 10, 22, 33 |
|  | 10 | Same as NR-SS-UE 2 | Step 13, 26, 36 |
|  | 11 | Same as NR-SS-UE 3 | Step 39 |
| } | |  |  |  |

#### 12.2.2.2 Inter-carrier concurrent operation / Sidelink synchronization related procedure / SL-SSB transmission Initiation and Cease

12.2.2.2.1 Test Purpose (TP)

(1)

**with** { UE in connected state. UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnbEnb, syncTxThreshIC but no networkControlledSyncTx }

**ensure that** {

**when** { SS-RSRP of serving cell is higher than syncTxThreshIC }

**then** { UE does not transmit SL-SSB }

}

(2)

**with** { UE in connected state. UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnbEnb, syncTxThreshIC but no networkControlledSyncTx }

**ensure that** {

**when** { SS-RSRP of serving cell is lower than syncTxThreshIC }

**then** { UE starts transmitting SL-SSB }

}

(3)

**with** { UE in connected state. UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnbEnb. }

**ensure that** {

**when** { UE receives an RRCReconfiguration message with networkControlledSyncTx = off }

**then** { UE does not transmit SL-SSB }

}

(4)

**with** { UE in connected state. UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnbEnb }

**ensure that** {

**when** { UE receives an RRCReconfiguration message with networkControlledSyncTx = on }

**then** { UE starts transmitting SL-SSB }

}

(5)

**with** { UE in connected state. UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnssand with syncTxThreshOoC configured in pre-configuration }

**ensure that** {

**when** { UE selects a SyncRef UE as synchronization reference sourceand PSBCH-RSRP of the SyncRef UE is higher than syncTxThreshOoC }

**then** { UE does not transmit SL-SSB }

}

(6)

**with** { UE in connected state. UE configured by upper layer to perform sidelink transmission and configured with sl-SyncPriority = gnssand with syncTxThreshOoC configured in pre-configuration }

**ensure that** {

**when** { UE selects a SyncRef UE as synchronization reference source and PSBCH-RSRP of the SyncRef UE is lower than syncTxThreshOoC }

**then** { UE starts transmitting SL-SSB }

}

12.2.2.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.2. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.2]

The UE shall perform NR sidelink communication operation only if the conditions defined in this clause are met:

1> if the UE's serving cell is suitable (RRC\_IDLE or RRC\_INACTIVE or RRC\_CONNECTED); and if either the selected cell on the frequency used for NR sidelink communication operation belongs to the registered or equivalent PLMN as specified in TS 24.587 [57] or the UE is out of coverage on the frequency used for NR sidelink communication operation as defined in TS 38.304 [20] and TS 36.304 [27]; or

…

1> if the UE has no serving cell (RRC\_IDLE);

[TS 38.331, clause 5.8.5.1]



Figure 5.8.5.1-1: Synchronisation information transmission for NR sidelink communication, in (partial) coverage



Figure 5.8.5.1-2: Synchronisation information transmission for NR sidelink communication, out of coverage

The purpose of this procedure is to provide synchronisation information to a UE.

[TS 38.331, clause 5.8.5.2]

A UE capable of NR sidelink communication and SLSS/PSBCH transmission shall, when transmitting NR sidelink communication, and if the conditions for NR sidelink communication operation are met and when the following conditions are met:

…

1> if out of coverage on the frequency used for NR sidelink communication, and the frequency used to transmit NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or includedin *sl-FreqInfoList* within *SIB12*; and has selected GNSS or the cell as synchronization reference as defined in 5.8.6.3:

2> if in RRC\_CONNECTED; and if *networkControlledSyncTx* is configured and set to *on*; or

2> if *networkControlledSyncTx* is not configured; and for the concerned frequency *syncTxThreshIC* is configured; and the RSRP measurement of the reference cell, selected as defined in 5.8.6.3, for NR sidelink communication transmission is below the value of *syncTxThreshIC*:

3> transmit sidelink SSB on the frequency used for NR sidelink communication in accordance with 5.8.5.3 and TS 38.211 [16], including the transmission of SLSS as specified in 5.8.5.3 and transmission of *MasterInformationBlockSidelink* as specified in 5.8.9.4.3;

1> else:

2> for the frequency used for NR sidelink communication, if *syncTxThreshOoC* is included in *SidelinkPreconfigNR*; and the UE is not directly synchronized to GNSS, and the UE has no selected SyncRef UE or the PSBCH-RSRP measurement result of the selected SyncRef UE is below the value of *syncTxThreshOoC*; or

…

3> transmit sidelink SSB on the frequency used for NR sidelink communication in accordance with TS 38.211 [16] , including the transmission of SLSS as specified in 5.8.5.3 and transmission of *MasterInformationBlockSidelink* as specified in 5.8.9.4.3;

12.2.2.2.3 Test description

12.2.2.2.3.1 Pre-test conditions

System Simulator:

- NR Cell

- NR Cell 1 is the serving cell.

- System information combination NR-14 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

- NR-SS-UE

- NR-SS-UE 1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE 1 transmits SL-SSB with SLSSID = 0, *inCoverage* = true in slots determined by *sl-SSB-TimeAllocation1* and NR Cell 1 timing.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4]) except for those listed in Table 12.2.2.2.3.1-1.

Table 12.2.2.2.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | As per TS 36.508 [18] clause 4.9.3.4 |  |
| EFVST |  | Service n°119 is "available" |  |
| EFV2XP\_PC5 |  | As per TS 38.508-1[4] clause 4.8.3.3.3  SL-PreconfigurationNR included in V2X data policy over PC5 is defined in Table 12.2.2.2.3.3-1 and Table 12.2.2.2.3.3-1A |  |

Preamble:

- The UE is in state 3N-B as defined in TS 38.508-1 [4], subclause 4.4A, using generic procedure parameter Sidelink (On) and Test Mode (On) as defined in TS 38.508-1 [4], subclause 4.5.1.

12.2.2.2.3.2 Test procedure sequence

Table 12.2.2.2.3.2-1 illustrates the sidelink power levels to be applied for NR Cell 1 and NR-SS-UE 1 at various time instants of the test execution. Row marked "T0" denotes the conditions after the preamble, while the configuration marked "T1", is applied at the point indicated in the Main behaviour description in Table 12.2.2.2.3.2-2.

Table 12.2.2.2.3.2-1: Time instances of NR-SS-UE and NR Cell power level and parameter changes in conducted test environment

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR-SS-UE 1 | Remark |
| T0 | SS/PBCH  SSS EPRE | dBm/  SCS | -84 | - | The power level to ensure SS-RSRP of NR Cell 1 is higher than syncTxThreshIC and PSBCH-RSRP of NR-SS-UE 1 is higher than syncTxThreshOoC |
| NR-SS-UE power | dBm/  SCS | - | -94 |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | - | 0 |
| T1 | SS/PBCH  SSS EPRE | dBm/  SCS | -96 | - | The power level to ensure SS-RSRP of NR Cell 1 is lower than syncTxThreshIC and PSBCH-RSRP of NR-SS-UE 1 is lower than syncTxThreshOoC |
| NR-SS-UE power | dBm/  SCS | - | -106 |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | - | 0 |

**Table 12.2.2.2.3.2-2: Main behaviour**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **St** | **Procedure** | **Message Sequence** | | **TP** | **Verdict** |
|  |  | **U - S** | **Message** |  |  |
| 1 | The SS transmits an RRCReconfiguration message to configure sl-SyncPriority = gnbEnb and syncTxThreshIC | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 2 | The UE transmits an RRCReconfigurationComplete message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 3 | The SS transmits a CLOSE UE TEST LOOP message to close UE test loop mode E (Transmit Mode). | <-- | NR RRC: *DLInformationTransfer*  TC: CLOSE UE TEST LOOP | - | - |
| 4 | The UE transmits a CLOSE UE TEST LOOP COMPLETE message | --> | NR RRC: *ULInformationTransfer*  TC: CLOSE UE TEST LOOP COMPLETE | - | - |
| 4A | The UE starts broadcasting continuously. | - | - | - | - |
| 5 | The SS waits 1 seconds. | - | - | - | - |
| 6 | Check: Does the UE transmit any SL-SSBs? | - | - | 1 | F |
| 7 | The SS re-adjusts the NR Cell 1 and NR-SS-UE power levels according to row "T1" in table 12.2.2.2.3.2-1. | - | - | - | - |
| 8 | The SS waits 1 seconds | - | - | - | - |
| 9 | Check: Does the UE transmit SL-SSBs in slots determined by sl-SSB-TimeAllocation1and NR Cell 1 timing? | - | - | 2 | P |
| 10 | The SS transmits an RRCReconfiguration message to configure networkControlledSyncTx = off | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 11 | The UE transmits an RRCReconfigurationComplete message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 12 | The SS waits 1 seconds. | - | - | - | - |
| 13 | Check: Does the UE transmit any SL-SSBs? | - | - | 3 | F |
| 14 | The SS transmits an RRCReconfiguration message to configure networkControlledSyncTx = on | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 15 | The UE transmits an RRCReconfigurationComplete message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 16 | The SS waits 1 seconds. | - | - | - | - |
| 17 | Check: Does the UE transmit SL-SSBs in slots determined by sl-SSB-TimeAllocation1and NR Cell 1 timing? | - | - | 4 | P |
| 18 | The SS re-adjusts the NR Cell 1 and NR-SS-UE 1 power level according to row "T0" in table 12.2.2.2.3.2-1. | - | - | - | - |
| 19 | The SS transmits an RRCReconfiguration message to configure sl-SyncPriority = gnss | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 20 | The UE transmits an RRCReconfigurationComplete message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 21 | The SS waits 10 seconds | - | - | - | - |
| 22 | Check: Does the UE transmit any SL-SSBs? | - | - | 5 | F |
| 23 | The SS re-adjusts the NR Cell 1 and NR-SS-UE 1 power level according to row “T1” in table 12.2.2.2.3.2-1. | - | - | - | - |
| 24 | The SS waits 2 seconds | - | - | - | - |
| 25 | Check: Does the UE transmit SLSSBs in slots determined by sl-SSB-TimeAllocation2and NR-SS-UE 1 timing? | - | - | 6 | P |
| 26 | The SS transmits an OPEN UE TEST LOOP message to open UE test loop mode E. | <-- | NR RRC: *DLInformationTransfer*  TC: OPEN UE TEST LOOP | - | - |
| 27 | The UE transmits an OPEN UE TEST LOOP COMPLETE message | --> | NR RRC: *ULInformationTransfer*  TC: OPEN UE TEST LOOP COMPLETE | - | - |

12.2.2.2.3.3 Specific message contents

Table 12.2.2.2.3.3-1: V2X service identifier to default mode of communication mapping rule (Pre-configuration, UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.5.5-53 | | | |
| Information Element | | Value/remark | Comment | Condition |
| DMC | | '10'B | Default mode of communication is set to broadcast |  |

Table 12.2.2.2.3.3-1A: SL-SDAP-Config (Pre-configuration, UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-30 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SL-SDAP-Config-r16 ::= SEQUENCE { | |  |  |  |
| sl-CastType-r16 | | broadcast |  |  |
| } | |  |  |  |

Table 12.2.2.2.3.3-2: RRCReconfiguraion (Table 12.2.2.2.3.2-2, Step 1, 10, 14 and 19)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 with condition SIDELINK | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| sl-ConfigDedicatedNR-r16 CHOICE { | |  |  |  |
| setup | | SL-ConfigDedicatedNR-r16 | Table 12.2.2.2.3.3-3 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.2.2.3.3-3: SL-ConfigDedicatedNR (Table 12.2.2.2.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-7 with condition SELECTED | | | |
| Information Element | | Value/remark | Comment | Condition |
| SL-ConfigDedicatedNR-r16 ::= SEQUENCE { | |  |  |  |
| sl-PHY-MAC-RLC-Config-r16 SEQUENCE { | |  |  |  |
| sl-FreqInfoToAddModList-r16 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-FreqConfig-r16 { | | 1 entry |  |  |
| SL-FreqConfig-r16[1] SEQUENCE { | |  | entry 1 |  |
| sl-SyncConfigList-r16 SEQUENCE (SIZE (1..maxSL-SyncConfig-r16)) OF SL-SyncConfig-r16 { | | 1 entry |  |  |
| SL-SyncConfig-r16[1] SEQUENCE { | |  | entry 1 |  |
| txParameters-r16 SEQUENCE { | |  |  |  |
| syncTxThreshIC-r16 | | 6 | Actual value is -120+6\*5 = -90 dBm | Step 1 |
|  | | Not present |  | Step 10, 14, 19 |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| sl-SyncPriority-r16 | | gnbEnb |  | Step 1, 10, 14 |
|  | | gnss |  | Step 19 |
| } | |  |  |  |
| } | |  |  |  |
| networkControlledSyncTx-r16 | | Not present |  | Step 1, 19 |
|  | | off |  | Step 10 |
|  | | on |  | Step 14 |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.2.2.3.3-4: CLOSE UE TEST LOOP (Table 12.2.2.2.3.2-2, Step 3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 36.508 [7] Table 4.7A-3 with condition UE TEST LOOP MODE E(V2X Transmission) | | | |
| Information Element | | Value/remark | Comment | Condition |
| UE test loop mode E LB setup | |  |  |  |
| Communication Transmit or Receive | | 0 0 0 0 0 0 0 1 | ‘01’ indicates V2X UE triggered to transmit NR sidelink communication with single spatial layer. |  |

Table 12.2.2.2.3.3-5: MasterInformationBlockSidelink (NR-SS-UE 1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-1 | | | |
| Information Element | | Value/remark | Comment | Condition |
| MasterInformationBlockSidelink ::= SEQUENCE { | |  |  |  |
| inCoverage-r16 | true |  |  |
| directFrameNumber-r16 | SFN of NR Cell 1 |  |  |
| slotIndex-r16 | slot index of NR Cell 1 |  |  |
| } | |  |  |  |

Table 12.2.2.2.3.3-6: MasterInformationBlockSidelink (Table 12.2.2.2.3.2-2, step 9, 17 and 25, UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-1 with condition TX | | | |
| Information Element | | Value/remark | Comment | Condition |
| MasterInformationBlockSidelink ::= SEQUENCE { | |  |  |  |
| inCoverage-r16 | true |  | Step 9, 17 |
|  | false |  | Step 25 |
| directFrameNumber-r16 | SFN of NR Cell 1 |  |  |
| slotIndex-r16 | slot index of NR Cell 1 |  |  |
| } | |  |  |  |

### 12.2.3 Inter-carrier concurrent operation / Measurement configuration and reporting via Uu RRC

#### 12.2.3.1 Inter-carrier concurrent operation / Measurement configuration and reporting via Uu RRC / CBR measurement reporting / Event C1 and C2

12.2.3.1.1 Test Purpose (TP)

(1)

**with** { UE is in NR RRC\_CONNECTED state and is configured to perform event C1 triggered CBR measurement reporting on resource pool }

**ensure that** {

**when** { CBR measurement result of indicated resource pool satisfies entering condition for event C1 }

**then** { UE sends MeasurementReport message to report CBR measurement results of indicated resource pool }

}

(2)

**with** { UE is in NR RRC\_CONNECTED state and the periodical measurement reporting triggered by event C1 is ongoing }

**ensure that** {

**when** { CBR measurement result of indicated resource pool satisfies leaving condition for event C1 }

**then** { UE stops sending MeasurementReport message }

}

(3)

**with** { UE is in NR RRC\_CONNECTED state and is configured to perform event C2 triggered CBR measurement reporting on resource pool }

**ensure that** {

**when** { CBR measurement result of indicated resource pool satisfies entering condition for event C1 }

**then** { UE sends MeasurementReport message to report CBR measurement results of indicated resource pool }

}

(4)

**with** { UE is in NR RRC\_CONNECTED state and the periodical measurement reporting triggered by event C2 is ongoing }

**ensure that** {

**when** { CBR measurement result of indicated resource pool satisfies leaving condition for event C2 }

**then** { UE stops sending *MeasurementReport* message }

}

12.2.3.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 38.331, clause 5.3.5.3, 5.5.2, 5.5.4.1, 5.5.4.2, 5.5.4.3 and 5.5.5. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.3.5.3]

The UE shall perform the following actions upon reception of the *RRCReconfiguration,* or upon execution of the conditional reconfiguration (CHO or CPC):

...

1> if the *RRCReconfiguration* message includes the *measConfig*:

2> perform the measurement configuration procedure as specified in 5.5.2;

...

1> else(*RRCReconfiguration* was received via SRB1):

2> submit the *RRCReconfigurationComplete* message via SRB1 to lower layers for transmission using the new configuration;

...

[TS 38.331, clause 5.5.2.1]

…

The UE shall:

…

1> if the received *measConfig* includes the *measObjectToAddModList*:

2> perform the measurement object addition/modification procedure as specified in 5.5.2.5;

…

1> if the received *measConfig* includes the *reportConfigToAddModList*:

2> perform the reporting configuration addition/modification procedure as specified in 5.5.2.7;

1> if the received *measConfig* includes the *quantityConfig*:

2> perform the quantity configuration procedure as specified in 5.5.2.8;

...

1> if the received *measConfig* includes the *measIdToAddModList*:

2> perform the measurement identity addition/modification procedure as specified in 5.5.2.3;

...

[TS 38.331, clause 5.5.3.1]

The UE shall:

1> whenever the UE has a *measConfig*, perform RSRP and RSRQ measurements for each serving cell for which *servingCellMO* is configured as follows:

2> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains an *rsType* set to *ssb* and *ssb-ConfigMobility* is configured in the *measObject* indicated by the *servingCellMO*:

3> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport* and contains an *rsType* set to *ssb*:

4> derive layer 3 filtered RSRP and RSRQ per beam for the serving cell based on SS/PBCH block, as described in 5.5.3.3a;

3> derive serving cell measurement results based on SS/PBCH block, as described in 5.5.3.3;

...

The UE capable of CBR measurement when configured to transmit NR sidelink communication shall:

1> If the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or includedin *sl-ConfigCommonNR* within *SIB12*:

...

2> if the UE is in RRC\_CONNECTED:

3> if tx-PoolMeasToAddModList is included in VarMeasConfig:

4> perform CBR measurements on each transmission resource pool indicated in the *tx-PoolMeasToAddModList*;

3> if *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling* or *sl-TxPoolExceptional* is included in sl-ConfigDedicatedNR for the concerned frequency within RRCReconfiguration:

4> perform CBR measurement on pools in *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling* or *sl-TxPoolExceptional* if included in *sl-ConfigDedicatedNR* for the concerned frequency within RRCReconfiguration;

3> else if the cell chosen for NR sidelink communication provides *SIB12* which includes *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* forthe concerned frequency:

4> perform CBR measurement on pools in *sl-TxPoolSelectedNormal* and *sl-TxPoolExceptional* for the concerned frequency in *SIB12*;

1> else:

2> perform CBR measurement on pools in *sl-TxPoolSelectedNormal* and *sl-TxPoolExceptional* in *SidelinkPreconfigNR* for the concerned frequency.

...

[TS 38.331, clause 5.5.4.1]

If AS security has been activated successfully, the UE shall:

1> for each *measId* included in the *measIdList* within *VarMeasConfig*:

...

2> if the corresponding *reportConfig* concerns the reporting for NR sidelink communication (i.e. *reportConfigNR-SL*):

3> consider the transmission resource pools indicated by the *tx-PoolMeasToAddModList* defined within the *VarMeasConfig* for this *measId* to be applicable;

...

2> else if the *reportType* is set to *eventTriggered* and if the entry condition applicable for this event, i.e. the event corresponding with the *eventId* of the corresponding *reportConfig* within *VarMeasConfig*, is fulfilled for one or more applicable transmission resource pools for all measurements taken during *timeToTrigger* defined for this event within the *VarMeasConfig*, while the *VarMeasReportList* does not include an measurement reporting entry for this *measId* (a first transmission resource pool triggers the event):

3> include a measurement reporting entry within the *VarMeasReportList* for this *measId*;

3> set the *numberOfReportsSent* defined within the *VarMeasReportList* for this *measId* to 0;

3> include the concerned transmission resource pool(s) in the *poolsTriggeredList* defined within the *VarMeasReportList* for this *measId*;

3> initiate the measurement reporting procedure, as specified in 5.5.5;

2> else if the *reportType* is set to *eventTriggered* and if the entry condition applicable for this event, i.e. the event corresponding with the *eventId* of the corresponding *reportConfig* within *VarMeasConfig*, is fulfilled for one or more applicable transmission resource pools not included in the *poolsTriggeredList* for all measurements taken during *timeToTrigger* defined for this event within the *VarMeasConfig* (a subsequent transmission resource pool triggers the event):

3> set the *numberOfReportsSent* defined within the *VarMeasReportList* for this *measId* to 0;

3> include the concerned transmission resource pool(s) in the *poolsTriggeredList* defined within the *VarMeasReportList* for this *measId*;

3> initiate the measurement reporting procedure, as specified in 5.5.5;

2> else if the *reportType* is set to *eventTriggered* and if the leaving condition applicable for this event is fulfilled for one or more applicable transmission resource pools included in the *poolsTriggeredList* defined within the *VarMeasReportList* for this *measId* for all measurements taken during *timeToTrigger* defined within the *VarMeasConfig* for this event:

3> remove the concerned transmission resource pool(s) in the *poolsTriggeredList* defined within the *VarMeasReportList* for this *measId*;

3> if the *poolsTriggeredList* defined within the *VarMeasReportList* for this *measId* is empty:

4> remove the measurement reporting entry within the *VarMeasReportList* for this *measId*;

4> stop the periodical reporting timer for this *measId*, if running

...

2> upon expiry of the periodical reporting timer for this *measId*:

3> initiate the measurement reporting procedure, as specified in 5.5.5.

...

[TS 38.331, clause 5.5.4.11]

The UE shall:

1> consider the entering condition for this event to be satisfied when condition C1-1, as specified below, is fulfilled;

1> consider the leaving condition for this event to be satisfied when condition C1-2, as specified below, is fulfilled;

Inequality C1-1 (Entering condition)



Inequality C1-2 (Leaving condition)



The variables in the formula are defined as follows:

***Ms*** is the measurement result of channel busy ratio of the transmission resource pool, not taking into account any offsets.

***Hys*** is the hysteresis parameter for this event (i.e. *hysteresis* as defined within *reportConfigNR-SL* for this event).

***Thresh*** is the threshold parameter for this event (i.e. *c1-Threshold* as defined within *reportConfigNR-SL* for this event).

***Ms*** is expressed in decimal from 0 to 1 in steps of 0.01.

***Hys*** is expressed is in the same unit as ***Ms***.

***Thresh*** is expressed in the same unit as ***Ms***.

[TS 38.331, clause 5.5.4.12]

The UE shall:

1> consider the entering condition for this event to be satisfied when condition C2-1, as specified below, is fulfilled;

1> consider the leaving condition for this event to be satisfied when condition C2-2, as specified below, is fulfilled;

Inequality C2-1 (Entering condition)



Inequality C2-2 (Leaving condition)



The variables in the formula are defined as follows:

***Ms*** is the measurement result of channel busy ratio of the transmission resource pool, not taking into account any offsets.

***Hys*** is the hysteresis parameter for this event (i.e. *hysteresis* as defined within *reportConfigNR-SL* for this event).

***Thresh*** is the threshold parameter for this event (i.e. *c2-Threshold* as defined within *reportConfigNR-SL* for this event).

***Ms*** is expressed in decimal from 0 to 1 in steps of 0.01.

***Hys*** is expressed is in the same unit as ***Ms***.

***Thresh*** is expressed in the same unit as ***Ms***.

[TS 38.331, clause 5.5.5.1]



Figure 5.5.5.1-1: Measurement reporting

The purpose of this procedure is to transfer measurement results from the UE to the network. The UE shall initiate this procedure only after successful AS security activation.

For the *measId* for which the measurement reporting procedure was triggered, the UE shall set the *measResults* within the *MeasurementReport* message as follows:

1> set the *measId* to the measurement identity that triggered the measurement reporting;

1> for each serving cell configured with *servingCellMO*:

...

2> else:

3> if SSB based serving cell measurements are available:

4> set the *measResultServingCell* within *measResultServingMOList* to include RSRP, RSRQ and the available SINR of the serving cell, derived based on SSB;

...

1> set the *servCellId* within *measResultServingMOList* to include each NR serving cell that is configured with *servingCellMO*, if any;

...

1> if there is at least one applicable transmission resource pool for NR sidelink communication (for *measResultsSL*):

2> set the *measResultsListSL* to include the CBR measurement results in accordance with the following:

3> if the reportType is set to eventTriggered:

4> include the transmission resource pools included in the *poolsTriggeredList* as defined within the *VarMeasReportList* for this *measId*;

3> else:

4> include the applicable transmission resource pools for which the new measurement results became available since the last periodical reporting or since the measurement was initiated or reset;

3> if the corresponding *measObject* concerns NR sidelink communication, then for each transmission resource pool to be reported:

4> set the *sl-poolReportIdentity* to the identity of this transmission resource pool;

4> set the *sl-CBR-ResultsNR* to the CBR measurement results on PSSCH and PSCCH of this transmission resource pool provided by lower layers, if available;

...

1> increment the *numberOfReportsSent* as defined within the *VarMeasReportList* for this *measId* by 1;

1> stop the periodical reporting timer, if running;

1> if the *numberOfReportsSent* as defined within the *VarMeasReportList* for this *measId* is less than the *reportAmount* as defined within the corresponding *reportConfig* for this *measId*:

2> start the periodical reporting timer with the value of *reportInterval* as defined within the corresponding *reportConfig* for this *measId*;

...

1> else:

2> submit the *MeasurementReport* message to lower layers for transmission, upon which the procedure ends.

12.2.3.1.3 Test description

12.2.3.1.3.1 Pre-test conditions

System Simulator:

- NR Cell

- NR Cell 1 is the serving cell.

- System information combination NR-14 as defined in TS 38.508-1 [4] clause 4.4.3.1 is used in NR Cell 1.

- NR-SS-UE

- NR-SS-UE 1 and 2 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE 1 and 2 transmit PSCCH/PSSCH continuously according to NR Cell 1 timing and the transmission pattern shown in figure 12.2.3.1.3.2-1.

UE:

* UE is authorised to perform NR sidelink communication.
* The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4]) except for those listed in Table 12.2.3.1.3.2-1.

Table 12.2.3.1.3.2-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | As per TS 36.508 [18] clause 4.9.3.4 |  |
| EFVST |  | Service n°119 is "available" |  |
| EFV2XP\_PC5 |  | As per TS 38.508-1[4] clause 4.8.3.3.3  SL-PreconfigurationNR included in V2X data policy over PC5 is defined in Table 12.2.5.2.3.3-1 and Table 12.2.3.1.3.3-1A |  |

Preamble:

- The UE is in state 3N-B as defined in TS 38.508-1 [4], subclause 4.4A, using generic procedure parameter Sidelink (On) and Test Mode (On) as defined in TS 38.508-1 [4], subclause 4.5.1.

12.2.3.1.3.2 Test procedure sequence

During the test, NR-SS-UE 1 uses all subchannels in every slot with even slot index to transmit PSCCH/PSSCH and NR-SS-UE 2 uses all subchannels in every slot with odd slot index to transmit PSCCH/PSSCH. The PSCCH/PSSCH transmission pattern for NR-SS-UE 1 and 2 are illustrated in Figure 12.2.3.1.3.2-1.

Table 12.2.3.1.3.2-2 illustrates the sidelink power levels to be applied for NR-SS-UE 1 and 2 at various time instants of the test execution. Row marked "T0" denotes the conditions after the preamble, while the configuration marked "T1" is applied at the point indicated in the Main behaviour description in Table 12.2.3.1.3.2-3.

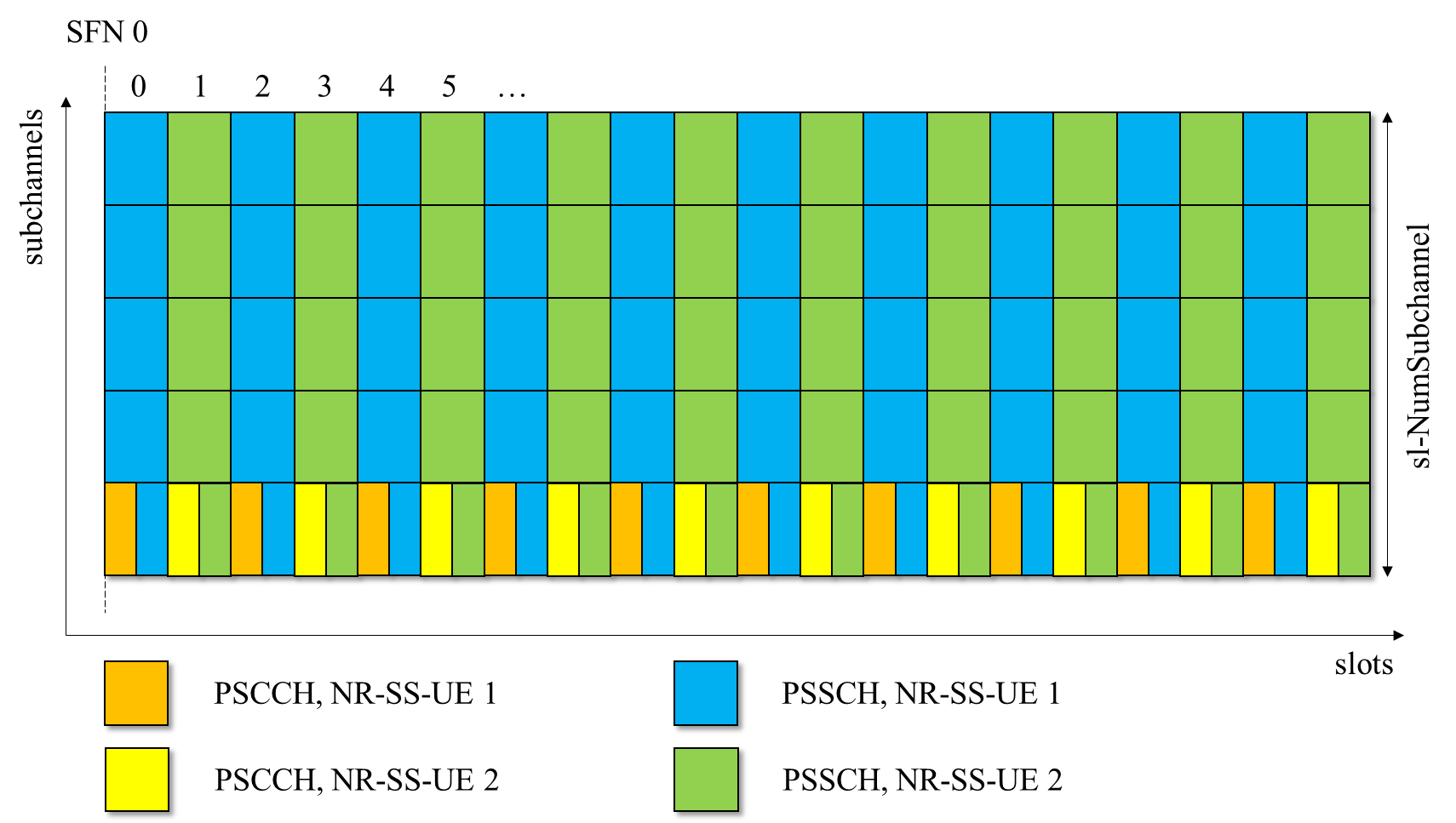


Figure 12.2.3.1.3.2-1: PSCCH/PSSCH transmission pattern for NR-SS-UE 1 and 2

Table 12.2.3.1.3.2-2: Time instances of NR-SS-UE power level and parameter changes in conducted test environment

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR-SS-UE 1 | NR-SS-UE 2 | Remark |
| T0 | NR-SS-UE power | dBm/  SCS | -85 | -85 | The power level that both SL-RSSI of NR-SS-UE 1 and NR-SS-UE 2 are above sl-ThreshS-RSSI-CBR  (SL CBR = 100%) |
| SL-RSSI | dBm/  subchannel | -74.2 | -74.2 |
| T1 | NR-SS-UE power | dBm/  SCS | -85 | -101 | The power level that SL-RSSI of NR-SS-UE 1 is above sl-ThreshS-RSSI-CBR and SL-RSSI of NR-SS-UE 2 is below sl-ThreshS-RSSI-CBR  (SL CBR = 50%) |
| SL-RSSI | dBm/  subchannel | -74.2 | -90.2 |

Table 12.2.3.1.3.2-3: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The UE transmits a SidelinkUEInformationNR message to request resources for transmission of NR sidelink communication. | --> | NR RRC: SidelinkUEInformationNR | - | - |
| 2 | The SS re-adjusts the NR-SS-UE power level according to row "T1" in Table 12.2.3.1.3.2-2 to achieve 50% congestion. | - | - | - | - |
| 3 | SS-NW transmits an RRCReconfiguration message with sl-ConfigDedicatedNR to configure transmission resources. | <-- | NR RRC: RRCReconfiguration | - | - |
| 4 | UE transmits an RRCReconfigurationComplete message. | --> | NR RRC: RRCReconfigurationComplete |  |  |
| 5 | SS-NW transmits an RRCReconfiguration message with measConfig to setup event C1 triggered CBR measurement and reporting. | <-- | NR RRC: RRCReconfiguration | - | - |
| 6 | UE transmits an RRCReconfigurationComplete message. | --> | NR RRC: RRCReconfigurationComplete |  |  |
| 7 | Check: Does the UE transmit a MeasurementReport message in the following 5s? | --> | NR RRC: MeasurementReport | 1 | F |
| 8 | The SS re-adjusts the NR-SS-UE power level according to row "T0" in Table 12.2.3.1.3.2-2 to achieve 100% congestion. | - | - | - | - |
| 9 | Check: Does the UE transmit a MeasurementReport message with the measured CBR value for indicated resource pool? | --> | NR RRC: MeasurementReport | 1 | P |
| 10 | The SS re-adjusts the NR-SS-UE power level according to row "T1" in Table 12.2.3.1.3.2-2 to achieve 50% congestion. | - | - | - | - |
| 11 | SS-NW waits for 2s | - | - | - | - |
| 12 | Check: Does the UE transmit a MeasurementReport message in the following 5s? | --> | NR RRC: MeasurementReport | 2 | F |
| 13 | SS-NW transmits an RRCReconfiguration message with measConfig to release event C1 and setup event C2 triggered CBR measurement and reporting. | <-- | NR RRC: RRCReconfiguration | - | - |
| 14 | UE transmits an RRCReconfigurationComplete message. | --> | NR RRC: RRCReconfigurationComplete |  |  |
| 15 | Check: Does the UE transmit a MeasurementReport message with the measured CBR value for indicated resource pool? | --> | NR RRC: MeasurementReport | 3 | P |
| 16 | The SS re-adjusts the NR-SS-UE power level according to row "T0" in Table 12.2.3.1.3.2-2 to achieve 100% congestion. | - | - | - | - |
| 17 | SS-NW waits for 2s | - | - | - | - |
| 18 | Check: Does the UE transmit a MeasurementReport message in the following 5s? | --> | NR RRC: MeasurementReport | 4 | F |

12.2.3.1.3.3 Specific message contents

Table 12.2.3.1.3.3-1: V2X service identifier to default mode of communication mapping rule (Pre-configuration, UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.5.5-53 | | | |
| Information Element | | Value/remark | Comment | Condition |
| DMC | | '10'B | Default mode of communication is set to broadcast |  |

Table 12.2.3.1.3.3-1A: SL-SDAP-Config (Pre-configuration, UE under test)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-30 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SL-SDAP-Config-r16 ::= SEQUENCE { | |  |  |  |
| sl-CastType-r16 | | broadcast |  |  |
| } | |  |  |  |

Table 12.2.3.1.3.3-2: Physical layer parameters for SCI format 1-A (NR-SS-UE 1 and 2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.3.6.2.1.1-1 | | | |
| Parameter | Value | Value in binary | Condition |
| Frequency resource assignment | (N-1)\*(N+2)/2  where N is the number of subchannels in resource pool indicated by sl-NumSubchannel.  FRIV is calculated according to the formula given in 38.214 clause 8.1.5 | - |  |

Table 12.2.3.1.3.3-3: SidelinkUEInformationNR (Table 12.2.3.1.3.2-3, Step 1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-28A with condition SIDELINK\_TX | | | |
| Information Element | | Value/remark | Comment | Condition |
| SidelinkUEInformationNR-r16 ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| sidelinkUEInformationNR-r16 SEQUENCE { | |  |  |  |
| sl-TxResourceReqList-r16 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-TxResourceReq-r16 { | | 1 entry |  |  |
| SL-TxResourceReq-r16[1] SEQUENCE { | |  | entry 1 |  |
| sl-DestinationIdentity-r16 | | Not checked |  |  |
| sl-CastType-r16 | | broadcast |  |  |
| sl-QoS-InfoList-r16 | | Not checked |  |  |
| sl-TypeTxSyncList-r16 | | Not checked |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.3.1.3.3-4: RRCReconfiguraion (Table 12.2.3.1.3.2-3, Step 3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 with condition SIDELINK | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| sl-ConfigDedicatedNR-r16 CHOICE { | |  |  |  |
| setup | | SL-ConfigDedicatedNR specified in 38.508-1 Table 4.6.6-7 with condition SELECTED |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.3.1.3.3-5: SL-ResourcePool (Table 12.2.3.1.3.3-4)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-25 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SL-ResourcePool-r16 ::= SEQUENCE { | |  |  |  |
| sl-ThreshS-RSSI-CBR-r16 | | 15 | actual threshold = -112+15\*2 = -82 dBm |  |
| } | |  |  |  |

Table 12.2.3.1.3.3-6: RRCReconfiguraion (Table 12.2.3.1.3.2-3, Step 5 and 13)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 with condition NR\_MEAS | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration SEQUENCE { | |  |  |  |
| measConfig | | MeasConfig-1 | Table 12.2.3.1.3.3-7 | Step 5 |
|  | | MeasConfig-2 | Table 12.2.3.1.3.3-9 | Step 13 |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.3.1.3.3-7: MeasConfig-1 (Table 12.2.3.1.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-69 | | | |
| Information Element | Value/remark | Comment | Condition |
| MeasConfig ::= SEQUENCE { |  |  |  |
| measObjectToAddModList SEQUENCE (SIZE (1..maxNrofObjectId)) OF MeasObjectToAddMod { | 2 entries |  |  |
| MeasObjectToAddMod[1] SEQUENCE { |  | Entry 1 |  |
| measObjectId | 1 |  |  |
| measObject CHOICE { |  |  |  |
| measObjectNR | MeasObjectNR | Table 12.2.3.1.3.3-8 |  |
| } |  |  |  |
| } |  |  |  |
| MeasObjectToAddMod[2] SEQUENCE { |  | Entry 2 |  |
| measObjectId | 2 |  |  |
| measObject CHOICE { |  |  |  |
| measObjectNR-SL-r16 | MeasObjectNR-SL |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF ReportConfigToAddMod { | 2 entries |  |  |
| ReportConfigToAddMod[1] SEQUENCE { |  | Entry 1 |  |
| reportConfigId | 1 |  |  |
| reportConfig CHOICE { |  |  |  |
| reportConfigNR-SL-r16 | ReportConfigNR-SL(0.75) with condition EVENT\_C1 |  |  |
| } |  |  |  |
| } |  |  |  |
| ReportConfigToAddMod[2] SEQUENCE { |  | Entry 2 |  |
| reportConfigId | 2 |  |  |
| reportConfig CHOICE { |  |  |  |
| reportConfigNR-SL-r16 | ReportConfigNR-SL(0.75) with condition EVENT\_C2 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| measIdToAddModList SEQUENCE (SIZE (1..maxNrofMeasId)) OF MeasIdToAddMod { | 1 entry |  |  |
| MeasIdToAddMod[1] SEQUENCE { |  |  |  |
| measId | 1 |  |  |
| measObjectId | 2 |  |  |
| reportConfigId | 1 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.3.1.3.3-8: MeasObjectNR (Table 12.2.3.1.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-76 | | | |
| Information Element | Value/remark | Comment | Condition |
| MeasObjectNR ::= SEQUENCE { |  |  |  |
| ssbFrequency | ARFCN-ValueNR of NR Cell 1 |  |  |
| absThreshSS-BlocksConsolidation | Not present |  |  |
| } |  |  |  |

Table 12.2.3.1.3.3-9: MeasConfig-2 (Table 12.2.3.1.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-69 | | | |
| Information Element | Value/remark | Comment | Condition |
| MeasConfig ::= SEQUENCE { |  |  |  |
| measObjectToAddModList | Not present |  |  |
| reportConfigToAddModList | Not present |  |  |
| measIdToAddModList SEQUENCE (SIZE (1..maxNrofMeasId)) OF MeasIdToAddMod { | 1 entry |  |  |
| MeasIdToAddMod[1] SEQUENCE { |  |  |  |
| measId | 1 |  |  |
| measObjectId | 2 |  |  |
| reportConfigId | 2 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.3.1.3.3-10: MeasurementReport (Table 12.2.3.1.3.2-3, Step 9 and 15)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-5A | | | |
| Information Element | | Value/remark | Comment | Condition |
| MeasurementReport ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| measurementReport SEQUENCE { | |  |  |  |
| measResults SEQUENCE { | |  |  |  |
| measId | | 1 |  |  |
| measResultServingMOList | | Not checked |  |  |
| measResultNeighCells | | Not present |  |  |
| measResultsSL-r16 SEQUENCE { | |  |  |  |
| measResultsListSL-r16 CHOICE { | |  |  |  |
| measResultNR-SL-r16 SEQUENCE { | |  |  |  |
| measResultListCBR-NR-r16 SEQUENCE (SIZE (1.. maxNrofSL-PoolToMeasureNR-r16)) OF MeasResultCBR-NR-r16 { | | 1 entry |  |  |
| MeasResultCBR-NR[1] SEQUENCE { | |  | Entry 1 |  |
| sl-poolReportIdentity-r16 | | 1 |  |  |
| sl-CBR-ResultsNR-r16 | | (0..100) |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

#### 12.2.3.2 Inter-carrier concurrent operation / Measurement configuration and reporting via Uu RRC / CBR measurement reporting / Periodical reporting

12.2.3.2.1 Test Purpose (TP)

(1)

**with** { UE being configured to perform periodical CBR measurement reporting on resource pools }

**ensure that** {

**when** { The first measurement result is available and thereafter every time periodical timer expires }

**then** { UE triggers CBR measurement reporting }

}

12.2.3.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.5.2.1, 5.5.3.1, 5.5.4.11 and 5.5.5.1. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.5.2.1]

…

The UE shall:

…

1> if the received *measConfig* includes the *measObjectToAddModList*:

2> perform the measurement object addition/modification procedure as specified in 5.5.2.5;

…

1> if the received *measConfig* includes the *reportConfigToAddModList*:

2> perform the reporting configuration addition/modification procedure as specified in 5.5.2.7;

1> if the received *measConfig* includes the *quantityConfig*:

2> perform the quantity configuration procedure as specified in 5.5.2.8;

...

1> if the received *measConfig* includes the *measIdToAddModList*:

2> perform the measurement identity addition/modification procedure as specified in 5.5.2.3;

...

[TS 38.331, clause 5.5.3.1]

…

The UE capable of CBR measurement when configured to transmit NR sidelink communication shall:

1> If the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or includedin *sl-ConfigCommonNR* within *SIB12*:

...

2> if the UE is in RRC\_CONNECTED:

3> if tx-PoolMeasToAddModList is included in VarMeasConfig:

4> perform CBR measurements on each transmission resource pool indicated in the *tx-PoolMeasToAddModList*;

3> if *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling* or *sl-TxPoolExceptional* is included in sl-ConfigDedicatedNR for the concerned frequency within RRCReconfiguration:

4> perform CBR measurement on pools in *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling* or *sl-TxPoolExceptional* if included in *sl-ConfigDedicatedNR* for the concerned frequency within RRCReconfiguration;

3> else if the cell chosen for NR sidelink communication provides *SIB12* which includes *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* forthe concerned frequency:

4> perform CBR measurement on pools in *sl-TxPoolSelectedNormal* and *sl-TxPoolExceptional* for the concerned frequency in *SIB12*;

1> else:

2> perform CBR measurement on pools in *sl-TxPoolSelectedNormal* and *sl-TxPoolExceptional* in *SidelinkPreconfigNR* for the concerned frequency.

...

[TS 38.331, clause 5.5.4.11]

The UE shall:

1> consider the entering condition for this event to be satisfied when condition C1-1, as specified below, is fulfilled;

1> consider the leaving condition for this event to be satisfied when condition C1-2, as specified below, is fulfilled;

Inequality C1-1 (Entering condition)



Inequality C1-2 (Leaving condition)



The variables in the formula are defined as follows:

***Ms*** is the measurement result of channel busy ratio of the transmission resource pool, not taking into account any offsets.

***Hys*** is the hysteresis parameter for this event (i.e. *hysteresis* as defined within *reportConfigNR-SL* for this event).

***Thresh*** is the threshold parameter for this event (i.e. *c1-Threshold* as defined within *reportConfigNR-SL* for this event).

***Ms*** is expressed in decimal from 0 to 1 in steps of 0.01.

***Hys*** is expressed is in the same unit as ***Ms***.

***Thresh*** is expressed in the same unit as ***Ms***.

[TS 38.331, clause 5.5.5.1]



Figure 5.5.5.1-1: Measurement reporting

The purpose of this procedure is to transfer measurement results from the UE to the network. The UE shall initiate this procedure only after successful AS security activation.

For the *measId* for which the measurement reporting procedure was triggered, the UE shall set the *measResults* within the *MeasurementReport* message as follows:

1> set the *measId* to the measurement identity that triggered the measurement reporting;

1> for each serving cell configured with *servingCellMO*:

...

2> else:

3> if SSB based serving cell measurements are available:

4> set the *measResultServingCell* within *measResultServingMOList* to include RSRP, RSRQ and the available SINR of the serving cell, derived based on SSB;

...

1> set the *servCellId* within *measResultServingMOList* to include each NR serving cell that is configured with *servingCellMO*, if any;

...

1> if there is at least one applicable transmission resource pool for NR sidelink communication (for *measResultsSL*):

2> set the *measResultsListSL* to include the CBR measurement results in accordance with the following:

3> if the reportType is set to eventTriggered:

4> include the transmission resource pools included in the *poolsTriggeredList* as defined within the *VarMeasReportList* for this *measId*;

3> else:

4> include the applicable transmission resource pools for which the new measurement results became available since the last periodical reporting or since the measurement was initiated or reset;

3> if the corresponding *measObject* concerns NR sidelink communication, then for each transmission resource pool to be reported:

4> set the *sl-poolReportIdentity* to the identity of this transmission resource pool;

4> set the *sl-CBR-ResultsNR* to the CBR measurement results on PSSCH and PSCCH of this transmission resource pool provided by lower layers, if available;

...

1> increment the *numberOfReportsSent* as defined within the *VarMeasReportList* for this *measId* by 1;

1> stop the periodical reporting timer, if running;

1> if the *numberOfReportsSent* as defined within the *VarMeasReportList* for this *measId* is less than the *reportAmount* as defined within the corresponding *reportConfig* for this *measId*:

2> start the periodical reporting timer with the value of *reportInterval* as defined within the corresponding *reportConfig* for this *measId*;

...

1> else:

2> submit the *MeasurementReport* message to lower layers for transmission, upon which the procedure ends.

12.2.3.2.3 Test description

12.2.3.2.3.1 Pre-test conditions

System Simulator:

- SS-NW

- NR Cell 1

- System information combination NR-14 as defined in TS 38.508-1 [4] clause 4.4.3.1 is used in NR Cell 1.

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 is synchronised on GNSS.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

* UE is authorised to perform NR sidelink communication.
* The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.
* UE is synchronised on GNSS.

Preamble:

- The UE is in state 3N-B as defined in TS 38.508-1 [4], subclause 4.4A on NR Cell 1, using generic procedure parameters Sidelink (On) and Test Mode (On), Cast Type (Unicast) using NR-SS-UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.23.

12.2.3.2.3.2 Test procedure sequence

Table 12.2.3.2.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
| U - S | Message |
| 0A | The SS transmits a CLOSE UE TEST LOOP message to close UE test loop mode E (Transmit Mode). | <-- | TC: CLOSE UE TEST LOOP | - | - |
| 0B | The UE transmits a CLOSE UE TEST LOOP COMPLETE message. | --> | TC: CLOSE UE TEST LOOP COMPLETE | - | - |
| 1 | Void | - | - | - | - |
| 2 | The UE transmits a *SidelinkUEInformationNR* message to request resources for transmission of NR sidelink communication within 30s.  Note: This step may not happen. | --> | NR RRC: SidelinkUEInformationNR | - | - |
| 3 | The SS-NW transmits an *RRCReconfiguration* message with *sl-ConfigDedicatedNR* and MeasConfig to configure resource pool configuration and periodical CBR measurement. | <-- | NR RRC: RRCReconfiguration |  |  |
| 4 | The UE transmits an *RRCReconfigurationComplete* message. | --> | NR RRC: RRCReconfigurationComplete | - | - |
| 5 | Check: Does the UE transmit a *MeasurementReport* message with the measured CBR value for indicated resource pool? | --> | NR RRC: MeasurementReport | 1 | P |
| - | EXCEPTION: Step 6 below is repeated until 3 *MeasurementReport* messages are received from the UE and Interval between two *MeasurementReport* is same as the IE *reportInterval* configured in *measConfig.* | - | - | - | - |
| 6 | Check: Does the UE transmit a *MeasurementReport* message with the measured CBR value for indicated resource pool? | --> | NR RRC: MeasurementReport | 1 | P |
| 7 | The SS transmits an OPEN UE TEST LOOP message to open UE test loop mode E. | <-- | TC: OPEN UE TEST LOOP | - | - |
| 8 | The UE transmits an OPEN UE TEST LOOP COMPLETE message. | --> | TC: OPEN UE TEST LOOP COMPLETE | - | - |

12.2.3.2.3.3 Specific message contents

Table 12.2.3.2.3.3-1: RRCReconfiguration (step 3, Table 12.2.3.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 with condition SIDELINK and NR\_MEAS. | | | |
| Information Element | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfiguration SEQUENCE { |  |  |  |
| measConfig | MeasConfig |  |  |
| lateNonCriticalExtension | Not present |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| masterCellGroup | CellGroupConfig |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.3.2.3.3-2: CellGroupConfig

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-19. | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.3.2.3.3-3: ServingCellConfig

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-167 | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfig ::= SEQUENCE { |  |  |  |
| initialDownlinkBWP | BWP-DownlinkDedicated with condition SIDELINK |  |  |
| } |  |  |  |

Table 12.2.3.2.3.3-4: Void

Table 12.2.3.2.3.3-5: Void

Table 12.2.3.2.3.3-6: MeasConfig (Table 12.2.3.2.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.6.3-69 | | | |
| Information Element | Value/Remark | Comment | Condition |
| measConfig ::= SEQUENCE { |  |  |  |
| measObjectToAddModList SEQUENCE (SIZE (1.. maxNrofObjectId)) OF MeasObjectToAddMod { | 2 entries |  |  |
| MeasObjectToAddMod[1] SEQUENCE { |  | entry 1 |  |
| measObjectId | 1 |  |  |
| measObject CHOICE { |  |  |  |
| measObjectNR | MeasObjectNR |  |  |
| } |  |  |  |
| } |  |  |  |
| MeasObjectToAddMod[2] SEQUENCE { |  | entry 2 |  |
| measObjectId | 2 |  |  |
| measObject CHOICE { |  |  |  |
| measObjectNR-SL-r16 | MeasObjectNR-SL |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| reportConfigToAddModList SEQUENCE (SIZE (1..maxReportConfigId)) OF ReportConfigToAddMod { | 1 entry |  |  |
| ReportConfigToAddMod[1] SEQUENCE { |  | entry 1 |  |
| reportConfigId | 1 |  |  |
| reportConfigNR-SL-r16 | ReportConfigNR-SL-PERIODICAL |  |  |
| } |  |  |  |
| } |  |  |  |
| measIdToAddModList SEQUENCE (SIZE (1.. maxNrofMeasId)) OF MeasIdToAddMod { | 1 entry |  |  |
| MeasIdToAddMod[1] SEQUENCE { |  | entry 1 |  |
| measId | 1 |  |  |
| measObjectId | 2 |  |  |
| reportConfigId | 1 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.3.2.3.3-7: MeasObjectNR (Table 12.2.3.2.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-76 | | | |
| Information Element | Value/remark | Comment | Condition |
| MeasObjectNR ::= SEQUENCE { |  |  |  |
| ssbFrequency | ARFCN-ValueNR of NR Cell 1 |  |  |
| absThreshSS-BlocksConsolidation | Not present |  |  |
| } |  |  |  |

Table 12.2.3.2.3.3-8: Void

Table 12.2.3.2.3.3-9: ReportConfigNR-SL-PERIODICAL (Table 12.2.3.2.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.6.3-142A with condition PERIODICAL | | | |
| Information Element | Value/remark | Comment | Condition |
| ReportConfigNR-SL-r16 ::= SEQUENCE { |  |  |  |
| reportType-r16 CHOICE { |  |  |  |
| periodical-r16 SEQUENCE { |  |  |  |
| reportInterval-r16 | ms640 |  |  |
| reportAmount-r16 | r4 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.3.2.3.3-10: MeasurementReport (step 5, 6, Table 12.2.3.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-5A | | | |
| Information Element | | Value/remark | Comment | Condition |
| MeasurementReport ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| measurementReport SEQUENCE { | |  |  |  |
| measResults SEQUENCE { | |  |  |  |
| measId | | 1 |  |  |
| measResultServingMOList | | Not checked |  |  |
| measResultNeighCells | | Not present |  |  |
| measResultsSL-r16 SEQUENCE { | |  |  |  |
| measResultsListSL-r16 CHOICE { | |  |  |  |
| measResultNR-SL-r16 SEQUENCE { | |  |  |  |
| measResultListCBR-NR-r16 SEQUENCE (SIZE (1.. maxNrofSL-PoolToMeasureNR-r16)) OF MeasResultCBR-NR-r16 { | | 1 entry |  |  |
| MeasResultCBR-NR-r16[1] SEQUENCE { | |  | entry 1 |  |
| sl-poolReportIdentity-r16 | | 1 |  |  |
| sl-CBR-ResultsNR-r16 | | (0..100) |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

### 12.2.4 Inter-carrier concurrent operation / Sidelink Reconfiguration via Uu RRC

#### 12.2.4.1 Inter-carrier concurrent operation / Sidelink Reconfiguration via Uu RRC / SL DRB management / transmission side

12.2.4.1.1 Test Purpose (TP)

(1)

**with** { UE in NR RRC\_CONNECTED state and UE having established PC5-RRC connection with peer UE }

**ensure that** {

**when** { UE receives an RRCReconfiguration message to establish a groupcast SL DRB}

**then** { UE establishes a SL DRB and sends an RRCReconfigurationComplete message}

}

(2)

**with** { UE in NR RRC\_CONNECTED state and UE having established PC5-RRC connection with peer UE }

**ensure that** {

**when** { UE receives an RRCReconfiguration message to establish a unicast SL DRB}

**then** { UE sends a RRCReconfigurationSidelink message to peer UE to indicate SL DRB addition. After receiving RRCReconfigurationCompleteSidelink message from peer UE, UE establishes the SL DRB}

}

(3)

**with** { UE in NR RRC\_CONNECTED state and UE having established PC5-RRC connection with peer UE }

**ensure that** {

**when** { UE receives an RRCReconfiguration message to establish a unicast SL DRB}

**then** { UE sends a RRCReconfigurationSidelink message to peer UE to indicate SL DRB addition. After receiving RRCReconfigurationFailureSidelink message from peer UE, UE does not establish the SL DRB and sends a SidelinkUEInformationNR message to inform about sidelink reconfiguration failure}

}

(4)

**with** { UE in NR RRC\_CONNECTED state, UE having established PC5-RRC connection with peer UE and having established a unicast SL DRB }

**ensure that** {

**when** { UE receives an RRCReconfiguration message to modify the unicast SL DRB}

**then** { UE sends a RRCReconfigurationSidelink message to peer UE to indicate SL DRB modification. After receiving RRCReconfigurationCompleteSidelink message from peer UE, UE modifies the SL DRB}

}

(5)

**with** { UE in NR RRC\_CONNECTED state, UE having established PC5-RRC connection with peer UE and having established a unicast SL DRB }

**ensure that** {

**when** { UE receives an RRCReconfiguration message to reconfigure QoS-flow to SL DRB mapping and after reconfiguration no QoS flow is mapped to the unicast SL DRB}

**then** { UE sends a RRCReconfigurationSidelink message to peer UE to indicate the release of the QoS flows mapped to the SL-DRB. After receiving RRCReconfigurationCompleteSidelink message from peer UE, UE releases the SL DRB}

}

(6)

**with** { UE in NR RRC\_CONNECTED state, UE having established PC5-RRC connection with peer UE and having established a unicast SL DRB }

**ensure that** {

**when** { UE receives an RRCReconfiguration message to release the unicast SL DRB}

**then** { UE sends a RRCReconfigurationSidelink message to peer UE to indicate SL DRB release. After receiving RRCReconfigurationCompleteSidelink message from peer UE, UE releases the SL DRB}

}

12.2.4.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331, clause 5.8.9.1.2, 5.8.9.1.3, 5.8.9.1.8, 5.8.9.1.9, 5.8.9.1a1, 5.8.9.1a2.Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.9.1.2]

The UE shall set the contents of *RRCReconfigurationSidelink* message as follows:

1> for each sidelink DRB that is to be released, according to sub-clause 5.8.9.1a.1.1, due to configuration by *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR* or by upper layers:

2> set the *SLRB-PC5-ConfigIndex* included in the *slrb-ConfigToReleaseList* corresponding to the sidelink DRB;

1> for each sidelink DRB that is to be established or modified, according to sub-clause 5.8.9.1a.2.1, due to receiving *sl-ConfigDedicatedNR,* *SIB12* or *SidelinkPreconfigNR*:

2> set the *SLRB-Config* included in the *slrb-ConfigToAddModList*, according to the received *sl-RadioBearerConfig* and *sl-RLC-BearerConfig* corresponding to the sidelink DRB;

…

[TS 38.331, clause 5.8.9.1.3]

The UE shall perform the following actions upon reception of the *RRCReconfigurationSidelink*:

1> if the RRCReconfigurationSidelink includes the sl-ResetConfig:

2> perform the sidelink reset configuration procedure as specified in 5.8.9.1.10;

1> if the RRCReconfigurationSidelink includes the slrb-ConfigToReleaseList:

2> for each *SLRB-PC5-ConfigIndex* value included in the *slrb-ConfigToReleaseList* that is part of the current UE sidelink configuration;

3> perform the sidelink DRB release procedure, according to sub-clause 5.8.9.1a.1;

1> if the RRCReconfigurationSidelink includes the slrb-ConfigToAddModList:

2> for each *slrb-PC5-ConfigIndex* value included in the *slrb-ConfigToAddModList* that is not part of the current UE sidelink configuration:

3> if sl-MappedQoS-FlowsToAddList is included:

4> apply the SL-PQFI included in sl-MappedQoS-FlowsToAddList;

3> perform the sidelink DRB addition procedure, according to sub-clause 5.8.9.1a.2;

2> for each *slrb-PC5-ConfigIndex* value included in the *slrb-ConfigToAddModList* that is part of the current UE sidelink configuration:

3> if sl-MappedQoS-FlowsToAddList is included:

4> add the *SL-PQFI* included in *sl-MappedQoS-FlowsToAddList* to the corresponding sidelink DRB;

3> if sl-MappedQoS-FlowsToReleaseList is included:

4> remove the *SL-PQFI* included in *sl-MappedQoS-FlowsToReleaseList* from the corresponding sidelink DRB;

3> if the sidelink DRB release conditions as described in sub-clause 5.8.9.1a.1.1 are met:

4> perform the sidelink DRB release procedure according to sub-clause 5.8.9.1a.1.2;

3> else if the sidelink DRB modification conditions as described in sub-clause 5.8.9.1a.2.1 are met:

4> perform the sidelink DRB modification procedure according to sub-clause 5.8.9.1a.2.2;

…

[TS 38.331, clause 5.8.9.1.8]

The UE shall perform the following actions upon reception of the *RRCReconfigurationFailureSidelink*:

1> stop timer T400 for the destination, if running;

1> continue using the configuration used prior to corresponding *RRCReconfigurationSidelink* message;

1> if UE is in RRC\_CONNECTED:

2> perform the sidelink UE information for NR sidelink communication procedure, as specified in 5.8.3.3 or sub-clause 5.10.15 in TS 36.331 [10];

[TS 38.331, clause 5.8.9.1.9]

The UE shall perform the following actions upon reception of the *RRCReconfigurationCompleteSidelink*:

1> stop timer T400 for the destination, if running;

1> consider the configurations in the corresponding *RRCReconfigurationSidelink* message to be applied.

[TS 38.331, clause 5.8.9.1a.1]

For NR sidelink communication, a sidelink DRB release is initiated in the following cases:

1> for groupcast, broadcast and unicast, if *slrb-Uu-ConfigIndex* (if any) of the sidelink DRB isincluded in *sl-RadioBearerToReleaseList* in *sl-ConfigDedicatedNR*; or

1> for groupcast and broadcast, if no sidelink QoS flow with data indicated by upper layers is mapped to the sidelink DRB for transmission, which is (re)configured by receiving *SIB1*2 or *SidelinkPreconfigNR*; or

1> for groupcast, broadcast and unicast, if *SL-RLC-BearerConfigIndex* (if any) of the sidelink DRB is included in *sl-RLC-BearerToReleaseList* in *sl-ConfigDedicatedNR*; or

1> for unicast, if no sidelink QoS flow with data indicated by upper layers is mapped to the sidelink DRB for transmission, which is (re)configured by receiving *SIB12* or *SidelinkPreconfigNR*, and if no sidelink QoS flow mapped to the sidelink DRB, which is (re)configured by receiving *RRCReconfigurationSidelink*, has data; or

1> for unicast, if SLRB-PC5-ConfigIndex (if any) of the sidelink DRB is included in slrb-ConfigToReleaseList in RRCReconfigurationSidelink or if sl-ResetConfig is included in RRCReconfigurationSidelink; or

1> for unicast, when the corresponding PC5-RRC connection is released due to sidelink RLF being detected, according to clause 5.8.9.3; or

1> for unicast, when the corresponding PC5-RRC connection is released due to upper layer request according to clause 5.8.9.5.

For each sidelink DRB, whose sidelink DRB release conditions are met as in sub-clause 5.8.9.1a.1.1, the UE capable of NR sidelink communication that is configured by upper layers to perform NR sidelink communication shall:

1> for groupcast and broadcast; or

1> for unicast, if the sidelink DRB release was triggered after the reception of the *RRCReconfigurationSidelink* message; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB release was triggered due to the configuration received within the *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR* or indicated by upper layers:

2> release the PDCP entity for NR sidelink communication associated with the sidelink DRB;

2> if SDAP entity for NR sidelink communication associated with this sidelink DRB is configured:

3> indicate the release of the sidelink DRB to the SDAP entity associated with this sidelink DRB (TS 37.324 [24], clause 5.3.3);

2> release SDAP entities for NR sidelink communication, if any, that have no associated sidelink DRB as specified in TS 37.324 [24] clause 5.1.2;

1> for groupcast and broadcast; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB release was triggered due to the configuration received within the *sl-ConfigDedicatedNR*:

2> for each *sl-RLC-BearerConfigIndex* included in the received *sl-RLC-BearerToReleaseList* that is part of the current UE sidelink configuration:

3> release the RLC entity and the corresponding logical channel for NR sidelink communication, associated with the *sl-RLC-BearerConfigIndex*.

1> for unicast, if the sidelink DRB release was triggered due to the reception of the *RRCReconfigurationSidelink* message; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB release was triggered due to the configuration received within the *SIB12*, *SidelinkPreconfigNR* or indicated by upper layers:

2> release the RLC entity and the corresponding logical channel for NR sidelink communication associated with the sidelink DRB;

2> perform the sidelink UE information procedure in sub-clause 5.8.3 for unicast if needed.

1> if the sidelink radio link failure is detected for a specific destination:

2> release the PDCP entity, RLC entity and the logical channel of the sidelink DRB for the specific destination.

[TS 38.331, clause 5.8.9.1a.2]

For NR sidelink communication, a sidelink DRB addition is initiated only in the following cases:

1> if any sidelink QoS flow is (re)configured by *sl-ConfigDedicatedNR*, *SIB12*, *SidelinkPreconfigNR* and is to be mapped to one sidelink DRB*,* which is not established; or

1> if any sidelink QoS flow is (re)configured by *RRCReconfigurationSidelink* and isto be mapped to a sidelink DRB, which is not established;

For NR sidelink communication, a sidelink DRB modification is initiated only in the following cases:

1> if any of the sidelink DRB related parameters is changed by *sl-ConfigDedicatedNR*, *SIB12*, *SidelinkPreconfigNR* or *RRCReconfigurationSidelink* for one sidelink DRB*,* which is established;

For the sidelink DRB, whose sidelink DRB addition conditions are met as in sub-clause 5.8.9.1a.2.1, the UE capable of NR sidelink communication that is configured by upper layers to perform NR sidelink communication shall:

1> for groupcast and broadcast; or

1> for unicast, if the sidelink DRB addition was triggered due to the reception of the *RRCReconfigurationSidelink* message; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB addition was triggered due to the configuration received within the *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR* or indicated by upper layers:

2> if an SDAP entity for NR sidelink communication associated with the destination and the cast type of the sidelink DRB does not exist:

3> establish an SDAP entity for NR sidelink communication as specified in TS 37.324 [24] clause 5.1.1;

2> (re)configure the SDAP entity in accordance with the *sl-SDAP-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-SDAP-Config* received in *sl-ConfigDedicatedNR*, *SIB12*, *SidelinkPreconfigNR*, associated with the sidelink DRB;

2> establish a PDCP entity for NR sidelink communication and configure it in accordance with the *sl-PDCP-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-PDCP-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, associated with the sidelink DRB;

2> establish a RLC entity for NR sidelink communication and configure it in accordance with the *sl-RLC-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-RLC-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, associated with sidelink DRB;

2> if this procedure was due to the reception of a *RRCReconfigurationSidelink* message:

3> configure the MAC entity with a logical channel in accordance with the *sl-MAC-LogicalChannelConfigPC5* received in the *RRCReconfigurationSidelink* associated with the sidelink DRB, and perform the sidelink UE information procedure in sub-clause 5.8.3 for unicast if need;

2> else:

3> configure the MAC entity with a logical channel associated with the sidelink DRB, by assigning a new logical channel identity, in accordance with the *sl-MAC-LogicalChannelConfig* received in the *sl-ConfigDedicatedNR*, *SIB12*, *SidelinkPreconfigNR*.

NOTE 1: When a sidelink DRB addition is due to the configurationby *RRCReconfigurationSidelink*, it is up to UE implementation to select the sidelink DRB configuration as necessary transmitting parameters for the sidelink DRB, from the received *sl-ConfigDedicatedNR* (if in RRC\_CONNECTED), *SIB12* (if in RRC\_IDLE/INACTIVE), *SidelinkPreconfigNR* (if out of coverage) with the same RLC mode as the one configured in *RRCReconfigurationSidelink*.

For the sidelink DRB, whose sidelink DRB modification conditions are met as in sub-clause 5.8.9.1a.2.1, the UE capable of NR sidelink communication that is configured by upper layers to perform NR sidelink communication shall:

1> for groupcast and broadcast; or

1> for unicast, if the sidelink DRB modification was triggered due to the reception of the *RRCReconfigurationSidelink* message; or

1> for unicast, after receiving the *RRCReconfigurationCompleteSidelink* message, if the sidelink DRB modification was triggered due to the configuration received within the *sl-ConfigDedicatedNR,* *SIB12* or *SidelinkPreconfigNR*:

2> reconfigure the SDAP entity of the sidelink DRB, in accordance with the *sl-SDAP-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-SDAP-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, if included;

2> reconfigure the PDCP entity of the sidelink DRB, in accordance with the *sl-PDCP-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-PDCP-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, if included;

2> reconfigure the RLC entity of the sidelink DRB, in accordance with the *sl-RLC-ConfigPC5* received in the *RRCReconfigurationSidelink* or *sl-RLC-Config* received in *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR*, if included;

2> reconfigure the logical channel of the sidelink DRB, in accordance with the sl-MAC-LogicalChannelConfigPC5 received in the RRCReconfigurationSidelink or sl-MAC-LogicalChannelConfig received in sl-ConfigDedicatedNR, SIB12, SidelinkPreconfigNR, if included.

The UE shall:

1> if a PC5-RRC connection release for a specific destination is requested by upper layers; or

1> if the sidelink radio link failure is detected for a specific destination:

2> release the PDCP entity, RLC entity and the logical channel of the sidelink SRB for PC5-RRC message of the specific destination;

2> consider the PC5-RRC connection is released for the destination.

1> if PC5-S transmission for a specific destination is terminated in upper layers:

2> release the PDCP entity, RLC entity and the logical channel of the sidelink SRB(s) for PC5-S message of the specific destination;

The UE shall:

1> if transmission of PC5-S message for a specific destination is requested by upper layers for sidelink SRB:

2> establish PDCP entity, RLC entity and the logical channel of a sidelink SRB for PC5-S message, as specified in sub-clause 9.1.1.4;

1> if a PC5-RRC connection establishment for a specific destination is indicated by upper layers:

2> establish PDCP entity, RLC entity and the logical channel of a sidelink SRB for PC5-RRC message of the specific destination, as specified in sub-clause 9.1.1.4;

2> consider the PC5-RRC connection is established for the destination.

12.2.4.1.3 Test description

12.2.4.1.3.1 Pre-test conditions

System Simulator:

- SS-NW

- NR Cell 1

- System information combination NR-14 as defined in TS 38.508-1 [4] clause 4.4.3.1 is used in NR Cell 1.

- NR-SS-UE

- NR-SS-UE1: Operating as NR sidelink communication receiving and transmitting device on the resources that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 uses GNSS as the synchronization reference source.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

- The UE uses GNSS as the synchronization reference source.

Preamble:

- The UE is in state 3N-B and Test Mode (On) with UE test loop mode E as defined in TS 38.508-1 [4], subclause 4.4A on NR Cell 1 using generic procedure parameter Sidelink (On), Cast Type (Unicast) using UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.22.

12.2.4.1.3.2 Test procedure sequence

Table 12.2.4.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 0A | The NR-SS-UE1 transmits a DIRECT LINK MODIFICATION REQUEST to add a QoS flow | <-- | PC5-S: DIRECT LINK MODIFICATION REQUEST | - | - |
| 0B | UE transmits a DIRECT LINK MODIFICATION ACCEPT message. | --> | PC5-S: DIRECT LINK MODIFICATION ACCEPT | - | - |
| 1 | SS-NW sends an *RRCReconfiguration message* to establish a groupcast SL DRB. | <-- | NR RRC: RRCReconfiguration | - | - |
| 2 | Check: Does UE send an *RRCReconfigurationComplete* message to confirm the establishment of the groupcast SL DRB? | --> | NR RRC: RRCReconfigurationComplete | 1 | P |
| 2A | Check: Does the test result of generic test procedure in TS 38.508-1 [4] subclause 4.9.31 indicate that the UE is capable of exchanging IP data on SL DRB established in Step 2? | - | - | 1 | - |
| 3 | SS-NW sends an *RRCReconfiguration message* to establish a unicast SL DRB | <-- | NR RRC: RRCReconfiguration | - | - |
| 4 | Check: Does UE send an *RRCReconfigurationSidelink* message to NR-SS-UE1 to indicate SL DRB addition? | --> | PC5 RRC: RRCReconfigurationSidelink | 3 | P |
| 5 | NR-SS-UE1 sends an RRCReconfigurationFailureSidelink message. | <-- | PC5 RRC: RRCReconfigurationFailureSidelink | - | - |
| 6 | Check: Does UE send a *SidelinkUEInformationNR* message to inform about sidelink reconfiguration failure? | --> | NR RRC: SidelinkUEInformationNR | 3 | P |
| 6A | The NR-SS-UE1 transmits a DIRECT LINK MODIFICATION REQUEST to add a QoS flow | <-- | PC5-S: DIRECT LINK MODIFICATION REQUEST | - | - |
| 6B | UE transmits a DIRECT LINK MODIFICATION ACCEPT message. | --> | PC5-S: DIRECT LINK MODIFICATION ACCEPT | - | - |
| 7 | SS-NW sends an *RRCReconfiguration message* to establish a unicast SL DRB | <-- | NR RRC: RRCReconfiguration | - | - |
| 8 | Check: Does UE send an *RRCReconfigurationSidelink* message to NR-SS-UE1 to indicate SL DRB addition? | --> | PC5 RRC: RRCReconfigurationSidelink | 2 | P |
| 9 | NR-SS-UE1 sends an RRCReconfigurationCompleteSidelink message. | <-- | PC5 RRC: RRCReconfigurationCompleteSidelink | - | - |
| 10 | Check: Does UE send an *RRCReconfigurationComplete* message to confirm the establishment of the unicast SL DRB? | --> | NR RRC: RRCReconfigurationComplete | 2 | P |
| 10A | Check: Does the test result of generic test procedure in TS 38.508-1 [4] subclause 4.9.31 indicate that the UE is capable of exchanging IP data on SL DRB established in Step 10? | - | - | 2 | - |
| 10B | The NR-SS-UE1 transmits a DIRECT LINK MODIFICATION REQUEST to add a QoS flow | <-- | PC5-S: DIRECT LINK MODIFICATION REQUEST | - | - |
| 10C | UE transmits a DIRECT LINK MODIFICATION ACCEPT message. | --> | PC5-S: DIRECT LINK MODIFICATION ACCEPT | - | - |
| 11 | SS-NW sends an *RRCReconfiguration* message to modify the unicast SL DRB | <-- | NR RRC: RRCReconfiguration | - | - |
| 12 | Check: Does UE send an *RRCReconfigurationSidelink* message to NR-SS-UE1 to indicate SL DRB modification? | --> | PC5 RRC: RRCReconfigurationSidelink | 4 | P |
| 13 | NR-SS-UE1 sends an RRCReconfigurationCompleteSidelink message. | <-- | PC5 RRC: RRCReconfigurationCompleteSidelink | - | - |
| 14 | Check: Does UE send an *RRCReconfigurationComplete* message to confirm the modification of the unicast SL DRB? | --> | NR RRC: RRCReconfigurationComplete | 4 | P |
| 14A | Check: Does the test result of generic test procedure in TS 38.508-1 [4] subclause 4.9.31 indicate that the UE is capable of exchanging IP data on SL DRB modified in Step 14? | - | - | 4 | - |
| 15 | SS-NW sends an *RRCReconfiguration message* to reconfigure QoS-flow to SL DRB mapping. | <-- | NR RRC: RRCReconfiguration | - | - |
| 16 | Check: Does UE send an *RRCReconfigurationSidelink* message to NR-SS-UE1 to indicate the release of the QoS flows mapped to the SL-DRB? | --> | PC5 RRC: RRCReconfigurationSidelink | 5 | P |
| 17 | NR-SS-UE1 sends an RRCReconfigurationCompleteSidelink message. | <-- | PC5 RRC: RRCReconfigurationCompleteSidelink |  |  |
| 18 | Check: Does UE send an *RRCReconfigurationComplete* message to confirm the release of the unicast SL DRB? | --> | NR RRC: RRCReconfigurationComplete | 5 | P |
| 19 | void | - | - | - | - |
| 20-22 | Void | - | - | - | - |
| 23 | SS-NW sends an *RRCReconfiguration message* to release the unicast SL DRB established in step 14. | <-- | NR RRC: RRCReconfiguration | - | - |
| 24 | Check: Does UE send an *RRCReconfigurationSidelink* message to NR-SS-UE1 to indicate SL DRB release? | --> | PC5 RRC: RRCReconfigurationSidelink | 6 | P |
| 25 | NR-SS-UE1 sends an RRCReconfigurationCompleteSidelink message. | <-- | PC5 RRC: RRCReconfigurationCompleteSidelink | - | - |
| 26 | Check: Does UE send an *RRCReconfigurationComplete* message to confirm the release of the unicast SL DRB? | --> | NR RRC: RRCReconfigurationComplete | 6 | P |

12.2.4.1.3.3 Specific message contents

Table 12.2.4.1.3.3-1: RRCReconfiguration (step 1, step 3, step 7, step 11, step 15, step 23, Table 12.2.4.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1-13 | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfiguration SEQUENCE { |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| sl-ConfigDedicatedNR-r16 CHOICE { |  |  |  |
| setup | sl-ConfigDedicatedNR |  | step 1 |
| sl-ConfigDedicatedNR-Add |  | step 3, step 7 |
| sl-ConfigDedicatedNR-Mod |  | step11 |
| sl-ConfigDedicatedNR-QOS\_Rel |  | step 15 |
| sl-ConfigDedicatedNR-Rel |  | step 23 |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.4.1.3.3-2: sl-ConfigDedicatedNR (Table 12.2.4.1.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-7 with condition SL-DRB | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-ConfigDedicatedNR-r16 ::= SEQUENCE { |  |  |  |
| sl-PHY-MAC-RLC-Config-r16 SEQUENCE { |  |  |  |
| sl-RLC-BearerToAddModList-r16 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-RLC-BearerConfig-r16 { | 1 entry |  |  |
| SL-RLC-BearerConfig-r16 [1] SEQUENCE { |  | entry 1 |  |
| sl-RLC-BearerConfigIndex-r16 | 2 |  |  |
| sl-ServedRadioBearer-r16 | 2 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| sl-RadioBearerToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SL-RadioBearerConfig-r16 { | 1 entry |  |  |
| SL-RadioBearerConfig-r16 [1] SEQUENCE { |  | entry 1 |  |
| slrb-Uu-ConfigIndex-r16 | 2 |  |  |
| sl-SDAP-Config-r16 SEQUENCE { |  |  |  |
| sl-DefaultRB-r16 | false |  |  |
| sl-MappedQoS-Flows-r16 CHOICE { |  |  |  |
| sl-MappedQoS-FlowsListDedicated-r16 SEQUENCE { |  |  |  |
| sl-MappedQoS-FlowsToAddList-r16 SEQUENCE (SIZE (1..maxNrofSL-QFIs-r16)) OF SL-QoS-FlowIdentity-r16{ | 1 entry |  |  |
| SL-QoS-FlowIdentity-r16 [1] | 2 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| sl-CastType-r16 | groupcast |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.4.1.3.3-3: RRCReconfigurationComplete (step 2, step 10, step 14, step 18, step 26, Table 12.2.4.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1-14 |

Table 12.2.4.1.3.3-4: sl-ConfigDedicatedNR-Add (Table 12.2.4.1.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-7 with condition SL-DRB | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-ConfigDedicatedNR-r16 ::= SEQUENCE { |  |  |  |
| sl-PHY-MAC-RLC-Config-r16 SEQUENCE { |  |  |  |
| sl-RLC-BearerToAddModList-r16 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-RLC-BearerConfig-r16 { | 1 entry |  |  |
| SL-RLC-BearerConfig-r16 [1] SEQUENCE { |  | entry 1 |  |
| sl-RLC-BearerConfigIndex-r16 | 3 |  |  |
| sl-ServedRadioBearer-r16 | 3 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| sl-RadioBearerToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SL-RadioBearerConfig-r16 { | 1 entry |  |  |
| SL-RadioBearerConfig-r16[1] SEQUENCE { |  | entry 1 |  |
| slrb-Uu-ConfigIndex-r16 | 3 |  |  |
| sl-SDAP-Config-r16 SEQUENCE { |  |  |  |
| sl-DefaultRB-r16 | false |  |  |
| sl-MappedQoS-Flows-r16 CHOICE { |  |  |  |
| sl-MappedQoS-FlowsListDedicated-r16 SEQUENCE { |  |  |  |
| sl-MappedQoS-FlowsToAddList-r16 SEQUENCE (SIZE (1..maxNrofSL-QFIs-r16)) OF SL-QoS-FlowIdentity-r16{ | 1 entry |  |  |
| SL-QoS-FlowIdentity-r16 [1] | 3 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.4.1.3.3-5: RRCReconfigurationSidelink (step 4, step 8, Table 12.2.4.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 with condition SL\_DRB and TX | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| slrb-ConfigToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-Config-r16 { | 1 entry |  |  |
| SLRB-Config-r16[1] SEQUENCE { |  | entry 1 |  |
| slrb-PC5-ConfigIndex-r16 | 3 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.4.1.3.3-6: RRCReconfigurationFailureSidelink (step 5, Table 12.2.4.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-5 with condition RX |

Table 12.2.5.3.3.3-7: SidelinkUEInformationNR (step 6, Table 12.2.4.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1-28A | | | |
| Information Element | Value/Remark | Comment | Condition |
| SidelinkUEInformationNR-r16 ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| sidelinkUEInformationNR-r16 SEQUENCE { |  |  |  |
| sl-FailureList-r16 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-Failure-r16{ | 1 entry |  |  |
| SL-Failure-r16 [1] SEQUENCE { |  | entry 1 |  |
| sl-DestinationIdentity-r16 | Not checked |  |  |
| sl-Failure-r16 | configFailure |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.5.3.3.3-8: RRCReconfigurationCompleteSidelink (step 9, step 13, step 17, step 25, 12.2.4.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-4 with condition RX |

Table 12.2.4.1.3.3-9: sl-ConfigDedicatedNR-Mod (Table 12.2.4.1.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-7 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-ConfigDedicatedNR-r16 ::= SEQUENCE { |  |  |  |
| sl-PHY-MAC-RLC-Config-r16 SEQUENCE { |  |  |  |
| sl-RLC-BearerToAddModList-r16 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-RLC-BearerConfig-r16 { | 1 entry |  |  |
| SL-RLC-BearerConfig-r16 [1] SEQUENCE { |  | entry 1 |  |
| sl-RLC-BearerConfigIndex-r16 | 3 |  |  |
| sl-ServedRadioBearer-r16 | 3 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| sl-RadioBearerToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SL-RadioBearerConfig-r16 { | 1 entry |  |  |
| SL-RadioBearerConfig-r16 [1] SEQUENCE { |  | entry 1 |  |
| slrb-Uu-ConfigIndex-r16 | 3 |  |  |
| sl-SDAP-Config-r16 SEQUENCE { |  |  |  |
| sl-DefaultRB-r16 | false |  |  |
| sl-MappedQoS-Flows-r16 CHOICE { |  |  |  |
| sl-MappedQoS-FlowsListDedicated-r16 SEQUENCE { |  |  |  |
| sl-MappedQoS-FlowsToAddList-r16 SEQUENCE (SIZE (1..maxNrofSL-QFIs-r16)) OF SL-QoS-FlowIdentity-r16{ | 1 entry |  |  |
| SL-QoS-FlowIdentity-r16 [1] | 4 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.4.1.3.3-10: RRCReconfigurationSidelink (step 12, Table 12.2.4.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 with condition SL\_DRB and TX | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| slrb-ConfigToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-Config-r16 { | 1 entry |  |  |
| SLRB-Config-r16[1] SEQUENCE { |  | entry 1 |  |
| slrb-PC5-ConfigIndex-r16 | 3 |  |  |
| sl-SDAP-ConfigPC5-r16 SEQUENCE { |  |  |  |
| sl-MappedQoS-FlowsToAddList-r16 SEQUENCE (SIZE (1.. maxNrofSL-QFIsPerDest-r16)) OF SL-PQFI-r16 { | 1 entry |  |  |
| SL-PQFI-r16 [1] | 4 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.4.1.3.3-11: sl-ConfigDedicatedNR-QOS\_Rel (Table 12.2.4.1.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-7 with condition SL\_DRB | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-ConfigDedicatedNR-r16 ::= SEQUENCE { |  |  |  |
| sl-PHY-MAC-RLC-Config-r16 SEQUENCE { |  |  |  |
| sl-RLC-BearerToAddModList-r16 | Not present |  |  |
| } |  |  |  |
| sl-RadioBearerToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SL-RadioBearerConfig-r16 { | 1 entry |  |  |
| SL-RadioBearerConfig-r16[1] SEQUENCE { |  | entry 1 |  |
| slrb-Uu-ConfigIndex-r16 | 3 |  |  |
| sl-SDAP-Config-r16 SEQUENCE { |  |  |  |
| sl-DefaultRB-r16 | false |  |  |
| sl-MappedQoS-Flows-r16 CHOICE { |  |  |  |
| sl-MappedQoS-FlowsListDedicated-r16 SEQUENCE { |  |  |  |
| sl-MappedQoS-FlowsToAddList-r16 | Not present |  |  |
| sl-MappedQoS-FlowsToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSL-QFIs-r16)) OF SL-QoS-FlowIdentity-r16{ | 1 entry |  |  |
| SL-QoS-FlowIdentity-r16 [1] | 4 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.4.1.3.3-12: RRCReconfigurationSidelink (step 16, Table 12.2.4.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 with condition SL\_DRB and TX | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| slrb-ConfigToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-Config-r16 { | 1 entry |  |  |
| SLRB-Config-r16[1] SEQUENCE { |  | entry 1 |  |
| slrb-PC5-ConfigIndex-r16 | 3 |  |  |
| sl-SDAP-ConfigPC5-r16 SEQUENCE { |  |  |  |
| sl-MappedQoS-FlowsToReleaseList -r16 SEQUENCE (SIZE (1.. maxNrofSL-QFIsPerDest-r16)) OF SL-PQFI-r16 { | 1 entry |  |  |
| SL-PQFI-r16 [1] | 4 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.4.1.3.3-13: sl-ConfigDedicatedNR-Rel (Table 12.2.4.1.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-7 | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-ConfigDedicatedNR-r16 ::= SEQUENCE { |  |  |  |
| sl-PHY-MAC-RLC-Config-r16 SEQUENCE { |  |  |  |
| sl-RLC-BearerToReleaseList-r16 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-RLC-BearerConfigIndex-r16 { | 1 entry |  |  |
| Sl-RLC-BearerConfigIndex-r16 [1] | 3 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| sl-RadioBearerToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-Uu-ConfigIndex-r16 { | 1 entry |  |  |
| SLRB-Uu-ConfigIndex-r16 [1] | 3 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.4.1.3.3-14: RRCReconfigurationSidelink (step 24, Table 12.2.4.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 with condition TX | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| slrb-ConfigToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-PC5-ConfigIndex-r16 { | 1 entry |  |  |
| SLRB-PC5-ConfigIndex-r16 [1] | 3 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.4.1.3.3-15: Message DIRECT LINK MODIFICATION REQUEST (step 0A, step 6A, step 10B, Table 12.2.4.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-9 with condition Rx | | | |
| Information Element | | Value/remark | Comment | Condition |
| QoS flow descriptions | |  |  |  |
| PC5 QoS flow description 1 | |  |  |  |
| PQFI | | '00 0010'B |  | step 1A |
| '00 0011'B |  | step 6B |
| '00 0100'B |  | step 10B |

Table 12.2.4.1.3.3-16: Message DIRECT LINK MODIFICATION ACCEPT (step 0B, step 6B, step 10C, Table 12.2.4.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-10 | | | |
| QoS flow descriptions | |  |  |  |
| PC5 QoS flow description 1 | |  |  |  |
| PQFI | | '00 0010'B |  | step 1B |
| '00 0011'B |  | step 6C |
| '00 0100'B |  | step 10C |

### 12.2.5 Inter-carrier concurrent operation / Measurement configuration and reporting via PC5 RRC

#### 12.2.5.1 Inter-carrier concurrent operation / Measurement configuration and reporting via PC5 RRC / SL-RSRP measurement configuration

12.2.5.1.1 Test Purpose (TP)

(1)

**with** { UE is on connected state. UE has established PC5 RRC connection with peer UE on unicast sidelink }

**ensure that** {

**when** { UE receives an RRCReconfiguration message which provides SL-RSRP measurement configuration. }

**then** { UE sends a RRCReconfigurationSidelink message to peer UE. }

}

12.2.5.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.2. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.3.5.3]

The UE shall perform the following actions upon reception of the *RRCReconfiguration,* or upon execution of the conditional reconfiguration (CHO or CPC):

…

1> if the *RRCReconfiguration* message includes the *sl-ConfigDedicatedNR*:

2> perform the sidelink dedicated configuration procedure as specified in 5.3.5.14;

…

1> else(*RRCReconfiguration* was received via SRB1):

2> submit the *RRCReconfigurationComplete* message via SRB1 to lower layers for transmission using the new configuration;

…

[TS 38.331, clause 5.3.5.14]

Upon initiating the procedure, the UE shall:

…

1> if *sl-MeasConfigInfoToAddModList* is included in *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

2> for each *sl-DestinationIndex* included in the received *sl-MeasConfigInfoToAddModList* that is part of the current stored NR sidelink measurement configuration:

3> reconfigure the entry according to the value received for this *sl-DestinationIndex* from the stored NR sidelink measurement configuration information;

2> for each *sl-DestinationIndex* included in the received *sl-MeasConfigInfoToAddModList* that is not part of the current stored NR sidelink measurement configuration:

3> add a new entry for this *sl-DestinationIndex* to the stored NR sidelink measurement configuration.

[TS 38.331, clause 5.8.9.1.1]



Figure 5.8.9.1.1-1: Sidelink RRC reconfiguration, successful



Figure 5.8.9.1.1-2: Sidelink RRC reconfiguration, failure

The purpose of this procedure is to modify a PC5-RRC connection, e.g. to establish/modify/release sidelink DRBs, to (re-)configure NR sidelink measurement and reporting, to (re-)configure sidelink CSI reference signal resources and CSI reporting latency bound.

The UE may initiate the sidelink RRC reconfiguration procedure and perform the operation in sub-clause 5.8.9.1.2 on the corresponding PC5-RRC connection in following cases:

…

- the (re-)configuration of the peer UE to perform NR sidelink measurement and report.

…

In RRC\_CONNECTED, the UE applies the NR sidelink communications parameters provided in *RRCReconfiguration* (if any). In RRC\_IDLE or RRC\_INACTIVE, the UE applies the NR sidelink communications parameters provided in system information (if any). For other cases, UEs apply the NR sidelink communications parameters provided in *SidelinkPreconfigNR* (if any). When UE performs state transition between above three cases, the UE applies the NR sidelink communications parameters provided in the new state, after acquisition of the new configurations. Before acquisition of the new configurations, UE continues applying the NR sidelink communications parameters provided in the old state.

[TS 38.331, clause 5.8.9.1.2]

The UE shall set the contents of *RRCReconfigurationSidelink* message as follows:

…

1> set the *sl-MeasConfig* as follows:

2> If the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or included in *sl-ConfigCommonNR* within SIB12:

3> if UE is in RRC\_CONNECTED:

4> set the *sl-MeasConfig* according to stored NR sidelink measurement configuration information for this destination;

…

The UE shall submit the *RRCReconfigurationSidelink* message to lower layers for transmission.

[TS 38.331, clause 5.8.9.1.3]

The UE shall perform the following actions upon reception of the *RRCReconfigurationSidelink*:

…

1> if the *RRCReconfigurationSidelink* message includes the *sl-MeasConfig*:

2> perform the sidelink measurement configuration procedure as specified in 5.8.10;

…

1> else:

2> set the content of the *RRCReconfigurationCompleteSidelink* message;

3> submit the *RRCReconfigurationCompleteSidelink* message to lower layers for transmission;

12.2.5.1.3 Test description

12.2.5.1.3.1 Pre-test conditions

System Simulator:

- NR Cell

- NR Cell 1 is the serving cell.

- System information combination NR-14 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

- NR-SS-UE

- NR-SS-UE 1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4]) except for those listed in Table 12.2.5.1.3.1-1.

Table 12.2.5.1.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | As per TS 36.508 [18] clause 4.9.3.4 |  |
| EFVST |  | Service n°119 is "available" |  |
| EFV2XP\_PC5 |  | As per TS 38.508-1[4] clause 4.8.3.3.3  SL-PreconfigurationNR included in V2X data policy over PC5 is defined in Table 12.2.5.1.3.3-1 |  |

Preamble:

- The UE is in state 3N-B as defined in TS 38.508-1 [4], subclause 4.4A, using generic procedure parameter Sidelink (On), Unicast (On), and Test Mode (On) as defined in TS 38.508-1 [4], subclause 4.5.1.

12.2.5.1.3.2 Test procedure sequence

**Table 12.2.5.1.3.2-1: Main behaviour**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **St** | **Procedure** | **Message Sequence** | | **TP** | **Verdict** |
|  |  | **U - S** | **Message** |  |  |
| 1 | The SS transmits an RRCReconfiguration message to provide sidelink measurement configuration. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 2 | The UE transmits an RRCReconfigurationComplete message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 3 | Check: Does the UE transmit an RRCReconfigurationSidelink message to NR-SS-UE 1 to provide sidelink measurement configuration? | --> | NR PC5 RRC: *RRCReconfigurationSidelink* | 1 | P |
| 4 | The NR-SS-UE 1 transmits an RRCReconfigurationCompleteSidelink message to UE. | <-- | NR PC5 RRC: *RRCReconfigurationCompleteSidelink* | - | - |

12.2.5.1.3.3 Specific message contents

Table 12.2.5.1.3.3-1: RRCReconfiguraion (Table 12.2.5.1.3.2-1, Step 1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 with condition SIDELINK | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| sl-ConfigDedicatedNR-r16 CHOICE { | |  |  |  |
| setup | | SL-ConfigDedicatedNR specified in TS 38.508-1 [4] Table 4.6.6-7 with condition SL\_MEAS |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.5.1.3.3-2: RRCReconfigurationSidelink (Table 12.2.5.1.3.2-1, Step 3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-3 with condition TX and SL\_MEAS | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { | |  |  |  |
| sl-MeasConfig-r16 CHOICE { | |  |  |  |
| setup SEQUENCE { | |  |  |  |
| sl-MeasObjectToRemoveList-r16 | | Not present |  |  |
| sl-MeasObjectToAddModList-r16 | | SL-MeasObjectList |  |  |
| sl-ReportConfigToRemoveList-r16 | | Not present |  |  |
| sl-ReportConfigToAddModList-r16 | | SL-ReportConfigList with condition PERIODICAL |  |  |
| sl-MeasIdToRemoveList-r16 | | Not present |  |  |
| sl-MeasIdToAddModList-r16 | | SL-MeasIdList |  |  |
| sl-QuantityConfig-r16 | | SL-QuantityConfig |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.5.1.3.3-3: RRCReconfigurationCompleteSidelink(Table 12.2.5.1.3.2-1, Step 4)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-4 with condition RX |

#### 12.2.5.2 Inter-carrier concurrent operation / Measurement configuration and reporting via PC5 RRC / SL-RSRP measurement reporting / Event S1 and S2

12.2.5.2.1 Test Purpose (TP)

(1)

**with** { UE is on connected state. UE received an RRCReconfigurationSidelink message from peer UE to configure event S1 triggered SL-RSRP measurement reporting. }

**ensure that** {

**when** { SL-RSRP measurement on peer UE is below event S1 threshold. }

**then** { UE doesn't transmit MeasurementReportSidelink message. }

}

(2)

**with** { UE is on connected state. UE received an RRCReconfigurationSidelink message from peer UE to configure event S1 triggered SL-RSRP measurement reporting. }

**ensure that** {

**when** { SL-RSRP measurement on peer UE is above event S1 threshold. }

**then** { UE transmits an MeasurementReportSidelink message to peer UE. }

}

(3)

**with** { UE is on connected state. UE received an RRCReconfigurationSidelink message from peer UE to configure event S2 triggered SL-RSRP measurement reporting. }

**ensure that** {

**when** { SL-RSRP measurement on peer UE is above event S2 threshold. }

**then** { UE doesn't transmit MeasurementReportSidelink message. }

}

(4)

**with** { UE is on connected state. UE received an RRCReconfigurationSidelink message from peer UE to configure event S2 triggered SL-RSRP measurement reporting. }

**ensure that** {

**when** { SL-RSRP measurement on peer UE is below event S2 threshold. }

**then** { UE transmits an MeasurementReportSidelink message to peer UE. }

}

12.2.5.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.9.1, 5.8.10.2, 5.8.10.3, 5.8.10.4 and 5.8.10.5. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.9.1.1]



Figure 5.8.9.1.1-1: Sidelink RRC reconfiguration, successful



Figure 5.8.9.1.1-2: Sidelink RRC reconfiguration, failure

The purpose of this procedure is to modify a PC5-RRC connection, e.g. to establish/modify/release sidelink DRBs, to (re-)configure NR sidelink measurement and reporting, to (re-)configure sidelink CSI reference signal resources and CSI reporting latency bound.

The UE may initiate the sidelink RRC reconfiguration procedure and perform the operation in sub-clause 5.8.9.1.2 on the corresponding PC5-RRC connection in following cases:

…

- the (re-)configuration of the peer UE to perform NR sidelink measurement and report.

…

In RRC\_CONNECTED, the UE applies the NR sidelink communications parameters provided in *RRCReconfiguration* (if any). In RRC\_IDLE or RRC\_INACTIVE, the UE applies the NR sidelink communications parameters provided in system information (if any). For other cases, UEs apply the NR sidelink communications parameters provided in *SidelinkPreconfigNR* (if any). When UE performs state transition between above three cases, the UE applies the NR sidelink communications parameters provided in the new state, after acquisition of the new configurations. Before acquisition of the new configurations, UE continues applying the NR sidelink communications parameters provided in the old state.

[TS 38.331, clause 5.8.9.1.3]

The UE shall perform the following actions upon reception of the *RRCReconfigurationSidelink*:

…

1> if the *RRCReconfigurationSidelink* message includes the *sl-MeasConfig*:

2> perform the sidelink measurement configuration procedure as specified in 5.8.10;

…

1> else:

2> set the content of the *RRCReconfigurationCompleteSidelink* message;

3> submit the *RRCReconfigurationCompleteSidelink* message to lower layers for transmission;

NOTE 1: When the same logical channel is configured with different RLC mode by another UE, the UE handles the case as sidelink RRC reconfiguration failure.

[TS 38.331, clause 5.8.9.1.3]

The UE shall perform the following actions upon reception of the *RRCReconfigurationSidelink*:

…

1> if the *RRCReconfigurationSidelink* message includes the *sl-MeasConfig*:

2> perform the sidelink measurement configuration procedure as specified in 5.8.10;

…

1> else:

2> set the content of the *RRCReconfigurationCompleteSidelink* message;

3> submit the *RRCReconfigurationCompleteSidelink* message to lower layers for transmission;

[TS 38.331, clause 5.8.10.2.1]

The UE shall:

…

1> if the received *sl-MeasConfig* includes the *sl-MeasObjectToAddModList* in the *RRCReconfigurationSidelink*:

2> perform the sidelink measurement object addition/modification procedure as specified in 5.8.10.2.5;

…

1> if the received *sl-MeasConfig* includes the *sl-ReportConfigToAddModList* in the *RRCReconfigurationSidelink*:

2> perform the sidelink reporting configuration addition/modification procedure as specified in 5.8.10.2.7;

1> if the received *sl-MeasConfig* includes the *sl-QuantityConfig* in the *RRCReconfigurationSidelink*:

2> perform the sidelink quantity configuration procedure as specified in 5.8.10.2.8;

…

1> if the received *sl-MeasConfig* includes the *sl-MeasIdToAddModList* in the *RRCReconfigurationSidelink*:

2> perform the sidelink measurement identity addition/modification procedure as specified in 5.8.10.2.3;

[TS 38.331, clause 5.8.10.2.3]

The UE shall:

1> for each *sl-MeasId* included in the received *sl-MeasIdToAddModList*:

2> if an entry with the matching *sl-MeasId* exists in the *sl-MeasIdList* within the *VarMeasConfigSL*:

3> replace the entry with the value received for this *sl-MeasId*;

2> else:

3> add a new entry for this *sl-MeasId* within the *VarMeasConfigSL*;

2> remove the measurement reporting entry for this *sl-MeasId* from the *VarMeasReportListSL*, if included;

2> stop the periodical reporting timer and reset the associated information (e.g. *sl-TimeToTrigger*) for this *sl-MeasId*;

[TS 38.331, clause 5.8.10.2.5]

The UE shall:

1> for each *sl-MeasObjectId* included in the received *sl-MeasObjectToAddModList*:

2> if an entry with the matching *sl-MeasObjectId* exists in the *sl-MeasObjectList* within the *VarMeasConfigSL*, for this entry:

3> for each *sl-MeasId* associated with this *sl-MeasObjectId* included in the *sl-MeasIdList* within the *VarMeasConfigSL*, if any:

4> remove the measurement reporting entry for this *sl-MeasId* from the *VarMeasReportListSL*, if included;

4> stop the periodical reporting timer and reset the associated information (e.g. *sl-TimeToTrigger*) for this *sl-MeasId*;

3> reconfigure the entry with the value received for this *sl-MeasObject*;

2> else:

3> add a new entry for the received *sl-MeasObject* to the *sl-MeasObjectList* within *VarMeasConfigSL*.

[TS 38.331, clause 5.8.10.2.7]

The UE shall:

1> for each sl-ReportConfigId included in the received sl-ReportConfigToAddModList:

2> if an entry with the matching *sl-ReportConfigId* exists in the *sl-ReportConfigList* within the *VarMeasConfigSL*, for this entry:

3> reconfigure the entry with the value received for this *sl-ReportConfig*;

3> for each *sl-MeasId* associated with this *sl-ReportConfigId* included in the *sl-MeasIdList* within the *VarMeasConfigSL*, if any:

4> remove the measurement reporting entry for this *sl-MeasId* from the *VarMeasReportListSL*, if included;

4> stop the periodical reporting timer and reset the associated information (e.g. *sl-TimeToTrigger*) for this *sl-MeasId*;

2> else:

3> add a new entry for the received *sl-ReportConfig* to the *sl-ReportConfigList* within the *VarMeasConfigSL*.

[TS 38.331, clause 5.8.10.2.8]

The UE shall:

1> for each received *sl-QuantityConfig*:

2> set the corresponding parameter(s) in *sl-QuantityConfig* within *VarMeasConfigSL* to the value of the received *sl-QuantityConfig* parameter(s);

1> for each *sl-MeasId* included in the *sl-MeasIdList* within *VarMeasConfigSL*:

2> remove the measurement reporting entry for this *sl-MeasId* from the *VarMeasReportListSL*, if included;

2> stop the periodical reporting timer and reset the associated information (e.g. *sl-TimeToTrigger*) for this *sl-MeasId*.

[TS 38.331, clause 5.8.10.3.1]

The UE shall:

1> for each *sl-MeasId* included in the *sl-MeasIdList* within *VarMeasConfigSL*:

2> if the *sl-MeasObject* is associated to NR sidelink and the *sl-RS-Type* is set to *dmrs*:

3> derive the layer 3 filtered NR sidelink measurement result based on DMRS for the trigger quantity and each measurement quantity indicated in *sl-ReportQuantity* using parameters from the associated *sl-MeasObject*, as described in 5.8.10.3.2.

2> perform the evaluation of reporting criteria as specified in 5.8.10.4.

[TS 38.331, clause 5.8.10.3.3]

The UE shall:

1> for each NR sidelink measurement quantity to be derived based on NR sidelink DMRS:

2> derive the corresponding measurement of NR sidelink frequency indicated quantity based on DMRS as described in TS 38.215 [9] in the concerned *sl-MeasObject*;

2> apply layer 3 filtering as described in 5.5.3.2;

[TS 38.331, clause 5.8.10.4.1]

The UE shall:

1> for each *sl-MeasId* included in the *sl-MeasIdList* within *VarMeasConfigSL*:

2> if the *sl-ReportType* is set to *sl-EventTriggered* and if the entry condition applicable for this event, i.e. the event corresponding with the *sl-EventId* of the corresponding *sl-ReportConfig* within *VarMeasConfigSL*, is fulfilled for NR sidelink frequency for all NR sidelink measurements after layer 3 filtering taken during *sl-TimeToTrigger* defined for this event within the *VarMeasConfigSL*, while the *VarMeasReportListSL* does not include a NR sidelink measurement reporting entry for this *sl-MeasId* (a first NR sidelink frequency triggers the event):

3> include a NR sidelink measurement reporting entry within the *VarMeasReportListSL* for this *sl-MeasId*;

3> set the *sl-NumberOfReportsSent* defined within the *VarMeasReportListSL* for this *sl-MeasId* to 0;

3> include the concerned NR sidelink frequency in the *sl-FrequencyTriggeredList* defined within the *VarMeasReportListSL* for this *sl-MeasId*;

3> initiate the NR sidelink measurement reporting procedure, as specified in 5.8.10.5;

…

2> upon expiry of the periodical reporting timer for this *sl-MeasId*:

3> initiate the NR sidelink measurement reporting procedure, as specified in 5.8.10.5.

[TS 38.331, clause 5.8.10.4.2]

The UE shall:

1> consider the entering condition for this event to be satisfied when condition S1-1, as specified below, is fulfilled;

1> consider the leaving condition for this event to be satisfied when condition S1-2, as specified below, is fulfilled;

1> for this NR sidelink measurement, consider the NR sidelink frequency corresponding to the associated *sl-MeasObject* associated with this event.

Inequality S1-1 (Entering condition)

*Ms – Hys > Thresh*

Inequality S1-2 (Leaving condition)

*Ms + Hys < Thresh*

The variables in the formula are defined as follows:

***Ms*** is the NR sidelink measurement result of the NR sidelink frequency, not taking into account any offsets.

***Hys*** is the hysteresis parameter for this event (i.e. *sl-Hysteresis* as defined within *sl-ReportConfig* for this event).

***Thresh*** is the threshold parameter for this event (i.e. *s1-Threshold* as defined within *sl-ReportConfig* for this event).

***Ms*** is expressed in dBm in case of RSRP.

***Hys*** is expressed in dB.

***Thresh*** is expressed in the same unit as ***Ms***.

[TS 38.331, clause 5.8.10.4.3]

The UE shall:

1> consider the entering condition for this event to be satisfied when condition S2-1, as specified below, is fulfilled;

1> consider the leaving condition for this event to be satisfied when condition S2-2, as specified below, is fulfilled;

1> for this NR sidelink measurement, consider the NR sidelink frequency indicated by the *sl-MeasObject* associated to this event.

Inequality S2-1 (Entering condition)

*Ms + Hys < Thresh*

Inequality S2-2 (Leaving condition)

*Ms – Hys > Thresh*

The variables in the formula are defined as follows:

***Ms*** is the NR sidelink measurement result of the NR sidelink frequency, not taking into account any offsets.

***Hys*** is the hysteresis parameter for this event (i.e. *sl-Hysteresis* as defined within *sl-ReportConfig* for this event).

***Thresh*** is the threshold parameter for this event (i.e. *s2-Threshold* as defined within *sl-ReportConfig* for this event).

***Ms*** is expressed in dBm in case of RSRP.

***Hys*** is expressed in dB.

***Thresh*** is expressed in the same unit as ***Ms***.

[TS 38.331, clause 5.8.10.5.1]



Figure 5.8.10.5.1-1: NR sidelink measurement reporting

The purpose of this procedure is to transfer measurement results from the UE to the peer UE associated.

For the *sl-MeasId* for which the NR sidelink measurement reporting procedure was triggered, the UE shall set the *sl-MeasResults* within the *MeasurementReportSidelink* message as follows:

1> set the *sl-MeasId* to the measurement identity that triggered the NR sidelink measurement reporting;

1> if the *sl-ReportConfig* associated with the *sl-MeasId* that triggered the NR sidelink measurement reporting is set to *sl-EventTriggered* or *sl-Periodical*:

2> set *sl-ResultDMRS* within *sl-MeasResult* to include the NR sidelink DMRS based quantity indicated in the *sl-ReportQuantity* within the concerned *sl-ReportConfig*;

1> increment the *sl-NumberOfReportsSent* as defined within the *VarMeasReportListSSL* for this *sl-MeasId* by 1;

1> stop the periodical reporting timer, if running;

1> if the *sl-NumberOfReportsSent* as defined within the *VarMeasReportListSL* for this *sl-MeasId* is less than the *sl-ReportAmount* as defined within the corresponding *sl-ReportConfig* for this *sl-MeasId*:

2> start the periodical reporting timer with the value of *sl-ReportInterval* as defined within the corresponding *sl-ReportConfig* for this *sl-MeasId*;

1> else:

2> if the *sl-ReportType* is set to *sl-Periodical*:

3> remove the entry within the *VarMeasReportListSL* for this *sl-MeasId*;

3> remove this *sl-MeasId* from the *sl-MeasIdList* within *VarMeasConfigSL*;

1> submit the *MeasurementReportSidelink* message to lower layers for transmission, upon which the procedure ends.

12.2.5.2.3 Test description

12.2.5.2.3.1 Pre-test conditions

System Simulator:

- NR Cell

- NR Cell 1 is the serving cell.

- System information combination NR-14 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

- NR-SS-UE

- NR-SS-UE 1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE 1 keeps transmitting PSCCH/PSSCH in resource pool during the test.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4]) except for those listed in Table 12.2.5.2.3.1-1.

Table 12.2.5.2.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | As per TS 36.508 [18] clause 4.9.3.4 |  |
| EFVST |  | Service n°119 is "available" |  |
| EFV2XP\_PC5 |  | As per TS 38.508-1[4] clause 4.8.3.3.3  SL-PreconfigurationNR included in V2X data policy over PC5 is defined in Table 12.2.5.2.3.3-1 |  |

Preamble:

- The UE is in state 3N-B as defined in TS 38.508-1 [4], subclause 4.4A, using generic procedure parameter Sidelink (On), Unicast (On), and Test Mode (On) as defined in TS 38.508-1 [4], subclause 4.5.1.

12.2.5.2.3.2 Test procedure sequence

Table 12.2.5.2.3.2-1 illustrates the sidelink power levels to be applied for NR-SS-UE 1 at various time instants of the test execution. Row marked "T0" denotes the conditions after the preamble, while the configuration marked "T1" is applied at the point indicated in the Main behaviour description in Table Table 12.2.5.2.3.2-2.

Table 12.2.5.2.3.2-1: Time instances of NR-SS-UE power level and parameter changes in conducted test environment

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR-SS-UE 1 | Remark |
| T0 | NR-SS-UE power | dBm/  SCS | -85 | The power level that entering condition of event S1 and leaving condition of event S2 are satisfied:  Inequality S1-1 (Entering condition)  Ms – Hys > Thresh  Inequality S2-2 (Leaving condition)  Ms – Hys > Thresh |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | 0 |
| T1 | NR-SS-UE power | dBm/  SCS | -101 | The power level that entering condition of event S2 and leaving condition of event S1 are satisfied:  Inequality S2-1 (Entering condition)  Ms + Hys < Thresh  Inequality S1-2 (Leaving condition)  Ms + Hys < Thresh |
| EPRE ratio of S-SSS to NR-SS-UE power | dB | 0 |

**Table 12.2.5.2.3.2-2: Main behaviour**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **St** | **Procedure** | **Message Sequence** | | **TP** | **Verdict** |
|  |  | **U - S** | **Message** |  |  |
| 1 | The NR-SS-UE 1 transmits an RRCReconfigurationSidelink message to configure event S1 triggered measurement reporting. | <-- | NR PC5 RRC: *RRCReconfigurationSidelink* | - | - |
| 2 | The UE transmits an RRCReconfigurationCompleteSidelink message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 3 | The SS waits for 1 seconds | - | - | - | - |
| 4 | Check: Does the UE transmit a MeasurementReportSidelink message to NR-SS-UE 1 in the following 5 seconds? | - | - | 1 | F |
| 5 | The SS re-adjusts the NR-SS-UE power level according to row "T1" in Table 12.2.5.2.3.2-1. | - | - | - | - |
| 6 | The SS waits for 1 seconds |  |  |  |  |
| 7 | Check: Does the UE transmit a MeasurementReportSidelink message to NR-SS-UE 1? | --> | NR PC5 RRC: *MeasurementReportSidelink* | 2 | P |
| 8 | The NR-SS-UE 1 transmits an RRCReconfigurationSidelink message to configure event S2 triggered measurement reporting. | <-- | NR PC5 RRC: *RRCReconfigurationSidelink* | - | - |
| 9 | The UE transmits an RRCReconfigurationCompleteSidelink message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 10 | The SS waits for 1 seconds | - | - | - | - |
| 11 | Check: Does the UE transmit a MeasurementReportSidelink message to NR-SS-UE 1 in the following 5 seconds? | - | - | 3 | F |
| 12 | The SS re-adjusts the NR-SS-UE power level according to row "T0" in Table 12.2.5.2.3.2-1. | - | - | - | - |
| 13 | The SS waits for 1 seconds |  |  |  |  |
| 14 | Check: Does the UE transmit a MeasurementReportSidelink message to NR-SS-UE 1? | --> | NR PC5 RRC: *MeasurementReportSidelink* | 4 | P |

12.2.5.2.3.3 Specific message contents

Table 12.2.5.2.3.3-1: RRCReconfigurationSidelink (Table 12.2.5.2.3.2-2, Step 1 and 8)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-3 with condition RX and SL\_MEAS | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { | |  |  |  |
| sl-MeasConfig-r16 CHOICE { | |  |  |  |
| setup SEQUENCE { | |  |  |  |
| sl-MeasObjectToAddModList-r16 | | SL-MeasObjectList specified in TS 38.508-1 [4] Table 4.6.6-16 |  | Step 1 |
|  | | Not present |  | Step 8 |
| sl-ReportConfigToAddModList-r16 | | SL-ReportConfigList (-93) specified in TS 38.508-1 [4] Table 4.6.6-24 with condition EVENT\_S1 |  | Step 1 |
|  | | SL-ReportConfigList (-93) specified in TS 38.508-1 [4] Table 4.6.6-24 with condition EVENT\_S2 |  | Step 8 |
| sl-MeasIdToAddModList-r16 | | SL-MeasIdList specified in TS 38.508-1 [4] Table 4.6.6-15 |  | Step 1 |
|  | | Not present |  | Step 8 |
| sl-QuantityConfig-r16 | | SL-QuantityConfig |  | Step 1 |
|  | | Not present |  | Step 8 |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.5.2.3.3-2: RRCReconfigurationCompleteSidelink (Table 12.2.5.2.3.2-2, Step 2 and 9)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-4 with condition TX |

Table 12.2.5.2.3.3-3: MeasurementReportSidelink (Table 12.2.5.2.3.2-2, Step 7 and 14)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-2 with condition TX |

#### 12.2.5.3 Inter-carrier concurrent operation / Measurement configuration and reporting via PC5 RRC / PSBCH-RSRP measurement reporting / Periodical reporting

12.2.5.3.1 Test Purpose (TP)

(1)

**with** { UE configured to perform periodical PSBCH-RSRP measurement reporting on SL SSB via PC5 RRC }

**ensure that** {

**when** { The first measurement result is available and thereafter every time periodical timer expires}

**then** { UE triggers PSBCH-RSRP measurement reporting until the total number of measurement reports is 16}

}

12.2.5.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331, clauses 5.8.1, 5.8.9.1.2, 5.8.9.1.3, 5.8.9.1.9, 5.8.10.2. 1, 5.8.10.3.1, 5.8.10.3.2 and 5.8.10.5.1.Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.1]

The PC5-RRC signalling, as specified in sub-clause 5.8.9, can be initiated after its corresponding PC5 unicast link establishment (TS 23.287 [55]).

[TS 38.331, clause 5.8.9.1.2]

The UE shall set the contents of *RRCReconfigurationSidelink* message as follows:

1> for each sidelink DRB that is to be released, according to sub-clause 5.8.9.1a.1.1, due to configuration by *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR* or by upper layers:

2> set the *SLRB-PC5-ConfigIndex* included in the *slrb-ConfigToReleaseList* corresponding to the sidelink DRB;

1> for each sidelink DRB that is to be established or modified, according to sub-clause 5.8.9.1a.2.1, due to receiving *sl-ConfigDedicatedNR,* *SIB12* or *SidelinkPreconfigNR*:

2> set the *SLRB-Config* included in the *slrb-ConfigToAddModList*, according to the received *sl-RadioBearerConfig* and *sl-RLC-BearerConfig* corresponding to the sidelink DRB;

1> set the *sl-MeasConfig* as follows:

2> If the frequency used for NR sidelink communication is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or included in *sl-ConfigCommonNR* within SIB12:

3> if UE is in RRC\_CONNECTED:

4> set the *sl-MeasConfig* according to stored NR sidelink measurement configuration information for this destination;

3> if UE is in RRC\_IDLE or RRC\_INACTIVE:

4> set the *sl-MeasConfig* according to stored NR sidelink measurement configuration received from *SIB12*;

2> else:

3> set the sl-MeasConfig according to the sl-MeasPreconfig in SidelinkPreconfigNR;

1> start timer T400 for the destination associated with the sidelink DRB;

1> set the sl-CSI-RS-Config;

1> set the sl-LatencyBoundCSI-Report,

NOTE 1: How to set the parameters included in *sl-CSI-RS-Config* and *sl-LatencyBoundCSI-Report* is up to UE implementation.

The UE shall submit the *RRCReconfigurationSidelink* message to lower layers for transmission.

[TS 38.331, clause 5.8.9.1.3]

The UE shall perform the following actions upon reception of the *RRCReconfigurationSidelink*:

1> if the RRCReconfigurationSidelink includes the sl-ResetConfig:

2> perform the sidelink reset configuration procedure as specified in 5.8.9.1.10;

1> if the RRCReconfigurationSidelink includes the slrb-ConfigToReleaseList:

2> for each *SLRB-PC5-ConfigIndex* value included in the *slrb-ConfigToReleaseList* that is part of the current UE sidelink configuration;

3> perform the sidelink DRB release procedure, according to sub-clause 5.8.9.1a.1;

1> if the RRCReconfigurationSidelink includes the slrb-ConfigToAddModList:

2> for each *slrb-PC5-ConfigIndex* value included in the *slrb-ConfigToAddModList* that is not part of the current UE sidelink configuration:

3> if sl-MappedQoS-FlowsToAddList is included:

4> apply the SL-PQFI included in sl-MappedQoS-FlowsToAddList;

3> perform the sidelink DRB addition procedure, according to sub-clause 5.8.9.1a.2;

2> for each *slrb-PC5-ConfigIndex* value included in the *slrb-ConfigToAddModList* that is part of the current UE sidelink configuration:

3> if sl-MappedQoS-FlowsToAddList is included:

4> add the *SL-PQFI* included in *sl-MappedQoS-FlowsToAddList* to the corresponding sidelink DRB;

3> if sl-MappedQoS-FlowsToReleaseList is included:

4> remove the *SL-PQFI* included in *sl-MappedQoS-FlowsToReleaseList* from the corresponding sidelink DRB;

3> if the sidelink DRB release conditions as described in sub-clause 5.8.9.1a.1.1 are met:

4> perform the sidelink DRB release procedure according to sub-clause 5.8.9.1a.1.2;

3> else if the sidelink DRB modification conditions as described in sub-clause 5.8.9.1a.2.1 are met:

4> perform the sidelink DRB modification procedure according to sub-clause 5.8.9.1a.2.2;

1> if the RRCReconfigurationSidelink message includes the sl-MeasConfig:

2> perform the sidelink measurement configuration procedure as specified in 5.8.10;

1> if the RRCReconfigurationSidelink message includes the sl-CSI-RS-Config:

2> apply the sidelink CSI-RS configuration;

1> if the RRCReconfigurationSidelink message includes the sl-LatencyBoundCSI-Report:

2> apply the configured sidelink CSI report latency bound;

1> if the UE is unable to comply with (part of) the configuration included in the *RRCReconfigurationSidelink* (i.e. sidelink RRC reconfiguration failure):

2> continue using the configuration used prior to the reception of the *RRCReconfigurationSidelink* message;

2> set the content of the *RRCReconfigurationFailureSidelink* message;

3> submit the *RRCReconfigurationFailureSidelink* message to lower layers for transmission;

1> else:

2> set the content of the *RRCReconfigurationCompleteSidelink* message;

3> submit the *RRCReconfigurationCompleteSidelink* message to lower layers for transmission;

NOTE 1: When the same logical channel is configured with different RLC mode by another UE, the UE handles the case as sidelink RRC reconfiguration failure.

[TS 38.331, clause 5.8.9.1.9]

The UE shall perform the following actions upon reception of the *RRCReconfigurationCompleteSidelink*:

1> stop timer T400 for the destination, if running;

1> consider the configurations in the corresponding *RRCReconfigurationSidelink* message to be applied.

[TS 38.331, clause 5.8.10.2]

The UE shall:

1> if the received sl-MeasConfig includes the sl-MeasObjectToRemoveList in the RRCReconfigurationSidelink:

2> perform the sidelink measurement object removal procedure as specified in 5.8.10.2.4;

1> if the received sl-MeasConfig includes the sl-MeasObjectToAddModList in the RRCReconfigurationSidelink:

2> perform the sidelink measurement object addition/modification procedure as specified in 5.8.10.2.5;

1> if the received sl-MeasConfig includes the sl-ReportConfigToRemoveList in the RRCReconfigurationSidelink:

2> perform the sidelink reporting configuration removal procedure as specified in 5.8.10.2.6;

1> if the received sl-MeasConfig includes the sl-ReportConfigToAddModList in the RRCReconfigurationSidelink:

2> perform the sidelink reporting configuration addition/modification procedure as specified in 5.8.10.2.7;

1> if the received sl-MeasConfig includes the sl-QuantityConfig in the RRCReconfigurationSidelink:

2> perform the sidelink quantity configuration procedure as specified in 5.8.10.2.8;

1> if the received sl-MeasConfig includes the sl-MeasIdToRemoveList in the RRCReconfigurationSidelink:

2> perform the sidelink measurement identity removal procedure as specified in 5.8.10.2.2;

1> if the received sl-MeasConfig includes the sl-MeasIdToAddModList in the RRCReconfigurationSidelink:

2> perform the sidelink measurement identity addition/modification procedure as specified in 5.8.10.2.3;

[TS 38.331, clause 5.8.10.3.1]

A UE shall derive NR sidelink measurement results by measuring one or multiple DMRS associated per PC5-RRC connection as configured by the peer UE associated, as described in 5.8.10.3.2. For all NR sidelink measurement results the UE applies the layer 3 filtering as specified in sub-clause 5.5.3.2, before using the measured results for evaluation of reporting criteria and measurement reporting. In this release, only NR sidelink RSRP can be configured as trigger quantity and reporting quantity.

The UE shall:

1> for each *sl-MeasId* included in the *sl-MeasIdList* within *VarMeasConfigSL*:

2> if the *sl-MeasObject* is associated to NR sidelink and the *sl-RS-Type* is set to *dmrs*:

3> derive the layer 3 filtered NR sidelink measurement result based on DMRS for the trigger quantity and each measurement quantity indicated in *sl-ReportQuantity* using parameters from the associated *sl-MeasObject*, as described in 5.8.10.3.2.

2> perform the evaluation of reporting criteria as specified in 5.8.10.4.

[TS 38.331, clause 5.8.10.3.2]

The UE may be configured by the peer UE associated to derive NR sidelink RSRP measurement results per PC5-RRC connection associated to the NR sidelink measurement objects based on parameters configured in the *sl-MeasObject* and in the *sl-ReportConfig*.

The UE shall:

1> for each NR sidelink measurement quantity to be derived based on NR sidelink DMRS:

2> derive the corresponding measurement of NR sidelink frequency indicated quantity based on DMRS as described in TS 38.215 [9] in the concerned *sl-MeasObject*;

2> apply layer 3 filtering as described in 5.5.3.2;

[TS 38.331, clause 5.8.10.5.1]



Figure 5.8.10.5.1-1: NR sidelink measurement reporting

The purpose of this procedure is to transfer measurement results from the UE to the peer UE associated.

For the *sl-MeasId* for which the NR sidelink measurement reporting procedure was triggered, the UE shall set the *sl-MeasResults* within the *MeasurementReportSidelink* message as follows:

1> set the *sl-MeasId* to the measurement identity that triggered the NR sidelink measurement reporting;

1> if the *sl-ReportConfig* associated with the *sl-MeasId* that triggered the NR sidelink measurement reporting is set to *sl-EventTriggered* or *sl-Periodical*:

2> set *sl-ResultDMRS* within *sl-MeasResult* to include the NR sidelink DMRS based quantity indicated in the *sl-ReportQuantity* within the concerned *sl-ReportConfig*;

1> increment the *sl-NumberOfReportsSent* as defined within the *VarMeasReportListSSL* for this *sl-MeasId* by 1;

1> stop the periodical reporting timer, if running;

1> if the *sl-NumberOfReportsSent* as defined within the *VarMeasReportListSL* for this *sl-MeasId* is less than the *sl-ReportAmount* as defined within the corresponding *sl-ReportConfig* for this *sl-MeasId*:

2> start the periodical reporting timer with the value of *sl-ReportInterval* as defined within the corresponding *sl-ReportConfig* for this *sl-MeasId*;

1> else:

2> if the sl-ReportType is set to sl-Periodical:

3> remove the entry within the *VarMeasReportListSL* for this *sl-MeasId*;

3> remove this sl-MeasId from the sl-MeasIdList within VarMeasConfigSL;

1> submit the *MeasurementReportSidelink* message to lower layers for transmission, upon which the procedure ends.

12.2.5.3.3 Test description

12.2.5.3.3.1 Pre-test conditions

System Simulator:

- SS-NW

- NR Cell 1

- System information combination NR-14 as defined in TS 38.508-1 [4] clause 4.4.3.1 is used in NR Cell 1.

- NR-SS-UE

- NR-SS-UE1: Operating as NR sidelink communication transmitting and receiving device on the resources that UE is expected to use for reception and transmission via PC5 interface.

- NR-SS-UE1 is synchronised on GNSS.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

- UE is synchronised on GNSS.

Preamble:

- The UE is in state 3N-A as defined in TS 38.508-1 [4], subclause 4.4A on NR Cell 1, using generic procedure parameters Sidelink (On), Cast Type (Unicast) using UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.22.

12.2.5.3.3.2 Test procedure sequence

Table 12.2.5.3.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 0 | NR-SS-UE1 transmits SLSS and *MasterInformationBlockSidelink*(Note 1)*.* | <-- | PC5 RRC: SLSS & MasterInformationBlockSidelink | - | - |
| 1 | NR-SS-UE1 sends an *RRCReconfigurationSidelink* message to configure the UE to perform periodical PSBCH-RSRP measurement reporting | <-- | PC5 RRC: RRCReconfigurationSidelink |  |  |
| 2 | UE sends an RRCReconfigurationCompleteSidelink message | --> | PC5 RRC: RRCReconfigurationCompleteSidelink |  |  |
| 3 | Check: Does the UE transmit a *MeasurementReportSidelink* message to perform periodical reporting? | --> | PC5 RRC: MeasurementReportSidelink | 1 | P |
| - | EXCEPTION: After the 1st MeasurementReportSidelink message at step 3 is received, step 4 below is repeated until 15 MeasurementReport messages are received from the UE.The interval between two MeasurementReportSidelink shall be as specified by the IE sl-ReportInterval |  |  |  |  |
| 4 | Check: Does the UE transmit a MeasurementReportSidelink message to perform periodical reporting? | --> | PC5 RRC: MeasurementReportSidelink | 1 | P |
| Note 1: UE is using TS 38.508-1 [4] Table 4.6.6-31: SL-SyncConfig parameters to transmit SLSS. | | | | | |

12.2.5.3.3.3 Specific message contents

Table 12.2.5.3.3.3-0: MasterInformationBlockSidelink (step 0, Table 12.2.5.3.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-1 with condition RX AND NB\_SYNC |

Table 12.2.5.3.3.3-1: RRCReconfigurationSidelink (step 1, Table 12.2.5.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-3 with condition SL\_MEAS and RX | | | |
| Information Element | Value/remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| sl-MeasConfig-r16 CHOICE { |  |  |  |
| setup SEQUENCE { |  |  |  |
| sl-ReportConfigToAddModList-r16 | SL-ReportConfigList | Table 12.2.5.3.3.3-2 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.5.3.3.3-2: SL-ReportConfigList (Table 12.2.5.3.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.6-24 with condition PERIODICAL | | | |
| Information Element | Value/Remark | Comment | Condition |
| SL-ReportConfigList-r16 ::= SEQUENCE (SIZE (1..maxNrofSL-ReportConfigId-r16)) OF SL-ReportConfigInfo-r16 { | 1 entry |  |  |
| SL-ReportConfigInfo-r16[1] SEQUENCE { |  | entry 1 |  |
| sl-ReportConfig-r16 SEQUENCE { |  |  |  |
| sl-ReportType-r16 CHOICE { |  |  |  |
| sl-Periodical-r16 SEQUENCE { |  |  |  |
| sl-ReportAmount-r16 | 16 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.5.3.3.3-3: RRCReconfigurationCompleteSidelink (step 2, Table 12.2.5.3.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-4 with condition TX |

Table 12.2.5.3.3.3-4: MeasurementReportSidelink (step 3, step 4, Table 12.2.5.3.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-2 with condition TX |

### 12.2.6 Inter-carrier concurrent operation / Sidelink Reconfiguration via PC5 RRC

#### 12.2.6.1 Inter-carrier concurrent operation / Sidelink Reconfiguration via PC5 RRC / SL DRB management / Initiating UE side

12.2.6.1.1 Test Purpose (TP)

(1)

**with** { UE in NR RRC\_CONNECTED state and having established PC5-RRC connection with peer UE }

**ensure that** {

**when** { UE is indicated by upper layer to establish a unicast SL DRB }

**then** { UE sends a RRCReconfigurationSidelink message to peer UE to indicate SL DRB addition. After receiving RRCReconfigurationCompleteSidelink message from peer UE, UE establishes the SL DRB }

}

(2)

**with** { UE in NR RRC\_CONNECTED state and having established PC5-RRC connection with peer UE and having established a unicast SL DRB }

**ensure that** {

**when** { UE is indicated by upper layer to release the unicast SL DRB }

**then** { UE sends a RRCReconfigurationSidelink message to peer UE to indicate SL DRB release. After receiving RRCReconfigurationCompleteSidelink message from peer UE, UE releases the SL DRB }

}

12.2.6.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 38.331, clause 5.8.9.1.1, 5.8.9.1.2, 5.8.9.1a.2.1 and 5.8.9.1a.1.1. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.9.1.1]

...

The UE may initiate the sidelink RRC reconfiguration procedure and perform the operation in sub-clause 5.8.9.1.2 on the corresponding PC5-RRC connection in following cases:

- the release of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.1;

- the establishment of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.2;

- the modification for the parameters included in *SLRB-Config* of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.2;

- the (re-)configuration of the peer UE to perform NR sidelink measurement and report.

- the (re-)configuration of the sidelink CSI reference signal resources and CSI reporting latency bound.

In RRC\_CONNECTED, the UE applies the NR sidelink communications parameters provided in *RRCReconfiguration* (if any). In RRC\_IDLE or RRC\_INACTIVE, the UE applies the NR sidelink communications parameters provided in system information (if any). For other cases, UEs apply the NR sidelink communications parameters provided in *SidelinkPreconfigNR* (if any). When UE performs state transition between above three cases, the UE applies the NR sidelink communications parameters provided in the new state, after acquisition of the new configurations. Before acquisition of the new configurations, UE continues applying the NR sidelink communications parameters provided in the old state.

[TS 38.331, clause 5.8.9.1.2]

The UE shall set the contents of *RRCReconfigurationSidelink* message as follows:

1> for each sidelink DRB that is to be released, according to sub-clause 5.8.9.1a.1.1, due to configuration by *sl-ConfigDedicatedNR,* *SIB12*, *SidelinkPreconfigNR* or by upper layers:

2> set the *SLRB-PC5-ConfigIndex* included in the *slrb-ConfigToReleaseList* corresponding to the sidelink DRB;

1> for each sidelink DRB that is to be established or modified, according to sub-clause 5.8.9.1a.2.1, due to receiving *sl-ConfigDedicatedNR,* *SIB12* or *SidelinkPreconfigNR*:

2> set the *SLRB-Config* included in the *slrb-ConfigToAddModList*, according to the received *sl-RadioBearerConfig* and *sl-RLC-BearerConfig* corresponding to the sidelink DRB;

…

1> start timer T400 for the destination associated with the sidelink DRB;

…

The UE shall submit the *RRCReconfigurationSidelink* message to lower layers for transmission.

[TS 38.331, clause 5.8.9.1a.2.1]

For NR sidelink communication, a sidelink DRB addition is initiated only in the following cases:

1> if any sidelink QoS flow is (re)configured by *sl-ConfigDedicatedNR*, *SIB12*, *SidelinkPreconfigNR* and is to be mapped to one sidelink DRB*,* which is not established; or

1> if any sidelink QoS flow is (re)configured by *RRCReconfigurationSidelink* and isto be mapped to a sidelink DRB, which is not established;

…

[TS 38.331, clause 5.8.9.1a.1.1]

For NR sidelink communication, a sidelink DRB release is initiated in the following cases:

1> for groupcast, broadcast and unicast, if *slrb-Uu-ConfigIndex* (if any) of the sidelink DRB isincluded in *sl-RadioBearerToReleaseList* in *sl-ConfigDedicatedNR*; or

…

1> for groupcast, broadcast and unicast, if *SL-RLC-BearerConfigIndex* (if any) of the sidelink DRB is included in *sl-RLC-BearerToReleaseList* in *sl-ConfigDedicatedNR*; or

1> for unicast, if no sidelink QoS flow with data indicated by upper layers is mapped to the sidelink DRB for transmission, which is (re)configured by receiving *SIB12* or *SidelinkPreconfigNR*, and if no sidelink QoS flow mapped to the sidelink DRB, which is (re)configured by receiving *RRCReconfigurationSidelink*, has data; or

1> for unicast, if SLRB-PC5-ConfigIndex (if any) of the sidelink DRB is included in slrb-ConfigToReleaseList in RRCReconfigurationSidelink or if sl-ResetConfig is included in RRCReconfigurationSidelink; or

1> for unicast, when the corresponding PC5-RRC connection is released due to sidelink RLF being detected, according to clause 5.8.9.3; or

1> for unicast, when the corresponding PC5-RRC connection is released due to upper layer request according to clause 5.8.9.5.

12.2.6.1.3 Test description

12.2.6.1.3.1 Pre-test conditions

System Simulator:

- SS-NW

- NR Cell 1

- System information combination 14 as defined in TS 38.508-1 [4] clause 4.4.3.1 is used in NR Cell 1.

- NR-SS-UE

- NR-SS-UE1: Operating as NR sidelink communication device on the resources that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 uses GNSS as the synchronization reference source.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

- The UE uses GNSS as the synchronization reference source.

Preamble:

- The UE is in state 3N-B RRC\_CONNECTED\_with\_SL and Test Mode (*On*) with UE test loop mode E as defined in TS 38.508-1 [4] subclause 4.4A on NR Cell 1, using generic parameters Sidelink (*On*), Cast Type (Unicast), GNSS Sync (*On*) and UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.22.

12.2.6.1.3.2 Test procedure sequence

Table 12.2.6.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The UE is configured by upper layer to establish a new unicast SL DRB.  Note: This step is triggered by MMI or AT command | - | - | - | - |
| 2 | The UE sends a *RRCReconfigurationSidelink* message to establish a unicast mode SL DRB. | --> | PC5-RRC: RRCReconfigurationSidelink | 1 | P |
| 3 | The NR-SS-UE1 sends a RRCReconfigurationSidelinkComplete message. | <-- | PC5-RRC: RRCReconfigurationCompleteSidelink | - | - |
| 3A | The SS transmits a CLOSE UE TEST LOOP message to close UE test loop mode E (Receive Mode). | <-- | TC: CLOSE UE TEST LOOP |  |  |
| 3B | The UE transmits a CLOSE UE TEST LOOP COMPLETE message. | --> | TC: CLOSE UE TEST LOOP COMPLETE |  |  |
| 4 | The NR-SS-UE1 transmits the data on SL DRB to the UE.  NOTE: it is expected that the UE shall receive the data - if they were received is checked in step 6. | - | - | - | - |
| 5 | The NR-NW transmits an UE TEST LOOP NR SIDELINK PACKET COUNTER REQUEST message. | <-- | TC: UE TEST LOOP NR SIDELINK PACKET COUNTER REQUEST | - | - |
| 6 | Check: Does the UE respond with UE TEST LOOP NR SIDELINK PACKET COUNTER RESPONSE? | --> | TC: UE TEST LOOP NR SIDELINK PACKET COUNTER RESPONSE | - | - |
| 6A | The SS transmits an OPEN UE TEST LOOP message to open UE test loop mode E. | <-- | TC: OPEN UE TEST LOOP |  |  |
| 6B | The UE transmits an OPEN UE TEST LOOP COMPLETE message. | --> | TC: OPEN UE TEST LOOP COMPLETE |  |  |
| 7 | The UE is configured by upper layer to release the unicast SL DRB added by step 2.  Note: This step is triggered by MMI or AT command | - | - | - | - |
| 8 | The UE sends a *RRCReconfigurationSidelink* message to release the unicast mode SL DRB added by step 2. | --> | PC5-RRC: RRCReconfigurationSidelink | 2 | P |
| 9 | The NR-SS-UE1 sends a RRCReconfigurationCompleteSidelink message. | <-- | PC5-RRC: RRCReconfigurationCompleteSidelink | - | - |

12.2.6.1.3.3 Specific message contents

Table 12.2.6.1.3.3-1: RRCReconfigurationSidelink (Step 2, Table 12.2.6.1.3.2-1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-3 with condition SL\_DRB and TX | | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| slrb-ConfigToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-Config-r16 { | 1 entry |  |  |
| SLRB-Config-r16[1] SEQUENCE { |  | entry 1 |  |
| slrb-PC5-ConfigIndex-r16 | (1…512) |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.6.1.3.3-2: RRCReconfigurationCompleteSidelink (Step 3 and step 9, Table 12.2.6.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-4 with condition RX |

Table 12.2.6.1.3.3-3: CLOSE UE TEST LOOP (Step 3A, Table 12.2.6.1.3.2-1)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.9.31.3-2 |

Table 12.2.6.1.3.3-4: UE TEST LOOP NR SIDELINK PACKET COUNTER REQUEST (Step 5, Table 12.2.6.1.3.2-1)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.9.31.3-4 |

Table 12.2.6.1.3.3-5: UE TEST LOOP NR SIDELINK PACKET COUNTER RESPONSE (Step 6, Table 12.2.6.1.3.2-1)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.9.31.3-5 |

Table 12.2.6.1.3.3-6: RRCReconfigurationSidelink (Step 8, Table 12.2.6.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 with condition TX | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| slrb-ConfigToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-PC5-ConfigIndex-r16 { | 1 entry |  |  |
| SLRB-PC5-ConfigIndex-r16 [1] | Same value as slrb-PC5-ConfigIndex-r16 in RRCReconfigurationSidelink in step 2 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

### 12.2.7 Inter-carrier concurrent operation / Sidelink CSI reporting

#### 12.2.7.1 Inter-carrier concurrent operation / Sidelink CSI reporting / Configuration

12.2.7.1.1 Test Purpose (TP)

(1)

**with** { UE in NR RRC\_CONNECTED state and having established PC5 RRC connection with peer UE }

**ensure that** {

**when** { UE is configured by upper layer to configure SL CSI-RS resource to peer UE }

**then** { UE sends an *RRCReconfigurationSidelink* message including sl-CSI-RS-Config and *sl-LatencyBoundCSI-Report* to peer UE and starts to transmit SL CSI-RS }

}

(2)

**with** { UE in NR RRC\_CONNECTED and having established PC5 RRC connection with peer UE }

**ensure that** {

**when** { UE is configured by upper layer to trigger SL CSI report }

**then** { UE sends an SCI format 2-A to trigger SL CSI report and the '*CSI request*' field in the corresponding SCI format 2-A is set to 1 }

}

12.2.7.1.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 38.331 clause 5.8.9.1.1, 5.8.9.1.2, TS 38.214 clause 8.5.2.2, 8.2.1, TS 38.212 clause 8.3.1.1 and 8.4.1.1. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.9.1.1]

The purpose of this procedure is to modify a PC5-RRC connection, e.g. to establish/modify/release sidelink DRBs, to (re-)configure NR sidelink measurement and reporting, to (re-)configure sidelink CSI reference signal resources and CSI reporting latency bound.

The UE may initiate the sidelink RRC reconfiguration procedure and perform the operation in sub-clause 5.8.9.1.2 on the corresponding PC5-RRC connection in following cases:

…

- the (re-)configuration of the sidelink CSI reference signal resources and CSI reporting latency bound.

In RRC\_CONNECTED, the UE applies the NR sidelink communications parameters provided in *RRCReconfiguration* (if any). In RRC\_IDLE or RRC\_INACTIVE, the UE applies the NR sidelink communications parameters provided in system information (if any). For other cases, UEs apply the NR sidelink communications parameters provided in *SidelinkPreconfigNR* (if any). When UE performs state transition between above three cases, the UE applies the NR sidelink communications parameters provided in the new state, after acquisition of the new configurations. Before acquisition of the new configurations, UE continues applying the NR sidelink communications parameters provided in the old state.

[TS 38.331, clause 5.8.9.1.2]

The UE shall set the contents of *RRCReconfigurationSidelink* message as follows:

…

1> set the sl-CSI-RS-Config;

1> set the sl-LatencyBoundCSI-Report,

NOTE 1: How to set the parameters included in *sl-CSI-RS-Config* and *sl-LatencyBoundCSI-Report* is up to UE implementation.

The UE shall submit the *RRCReconfigurationSidelink* message to lower layers for transmission.

[TS 38.214, clause 8.5.2.2]

The UE can be configured with one CSI-RS pattern as indicated by the higher layer parameters *sl-CSI-RS-FreqAllocation, sl-OneAntennaPort, sl-CSI-RS-FirstSymbol* in *SL-CSI-RS-Config*.

Parameters for which the UE shall assume non-zero transmission power for CSI-RS are configured according to clause 8.2.1.

A UE is not expected to be configured such that a CSI-RS and the corresponding PSCCH can be mapped to the same resource element. A UE is not expected to receive sidelink CSI-RS and PSSCH DM-RS, nor CSI-RS and 2nd-stage SCI, on the same symbol.

Sidelink CSI-RS shall be transmitted according to [4, TS 38.211] in the resource blocks used for the PSSCH associated with the SCI format 2-A triggering a report.

[TS 38.214, clause 8.2.1]

A UE transmits sidelink CSI-RS within a unicast PSSCH transmission if the following conditions hold:

- CSI reporting is enabled by higher layer parameter *sl-CSI-Acquisition*; and

- the '*CSI request*' field in the corresponding SCI format 2-A is set to 1.

The following parameters for CSI-RS transmission are configured for each CSI-RS configuration:

- *sl-CSI-RS-FirstSymbol* indicates the first OFDM symbol in a PRB used for SL CSI-RS

- *sl-CSI-RS-FreqAllocation* indicates the number of antenna ports and the frequency domain allocation for SL CSI-RS.

When the UE is configured with *Qp*={1,2} CSI-RS port(s) in sidelink and the number of scheduled layers is ,



- The CSI-RS scaling factor specified in clause 8.4.1.5.3 of [4, TS 38.211] is given by where is the scaling factor for the corresponding PSSCH specified in clause 8.3.1.5 of [4, TS 38.211].



[TS 38.212, clause 8.3.1.1]

SCI format 1-A is used for the scheduling of PSSCH and 2nd-stage-SCI on PSSCH

The following information is transmitted by means of the SCI format 1-A:

- Priority – 3 bits as specified in clause 5.4.3.3 of [12, TS 23.287] and clause 5.22.1.3.1 of [8, TS 38.321].

- Frequency resource assignment – bits when the value of the higher layer parameter *sl-MaxNumPerReserve* is configured to 2; otherwise bits when the value of the higher layer parameter *sl-MaxNumPerReserve* is configured to 3, as defined in clause 8.1.5 of [6, TS 38.214].



- Time resource assignment – 5 bits when the value of the higher layer parameter *sl-MaxNumPerReserve* is configured to 2; otherwise 9 bits when the value of the higher layer parameter *sl-MaxNumPerReserve* is configured to 3, as defined in clause 8.1.5 of [6, TS 38.214].

- Resource reservation period – bits as defined in clause 16.4 of [5, TS 38.213], where is the number of entries in the higher layer parameter *sl-ResourceReservePeriodList*, if higher layer parameter *sl-MultiReserveResource* is configured; 0 bit otherwise.



- DMRS pattern – bits as defined in clause 8.4.1.1.2 of [4, TS 38.211], where is the number of DMRS patterns configured by higher layer parameter *sl-PSSCH-DMRS-TimePatternList*.



- 2nd-stage SCI format – 2 bits as defined in Table 8.3.1.1-1.

- Beta\_offset indicator – 2 bits as provided by higher layer parameter *sl-BetaOffsets2ndSCI* and Table 8.3.1.1-2.

- Number of DMRS port – 1 bit as defined in Table 8.3.1.1-3.

- Modulation and coding scheme – 5 bits as defined in clause 8.1.3 of [6, TS 38.214].

- Additional MCS table indicator – as defined in clause 8.1.3.1 of [6, TS 38.214]: 1 bit if one MCS table is configured by higher layer parameter *sl-Additional-MCS-Table*; 2 bits if two MCS tables are configured by higher layer parameter *sl- Additional-MCS-Table*; 0 bit otherwise.

- PSFCH overhead indication – 1 bit as defined clause 8.1.3.2 of [6, TS 38.214] if higher layer parameter *sl-PSFCH-Period* = 2 or 4; 0 bit otherwise.

- Reserved – a number of bits as determined by higher layer parameter *sl-NumReservedBits*, with value set to zero.

Table 8.3.1.1-1: 2nd-stage SCI formats

|  |  |
| --- | --- |
| Value of 2nd-stage SCI format field | 2nd-stage SCI format |
| 00 | SCI format 2-A |
| 01 | SCI format 2-B |
| 10 | Reserved |
| 11 | Reserved |

Table 8.3.1.1-2: Mapping of Beta\_offset indicator values to indexes in Table 9.3-2 of [5, TS38.213]

|  |  |
| --- | --- |
| Value of Beta\_offset indicator | Beta\_offset index in Table 9.3-2 of [5, TS38.213] |
| 00 | 1st index provided by higher layer parameter *sl-BetaOffsets2ndSCI* |
| 01 | 2nd index provided by higher layer parameter *sl-BetaOffsets2ndSCI* |
| 10 | 3rd index provided by higher layer parameter *sl-BetaOffsets2ndSCI* |
| 11 | 4th index provided by higher layer parameter *sl-BetaOffsets2ndSCI* |

Table 8.3.1.1-3: Number of DMRS port(s)

|  |  |
| --- | --- |
| Value of the Number of DMRS port field | Antenna ports |
| 0 | 1000 |
| 1 | 1000 and 1001 |

[TS 38.212, clause 8.4.1.1]

SCI format 2-A is used for the decoding of PSSCH, with HARQ operation when HARQ-ACK information includes ACK or NACK, when HARQ-ACK information includes only NACK, or when there is no feedback of HARQ-ACK information.

The following information is transmitted by means of the SCI format 2-A:

- HARQ process number – bits.



- New data indicator – 1 bit.

- Redundancy version – 2 bits as defined in Table 7.3.1.1.1-2.

- Source ID – 8 bits as defined in clause 8.1 of [6, TS 38.214].

- Destination ID – 16 bits as defined in clause 8.1 of [6, TS 38.214].

- HARQ feedback enabled/disabled indicator – 1 bit as defined in clause 16.3 of [5, TS 38.213].

- Cast type indicator – 2 bits as defined in Table 8.4.1.1-1 and in clause 8.1 of [6, TS 38.214].

- CSI request – 1 bit as defined in clause 8.2.1 of [6, TS 38.214] and in clause 8.1 of [6, TS 38.214].

Table 8.4.1.1-1: Cast type indicator

|  |  |
| --- | --- |
| Value of Cast type indicator | Cast type |
| 00 | Broadcast |
| 01 | Groupcast  when HARQ-ACK information includes ACK or NACK |
| 10 | Unicast |
| 11 | Groupcast  when HARQ-ACK information includes only NACK |

12.2.7.1.3 Test description

12.2.7.1.3.1 Pre-test conditions

System Simulator:

- SS-NW

- NR Cell 1

- System information combination 14 as defined in TS 38.508-1 [4] clause 4.4.3.1 is used in NR Cell 1.

- NR-SS-UE

- NR-SS-UE1: Operating as NR sidelink communication transmitting and receiving device on the resources that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 uses GNSS as the synchronization reference source.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

- The UE uses GNSS as the synchronization reference source.

Preamble:

- The UE is in state 3N-B RRC\_CONNECTED\_with\_SL as defined in TS 38.508-1 [4] subclause 4.4A on NR Cell 1 with parameters Sidelink (On), Cast Type (*Unicast*), GNSS Sync (*On*) and UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.22.

12.2.7.1.3.2 Test procedure sequence

Table 12.2.7.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | Cause the UE to configure SL CSI-RS resource.  Note: This step is triggered by MMI or AT command | - | - | - | - |
| 2 | Check: Does the UE transmit a *RRCReconfigurationSidelink* message including IEs sl-CSI-RS-Config and *sl-LatencyBoundCSI-Report* on SL-SRB3? | --> | PC5 RRC: *RRCReconfigurationSidelink* | 1 | P |
| 3 | The NR-SS-UE1 transmits a *RRCReconfigurationCompleteSidelink* message on SL-SRB3. | <-- | PC5 RRC: *RRCReconfigurationCompleteSidelink* | - | - |
| 3A | UE is configured by upper layer to trigger SL CSI report.  Note: This step is triggered by MMI or AT command. | - | - | - | - |
| 4 | Check: Does the UE transmit an SCI format 2-A to trigger SL CSI report and the '*CSI request*' field in the corresponding SCI format 2-A is set to 1. | --> | PSSCH (SCI format 2-A) | 2 | P |
| 5 | .Void | - | - | - | - |

12.2.7.1.3.3 Specific message contents

Table 12.2.7.1.3.3-1: *SIB12-IEs-r16* (preamble)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.2-14A | | | |
| Information Element | Value/remark | Comment | Condition |
| SIB12-IEs-r16 ::= SEQUENCE { |  |  |  |
| sl-ConfigCommonNR-r16 SEQUENCE { |  |  |  |
| sl-CSI-Acquisition-r16 | enabled |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.7.1.3.3-2: *RRCReconfigurationSidelink* (step 2, Table 12.2.7.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-3 with condition SL\_CSI and TX | | | |
| Information Element | Value/remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| sl-CSI-RS-Config-r16 CHOICE { |  |  |  |
| Setup SEQUENCE { |  |  |  |
| sl-CSI-RS-FreqAllocation-r16 | Any value |  |  |
| sl-CSI-RS-FirstSymbol-r16 | (3..12) |  |  |
| } |  |  |  |
| } |  |  |  |
| sl-LatencyBoundCSI-Report-r16 | (3..160) |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.7.1.3.3-3: *RRCReconfigurationCompleteSidelink* (step 3, Table 12.2.7.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-4 with condition RX |

#### 12.2.7.2 Inter-carrier concurrent operation / Sidelink CSI reporting / Reporting

12.2.7.2.1 Test Purpose (TP)

(1)

**with** { UE has established PC5 RRC connection with peer UE and is configured by peer UE to perform CSI measurement. }

**ensure that** {

**when** { UE receives a SCI format 2-A to trigger SL CSI report. }

**then** { UE sends an CSI reporting MAC-CE to peer UE within SL CSI report latency requirement. }

}

12.2.7.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.9.1, 5.8.10.2, 5.8.10.3, 5.8.10.4 and 5.8.10.5. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.9.1.1]



Figure 5.8.9.1.1-1: Sidelink RRC reconfiguration, successful



Figure 5.8.9.1.1-2: Sidelink RRC reconfiguration, failure

The purpose of this procedure is to modify a PC5-RRC connection, e.g. to establish/modify/release sidelink DRBs, to (re-)configure NR sidelink measurement and reporting, to (re-)configure sidelink CSI reference signal resources and CSI reporting latency bound.

The UE may initiate the sidelink RRC reconfiguration procedure and perform the operation in sub-clause 5.8.9.1.2 on the corresponding PC5-RRC connection in following cases:

…

- the (re-)configuration of the sidelink CSI reference signal resources and CSI reporting latency bound.

In RRC\_CONNECTED, the UE applies the NR sidelink communications parameters provided in *RRCReconfiguration* (if any). In RRC\_IDLE or RRC\_INACTIVE, the UE applies the NR sidelink communications parameters provided in system information (if any). For other cases, UEs apply the NR sidelink communications parameters provided in *SidelinkPreconfigNR* (if any). When UE performs state transition between above three cases, the UE applies the NR sidelink communications parameters provided in the new state, after acquisition of the new configurations. Before acquisition of the new configurations, UE continues applying the NR sidelink communications parameters provided in the old state.

[TS 38.331, clause 5.8.9.1.3]

The UE shall perform the following actions upon reception of the *RRCReconfigurationSidelink*:

…

1> if the *RRCReconfigurationSidelink* message includes the *sl-CSI-RS-Config*:

2> apply the sidelink CSI-RS configuration;

1> if the *RRCReconfigurationSidelink* message includes the *sl-LatencyBoundCSI-Report*:

2> apply the configured sidelink CSI report latency bound;

…

1> else:

2> set the content of the *RRCReconfigurationCompleteSidelink* message;

3> submit the *RRCReconfigurationCompleteSidelink* message to lower layers for transmission;

[TS 38.214, clause 8.2.1]

A UE transmits sidelink CSI-RS within a unicast PSSCH transmission if the following conditions hold:

- CSI reporting is enabled by higher layer parameter *sl-CSI-Acquisition*; and

- the '*CSI request*' field in the corresponding SCI format 2-A is set to 1.

…

[TS 38.214, clause 8.5.1.1]

The UE shall calculate CSI parameters (if reported) assuming the following dependencies between CSI parameters (if reported)

- CQI shall be calculated conditioned on the reported RI

The CSI reporting can be aperiodic (using [10, TS 38.321]). Table 8.5.1.1-1 shows the supported combinations of CSI reporting configurations and CSI-RS configurations and how the CSI reporting is triggered for CSI-RS configuration. Aperiodic CSI-RS is configured and triggered/activated as described in Clause 8.5.1.2.

Table 8.5.1.1-1: Triggering/Activation of CSI reporting for the possible CSI-RS Configurations

|  |  |
| --- | --- |
| CSI-RS Configuration | Aperiodic CSI Reporting |
| Aperiodic CSI-RS | Triggered by SCI. |

For CSI reporting, wideband CQI reporting is supported. A wideband CQI is reported for a single codeword for the entire CSI reporting band.

[TS 38.214, clause 8.5.1.2]

The CSI-triggering UE is not allowed to trigger another aperiodic CSI report for the same UE before the last slot of the expected reception or completion of the ongoing aperiodic CSI report associated with the SCI format 2-A with the '*CSI request*' field set to 1, where the last slot of the expected reception of the ongoing aperiodic CSI report is given by [10, TS38.321].

An aperiodic CSI report is triggered by an SCI format 2-A with the '*CSI request*' field set to 1.

A UE is not expected to transmit a sidelink CSI-RS and a sidelink PT-RS which overlap.

[TS 38.321, clause 5.22.1.7]

The Sidelink Channel State Information (SL-CSI) reporting procedure is used to provide a peer UE with sidelink channel state information as specified in clause 8.5 of TS 38.214 [7].

RRC configures the following parameters to control the SL-CSI reporting procedure:

- *sl-LatencyBoundCSI-Report*, which is maintained for each PC5-RRC connection.

The MAC entity maintains an *sl-CSI-ReportTimer* for each pair of the Source Layer-2 ID and the Destination Layer-2 ID corresponding to a PC5-RRC connection. *sl-CSI-ReportTimer* is used for an SL-CSI reporting UE to follow the latency requirement signalled from a CSI triggering UE. The value of *sl-CSI-ReportTimer* is the same as the‎ latency requirement of the SL-CSI reporting in *sl-LatencyBoundCSI-Report* configured by RRC.

The MAC entity shall for each pair of the Source Layer-2 ID and the Destination Layer-2 ID corresponding to a PC5-RRC connection which has been established by upper layers:

1> if the SL-CSI reporting has been triggered by an SCI and not cancelled:

2> if the *sl-CSI-ReportTimer* for the triggered SL-CSI reporting is not running:

3> start the *sl-CSI-ReportTimer*.

2> if the *sl-CSI-ReportTimer* for the triggered SL-CSI reporting expires:

3> cancel the triggered SL-CSI reporting.

2> else if the MAC entity has SL resources allocated for new transmission and the SL-SCH resources can accommodate the SL-CSI reporting MAC CE and its subheader as a result of logical channel prioritization:

3> instruct the Multiplexing and Assembly procedure to generate a Sidelink CSI Reporting MAC CE as defined in clause 6.1.3.35;

3> stop the *sl-CSI-ReportTimer* for the triggered SL-CSI reporting;

3> cancel the triggered SL-CSI reporting.

2> else if the MAC entity has been configured with Sidelink resource allocation mode 1:

3> trigger a Scheduling Request.

NOTE: The MAC entity configured with Sidelink resource allocation mode 1 may trigger a Scheduling Request if transmission of a pending SL-CSI reporting with the sidelink grant(s) cannot fulfil the latency requirement associated to the SL-CSI reporting.

12.2.7.2.3 Test description

12.2.7.2.3.1 Pre-test conditions

System Simulator:

- NR Cell

- NR Cell 1 is the serving cell.

- System information combination NR-14 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

- NR-SS-UE

- NR-SS-UE 1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE 1 uses NR Cell 1 as its synchronization reference source.

UE:

- UE is authorised to perform NR sidelink communication.

- UE uses NR Cell 1 as its synchronization reference source.

- The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4]) except for those listed in Table 12.2.7.2.3.1-1.

Table 12.2.7.2.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | As per TS 36.508 [18] clause 4.9.3.4 |  |
| EFVST |  | Service n°119 is "available" |  |
| EFV2XP\_PC5 |  | As per TS 38.508-1[4] clause 4.8.3.3.3  SL-PreconfigurationNR included in V2X data policy over PC5 is defined in 38.508-1[4] Table 4.10.1-1 |  |

Preamble:

- The UE is in state 3N-B as defined in TS 38.508-1 [4], subclause 4.4A, using generic procedure parameter Sidelink (On), Unicast (On), and Test Mode (On) as defined in TS 38.508-1 [4], subclause 4.5.1 and using UE initiated unicast mode NR sidelink communication procedure as defined in TS 38.508-1 [4] subclause 4.9.22.

12.2.7.2.3.2 Test procedure sequence

**Table 12.2.7.2.3.2-1: Main behaviour**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **St** | **Procedure** | **Message Sequence** | | **TP** | **Verdict** |
|  |  | **U - S** | **Message** |  |  |
| 1 | The SS transmits an RRCReconfiguration message to enable SL CSI reporting | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 2 | The UE transmits an RRCReconfigurationComplete message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 3 | The NR-SS-UE 1 transmits an *RRCReconfigurationSidelink* message to provide sidelink CSI-RS resource and reporting configuration. | <-- | NR PC5 RRC: *RRCReconfigurationSidelink* | - | - |
| 4 | The UE transmits an RRCReconfigurationCompleteSidelink message | --> | NR PC5 RRC: *RRCReconfigurationCompleteSidelink* | - | - |
| 5 | The NR-SS-UE 1 transmits a SCI format 2-A with CSI request = 1 and starts transmitting SL CSI-RS according to the SL CSI-RS resource configuration included in *RRCReconfigurationSidelink* message. | <-- | SCI format 2-A | - | - |
| 6 | Check: Does the UE transmit a SL CSI reporting MAC-CE before slot n+k?  NOTE: Slot n is the slot that UE receives SCI format 2-A with CSI request = 1. k is the SL CSI report latency requirement (in slots) indicated by sl-LatencyBoundCSI-Report. | --> | MAC CE (Sidelink CSI Reporting) | 1 | P |

12.2.7.2.3.3 Specific message contents

Table 12.2.7.2.3.3-1: RRCReconfiguration (Table 12.2.7.2.3.2-1, Step 1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 with condition SIDELINK | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| sl-ConfigDedicatedNR-r16 CHOICE { | |  |  |  |
| setup | | SL-ConfigDedicatedNR specified in 38.508-1 Table 4.6.6-7 with condition SELECTED and SL\_CSI\_REPORT |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.7.2.3.3-2: RRCReconfigurationSidelink (Table 12.2.7.2.3.2-1, Step 3)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-3 with condition RX and SL\_CSI |

Table 12.2.7.2.3.3-3: RRCReconfigurationCompleteSidelink (Table 12.2.7.2.3.2-1, Step 4)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-4 with condition TX |

### 12.2.8 Inter-carrier concurrent operation / Sidelink failure

12.2.8.1 Inter-carrier concurrent operation / Sidelink failure / PC5 RRC Reconfiguration Failure / Initiating UE side 12.2.8.1.1 Test Purpose (TP)

(1)

**with** { UE is in connected state. UE has established PC5 RRC connection with peer UE on unicast sidelink and has sent an RRCReconfigurationSidelink message to peer UE. }

**ensure that** {

**when** { UE receives an RRCReconfigurationFailureSidelink from peer UE. }

**then** { UE continues to use the configuration used prior to corresponding RRCReconfigurationSidelink message and sends a SidelinkUEInformation message to indicate sidelink reconfiguration failure. }

}

12.2.8.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.9.1, 5.8.10.2, 5.8.10.3, 5.8.10.4 and 5.8.10.5. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.9.1.1]



Figure 5.8.9.1.1-1: Sidelink RRC reconfiguration, successful



Figure 5.8.9.1.1-2: Sidelink RRC reconfiguration, failure

The purpose of this procedure is to modify a PC5-RRC connection, e.g. to establish/modify/release sidelink DRBs, to (re-)configure NR sidelink measurement and reporting, to (re-)configure sidelink CSI reference signal resources and CSI reporting latency bound.

The UE may initiate the sidelink RRC reconfiguration procedure and perform the operation in sub-clause 5.8.9.1.2 on the corresponding PC5-RRC connection in following cases:

- the release of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.1;

- the establishment of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.2;

- the modification for the parameters included in *SLRB-Config* of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.2;

- the (re-)configuration of the peer UE to perform NR sidelink measurement and report.

- the (re-)configuration of the sidelink CSI reference signal resources and CSI reporting latency bound.

In RRC\_CONNECTED, the UE applies the NR sidelink communications parameters provided in *RRCReconfiguration* (if any). In RRC\_IDLE or RRC\_INACTIVE, the UE applies the NR sidelink communications parameters provided in system information (if any). For other cases, UEs apply the NR sidelink communications parameters provided in *SidelinkPreconfigNR* (if any). When UE performs state transition between above three cases, the UE applies the NR sidelink communications parameters provided in the new state, after acquisition of the new configurations. Before acquisition of the new configurations, UE continues applying the NR sidelink communications parameters provided in the old state.

[TS 38.331, clause 5.8.9.1.8]

The UE shall perform the following actions upon reception of the *RRCReconfigurationFailureSidelink*:

1> stop timer T400 for the destination, if running;

1> continue using the configuration used prior to corresponding *RRCReconfigurationSidelink* message;

1> if UE is in RRC\_CONNECTED:

2> perform the sidelink UE information for NR sidelink communication procedure, as specified in 5.8.3.3 or sub-clause 5.10.15 in TS 36.331 [10];

[TS 38.331, clause 5.8.3.3]

The UE shall set the contents of the *SidelinkUEInformationNR* message as follows:

1> if the UE initiates the procedure to indicate it is (no more) interested to receive NR sidelink communication or to request (configuration/ release) of NR sidelink communication transmission resources or to report to the network that a sidelink radio link failure or sidelink RRC reconfiguration failure has been declared (i.e. UE includes all concerned information, irrespective of what triggered the procedure):

2> if *SIB12* including *sl-ConfigCommonNR* is provided by the PCell:

…

3> if configured by upper layers to transmit NR sidelink communication:

…

4> if a sidelink radio link failure or a sidelink RRC reconfiguration failure has been declared, according to clauses 5.8.9.3 and 5.8.9.1.8, respectively;

5> include *sl-FailureList* and set its fields as follows for each destination for which it reports the NR sidelink communication failure:

6> set *sl-DestinationIdentity* to the destination identity configured by upper layer for NR sidelink communication transmission;

…

6> else if *RRCReconfigurationFailureSidelink* is received:

7> set *sl-Failure* as *configFailure* for the associated destination for the NR sidelink communication transmission;

…

1> else:

2> submit the *SidelinkUEInformationNR* message to lower layers for transmission.

12.2.8.1.3 Test description

12.2.8.1.3.1 Pre-test conditions

System Simulator:

- NR Cell

- NR Cell 1 is the serving cell.

- System information combination NR-14 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 is synchronised on GNSS.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4]) except for those listed in Table 12.2.8.1.3.1-1.

- UE is synchronised on GNSS.

Table 12.2.8.1.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | As per TS 36.508 [18] clause 4.9.3.4 |  |
| EFVST |  | Service n°119 is "available" |  |
| EFV2XP\_PC5 |  | As per TS 38.508-1[4] clause 4.8.3.3.3  SL-PreconfigurationNR included in V2X data policy over PC5 is defined in Table 12.2.8.1.3.3-1 |  |

Preamble:

- The UE is in state 3N-B as defined in TS 38.508-1 [4], subclause 4.4A, using generic procedure parameter Sidelink (On), Unicast (On), and Test Mode (On) as defined in TS 38.508-1 [4], subclause 4.5.1 and UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.22.

12.2.8.1.3.2 Test procedure sequence

**Table 12.2.8.1.3.2-1: Main behaviour**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **St** | **Procedure** | **Message Sequence** | | **TP** | **Verdict** |
|  |  | **U - S** | **Message** |  |  |
| 1 | The SS transmits a CLOSE UE TEST LOOP message to close UE test loop mode E (Transmit Mode). | <-- | NR RRC: *DLInformationTransfer*  TC: CLOSE UE TEST LOOP | - | - |
| 2 | The UE transmits a CLOSE UE TEST LOOP COMPLETE message  NOTE: UE continuously sends SDAP SDUs on SL-DRB | --> | NR RRC: *ULInformationTransfer*  TC: CLOSE UE TEST LOOP COMPLETE | - | - |
| 3 | The SS transmits an RRCReconfiguration message to reconfigure SDAP entity of the established SL DRB associated to the PC5 unicast link between the UE and the NR-SS-UE1 to sl-SDAP-Header = absent. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 4 | The UE transmits an RRCReconfigurationComplete message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 5 | The UE transmits an *RRCReconfigurationSidelink* message to reconfigure the established SL DRB associated to the PC5 unicast link between the UE and the NR-SS-UE1. | --> | PC5 RRC: *RRCReconfigurationSidelink* | - | - |
| 6 | The NR-SS-UE1 transmits an RRCReconfigurationFailureSidelink message | <-- | PC5 RRC: *RRCReconfigurationFailureSidelink* | - | - |
| 7 | Check: Does the UE transmit a SidelinkUEInfomationNR message to inform NR Cell 1 the PC5 RRC reconfiguration failure? | --> | NR RRC: *SidelinkUEInfomationNR* | 1 | P |
| 8 | Check: Does the SDAP PDUs transmitted on the established SL DRB associated to the PC5 unicast link between the UE and the NR-SS-UE1 without SDAP header? | - | - | 1 | F |
| 9 | The SS transmits an OPEN UE TEST LOOP message to open UE test loop mode E. | <-- | NR RRC: *DLInformationTransfer*  TC: OPEN UE TEST LOOP | - | - |
| 10 | The UE transmits an OPEN UE TEST LOOP COMPLETE message | --> | NR RRC: *ULInformationTransfer*  TC: OPEN UE TEST LOOP COMPLETE | - | - |

12.2.8.1.3.3 Specific message contents

Table 12.2.8.1.3.3-1: CLOSE UE TEST LOOP (Table 12.2.8.1.3.2-1, Step 1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 36.508 [7] Table 4.7A-3 with condition UE TEST LOOP MODE E(V2X Transmission) | | | |
| Information Element | | Value/remark | Comment | Condition |
| UE test loop mode E LB setup | |  |  |  |
| Communication Transmit or Receive | | 0 0 0 0 0 0 0 1 | ‘01’ indicates V2X UE triggered to transmit NR sidelink communication with single spatial layer. |  |

Table 12.2.8.1.3.3-2: RRCReconfiguraion (Table 12.2.8.1.3.2-1, Step 3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 with condition SIDELINK | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| sl-ConfigDedicatedNR-r16 CHOICE { | |  |  |  |
| setup | | SL-ConfigDedicatedNR | Table 12.2.8.1.3.3-3 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.8.1.3.3-3: SL-ConfigDedicatedNR (Table 12.2.8.1.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-7 with condition SL\_DRB | | | |
| Information Element | | Value/remark | Comment | Condition |
| SL-ConfigDedicatedNR-r16 ::= SEQUENCE { | |  |  |  |
| sl-RadioBearerToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SL-RadioBearerConfig-r16 { | | 1 entry |  |  |
| SL-RadioBearerConfig-r16[1] SEQUENCE { | |  | Entry 1 |  |
| slrb-Uu-ConfigIndex-r16 | | n | n is the SLRB-Uu-ConfigIndex of the SL-DRB associated with the PC5 unicast link between the UE and NR-SS-UE1 |  |
| sl-SDAP-Config-r16 SEQUENCE { | |  |  |  |
| sl-SDAP-Header-r16 | | absent |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.8.1.3.3-4: RRCReconfigurationSidelink (Table 12.2.8.1.3.2-1, Step 5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-3 with condition TX and SL\_DRB | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { | |  |  |  |
| slrb-ConfigToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-Config-r16 { | | 1 entry |  |  |
| SLRB-Config-r16[1] SEQUENCE { | |  | entry 1 |  |
| sl-SDAP-ConfigPC5-r16 SEQUENCE { | |  |  |  |
| sl-MappedQoS-FlowsToAddList-r16 | | Not checked |  |  |
| sl-SDAP-Header-r16 | | absent |  |  |
| } | |  |  |  |
| sl-PDCP-ConfigPC5-r16 | | Not checked |  |  |
| sl-RLC-ConfigPC5-r16 | | Not checked |  |  |
| sl-MAC-LogicalChannelConfigPC5-r16 | | Not checked |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.8.1.3.3-5: RRCReconfigurationFailureSidelink (Table 12.2.8.1.3.2-1, Step 6)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-5 with condition RX |

Table 12.2.8.1.3.3-6: SidelinkUEInformationNR (Table 12.2.8.1.3.2-1, Step 7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-28A with condition SIDELINK\_TX | | | |
| Information Element | | Value/remark | Comment | Condition |
| SidelinkUEInformationNR-r16 ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| sidelinkUEInformationNR-r16 SEQUENCE { | |  |  |  |
| sl-FailureList-r16 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-Failure-r16 { | | 1 entry |  |  |
| SL-Failure-r16[1] SEQUENCE { | |  |  |  |
| sl-DestinationIdentity-r16 | | SL-DestinationIdentity of NR-SS-UE1 |  |  |
| sl-Failure-r16 | | configFailure |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

#### 12.2.8.2 Inter-carrier concurrent operation / Sidelink failure / PC5 RRC Reconfiguration Failure / Peer UE side

12.2.8.2.1 Test Purpose (TP)

(1)

**with** { UE in NR RRC\_CONNECTED and having established PC5-RRC connection with peer UE on unicast sidelink }

**ensure that** {

**when** { UE receives an RRCReconfigurationSidelink that UE cannot comply from peer UE }

**then** { UE continues to use the configuration used prior to the reception of the RRCReconfigurationSidelink message and sends a RRCReconfigurationFailureSidelink message }

}

12.2.8.2.2 Conformance requirements

References: The conformance requirements covered in the current TC are specified in: TS 38.331, clause 5.8.9.1.3. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.9.1.3]

The UE shall perform the following actions upon reception of the *RRCReconfigurationSidelink*:

…

1> if the UE is unable to comply with (part of) the configuration included in the *RRCReconfigurationSidelink* (i.e. sidelink RRC reconfiguration failure):

2> continue using the configuration used prior to the reception of the *RRCReconfigurationSidelink* message;

2> set the content of the *RRCReconfigurationFailureSidelink* message;

3> submit the *RRCReconfigurationFailureSidelink* message to lower layers for transmission;

…

NOTE 1: When the same logical channel is configured with different RLC mode by another UE, the UE handles the case as sidelink RRC reconfiguration failure.

12.2.8.2.3 Test description

12.2.8.2.3.1 Pre-test conditions

System Simulator:

- SS-NW

- NR Cell 1

- System information combination 14 as defined in TS 38.508-1 [4] clause 4.4.3.1 is used in NR Cell 1.

- NR-SS-UE

- NR-SS-UE1: Operating as NR sidelink communication transmitting and receiving device on the resources that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 uses GNSS as the synchronization reference source.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

- The UE uses GNSS as the synchronization reference source.

Preamble:

- The UE is in state 3N-B RRC\_CONNECTED\_with\_SL as defined in TS 38.508-1 [4] subclause 4.4A on NR Cell 1, using generic parameters Sidelink (*On*), Cast Type (*Unicast*), GNSS Sync (*On*) and NR-SS-UE1 initiated unicast mode NR sidelink communication procedure in subclause 4.9.23.

12.2.8.2.3.2 Test procedure sequence

Table 12.2.8.2.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The NR-SS-UE1 transmits a *RRCReconfigurationSidelink* message that UE cannot comply on SL-SRB3. | <-- | PC5 RRC: RRCReconfigurationSidelink | - | - |
| 2 | Check: Does the UE transmit a *RRCReconfigurationFailureSidelink* message on SL-SRB3? | --> | PC5 RRC: RRCReconfigurationFailureSidelink | 1 | P |
| 3 | Check: Does the test result of generic test procedure in TS 38.508-1 subclause 4.9.31 indicate the UE still has SL-DRB configured in preamble? | - | - | 1 | - |

12.2.8.2.3.3 Specific message contents

Table 12.2.8.2.3.3-1: *RRCReconfigurationSidelink* (step 1, Table 12.2.8.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 with condition RX | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| slrb-ConfigToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-PC5-ConfigIndex-r16 { | 1 entry |  |  |
| SLRB-PC5-ConfigIndex-r16 [1] | 2 | Index value to refer to a different value than TS 38.508-1[4] Table 4.6.6-37 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 12.2.8.2.3.3-2: *RRCReconfigurationFailureSidelink* (step 2, Table 12.2.8.2.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-5 with condition TX |

#### 12.2.8.3 Inter-carrier concurrent operation / Sidelink failure / Sidelink radio link failure / transmission side

12.2.8.3.1 Test Purpose (TP)

(1)

**with** { UE is in connected state. UE has established PC5 RRC connection with peer UE on unicast sidelink and has sent an RRCReconfigurationSidelink message to peer UE }

**ensure that** {

**when** { UE doesn't receive RRCReconfigurationCompleteSidelink or RRCReconfigurationFailure before T400 expires. }

**then** { UE releases PC5-RRC connection and indicates the release to upper layer and sends a SidelinkUEInformationNR message to indicate SL RLF. }

}

(2)

**with** { UE is in connected state. UE has established PC5 RRC connection with peer UE on unicast sidelink and has established a AM SL DRB }

**ensure that** {

**when** { Retransmission number of the AM SL DRB reaches the maximum number of retransmissions. }

**then** { UE releases PC5-RRC connection and indicates the release to upper layer and sends a SidelinkUEInformationNR message to indicate SL RLF. }

}

(3)

**with** { UE is in connected state. UE has established PC5 RRC connection with peer UE on unicast sidelink. }

**ensure that** {

**when** { MAC detects that maximum number of consecutive HARQ DTX has been reached. }

**then** { UE releases PC5-RRC connection and indicates the release to upper layer and sends a SidelinkUEInformationNR message to indicate SL RLF. }

}

12.2.8.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331 [22], subclause 5.8.9.1, 5.8.10.2, 5.8.10.3, 5.8.10.4 and 5.8.10.5. Unless otherwise stated these are Rel-16 requirements.

[TS 38.331, clause 5.8.9.1.1]



Figure 5.8.9.1.1-1: Sidelink RRC reconfiguration, successful



Figure 5.8.9.1.1-2: Sidelink RRC reconfiguration, failure

The purpose of this procedure is to modify a PC5-RRC connection, e.g. to establish/modify/release sidelink DRBs, to (re-)configure NR sidelink measurement and reporting, to (re-)configure sidelink CSI reference signal resources and CSI reporting latency bound.

The UE may initiate the sidelink RRC reconfiguration procedure and perform the operation in sub-clause 5.8.9.1.2 on the corresponding PC5-RRC connection in following cases:

- the release of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.1;

- the establishment of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.2;

- the modification for the parameters included in *SLRB-Config* of sidelink DRBs associated with the peer UE, as specified in sub-clause 5.8.9.1a.2;

- the (re-)configuration of the peer UE to perform NR sidelink measurement and report.

- the (re-)configuration of the sidelink CSI reference signal resources and CSI reporting latency bound.

In RRC\_CONNECTED, the UE applies the NR sidelink communications parameters provided in *RRCReconfiguration* (if any). In RRC\_IDLE or RRC\_INACTIVE, the UE applies the NR sidelink communications parameters provided in system information (if any). For other cases, UEs apply the NR sidelink communications parameters provided in *SidelinkPreconfigNR* (if any). When UE performs state transition between above three cases, the UE applies the NR sidelink communications parameters provided in the new state, after acquisition of the new configurations. Before acquisition of the new configurations, UE continues applying the NR sidelink communications parameters provided in the old state.

[TS 38.331, clause 5.8.9.1.2]

The UE shall set the contents of *RRCReconfigurationSidelink* message as follows:

…

1> start timer T400 for the destination associated with the sidelink DRB;

…

The UE shall submit the *RRCReconfigurationSidelink* message to lower layers for transmission.

[TS 38.331, clause 5.8.9.3]

The UE shall:

1> upon indication from sidelink RLC entity that the maximum number of retransmissions for a specific destination has been reached; or

1> upon T400 expiry for a specific destination; or

1> upon indication from MAC entity that the maximum number of consecutive HARQ DTX for a specific destination has been reached; or

1> upon integrity check failure indication from sidelink PDCP entity concerning SL-SRB2 or SL-SRB3 for a specific destination:

2> consider sidelink radio link failure to be detected for this destination;

2> release the DRBs of this destination, in according to sub-clause 5.8.9.1a.1;

2> release the SRBs of this destination, in according to sub-clause 5.8.9.1a.3;

2> discard the NR sidelink communication related configuration of this destination;

2> reset the sidelink specific MAC of this destination;

2> consider the PC5-RRC connection is released for the destination;

2> indicate the release of the PC5-RRC connection to the upper layers for this destination (i.e. PC5 is unavailable);

2> if UE is in RRC\_CONNECTED:

3> perform the sidelink UE information for NR sidelink communication procedure, as specified in 5.8.3.3;

NOTE: It is up to UE implementation on whether and how to indicate to upper layers to maintain the keep-alive procedure [55].

[TS 38.331, clause 5.8.3.3]

The UE shall set the contents of the *SidelinkUEInformationNR* message as follows:

1> if the UE initiates the procedure to indicate it is (no more) interested to receive NR sidelink communication or to request (configuration/ release) of NR sidelink communication transmission resources or to report to the network that a sidelink radio link failure or sidelink RRC reconfiguration failure has been declared (i.e. UE includes all concerned information, irrespective of what triggered the procedure):

2> if *SIB12* including *sl-ConfigCommonNR* is provided by the PCell:

…

3> if configured by upper layers to transmit NR sidelink communication:

…

4> if a sidelink radio link failure or a sidelink RRC reconfiguration failure has been declared, according to clauses 5.8.9.3 and 5.8.9.1.8, respectively;

5> include *sl-FailureList* and set its fields as follows for each destination for which it reports the NR sidelink communication failure:

6> set *sl-DestinationIdentity* to the destination identity configured by upper layer for NR sidelink communication transmission;

6> if the sidelink RLF is detected as specified in sub-clause 5.8.9.3:

7> set *sl-Failure* as *rlf* for the associated destination for the NR sidelink communication transmission;

…

1> else:

2> submit the *SidelinkUEInformationNR* message to lower layers for transmission.

[TS 38.322, clause 5.3.2]

…

When an RLC SDU or an RLC SDU segment is considered for retransmission, the transmitting side of the AM RLC entity shall:

- if the RLC SDU or RLC SDU segment is considered for retransmission for the first time:

- set the RETX\_COUNT associated with the RLC SDU to zero.

- else, if it (the RLC SDU or the RLC SDU segment that is considered for retransmission) is not pending for retransmission already and the RETX\_COUNT associated with the RLC SDU has not been incremented due to another negative acknowledgment in the same STATUS PDU:

- increment the RETX\_COUNT.

- if RETX\_COUNT = *maxRetxThreshold*:

- indicate to upper layers that max retransmission has been reached.

…

[TS 38.321, clause 5.22.1.3.3]

The HARQ-based Sidelink RLF detection procedure is used to detect Sidelink RLF based on a number of consecutive DTX on PSFCH reception occasions for a PC5-RRC connection.

RRC configures the following parameter to control HARQ-based Sidelink RLF detection:

- *sl-maxNumConsecutiveDTX*.

The following UE variable is used for HARQ-based Sidelink RLF detection.

- *numConsecutiveDTX*, which is maintained for each PC5-RRC connection.

The Sidelink HARQ Entity shall (re-)initialize *numConsecutiveDTX* to zero for each PC5-RRC connection which has been established by upper layers, if any, upon establishment of the PC5-RRC connection or (re)configuration of *sl-maxNumConsecutiveDTX*.

The Sidelink HARQ Entity shall for each PSFCH reception occasion associated to the PSSCH transmission:

1> if PSFCH reception is absent on the PSFCH reception occasion:

2> increment *numConsecutiveDTX* by 1;

2> if *numConsecutiveDTX* reaches *sl-maxNumConsecutiveDTX*:

3> indicate HARQ-based Sidelink RLF detection to RRC.

1> else:

2> re-initialize *numConsecutiveDTX* to zero.

12.2.8.3.3 Test description

12.2.8.3.3.1 Pre-test conditions

System Simulator:

- NR Cell

- NR Cell 1 is the serving cell.

- System information combination NR-14 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

- NR-SS-UE

- NR-SS-UE 1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE 1 is synchronised on GNSS.

UE:

- UE is authorised to perform NR sidelink communication.

- UE is synchronised on GNSS.

- The UE is equipped with below information in UE or in a USIM containing default values (as per TS 38.508-1 [4]) except for those listed in Table 12.2.8.3.3.1-1.

Table 12.2.8.3.3.1-1: UE/ USIM configuration

|  |  |  |  |
| --- | --- | --- | --- |
| USIM field | Priority | Value | Access Technology Identifier |
| EFUST |  | As per TS 36.508 [18] clause 4.9.3.4 |  |
| EFVST |  | Service n°119 is "available" |  |
| EFV2XP\_PC5 |  | As per TS 38.508-1[4] clause 4.8.3.3.3  SL-PreconfigurationNR included in V2X data policy over PC5 is defined in 38.508-1 [4] Table 4.10.1-1 |  |

Preamble:

- The UE is in state 3N-B as defined in TS 38.508-1 [4], subclause 4.4A, using generic procedure parameter Sidelink (On), Unicast (On), and Test Mode (On) as defined in TS 38.508-1 [4], subclause 4.5.1 and using the UE initiated procedure to establish unicast link as defined in TS 38.508-1 [4] subclause 4.9.22.

12.2.8.3.3.2 Test procedure sequence

**Table 12.2.8.3.3.2-1: Main behaviour**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **St** | **Procedure** | **Message Sequence** | | **TP** | **Verdict** |
|  |  | **U - S** | **Message** |  |  |
| 1 | The SS transmits a CLOSE UE TEST LOOP message to close UE test loop mode E (Transmit Mode). | <-- | NR RRC: *DLInformationTransfer*  TC: CLOSE UE TEST LOOP | - | - |
| 2 | The UE transmits a CLOSE UE TEST LOOP COMPLETE message | --> | NR RRC: *ULInformationTransfer*  TC: CLOSE UE TEST LOOP COMPLETE | - | - |
| 2A | The UE starts to transmit on PC5 unicast link | - | - | - | - |
| 3 | The SS transmits an RRCReconfiguration message to reconfigure PC5 RRC connection between the UE and the NR-SS-UE 1 | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 4 | The UE transmits an RRCReconfigurationComplete message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 5 | The UE transmits an *RRCReconfigurationSidelink* message to reconfigure PC5 RRC connection between the UE and the NR-SS-UE 1.  NOTE: UE is expected to start timer T400 as specified in TS 38.331 clause 5.8.9.1.2. | --> | NR PC5 RRC: *RRCReconfigurationSidelink* | - | - |
| 6 | Void | - | - | - | - |
| 7 | Check: Does the UE transmit a SidelinkUEInfomationNR message after expiry of T400 to inform NR Cell 1 the sidelink radio link failure? | --> | NR RRC: *SidelinkUEInfomationNR* | 1 | P |
| 7A | Does UE send SDAP SDUs on SL DRB#n in the next 5 seconds? | - | - | - | F |
| 8 | The SS transmits an OPEN UE TEST LOOP message to open UE test loop mode E. | <-- | NR RRC: *DLInformationTransfer*  TC: OPEN UE TEST LOOP | - | - |
| 9 | The UE transmits an OPEN UE TEST LOOP COMPLETE message | --> | NR RRC: *ULInformationTransfer*  TC: OPEN UE TEST LOOP COMPLETE | - | - |
| 10 | Void | - | - | - | - |
| 11 | The SS performs the generic procedure specified in subclause 4.9.22 to establish PC5 unicast link between the UE and the NR-SS-UE 1. | - | - | - | - |
| 12 | The SS transmits a CLOSE UE TEST LOOP message to close UE test loop mode E (Transmit Mode). | <-- | NR RRC: *DLInformationTransfer*  TC: CLOSE UE TEST LOOP | - | - |
| 13 | The UE transmits a CLOSE UE TEST LOOP COMPLETE message | --> | NR RRC: *ULInformationTransfer*  TC: CLOSE UE TEST LOOP COMPLETE | - | - |
| 13A | The UE starts to transmit on PC5 unicast link | - | - | - | - |
| 14 | The NR-SS-UE 1 stops transmitting RLC acknowledgments for the RLC PDUs transmitted by the UE | - | - | - | - |
| 15 | Check: Does the UE transmit a SidelinkUEInfomationNR message to inform NR Cell 1 the sidelink radio link failure? | --> | NR RRC: *SidelinkUEInfomationNR* | 2 | P |
| 15A | Does UE send SDAP SDUs on SL DRB#n in the next 5 seconds? | - | - | 2 | F |
| 16 | The SS transmits an OPEN UE TEST LOOP message to open UE test loop mode E. | <-- | NR RRC: *DLInformationTransfer*  TC: OPEN UE TEST LOOP | - | - |
| 17 | The UE transmits an OPEN UE TEST LOOP COMPLETE message. | --> | NR RRC: *ULInformationTransfer*  TC: OPEN UE TEST LOOP COMPLETE | - | - |
| 18 | Void | - | - | - | - |
| 19 | The SS performs the generic procedure specified in subclause 4.9.22 to establish PC5 unicast link between the UE and the NR-SS-UE 1. | - | - | - | - |
| 20 | The SS transmits a CLOSE UE TEST LOOP message to close UE test loop mode E (Transmit Mode). | <-- | NR RRC: *DLInformationTransfer*  TC: CLOSE UE TEST LOOP | - | - |
| 21 | The UE transmits a CLOSE UE TEST LOOP COMPLETE message | --> | NR RRC: *ULInformationTransfer*  TC: CLOSE UE TEST LOOP COMPLETE | - | - |
| 21A | The UE starts to transmit on PC5 unicast link | - | - | - | - |
| 22 | The NR-SS-UE 1 stops transmitting HARQ ACK/NACK for the MAC PDUs transmitted by the UE. | - | - | - | - |
| 23 | Check: Does the UE transmit a SidelinkUEInfomationNR message to inform NR Cell 1 the sidelink radio link failure? | --> | NR RRC: *SidelinkUEInfomationNR* | 3 | P |
| 23A | Does UE send SDAP SDUs on SL DRB#n in the next 5 seconds? | - | - | 3 | F |
| 24 | The SS transmits an OPEN UE TEST LOOP message to open UE test loop mode E. | <-- | NR RRC: *DLInformationTransfer*  TC: OPEN UE TEST LOOP | - | - |
| 25 | The UE transmits an OPEN UE TEST LOOP COMPLETE message | --> | NR RRC: *ULInformationTransfer*  TC: OPEN UE TEST LOOP COMPLETE | - | - |
| 26 | Void | - | - | - | - |

12.2.8.3.3.3 Specific message contents

Table 12.2.8.3.3.3-1: CLOSE UE TEST LOOP (Table 12.2.8.3.3.2-1, Step 1, 12 and 20)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 36.508 [7] Table 4.7A-3 with condition UE TEST LOOP MODE E(V2X Transmission) | | | |
| Information Element | | Value/remark | Comment | Condition |
| UE test loop mode E LB setup | |  |  |  |
| Communication Transmit or Receive | | 0 0 0 0 0 0 0 1 | ‘01’ indicates V2X UE triggered to transmit NR sidelink communication with single spatial layer. |  |

Table 12.2.8.3.3.3-2: RRCReconfiguraion (Table 12.2.8.3.3.2-1, Step 3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 with condition SIDELINK | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| sl-ConfigDedicatedNR-r16 CHOICE { | |  |  |  |
| setup | | SL-ConfigDedicatedNR | Table 12.2.8.3.3.3-3 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.8.3.3.3-3: SL-ConfigDedicatedNR (Table 12.2.8.3.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.6-7 with condition SL\_DRB | | | |
| Information Element | | Value/remark | Comment | Condition |
| SL-ConfigDedicatedNR-r16 ::= SEQUENCE { | |  |  |  |
| sl-RadioBearerToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SL-RadioBearerConfig-r16 { | | 1 entry |  |  |
| SL-RadioBearerConfig-r16[1] SEQUENCE { | |  | Entry 1 |  |
| slrb-Uu-ConfigIndex-r16 | | 1 |  |  |
| sl-SDAP-Config-r16 SEQUENCE { | |  |  |  |
| sl-SDAP-Header-r16 | | absent |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.8.3.3.3-4: RRCReconfigurationSidelink (Table 12.2.8.3.3.2-1, Step 5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1A-3 with condition TX and SL\_DRB | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { | |  |  |  |
| slrb-ConfigToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-Config-r16 { | | 1 entry |  |  |
| SLRB-Config-r16[1] SEQUENCE { | |  | entry 1 |  |
| sl-SDAP-ConfigPC5-r16 SEQUENCE { | |  |  |  |
| sl-MappedQoS-FlowsToAddList-r16 | | Not checked |  |  |
| sl-SDAP-Header-r16 | | absent |  |  |
| } | |  |  |  |
| sl-PDCP-ConfigPC5-r16 | | Not checked |  |  |
| sl-RLC-ConfigPC5-r16 | | Not checked |  |  |
| sl-MAC-LogicalChannelConfigPC5-r16 | | Not checked |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 12.2.8.3.3.3-5: SidelinkUEInformationNR (Table 12.2.8.3.3.2-1, Step 7, 15 and 23)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-28A with condition SIDELINK\_TX | | | |
| Information Element | | Value/remark | Comment | Condition |
| SidelinkUEInformationNR-r16 ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| sidelinkUEInformationNR-r16 SEQUENCE { | |  |  |  |
| sl-FailureList-r16 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-Failure-r16 { | | 1 entry |  |  |
| SL-Failure-r16[1] SEQUENCE { | |  |  |  |
| sl-DestinationIdentity-r16 | | SL-DestinationIdentity of NR-SS-UE 1 |  |  |
| sl-Failure-r16 | | rlf |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

# 13 V2X NAS layer

## 13.1 V2X policy provisioning

### 13.1.1 V2X policy provisioning / Precedence / Validity timer expires / geographical area changes

13.1.1.1 Test Purpose (TP)

(1)

**with** { UE having V2XP over PC5 configured in the USIM and UE being out of NR network coverage }

**ensure that** {

**when** { UE is required to start NR V2X communication }

**then** { UE conducts V2X communication according to parameters of V2XP over PC5 from USIM }

}

(2)

**with** { UE having V2XP over PC5 configured in the USIM and UE being in NR network coverage }

**ensure that** {

**when** { UE receives V2XP over PC5 from SS and then NR cell is off }

**then** { UE conducts V2X communication according to parameters of V2XP over PC5 from SS }

}

(3)

**with** { UE having received V2XP over PC5 from SS }

**ensure that** {

**when** { Validity timer expires and NR cell is on }

**then** { UE initiates a UE-requested V2X policy provisioning procedure }

}

(4)

**with** { UE having received V2XP over PC5 from SS after UE initiates a UE-requested V2X policy provisioning procedure }

**ensure that** {

**when** { UE is located in the geographical area and UE is requested by a service to transmit a V2X packet }

**then** { UE initiates a V2X communication on the frequency associated with the service }

}

(5)

**with** { UE having initiated a V2X communication on the frequency associated with the service }

**ensure that** {

**when** { UE moves out of the geographical area }

**then** { UE cannot continue the V2X communication on the frequency associated with the service }

}

13.1.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.587, clauses 5.2.2 and 5.2.3. Unless otherwise stated these are Rel-16 requirements.

[TS 24.501, clause 5.2.2]

…

The UE shall use the V2X configuration parameters in the following order of decreasing precedence:

a) the V2X configuration parameters provided as a V2XP using the UE policy delivery service as specified in annex D of 3GPP TS 24.501 [6];

b) the V2X configuration parameters provided by a V2X application server via V1 reference point;

c) the V2X configuration parameters configured in the USIM; and

d) the V2X configuration parameters pre-configured in the ME.

[TS 24.501, clause 5.2.3]

The configuration parameters for V2X communication over PC5 consist of:

a) a validity timer for the validity of the configuration parameters for V2X communication over PC5;

b) a list of PLMNs and RATs in which the UE is authorized to use V2X communication over PC5 when the UE is served by E-UTRA or served by NR. Each entry of the list contains a PLMN ID and RATs in which the UE is authorized to use V2X communication over PC5;

c) an indication of whether the UE is authorized to use V2X communication over PC5 when the UE is not served by E-UTRA and not served by NR;

d) list of RATs in which the UE is authorized to use V2X communication over PC5 and the radio parameters of the RAT for V2X communication over PC5 applicable per geographical area with an indication of whether these radio parameters of the RAT are "operator managed" or "non-operator managed" when the UE is not served by E-UTRA and not served by NR;

e) void

f) optionally, a list of V2X service identifier to PC5 RAT(s) and Tx profiles mapping rules. Each mapping rule contains one or more V2X service identifiers, PC5 RAT(s) and, if the PC5 RAT(s) include E-UTRA-PC5, Tx profiles corresponding to the E-UTRA-PC5;

g) configuration parameters for privacy support, consisting of:

1) a list of V2X services requiring privacy. Each entry of the list contains one or more V2X service identifiers and one or more geographical areas where the privacy is required; and

2) a privacy timer value as specified in 3GPP TS 24.588 [7] clause 5.3;

h) configuration parameters for a V2X communication over PC5 in E-UTRA-PC5, consisting of:

1) a list of V2X service identifier to destination layer-2 ID mapping rules. Each mapping rule contains one or more V2X service identifiers and the destination layer-2 ID;

2) optionally, a default destination layer-2 ID;

3) a list of PPPP to PDB mapping rules. Each mapping rule contains a ProSe Per-Packet Priority (PPPP) and a Packet Delay Budget (PDB);

4) optionally, list of V2X service identifier to V2X E-UTRA frequency mapping rules. Each mapping rule contains one or more V2X service identifiers and the V2X E-UTRA frequencies with associated geographical areas; and

5) optionally, a list of the V2X services authorized for ProSe Per-Packet Reliability (PPPR). Each entry of the list contains one or more V2X service identifiers and a ProSe Per-Packet Reliability (PPPR) value; and

i) configuration parameters for a V2X communication over PC5 in NR-PC5, consisting of:

1) optionally, a list of V2X service identifier to V2X NR frequency mapping rules. Each mapping rule contains one or more V2X service identifiers and the V2X NR frequencies with associated geographical areas;

2) a list of V2X service identifier to destination layer-2 ID for broadcast mapping rules. Each mapping rule contains one or more V2X service identifiers and the destination layer-2 ID for broadcast;

3) optionally, a default destination layer-2 ID for broadcast;

4) a list of V2X service identifier to destination layer-2 ID for groupcast mapping rules. Each mapping rule contains one or more V2X service identifiers and the destination layer-2 ID for groupcast;

5) a list of V2X service identifier to default destination layer-2 ID for unicast initial signalling mapping rules. Each mapping rule contains one or more V2X service identifiers and the default destination layer-2 ID for initial signalling to establish unicast connection;

6) a list of V2X service identifier to PC5 QoS parameters mapping rules. The PC5 QoS parameters are specified in clause 5.4.2 of 3GPP TS 23.287 [3];

7) an AS configuration, including a list of SLRB mapping rules applicable when the UE is not served by E-UTRA and is not served by NR. Each SLRB mapping rule contains a PC5 QoS profile and an SLRB. The PC5 QoS profile contains the following parameters:

i) the PC5 QoS profile contains a PQI;

ii) if the PQI of the PC5 QoS profile identifies a GBR QoS, the PC5 QoS profile contains a PC5 flow bit rates consisting of a guaranteed flow bit rate (GFBR) and a maximum flow bit rate (MFBR);

iii) if the PQI of the PC5 QoS profile identifies a non-GBR QoS, the PC5 QoS profile contains the PC5 link aggregated bit rate consisting of a per link aggregate maximum bit rate (PC5 LINK-AMBR);

NOTE: PC5 link aggregated bit rate is only used for unicast mode communications over PC5.

iv) the PC5 QoS profile contains a range, which is only used for groupcast mode communications over PC5; and

v) the PC5 QoS profile can contain the priority level, the averaging window, and the maximum data burst volume. If one or more of the priority level, the averaging window or the maximum data burst volume are not contained in the PC5 QoS profile, their default values apply;

8) a list of NR-PC5 unicast security policies. Each entry in the list contains an NR-PC5 unicast security policy composed of:

i) one or more V2X service identifiers;

ii) the signalling integrity protection policy for the V2X service identifier(s);

iii) the signalling ciphering policy for the V2X service identifier(s);

iv) the user plane integrity protection policy for the V2X service identifier(s);

v) the user plane ciphering policy for the V2X service identifier(s); and

vi) one or more geographical areas where the NR-PC5 unicast security policy applies; and

9) a list of V2X service identifier to default mode of communication mapping rules. Each mapping rule contains one or more V2X service identifiers and the default mode of communication (one of unicast, groupcast or broadcast).

13.1.1.3 Test description

13.1.1.3.1 Pre-test conditions

SS-NW:

- NR Cell 1.

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.3 is used in NR Cell 1.

- 1 GNSS simulator

NR-SS-UE:

- NR-SS-UE 1 is as defined in TS 38.508-1 [4], configured for and operating as NR Sidelink Communication receiving device on the resources which the UE is expected to use for transmission.

- NR-SS-UE 1 is synchronised on GNSS.

UE:

- The UE is equipped with a USIM configuration as defined in clause 4.8.3.3.3 of TS 38.508-1 [4].

- UE is synchronised on GNSS.

Preamble:

- UE is brought to state 4-A, Out of Coverage (NR sidelink), in accordance with the procedure described in TS 38.508-1 [4], Table 4.5.7.2-1 using generic procedure parameter Sidelink (*On*), Cast Type (*unicast*), UE initiating unicast mode NR sidelink communication, Test Loop Function (On) with UE test loop mode E.

13.1.1.3.2 Test procedure sequence

Table 13.1.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The SS configures:  SS-NW  - NR Cell 1 as "Non-suitable "Off" cell" in accordance with TS 38.508-1 [4], Table 6.2.2.1-3.  - GNSS simulator is configured for Scenario #1. | - | - | - | - |
| 2 | Check: Does the UE continuously send STCH SDAP PDUs on SL DRB#n in every PSSCH duration with the resources pre-configured in SL-PreconfigurationNR IE with NRf1 test frequency for NR Sidelink in USIM? (Note 1)  NOTE: The UE has activated and closed test loop mode E in the preamble. | --> | V2X Data packet | 1 | P |
| 3 | Trigger the UE to open UE test loop mode E  NOTE: The UE test loop mode E may be opened by MMI or AT command (+CCUTLE). | - | - | - | - |
| 4 | Trigger the UE to deactivate UE test loop mode.  NOTE: The deactivation of UE test loop mode may be performed by MMI or AT command (+CATM). | - | - | - | - |
| 4A-4B | The NR-SS-UE1 releases unicast mode sidelink connection by executing steps 1-2 of Table 4.9.30.2.2-1 in TS 38.508-1 [4]. | - | - | - | - |
| 5 | The SS configures:  SS-NW  - NR Cell 1 as "Serving cell" in accordance with TS 38.508-1 [4], Table 6.2.2.1-3. | - | - | - | - |
| 6 | The UE performs Step 1-22a1 of Table 4.5.2.2-2 in TS 38.508-1 [4], with 'connected without release'. | - | - | - | - |
| 7 | SS-NW transmits a DL NAS TRANSPORT message containing a MANAGE UE POLICY COMMAND message to transfer the V2X policy to the UE. | <-- | 5GMM: DL NAS TRANSPORT  PCF: MANAGE UE POLICY COMMAND | - | - |
| 8 | The UE transmits a UL NAS TRANSPORT message containing a MANAGE UE POLICY COMPLETE message | --> | *5GMM: UL NAS TRANSPORT*  UE V2X: MANAGE UE POLICY COMPLETE | - | - |
| 8A | SS-NW transmits an RRCRelease message | <-- | *NR RRC: RRCRelease* | - | - |
| 9 | The SS configures:  SS-NW  - NR Cell 1 as "Non-suitable "Off" cell" in accordance with TS 38.508-1 [4], Table 6.2.2.1-3. | - | - | - | - |
| 10 | Trigger the UE to activate UE test loop mode  NOTE: The activation of UE test loop mode may be performed by MMI or AT command (+CATM). | - | - | - | - |
| 11 | Trigger the UE to close UE test loop mode E(transmission mode).  NOTE: The UE test loop mode E may be closed by MMI or AT command (+CCUTLE). | - | - | - | - |
| 11A-11F | The UE performs Steps 2-7 of Table 4.9.22.2.2-1 in TS 38.508-1 [4] to establish unicast mode NR sidelink communication on NRf2. | - | - | - | - |
| 12 | Check: Does the UE continuously send STCH SDAP PDUs on SL DRB#n in every PSSCH duration with the resources pre-configured in SL-PreconfigurationNR IE with NRf2 test frequency for NR Sidelink of V2X policy in step 7? (Note 1) | --> | V2X Data packet | 2 | P |
| 12A | Trigger the UE to open UE test loop mode E  NOTE: The UE test loop mode E may be opened by MMI or AT command (+CCUTLE). | - | - | - | - |
| 13A | Check: Does the UE transmit an *RRCSetupRequest* message within 30 seconds after step 7? | --> | NR RRC: *RRCSetupRequest* | 3 | P |
| 13B-13G | The UE performs Step 3-8 of Table 4.5.4.2-3 in TS 38.508-1 [4], with 'connected without release'. | - | - | - | - |
| 12B | Trigger the UE to deactivate UE test loop mode.  NOTE: The deactivation of UE test loop mode may be performed by MMI or AT command (+CATM). | - | - | - | - |
| 12C-12D | The NR-SS-UE1 releases unicast mode sidelink connection by executing steps 1-2 of Table 4.9.30.2.2-1 in TS 38.508-1 [4]. | - | - | - | - |
| 13 | The SS configures:  SS-NW  - NR Cell 1 as "Serving cell" in accordance with TS 38.508-1 [4], Table 6.2.2.1-3. | - | - | - | - |
| 14 | Check: Does the UE transmit a UL NAS TRANSPORT message containing a UE POLICY PROVISIONING REQUEST message ? | --> | *5GMM: UL NAS TRANSPORT*  UE V2X: UE POLICY PROVISIONING REQUEST | 3 | P |
| 15 | SS-NW transmits a DL NAS TRANSPORT message containing a MANAGE UE POLICY COMMAND message | <-- | 5GMM: DL NAS TRANSPORT  PCF: MANAGE UE POLICY COMMAND | - | - |
| 15A | The UE transmits a UL NAS TRANSPORT message containing a MANAGE UE POLICY COMPLETE message | --> | *5GMM: UL NAS TRANSPORT*  UE V2X: MANAGE UE POLICY COMPLETE | - | - |
| 15B | SS-NW transmits an RRCRelease message | <-- | *NR RRC: RRCRelease* | - | - |
| 16A | Trigger the UE to activate UE test loop mode  NOTE: The activation of UE test loop mode may be performed by MMI or AT command (+CATM). | - | - | - | - |
| 16B | Trigger the UE to close UE test loop mode E(transmission mode).  NOTE: The UE test loop mode E may be closed by MMI or AT command (+CCUTLE). | - | - | - | - |
| 16C-16H | The UE performs Steps 2-7 of Table 4.9.22.2.2-1 in TS 38.508-1 [4] to establish unicast mode NR sidelink communication on NRf3. | - | - | - | - |
| 16 | The SS configures:  SS-NW  - NR Cell 1 as "Non-suitable "Off" cell" in accordance with TS 38.508-1 [4], Table 6.2.2.1-3. | - | - | - | - |
| 17 | Trigger the UE to reset UTC time.  NOTE: The UTC time reset may be performed by MMI or AT command (+CUTCR). | - | - | - | - |
| 18 | SS configures:  GNSS simulator is configured for Scenario #2: move from inside Geographical area #1 to outside Geographical area #1, and starts step 1 to simulate a location in the centre of Geographical area #1 as defined in TS 38.508-1 [4] Table 4.11.2-2. Geographical area #1 is also pre-configured in the UE. | - | - | - | - |
| 19 | Check: Does the UE continuously send STCH SDAP PDUs on SL DRB#n in every PSSCH duration with the resources in SL-PreconfigurationNR IE with NRf3 test frequency for NR Sidelink of V2X policy in step 15? (Note 1) | --> | V2X Data packet | 4 | P |
| 20 | SS configures:  GNSS simulator is triggered to start step 2 of Scenario #2 to simulate the UE moving to a location outside Geographical area #1as defined in TS 38.508-1 [4] Table 4.11.2-2. The area outside Geographical area #1 is not pre-configured in the UE. | - | - | - | - |
| 21 | Wait for 71 sec (as detailed in TS 38.508-1 [4] Table 4.11.2-2) to allow the simulated location for the UE to leave Geographical area #1 and for the UE to acquire new location data. | - | - | - | - |
| 22 | Check: Does the UE continuously send STCH SDAP PDUs on SL DRB#n in every PSSCH duration with the resources in SL-PreconfigurationNR IE with NRf3 test frequency for NR Sidelink of V2X policy in step 15, in the next 10 seconds? | --> | V2X Data packet | 5 | F |
| 23 | Trigger the UE to open UE test loop mode E  NOTE: The UE test loop mode E may be opened by MMI or AT command (+CCUTLE). | - | - | - | - |
| 24 | Trigger the UE to deactivate UE test loop mode.  NOTE: The deactivation of UE test loop mode may be performed by MMI or AT command (+CATM). | - | - | - | - |
| Note 1: Although the UE is expected to transmit continuously, only one STCH SDAP SDU packet is shown explicitly in this step sequence. | | | | | |

13.1.1.3.3 Specific message contents

Table 13.1.1.3.3-0: DL NAS TRANSPORT (step 7, 15, Table 13.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.1-11 | | | |
| Information Element | | Value/remark | Comment | Condition |
| Payload container type | | ‘0101’B | UE policy container type |  |
| Payload container | | Set according to Table 13.1.1.3.3-1 |  |  |

Table 13.1.1.3.3-1: MANAGE UE POLICY COMMAND (step 7, 15, Table 13.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.6-1 | | | |
| Information Element | | Value/remark | Comment | Condition |
| UE policy section management list | |  |  |  |
| UE policy section management list contents | | 1 entry |  |  |
| UE policy section management sublist (PLMN-1) | |  |  |  |
| UE policy section management sublist contents | |  |  |  |
| Instruction 1 | |  |  |  |
| UE policy section contents | |  |  |  |
| UE policy part 1 | |  |  |  |
| UE policy part type | | ‘0011’B | V2XP |  |
| UE policy part contents | | See Table 13.1.1.3.3-2 |  |  |

Table 13.1.1.3.3-2: UE policy part contents (Table 13.1.1.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.5.4-1 | | | |
| Information Element | | Value/remark | Comment | Condition |
| UE policy part contents={V2XP contents} | | See Table 13.1.1.3.3-3 |  |  |

Table 13.1.1.3.3-3: V2XP contents (Table 13.1.1.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.5.4-2 | | | |
| Information Element | | Value/remark | Comment | Condition |
| V2XP info #1 | | See Table 13.1.1.3.3-4 |  |  |
| V2XP info #2 | | Not Present |  |  |

Table 13.1.1.3.3-4: V2XP info (Table 13.1.1.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.5.4-3 | | | |
| Information Element | | Value/remark | Comment | Condition |
| V2XP info contents | | See Table 13.1.1.3.3-5 |  |  |

Table 13.1.1.3.3-5: V2XP info = {UE policies for V2X communication over PC5} (Table 13.1.1.3.3-4)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.5.5-1 | | | |
| Information Element | | Value/remark | Comment | Condition |
| Validity timer | | 'FF FF FF FF FF FF FF FF FF FF'H | 5 bytes, Expiration UTC time of validity of the UE policies, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds) | Step 15 |
|  | | Current GNSS UTC time + 30 seconds |  | Step 7 |
| V2X service identifier to PC5 RAT and Tx profiles mapping rules | | See Table 4.7.5.5-12 in TS 38.508-1 [4] with condition NR-PC5 |  |  |
| Not served by E-UTRA and not served by NR | | See Table 13.1.1.3.3-6 |  |  |

Table 13.1.1.3.3-6: Not served by E-UTRA and not served by NR (Table 13.1.1.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.5.5-6 | | | |
| Information Element | | Value/remark | Comment | Condition |
| EPINENN | | '0'B | UE is not authorized to use V2X communication over E-UTRA-PC5 when not served by E-UTRA and not served by NR |  |
| E-UTRA radio parameters per geographical area list | | Not present |  |  |
| NR radio parameters per geographical area list | | See Table 13.1.1.3.3-7 |  |  |

Table 13.1.1.3.3-7: Radio parameters per geographical area list (Table 13.1.1.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.5.5-7 | | | |
| Information Element | | Value/remark | Comment | Condition |
| Radio parameters per geographical area info 1 | | See Table 13.1.1.3.3-8 |  |  |

Table 13.1.1.3.3-8: Radio parameters per geographical area info (Table 13.1.1.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation TS 38.508-1 [4] Table 4.7.5.5-8 | | | |
| Information Element | | Value/remark | Comment | Condition |
| Radio parameters | | See Table 13.1.1.3.3-9 |  |  |

Table 13.1.1.3.3-9: Radio parameters (Table 13.1.1.3.3-8)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.5.5-11 | | | |
| Information Element | | Value/remark | Comment | Condition |
| Radio parameters contents | | See Table 13.1.1.3.3-10 |  |  |

Table 13.1.1.3.3-10: SL-PreconfigurationNR (Table 13.1.1.3.3-9)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.10.1-1 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SL-PreconfigurationNR-r16 ::= SEQUENCE { | |  |  |  |
| sidelinkPreconfigNR-r16 SEQUENCE { | |  |  |  |
| sl-PreconfigFreqInfoList-r16 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF { | | 1 entry |  |  |
| SL-FreqConfigCommon-r16[0] | | See Table 13.1.1.3.3-11 |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 13.1.1.3.3-11: SL-FreqConfigCommon (Table 13.1.1.3.3-10)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.6.6-11 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SL-FreqConfigCommon-r16 ::= SEQUENCE { | |  |  |  |
| sl-SCS-SpecificCarrierList-r16 SEQUENCE (SIZE (1..maxSCSs)) OF SCS-SpecificCarrier { | | 1 entry |  |  |
| SCS-SpecificCarrier[1] | | See Table 13.1.1.3.3-12 | entry 1 |  |
| } | |  |  |  |
| sl-AbsoluteFrequencyPointA-r16 | | sl-AbsoluteFrequencyPointA as defined for the SL NRf2 frequency | See TS 38.508-1 [4] Table 6.2.3.7-1. | Step 7 |
|  | | sl-AbsoluteFrequencyPointA as defined for the SL NRf3 frequency | See TS 38.508-1 [4] Table 6.2.3.7-1. | Step 15 |
| sl-AbsoluteFrequencySSB-r16 | | sl-AbsoluteFrequencySSB as defined for the SL NRf2 frequency | See TS 38.508-1 [4] Table 6.2.3.7-1. | Step 7 |
|  | | sl-AbsoluteFrequencySSB as defined for the SL NRf3 frequency | See TS 38.508-1 [4] Table 6.2.3.7-1. | Step 15 |
| } | |  |  |  |

Table 13.1.1.3.3-12: SCS-SpecificCarrier (Table 13.1.1.3.3-11)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.6.3-160 | | | |
| Information Element | Value/remark | Comment | Condition |
| SCS-SpecificCarrier ::= SEQUENCE { |  |  |  |
| offsetToCarrier | offsetToCarrier as defined for the SL NRf2 frequency | See TS 38.508-1 [4] Table 6.2.3.7-1. | Step 7 |
|  | offsetToCarrier as defined for the SL NRf3 frequency | See TS 38.508-1 [4] Table 6.2.3.7-1. | Step 15 |
| } |  |  |  |

Table 13.1.1.3.3-13: UL NAS TRANSPORT (step 8, 14, 15A Table 13.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.7.1-11 | | | |
| Information Element | | Value/remark | Comment | Condition |
| Payload container type | | ‘0101’B | UE policy container type |  |
| Payload container | | Set to MANAGE UE POLICY COMPLETE message |  | Step 8,15A |
|  | | Set to UE POLICY PROVISIONING REQUEST message |  | Step 14 |

## 13.2 PC5 unicast

### 13.2.1 PC5 unicast / link establishment / Reject / Conflict Layer 2 ID

13.2.1.1 Test Purpose (TP)

(1)

**with** { UE being out of coverage, Test loopback activated}

**ensure that** {

**when** { UE has a V2X packet to be transmitted over PC5 }

**then** { UE initiates PC5 unicast link establishment }

}

(2)

**with** { UE having transmitted PC5 unicast link establishment Request message }

**ensure that** {

**when** { The Layer 2 ID is conflicted }

**then** { the PC5 unicast link establishment procedure fails}

}

13.2.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.587 [FFS], subclause 6.1.2.2.2 and 6.1.2.2.5. Unless otherwise stated these are Rel-16 requirements.

[TS 24.587, subclause 6.1.2.2.2]

The initiating UE shall meet the following pre-conditions before initiating this procedure:

a) a request from upper layers to transmit the packet for V2X service over PC5;

b) the communication mode is unicast mode (e.g. pre-configured as specified in clause 5.2.3 or indicated by upper layers);

c) the link layer identifier for the initiating UE (i.e. layer-2 ID used for unicast communication) is available (e.g. pre-configured or self-assigned) and is not being used by other existing PC5 unicast links within the initiating UE;

d) the link layer identifier for the destination UE (i.e. the unicast layer-2 ID of the target UE or the broadcast layer-2 ID) is available to the initiating UE (e.g. pre-configured, obtained as specified in clause 5.2.3 or known via prior V2X communication);

NOTE 1: In the case where different V2X services are mapped to distinct default destination layer-2 IDs, when the initiating UE intends to establish a single unicast link that can be used for more than one V2X service identifiers, the UE can select any of the default destination layer-2 ID for unicast initial signalling.

[TS 24.587, subclause 6.1.2.2.5]

If the DIRECT LINK ESTABLISHMENT REQUEST message cannot be accepted, the target UE shall send a DIRECT LINK ESTABLISHMENT REJECT message. The DIRECT LINK ESTABLISHMENT REJECT message contains a PC5 signalling protocol cause IE set to one of the following cause values:

#1 direct communication to the target UE not allowed;

#3 conflict of layer-2 ID for unicast communication is detected;

#5 lack of resources for PC5 unicast link; or

#111 protocol error, unspecified.

…

For a received DIRECT LINK ESTABLISHMENT REQUEST message from a layer-2 ID (for unicast communication), if the target UE already has an existing link established to a UE using this layer-2 ID or is currently processing a DIRECT LINK ESTABLISHMENT REQUEST message from the same layer-2 ID, and with one of following parameters different from the existing link or the link for which the link establishment is in progress:

a) the source user info;

b) type of data (e.g. IP or non-IP); or

c) security policy,

the target UE shall send a DIRECT LINK ESTABLISHMENT REJECT message containing PC5 signalling protocol cause value #3 "conflict of layer-2 ID for unicast communication is detected".

NOTE: The type of data (e.g. IP or non-IP) is indicated by the optional IP address configuration IE included in the corresponding DIRECT LINK SECURITY MODE COMPLETE message, i.e. the type of data for the requested link is IP type if this IE is included, and the type of data for the requested link is non-IP if this IE is not included.

…

After sending the DIRECT LINK ESTABLISHMENT REJECT message, the target UE shall provide the following information along with the initiating UE's layer-2 ID for unicast communication and the target UE's layer-2 ID for unicast communication to the lower layer:

a) an indication of deactivation of the PC5 unicast security protection and deletion of security context for the PC5 unicast link, if applicable.

Upon receipt of the DIRECT LINK ESTABLISHMENT REJECT message, the initiating UE shall stop timer T5000 and abort the PC5 unicast link establishment procedure.

…

After receiving the DIRECT LINK ESTABLISHMENT REJECT message, the initiating UE shall provide the following information along with the initiating UE's layer-2 ID for unicast communication and the target UE's layer-2 ID for unicast communication to the lower layer:

a) an indication of deactivation of the PC5 unicast security protection and deletion of security context for the PC5 unicast link, if applicable.

13.2.1.3 Test description

13.2.1.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE 1 is synchronised on GNSS.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

- UE is synchronised on GNSS.

Preamble:

- The UE is in state 4-A and Test Mode (*On*), Test Loop Function (*Off*) as defined in TS 38.508-1 [4], Table 4.5.7.2-1 using generic procedure parameter Sidelink (*On*),Cast Type (*Unicast*), UE initiating unicast mode NR sidelink communication, GNSS Sync (*On*).

13.2.1.3.2 Test procedure sequence

Table 13.2.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The NR-SS-UE1 releases unicast mode sidelink connection by executing steps 1-2 of Table 4.9.30.2.2-1 in TS38.508-1 [4]. | - | - | - | - |
| 2 | Trigger UE to close UE test loop mode E(transmission mode).  NOTE: The UE test loop mode E may be closed by MMI or AT command (+CCUTLE). | - | - | - | - |
| 3 | The UE transmits a DIRECT LINK ESTABLISHMENT REQUEST message. | --> | PC5-S: DIRECT LINK ESTABLISHMENT REQUEST | 1 | P |
| 4 | The NR-SS-UE1 transmits a DIRECT LINK ESTABLISHMENT REJECT message with the PC5 signalling protocol cause set to 'conflict of layer-2 ID for unicast communication is detected'. | <-- | PC5-S: DIRECT LINK ESTABLISHMENT REJECT | - | - |
| 5 | The NR-SS-UE1 transmits a DIRECT LINK SECURITY MODE COMMAND message | <-- | PC5-S: DIRECT LINK SECURITY MODE COMMAND | - | - |
| - | EXCEPTION: Step 7 is optional and may occur during Step 6 | - | - | - | - |
| 6 | Check: Does the UE transmit a DIRECT LINK SECURITY MODE COMPLETE message in the next 5 seconds? | --> | PC5-S: DIRECT LINK SECURITY MODE COMPLETE | 2 | F |
| 7 | The UE sends a DIRECT LINK ESTABLISHMENT REQUEST message. | - | PC5-S: DIRECT LINK ESTABLISHMENT REQUEST | - | - |
| - | EXCEPTION: steps 8-13 are executed if UE has sent DIRECT LINK ESTABLISHMENT REQUEST message in step7. | - | - | - | - |
| 8-13 | Steps 3-8 of the procedure defined in Table 4.9.22.2.2-1 in TS 38.508-1 [4] is performed. | - | - | - | - |
| 14 | The SS sends AT COMMAND +CCUTLE to open test loop function. | - | - | - | - |

13.2.1.3.3 Specific message contents

Table 13.2.1.3.3-1: Message DIRECT LINK ESTABLISHMENT REQUEST (step 3, Table 13.2.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-7 with condition Tx |

Table 13.2.1.3.3-2: Message DIRECT LINK ESTABLISHMENT REJECT (step 4, Table 13.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-28 with condition Rx | | | |
| Information Element | Value/Remark | Comment | Condition |
| PC5 signalling protocol cause | '0000 0011'B | Conflict of layer-2 ID for unicast communication is detected |  |

Table 13.2.1.3.3-3: Message DIRECT LINK SECURITY MODE COMMAND (step 5, Table 13.2.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-18 with condition Rx |

Table 13.2.1.3.3-4: Message DIRECT LINK SECURITY MODE COMPLETE (step 6, Table 13.2.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-19 with condition Tx |

### 13.2.2 PC5 unicast / link Security Mode

13.2.2.1 Test Purpose (TP)

(1)

**with** { UE having received a DIRECT LINK SECURITY MODE COMMAND message }

**ensure that** {

**when** { The DIRECT LINK SECURITY MODE COMMAND message includes non matching UE security capabilities }

**then** { UE transmits a DIRECT LINK SECURITY MODE REJECT message }

}

13.2.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.587 [FFS], subclause 6.1.2.7.5. Unless otherwise stated these are Rel-16 requirements.

[TS 24.587, subclause 6.1.2.7.5]

If the DIRECT LINK SECURITY MODE COMMAND message cannot be accepted, the target UE shall send a DIRECT LINK SECURITY MODE REJECT message, and the target UE shall abort the ongoing procedure that triggered the initiation of the PC5 unicast link security mode control procedure unless the ongoing procedure is a PC5 unicast link establishment procedure and the Target user info is not included in the DIRECT LINK ESTABLISHMENT REQUEST message. The DIRECT LINK SECURITY MODE REJECT message contains a PC5 signalling protocol cause IE indicating one of the following cause values:

#7: integrity failure;

#8: UE security capabilities mismatch;

#9: LSBs of KNRP-sess ID conflict;

#10:UE PC5 unicast signalling security policy mismatch;

#11:lack of resources for PC5 unicast link; or

#111: protocol error, unspecified.

…

If the target UE detects that the received UE security capabilities IE in the DIRECT LINK SECURITY MODE COMMAND message has been altered compared to the latest values that the target UE sent to the initiating UE in the DIRECT LINK ESTABLISHMENT REQUEST message or DIRECT LINK REKEYING REQUEST message, the target UE shall include PC5 signalling protocol cause #8 "UE security capabilities mismatch" in the DIRECT LINK SECURITY MODE REJECT message.

…

After the DIRECT LINK SECURITY MODE REJECT message is generated, the target UE shall pass this message to the lower layers for transmission along with the initiating UE's layer-2 ID for unicast communication and the target UE's layer-2 ID for unicast communication.

Upon receipt of the DIRECT LINK SECURITY MODE REJECT message, the initiating UE shall stop timer T5007, provide an indication to the lower layer of deactivation of the PC5 unicast security protection and deletion of security context for the PC5 unicast link, if applicable and:

a) if the PC5 signalling protocol cause IE in the DIRECT LINK SECURITY MODE REJECT message is set to #9 "LSBs of KNRP-sess ID conflict", retransmit the DIRECT LINK SECURITY MODE COMMAND message with a different value for the 8 LSBs of KNRP-sess ID and restart timer T5007; or

b) if the PC5 signalling protocol cause IE is set to the value other than #9 "LSBs of KNRP-sess ID conflict", abort the ongoing procedure that triggered the initiation of the PC5 unicast link security mode control procedure.

13.2.2.3 Test description

13.2.2.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE 1 is synchronised on GNSS.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

- UE is synchronised on GNSS.

Preamble:

- The UE is in state 4-A and Test Mode (*On*), Test Loop Function (*Off*) as defined in TS 38.508-1 [4] , Table 4.5.7.2-1 using generic procedure parameter Sidelink (*On*), Cast Type (*Unicast*), UE initiating unicast mode NR sidelink communication, GNSS Sync (*On*).

13.2.2.3.2 Test procedure sequence

Table 13.2.2.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The NR-SS-UE1 releases unicast mode sidelink connection by executing steps 1-2 of Table 4.9.30.2.2-1 in TS 38.508-1 [4]. | - | - | - | - |
| 2 | Trigger UE to close UE test loop mode E (transmission mode).  NOTE: The UE test loop mode E may be closed by MMI or AT command (+CCUTLE). | - | - | - | - |
| 3 | The UE transmits a DIRECT LINK ESTABLISHMENT REQUEST message. | --> | PC5-S: DIRECT LINK ESTABLISHMENT REQUEST | - | - |
| 4 | The NR-SS-UE1 transmits a DIRECT LINK SECURITY MODE COMMAND message including non matching UE security capabilities | <-- | PC5-S: DIRECT LINK SECURITY MODE COMMAND | - | - |
| 5 | The UE transmits a DIRECT LINK SECURITY MODE REJECT message with PC5 signalling protocol cause #8 UE security capabilities mismatch. | --> | PC5-S: DIRECT LINK SECURITY MODE REJECT | 1 | P |
| 6-12 | The UE establishes unicast mode sidelink connection by executing steps 2-8 of Table 4.9.22.2.2-1 in TS38.508-1 [4]. | - | - | - | - |
| 13 | Trigger UE to deactivate UE test loop mode.  NOTE: The deactivation of UE test loop mode may be performed by MMI or AT command (+CATM). | - | - | - | - |

13.2.2.3.3 Specific message contents

Table 13.2.2.3.3-1: Message DIRECT LINK ESTABLISHMENT REQUEST (step 3, Table 13.2.2.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-7 with condition Tx |

Table 13.2.2.3.3-2: Message DIRECT LINK SECURITY MODE COMMAND (step 4, Table 13.2.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-18 with condition Rx | | | |
| Information Element | Value/Remark | Comment | Condition |
| UE security capabilities |  |  |  |
| Length of UE security capabilities contents | '02'H |  |  |
| 5G-EA algorithms | '1100 0000'B | 5G-EA0 and 5G-EA1 supported |  |
| 5G-IA algorithms | '1100 0000'B | 5G-IA0 and 5G-IA1 supported |  |

Table 13.2.2.3.3-3: Message DIRECT LINK SECURITY MODE REJECT (step 5, Table 13.2.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-20 with condition Tx | | | |
| Information Element | Value/Remark | Comment | Condition |
| PC5 signalling protocol cause | '0000 1000'B | UE security capabilities mismatch |  |

### 13.2.3 PC5 unicast / Link modification

13.2.3.1 Test Purpose (TP)

(1)

**with** { UE having set up a V2X PDU session over PC5}

**ensure that** {

**when** { UE receives a DIRECT LINK MODIFICATION REQUEST to add a QoS flow to be used on an added unicast SL-DRB }

**then** { UE can communicate using the newly added QoS flow on added SL-DRB }

}

(2)

**with** { UE having set up a V2X PDU session over PC5}

**ensure that** {

**when** { UE receives a DIRECT LINK MODIFICATION REQUEST to modify a QoS flow associated with the SL-DRB}

**then** { UE can communicate on the SL-DRB using the newly modified QoS }

}

(3)

**with** { UE having set up a V2X PDU session over PC5}

**ensure that** {

**when** { UE receives a DIRECT LINK MODIFICATION REQUEST to delete a QoS flow and associated SL-DRB is released}

**then** { UE releases the SL-DRB and its associated QoS flow and sends the complete message}

}

13.2.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.587, subclause 6.1.2.3.2, 6.1.2.3.3. Unless otherwise stated these are Rel-16 requirements.

[TS 24.587, subclause 6.1.2.3.2]

The initiating UE shall meet the following pre-conditions before initiating this procedure for adding a new V2X service to the existing PC5 unicast link:

a) there is a PC5 unicast link between the initiating UE and the target UE; and

b) the pair of application layer IDs and the network layer protocol of this PC5 unicast link are identical to those required by the application layer in the initiating UE for this V2X service.

c) the security policy corresponding to the V2X service identifier (e.g. ITS-AID of the new V2X service) is aligned with the security policy of the existing PC5 unicast link.

After receiving the service data or request from the upper layers, the initiating UE shall perform the PC5 QoS flow match as apecified in clause 6.1.2.13. If there is no matched PC5 QoS flow, the initiating UE shall derive the PC5 QoS parameters and assign the PQFI(s) for the PC5 QoS flows(s) to be established as specified in clause 6.1.2.12.

If the PC5 unicast link modification procedure is to add new PC5 QoS flow(s) to the existing PC5 unicast link, the initiating UE shall create a DIRECT LINK MODIFICATION REQUEST message. In this message, initiating UE:

a) shall include the PQFI(s) and the corresponding PC5 QoS parameters, including the V2X service identifier(s); and

b) shall include the link modification operation code set to "add new PC5 QoS flow(s) to the existing PC5 unicast link ".

If the PC5 unicast link modification procedure is to modify the PC5 QoS parameters for existing PC5 QoS flow(s) in the existing PC5 unicast link, the initiating UE shall create a DIRECT LINK MODIFICATION REQUEST message. In this message, the initiating UE:

a) shall include the PQFI(s) and the corresponding PC5 QoS parameters, including the V2X service identifier(s); and

b) shall include the link modification operation code set to "modify PC5 QoS parameters of the existing PC5 QoS flow(s)".

If the PC5 unicast link modification procedure is to associate new V2X service(s) with existing PC5 QoS flow(s), the initiating UE shall create a DIRECT LINK MODIFICATION REQUEST message. In this message, the initiating UE:

a) shall include the PQFI(s) and the corresponding PC5 QoS parameters, including the V2X service identifier(s); and

b) shall include the link modification operation code set to "associate new V2X service(s) with existing PC5 QoS flow(s)".

If the PC5 unicast link modification procedure is to remove the associated V2X service(s) from existing PC5 QoS flow(s), the initiating UE shall create a DIRECT LINK MODIFICATION REQUEST message. In this message, the initiating UE:

a) shall include the PQFI(s) and the corresponding PC5 QoS parameters including the V2X service identifier(s); and

b) shall include the link modification operation code set to "remove V2X service(s) from existing PC5 QoS flow(s)".

If the PC5 unicast link modification procedure is to remove any PC5 QoS flow(s) from the existing PC5 unicast link, the initiating UE shall create a DIRECT LINK MODIFICATION REQUEST message. In this message, the initiating UE:

a) shall include the PQFI(s); and

b) shall include the link modification operation code set to "remove existing PC5 QoS flow(s) from the existing PC5 unicast link".

After the DIRECT LINK MODIFICATION REQUEST message is generated, the initiating UE shall pass this message to the lower layers for transmission along with the initiating UE's layer-2 ID for unicast communication and the target UE's layer-2 ID for unicast communication, and start timer T5001. The UE shall not send a new DIRECT LINK MODIFICATION REQUEST message to the same target UE while timer T5001 is running.



Figure 6.1.2.3.2: PC5 unicast link modification procedure

[TS 24.587, subclause 6.1.2.3.3]

If the DIRECT LINK MODIFICATION REQUEST message is accepted, the target UE shall respond with the DIRECT LINK MODIFICATION ACCEPT message.

If the DIRECT LINK MODIFICATION REQUEST message is to add a new V2X service, add new PC5 QoS flow(s) or modify any existing PC5 QoS flow(s) in the PC5 unicast link, the target UE shall include in the DIRECT LINK MODIFICATION ACCEPT message:

a) the PQFI(s), the corresponding PC5 QoS parameters and the V2X service identifier(s) that the target UE accepts.

If the DIRECT LINK MODIFICATION REQUEST message is to remove an existing V2X service from the PC5 unicast link, the target UE shall delete the V2X service identifier received in the DIRECT LINK MODIFICATION REQUEST message and the corresponding PQFI(s) and PC5 QoS parameters from the profile associated with the PC5 unicast link.

If the DIRECT LINK MODIFICATION REQUEST message is to remove existing PC5 QoS flow(s) from the PC5 unicast link, the target UE shall delete the PQFI(s) and the corresponding PC5 QoS parameters from the profile associated with the PC5 unicast link.

If the DIRECT LINK MODIFICATION REQUEST message is to add a new V2X service, add new PC5 QoS flow(s) or modify any existing PC5 QoS flow(s) in the PC5 unicast link, after sending the DIRECT LINK MODIFICATION ACCEPT message, the target UE shall provide the added or modified PQFI(s) and corresponding PC5 QoS parameters along with PC5 link identifier to the lower layer.

If the DIRECT LINK MODIFICATION REQUEST message is to remove an existing V2X service or to remove the existing PC5 QoS flow(s) from the PC5 unicast link, after sending the DIRECT LINK MODIFICATION ACCEPT message, the target UE shall provide the removed PQFI(s) along with the PC5 link identifier to the lower layer.

If the target UE accepts the PC5 unicast link modification request, then the target UE may perform the PC5 QoS flow establishment over PC5 unicast link as specified in clause 6.1.2.12 and perform the PC5 QoS flow match over PC5 unicast link as specified in clause 6.1.2.13.

13.2.3.3 Test description

13.2.3.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

- NR-SS-UE 1 is synchronised on GNSS.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

- UE is synchronised on GNSS.

Preamble:

- The UE is in state 4-A with Test Mode (*On*), Test Loop Function (*Off*) as defined in TS 38.508-1 [4], Table 4.5.7.2-1 using generic procedure parameter Sidelink (*On*), NR-SS-UE initiating unicast mode NR sidelink communication, Cast Type (*Unicast*), GNSS Sync (*On*).

13.2.3.3.2 Test procedure sequence

Table 13.2.3.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The NR-SS-UE1 transmits a DIRECT LINK MODIFICATION REQUEST to add a QoS flow | <-- | PC5-S: DIRECT LINK MODIFICATION REQUEST | - | - |
| 2 | Check: Does the UE transmit a DIRECT LINK MODIFICATION ACCEPT message? | --> | PC5-S: DIRECT LINK MODIFICATION ACCEPT | 1 | P |
| 3 | The NR-SS-UE sends a RRCReconfigurationSidelink message to establish a unicast mode SL-DRB#2. | <-- | PC5-RRC: RRCReconfigurationSidelink | - | - |
| 4 | Check: Does the UE send a RRCReconfigurationCompleteSidelink message? | --> | PC5-RRC: RRCReconfigurationCompleteSidelink | 1 | P |
| 5 | Check: Does the test result of generic test procedure in TS 38.508-1 subclause 4.9.31 indicate that the UE has user plane connectivity on SL-DRB#2? | - | - | 1 | - |
| 6 | The NR-SS-UE1 transmits a DIRECT LINK MODIFICATION REQUEST to modify the QoS flow associated with SL=DRB#2. | <-- | PC5-S: DIRECT LINK MODIFICATION REQUEST | - | - |
| 7 | Check: Does the UE transmit a DIRECT LINK MODIFICATION ACCEPT message? | --> | PC5-S: DIRECT LINK MODIFICATION ACCEPT | 2 | P |
| 8 | Check: Does the test result of generic test procedure in TS 38.508-1 subclause 4.9.31 indicate that the UE has user plane connectivity on SL-DRB#2? | - | - | 2 | - |
| 9 | The NR-SS-UE1 transmits a DIRECT LINK MODIFICATION REQUEST to release a QoS flow associated with SL=DRB#2 | <-- | PC5-S: DIRECT LINK MODIFICATION REQUEST | - | - |
| 10 | Check: Does the UE transmit a DIRECT LINK MODIFICATION ACCEPT message? | --> | PC5-S: DIRECT LINK MODIFICATION ACCEPT | 3 | P |
| 11 | The NR-SS-UE sends a RRCReconfigurationSidelink message to indicate release of unicast mode SL DRB. | <-- | PC5-RRC: RRCReconfigurationSidelink | - | - |
| 12 | Check: The UE sends a RRCReconfigurationSidelinkComplete message? | --> | PC5-RRC: RRCReconfigurationSidelinkComplete | 3 | P |

13.2.3.3.3 Specific message contents

Table 13.2.3.3.3-1: Message DIRECT LINK MODIFICATION REQUEST (step 1, Table 13.2.3.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-9 with condition Rx |

Table 13.2.3.3.3-2: Message DIRECT LINK MODIFICATION ACCEPT (step 2, Table 13.2.3.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-10 |

Table 13.2.3.3.3-3: RRCReconfigurationSidelink (step 3, Table 13.2.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 Conditions RX and SL\_DRB | | | |
| RRCReconfigurationSidelink ::= SEQUENCE { | |  |  |  | |
| criticalExtensions CHOICE { | |  |  |  | |
| rrcReconfigurationSidelink-r16 SEQUENCE { | |  |  |  | |
| slrb-ConfigToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-Config-r16 { | | 1 entry |  |  | |
| SLRB-Config-r16[1] SEQUENCE { | |  | entry 1 |  | |
| sl-SDAP-ConfigPC5-r16 SEQUENCE { | |  |  |  | |
| sl-MappedQoS-FlowsToAddList-r16 SEQUENCE (SIZE (1.. maxNrofSL-QFIsPerDest-r16)) OF SL-PQFI-r16 { | | 1 entry |  |  | |
| SL-PQFI-r16[1] | | 2 | entry 1 |  | |
| } | |  |  |  | |
| } | |  |  |  | |
| sl-MAC-LogicalChannelConfigPC5-r16 SEQUENCE { | |  |  |  | |
| sl-LogicalChannelIdentity-r16 | | LogicalChannelIdentity with condition DRB2 |  |  | |
| } | |  |  |  | |
| } | |  |  |  | |
| } | |  |  |  | |
| } | |  |  |  | |
| } | |  |  |  | |
| } | |  |  |  | |

Table 13.2.3.3.3-4: RRCReconfigurationSidelink (step 4, Table 13.2.3.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 Conditions RX and SL\_DRB |

Table 13.2.3.3.3-5: Message DIRECT LINK MODIFICATION REQUEST (step 6, Table 13.2.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-9 with condition Rx | | | |
| Information Element | | Value/remark | Comment | Condition | |
| Link modification operation code | | '0000 0100'B | Modify PC5 QoS parameters of the existing PC5 QoS flow(s) |  | |
| QoS flow descriptions | |  |  |  | |
| Length of PC5 QoS flow descriptions contents | | Set to the actual length of 'PC5 QoS flow descriptions contents' in bytes |  |  | |
| PC5 QoS flow description 1 | |  |  |  | |
| PQFI | | '00 0010'B |  |  | |
| Operation Code | | '011'B | Modify existing PC5 QoS flow description |  | |
| Number of parameters | | 5 |  |  | |
| E | | 1 | parameters list is included |  | |
| Associated V2X service identifiers | |  |  |  | |
| Length of V2X service identifier contents | | '04'H |  |  | |
| V2X service identifier 1 | | '00 00 00 02'H |  |  | |
| Parameters list | |  |  |  | |
| Parameter 1 | |  |  |  | |
| Parameter identifier | | '01'H | PQI |  | |
| Length of parameter contents | | 1 |  |  | |
| Parameter contents | | 23 | Platooning between UEs, See Table 5.4.4-1 in TS 23.287[xx] |  | |
| Parameter 2 | |  |  |  | |
| Parameter identifier | | '02'H | GFBR |  | |
| Length of parameter contents | | 3 |  |  | |
| Parameter contents | | '0000 0111 0000 0000 0000 1100'B | 12 \* 4Mbps = 48Mbps. |  | |
| Parameter 3 | |  |  |  | |
| Parameter identifier | | '03'H | MFBR |  | |
| Length of parameter contents | | 3 |  |  | |
| Parameter contents | | '0000 0111 0000 0000 0001 1000'B | 24 \* 4Mbps = 96Mbps. |  | |
| Parameter 4 | |  |  |  | |
| Parameter identifier | | '04'H | Averaging window |  | |
| Length of parameter contents | | 2 |  |  | |
| Parameter contents | | '0000 0111 1101 0000'B | 2000ms |  | |
| Parameter 5 | |  |  |  | |
| Parameter identifier | | '06'H | Default priority level |  | |
| Length of parameter contents | | 1 |  |  | |
| Parameter contents | | 3 |  |  | |

Table 13.2.3.3.3-6: Message DIRECT LINK MODIFICATION ACCEPT (step 7, Table 13.2.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-10 | | | |
| QoS flow descriptions | |  |  |  | |
| PC5 QoS flow descriptions IEI | | '79'H |  |  | |
| Length of PC5 QoS flow descriptions contents | | Set to the actual length of 'PC5 QoS flow descriptions contents' in bytes |  |  | |
| PC5 QoS flow description 1 | |  |  |  | |
| PQFI | | '00 0010'B |  |  | |
| Operation Code | | '011'B | Modify existing PC5 QoS flow description |  | |
| Number of parameters | | 5 |  |  | |
| E | | 1 | parameters list is included |  | |
| Associated V2X service identifiers | |  |  |  | |
| Length of V2X service identifier contents | | '04'H |  |  | |
| V2X service identifier 1 | | '00 00 00 02'H |  |  | |
| Parameters list | |  |  |  | |
| Parameter 1 | |  |  |  | |
| Parameter identifier | | '01'H | PQI |  | |
| Length of parameter contents | | 1 |  |  | |
| Parameter contents | | 23 | Platooning between UEs, See Table 5.4.4-1 in TS 23.287[xx] |  | |
| Parameter 2 | |  |  |  | |
| Parameter identifier | | '02'H | GFBR |  | |
| Length of parameter contents | | 3 |  |  | |
| Parameter contents | | '0000 0111 0000 0000 0000 1100'B | 12 \* 4Mbps = 48Mbps. |  | |
| Parameter 3 | |  |  |  | |
| Parameter identifier | | '03'H | MFBR |  | |
| Length of parameter contents | | 3 |  |  | |
| Parameter contents | | '0000 0111 0000 0000 0001 1000'B | 24 \* 4Mbps = 96Mbps. |  | |
| Parameter 4 | |  |  |  | |
| Parameter identifier | | '04'H | Averaging window |  | |
| Length of parameter contents | | 2 |  |  | |
| Parameter contents | | '0000 0111 1101 0000'B | 2000ms |  | |
| Parameter 5 | |  |  |  | |
| Parameter identifier | | '06'H | Default priority level |  | |
| Length of parameter contents | | 1 |  |  | |
| Parameter contents | | 3 |  |  | |

Table 13.2.3.3.3-7: Message DIRECT LINK MODIFICATION REQUEST (step 9, Table 13.2.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-9 with condition Rx | | | |
| Information Element | | Value/remark | Comment | Condition | |
| Link modification operation code | | '0000 0101'B | Remove existing PC5 QoS flow(s) from the existing PC5 unicast link |  | |
| QoS flow descriptions | |  |  |  | |
| Length of PC5 QoS flow descriptions contents | | Set to the actual length of 'PC5 QoS flow descriptions contents' in bytes |  |  | |
| PC5 QoS flow description 1 | |  |  |  | |
| PQFI | | '00 0010'B |  |  | |
| Operation Code | | '010'B | Delete existing PC5 QoS flow description |  | |
| Number of parameters | | 0 |  |  | |
| E | | 0 | parameters list is not included |  | |
| Associated V2X service identifiers | |  |  |  | |
| Length of V2X service identifier contents | | '04'H |  |  | |
| V2X service identifier 1 | | '00 00 00 02'H |  |  | |

Table 13.2.3.3.3-8: Message DIRECT LINK MODIFICATION ACCEPT (step 10, Table 13.2.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-10 with condition RX | | | |
| QoS flow descriptions | |  |  |  | |
| PC5 QoS flow descriptions IEI | | '79'H |  |  | |
| Length of PC5 QoS flow descriptions contents | | Set to the actual length of 'PC5 QoS flow descriptions contents' in bytes |  |  | |
| PC5 QoS flow description 1 | |  |  |  | |
| PQFI | | '00 0010'B |  |  | |
| Operation Code | | '010'B | Delete existing PC5 QoS flow description |  | |
| Number of parameters | | 0 |  |  | |
| E | | 0 | parameters list is not included |  | |
| Associated V2X service identifiers | |  |  |  | |
| Length of V2X service identifier contents | | '04'H |  |  | |
| V2X service identifier 1 | | '00 00 00 02'H |  |  | |

Table 13.2.3.3.3-9: RRCReconfigurationSidelink (step 11, Table Table 13.2.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 | | | |
| Information Element | Value/Remark | Comment | Condition |
| RRCReconfigurationSidelink ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfigurationSidelink-r16 SEQUENCE { |  |  |  |
| slrb-ConfigToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-PC5-ConfigIndex-r16 { | 1 entry |  |  |
| SLRB-PC5-ConfigIndex-r16 [1] | 2 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

### 13.2.4 PC5 unicast / link Release / Reestablish PC5 unicast link to same UE

13.2.4.1 Test Purpose (TP)

(1)

**with** { UE having established a V2X DIRECT LINK with a K\_NRP ID to a SS-UE, and released the DIRECT LINK after receiving a DIRECT LINK RELEASE REQUEST message }

**ensure that** {

**when** { UE has a V2X packet to be transmitted over PC5 to the same SS-UE }

**then** { UE transmits DIRECT LINK ESTABLISHMENT REQUEST }

}

13.2.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.587 , subclause 6.1.2.4.2, 6.1.2.4.4, 6.1.2.2.2. Unless otherwise stated these are Rel-16 requirements.

[TS 24.587, subclause 6.1.2.4.2]

The initiating UE shall initiate the procedure if a request from upper layers to release a PC5 unicast link with the target UE which uses a known layer-2 ID (for unicast communication) is received and there is an existing PC5 unicast link between these two UEs.

The initiating UE may initiate the procedure if the target UE has been non-responsive, e.g. no response in the PC5 unicast link modification procedure, PC5 unicast link identifier update procedure, PC5 unicast link re-keying procedure or PC5 unicast link keep-alive procedure.

The initiating UE may initiate the procedure to release an established PC5 unicast link if the UE has reached the maximum number of established PC5 unicast links and there is a need to establish a new PC5 unicast link. In this case, which PC5 unicast link is to be released is up to UE implementation.

The initiating UE may initiate the procedure to release an established PC5 unicast link upon expiry of the timer T5005.

In order to initiate the PC5 unicast link release procedure, the initiating UE shall create a DIRECT LINK RELEASE REQUEST message with a PC5 signalling protocol cause IE indicating one of the following cause values:

#1 direct communication with the target UE not allowed;

#2 direct communication to the target UE no longer needed;

#4 direct connection is not available anymore;

#5 lack of resources for PC5 unicast link; or

#111 protocol error, unspecified.

The initiating UE shall include the new MSB of KNRP ID in the DIRECT LINK RELEASE REQUEST message.

After the DIRECT LINK RELEASE REQUEST message is generated, the initiating UE shall pass this message to the lower layers for transmission along with the initiating UE's layer-2 ID for unicast communication and the target UE's layer-2 ID for unicast communication, and shall stop T5011 if running. The initiating UE shall start timer T5002.



Figure 6.1.2.4.2.1: PC5 unicast link release procedure

[TS 24.587, subclause 6.1.2.4.4]

Upon receipt of the DIRECT LINK RELEASE ACCEPT message, the initiating UE shall stop timer T5002 and shall release the PC5 unicast link by performing the following behaviors:

a) inform the lower layer along with the PC5 link identifier that the PC5 unicast link has been released; and

b) delete the PC5 unicast link context of the PC5 unicast link after an implementation specific time.

The initiating UE shall form the new KNRP ID from the MSB of KNRP ID included in the DIRECT LINK RELEASE REQUEST message and the LSB of KNRP ID received in the DIRECT LINK RELEASE ACCEPT message. The initiating UE shall replace the existing KNRP ID with the new KNRP ID. The initiating UE may include the new KNRP ID in DIRECT LINK ESTABLISHMENT REQUEST message with the target UE as specified in clause 6.1.2.2.2.

[TS 24.587, subclause 6.1.2.2.2]

The initiating UE shall meet the following pre-conditions before initiating this procedure:

a) a request from upper layers to transmit the packet for V2X service over PC5;

b) the communication mode is unicast mode (e.g. pre-configured as specified in clause 5.2.3 or indicated by upper layers);

c) the link layer identifier for the initiating UE (i.e. layer-2 ID used for unicast communication) is available (e.g. pre-configured or self-assigned) and is not being used by other existing PC5 unicast links within the initiating UE;

d) the link layer identifier for the destination UE (i.e. the unicast layer-2 ID of the target UE or the broadcast layer-2 ID) is available to the initiating UE (e.g. pre-configured, obtained as specified in clause 5.2.3 or known via prior V2X communication);

NOTE 1: In the case where different V2X services are mapped to distinct default destination layer-2 IDs, when the initiating UE intends to establish a single unicast link that can be used for more than one V2X service identifiers, the UE can select any of the default destination layer-2 ID for unicast initial signalling.

e) the initiating UE is either authorised for V2X communication over PC5 in NR-PC5 in the serving PLMN, or has a valid authorization for V2X communication over PC5 in NR-PC5 when not served by E-UTRA and not served by NR. The UE considers that it is not served by E-UTRA and not served by NR if the following conditions are met:

1) not served by NR and not served by E-UTRA for V2X communication over PC5;

2) in limited service state as specified in 3GPP TS 23.122 [2], if the reason for the UE being in limited service state is one of the following;

i) the UE is unable to find a suitable cell in the selected PLMN as specified in 3GPP TS 38.304 [9];

ii) the UE received a REGISTRATION REJECT message or a SERVICE REJECT message with the 5GMM cause #11 "PLMN not allowed" as specified in 3GPP TS 24.501 [6]; or

iii) the UE received a REGISTRATION REJECT message or a SERVICE REJECT message with the 5GMM cause #7 "5GS services not allowed" as specified in 3GPP TS 24.501 [6]; or

3) in limited service state as specified in 3GPP TS 23.122 [2] for reasons other than i), ii) or iii) above, and located in a geographical area for which the UE is provisioned with "non-operator managed" radio parameters as specified in clause 5.2.3;

f) there is no existing PC5 unicast link for the pair of peer application layer IDs, or there is an existing PC5 unicast link for the pair of peer application layer IDs and:

1) the network layer protocol of the existing PC5 unicast link is not identical to the network layer protocol required by the upper layer in the initiating UE for this V2X service; or

2) the security policy (either signalling security policy or user plane security policy) corresponding to the V2X service identifier is not compatible with the security policy of the existing PC5 unicast link; and

g) the number of established PC5 unicast links is less than the implementation-specific maximum number of established NR PC5 unicast links allowed in the UE at a time.

After receiving the service data or request from the upper layers, the initiating UE shall derive the PC5 QoS parameters and assign the PQFI(s) for the PC5 QoS flows(s) to be established as specified in clause 6.1.2.12.

In order to initiate the PC5 unicast link establishment procedure, the initiating UE shall create a DIRECT LINK ESTABLISHMENT REQUEST message. The initiating UE:

a) shall include the source user info set to the initiating UE’s application layer ID received from upper layers;

b) shall include the V2X service identifier(s) received from upper layer;

c) shall include the target user info set to the target UE’s application layer ID if received from upper layers or if the destination layer-2 ID is the unicast layer-2 ID of target UE;

d) shall include the Key establishment information container if the UE PC5 unicast signalling integrity protection policy is set to "signalling integrity protection required" or "signalling integrity protection preferred", and may include the Key establishment information container if the UE PC5 unicast signalling integrity protection policy is set to "signalling integrity protection not needed";

NOTE 2: The Key establishment information container is provided by upper layers.

e) shall include a Nonce\_1 set to the 128-bit nonce value generated by the initiating UE for the purpose of session key establishment over this PC5 unicast link if the UE PC5 unicast signalling integrity protection policy is set to "signalling integrity protection required" or "signalling integrity protection preferred";

f) shall include its UE security capabilities indicating the list of algorithms that the initiating UE supports for the security establishment of this PC5 unicast link;

g) shall include the 8 MSBs of KNRP-sess ID chosen by the initiating UE as specified in 3GPP TS 33.536 [20] if the UE PC5 unicast signalling integrity protection policy is set to "signalling integrity protection required" or "signalling integrity protection preferred";

h) may include a KNRP ID if the initiating UE has an existing KNRP for the target UE; and

i) shall include its UE PC5 unicast signalling security policy. In the case where the different V2X services are mapped to the different PC5 unicast signalling security policies, when the initiating UE intends to establish a single unicast link that can be used for more than one V2X service, each of the signalling security polices of those V2X services shall be compatible, e.g. "signalling integrity protection not needed" and "signalling integrity protection required" are not compatible.

After the DIRECT LINK ESTABLISHMENT REQUEST message is generated, the initiating UE shall pass this message to the lower layers for transmission along with the initiating UE's layer-2 ID for unicast communication and the destination layer-2 ID, and start timer T5000. The UE shall not send a new DIRECT LINK ESTABLISHMENT REQUEST message to the same target UE identified by the same application layer ID while timer T5000 is running. If the target user info IE is not included in the DIRECT LINK ESTABLISHMENT REQUEST message (i.e. V2X service oriented PC5 unicast link establishment procedure), the initiating UE shall handle multiple DIRECT LINK ESTABLISHMENT ACCEPT messages, if any, received from different target UEs for the establishment of multiple PC5 unicast links before the expiry of timer T5000.

NOTE 3: In order to ensure successful PC5 unicast link establishment, T5000 should be set to a value larger than the sum of T5006 and T5007.



Figure 6.1.2.2.2: UE oriented PC5 unicast link establishment procedure

Initiating UE

Target UEs

Start T5000

DIRECT LINK ESTABLISHMENT REQUEST

DIRECT LINK ESTABLISHMENT ACCEPT

T5000 expires

DIRECT LINK ESTABLISHMENT ACCEPT

Figure 6.1.2.2.3: V2X service oriented PC5 unicast link establishment procedure

13.2.4.3 Test description

13.2.4.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE 1 is synchronised on GNSS.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

- UE is synchronised on GNSS.

Preamble:

- The UE is in state 4-A with Test Mode (*On*), Test Loop Function (*Off*) as defined in TS 38.508-1 [4], Table 4.5.7.2-1 using generic procedure parameter Sidelink (*On*), NR-SS-UE initiating unicast mode NR sidelink communication, Cast Type (*Unicast*), GNSS Sync (*On*).

13.2.4.3.2 Test procedure sequence

Table 13.2.4.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The NR-SS-UE1 releases unicast mode sidelink connection by executing steps 1-2 of Table 4.9.30.2.2-1 in TS 38.508-1 [4]. | - | - | - | - |
| 2 | Trigger UE to close UE test loop mode E(transmission mode).  NOTE: The UE test loop mode E may be closed by MMI or AT command (+CCUTLE). | - | - | - | - |
| 3 | Check: Does the UE transmit a DIRECT LINK ESTABLISHMENT REQUEST message. | --> | PC5-S: DIRECT LINK ESTABLISHMENT REQUEST | 1 | P |
| 4 | The NR-SS-UE1 transmits a DIRECT LINK SECURITY MODE COMMAND message. | <-- | PC5-S: DIRECT LINK SECURITY MODE COMMAND |  |  |
| 5 | Check: Does the UE transmit a DIRECT LINK SECURITY MODE COMPLETE message. | --> | PC5-S: DIRECT LINK SECURITY MODE COMPLETE | - | - |
| 6 | The NR-SS-UE1 transmits a DIRECT LINK ESTABLISHMENT ACCEPT message. | <-- | PC5-S: DIRECT LINK ESTABLISHMENT ACCEPT | - | - |
| 7 | Check: Does the UE send an RRCReconfigurationSidelink message to establish a unicast mode SL-DRB? | --> | PC5-RRC: RRCReconfigurationSidelink | - | - |
| 8 | The NR-SS-UE sends an RRCReconfigurationCompleteSidelink message. | <-- | PC5-RRC: RRCReconfigurationCompleteSidelink | - | - |
| 9 | UE continuously sends SDAP SDUs on SL-DRB | - | - | - | - |
| 10 | Trigger UE to deactivate UE test loop mode.  NOTE: The deactivation of UE test loop mode may be performed by MMI or AT command (+CATM). | - | - | - | - |

13.2.4.3.3 Specific message contents

Table 13.2.4.3.3-1: Message DIRECT LINK ESTABLISHMENT REQUEST (step 3, Table 13.2.1.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-7 with condition Tx |

Table 13.2.4.3.3-2: Message DIRECT LINK SECURITY MODE COMMAND (step 4, Table 13.2.4.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-18 with condition Rx |

Table 13.2.4.3.3-3: Message DIRECT LINK SECURITY MODE COMPLETE (step 5, Table 13.2.4.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-19 with condition Tx |

Table 13.2.4.3.3-4: Message DIRECT LINK ESTABLISHMENT ACCEPT (step 6, Table 13.2.4.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-8 with condition Rx |

Table 13.2.4.3.3-5: RRCReconfigurationSidelink (step 7, Table 13.2.4.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-3 with condition TX |

Table 13.2.4.3.3-6: RRCReconfigurationCompleteSidelink (steps 8, Table 13.2.4.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.6.1A-4 with condition RX |

### 13.2.5 PC5 unicast / link identifier update

13.2.5.1 Test Purpose (TP)

(1)

**with** { UE having established a DIRECT LINK with Layer 2 ID-1 to a peer UE }

**ensure that** {

**when** { UE receives a DIRECT LINK IDENTIFIER UPDATE REQUEST message with same Layer 2 ID-1 but with user info different from the user info IE included in this message }

**then** { UE transmits a DIRECT LINK IDENTIFIER UPDATE REJECT message }

}

(2)

**with** { UE having established a DIRECT LINK with old Layer 2 ID-1 to a peer UE. UE receives a DIRECT LINK IDENTIFIER UPDATE REQUEST message and responds with a DIRECT LINK IDENTIFIER UPDATE ACCEPT message with new Layer 2 ID-2 }

**ensure that** {

**when** { UE receives a V2X packet from the peer UE }

**then** { the Layer 2 ID associated with the V2X packet is the old Layer 2 ID-1 }

}

(3)

**with** { UE having established a DIRECT LINK with old Layer 2 ID-1 to a peer UE. UE receives a DIRECT LINK IDENTIFIER UPDATE REQUEST message and responds with a DIRECT LINK IDENTIFIER UPDATE ACCEPT message with new Layer 2 ID-2 }

**ensure that** {

**when** { UE receives a DIRECT LINK IDENTIFIER UPDATE ACK message from the peer UE }

**then** { UE transmits a V2X packet and the Layer 2 ID associated with the V2X packet is the new Layer 2 ID-2 }

}

13.2.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.587, subclause 6.1.2.5.3, 6.1.2.5.4 and 6.1.2.5.6. Unless otherwise stated these are Rel-16 requirements.

[TS 24.587, subclause 6.1.2.5.3]

Upon receipt of a DIRECT LINK IDENTIFIER UPDATE REQUEST message, if the target UE determines:

a) the PC5 unicast link associated with this request message is still valid; and

b) the timer T5010 for the PC5 unicast link identified by this request message is not running,

then the target UE accepts this request, and responds with a DIRECT LINK IDENTIFIER UPDATE ACCEPT message.

The target UE shall create the DIRECT LINK IDENTIFIER UPDATE ACCEPT message. In this message, the target UE:

a) shall include the target UE's new layer-2 ID assigned by itself;

b) shall include the new LSB of KNRP-sess ID;

c) shall include the initiating UE's new MSB of KNRP-sess ID;

d) shall include the initiating UE's new layer-2 ID;

e) shall include the target UE's new application layer ID if received from upper layer;

f) shall include the initiating UE's new IP address/prefix if received from the initiating UE and IP communication is used;

g) shall include the initiating UE's new application layer ID if received from the initiating UE; and

h) shall include the target UE's new IP address/prefix if IP communication is used and changed.

After the DIRECT LINK IDENTIFIER UPDATE ACCEPT message is generated, the target UE shall pass this message to the lower layers for transmission along with the initiating UE's old layer-2 ID for unicast communication and the target UE's old layer-2 ID for unicast communication, and start timer T5010. The UE shall not send a new DIRECT LINK IDENTIFIER UPDATE ACCEPT message to the same initiating UE while timer T5010 is running.

Before target UE receives the traffic using the new layer-2 IDs, the target UE shall continue to receive the traffic with the old layer-2 IDs (i.e. initiating UE's old layer-2 ID and target UE's old layer-2 ID) from initiating UE.

Before target UE receives the DIRECT LINK IDENTIFIER UPDATE ACK message from initiating UE, the target UE shall keep sending traffic to the initiating UE using the old layer-2 IDs (i.e. initiating UE's old layer-2 ID for unicast communication and target UE's old layer-2 ID for unicast communication).

[24.587, subclause 6.1.2.5.4]

Upon receipt of the DIRECT LINK IDENTIFIER UPDATE ACCEPT message, the initiating UE shall stop timer T5009 and respond with a DIRECT LINK IDENTIFIER UPDATE ACK message. In this message, the initiating UE:

a) shall include the target UE's new layer-2 ID;

b) shall include the target UE's new LSB of KNRP-sess ID;

c) shall include the target UE's new application layer ID, if received; and

d) shall include the target UE's new IP address/prefix, if received.

After the DIRECT LINK IDENTIFIER UPDATE ACK message is generated, the initiating UE shall pass this message to the lower layers for transmission along with the initiating UE's old layer-2 ID for unicast communication and the target UE's old layer-2 ID for unicast communication and shall stop timer T5011 if running and start a timer T5011 as configured if at least one of V2X service identifiers for the PC5 unicast link satisfying the privacy requirements as specified in clause 5.2.3.

Upon sending the DIRECT LINK IDENTIFIER UPDATE ACK message, the initiating UE shall update the associated PC5 unicast link context with the new identifiers and pass the new layer-2 IDs (i.e. initiating UE's new layer-2 ID for unicast communication and target UE's new layer-2 ID for unicast communication if changed) along with the PC5 link identifier down to the lower layer. Then the initiating UE shall use the new layer-2 IDs (i.e. initiating UE's new layer-2 ID for unicast communication and target UE's new layer-2 ID for unicast communication if changed) to transmit the PC5 signalling message and PC5 user plane data.

The initiating UE shall continue to receive traffic with the old layer-2 IDs (i.e. initiating UE's old layer-2 ID for unicast communication and target UE's old layer-2 ID for unicast communication) from the target UE until it receives traffic with the new layer-2 IDs (i.e. initiating UE's new layer-2 ID and target UE's new layer-2 ID if changed) from the target UE.

[24.587, subclause 6.1.2.5.6]

If the DIRECT LINK IDENTIFIER UPDATE REQUEST message cannot be accepted, the target UE shall send a DIRECT LINK IDENTIFIER UPDATE REJECT message. The DIRECT LINK IDENTIFIER UPDATE REJECT message contains a PC5 signalling protocol cause IE set to one of the following cause values:

#3 conflict of layer-2 ID for unicast communication is detected; or

#111 protocol error, unspecified.

For a received DIRECT LINK IDENTIFIER UPDATE REQUEST message from a layer-2 ID (for unicast communication), if the target UE already has an existing link using this layer-2 ID or is currently processing a DIRECT LINK IDENTIFIER UPDATE REQUEST message from the same layer-2 ID, but with user info different from the user info IE included in this new incoming message, the target UE shall send a DIRECT LINK IDENTIFIER UPDATE REJECT message with PC5 signalling protocol cause value #3 "conflict of layer-2 ID for unicast communication is detected".

NOTE: After receiving the DIRECT LINK IDENTIFIER UPDATE REJECT message, whether the initiating UE initiates the PC5 unicast link release procedure or initiates another PC5 unicast link identifier update procedure with a new layer-2 ID depends on UE implementation.

For other reasons causing the failure of link identifier update, the target UE shall send a DIRECT LINK IDENTIFIER UPDATE REJECT message with PC5 signalling protocol cause value #111 "protocol error, unspecified".

Upon receipt of the DIRECT LINK IDENTIFIER UPDATE REJECT message, the initiating UE shall stop timer T5009 and abort this PC5 unicast link identifier update procedure.

13.2.5.3 Test description

13.2.5.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 uses GNSS as the synchronization reference source.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE uses GNSS as the synchronization reference source.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

Preamble:

- The UE is in state 4-A and Test Loop Function (*On*) with UE test loop mode E as defined in TS 38.508-1 [4], subclause 4.4A using generic procedure parameter Sidelink (*On*), Cast Type (*Unicast*), GNSS Sync (*On*) using NR-SS-UE initiated unicast mode NR sidelink communication procedure in subclause 4.9.23.

13.2.5.3.2 Test procedure sequence

Table 13.2.5.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
| U - S | Message |
| 1 | The NR-SS-UE1 transmits a DIRECT LINK IDENTIFIER UPDATE REQUEST message including new Layer 2 ID-2. | <-- | PC5-S: DIRECT LINK IDENTIFIER UPDATE REQUEST | - | - |
| 2 | The UE transmits a DIRECT LINK IDENTIFIER UPDATE ACCEPT message. | --> | PC5-S: DIRECT LINK IDENTIFIER UPDATE ACCEPT | - | - |
| 3 | Trigger the UE to close UE test loop mode E (Receive Mode).  NOTE: Closing of UE test loop mode E may be performed by MMI or AT command (+CCUTLE). | - | - | - | - |
| 4 | The NR-SS-UE1 transmits one V2X packet on old Layer 2 ID-1 to the UE.  NOTE: This step verifies TP2 - it is expected that the UE shall receive the packet - if they were received is checked in step 5.  FFS | <-- | V2X packet | - | - |
| 5 | Trigger the UE to report the counter of successful reception of V2X packet.  NOTE: Requesting the UE to report the counter of successful reception of V2X packet may be performed by MMI or AT command (+CUSPCREQ). | - | - | - | - |
| 6 | Check: Does the UE reported counter of successful reception of V2X packet? | - | - | 2 | P |
| 7 | The NR-SS-UE1 transmits a DIRECT LINK IDENTIFIER UPDATE ACK message. | <-- | PC5-S: DIRECT LINK IDENTIFIER UPDATE ACK | - | - |
| 8 | The NR-SS-UE1 transmits one V2X packet on new Layer 2 ID-2 to the UE.  NOTE: This step verifies TP3 - it is expected that the UE shall receive the packet - if they were received is checked in step 10. | <-- | V2X packet | - | - |
| 9 | Trigger the UE to report the counter of successful reception of V2X packet.  NOTE: Requesting the UE to report the counter of successful reception of V2X packet may be performed by MMI or AT command (+CUSPCREQ). | - | - | - | - |
| 10 | Check: Does the UE reported counter of successful reception of V2X packet? | - | - | 3 | P |
| 11 | Trigger the UE to open UE test loop mode E.  NOTE: Opening of UE test loop mode E may be performed by MMI or AT command (+CCUTLE). | - | - | - | - |
| 12 | The NR-SS-UE1 transmits a DIRECT LINK IDENTIFIER UPDATE REQUEST message including Layer 2 ID-2. | <-- | PC5-S: DIRECT LINK IDENTIFIER UPDATE REQUEST | - | - |
| 13 | Check: Does the UE transmit a DIRECT LINK IDENTIFIER UPDATE REJECT message? | --> | PC5-S: DIRECT LINK IDENTIFIER UPDATE REJECT | 1 | P |

13.2.5.3.3 Specific message contents

Table 13.2.5.3.3-1: DIRECT LINK IDENTIFIER UPDATE REQUEST (step 1 & 12, Table 13.2.5.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-23 with condition Rx | | | |
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| Source user info |  |  |  |
| Application Layer ID 1 | '00 00 05 00'H | New application Layer ID in initiating UE side | Step 12 |

Table 13.2.5.3.3-2: DIRECT LINK IDENTIFIER UPDATE ACCEPT (step 2, Table 13.2.5.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-24 with condition Tx |

Table 13.2.5.3.3-2A: DIRECT LINK IDENTIFIER UPDATE ACK (step 7, Table 13.2.5.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-25 with condition Rx |

Table 13.2.5.3.3-3: DIRECT LINK IDENTIFIER UPDATE REJECT (step 13, Table 13.2.5.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-26 with condition Tx | | | |
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| PC5 signalling protocol cause | '0000 0011'B | conflict of layer-2 ID for unicast communication is detected |  |

### 13.2.6 PC5 unicast / link keep alive

13.2.6.1 Test Purpose (TP)

(1)

**with** { UE having transmitted a DIRECT LINK KEEPALIVE REQUEST message with Keep-alive counter value of n }

**ensure that** {

**when** { UE does not receive DIRECT LINK KEEPALIVE RESPONSE message when T5004 expires }

**then** { UE re-transmits a DIRECT LINK KEEPALIVE REQUEST message with same Keep-alive counter value of n }

}

(2)

**with** { UE having received a first DIRECT LINK KEEPALIVE REQUEST message with Keep-alive counter value of n1, and UE having sent a DIRECT LINK KEEPALIVE RESPONSE message}

**ensure that** {

**when** { UE receives a second DIRECT LINK KEEPALIVE REQUEST message with Keep-alive counter value of n2 < n1}

**then** { UE does not transmit a DIRECT LINK KEEPALIVE RESPONSE message for the second DIRECT LINK KEEPALIVE REQUEST message}

}

(3)

**with** { UE having transmitted a message and having started T5003}

**ensure that** {

**when** { UE does not receive any message before T5003 expires }

**then** { UE transmits a DIRECT LINK KEEPALIVE REQUEST message}

}

13.2.6.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.587 [FFS], subclause 6.1.2.8.5.1 and 6.1.2.8.5.2. Unless otherwise stated these are Rel-16 requirements.

[TS 24.587, subclause 6.1.2.8.5.1]

a) Timer T5004 expires.

The initiating UE shall retransmit the DIRECT LINK KEEPALIVE REQUEST message with the last used value of the keep-alive counter and restart timer T5004. After reaching the maximum number of allowed retransmissions, the initiating UE shall abort the PC5 unicast link keep-alive procedure and locally release the PC5 unicast link.

NOTE: The maximum number of allowed retransmissions is UE implementation specific.

b) The need to use this PC5 unicast link no longer exists before the PC5 unicast link keep-alive procedure is completed.

The initiating UE shall abort the PC5 unicast link keep-alive procedure and initiate a PC5 unicast link release procedure.

c) The initiating UE receives a DIRECT LINK KEEPALIVE RESPONSE message with a keep-alive counter value different from the value which the initiating UE had included in the last sent DIRECT LINK KEEPALIVE REQUEST message.

The initiating UE shall discard the DIRECT LINK KEEPALIVE RESPONSE message.

d) The initiating UE receives a PC5 signalling message other than a DIRECT LINK KEEPALIVE RESPONSE message or PC5 user plane data from the target UE over this PC5 unicast link while timer T5004 is running.

The initiating UE shall stop timer T5004, abort the PC5 unicast link keep-alive procedure, start timer T5003 and increment the keep-alive counter for the PC5 unicast link.

e) The initiating UE receives a DIRECT LINK KEEPALIVE RESPONSE message when T5004 is not running.

The initiating UE shall discard the DIRECT LINK KEEPALIVE RESPONSE message.

[TS 24.587, subclause 6.1.2.8.5.2]

a) Timer T5005 expires.

The target UE shall:

1) initiate a PC5 unicast link keep-alive procedure to check the link; or

2) initiate the PC5 unicast link release procedure.

Whether the UE chooses 1) or 2) is left to UE implementation.

b) The target UE receives a DIRECT LINK KEEPALIVE REQUEST message with a keep-alive counter value lower than the value which the target UE had included in the last sent DIRECT LINK KEEPALIVE RESPONSE message.

The target UE shall discard the DIRECT LINK KEEPALIVE REQUEST message.

c) The target UE receives a DIRECT LINK KEEPALIVE REQUEST message if there is a pending PC5 signalling message or PC5 user plane data to be sent to the initiating UE over this PC5 unicast link.

The target UE:

1) shall pass this PC5 signalling message to the lower layers for transmission along with the target UE's layer-2 ID for unicast communication and the initiating UE's layer-2 ID for unicast communication, or perform the data transmission over PC5 unicast link as specified in clause 6.1.2.9; and

2) shall consider transmission of this PC5 signalling message or PC5 user plane data to be an implicit DIRECT LINK KEEPALIVE RESPONSE message and skip generating a DIRECT LINK KEEPALIVE RESPONSE message. If a maximum inactivity period is included in the DIRECT LINK KEEPALIVE REQUEST message, the target UE shall stop T5005, if running, and start T5005 with its value set to the maximum inactivity period.

13.2.6.3 Test description

13.2.6.3.1 Pre-test conditions

System Simulator:

- NR-SS-UE

- NR-SS-UE1 operating as NR sidelink communication device on the resources (i.e. the frequency included in pre-configuration) that UE is expected to use for transmission and reception via PC5 interface.

- NR-SS-UE1 is synchronised on GNSS.

- GNSS simulator

- The GNSS simulator is started and configured for Scenario #1.

UE:

- UE is authorised to perform NR sidelink communication.

- The UE is equipped with a USIM containing default values as per TS 38.508-1 [4] clause 4.8.3.3.3.

- UE is synchronised on GNSS.

Preamble:

- The UE is in state 4-A and Test Mode (*On*) , Test Loop Function(*Off*) as defined in TS 38.508-1 [4], Table 4.5.7.2-1 using generic procedure parameter Sidelink (*On*), NR-SS-UE initiating unicast mode NR sidelink communication , Cast Type (*Unicast*), GNSS Sync (*On*).

13.2.6.3.2 Test procedure sequence

Table 13.2.6.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The UE transmits a DIRECT LINK KEEPALIVE REQUEST message with keep-alive counter = 0. | --> | PC5-S: DIRECT LINK KEEPALIVE REQUEST | - | - |
| 2 | The NR-SS-UE1 waits 5 seconds (T5004=5s). | - | - | - | - |
| 3 | Check: Does the UE transmit a DIRECT LINK KEEPALIVE REQUEST message with keep-alive counter = 0? | --> | PC5-S: DIRECT LINK KEEPALIVE REQUEST | 1 | P |
| 4 | The NR-SS-UE1 transmits a DIRECT LINK KEEPALIVE RESPONSE message with keep-alive counter = 0. | <-- | PC5-S: DIRECT LINK KEEPALIVE RESPONSE | - | - |
| 4A | The NR-SS-UE1 waits 5 seconds (T5003=5s). | - | - | - | - |
| 4B | Check: Does the UE transmit a DIRECT LINK KEEPALIVE REQUEST message with keep-alive counter = 1? | --> | PC5-S: DIRECT LINK KEEPALIVE REQUEST | 3 | P |
| 4C | The NR-SS-UE1 transmits a DIRECT LINK KEEPALIVE RESPONSE message with keep-alive counter = 1. | <-- | PC5-S: DIRECT LINK KEEPALIVE RESPONSE | - | - |
| 5 | The NR-SS-UE1 waits 4 seconds (less than T5003 (5s)) | - | - | - | - |
| 6 | The NR-SS-UE1 transmits a DIRECT LINK KEEPALIVE REQUEST message with keep-alive counter = 0. | <-- | PC5-S: DIRECT LINK KEEPALIVE REQUEST | - | - |
| 7 | The UE transmits a DIRECT LINK KEEPALIVE RESPONSE message with keep-alive counter = 0. | --> | PC5-S: DIRECT LINK KEEPALIVE RESPONSE | - | - |
| 8 | The NR-SS-UE1 waits 4 seconds (less than T5003 (5s)) | - | - | - | - |
| 9 | The NR-SS-UE1 transmits a DIRECT LINK KEEPALIVE REQUEST message with keep-alive counter = 1. | <-- | PC5-S: DIRECT LINK KEEPALIVE REQUEST | - | - |
| 10 | The UE transmits a DIRECT LINK KEEPALIVE RESPONSE message with keep-alive counter = 1. | --> | PC5-S: DIRECT LINK KEEPALIVE RESPONSE | - | - |
| 11 | The NR-SS-UE1 waits 4 seconds (less than T5003 (5s)) | - | - | - | - |
| 12 | The NR-SS-UE1 transmits a DIRECT LINK KEEPALIVE REQUEST message with keep-alive counter = 0. | <-- | PC5-S: DIRECT LINK KEEPALIVE REQUEST | - | - |
| 13 | Check: Does the UE transmit a DIRECT LINK KEEPALIVE RESPONSE message in next 4 seconds? | --> | PC5-S: DIRECT LINK KEEPALIVE RESPONSE | 2 | F |

13.2.6.3.3 Specific message contents

Table 13.2.6.3.3-1: Message DIRECT LINK KEEPALIVE REQUEST (step 1, step3, step 4B Table 13.2.6.3.2-1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-13 with condition Tx | | | | |
| Information Element | Value/Remark | Comment | Condition |
| Keep-alive counter | '00 00 00 00'H | Step 1,Step 3 |  |
| '00 00 00 01'H | Step 4B |  |

Table 13.2.6.3.3-2: Message DIRECT LINK KEEPALIVE REQUEST (step 6, step12 Table 13.2.6.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-13 with condition Rx |

Table 13.2.6.3.3-3: Message DIRECT LINK KEEPALIVE REQUEST (step 9, Table 13.2.6.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-13 with condition Rx | | | |
| Information Element | Value/Remark | Comment | Condition |
| Keep-alive counter | '00 00 00 01'H |  |  |

Table 13.2.6.3.3-4: Message DIRECT LINK KEEPALIVE RESPONSE (step 4, step 4C Table 13.2.6.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-14 with condition Rx | | | |
| Information Element | Value/Remark | Comment | Condition |
| Keep-alive counter | '00 00 00 00'H | Step 4 |  |
|  | '00 00 00 01'H | Step 4C |  |

Table 13.2.6.3.3-5: Message DIRECT LINK KEEPALIVE RESPONSE (step 7, Table 13.2.6.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-14 with condition Tx | | | |
| Information Element | Value/Remark | Comment | Condition |
| Keep-alive counter | '00 00 00 00'H |  |  |

Table 13.2.6.3.3-5: Message DIRECT LINK KEEPALIVE RESPONSE (step 10, Table 13.2.6.3.2-1)

|  |
| --- |
| Derivation path: TS 38.508-1 [4], Table 4.7.4-14 with condition Tx |

# 14 MBS

## 14.1 MBS Broadcast

### 14.1.1 MBS Broadcast/ MCCH Information Acquisition

#### 14.1.1.1 MBS Broadcast/ MCCH Information Acquisition/ entering the cell providing SIB20

14.1.1.1.1 Test Purpose (TP)

(1)

***with*** { UE in switched off state and interested to receive MBS broadcast services }

ensure that {

***when*** { UE is switched on and camped on a cell providing SIB20 }

***then*** { UE acquires the MBSBroadcastConfiguration message at the next repetition period and starts MBS reception }

}

(2)

***with*** { UE in NR RRC\_IDLE state and receiving MBS broadcast services }

ensure that {

***when*** { UE reselects to a cell providing SIB20 }

***then*** { UE acquires the MBSBroadcastConfiguration message at the next repetition period and starts MBS reception }

}

(3)

***with*** { UE in NR RRC\_INACTIVE state and receiving MBS broadcast services }

ensure that {

***when*** { UE reselects to a cell providing SIB20 }

***then*** { UE acquires the MBSBroadcastConfiguration message at the next repetition period and starts MBS reception }

}

(4)

***with*** { UE in NR RRC\_CONNECTED state and receiving MBS broadcast services }

ensure that {

***when*** { UE handovers to a cell providing SIB20 }

***then*** { UE acquires the MBSBroadcastConfiguration message at the next repetition period and starts MBS reception }

}

(5)

***with*** { UE received SIB20 in a cell}

ensure that {

***when*** { MCCH is only scheduled in the slot indicated by *mcch-WindowStartSlot* }

***then*** { UE acquires the MBSBroadcastConfiguration message in the slot indicated by *mcch-WindowStartSlot* }

(6)

***with*** { UE received SIB20 in a cell}

ensure that {

***when*** { MCCH is scheduled starting from the slot indicated by *mcch-WindowStartSlot* and during *mcch-WindowDuration* (larger than 1 slot) }

***then*** { UE acquires the MBSBroadcastConfiguration message starting from the slot indicated by *mcch-WindowStartSlot* and during *mcch-WindowDuration* }

14.1.1.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.300, clause 16.10.6.2; TS 38.331, clauses 5.9.1.1, 5.9.1.2, 5.9.2.2 and 5.9.2.3. Unless otherwise stated these are Rel-17 requirements.

[TS 38.300, clause 16.10.6.2]

MBS broadcast can be received by UEs in RRC\_IDLE, RRC\_INACTIVE and RRC\_CONNECTED state. A UE can receive the MBS configuration for broadcast session (e.g., parameters needed for MTCH reception) via MCCH in RRC\_IDLE, RRC\_INACTIVE and RRC\_CONNECTED state. The parameters needed for the reception of MCCH are provided via System Information.

The following principles govern the MCCH structure:

- MCCH provides the list of all broadcast services with ongoing sessions transmitted on MTCH(s) and the associated information for broadcast session includes MBS session ID, associated G-RNTI scheduling information and information about neighbouring cells providing certain service on MTCH(s). MCCH content is transmitted within periodically occurring time domain windows, referred to as MCCH transmission window defined by MCCH repetition period, MCCH window duration and radio frame/slot offset;

…

[TS 38.331, clause 5.9.1.1]

UE receiving or interested to receive MBS broadcast service(s) applies MBS broadcast procedures described in this clause as well as the MBS Interest Indication procedure as specified in clause 5.9.4.

MBS broadcast configuration information is provided on MCCH logical channel. MCCH carries the *MBSBroadcastConfiguration* message which indicates the MBS broadcast sessions that are provided in the cell as well as the corresponding scheduling related information for these sessions. Optionally, the *MBSBroadcastConfiguration* message may also contain a list of neighbour cells providing the same broadcast MBS service(s) as provided in the current cell. The configuration information required by the UE to receive MCCH is provided in *SIB20*. Additionally, System Information provides also an information related to service continuity of MBS broadcast in *SIB21*.

[TS 38.331, clause 5.9.1.2]

The MCCH information (i.e. information transmitted in messages sent over MCCH) is transmitted periodically, using a configurable repetition period and within a configured transmission window. MCCH transmissions (and the associated radio resources and MCS) are indicated via the PDCCH addressed to MCCH-RNTI. PDCCH monitoring occasion(s) for MCCH transmission are determined according to the common search space indicated by *searchspaceMCCH*. If *searchspaceMCCH* is set to zero, PDCCH monitoring occasions for MCCH message reception in the MCCH transmission window are the same as PDCCH monitoring occasions for *SIB1* where the mapping between PDCCH monitoring occasions and SSBs is specified in TS 38.213[13]. If *searchspaceMCCH* is not set to zero, PDCCH monitoring occasions for MCCH message are determined based on search space indicated by *searchspaceMCCH*. PDCCH monitoring occasions for MCCH message which are not overlapping with UL symbols (determined according to *tdd-UL-DL-ConfigurationCommon*) are sequentially numbered from one in the MCCH transmission window.

[TS 38.331, clause 5.9.2.2]

A UE shall apply the MCCH information acquisition procedure upon becoming interested to receive MBS broadcast services. A UE interested to receive MBS broadcast services shall apply the MCCH information acquisition procedure upon entering the cell providing *SIB20* (e.g. upon power on, following UE mobility), upon receiving *SIB20* of an SCell via dedicated signalling and upon receiving a notification that the MCCH information has changed due to the start of new MBS service(s).

[TS 38.331, clause 5.9.2.3]

An MBS capable UE interested to receive or receiving an MBS broadcast service shall:

…

1> if the UE enters a cell broadcasting *SIB20*; or

1> if the UE receives *sCellSIB20*:

2> acquire the *MBSBroadcastConfiguration* message on MCCH in the concerned cell at the next repetition period.

14.1.1.1.3 Test description

14.1.1.1.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 (TAI-1) and NR Cell 2 (TAI-1).

- The SS configures the NR Cell 1 as the "Serving cell" and NR Cell 2 as "Non-suitable "Off" cell".

- System information combination NR-20 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cells.

UE:

- None.

Preamble:

- The UE is in state 0N-B as defined in TS 38.508-1 [4], subclause 4.4A.

- Before being switched off the UE is made interested in receiving MBS Broadcast service with MBS Service ID ‘000001’H

14.1.1.1.3.2 Test procedure sequence

Table 14.1.1.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The UE is switched on. | - | - | - | - |
| 2-21 | Steps 1 to 20a1 of the registration procedure described in TS 38.508-1 subclause 4.5.2.2-2 are performed on NR Cell 1 with condition UE TEST LOOP MODE C.  NOTE: The UE performs registration and activate test mode C and the RRC connection is released. | - |  | - | - |
| 22 | Wait for a period equal to the MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 1. (Note 1) | - | - | - | - |
| 23-31 | Steps 1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1 with condition UE TEST LOOP MODE C. | - | - | - | - |
| - | Exception: Step 32 is repeated 5 times | - | - | - | - |
| 32 | The SS transmits a MBS Packet on the MTCH with LCID=1 and g-RNTI = ’0001’H. | <-- | MBS Packet. | - | - |
| 33 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 34 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 35 | Check: Is the number of reported MBS Packets received on the MTCH in step 34 greater than zero? | - | - | 1,6 | P |
| 36 | The SS transmits an *RRCRelease* message. | <-- | NR RRC: *RRCRelease* | - | - |
| 37 | The SS configures:  -NR Cell 1 as the "Non-suitable cell".  -NR Cell 2 as the "Serving cell". | - | - | - | - |
| 38 | Wait for 34[FR1]/130[FR2] seconds.(Note 2) | - | - | - | - |
| 39 | Wait for a period equal to the MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 2. (Note 1) | - | - | - | - |
| - | Exception: Step 40 is repeated 5 times | - | - | - | - |
| 40 | The SS transmits a MBS Packet on the MTCH with LCID= 1 and g-RNTI = ’FFF2’H. | <-- | MBS Packet | - | - |
| 41-48 | Steps 1 to 8 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 2. | - | - | - | - |
| 49 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 50 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 51 | Check: Is the number of reported MBS Packets received on the MTCH in step 50 greater than the number of reported in step 34? | - | - | 2,6 | P |
| 52 | SS change NR Cell 1 system information | - | - | - | - |
| 53 | The SS configures:  -NR Cell 1 as the "Serving cell ".  -NR Cell 2 as the "Suitable neighbour intra-frequency cell ". |  |  |  |  |
| 54 | The SS transmits an *RRCReconfiguration* message including *reconfigurationWithSync* to order the UE to perform intra-frequency handover to NR Cell 1 | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 55 | Check: Does the UE transmit RRCReconfigurationComplete message in NR Cell 1? | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 56 | Wait for a scheduling period for SIB20. | - | - | - | - |
| 57 | Wait for a period equal to the MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 1. (Note 3) | - | - | - | - |
| - | Exception: Step 58 is repeated 5 times | - | - | - | - |
| 58 | The SS transmits a MBS Packet on the MTCH with LCID=1 and g-RNTI = ’0002’H | <-- | MBS Packet | - | - |
| 59 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 60 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 61 | Check: Is the number of reported MBS Packets received on the MTCH in step 60 greater than the number of reported in step 50? | - | - | 4,5 | P |
| - | EXCEPTION: Steps 62a1-62a13 describe behaviour that depends on UE configuration; the "lower case letter" identifies a step sequence that takes place if inactiveState is configured | - | - | - | - |
| 62a1 | IF pc\_inactiveState THEN the SS transmits an *RRCRelease* message with *suspendConfig*. | <-- | NR RRC: *RRCRelease* | - | - |
| 62a2 | SS change NR Cell 2 system information | - | - | - | - |
| 62a3 | The SS configures:  -NR Cell 1 as the "Non-suitable cell".  -NR Cell 2 as the "Serving cell". | - | - | - | - |
| 62a4 | Wait for 8[FR1]/27[FR2] seconds.(Note 2) | - | - | - | - |
| 62a5 | Wait for a period equal to the MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 2. (Note 3) | - | - | - | - |
| - | Exception: Step 67 is repeated 5 times | - | - | - | - |
| 62a6 | The SS transmits a MBS Packet on the MTCH with LCID=1 and g-RNTI = ’FFF1’H. | <-- | MBS Packet | - | - |
| 62a7 | The SS transmits a *Paging* message including a matched identity (correct *fullI-RNTI*). | <-- | NR RRC: *Paging* | - | - |
| 62a8 | The UE transmits an *RRCResumeRequest* message. | --> | NR RRC: *RRCResumeRequest* | - | - |
| 62a9 | The SS transmits an *RRCResume* message. | <-- | NR RRC: *RRCResume* | - | - |
| 62a10 | The UE transmits an *RRCResumeComplete* message. | --> | NR RRC: *RRCResumeComplete* | - | - |
| 62a11 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 62a12 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 62a13 | Check: Is the number of reported MBS Packets received on the MTCH in step 77 greater than the number of reported in step 60? | - | - | 3,5 | P |
| Note 1: MAC PDU for *MBSBroadcastConfiguration* is 15 bytes (12 bytes RLC SDU + 1 byte UMD PDU header + 2 bytes MAC sub Header) and DL assignments are set to 96 bits (LRBs & IMCS as per 38.523-3[3] annex B) so that *MBSBroadcastConfiguration* need to be sent in 2 slots.  Note 2: The wait time at steps 38 is the cell re-selection delay to a newly detectable cell, it can be expressed as: Tdetect,NR\_Intra (as per TS 38.133 [30], clause 4.2.2.3) plus the time to read the system information TSI-NR (1280ms).  Note 3: MAC PDU for *MBSBroadcastConfiguration* is 15 bytes (12 bytes RLC SDU + 1 byte UMD PDU header + 2 bytes MAC sub Header) and DL assignment is set to larger than 120 bits (LRBs & IMCS as per 38.523-3[3] annex B) so that *MBSBroadcastConfiguration* could to be sent in 1 slot.  Note 4: The wait time at steps 62a4 is the cell re-selection delay to an already detected cell, it can be expressed as: Tevaluate,NR\_Intra (as per TS 38.133 [30], clause 4.2.2.3) plus the time to read the system information TSI-NR (1280ms). | | | | | |

14.1.1.1.3.3 Specific message contents

Table 14.1.1.1.3.3-1: *SIB1* of NR Cell 1 and NR Cell 2 (preamble and all steps, Table 14.1.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-28 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SIB1 ::= SEQUENCE { | |  |  |  |
| servingCellConfigCommon | | ServingCellConfigCommonSIB | Table 14.1.1.1.3.3-2 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| si-SchedulingInfo-v1700 SEQUENCE (SIZE (1..maxSI-Message)) OF SchedulingInfo2-r17 { | | 1 entry |  |  |
| SchedulingInfo2-r17 [1] SEQUENCE { | |  | entry 1 |  |
| si-BroadcastStatus-r17 | | broadcasting |  |  |
| si-WindowPosition-r17 | | 2 | entry number for *si-SchedulingInfo* in *SIB1* +1 |  |
| si-Periodicity-r17 | | 64 |  |  |
| sib-MappingInfo-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-TypeInfo-v1700 { | | 1 entry |  |  |
| SIB-TypeInfo-v1700 [1] SEQUENCE { | |  | entry 1 |  |
| sibType-r17 CHOICE { | |  |  |  |
| type1-r17 | | sibType20 |  |  |
| } | |  |  |  |
| valueTag-r17 | | 0 |  |  |
|  | | 1 |  | step 52 and step 62a2 |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.1.1.1.3.3-2: *ServingCellConfigCommonSIB* (Table 14.1.1.1.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-169 | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfigCommonSIB ::= SEQUENCE { |  |  |  |
| downlinkConfigCommon | DownlinkConfigCommonSIB | Table 14.1.1.1.3.3-3 |  |
| } |  |  |  |

Table 14.1.1.1.3.3-3: *DownlinkConfigCommonSIB* (Table 14.1.1.1.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-53 | | | |
| Information Element | Value/remark | Comment | Condition |
| DownlinkConfigCommonSIB ::= SEQUENCE { |  |  |  |
| initialDownlinkBWP | BWP-DownlinkCommon | Table 14.1.1.1.3.3-4 |  |
| } |  |  |  |

Table 14.1.1.1.3.3-4: *BWP-DownlinkCommon* (Table 14.1.1.1.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-10 with condition InitialBWP\_SIB | | | |
| Information Element | Value/remark | Comment | Condition |
| BWP-DownlinkCommon ::= SEQUENCE { |  |  |  |
| pdcch-ConfigCommon CHOICE { |  |  |  |
| setup | PDCCH-ConfigCommon with conditioni MBS\_Broadcast |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.1.3.3-5: *SIB20* of NR Cell 1 and NR Cell 2 (preamble and all steps, Table 14.1.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.2-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| SIB20-r17 ::= SEQUENCE { |  |  |  |
| mcch-Config-r17 SEQUENCE { |  |  |  |
| mcch-WindowStartSlot-r17 | 6 |  | SCS15 OR SCS 120 |
|  | 3 |  | SCS30 |
|  | 2 |  | step52 and step 62a2 |
| mcch-WindowDuration-r17 | sl2 |  |  |
|  | Not present |  | step52 and step 62a2 |
| } |  |  |  |
| cfr-ConfigMCCH-MTCH-r17 | Not present |  | NR Cell 1 |
|  | CFR-ConfigMCCH-MTCH-r17 with condition SIB1\_BWP | TS 38.508-1 [4], Table 4.6.7-2 | NR Cell 2 |
| } |  |  |  |

Table 14.1.1.1.3.3-6: ACTIVATE TEST MODE (step 10a1, Table 14.1.1.1.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.1.1.1.3.3-7: CLOSE UE TEST LOOP (step 31a1, Table 14.1.1.1.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Broadcast MRB |

Table 14.1.1.1.3.3-8: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 33, step 49, step 59, step 62a11, Table 14.1.1.1.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.1.1.1.3.3-9: *MBSBroadcastConfiguration* (step 22, step39, step57, step 62a5, Table 14.1.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-5ABA | | | |
| Information Element | Value/remark | Comment | Condition |
| MBSBroadcastConfiguration-r17 := SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| mbsBroadcastConfiguration-r17 SEQUENCE { |  |  |  |
| mbs-SessionInfoList-r17 | MBS-SessionInfoList | Table 14.1.1.1.3.3-10 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| Note : The size for MBSBroadcastConfiguration-r17 is 12 bytes | | | |

Table 14.1.1.1.3.3-10: *MBS-SessionInfoList* (Table 14.1.1.1.3.3-9)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.7-6 | | | |
| Information Element | Value/remark | Comment | Condition |
| MBS-SessionInfoList-r17 ::= SEQUENCE (SIZE (1..maxNrofMBS-Session-r17)) OF MBS-SessionInfo-r17 { | 1 entry |  |  |
| MBS-SessionInfo-r17[1] SEQUENCE { |  |  |  |
| g-RNTI-r17 | ’0001’H |  | step 22 for NR Cell 1 |
|  | ’0002’H |  | step 57 for NR Cell 1 |
|  | ’FFF2’H |  | step 39 for NR Cell 2 |
|  | ’FFF1’H |  | step 62a5 for NR Cell 2 |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.1.3.3-11: *RRCRelease* (step 62a1, Table 14.1.1.1.3.2-1)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-16 with condition NR\_RRC\_INACTIVE |

Table 14.1.1.1.3.3-12: *Paging* (step 62a7, Table 14.1.1.1.3.2-1)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-9 with condition NR\_RRC\_RESUME |

#### 14.1.1.2 MBS Broadcast/ MCCH Information Acquisition/ becoming interested to receive MBS broadcast services

14.1.1.2.1 Test Purpose (TP)

(1)

***with*** { UE in NR RRC\_IDLE state and camped on a cell providing SIB20 and not interested to receive MBS broadcast services }

ensure that {

***when*** { UE is becoming interested to receive one MBS broadcast service }

***then*** { UE acquires the MBSBroadcastConfiguration message and starts MBS reception for this MBS broadcast service }

}

14.1.1.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331, clauses 5.9.2.2. Unless otherwise stated these are Rel-17 requirements.

[TS 38.331, clause 5.9.2.2]

A UE shall apply the MCCH information acquisition procedure upon becoming interested to receive MBS broadcast services. A UE interested to receive MBS broadcast services shall apply the MCCH information acquisition procedure upon entering the cell providing *SIB20* (e.g. upon power on, following UE mobility), upon receiving *SIB20* of an SCell via dedicated signalling and upon receiving a notification that the MCCH information has changed due to the start of new MBS service(s).

14.1.1.2.3 Test description

14.1.1.2.3.1 Pre-test conditions

System Simulator:

- System information combination NR-20 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- UE is made not interested in receiving MBS Broadcast services.

Preamble:

- The UE is in state 1N-A on NR Cell 1 (serving cell) according to TS 38.508-1 [4] Table 4.4A.2-1 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.1.1.2.3.2 Test procedure sequence

Table 14.1.1.2.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The SS updates *MBSBroadcastConfiguration* message to include the configuration for MBS Service ID ‘000002’H | - | - | - | - |
| 2 | The SS transmits MCCH information change notification due to the start of new MBS service. | - | - | - | - |
| 3 | Wait until SS stops transmiting MCCH information change notification. | - | - | - | - |
| 4 | UE is made interested in receiving MBS Broadcast service with MBS Service ID ‘000002’H. | - | - | - | - |
| 5 | Wait for 30s to ensure that UE have acquired the updated *MBSBroadcastConfiguration* in step 1 due to becoming interested to receiving MBS Broadcast service with MBS Service ID ‘000002’H. | - | - | - | - |
| 6-14 | Steps 1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed with condition UE TEST LOOP MODE C. | - | - | - | - |
| - | Exception: Step 15 is repeated 5 times | - | - | - | - |
| 15 | The SS transmits an MBS Packet on the MTCH with LCID=2 and g-RNTI = ’0002’H. | <-- | MBS Packet. | - | - |
| 16 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 17 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 18 | Check: Is the number of reported MBS Packets received on the MTCH in step 17 greater than zero? | - | - | 1 | P |

14.1.1.2.3.3 Specific message contents

Table 14.1.1.2.3.3-1: *SIB1* of NR Cell 1 (preamble and all steps, Table 14.1.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-28 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SIB1 ::= SEQUENCE { | |  |  |  |
| servingCellConfigCommon | | ServingCellConfigCommonSIB | Table 14.1.1.2.3.3-2 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| si-SchedulingInfo-v1700 SEQUENCE (SIZE (1..maxSI-Message)) OF SchedulingInfo2-r17 { | | 1 entry |  |  |
| SchedulingInfo2-r17 [1] SEQUENCE { | |  | entry 1 |  |
| si-BroadcastStatus-r17 | | broadcasting |  |  |
| si-WindowPosition-r17 | | 2 | entry number for *si-SchedulingInfo* in *SIB1* +1 |  |
| si-Periodicity-r17 | | 64 |  |  |
| sib-MappingInfo-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-TypeInfo-v1700 { | | 1 entry |  |  |
| SIB-TypeInfo-v1700 [1] SEQUENCE { | |  | entry 1 |  |
| sibType-r17 CHOICE { | |  |  |  |
| type1-r17 | | sibType20 |  |  |
| } | |  |  |  |
| valueTag-r17 | | 0 |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.1.1.2.3.3-2: *ServingCellConfigCommonSIB* (Table 14.1.1.2.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-169 | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfigCommonSIB ::= SEQUENCE { |  |  |  |
| downlinkConfigCommon | DownlinkConfigCommonSIB | Table 14.1.1.2.3.3-3 |  |
| } |  |  |  |

Table 14.1.1.2.3.3-3: *DownlinkConfigCommonSIB* (Table 14.1.1.2.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-53 | | | |
| Information Element | Value/remark | Comment | Condition |
| DownlinkConfigCommonSIB ::= SEQUENCE { |  |  |  |
| initialDownlinkBWP | BWP-DownlinkCommon | Table 14.1.1.2.3.3-4 |  |
| } |  |  |  |

Table 14.1.1.2.3.3-4: *BWP-DownlinkCommon* (Table 14.1.1.2.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-10 with condition InitialBWP\_SIB | | | |
| Information Element | Value/remark | Comment | Condition |
| BWP-DownlinkCommon ::= SEQUENCE { |  |  |  |
| pdcch-ConfigCommon CHOICE { |  |  |  |
| setup | PDCCH-ConfigCommon with condition  MBS\_Broadcast |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.2.3.3-5: *MBSBroadcastConfiguration* (preamble and step 1, Table 14.1.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-5ABA | | | |
| Information Element | Value/remark | Comment | Condition |
| MBSBroadcastConfiguration-r17 := SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| mbsBroadcastConfiguration-r17 SEQUENCE { |  |  |  |
| mbs-SessionInfoList-r17 | MBS-SessionInfoList-Service1 | Table 14.1.1.2.3.3-6 | Preamble |
|  | MBS-SessionInfoList-Service1and2 | Table 14.1.1.2.3.3-7 | Step 1 |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.2.3.3-6: *MBS-SessionInfoList-Service1* (Table 14.1.1.2.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.7-6 | | | |
| Information Element | Value/remark | Comment | Condition |
| MBS-SessionInfoList-r17 ::= SEQUENCE (SIZE (1..maxNrofMBS-Session-r17)) OF MBS-SessionInfo-r17 { | 1 entry |  |  |
| MBS-SessionInfo-r17[1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | TMGI-r17 with condition Service1 |  |  |
| g-RNTI-r17 | ’0001’H |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.2.3.3-7: *MBS-SessionInfoList-Service1and2* (Table 14.1.1.2.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.7-6 | | | |
| Information Element | Value/remark | Comment | Condition |
| MBS-SessionInfoList-r17 ::= SEQUENCE (SIZE (1..maxNrofMBS-Session-r17)) OF MBS-SessionInfo-r17 { | 2 entries |  |  |
| MBS-SessionInfo-r17[1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | TMGI-r17 with condition Service1 | Table 14.1.1.2.3.3-8 |  |
| g-RNTI-r17 | ’0001’H |  |  |
| mrb-ListBroadcast-r17 SEQUENCE (SIZE (1..maxNrofMRB-Broadcast-r17)) OF MRB-InfoBroadcast-r17 { | 1 entry |  |  |
| MRB-InfoBroadcast-r17[1] SEQUENCE { |  | entry 1 |  |
| pdcp-Config-r17 SEQUENCE { |  |  |  |
| pdcp-SN-SizeDL-r17 | Not present |  |  |
| headerCompression-r17 CHOICE { |  |  |  |
| notUsed | NULL |  |  |
| } |  |  |  |
| t-Reordering-r17 | Not present |  |  |
| } |  |  |  |
| rlc-Config-r17 SEQUENCE { |  |  |  |
| logicalChannelIdentity-r17 | 1 |  |  |
| sn-FieldLength-r17 | Not present |  |  |
| t-Reassembly-r17 | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| mtch-SchedulingInfo-r17 | Not present |  |  |
| mtch-NeighbourCell-r17 | Not present |  |  |
| pdsch-ConfigIndex-r17 | Not present |  |  |
| mtch-SSB-MappingWindowIndex-r17 | Not present |  |  |
| } |  |  |  |
| MBS-SessionInfo-r17[2] SEQUENCE { |  | entry 2 |  |
| mbs-SessionId-r17 | TMGI-r17 with condition Service2 | Table 14.1.1.2.3.3-8 |  |
| g-RNTI-r17 | ’0002’H |  |  |
| mrb-ListBroadcast-r17 SEQUENCE (SIZE (1..maxNrofMRB-Broadcast-r17)) OF MRB-InfoBroadcast-r17 { | 1 entry |  |  |
| MRB-InfoBroadcast-r17[1] SEQUENCE { |  | entry 1 |  |
| pdcp-Config-r17 SEQUENCE { |  |  |  |
| pdcp-SN-SizeDL-r17 | Not present |  |  |
| headerCompression-r17 CHOICE { |  |  |  |
| notUsed | NULL |  |  |
| } |  |  |  |
| t-Reordering-r17 | Not present |  |  |
| } |  |  |  |
| rlc-Config-r17 SEQUENCE { |  |  |  |
| logicalChannelIdentity-r17 | 2 |  |  |
| sn-FieldLength-r17 | Not present |  |  |
| t-Reassembly-r17 | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| mtch-SchedulingInfo-r17 | Not present |  |  |
| mtch-NeighbourCell-r17 | Not present |  |  |
| pdsch-ConfigIndex-r17 | Not present |  |  |
| mtch-SSB-MappingWindowIndex-r17 | Not present |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.2.3.3-8: *TMGI-r17* (Table 14.1.1.2.3.3-6, Table 14.1.1.2.3.3-7)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.7-9 | | | | |
| Information Element | | Value/remark | Comment | Condition |
| TMGI-r17 ::= SEQUENCE { | |  |  |  |
| plmn-Id-r17 CHOICE { | |  |  |  |
| plmn-Index-r17 | | 1 |  |  |
| } | |  |  |  |
| serviceId-r17 | | ‘000002’H | OCTET STRING (SIZE (3)) | Service2 |
|  | | ‘000001’H | OCTET STRING (SIZE (3)) | Service1 |
| } | |  |  |  |
| Condition | Explanation | | | |
| Service1 | Broadcast MBS Service with MBS service id ‘000001’H | | | |
| Service2 | Broadcast MBS Service with MBS service id ‘000002’H | | | |

Table 14.1.1.2.3.3-9: ACTIVATE TEST MODE (preamble, Table 14.1.1.2.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.1.1.2.3.3-10: CLOSE UE TEST LOOP (step 14a1, Table 14.1.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], 4.7A.2, condition UE TEST LOOP MODE C and Broadcast MRB | | | |
| Information Element | | Value/remark | Comment | Condition |
| UE test loop mode C LB setup | |  | MRB ID |  |
| MRB ID | | ‘0 0 0 0 0 0 0 1  0 0 0 0 0 0 0 0  1 0 0 0 0 0 0 0’B | Bit1 of Octet1 = 1: Broadcast MRB.  Bit4 – bit1 of Octet2 = 0 0 0 0 and bit8 of Octet3 = 1: Identity of the logical channel of broadcast MTCH is 2. |

Table 14.1.1.2.3.3-11: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 16, Table 14.1.1.2.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.1.1.2.3.3-12: Physical layer parameters for DCI format 4\_0 (all steps, Table 7.1.1.2.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.3.6.1.5.1-1, condition MCCH-RNTI | | | |
| Parameter | Value | Value in binary | Condition |
| MCCH change notification | MSB indicates no new MBS service(s) start. LSB indicates no modification of MCCH information other than the change caused by start of new MBS service(s). | “00” | NOT Step 2 |
|  | MSB indicates a new MBS service start. LSB indicates no modification of MCCH information other than the change caused by start of new MBS service(s). | “10” | Step 2 |

#### 14.1.1.3 MBS Broadcast/ MCCH Information Acquisition/ MCCH Information change notification

14.1.1.3.1 Test Purpose (TP)

(1)

***with*** { UE in NR RRC IDLE state and camped on a cell providing SIB20 and interested to receive MBS broadcast service }

ensure that {

***when*** { UE is receiving a notification that the MCCH information has changed due to the start of new MBS service }

***then*** { UE starts acquiring the MBSBroadcastConfiguration message on MCCH from the slot in which the change notification was received }

}

(2)

***with*** { UE in NR RRC CONNECTED state and is receiving data via broadcast MRB }

ensure that {

***when*** { UE is receiving a notification that the MCCH information has changed due to MCCH information modification other than the change caused by the start of new MBS session }

***then*** { UE starts acquiring the MBSBroadcastConfiguration message on MCCH from the slot in which the change notification was received }

}

14.1.1.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.300, clause 16.10.6.2; TS 38.331, clauses 5.9.1.3, 5.9.2.2 and 5.9.2.3. Unless otherwise stated these are Rel-17 requirements.

[TS 38.300, clause 16.10.6.2]

The following principles govern the MCCH structure:

…

- MCCH uses a modification period and MCCH contents are only allowed to be modified at each modification period boundary; A notification mechanism is used to announce the change of MCCH contents due to broadcast session start, modification or stop and due to neighbouring cell information modification;

NOTE: It is up to UE implementation to use the start and stop times in the USD to determine when to start monitoring the MCCH for the session the UE is interested in.

- When the UE receives a MCCH change notification, it acquires the updated MCCH in the same MCCH modification period where the change notification is sent.

[TS 38.331, clause 5.9.1.3]

Change of MCCH information only occurs at specific radio frames, i.e. the concept of a modification period is used. Within a modification period, the same MCCH information may be transmitted a number of times, as defined by its scheduling (which is based on a repetition period).

When the network changes (some of) the MCCH information, it notifies the UEs about the change starting from the beginning of the MCCH modification period via PDCCH which schedules the MCCH in every repetition in that modification period.

Upon receiving a change notification, a UE receiving or interested to receive MBS services transmitted using MBS broadcast acquires the new MCCH information starting from the same slot. The UE applies the previously acquired MCCH information until the UE acquires the new MCCH information. The notification is transmitted with a 2-bit bitmap, see TS 38.212 [17] clause 7.3.1.5.1. The MSB in the 2-bit bitmap, when set to '1', indicates the start of new MBS service(s). The LSB in the 2-bit bitmap, when set to '1', indicates modification of MCCH information other than the change caused by start of new MBS service(s), e.g. modification of a configuration of an on-going MBS session(s), MBS session(s) stop or neighbouring cell information modification.

[TS 38.331, clause 5.9.2.2]

A UE shall apply the MCCH information acquisition procedure upon becoming interested to receive MBS broadcast services. A UE interested to receive MBS broadcast services shall apply the MCCH information acquisition procedure upon entering the cell providing *SIB20* (e.g. upon power on, following UE mobility), upon receiving *SIB20* of an SCell via dedicated signalling and upon receiving a notification that the MCCH information has changed due to the start of new MBS service(s). A UE that is receiving data via broadcast MRB shall apply the MCCH information acquisition procedure upon receiving a notification that the MCCH information has changed due to MCCH information modification other than the change caused by the start of new MBS service(s).

[TS 38.331, clause 5.9.2.3]

An MBS capable UE interested to receive or receiving an MBS broadcast service shall:

1> if the procedure is triggered by an MCCH information change notification:

2> start acquiring the *MBSBroadcastConfiguration* message on MCCH in the concerned cell from the slot in which the change notification was received;

…

14.1.1.3.3 Test description

14.1.1.3.3.1 Pre-test conditions

System Simulator:

- The SS configures the NR Cell 1 as the "Serving cell".

- System information combination NR-20 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cells.

UE:

- UE is made interested in receiving MBS Broadcast service with MBS Service ID ‘000001’H.

Preamble:

- The UE is in state 1N-A on NR Cell 1 (serving cell) according to TS 38.508-1 [4] Table 4.4A.2-1 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.1.1.3.3.2 Test procedure sequence

Table 14.1.1.3.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The SS updates *MBSBroadcastConfiguration* message to include the configuration for MBS Service ID ‘000001’H | - | - | - | - |
| 2 | The SS transmits MCCH information change notification due to the start of new MBS service. | - | - | - | - |
| 3-11 | Steps 1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed with condition UE TEST LOOP MODE C. | - | - | - | - |
| - | Exception: Step 12 is repeated 5 times | - | - | - | - |
| 12 | The SS transmits a MBS Packet on the MTCH with LCID=1 and g-RNTI = ’0001’H. | <-- | MBS Packet. | - | - |
| 13 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 14 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 15 | Check: Is the number of reported MBS Packets received on the MTCH in step 14 greater than zero? | - | - | 1 | P |
| 16 | The SS updates *MBSBroadcastConfiguration* message to modify the configuration for MBS Service ID ‘000001’H | - | - | - | - |
| 17 | The SS transmits MCCH information change notification due to MBS service modification | - | - | - | - |
| - | Exception: Step 18 is repeated 5 times | - | - | - | - |
| 18 | The SS transmits a MBS Packet on the MTCH with LCID=1 and g-RNTI = ’0002’H. | <-- | MBS Packet. | - | - |
| 19 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 20 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 21 | Check: Is the number of reported MBS Packets received on the MTCH in step 20 greater than the number of reported in step 15? | - | - | 2 | P |
| 22 | The SS transmits an *RRCRelease* message. | <-- | NR RRC: *RRCRelease* | - | - |
| 23 | The SS updates *MBSBroadcastConfiguration* message to exclude the configuration for MBS Service ID ‘000001’H. | - | - | - | - |
| 24 | The SS transmits MCCH information change notification due to MBS service stop. | - | - | - | - |
| - | Exception: Step 25 is repeated 5 times | - | - | - | - |
| 25 | The SS transmits a MBS Packet on the MTCH with LCID=1 and g-RNTI = ’0002’H. | <-- | MBS Packet. | - | - |
| 26-33 | Steps 1 to 8 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed. | - | - | - | - |
| 34 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 35 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 36 | Check: Is the number of reported MBS Packets received on the MTCH in step 35 equal to the number of reported in step 21? | - | - | 2 | P |

14.1.1.3.3.3 Specific message contents

Table 14.1.1.3.3.3-1: *SIB1* of NR Cell 1 (preamble and all steps, Table 14.1.1.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-28 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SIB1 ::= SEQUENCE { | |  |  |  |
| servingCellConfigCommon | | ServingCellConfigCommonSIB | Table 14.1.1.3.3.3-2 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| si-SchedulingInfo-v1700 SEQUENCE (SIZE (1..maxSI-Message)) OF SchedulingInfo2-r17 { | | 1 entry |  |  |
| SchedulingInfo2-r17 [1] SEQUENCE { | |  | entry 1 |  |
| si-BroadcastStatus-r17 | | broadcasting |  |  |
| si-WindowPosition-r17 | | 2 | entry number for *si-SchedulingInfo* in *SIB1* +1 |  |
| si-Periodicity-r17 | | 64 |  |  |
| sib-MappingInfo-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-TypeInfo-v1700 { | | 1 entry |  |  |
| SIB-TypeInfo-v1700 [1] SEQUENCE { | |  | entry 1 |  |
| sibType-r17 CHOICE { | |  |  |  |
| type1-r17 | | sibType20 |  |  |
| } | |  |  |  |
| valueTag-r17 | | 0 |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.1.1.3.3.3-2: *ServingCellConfigCommonSIB* (Table 14.1.1.3.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-169 | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfigCommonSIB ::= SEQUENCE { |  |  |  |
| downlinkConfigCommon | DownlinkConfigCommonSIB | Table 14.1.1.3.3.3-3 |  |
| } |  |  |  |

Table 14.1.1.3.3.3-3: *DownlinkConfigCommonSIB* (Table 14.1.1.3.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-53 | | | |
| Information Element | Value/remark | Comment | Condition |
| DownlinkConfigCommonSIB ::= SEQUENCE { |  |  |  |
| initialDownlinkBWP | BWP-DownlinkCommon | Table 14.1.1.3.3.3-4 |  |
| } |  |  |  |

Table 14.1.1.3.3.3-4: *BWP-DownlinkCommon* (Table 14.1.1.3.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-10 with condition InitialBWP\_SIB | | | |
| Information Element | Value/remark | Comment | Condition |
| BWP-DownlinkCommon ::= SEQUENCE { |  |  |  |
| pdcch-ConfigCommon CHOICE { |  |  |  |
| setup | PDCCH-ConfigCommon with condition  MBS\_Broadcast |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.3.3.3-5: *SIB20* of NR Cell 1 (preamble and all steps, Table 14.1.1.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.2-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| SIB20-r17 ::= SEQUENCE { |  |  |  |
| mcch-Config-r17 SEQUENCE { |  |  |  |
| mcch-WindowStartSlot-r17 | 6 |  | SCS15 OR SCS 120 |
|  | 3 |  | SCS30 |
| mcch-WindowDuration-r17 | Not present |  |  |
| } |  |  |  |
| cfr-ConfigMCCH-MTCH-r17 | CFR-ConfigMCCH-MTCH-r17 with condition SIB1\_BWP | TS 38.508-1 [4], Table 4.6.7-2 |  |
| } |  |  |  |

Table 14.1.1.3.3.3-6: ACTIVATE TEST MODE (preamble, Table 14.1.1.3.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.1.1.3.3.3-7: CLOSE UE TEST LOOP (step 11a1, Table 14.1.1.3.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Broadcast MRB |

Table 14.1.1.3.3.3-8: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 13, step 19 and step 34, Table 14.1.1.3.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.1.1.3.3.3-9: *MBSBroadcastConfiguration* (preamble, step 1, step16 and step23, Table 14.1.1.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-5ABA | | | |
| Information Element | Value/remark | Comment | Condition |
| MBSBroadcastConfiguration-r17 := SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| mbsBroadcastConfiguration-r17 SEQUENCE { |  |  |  |
| mbs-SessionInfoList-r17 | MBS-SessionInfoList-Service2 | Table 14.1.1.3.3.3-10 | Preamble, Step 23 |
|  | MBS-SessionInfoList-Service1and2 | Table 14.1.1.3.3.3-11 | Step 1, Step 16 |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.3.3.3-10: *MBS-SessionInfoList-Service2* (Table 14.1.1.3.3.3-9)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.7-6 | | | |
| Information Element | Value/remark | Comment | Condition |
| MBS-SessionInfoList-r17 ::= SEQUENCE (SIZE (1..maxNrofMBS-Session-r17)) OF MBS-SessionInfo-r17 { | 1 entry |  |  |
| MBS-SessionInfo-r17[1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | TMGI-r17 with condition Service2 |  |  |
| g-RNTI-r17 | ’0003’H |  |  |
| mrb-ListBroadcast-r17 SEQUENCE (SIZE (1..maxNrofMRB-Broadcast-r17)) OF MRB-InfoBroadcast-r17 { | 1 entry |  |  |
| MRB-InfoBroadcast-r17[1] SEQUENCE { |  | entry 1 |  |
| pdcp-Config-r17 SEQUENCE { |  |  |  |
| pdcp-SN-SizeDL-r17 | Not present |  |  |
| headerCompression-r17 CHOICE { |  |  |  |
| notUsed | NULL |  |  |
| } |  |  |  |
| t-Reordering-r17 | Not present |  |  |
| } |  |  |  |
| rlc-Config-r17 SEQUENCE { |  |  |  |
| logicalChannelIdentity-r17 | 2 |  |  |
| sn-FieldLength-r17 | Not present |  |  |
| t-Reassembly-r17 | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.3.3.3-11: *MBS-SessionInfoList-Service1and2* (Table 14.1.1.3.3.3-9)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.7-6 | | | |
| Information Element | Value/remark | Comment | Condition |
| MBS-SessionInfoList-r17 ::= SEQUENCE (SIZE (1..maxNrofMBS-Session-r17)) OF MBS-SessionInfo-r17 { | 2 entries |  |  |
| MBS-SessionInfo-r17[1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | TMGI-r17 with condition Service2 |  |  |
| g-RNTI-r17 | ’0003’H |  |  |
| mrb-ListBroadcast-r17 SEQUENCE (SIZE (1..maxNrofMRB-Broadcast-r17)) OF MRB-InfoBroadcast-r17 { | 1 entry |  |  |
| MRB-InfoBroadcast-r17[1] SEQUENCE { |  | entry 1 |  |
| pdcp-Config-r17 SEQUENCE { |  |  |  |
| pdcp-SN-SizeDL-r17 | Not present |  |  |
| headerCompression-r17 CHOICE { |  |  |  |
| notUsed | NULL |  |  |
| } |  |  |  |
| t-Reordering-r17 | Not present |  |  |
| } |  |  |  |
| rlc-Config-r17 SEQUENCE { |  |  |  |
| logicalChannelIdentity-r17 | 2 |  |  |
| sn-FieldLength-r17 | Not present |  |  |
| t-Reassembly-r17 | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| mtch-SchedulingInfo-r17 | Not present |  |  |
| mtch-NeighbourCell-r17 | Not present |  |  |
| pdsch-ConfigIndex-r17 | Not present |  |  |
| mtch-SSB-MappingWindowIndex-r17 | Not present |  |  |
| } |  |  |  |
| MBS-SessionInfo-r17[2] SEQUENCE { |  | entry 2 |  |
| mbs-SessionId-r17 | TMGI-r17 with condition Service1 |  |  |
| g-RNTI-r17 | ’0001’H |  | Step 1 |
|  | ’0002’H |  | Step 16 |
| mrb-ListBroadcast-r17 SEQUENCE (SIZE (1..maxNrofMRB-Broadcast-r17)) OF MRB-InfoBroadcast-r17 { | 1 entry |  |  |
| MRB-InfoBroadcast-r17[1] SEQUENCE { |  | entry 1 |  |
| pdcp-Config-r17 SEQUENCE { |  |  |  |
| pdcp-SN-SizeDL-r17 | Not present |  |  |
| headerCompression-r17 CHOICE { |  |  |  |
| notUsed | NULL |  |  |
| } |  |  |  |
| t-Reordering-r17 | Not present |  |  |
| } |  |  |  |
| rlc-Config-r17 SEQUENCE { |  |  |  |
| logicalChannelIdentity-r17 | 1 |  |  |
| sn-FieldLength-r17 | Not present |  |  |
| t-Reassembly-r17 | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| mtch-SchedulingInfo-r17 | Not present |  |  |
| mtch-NeighbourCell-r17 | Not present |  |  |
| pdsch-ConfigIndex-r17 | Not present |  |  |
| mtch-SSB-MappingWindowIndex-r17 | Not present |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.3.3.3-12: *TMGI-r17* (Table 14.1.1.3.3.3-10, Table 14.1.1.3.3.3-11)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.7-9 | | | |
| Information Element | Value/remark | Comment | Condition |
| TMGI-r17 ::= SEQUENCE { |  |  |  |
| plmn-Id-r17 CHOICE { |  |  |  |
| plmn-Index-r17 | 1 |  |  |
| } |  |  |  |
| serviceId-r17 | ‘000002’H | OCTET STRING (SIZE (3)) | Service2 |
|  | ‘000001’H | OCTET STRING (SIZE (3)) | Service1 |
| } |  |  |  |

|  |  |
| --- | --- |
| Condition | Explanation |
| Service1 | Broadcast MBS Service with MBS service id ‘000001’H |
| Service2 | Broadcast MBS Service with MBS service id ‘000002’H |

Table 14.1.1.3.3.3-13: Physical layer parameters for DCI format 4\_0 (all steps, Table 7.1.1.2.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.3.6.1.5.1-1, condition MCCH-RNTI | | | |
| Parameter | Value | Value in binary | Condition |
| MCCH change notification | MSB indicates no new MBS service(s) start. LSB indicates no modification of MCCH information other than the change caused by start of new MBS service(s). | “00” | NOT (Step 1, Step 17, Step 24) |
|  | MSB indicates a new MBS service start. LSB indicates no modification of MCCH information other than the change caused by start of new MBS service(s). | “10” | Step 1 |
|  | MSB indicates no new MBS service(s) start. LSB indicates the modification of MCCH information other than the change caused by start of new MBS service(s). | “01” | Step 17, Step 24 |

#### 14.1.1.4 MBS Broadcast/ MCCH Information Acquisition/ receiving SIB20 of an SCell via dedicated signalling

##### 14.1.1.4.1 MBS Broadcast/ MCCH Information Acquisition/ receiving SIB20 of an SCell via dedicated signalling / Intra-band Contiguous CA

14.1.1.4.1.1 Test Purpose (TP)

(1)

***with*** { UE in NR RRC CONNECTED state with SCell configured and interested to receive MBS broadcast services }

ensure that {

***when*** { UE is receiving SIB20 for the Scell via dedicated signalling }

***then*** { UE starts acquiring the MBSBroadcastConfiguration message on MCCH in the Scell at the next repetition period and starts MBS reception }

}

14.1.1.4.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331, clauses 5.9.2.2 and 5.9.2.3. Unless otherwise stated these are Rel-17 requirements.

[TS 38.331, clause 5.9.2.2]

A UE shall apply the MCCH information acquisition procedure upon becoming interested to receive MBS broadcast services. A UE interested to receive MBS broadcast services shall apply the MCCH information acquisition procedure upon entering the cell providing *SIB20* (e.g. upon power on, following UE mobility), upon receiving *SIB20* of an SCell via dedicated signalling and upon receiving a notification that the MCCH information has changed due to the start of new MBS service(s).

[TS 38.331, clause 5.9.2.3]

An MBS capable UE interested to receive or receiving an MBS broadcast service shall:

…

1> if the UE enters a cell broadcasting *SIB20*; or

1> if the UE receives *sCellSIB20*:

2> acquire the *MBSBroadcastConfiguration* message on MCCH in the concerned cell at the next repetition period.

14.1.1.4.1.3 Test description

14.1.1.4.1.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 is the PCell, NR Cell 3 is the SCell to be added.

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- UE is made interested in receiving MBS Broadcast service with MBS Service ID ‘000001’H.

Preamble:

- The UE is in state 3N-A on NR Cell 1 (serving cell) according to TS 38.508-1 [4] Table 4.4A.2-1 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.1.1.4.1.3.2 Test procedure sequence

Table 14.1.1.4.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The SS transmits an *RRCReconfiguration*message containing a sCellToAddModList with SCell NR Cell 3 addition. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 2 | The UE transmits an *RRCReconfigurationComplete* message | --> | NR RRC: *RRCReconfigurationtComplete* | - | - |
| 3 | The SS transmits Activation MAC control element to activate NR SCell 3. | <-- | MAC PDU (SCell Activation/Deactivation MAC CE of one octet (C1=1)) |  |  |
| 4 | The SS starts to transmit *MBSBroadcastConfiguration* message on NR Cell 3 | - | - | - | - |
| 5 | The SS transmits an *RRCReconfiguration*message containing SIB20 of NR Cell 3. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 6 | The UE transmits an *RRCReconfigurationComplete* message | --> | NR RRC: *RRCReconfigurationtComplete* | - | - |
| 7 | Wait for a period equal to the MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 3. | - | - | - | - |
| 8a1-8a2 | Steps 9a1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed with condition UE TEST LOOP MODE C on NR Cell 1. | - | - | - | - |
| - | Exception: Step 9 is repeated 5 times | - | - | - | - |
| 9 | The SS transmits a MBS Packet on the MTCH on NR Cell 3. | <-- | MBS Packet. | - | - |
| 10 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message on NR Cell 1. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 11 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 12 | Check: Is the number of reported MBS Packets received on the MTCH in step 11 greater than zero? | - | - | 1 | P |

14.1.1.4.3.3 Specific message contents

Table 14.1.1.4.1.3.3-1: *RRCReconfiguration* (step 1 and step 5, Table 14.1.1.4.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.6.1-13 with condition SCell\_add | | | |
| Information Element | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfiguration SEQUENCE { |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| masterCellGroup | CellGroupConfig | Table 14.1.1.4.1.3.3-2 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.4.1.3.3-2: *CellGroupConfig* (Table 14.1.1.4.1.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.6.3-19 with condition SCell\_add | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| sCellToAddModList SEQUENCE (SIZE (1..maxNrofSCells)) OF SCellConfig { | 1 entry |  |  |
| SCellConfig[1] SEQUENCE { |  | entry 1 |  |
| sCellConfigCommon | ServingCellConfigCommon | Table 14.1.1.4.1.3.3-5 | Step 1 |
|  | Not present |  | Step 5 |
| sCellConfigDedicated | ServingCellConfig with condition No\_UL and Scell\_Add |  | Step 1 |
|  | Not present |  | Step 5 |
| sCellSIB20-r17 | Not present |  | Step 1 |
| sCellSIB20-r17 CHOICE { |  |  | Step 5 |
| setup | SCellSIB20-r17 | OCTET STRING (CONTAINING SystemInformation) |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.4.1.3.3-3: *SystemInformation* (Table 14.1.1.4.1.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-29 | | | |
| Information Element | Value/remark | Comment | Condition |
| SystemInformation ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| systemInformation-IEs SEQUENCE { |  |  |  |
| sib-TypeAndInfo SEQUENCE (SIZE (1..maxSIB)) OF CHOICE { | 1 entry |  |  |
| sib20-v1700 | SIB20-r17 | Table 14.1.1.4.1.3.3-4 |  |
| } |  |  |  |
| lateNonCriticalExtension | Not present |  |  |
| nonCriticalExtension SEQUENCE {} | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.4.1.3.3-4: *SIB20-r17* (Table 14.1.1.4.1.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.2-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| SIB20-r17 ::= SEQUENCE { |  |  |  |
| cfr-ConfigMCCH-MTCH-r17 | FFS |  |  |
| } |  |  |  |

Table 14.1.1.4.1.3.3-5: *ServingCellConfigCommon* (Table 14.1.1.4.1.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-168, condition SCell\_add and No\_UL | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfigCommonSIB ::= SEQUENCE { |  |  |  |
| downlinkConfigCommon | DownlinkConfigCommon | Table 14.1.1.4.1.3.3-6 |  |
| } |  |  |  |

Table 14.1.1.4.1.3.3-6: *DownlinkConfigCommon* (Table 14.1.1.4.1.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-52, condition SCell\_Add | | | |
| Information Element | Value/remark | Comment | Condition |
| DownlinkConfigCommon ::= SEQUENCE { |  |  |  |
| initialDownlinkBWP | BWP-DownlinkCommon | Table 14.1.1.4.1.3.3-7 |  |
| } |  |  |  |

Table 14.1.1.4.1.3.3-7: *BWP-DownlinkCommon* (Table 14.1.1.4.1.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-10, condition SCell\_Add | | | |
| Information Element | Value/remark | Comment | Condition |
| BWP-DownlinkCommon ::= SEQUENCE { |  |  |  |
| pdcch-ConfigCommon CHOICE { |  |  |  |
| setup | PDCCH-ConfigCommon | Table 14.1.1.4.1.3.3-8 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.4.1.3.3-8: *PDCCH-ConfigCommon* (Table 14.1.1.4.1.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-96,condition SCell\_Add and MBS\_Broadcast | | | |
| Information Element | Value/remark | Comment | Condition |
| PDCCH-ConfigCommon ::= SEQUENCE { |  |  |  |
| commonControlResourceSet | ControlResourceSet |  |  |
|  | Not present |  |  |
| commonSearchSpaceList SEQUENCE (SIZE (1..4)) OF SearchSpace { | 1 entry |  |  |
| SearchSpace[1] | SearchSpace with condition CSS | entry 1 |  |
| } |  |  |  |
| searchSpaceMCCH-r17 | SearchSpaceId with condition CSS |  |  |
| commonSearchSpaceListExt2-r17 SEQUENCE(SIZE (1..4)) OF SearchSpaceExt-v1700 { | 1 entry |  |  |
| SearchSpaceExt-v1700[1] SEQUENCE { |  | entry 1 |  |
| searchSpaceType-r17 SEQUENCE { |  |  |  |
| common-r17 SEQUENCE { |  |  |  |
| dci-Format4-0-r17 SEQUENCE { |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.1.4.1.3.3-9: ACTIVATE TEST MODE (preamble, Table 14.1.1.4.1.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.1.1.4.1.3.3-10: CLOSE UE TEST LOOP (step 8a1, Table 14.1.1.4.1.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Broadcast MRB |

Table 14.1.1.4.1.3.3-11: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 10, Table 14.1.1.4.1.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

##### 14.1.1.4.2 MBS Broadcast/ MCCH Information Acquisition/ receiving SIB20 of an SCell via dedicated signalling / Inter-band CA

The scope and description of the present TC is the same as test case 14.1.1.4.1 with the following differences:

- CA configuration: Inter-band CA replaces Intra-band Contiguous CA

- Cells configuration: NR Cell 10 replaces NR Cell 3

##### 14.1.1.4.3 MBS Broadcast/ MCCH Information Acquisition/ receiving SIB20 of an SCell via dedicated signalling / Intra-band non Contiguous CA

The scope and description of the present TC is the same as test case 14.1.1.4.1 with the following differences:

- CA configuration: Intra-band non-Contiguous CA replaces Intra-band Contiguous CA

### 14.1.2 MBS Broadcast/ Service Continuity

#### 14.1.2.1 MBS Broadcast/ Service Continuity/ Cell reselection/ frequency prioritization

14.1.2.1.1 Test Purpose (TP)

(1)

***with*** { UE in NR RRC IDLE state and is receiving MBS broadcast service via broadcast MRB and camped on a cell providing SIB21 indicating a MBS FSAI in mbs-FSAI-IntraFreq-r17 and the same MBS FSAI is also indicated for this MBS broadcast service in MBS User Service Description (USD)}

ensure that {

***when*** { an intra-frequency neighbour cell providing the MBS service and an inter-band neighbour cell not providing the MBS service becomes better than the serving cell }

***then*** { UE performs cell reselection to the intra-frequency cell even if the inter-frequency cell is better and continues MBS reception }

}

(2)

***with*** { UE in NR RRC IDLE state and interested to receive MBS broadcast service and camped on a cell not providing SIB20 }

ensure that {

***when*** { serving cell providing SIB21 indicating a MBS FSAI in mbs-FSAI-InterFreq-r17 and the same MBS FSAI is also indicated for this MBS broadcast service in MBS User Service Description (USD) }

***then*** { UE performs cell reselection to the inter-frequency neighbour cell even if the serving cell is better and starts MBS reception }

}

(3)

***with*** { UE in NR RRC INACTIVE state and is receiving MBS data via broadcast MRB and camped on a cell providing SIB20 and SIB21 indicating a MBS FSAI in mbs-FSAI-IntraFreq-r17 and the same MBS FSAI is also indicated for this MBS broadcast service in MBS User Service Description (USD) }

ensure that {

***when*** { an intra-frequency neighbour cell providing the MBS service and an inter-band neighbour cell not providing the MBS service becomes better than the serving cell }

***then*** { UE performs cell reselection to the intra-frequency cell even if the inter-frequency cell is better and continues MBS reception }

}

14.1.2.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.300, clause 16.10.6.5.1; TS 38.304, clause 5.2.4.1. Unless otherwise stated these are Rel-17 requirements.

[TS 38.300, clause 16.10.6.5.1]

In RRC\_IDLE and RRC\_INACTIVE, the UE applies the normal cell reselection rules with the following modifications:

- the UE which is receiving or interested to receive MBS broadcast service(s) via PTM and can only receive these MBS broadcast service(s) via PTM while camping on the frequency providing these MBS broadcast service(s) is allowed to make this frequency highest priority when the conditions described in TS 38.304 [10] are met;

- when the MBS broadcast service(s) which the UE is interested in are no longer available (after the end of the session) or the UE is no longer interested in receiving the service(s), the UE no longer prioritises the frequency providing these MBS broadcast service(s).

[TS 38.304, clause 5.2.4.1]

The UE shall only perform cell reselection evaluation for NR frequencies and inter-RAT frequencies that are given in system information and for which the UE has a priority provided.

If the MBS broadcast capable UE is receiving or interested to receive an MBS broadcast service(s) and can only receive this MBS broadcast service(s) by camping on a frequency on which it is provided, the UE may consider that frequency to be the highest priority during the MBS broadcast session as specified in TS 38.300 [2] as long as the two following conditions are fulfilled:

1) SIB1 scheduling information of the cell reselected by the UE due to frequency prioritization for MBS contains SIB20;

2) Either:

- One or more MBS FSAI(s) of that frequency is indicated in SIB21 of the serving cell and the same MBS FSAI(s) is also indicated for this MBS broadcast service in MBS User Service Description (USD) as specified in TS 26.346 [20], or

- SIB21 is not provided in the serving cell and that frequency is included in the USD of this service, or

- SIB21 is provided in the serving cell but does not provide the frequency mapping for the concerned service, and that frequency is included in the USD of this service.

NOTE 0g: It is up to UE implementation which frequency to select, when the USD provides multiple frequencies for the service the UE is interested in.

If the MBS broadcast capable UE is receiving or interested to receive an MBS broadcast service, the UE may consider cell reselection candidate frequencies at which it cannot receive the MBS broadcast service to be of the lowest priority during the MBS broadcast session as specified in TS 38.300 [2], as long as the SIB20 is provided by the cell on the MBS frequency which the UE monitors and as long as the condition 2) above is fulfilled for the serving cell.

NOTE 0h: Example scenarios in which such down-prioritisation may be needed include the cases where camping is not possible for the UE on the MBS broadcast frequency (e.g. the MBS broadcast frequency belongs to a PLMN different from UE's registered PLMN) while the UE can receive the MBS broadcast service when camped on another frequency than the MBS broadcast frequency or current frequency.

[TS 23.247, clause 6.5.4]

The MBS Frequency Selection Area (FSA) ID is used for broadcast MBS session to guide the frequency selection of the UE.

MBS FSA ID identifies a preconfigured area within, and in proximity to, which the cell(s) announces the MBS FSA ID and the associating frequency (details see TS 38.300 [9]).

14.1.2.1.3 Test description

14.1.2.1.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 (TAI-1), NR Cell 11 (TAI-2) and NR Cell 23 (TAI-2).

- The SS configures the NR Cell 23 as the "Serving cell" and NR Cell 1 and NR Cell 11 as "Non-suitable "Off" cell".

- System information combination NR-4 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 23.

- System information combination NR-25 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1 and NR cell 11.

UE:

- None.

Preamble:

- The UE is in state 1N-A on NR Cell 23(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-1 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.1.2.1.3.2 Test procedure sequence

Table 14.1.2.1.3.2-1 and 14.1.2.1.3.2-2 illustrates the downlink power levels to be applied for NR Cell 1, NR Cell 11 and NR Cell 23 at various time instants of the test execution. Row marked "T0" denotes the conditions after the preamble, while the configuration marked "T1" is applied at the point indicated in the Main behaviour description in Table 14.1.2.1.3.2-3.

Table 14.1.2.1.3.2-1: Time instances of cell power level and parameter changes for FR1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR  Cell 1 | NR  Cell 11 | NR  Cell 23 | Remark |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | -91 | Off | -85 | The power level values are assigned to satisfy RNR Cell 1 < RNR Cell 23 and SrxlevNR Cell 1 > ThreshNR Cell 1, HighP |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | -91 | -85 | -79 | The power level values are assigned to satisfy RNR Cell 1 < R NR Cell 11 < RNR Cell 23 and Srxlev NR Cell 1 < ThreshServing, LowP |
| T2 | SS/PBCH  SSS EPRE | dBm/SCS | -85 | -91 | -79 | The power level values are assigned to satisfy RNR Cell 11 < R NR Cell 1 < RNR Cell 23 and Srxlev NR Cell 11 < ThreshServing, LowP |

Table 14.1.2.1.3.2-2: Time instances of cell power level and parameter changes for FR2

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR  Cell 1 | NR  Cell 11 | NR  Cell 23 | Remark |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | FFS | FFS | FFS | The power level values are assigned to satisfy RNR Cell 1 < RNR Cell 23 and SrxlevNR Cell 1 > ThreshNR Cell 1, HighP |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | FFS | FFS | FFS | The power level values are assigned to satisfy RNR Cell 1 < R NR Cell 11 < RNR Cell 23 and Srxlev NR Cell 1 < ThreshServing, LowP |
| T2 | SS/PBCH  SSS EPRE | dBm/SCS | FFS | FFS | FFS | The power level values are assigned to satisfy RNR Cell 11 < R NR Cell 1 < RNR Cell 23 and Srxlev NR Cell 11 < ThreshServing, LowP |

Table 14.1.2.1.3.2-3: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The SS starts to broadcast SIB21 (according to System information combination NR-24) as defined in TS 38.508-1 [4] clause 4.4.3.1.2) on NR Cell 23 including mbs-FSAI-InterFreqList-r17 indicating MBS-FSAI-r17=1 for the frequency of NR Cell 1. | - | *-* | - | - |
| 2 | The SS transmits a Short message on PDCCH using P-RNTI indicating a *systemInfoModification* on NR Cell 23. | - | PDCCH (DCI 1\_0): Short Message | - | - |
| 3 | Wait for 2.1\* modification period to allow the new system information to take effect. | - | *-* | - | - |
| 4 | UE is made interested in receiving MBS service ID ‘000001’H associated with MBS FSA ID 1. (Note 1) | - | *-* | - | - |
| 5 | The UE transmits an *RRCSetupRequest* message on NR Cell 1. | --> | NR RRC: *RRCSetupRequest* | 2 | P |
| 6-10 | Steps 2 to 6a1 of the registration procedure described in TS 38.508-1 [4] subclause 4.9.5.2.2-1 are performed on NR Cell 1. | - | - | - | - |
| 11 | Wait for a period equal to the MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 1 | - | - | - | - |
| - | EXCEPTION: In parallel to the events described in steps 18-20, the steps described in Table 14.1.2.1.3.2-4 may take place, depending on the UE implementation. | - | - | - | - |
| 12-20 | Steps 1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1 with condition UE TEST LOOP MODE C. | - | - | - | - |
| - | EXCEPTION: Step 21 is repeated 5 times. | - | - | - | - |
| 21 | The SS transmits a MBS Packet on the MTCH with LCID=1. | <-- | MBS Packet | - | - |
| 22-29 | Void. | - | - | - | - |
| 30 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 31 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 32 | Check: Is the number of reported MBS Packets received on the MTCH in step 31 greater than zero? | - | - | 2 | P |
| 33 | The SS transmits an *RRCRelease* message. | <-- | NR RRC: *RRCRelease* | - | - |
| 34 | The SS changes NR Cell 1, NR Cell 11 and NR Cell 23 levels according to the row "T1" in table Table 14.1.2.1.3.2-1/2. | - | - | - | - |
| 35 | The UE transmits an *RRCSetupRequest* message on NR Cell 11. | --> | NR RRC: *RRCSetupRequest* | 1 | P |
| 36-40 | Steps 2 to 6a1 of the registration procedure described in TS 38.508-1 [4] subclause 4.9.5.2.2-1 are performed on NR Cell 11. | - | - | - | - |
| 41 | Wait for a period equal to the MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 11. | - | - | - | - |
| - | EXCEPTION: Step 42 is repeated 5 times. | - | - | - | - |
| 42 | The SS transmits a MBS Packet on the MTCH with LCID=1. | <-- | MBS Packet | - | - |
| - | EXCEPTION: In parallel to the events described in steps 49-52, the steps described in Table 14.1.2.1.3.2-4 may takeplace, depending on the UE implementation. | - | - | - | - |
| 43-50 | Steps 1 to 8 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 11. | - | - | - | - |
| 51 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 52 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 53 | Check: Is the number of reported MBS Packets received on the MTCH in step 52 greater than the number of reported in step 31? | - | - | 1 | P |
| - | EXCEPTION: Steps 54a1-54a21 describe behaviour that depends on UE configuration; the "lower case letter" identifies a step sequence that takes place if inactiveState is configured | - | - | - | - |
| 54a1 | IF pc\_inactiveState THEN the The SS transmits an *RRCRelease* message including s*uspendConfig*. | <-- | NR RRC: *RRCRelease* | - | - |
| 54a2 | The SS changes NR Cell 1, NR Cell 11 and NR Cell 23 levels according to the row "T2" in table Table 14.1.2.1.3.2-1/2. | - | - | - | - |
| 54a3 | The UE transmits an *RRCSetupRequest* message on NR Cell 1. | --> | NR RRC: *RRCSetupRequest* | 3 | P |
| 54a4-54a8 | Steps 2 to 6a1 of the registration procedure described in TS 38.508-1 [4] subclause 4.9.5.2.2-1 are performed on NR Cell 1. | - | - | - | - |
| 54a9 | Wait for a period equal to the MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 1. | - | - | - | - |
| - | EXCEPTION: Step 54a10 is repeated 5 times. | - | - | - | - |
| 54a10 | The SS transmits a MBS Packet on the MTCH with LCID=1. | <-- | MBS Packet | - | - |
| - | EXCEPTION: In parallel to the events described in steps 54a17-54a20, the steps described in Table 14.1.2.1.3.2-4 may takeplace, depending on the UE implementation. | - | - | - | - |
| 54a11-54a18 | Steps 1 to 8 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1. | - | - |  |  |
| 54a19 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 54a20 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 54a21 | Check: Is the number of reported MBS Packets received on the MTCH in step 54a20 greater than the number of reported in step 52? | - | - | 3 | P |
| Note 1: The request may be performed by MMI or AT command. | | | | | |

Table 14.1.2.1.3.2-4: Parallel behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | UE transmits an *MBSInterestIndication* message. | --> | *MBSInterestIndication* | - | - |

14.1.2.1.3.3 Specific message contents

Table 14.1.2.1.3.3-1: *SIB1* of NR Cell 23 (preamble and all steps, Table 14.1.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-28 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SIB1 ::= SEQUENCE { | |  |  |  |
| servingCellConfigCommon | | ServingCellConfigCommonSIB | Table 14.1.2.1.3.3-3 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| si-SchedulingInfo-v1700 | | Not present |  | Preamble and NR Cell 23 |
| si-SchedulingInfo-v1700 SEQUENCE (SIZE (1..maxSI-Message)) OF SchedulingInfo2-r17 { | | 1 entry |  |  |
| SchedulingInfo2-r17 [1] SEQUENCE { | |  | entry 1 |  |
| si-BroadcastStatus-r17 | | broadcasting |  |  |
| si-WindowPosition-r17 | | 3 | entry number for *si-SchedulingInfo* in *SIB1* +1 |  |
| si-Periodicity-r17 | | 64 |  |  |
| sib-MappingInfo-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-TypeInfo-v1700 { | | 1 entry |  |  |
| SIB-TypeInfo-v1700 [1] SEQUENCE { | |  | entry 1 |  |
| sibType-r17 CHOICE { | |  |  |  |
| type1-r17 | | sibType21 |  | Step1-64 and NR Cell 23 |
| } | |  |  |  |
| valueTag-r17 | | 0 |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.1.2.1.3.3-2: *SIB1* of NR Cell 1 and NR Cell 11 (preamble and all steps, Table 14.1.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-28 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SIB1 ::= SEQUENCE { | |  |  |  |
| servingCellConfigCommon | | ServingCellConfigCommonSIB | Table 14.1.2.1.3.3-3 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| si-SchedulingInfo-v1700 SEQUENCE (SIZE (1..maxSI-Message)) OF SchedulingInfo2-r17 { | | 2 entries |  |  |
| SchedulingInfo2-r17 [1] SEQUENCE { | |  | entry 1 |  |
| si-BroadcastStatus-r17 | | broadcasting |  |  |
| si-WindowPosition-r17 | | 3 | entry number for *si-SchedulingInfo* in *SIB1* +1 |  |
| si-Periodicity-r17 | | 64 |  |  |
| sib-MappingInfo-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-TypeInfo-v1700 { | | 1 entry |  |  |
| SIB-TypeInfo-v1700 [1] SEQUENCE { | |  | entry 1 |  |
| sibType-r17 CHOICE { | |  |  |  |
| type1-r17 | | sibType20 |  |  |
| } | |  |  |  |
| valueTag-r17 | | 0 |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| SchedulingInfo2-r17 [2] SEQUENCE { | |  | entry 2 |  |
| si-BroadcastStatus-r17 | | broadcasting |  |  |
| si-WindowPosition-r17 | | 4 | entry number for *si-SchedulingInfo* in *SIB1* +2 |  |
| si-Periodicity-r17 | | 64 |  |  |
| sib-MappingInfo-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-TypeInfo-v1700 { | | 1 entry |  |  |
| SIB-TypeInfo-v1700 [1] SEQUENCE { | |  | entry 1 |  |
| sibType-r17 CHOICE { | |  |  |  |
| type1-r17 | | sibType21 |  |  |
| } | |  |  |  |
| valueTag-r17 | | 0 |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.1.2.1.3.3-3: *ServingCellConfigCommonSIB* (Table 14.1.2.1.3.3-1 and Table 14.1.2.1.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-169 | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfigCommonSIB ::= SEQUENCE { |  |  |  |
| downlinkConfigCommon | DownlinkConfigCommonSIB | Table 14.1.2.1.3.3-4 |  |
| } |  |  |  |

Table 14.1.2.1.3.3-4: *DownlinkConfigCommonSIB* (Table 14.1.2.1.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-53 | | | |
| Information Element | Value/remark | Comment | Condition |
| DownlinkConfigCommonSIB ::= SEQUENCE { |  |  |  |
| initialDownlinkBWP | BWP-DownlinkCommon | Table 14.1.2.1.3.3-5 |  |
| } |  |  |  |

Table 14.1.2.1.3.3-5: *BWP-DownlinkCommon* (Table 14.1.2.1.3.3-4)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-10 with condition InitialBWP\_SIB | | | |
| Information Element | Value/remark | Comment | Condition |
| BWP-DownlinkCommon ::= SEQUENCE { |  |  |  |
| pdcch-ConfigCommon CHOICE { |  |  |  |
| setup | PDCCH-ConfigCommon with conditioni MBS\_Broadcast |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.2.1.3.3-6: *SIB21* of NR Cell 1 and NR Cell 11 and NR Cell 23 (all steps, Table 14.1.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.2-20 | | | |
| Information Element | Value/remark | Comment | Condition |
| SIB21-r17 ::= SEQUENCE { |  |  |  |
| mbs-FSAI-IntraFreq-r17 | Not present |  | NR Cell 23 |
| mbs-FSAI-IntraFreq-r17 SEQUENCE (SIZE (1..maxFSAI-MBS-r17)) OF MBS-FSAI-r17 { | 1 entry |  | NR Cell 1,  NR Cell 11 |
| MBS-FSAI-r17[1] | ‘000001’H | entry 1  OCTET STRING (SIZE (3)) |  |
| } |  |  |  |
| mbs-FSAI-InterFreqList-r17 | Not present |  | NR Cell 1,  NR Cell 11 |
| mbs-FSAI-InterFreqList-r17 SEQUENCE (SIZE (1..maxFreq)) OF MBS-FSAI-InterFreq-r17 { | 1 entry |  | NR Cell 23 |
| MBS-FSAI-InterFreq-r17[1] SEQUENCE { |  | entry 1 |  |
| dl-CarrierFreq-r17 | ARFCN-ValueNR of NR Cell 1 |  |  |
| mbs-FSAI-List-r17 SEQUENCE (SIZE (1..maxFSAI-MBS-r17)) OF MBS-FSAI-r17 { | 1 entry |  |  |
| MBS-FSAI-r17[1] | ‘000001’H | entry 1  OCTET STRING (SIZE (3)) |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.2.1.3.3-7: ACTIVATE TEST MODE (preamble, Table 14.1.2.1.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.1.2.1.3.3-8: CLOSE UE TEST LOOP (step 20a1, Table 14.1.2.1.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Broadcast MRB |

Table 14.1.2.1.3.3-9: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 30, step 51, step 53a19, Table 14.1.2.1.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.1.2.1.3.3-10: *RRCRelease* (step 54a1, Table 14.1.2.1.3.2-1)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-16 with condition NR\_RRC\_INACTIVE |

#### 14.1.2.2 MBS Broadcast/ Service Continuity/ Handover/ MBS Interest Indication/ inter-frequency

14.1.2.2.1 Test Purpose (TP)

(1)

***with*** { UE in NR RRC\_CONNECTED state and interested to receive MBS broadcast service and has not transmitted a *MBSInterestIndication* message }

ensure that {

***when*** { SIB21 provided in the serving cell indicates that the MBS service is available on a frequency of an inter-frequency neighbour cell and the FSAI of this frequency is also indicated in the USD for this session }

***then*** { UE transmits a MBSInterestIndication message indicating interest in MBS reception on the frequency }

}

(2)

***with*** { UE in NR RRC\_CONNECTED state and having transmitted a *MBSInterestIndication* message indicating interest in MBS reception on a frequency of an inter-frequency neighbour cell }

ensure that {

***when*** { 1s after the UE has transmitted the *MBSInterestIndication* message the UE receives *RRCReconfiguration* message including a *reconfigurationWithSync* indicating a the NR frequency of the inter-frequency neighbour cell }

***then*** { UE performs inter-frequency handover and starts MBS reception }

}

(3)

***with*** { UE in NR RRC\_CONNECTED state and having transmitted a *MBSInterestIndication* message }

ensure that {

***when*** { UE handover from a cell not providing *SIB20* to a cell providing *SIB20* and *SIB21* }

***then*** { UE transmits a MBSInterestIndication message }

}

(4)

***with*** { UE in NR RRC\_CONNECTED state and having transmitted a *MBSInterestIndication* message }

ensure that {

***when*** { The set of MBS broadcast frequencies of interest is different from *mbs-FreqList* included in the last transmission of the MBS Interest Indication }

***then*** { UE transmits a *MBSInterestIndication* message indicating interest in MBS reception on the frequency }

}

(5)

***with*** { UE in NR RRC\_CONNECTED state and having transmitted a *MBSInterestIndication* message }

ensure that {

***when*** { UE receives a *RRCReconfiguration* message including *reconfigurationWithSync* less than 1 second after the last transmission of an *MBSInterestIndication* message and target cell provides *SIB21*}

***then*** { UE re-transmit a *MBSInterestIndication* message }

}

14.1.2.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.300, clause 16.10.6.5.2; TS 38.331, clauses 5.9.4.2, 5.9.4.3, 5.9.4.4, 5.9.4.5 and 5.3.5.3. Unless otherwise stated these are Rel-17 requirements.

[TS 38.300, clause 16.10.6.5.2]

To ensure service continuity of MBS broadcast, the UE in RRC\_CONNECTED state may send MBS Interest Indication to the gNB, consisting of the following information:

- List of MBS frequencies UE is interested to receive, sorted in decreasing order of interest;

- Priority between the reception of all listed MBS frequencies and the reception of any unicast bearer;

- List of MBS broadcast services the UE is interested to receive, in case SIB20 is scheduled by the UE's PCell.

MBS Interest Indication information reporting can be implicitly enabled/disabled by the presence of SIB21.

The gNB may use this information, together with the information about the UE's capabilities (e.g., supported band combinations), when providing an RRC configuration and/or downlink assignments to the UE, to allow the UE to receive the MBS services the UE is interested in. MBS Interest Indication information can be exchanged between source gNB and target gNB during handover.

[TS 38.331, clause 5.9.4.2]

Upon initiating the procedure, the UE shall:

1> if *SIB21* is provided by the PCell:

2> ensure having a valid version of *SIB21* for the PCell;

2> if the UE did not transmit MBS Interest Indication since last entering RRC\_CONNECTED state; or

2> if since the last time the UE transmitted an MBS Interest Indication, the UE connected to a PCell not providing *SIB21*:

3> if the set of MBS broadcast frequencies of interest, determined in accordance with 5.9.4.3, is not empty:

4> set the contents of MBS Interest Indication according to 5.9.4.5 and initiate transmission of the *MBSInterestIndication* message;

2> else:

3> if the set of MBS broadcast frequencies of interest, determined in accordance with 5.9.4.3, is different from *mbs-FreqList* included in the last transmission of the MBS Interest Indication; or

…

4> set the contents of MBS Interest Indication according to 5.9.4.5 and initiate transmission of the *MBSInterestIndication* message;

NOTE: The UE may send MBS Interest Indication even when it is able to receive the MBS services it is interested in i.e. to avoid that the network allocates a configuration inhibiting MBS broadcast reception.

3> else if *SIB20* is provided for the PCell or for the SCell:

4> if since the last time the UE transmitted the MBS Interest Indication, the UE connected to a PCell not providing *SIB20* and the UE was not provided with *SIB20* for an SCell; or

4> if the set of MBS broadcast services of interest determined in accordance with 5.9.4.4 is different from *mbs-ServiceList* included in the last transmission of the MBS Interest Indication:

5> set the contents of MBS Interest Indication according to 5.9.4.5 and initiate the transmission of *MBSInterestIndication* message.

[TS 38.331, clause 5.9.4.3]

The UE shall:

1> consider a frequency to be part of the MBS frequencies of interest if the following conditions are met:

2> at least one MBS session the UE is receiving or interested to receive via a broadcast MRB is ongoing or about to start; and

NOTE 1: The UE may determine whether the session is ongoing from the start and stop time indicated in the User Service Description (USD), see TS 38.300 [2] or TS 23.247 [67].

2> for at least one of these MBS sessions, *SIB21* acquired from the PCell includes mapping between the concerned frequency and one or more MBS FSAIs indicated in the USD for this session, or for at least one of these MBS sessions, the concerned frequency is not included in *SIB21* but is indicated in the USD for this session; and

NOTE 2: The UE considers a frequency to be part of the MBS frequencies of interest even though NG-RAN may (temporarily) not employ a broadcast MRB for the concerned session, i.e., the UE does not verify if the session is indicated on MCCH.

2> the *supportedBandCombinationList* the UE included in *UE-NR-Capability* contains at least one band combination including the concerned MBS frequency.

NOTE 3: When evaluating which frequencies the UE is capable of receiving, the UE does not take into account whether they are currently configured as serving frequencies.

[TS 38.331, clause 5.9.4.4]

The UE shall:

1> consider an MBS service to be part of the MBS services of interest if the following conditions are met:

2> the UE is receiving or interested to receive this service via a broadcast MRB; and

2> the session of this service is ongoing or about to start; and

2> one or more MBS FSAIs in the USD for this service is included in *SIB21* acquired from the PCell for a frequency belonging to the set of MBS frequencies of interest, determined according to 5.9.4.3 or *SIB21* acquired from the PCell does not provide the frequency mapping for the concerned service but that frequency is included in the USD of this service.

NOTE: The UE may determine whether the session is ongoing from the start and stop time indicated in the User Service Description (USD), see TS 38.300 [2] or TS 23.247 [67].

[TS 38.331, clause 5.9.4.5]

The UE shall set the contents of the MBS Interest Indication as follows:

1> if the set of MBS frequencies of interest, determined in accordance with 5.9.4.3, is not empty:

2> include *mbs-FreqList* and set it to include the MBS frequencies of interest sorted by decreasing order of interest, using the *absoluteFrequencySSB* for serving frequency, if applicable, and the *ARFCN-ValueNR*(s) as included in *SIB21* or in USD (for neighbouring frequencies);

…

2> if *SIB20* is provided for the PCell or for the SCell:

3> include *mbs-ServiceList* and set it to indicate the set of MBS services of interest sorted by decreasing order of interest determined in accordance with 5.9.4.4.

[TS 38.331, clause 5.3.5.3]

1> if *reconfigurationWithSync* was included in *spCellConfig* of an MCG or SCG and when MAC of an NR cell group successfully completes a Random Access procedure triggered above; or,

…

2> if *reconfigurationWithSync* was included in *masterCellGroup* and the target cell provides *SIB21*:

3> if the UE initiated transmission of an *MBSInterestIndication*message during the last 1 second preceding reception of this *RRCReconfiguration* message; or

…

4> initiate transmission of an *MBSInterestIndication*message in accordance with clause 5.9.4;

14.1.2.2.3 Test description

14.1.2.2.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 (TAI-1) and NR Cell 3 (TAI-1).

- The SS configures the NR Cell 1 as the "Serving cell" and NR Cell 3 as "Non-suitable "Off" cell".

- System information combination NR-4 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

- System information combination NR-25 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR Cell 3.

UE:

- None.

Preamble:

- The UE is in state 3N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.1.2.2.3.2 Test procedure sequence

Table 14.1.2.2.3.2-1/2 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T0", and "T1" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 14.1.2.2.3.2-1: Time instances of cell power level and parameter changes for FR1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 3 | Remark |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | -88 | -94 | Power levels are such that entry condition for event A3 is not satisfied for the neighbour NR cell: Mn + Ofn + Ocn – Hys > Mp + Ofp + Ocp + Off |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | -88 | -82 | Power levels are such that entry condition for event A3 is satisfied for inter-frequency neighbour NR cell 3(measId 1): Mn + Ofn + Ocn – Hys > Mp + Ofp + Ocp + Off |

Table 14.1.2.2.3.2-2: Time instances of cell power level and parameter changes for FR2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 3 | Remark |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | FFS | FFS | Power levels are such that entry condition for event A3 is not satisfied for the neighbour NR cell: Mn + Ofn + Ocn – Hys > Mp + Ofp + Ocp + Off |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | FFS | FFS | Power levels are such that entry condition for event A3 is satisfied for inter-frequency neighbour NR cell 3(measId 1): Mn + Ofn + Ocn – Hys > Mp + Ofp + Ocp + Off |

Table 14.1.2.2.3.2-3: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The UE is made interested in receiving a MBS service with MBS Service ID ‘000001’H associated with the MBS FSAI 1 (Note 1). | - | *-* | - | - |
| 2 | The UE is made aware that the MBS Service ID ‘000001’H is ongoing (Note 1). | - | *-* | - | - |
| 3 | The SS starts to broadcast SIB21 (according to System information combination NR-24) as defined in TS 38.508-1 [4] clause 4.4.3.1.2) on NR Cell 1 including mbs-FSAI-InterFreqList-r17 indicating MBS-FSAI-r17=1 for the frequency of NR Cell 3. | - | *-* | - | - |
| 4 | The SS transmits a Short message on PDCCH using P-RNTI indicating a *systemInfoModification* on NR Cell 1. | - | PDCCH (DCI 1\_0): Short Message | - | - |
| 5 | Check: Does the UE transmit *MBSInterestIndication* message. | --> | *MBSInterestIndication* | 1 | P |
| 6 | The SS waits for 1s. | - | *-* | - | - |
| 7 | The SS transmits an *RRCReconfiguration* message to setup inter frequency measurement on NR Cell 1. | <-- | *RRCReconfiguration* | - | - |
| 8 | The UE transmits an *RRCReconfigurationComplete* message on NR Cell 1 to confirm the setup of inter- frequency measurement. | --> | *RRCReconfigurationComplete* | - | - |
| 9 | The SS changes NR Cell 1 and NR Cell 3 level according to the row "T1" in table 14.1.2.2.3.2-1/2. | - | - | - | - |
| 10 | The UE transmits a *MeasurementReport* message to report event A3 on NR Cell 1 with the measured RSRP, RSRQ value for NR Cell 3. | --> | *MeasurementReport* | - | - |
| 11 | The SS transmits an *RRCReconfiguration* message on NR Cell 1 to order the UE to perform inter-frequency handover to NR Cell 3. | <-- | *RRCReconfiguration* | - | - |
| 12 | The UE transmits an *RRCReconfigurationComplete* message on NR Cell 3? | --> | *RRCReconfigurationComplete* | - | - |
| 13 | UE transmits an *MBSInterestIndication* message on NR Cell 3 | --> | *MBSInterestIndication* | 3 | P |
| 14 | Wait for a scheduling period for SIB20. | - | - | - | - |
| 15 | Wait for a period equal to the MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 3. | - | - | - | - |
| 16a1-16a2 | Steps 9a1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 3 with condition UE TEST LOOP MODE C. | - | - | - | - |
| - | Exception: Step 17 is repeated 5 times | - | - | - | - |
| 17 | The SS transmits a MBS Packet on the MTCH with LCID=1. | <-- | MBS Packet | - | - |
| 18 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 19 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 20 | Check: Is the number of reported MBS Packets received on the MTCH in step 19 greater than zero? | - | - | 2 | P |
| 21 | The SS starts to broadcast SIB20 (according to System information combination NR-25) as defined in TS 38.508-1 [4] clause 4.4.3.1.2) on NR Cell 1. | - | - | - | - |
| 22 | The UE is made interested in receiving a MBS service with MBS Service ID ‘000000’H associated with the MBS FSAI 0 and not interested in receiving a MBS service with MBS Service ID ‘000001’H associated with the MBS FSAI 1 (Note 1). | - | - | - | - |
| 23 | The UE is made aware that the MBS Service ID=0 is ongoing (Note 1). | - | - | - | - |
| 24 | UE transmits an *MBSInterestIndication* message on NR Cell 3 | --> | *MBSInterestIndication* | 4 | P |
| 25 | The SS transmits an *RRCReconfiguration* message on NR Cell 3 to order the UE to perform inter-frequency handover to NR Cell 1 within 1s. | <-- | *RRCReconfiguration* | - | - |
| 26 | The UE transmits an *RRCReconfigurationComplete* message on NR Cell 1? | --> | *RRCReconfigurationComplete* | - | - |
| 27 | UE transmits an *MBSInterestIndication* message on NR Cell 1 | --> | *MBSInterestIndication* | 5 | P |
| 28 | Wait for a scheduling period for SIB20. | - | - | - | - |
| 29 | Wait for a period equal to the MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 1. | - | - | - | - |
| - | Exception: Step 30 is repeated 5 times | - | - | - | - |
| 30 | The SS transmits a MBS Packet on the MTCH with LCID=1. | <-- | MBS Packet | - | - |
| 31 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 32 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 33 | Check: Is the number of reported MBS Packets received on the MTCH in step 32 greater than the number of reported in step 19? | - | - | 1 | P |
| Note 1: The request may be performed by MMI or AT command. | | | | | |

14.1.2.2.3.3 Specific message contents

Table 14.1.2.2.3.3-1: *SIB1* of NR Cell 1 and NR Cell 3 (preamble and all steps, Table 14.1.2.2.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-28 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SIB1 ::= SEQUENCE { | |  |  |  |
| servingCellConfigCommon | | ServingCellConfigCommonSIB | Table 14.1.2.2.3.3-2 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| si-SchedulingInfo-v1700 SEQUENCE (SIZE (1..maxSI-Message)) OF SchedulingInfo2-r17 { | | 2 entries |  |  |
| SchedulingInfo2-r17 [1] SEQUENCE { | |  | entry 1 |  |
| si-BroadcastStatus-r17 | | broadcasting |  |  |
| si-WindowPosition-r17 | | 3 | entry number for *si-SchedulingInfo* in *SIB1* +1 |  |
| si-Periodicity-r17 | | 64 |  |  |
| sib-MappingInfo-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-TypeInfo-v1700 { | | 1 entry |  |  |
| SIB-TypeInfo-v1700 [1] SEQUENCE { | |  | entry 1 |  |
| sibType-r17 CHOICE { | |  |  |  |
| type1-r17 | | sibType20 |  | (Step 21 AND NR Cell 1)OR NR Cell 3 |
|  | | sibType21 |  | Preamble AND NR Cell 1 |
| } | |  |  |  |
| valueTag-r17 | | 0 |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| SchedulingInfo2-r17 [2] | | Not present |  | Preamble AND NR Cell 1 |
| SchedulingInfo2-r17 [2] SEQUENCE { | |  | entry 2 | (Step 21 AND NR Cell 1)OR NR Cell 3 |
| si-BroadcastStatus-r17 | | broadcasting |  |  |
| si-WindowPosition-r17 | | 4 | entry number for *si-SchedulingInfo* in *SIB1* +2 |  |
| si-Periodicity-r17 | | 64 |  |  |
| sib-MappingInfo-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-TypeInfo-v1700 { | | 1 entry |  |  |
| SIB-TypeInfo-v1700 [1] SEQUENCE { | |  | entry 1 |  |
| sibType-r17 CHOICE { | |  |  |  |
| type1-r17 | | sibType21 |  |  |
| } | |  |  |  |
| valueTag-r17 | | 0 |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.1.2.2.3.3-2: *ServingCellConfigCommonSIB* (Table 14.1.2.2.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-169 | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfigCommonSIB ::= SEQUENCE { |  |  |  |
| downlinkConfigCommon | DownlinkConfigCommonSIB | Table 14.1.2.2.3.3-3 |  |
| } |  |  |  |

Table 14.1.2.2.3.3-3: *DownlinkConfigCommonSIB* (Table 14.1.2.2.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-53 | | | |
| Information Element | Value/remark | Comment | Condition |
| DownlinkConfigCommonSIB ::= SEQUENCE { |  |  |  |
| initialDownlinkBWP | BWP-DownlinkCommon | Table 14.1.2.2.3.3-4 |  |
| } |  |  |  |

Table 14.1.2.2.3.3-4: *BWP-DownlinkCommon* (Table 14.1.2.2.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-10 with condition InitialBWP\_SIB | | | |
| Information Element | Value/remark | Comment | Condition |
| BWP-DownlinkCommon ::= SEQUENCE { |  |  |  |
| pdcch-ConfigCommon CHOICE { |  |  |  |
| setup | PDCCH-ConfigCommon with conditioni MBS\_Broadcast |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.2.2.3.3-5: *SIB21* of NR Cell 1 and NR Cell 3 (preamble and all steps, Table 14.1.2.2.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.2-20 | | | |
| Information Element | Value/remark | Comment | Condition |
| SIB21-r17 ::= SEQUENCE { |  |  |  |
| mbs-FSAI-IntraFreq-r17 SEQUENCE (SIZE (1..maxFSAI-MBS-r17)) OF MBS-FSAI-r17 { | 1 entry |  |  |
| MBS-FSAI-r17[1] | ‘000000’H | entry 1  OCTET STRING (SIZE (3)) | NR Cell 1 |
|  | ‘000001’H | entry 1  OCTET STRING (SIZE (3)) | NR Cell 3 |
| } |  |  |  |
| mbs-FSAI-InterFreqList-r17 SEQUENCE (SIZE (1..maxFreq)) OF MBS-FSAI-InterFreq-r17 { | 1 entry |  |  |
| MBS-FSAI-InterFreq-r17[1] SEQUENCE { |  | entry 1 |  |
| dl-CarrierFreq-r17 | ARFCN-ValueNR of NR Cell 3 |  | NR Cell 1 |
|  | ARFCN-ValueNR of NR Cell 1 |  | NR Cell 3 |
| mbs-FSAI-List-r17 SEQUENCE (SIZE (1..maxFSAI-MBS-r17)) OF MBS-FSAI-r17 { | 1 entry |  |  |
| MBS-FSAI-r17[1] | ‘000001’H | entry 1  OCTET STRING (SIZE (3)) | NR Cell 1 |
|  | ‘000000’H | entry 1  OCTET STRING (SIZE (3)) | NR Cell 3 |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.2.2.3.3-6: ACTIVATE TEST MODE (preamble, Table 14.1.2.2.3.2-3)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.1.2.2.3.3-7: *RRCReconfiguration* (step 7, Table 14.1.2.2.3.2-3)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4] Table 4.6.1-13 with condition MEAS |

Table 14.1.2.2.3.3-8: *MeasConfig* (Table 14.1.2.2.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.6.3-69 | | | |
| Information Element | Value/remark | Comment | Condition |
| MeasConfig ::= SEQUENCE { |  |  |  |
| measObjectToAddModList SEQUENCE (SIZE (1..maxNrofMeasId)) OF MeasObjectToAddMod { | 2 entries |  |  |
| MeasObjectToAddMod[1] SEQUENCE { |  | entry 1 |  |
| measObjectId | 1 |  |  |
| measObject CHOICE { |  |  |  |
| measObjectNR SEQUENCE { |  |  |  |
| ssbFrequency | ARFCN-ValueNR of NR Cell 1 |  |  |
| absThreshSS-BlocksConsolidation | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| MeasObjectToAddMod[2] SEQUENCE { |  | entry 2 |  |
| measObjectId | 2 |  |  |
| measObject CHOICE { |  |  |  |
| measObjectNR SEQUENCE { |  |  |  |
| ssbFrequency | ARFCN-ValueNR of NR Cell 3 |  |  |
| absThreshSS-BlocksConsolidation | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| reportConfigToAddModList SEQUENCE(SIZE (1..maxReportConfigId)) OF ReportConfigToAddMod { | 1 entry |  |  |
| ReportConfigToAddMod[1] SEQUENCE { |  | entry 1 |  |
| reportConfigId | 1 |  |  |
| reportConfig CHOICE { |  |  |  |
| reportConfigNR | ReportConfigNR-EventA3 | Table 14.1.2.2.3.3-10 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| measIdToAddModList SEQUENCE (SIZE (1..maxNrofMeasId)) OF MeasIdToAddMod { | 1 entry |  |  |
| MeasIdToAddMod[1] SEQUENCE { |  | entry 1 |  |
| measId | 1 |  |  |
| measObjectId | 2 |  |  |
| reportConfigId | 1 |  |  |
| } |  |  |  |
| } |  |  |  |
| measGapConfig | MeasGapConfig |  |  |
| } |  |  |  |

Table 14.1.2.2.3.3-9: *ReportConfigNR-EventA3* (Table 14.1.2.2.3.3-8)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.6.3-142 with condition EVENT\_A3 | | | |
| Information Element | Value/remark | Comment | Condition |
| ReportConfigNR ::= SEQUENCE { |  |  |  |
| reportType CHOICE { |  |  |  |
| eventTriggered SEQUENCE { |  |  |  |
| eventId CHOICE { |  |  |  |
| eventA3 SEQUENCE { |  |  | EVENT\_A3 |
| a3-Offset CHOICE { |  |  |  |
| rsrp | 6 | 3dB | FR1 |
|  | FFS |  | FR2 |
| } |  |  |  |
| hysteresis | 0 | 0 dB |  |
| timeToTrigger | ms640 |  |  |
| } |  |  |  |
| } |  |  |  |
| reportAmount | r1 |  |  |
| reportQuantityCell SEQUENCE { |  |  |  |
| rsrp | true |  |  |
| rsrq | false |  |  |
| sinr | false |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.2.2.3.3-10: *RRCReconfiguration* (step 11 and step 25, Table 14.1.2.2.3.2-3)

|  |
| --- |
| Derivation path: TS 38.508-1 [4] Table 4.8.1-1A with condition RBConfig\_KeyChange |

Table 14.1.2.2.3.3-11: *MBSBroadcastConfiguration* of NR Cell 1 and NR Cell 3(step 15 and step29, Table 14.1.2.2.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-5ABA | | | |
| Information Element | Value/remark | Comment | Condition |
| MBSBroadcastConfiguration-r17 := SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| mbsBroadcastConfiguration-r17 SEQUENCE { |  |  |  |
| mbs-SessionInfoList-r17 | MBS-SessionInfoList | Table 14.1.2.2.3.3-12 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.2.2.3.3-12: *MBS-SessionInfoList* (Table 14.1.2.2.3.3-11)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.7-6 | | | |
| Information Element | Value/remark | Comment | Condition |
| MBS-SessionInfoList-r17 ::= SEQUENCE (SIZE (1..maxNrofMBS-Session-r17)) OF MBS-SessionInfo-r17 { | 1 entry |  |  |
| MBS-SessionInfo-r17[1] SEQUENCE { |  |  |  |
| mbs-SessionId-r17 | TMGI-r17 | Table 14.1.2.2.3.3-13 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.2.2.3.3-13: *TMGI* (Table 14.1.2.2.3.3-12)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.7-9 | | | |
| Information Element | Value/remark | Comment | Condition |
| TMGI-r17 ::= SEQUENCE { |  |  |  |
| serviceId-r17 | ‘000000’H | OCTET STRING (SIZE (3)) | NR Cell 1 |
|  | ‘000001’H | OCTET STRING (SIZE (3)) | NR Cell 3 |
| } |  |  |  |

Table 14.1.2.2.3.3-14: CLOSE UE TEST LOOP (step 16a1, Table 14.1.2.2.3.2-3)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Broadcast MRB |

Table 14.1.2.2.3.3-15: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 18 and step 31, Table 14.1.2.2.3.2-3)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

#### 14.1.2.3 MBS Broadcast/ Service Continuity/ Handover/ MBS Interest Indication/ intra-frequency

14.1.2.3.1 Test Purpose (TP)

(1)

***with*** { UE in NR RRC\_CONNECTED state and is receiving MBS broadcast service and has not transmitted a *MBSInterestIndication* message }

ensure that {

***when*** { SIB21 provided in the serving cell indicates that the MBS service is available on a frequency of intra-frequency neighbour cell and the FSAI of this frequency is also indicated in the USD for this session }

***then*** { UE transmits a MBSInterestIndication message indicating interest in MBS reception on the frequency }

}

(2)

***with*** { UE in NR RRC\_CONNECTED state and having transmitted a *MBSInterestIndication* message indicating interest in MBS reception on a frequency of intra-frequency neighbour cell }

ensure that {

***when*** { 1s after the UE has transmitted the *MBSInterestIndication* message the UE receives *RRCReconfiguration* message including a *reconfigurationWithSync* indicating a the NR frequency of the intra-frequency neighbour cell }

***then*** { UE performs intra-frequency handover and continues to receive MBS reception }

}

(3)

***with*** { UE in NR RRC\_CONNECTED state and having transmitted a *MBSInterestIndication* message }

ensure that {

***when*** { Since the last time the UE transmitted an MBS Interest Indication, UE handovers from a cell not providing SIB21 to a cell providing SIB21}

***then*** { UE transmits a MBSInterestIndication message }

}

(4)

***with*** { UE in NR RRC\_CONNECTED state and having transmitted a *MBSInterestIndication* message }

ensure that {

***when*** { The set of MBS broadcast services of interest is different from *mbs-ServiceList* included in the last transmission of the MBS Interest Indication }

***then*** { UE transmits a MBSInterestIndication message indicating new mbs-ServiceList }

}

14.1.2.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.300, clause 16.10.6.5.2; TS 38.331, clauses 5.9.4.2, 5.9.4.3, 5.9.4.4 and 5.9.4.5. Unless otherwise stated these are Rel-17 requirements.

[TS 38.300, clause 16.10.6.5.2]

To ensure service continuity of MBS broadcast, the UE in RRC\_CONNECTED state may send MBS Interest Indication to the gNB, consisting of the following information:

- List of MBS frequencies UE is interested to receive, sorted in decreasing order of interest;

- Priority between the reception of all listed MBS frequencies and the reception of any unicast bearer;

- List of MBS broadcast services the UE is interested to receive, in case SIB20 is scheduled by the UE's PCell.

MBS Interest Indication information reporting can be implicitly enabled/disabled by the presence of SIB21.

The gNB may use this information, together with the information about the UE's capabilities (e.g., supported band combinations), when providing an RRC configuration and/or downlink assignments to the UE, to allow the UE to receive the MBS services the UE is interested in. MBS Interest Indication information can be exchanged between source gNB and target gNB during handover.

[TS 38.331, clause 5.9.4.2]

Upon initiating the procedure, the UE shall:

1> if *SIB21* is provided by the PCell:

2> ensure having a valid version of *SIB21* for the PCell;

2> if the UE did not transmit MBS Interest Indication since last entering RRC\_CONNECTED state; or

2> if since the last time the UE transmitted an MBS Interest Indication, the UE connected to a PCell not providing *SIB21*:

3> if the set of MBS broadcast frequencies of interest, determined in accordance with 5.9.4.3, is not empty:

4> set the contents of MBS Interest Indication according to 5.9.4.5 and initiate transmission of the *MBSInterestIndication* message;

2> else:

3> if the set of MBS broadcast frequencies of interest, determined in accordance with 5.9.4.3, is different from *mbs-FreqList* included in the last transmission of the MBS Interest Indication; or

…

4> set the contents of MBS Interest Indication according to 5.9.4.5 and initiate transmission of the *MBSInterestIndication* message;

NOTE: The UE may send MBS Interest Indication even when it is able to receive the MBS services it is interested in i.e. to avoid that the network allocates a configuration inhibiting MBS broadcast reception.

3> else if *SIB20* is provided for the PCell or for the SCell:

4> if since the last time the UE transmitted the MBS Interest Indication, the UE connected to a PCell not providing *SIB20* and the UE was not provided with *SIB20* for an SCell; or

4> if the set of MBS broadcast services of interest determined in accordance with 5.9.4.4 is different from *mbs-ServiceList* included in the last transmission of the MBS Interest Indication:

5> set the contents of MBS Interest Indication according to 5.9.4.5 and initiate the transmission of *MBSInterestIndication* message.

[TS 38.331, clause 5.9.4.3]

The UE shall:

1> consider a frequency to be part of the MBS frequencies of interest if the following conditions are met:

2> at least one MBS session the UE is receiving or interested to receive via a broadcast MRB is ongoing or about to start; and

NOTE 1: The UE may determine whether the session is ongoing from the start and stop time indicated in the User Service Description (USD), see TS 38.300 [2] or TS 23.247 [67].

2> for at least one of these MBS sessions, *SIB21* acquired from the PCell includes mapping between the concerned frequency and one or more MBS FSAIs indicated in the USD for this session, or for at least one of these MBS sessions, the concerned frequency is not included in *SIB21* but is indicated in the USD for this session; and

NOTE 2: The UE considers a frequency to be part of the MBS frequencies of interest even though NG-RAN may (temporarily) not employ a broadcast MRB for the concerned session, i.e., the UE does not verify if the session is indicated on MCCH.

2> the *supportedBandCombinationList* the UE included in *UE-NR-Capability* contains at least one band combination including the concerned MBS frequency.

NOTE 3: When evaluating which frequencies the UE is capable of receiving, the UE does not take into account whether they are currently configured as serving frequencies.

[TS 38.331, clause 5.9.4.4]

The UE shall:

1> consider an MBS service to be part of the MBS services of interest if the following conditions are met:

2> the UE is receiving or interested to receive this service via a broadcast MRB; and

2> the session of this service is ongoing or about to start; and

2> one or more MBS FSAIs in the USD for this service is included in *SIB21* acquired from the PCell for a frequency belonging to the set of MBS frequencies of interest, determined according to 5.9.4.3 or *SIB21* acquired from the PCell does not provide the frequency mapping for the concerned service but that frequency is included in the USD of this service.

NOTE: The UE may determine whether the session is ongoing from the start and stop time indicated in the User Service Description (USD), see TS 38.300 [2] or TS 23.247 [67].

[TS 38.331, clause 5.9.4.5]

The UE shall set the contents of the MBS Interest Indication as follows:

1> if the set of MBS frequencies of interest, determined in accordance with 5.9.4.3, is not empty:

2> include *mbs-FreqList* and set it to include the MBS frequencies of interest sorted by decreasing order of interest, using the *absoluteFrequencySSB* for serving frequency, if applicable, and the *ARFCN-ValueNR*(s) as included in *SIB21* or in USD (for neighbouring frequencies);

…

2> if *SIB20* is provided for the PCell or for the SCell:

3> include *mbs-ServiceList* and set it to indicate the set of MBS services of interest sorted by decreasing order of interest determined in accordance with 5.9.4.4.

14.1.2.3.3 Test description

14.1.2.3.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 (TAI-1) and NR Cell 2 (TAI-1).

- The SS configures the NR Cell 1 as the "Serving cell" and NR Cell 2 as "Non-suitable "Off" cell".

- System information combination NR-20 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

- System information combination NR-20 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 2.

UE:

- None.

Preamble:

- The UE is in state 3N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.1.2.3.3.2 Test procedure sequence

Table 14.1.2.3.3.2-1/2 illustrates the downlink power levels and other changing parameters to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T0", and "T1" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 14.1.2.3.3.2-1: Time instances of cell power level and parameter changes for FR1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 2 | Remark |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | -88 | -94 | Power levels are such that entry condition for event A3 is not satisfied for the neighbour NR cell: Mn + Ofn + Ocn – Hys > Mp + Ofp + Ocp + Off |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | -88 | -82 | Power levels are such that entry condition for event A3 is satisfied for intra-frequency neighbour NR cell 2 (measId 1): Mn + Ofn + Ocn – Hys > Mp + Ofp + Ocp + Off |
| T2 | SS/PBCH  SSS EPRE | dBm/SCS | -82 | -88 | Power levels are such that entry condition for event A3 is satisfied for intra-frequency neighbour NR cell 1(measId 1): Mn + Ofn + Ocn – Hys > Mp + Ofp + Ocp + Off |

Table 14.1.2.3.3.2-2: Time instances of cell power level and parameter changes for FR2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 2 | Remark |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | FFS | FFS | Power levels are such that entry condition for event A3 is not satisfied for the neighbour NR cell: Mn + Ofn + Ocn – Hys > Mp + Ofp + Ocp + Off |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | FFS | FFS | Power levels are such that entry condition for event A3 is satisfied for intra-frequency neighbour NR cell 2 (measId 1): Mn + Ofn + Ocn – Hys > Mp + Ofp + Ocp + Off |
| T2 | SS/PBCH  SSS EPRE | dBm/SCS | FFS | FFS | Power levels are such that entry condition for event A3 is satisfied for intra-frequency neighbour NR cell 1(measId 1): Mn + Ofn + Ocn – Hys > Mp + Ofp + Ocp + Off |

Table 14.1.2.3.3.2-3: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | The UE is made interested in receiving a MBS service with MBS Service ID=1 associated with the MBS FSAI 1 (Note 1). | - | *-* | - | - |
| 2 | The UE is made aware that the MBS Service ID=1 is ongoing (Note 1). | - | *-* | - | - |
| 3 | The SS starts to broadcast SIB21 (according to System information combination NR-22) as defined in TS 38.508-1 [4] clause 4.4.3.1.2) on NR Cell 1 including mbs-FSAI-IntraFreqList-r17 indicating MBS-FSAI-r17=1. | - | *-* | - | - |
| 4 | The SS transmits a Short message on PDCCH using P-RNTI indicating a *systemInfoModification* on NR Cell 1. | - | PDCCH (DCI 1\_0): Short Message | - | - |
| 5 | Check: Does the UE transmit *MBSInterestIndication* message. | --> | *MBSInterestIndication* | 1 | P |
| 6 | Wait for a scheduling period for SIB20. | - | - | - | - |
| 7 | Wait for a period equal to the MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 1. | - | - | - | - |
| 8a1-8a2 | Steps 9a1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1 with condition UE TEST LOOP MODE C. | - | - | - | - |
| - | Exception: Step 9 is repeated 5 times | - | - | - | - |
| 9 | The SS transmits a MBS Packet on the MTCH with LCID=1. | <-- | MBS Packet | - | - |
| 10 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 11 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 12 | Check: Is the number of reported MBS Packets received on the MTCH in step 11 greater than zero? | - | - | 2 | P |
| 13 | The SS waits for 1s. | - | *-* | - | - |
| 14 | The SS transmits an *RRCReconfiguration* message to setup intra frequency measurement on NR Cell 1. | <-- | *RRCReconfiguration* | - | - |
| 15 | The UE transmits an *RRCReconfigurationComplete* message on NR Cell 1 to confirm the setup of intra- frequency measurement. | --> | *RRCReconfigurationComplete* | - | - |
| 16 | The SS changes NR Cell 1 and NR Cell 2 level according to the row "T1" in table 14.1.2.3.3.2-1/2. | - | - | - | - |
| 17 | The UE transmits a *MeasurementReport* message to report event A3 on NR Cell 1 with the measured RSRP, RSRQ value for NR Cell 2. | --> | *MeasurementReport* | - | - |
| 18 | The SS transmits an *RRCReconfiguration* message on NR Cell 1 to order the UE to perform intra-frequency handover to NR Cell 2. | <-- | *RRCReconfiguration* | - | - |
| 19 | The UE transmits an *RRCReconfigurationComplete* message on NR Cell 2? | --> | *RRCReconfigurationComplete* | - | - |
| 20 | Wait for a scheduling period for SIB20. | - | - | - | - |
| 21 | Wait for a period equal to the MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 2. | - | - | - | - |
| - | Exception: Step 22 is repeated 5 times | - | - | - | - |
| 22 | The SS transmits a MBS Packet on the MTCH with LCID=1. | <-- | MBS Packet | - | - |
| 23 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 24 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 25 | Check: Is the number of reported MBS Packets received on the MTCH in step 24 greater than the number of reported in step 11? | - | - | 2 | P |
| 26 | The SS transmits an *RRCReconfiguration* message to setup intra-frequency measurement on NR Cell 2. | <-- | *RRCReconfiguration* | - | - |
| 27 | The UE transmits an *RRCReconfigurationComplete* message on NR Cell 2 to confirm the setup of intra-frequency measurement. | --> | *RRCReconfigurationComplete* | - | - |
| 28 | The SS changes NR Cell 1 and NR Cell 2 level according to the row "T2" in table 14.1.2.3.3.2-1/2. | - | - | - | - |
| 29 | The UE transmits a *MeasurementReport* message to report event A3 on NR Cell 2 with the measured RSRP, RSRQ value for NR Cell 1. | --> | *MeasurementReport* | - | - |
| 30 | The SS transmits an *RRCReconfiguration* message on NR Cell 2 to order the UE to perform intra-frequency handover to NR Cell 1. | <-- | *RRCReconfiguration* | - | - |
| 31 | The UE transmits an *RRCReconfigurationComplete* message on NR Cell 1? | --> | *RRCReconfigurationComplete* | - | - |
| 32 | UE transmits an *MBSInterestIndication* message on NR Cell 1 | --> | *MBSInterestIndication* | 3 | P |
| 33 | Wait for a scheduling period for SIB20. | - | - | - | - |
| 34 | Wait for a period equal to the MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 1. | - | - | - | - |
| - | Exception: Step 35 is repeated 5 times | - | - | - | - |
| 35 | The SS transmits a MBS Packet on the MTCH with LCID=1. | <-- | MBS Packet | - | - |
| 36 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 37 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 38 | Check: Is the number of reported MBS Packets received on the MTCH in step 37 greater than the number of reported in step 25? | - | - | 2 | P |
| 39 | The UE is made secondly interested in receiving a MBS service with MBS Service ID=2 associated with the MBS FSAI 1 (Note 1). | - | - | - | - |
| 40 | The UE is made aware that the MBS Service ID=2 is ongoing (Note 1). | - | - | - | - |
| 41 | UE transmits an *MBSInterestIndication* message on NR Cell 1 to update the *mbs-ServiceList* | --> | *MBSInterestIndication* | 4 | P |
| Note 1: The request may be performed by MMI or AT command. | | | | | |

14.1.2.3.3.3 Specific message contents

Table 14.1.2.3.3.3-1: *SIB1* of NR Cell 1 and NR Cell 2 (preamble and all steps, Table 14.1.2.3.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-28 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SIB1 ::= SEQUENCE { | |  |  |  |
| servingCellConfigCommon | | ServingCellConfigCommonSIB | Table 14.1.2.3.3.3-2 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| si-SchedulingInfo-v1700 SEQUENCE (SIZE (1..maxSI-Message)) OF SchedulingInfo2-r17 { | | 2 entries |  |  |
| SchedulingInfo2-r17 [1] SEQUENCE { | |  | entry 1 |  |
| si-BroadcastStatus-r17 | | broadcasting |  |  |
| si-WindowPosition-r17 | | 2 | entry number for *si-SchedulingInfo* in *SIB1* +1 |  |
| si-Periodicity-r17 | | 64 |  |  |
| sib-MappingInfo-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-TypeInfo-v1700 { | | 1 entry |  |  |
| SIB-TypeInfo-v1700 [1] SEQUENCE { | |  | entry 1 |  |
| sibType-r17 CHOICE { | |  |  |  |
| type1-r17 | | sibType20 |  | NR Cell 2 OR (preamble AND NR Cell 1) |
| } | |  |  |  |
| valueTag-r17 | | 0 |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| SchedulingInfo2-r17 [2] | | Not present |  | NR Cell 2 |
| SchedulingInfo2-r17 [2] SEQUENCE { | |  | entry 2 | Step3 AND NR Cell 1 |
| si-BroadcastStatus-r17 | | broadcasting |  |  |
| si-WindowPosition-r17 | | 3 | entry number for *si-SchedulingInfo* in *SIB1* +2 |  |
| si-Periodicity-r17 | | 64 |  |  |
| sib-MappingInfo-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-TypeInfo-v1700 { | | 1 entry |  |  |
| SIB-TypeInfo-v1700 [1] SEQUENCE { | |  | entry 1 |  |
| sibType-r17 CHOICE { | |  |  |  |
| type1-r17 | | sibType21 |  |  |
| } | |  |  |  |
| valueTag-r17 | | 0 |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.1.2.3.3.3-2: *ServingCellConfigCommonSIB* (Table 14.1.2.3.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-169 | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfigCommonSIB ::= SEQUENCE { |  |  |  |
| downlinkConfigCommon | DownlinkConfigCommonSIB | Table 14.1.2.3.3.3-3 |  |
| } |  |  |  |

Table 14.1.2.3.3.3-3: *DownlinkConfigCommonSIB* (Table 14.1.2.3.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-53 | | | |
| Information Element | Value/remark | Comment | Condition |
| DownlinkConfigCommonSIB ::= SEQUENCE { |  |  |  |
| initialDownlinkBWP | BWP-DownlinkCommon | Table 14.1.2.3.3.3-4 |  |
| } |  |  |  |

Table 14.1.2.3.3.3-4: *BWP-DownlinkCommon* (Table 14.1.2.3.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-10 with condition InitialBWP\_SIB | | | |
| Information Element | Value/remark | Comment | Condition |
| BWP-DownlinkCommon ::= SEQUENCE { |  |  |  |
| pdcch-ConfigCommon CHOICE { |  |  |  |
| setup | PDCCH-ConfigCommon with conditioni MBS\_Broadcast |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.2.3.3.3-5: *SIB21* of NR Cell 1 (step 3, Table 14.1.2.3.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.2-20 | | | |
| Information Element | Value/remark | Comment | Condition |
| SIB21-r17 ::= SEQUENCE { |  |  |  |
| mbs-FSAI-IntraFreq-r17 SEQUENCE (SIZE (1..maxFSAI-MBS-r17)) OF MBS-FSAI-r17 { | 1 entry |  |  |
| MBS-FSAI-r17[1] | ‘000001’H | entry 1  OCTET STRING (SIZE (3)) |  |
| } |  |  |  |
| mbs-FSAI-InterFreqList-r17 | Not present |  |  |
| } |  |  |  |

Table 14.1.2.3.3.3-6: ACTIVATE TEST MODE (preamble, Table 14.1.2.3.3.2-3)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.1.2.3.3.3-7: *RRCReconfiguration* (step 14 and step26, Table 14.1.2.3.3.2-3)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4] Table 4.6.1-13 with condition MEAS |

Table 14.1.2.3.3.3-8: *MeasConfig* (Table 14.1.2.3.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.6.3-69 | | | |
| Information Element | Value/remark | Comment | Condition |
| MeasConfig ::= SEQUENCE { |  |  |  |
| measObjectToAddModList SEQUENCE (SIZE (1..maxNrofMeasId)) OF MeasObjectToAddMod { | 1 entry |  |  |
| MeasObjectToAddMod[1] SEQUENCE { |  | entry 1 |  |
| measObjectId | 1 |  |  |
| measObject CHOICE { |  |  |  |
| measObjectNR SEQUENCE { |  |  |  |
| ssbFrequency | ARFCN-ValueNR of NR Cell 1 |  |  |
| absThreshSS-BlocksConsolidation | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| reportConfigToAddModList SEQUENCE(SIZE (1..maxReportConfigId)) OF ReportConfigToAddMod { | 1 entry |  |  |
| ReportConfigToAddMod[1] SEQUENCE { |  | entry 1 |  |
| reportConfigId | 1 |  |  |
| reportConfig CHOICE { |  |  |  |
| reportConfigNR | ReportConfigNR-EventA3 | Table 14.1.2.3.3.3-10 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| measIdToAddModList SEQUENCE (SIZE (1..maxNrofMeasId)) OF MeasIdToAddMod { | 1 entry |  |  |
| MeasIdToAddMod[1] SEQUENCE { |  | entry 1 |  |
| measId | 1 |  |  |
| measObjectId | 1 |  |  |
| reportConfigId | 1 |  |  |
| } |  |  |  |
| } |  |  |  |
| measGapConfig | MeasGapConfig |  |  |
| } |  |  |  |

Table 14.1.2.3.3.3-9: *ReportConfigNR-EventA3* (Table 14.1.2.3.3.3-8)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.6.3-142 with condition EVENT\_A3 | | | |
| Information Element | Value/remark | Comment | Condition |
| ReportConfigNR ::= SEQUENCE { |  |  |  |
| reportType CHOICE { |  |  |  |
| eventTriggered SEQUENCE { |  |  |  |
| eventId CHOICE { |  |  |  |
| eventA3 SEQUENCE { |  |  | EVENT\_A3 |
| a3-Offset CHOICE { |  |  |  |
| rsrp | 6 | 3dB | FR1 |
|  | FFS |  | FR2 |
| } |  |  |  |
| hysteresis | 0 | 0 dB |  |
| timeToTrigger | ms640 |  |  |
| } |  |  |  |
| } |  |  |  |
| reportAmount | r1 |  |  |
| reportQuantityCell SEQUENCE { |  |  |  |
| rsrp | true |  |  |
| rsrq | false |  |  |
| sinr | false |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.2.3.3.3-10: *RRCReconfiguration* (step 18 and step 30, Table 14.1.2.3.3.2-3)

|  |
| --- |
| Derivation path: TS 38.508-1 [4] Table 4.8.1-1A with condition RBConfig\_KeyChange |

Table 14.1.2.3.3.3-11: CLOSE UE TEST LOOP (step 8a1, Table 14.1.2.3.3.2-3)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Broadcast MRB |

Table 14.1.2.3.3.3-12: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 10, step 23 and step 36, Table 14.1.2.3.3.2-3)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

### 14.1.3 MBS Broadcast/ MAC

#### 14.1.3.1 MBS Broadcast/ MAC/ Correct HARQ process handling

14.1.3.1.1 Test Purpose (TP)

(1)

***with*** { UE in NR RRC\_CONNECTED state and is interested to receive or receiving data via broadcast MRB }

ensure that {

***when*** { UE receives data addressed to G-RNTI on broadcast MRB }

***then*** { UE does not transmit the HARQ feedback for the MBS broadcast HARQ process }

}

(2)

***with*** { UE in NR RRC\_CONNECTED state and is receiving MBS broadcast services }

ensure that {

***when*** { UE receives a notification that the MCCH information has changed due to MCCH information modification other than the change caused by the start of new MBS session(s) }

***then*** { UE starts acquiring the MBSBroadcastConfiguration message on MCCH and UE does not transimit the HARQ feedback for the MBS broadcast HARQ process}

}

14.1.3.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.321, clause 5.3.2.2. Unless otherwise stated these are Rel-17 requirements.

[TS 38.321, clause 5.3.2.2]

When a transmission takes place for the HARQ process, one or two (in case of downlink spatial multiplexing) TBs and the associated HARQ information are received from the HARQ entity.

For each received TB and associated HARQ information, the HARQ process shall:

…

1> if the HARQ process is associated with a transmission indicated with a MCCH-RNTI for MBS broadcast, and this is the first received transmission for the TB according to the MCCH schedule indicated by RRC; or

1> if the HARQ process is associated with a transmission indicated with a G-RNTI for MBS broadcast, and this is the first received transmission for the TB according to the MTCH schedule indicated by RRC or according to the scheduling indicated by DCI as specified in TS 38.214 [7]; or

1> if this is the very first received transmission for this TB (i.e. there is no previous NDI for this TB):

2> consider this transmission to be a new transmission.

1> else:

2> consider this transmission to be a retransmission.

The MAC entity then shall:

1> if this is a new transmission:

2> attempt to decode the received data.

…

1> if the HARQ process is associated with a transmission indicated with a MCCH-RNTI or a G-RNTI for MBS broadcast; or

…

1> if the HARQ process is configured with disabled HARQ feedback:

2> not instruct the physical layer to generate acknowledgement(s) of the data in this TB.

14.1.3.1.3 Test description

14.1.3.1.3.1 Pre-test conditions

System Simulator:

- NR Cell 1.

- The SS configures the NR Cell 1 as the "Serving cell" and NR Cell 2 as "Non-suitable "Off" cell".

- System information combination NR-20 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cells.

UE:

- None.

Preamble:

- The UE is in state 3N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

- The UE is made interested in receiving a MBS service with MBS Service ID=1.

14.1.3.1.3.2 Test procedure sequence

Table 14.1.3.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | Wait for a scheduling period for SIB20. | - | - | - | - |
| 2 | Wait for a period equals to MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 1. | - | - | - | - |
| 3a1-3a2 | Steps 9a1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1 with condition UE TEST LOOP MODE C. | - | - | - | - |
| - | Exception: Step 4-5 is repeated 5 times | - | - | - | - |
| 4 | The SS transmits a MBS Packet on the MTCH with LCID=1 and g-RNTI = ’0001’H. CRC is calculated in such a way, it will result in CRC fail on UE side. | <-- | MBS Packet. | - | - |
| 5 | Check: Does the UE transmit a HARQ ACK/NACK in 10ms? (Note 1)(Note 2) | --> | HARQ ACK/NACK | 1 | F |
| - | Exception: Step 6-7 is repeated 5 times | - | - | - | - |
| 6 | The SS transmits a MBS Packet on the MTCH with LCID=1 and g-RNTI = ’0001’H. CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet. | - | - |
| 7 | Check: Does the UE transmit a HARQ ACK/NACK in 10ms? (Note 1)(Note 2) | --> | HARQ ACK/NACK | 1 | F |
| 8 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 9 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 10 | Check: Is the number of reported MBS Packets received on the MTCH in step 9 greater than zero? | - | - | 1 | P |
| 11 | The SS starts to transmit the notification that the MCCH information has changed due to MCCH information modification other than the change caused by the start of new MBS session(s) and the updated the *MBSBroadcastConfiguration.*  CRC is calculated in such a way, it will result in CRC fail on UE side. | - | - | - | - |
| 12 | Check: Does the UE transmit a HARQ ACK/NACK in 160ms? (Note 1)(Note 3) | --> | HARQ ACK/NACK | 2 | F |
| 13 | The SS continues to transmit the notification that the MCCH information has changed due to MCCH information modification other than the change caused by the start of new MBS session(s) and the updated the *MBSBroadcastConfiguration.*  CRC is calculated in such a way, it will result in CRC pass on UE side. | - | - | - | - |
| 14 | Check: Does the UE transmit a HARQ ACK/NACK in 160ms? (Note 1)(Note 3) | --> | HARQ ACK/NACK | 2 | F |
| - | Exception: Step 15 -16 is repeated 5 times | - | - | - | - |
| 15 | The SS transmits a MBS Packet on the MTCH with LCID=1 and g-RNTI = ’0002’H. CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet. | - | - |
| 16 | Check: Does the UE transmit a HARQ ACK/NACK? (Note 1)(Note 2) | --> | HARQ ACK/NACK | 1 | F |
| 17 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 18 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 19 | Check: Is the number of reported MBS Packets received on the MTCH in step 18 greater than the number of reported in step 9? | - | - | 2 | P |
| Note 1: When requested to check HARQ feedback for the dedicated broadcast HARQ process, the SS shall assume the same PUCCH reception requirement as specified in TS 38.213 section 9 for a normal HARQ process.  Note 2: For duration of 10ms, the SS shall check HARQ ACK/NACK for MBS Packet.  Note 3: For duration of 160ms, the SS shall check HARQ ACK/NACK for *MBSBroadcastConfiguration* (MCCH information). The MCCH repetition period is 20ms and the MCCH modification period is 80ms. This duration (160ms), includes at least 8 times *MBSBroadcastConfiguration.* | | | | | |

14.1.3.1.3.3 Specific message contents

Table 14.1.3.1.3.3-1: *SIB1* of NR Cell 1 (preamble and all steps, Table 14.1.3.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-28 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SIB1 ::= SEQUENCE { | |  |  |  |
| servingCellConfigCommon | | ServingCellConfigCommonSIB | Table 14.1.3.1.3.3-2 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| si-SchedulingInfo-v1700 SEQUENCE (SIZE (1..maxSI-Message)) OF SchedulingInfo2-r17 { | | 1 entry |  |  |
| SchedulingInfo2-r17 [1] SEQUENCE { | |  | entry 1 |  |
| si-BroadcastStatus-r17 | | broadcasting |  |  |
| si-WindowPosition-r17 | | 2 | entry number for *si-SchedulingInfo* in *SIB1* +1 |  |
| si-Periodicity-r17 | | 64 |  |  |
| sib-MappingInfo-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-TypeInfo-v1700 { | | 1 entry |  |  |
| SIB-TypeInfo-v1700 [1] SEQUENCE { | |  | entry 1 |  |
| sibType-r17 CHOICE { | |  |  |  |
| type1-r17 | | sibType20 |  |  |
| } | |  |  |  |
| valueTag-r17 | | 0 |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.1.3.1.3.3-2: *ServingCellConfigCommonSIB* (Table 14.1.3.1.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-169 | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfigCommonSIB ::= SEQUENCE { |  |  |  |
| downlinkConfigCommon | DownlinkConfigCommonSIB | Table 14.1.3.1.3.3-3 |  |
| } |  |  |  |

Table 14.1.3.1.3.3-3: *DownlinkConfigCommonSIB* (Table 14.1.3.1.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-53 | | | |
| Information Element | Value/remark | Comment | Condition |
| DownlinkConfigCommonSIB ::= SEQUENCE { |  |  |  |
| initialDownlinkBWP | BWP-DownlinkCommon | Table 14.1.3.1.3.3-4 |  |
| } |  |  |  |

Table 14.1.3.1.3.3-4: *BWP-DownlinkCommon* (Table 14.1.3.1.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-10 with condition InitialBWP\_SIB | | | |
| Information Element | Value/remark | Comment | Condition |
| BWP-DownlinkCommon ::= SEQUENCE { |  |  |  |
| pdcch-ConfigCommon CHOICE { |  |  |  |
| setup | PDCCH-ConfigCommon with conditioni MBS\_Broadcast | Table 14.1.3.1.3.3-5 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.3.1.3.3-5: ACTIVATE TEST MODE (preamble, Table 14.1.3.1.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.1.3.1.3.3-6: CLOSE UE TEST LOOP (step 3a1, Table 14.1.3.1.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Broadcast MRB |

Table 14.1.3.1.3.3-7: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 8, step 17, Table 14.1.3.1.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.1.3.1.3.3-8: *MBSBroadcastConfiguration* (step 2, step11, Table 14.1.3.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-5ABA | | | |
| Information Element | Value/remark | Comment | Condition |
| MBSBroadcastConfiguration-r17 := SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| mbsBroadcastConfiguration-r17 SEQUENCE { |  |  |  |
| mbs-SessionInfoList-r17 | MBS-SessionInfoList | Table 14.1.3.1.3.3-10 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.3.1.3.3-9: *MBS-SessionInfoList* (Table 14.1.3.1.3.3-8)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.7-6 | | | |
| Information Element | Value/remark | Comment | Condition |
| MBS-SessionInfoList-r17 ::= SEQUENCE (SIZE (1..maxNrofMBS-Session-r17)) OF MBS-SessionInfo-r17 { | 1 entry |  |  |
| MBS-SessionInfo-r17[1] SEQUENCE { |  |  |  |
| g-RNTI-r17 | ’0001’H |  | step 2 |
|  | ’0002’H |  | step 11 |
| } |  |  |  |
| } |  |  |  |

Table 14.1.3.1.3.3-10: Physical layer parameters for DCI format 4\_0 (Steps 11, 13, Table 14.1.3.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.3.6.1.5.1-1 | | | |
| Parameter | Value | Value in binary | Condition |
| MCCH change notification | MSB indicates no new MBS service(s) start. LSB indicates modification of MCCH information other than the change caused by start of new MBS service(s). | “01” |  |

#### 14.1.3.2 MBS Broadcast/ MAC/ DRX operation

14.1.3.2.1 Test Purpose (TP)

(1)

***with*** { UE in NR RRC\_IDLE state and is receiving data via broadcast MRB }

ensure that {

***when*** { Long DRX cycle for MBS Broadcast is configured for a G-RNTI and [(SFN × 10) + subframe number] modulo (*drx-LongCycle-PTM*) = *drx-StartOffset-PTM* }

***then*** { UE starts the *drx-onDurationTimerPTM* and monitors the PDCCH for this G-RNTI }

}

(2)

***with*** { UE in NR RRC\_INACTIVE state and is receiving data via broadcast MRB }

ensure that {

***when*** { Long DRX cycle for MBS Broadcast is configured for a G-RNTI and [(SFN × 10) + subframe number] modulo (*drx-LongCycle-PTM*) = *drx-StartOffset-PTM* }

***then*** { UE starts the *drx-onDurationTimerPTM* and monitors the PDCCH for this G-RNTI }

}

(3)

***with*** { UE in NR RRC\_CONNECTED state and is receiving data via broadcast MRB }

ensure that {

***when*** { Long DRX cycle for MBS Broadcast is configured for a G-RNTI and [(SFN × 10) + subframe number] modulo (*drx-LongCycle-PTM*) = *drx-StartOffset-PTM* }

***then*** { UE starts the *drx-onDurationTimerPTM* and monitors the PDCCH for this G-RNTI }

}

14.1.3.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.321, clause 5.7a. Unless otherwise stated these are Rel-17 requirements.

[TS 38.300, clause 5.7a]

For MBS broadcast, the MAC entity may be configured by RRC with a DRX functionality per G-RNTI that controls the UE's PDCCH monitoring activity for the MAC entity's G-RNTI(s) as specified in TS 38.331 [5]. When in RRC\_IDLE or RRC\_INACTIVE or RRC\_CONNECTED, if broadcast DRX is configured for a G-RNTI, the MAC entity is allowed to monitor the PDCCH for this G-RNTI discontinuously using the broadcast DRX operation specified in this clause; otherwise the MAC entity monitors each PDCCH for this G-RNTI as specified in TS 38.213 [6]. The broadcast DRX operation specified in this clause is performed independently for each G-RNTI and independently from the DRX operation specified in clauses 5.7 and 5.7b.

RRC controls broadcast DRX operation by configuring the following parameters:

- *drx-onDurationTimerPTM*: the duration at the beginning of a DRX cycle;

- *drx-SlotOffsetPTM*: the delay before starting the *drx-onDurationTimerPTM*;

- *drx-InactivityTimerPTM*: the duration after the PDCCH occasion in which a PDCCH indicates a new DL broadcast transmission for the MAC entity;

- *drx-LongCycleStartOffsetPTM*: the long DRX cycle *drx-LongCycle-PTM* and *drx-StartOffset-PTM* which defines the subframe where the DRX cycle starts.

When broadcast DRX is configured for a G-RNTI, the Active Time includes the time while:

*- drx-onDurationTimerPTM* or *drx-InactivityTimerPTM* for this G-RNTI is running.

When broadcast DRX is configured for a G-RNTI, the MAC entity shall for this G-RNTI:

1> if [(SFN × 10) + subframe number] modulo (*drx-LongCycle-PTM*) = *drx-StartOffset-PTM*:

2> start *drx-onDurationTimerPTM* after *drx-SlotOffsetPTM* from the beginning of the subframe.

1> if the MAC entity is in Active Time for this G-RNTI:

2> monitor the PDCCH for this G-RNTI as specified in TS 38.213 [6];

2> if the PDCCH indicates a DL transmission for MBS broadcast:

3> start or restart *drx-InactivityTimerPTM* in the first symbol after the end of the PDCCH reception.

NOTE: If a cell is configured for MBS broadcast reception, the SFN of this cell is used to calculate the DRX duration of MBS broadcast on this cell.

14.1.3.2.3 Test description

14.1.3.2.3.1 Pre-test conditions

System Simulator:

- NR Cell 1.

- The SS configures the NR Cell 1 as the "Serving cell".

- System information combination NR-20 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- None.

Preamble:

- The UE is in state 3N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

- The UE is made interested in receiving a MBS Broadcast service with MBS Service ID '000001'H.

14.1.3.2.3.2 Test procedure sequence

Table 14.1.3.2.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1 | Wait for a scheduling period for SIB20. | - | - | - | - |
| 2 | Wait for a period equal to the MCCH repetition period for the UE to receive *MBSBroadcastConfiguration* message on NR Cell 1 indicating the DRX parameter for Broadcast MBS. | - | - | - | - |
| 3a1-3a2 | Steps 9a1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1 with condition UE TEST LOOP MODE C. | - | - | - | - |
| 4 | SS transmits *RRCReconfiguration* to configure specific DRX parameters for unicast. | <-- | *RRCReconfiguration* | - | - |
| 5 | The UE transmits *RRCReconfigurationComplete*. | --> | *RRCReconfigurationComplete* | - | - |
| - | Exception: Step 6 is repeated 5 times | - | - | - | - |
| 6 | The SS transmits a MBS Packet on the MTCH with LCID=1 when the *drx-onDurationTimerPTM* is running and DRX for unicast is in inactive time. | <-- | MBS Packet. | - | - |
| 7 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 8 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 9 | Check: Is the number of reported MBS Packets received on the MTCH in step 8 greater than zero? | - | - | 3 | P |
| 10 | The SS transmits an *RRCRelease* message. | <-- | NR RRC: *RRCRelease* | - | - |
| - | Exception: Step 11 is repeated 5 times | - | - | - | - |
| 11 | The SS transmits a MBS Packet on the MTCH with LCID=1 when the *drx-onDurationTimerPTM* is running. | <-- | MBS Packet. | - | - |
| 12-19 | Steps 1 to 8 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 2. | - | - | - | - |
| 20 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 21 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 22 | Check: Is the number of reported MBS Packets received on the MTCH in step 21 greater than the number of reported in step 8? | - | - | 1 | P |
| - | EXCEPTION: Steps 23a1-23a9 describe behaviour that depends on UE configuration; the "lower case letter" identifies a step sequence that takes place if inactiveState is configured | - | - | - | - |
| 23a1 | IF pc\_inactiveState THEN the SS transmits an *RRCRelease* message with *suspendConfig*. | <-- | NR RRC: *RRCRelease* | - | - |
| - | Exception: Step 23a2 is repeated 5 times | - | - | - | - |
| 23a2 | The SS transmits a MBS Packet on the MTCH with LCID=1 when the *drx-onDurationTimerPTM* is running. | <-- | MBS Packet. | - | - |
| 23a3 | The SS transmits a *Paging* message including a matched identity (correct *fullI-RNTI*). | <-- | NR RRC: *Paging* | - | - |
| 23a4 | The UE transmits an *RRCResumeRequest* message. | --> | NR RRC: *RRCResumeRequest* | - | - |
| 23a5 | The SS transmits an *RRCResume* message. | <-- | NR RRC: *RRCResume* | - | - |
| 23a6 | The UE transmits an *RRCResumeComplete* message. | --> | NR RRC: *RRCResumeComplete* | - | - |
| 23a7 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 23a8 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 23a9 | Check: Is the number of reported MBS Packets received on the MTCH in step 23a8 greater than the number of reported in step 21? | - | - | 2 | P |
| Note 1: The request may be performed by MMI or AT command. | | | | | |

14.1.3.2.3.3 Specific message contents

Table 14.1.3.2.3.3-1: *SIB1* of NR Cell 1 (preamble and all steps, Table 14.1.3.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-28 | | | |
| Information Element | | Value/remark | Comment | Condition |
| SIB1 ::= SEQUENCE { | |  |  |  |
| servingCellConfigCommon | | ServingCellConfigCommonSIB | Table 14.1.3.2.3.3-2 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| si-SchedulingInfo-v1700 SEQUENCE (SIZE (1..maxSI-Message)) OF SchedulingInfo2-r17 { | | 1 entry |  |  |
| SchedulingInfo2-r17 [1] SEQUENCE { | |  | entry 1 |  |
| si-BroadcastStatus-r17 | | broadcasting |  |  |
| si-WindowPosition-r17 | | 2 | entry number for *si-SchedulingInfo* in *SIB1* +1 |  |
| si-Periodicity-r17 | | 64 |  |  |
| sib-MappingInfo-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-TypeInfo-v1700 { | | 1 entry |  |  |
| SIB-TypeInfo-v1700 [1] SEQUENCE { | |  | entry 1 |  |
| sibType-r17 CHOICE { | |  |  |  |
| type1-r17 | | sibType20 |  |  |
| } | |  |  |  |
| valueTag-r17 | | 0 |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.1.3.2.3.3-2: *ServingCellConfigCommonSIB* (Table 14.1.3.2.3.3-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-169 | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfigCommonSIB ::= SEQUENCE { |  |  |  |
| downlinkConfigCommon | DownlinkConfigCommonSIB | Table 14.1.3.2.3.3-3 |  |
| } |  |  |  |

Table 14.1.3.2.3.3-3: *DownlinkConfigCommonSIB* (Table 14.1.3.2.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-53 | | | |
| Information Element | Value/remark | Comment | Condition |
| DownlinkConfigCommonSIB ::= SEQUENCE { |  |  |  |
| initialDownlinkBWP | BWP-DownlinkCommon | Table 14.1.3.2.3.3-4 |  |
| } |  |  |  |

Table 14.1.3.2.3.3-4: *BWP-DownlinkCommon* (Table 14.1.3.2.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-10 with condition InitialBWP\_SIB | | | |
| Information Element | Value/remark | Comment | Condition |
| BWP-DownlinkCommon ::= SEQUENCE { |  |  |  |
| pdcch-ConfigCommon CHOICE { |  |  |  |
| setup | PDCCH-ConfigCommon with conditioni MBS\_Broadcast | Table 14.1.3.2.3.3-5 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.3.2.3.3-5: ACTIVATE TEST MODE (preamble, Table 14.1.3.2.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.1.3.2.3.3-6: *MBSBroadcastConfiguration* (preamble and all steps, Table 14.1.3.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-5ABA with condition DRX\_MBS\_Broadcast | | | |
| Information Element | Value/remark | Comment | Condition |
| MBSBroadcastConfiguration-r17 := SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| mbs-SessionInfoList-r17 | MBS-SessionInfoList with condition DRX\_MBS\_Broadcast |  |  |
| mbsBroadcastConfiguration-r17 SEQUENCE { |  |  |  |
| drx-ConfigPTM-List-r17 SEQUENCE (SIZE (1..maxNrofDRX-ConfigPTM-r17)) OF DRX-ConfigPTM-r17 { | 1 entry |  |  |
| DRX-ConfigPTM-r17[1] | DRX-ConfigPTM | entry 1  Table 14.1.3.2.3.3-7 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.3.2.3.3-7: DRX-ConfigPTM (Table 14.1.3.2.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.7-3 | | | |
| Information Element | Value/remark | Comment | Condition |
| DRX-ConfigPTM-r17 ::= SEQUENCE { |  |  |  |
| drx-onDurationTimerPTM-r17 CHOICE { |  |  |  |
| milliSeconds | ms20 |  |  |
| } |  |  |  |
| drx-InactivityTimerPTM-r17 | ms1 |  |  |
| drx-LongCycleStartOffsetPTM-r17 CHOICE { |  |  |  |
| ms640 | 320 |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.3.2.3.3-8: CLOSE UE TEST LOOP (step 3a1, Table 14.1.3.2.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C |

Table 14.1.3.2.3.3-9: *RRCReconfiguration* (step 4, Table 14.1.3.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.6.1-13 | | | |
| Information Element | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReconfiguration ::= SEQUENCE { |  |  |  |
| nonCriticalExtension::= SEQUENCE { |  |  |  |
| masterCellGroup | CellGroupConfig | Table 14.1.3.2.3.3-10 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.3.2.3.3-10: *CellGroupConfig* (Table 14.1.3.2.3.3-10)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| cellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig SEQUENCE { |  |  |  |
| drx-Config CHOICE { |  |  |  |
| setup | DRX-Config | Table 14.1.3.2.3.3-11 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.3.2.3.3-11: *DRX-Config* (Table 14.1.3.2.3.3-11)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.6.3-56 | | | |
| Information Element | Value/remark | Comment | Condition |
| DRX-Config ::= SEQUENCE { |  |  |  |
| drx-onDurationTimer CHOICE { |  |  |  |
| milliSeconds | ms20 |  |  |
| } |  |  |  |
| drx-InactivityTimer | ms1 |  |  |
| drx-LongCycleStartOffset CHOICE { |  |  |  |
| ms640 | 0 |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.1.3.2.3.3-12: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 7, step 20 and step 23a7, Table 14.1.3.2.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.1.3.2.3.3-13: *RRCRelease* (step 23a1, Table 14.1.3.2.3.2-1)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-16 with condition NR\_RRC\_INACTIVE |

Table 14.1.3.2.3.3-14: *Paging* (step 23a3, Table 14.1.3.2.3.2-1)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-9 with condition NR\_RRC\_RESUME |

## 14.2 MBS Multicast

### 14.2.1 MBS Multicast/ MAC

#### 14.2.1.1 MBS Multicast/ MAC / DL Data Transfer

##### 14.2.1.1.1 MBS Multicast / MAC / DL Data Transfer / PTM transmission / PTP transmission / DCI format 4\_1

14.2.1.1.1.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-AM entity for PTP transmission and HARQ feedback for Multicast is not enabled }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI and successfully decodes it }

***then*** { UE receives the MAC PDU and forwards it to higher layer }

}

(2)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-AM entity for PTP transmission and HARQ feedback for Multicast is not enabled }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's C-RNTI and successfully decodes it }

***then*** { UE receives the MAC PDU and forwards it to higher layer }

}

(3)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-AM entity for PTP transmission and HARQ feedback for Multicast is not enabled }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for unknown G-RNTI }

***then*** { UE does not receive the MAC PDU }

}

(4)

***with*** { UE in RRC\_Connected state and LCID is used to configure MAC logical Channel for receiving PTM transmission }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI and LCID of the MAC PDU is matched with the LCID configured for receiving PTM transmission }

***then*** { UE receives the MAC PDU and forwards it to higher layer }

}

(5)

***with*** { UE in RRC\_Connected state and eLCID is used to configure MAC logical Channel for receiving PTM transmission }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI and eLCID of the MAC PDU is matched with the eLCID configured for receiving PTM transmission }

***then*** { UE receives the MAC PDU and forwards it to higher layer }

}

(6)

***with*** { UE in RRC\_Connected state and size of CFR configured in locationAndBandwidthMulticast-r17 is the same as the size of CORESET 0 }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI }

***then*** { UE receives the MAC PDU and forwards it to higher layer }

}

(7)

***with*** { UE in RRC\_Connected state and size of CFR configured in locationAndBandwidthMulticast-r17 is the same as the value of locationAndBandwidth of the DL BWP in which the cfr-ConfigMulticast is configured }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI }

***then*** { UE receives the MAC PDU and forwards it to higher layer }

}

14.2.1.1.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.300, clause 16.10.4, 16.10.5.4; TS 38.321, clause 5.3.1, 5.3.2, 5.3.3 and 7.1; TS 38.214, clause 5.1.2.2.3; TS 38.212, clause 7.3.1.5.2. Unless otherwise stated these are Rel-17 requirements.

[TS 38.300, clause 16.10.4]

The following logical channels are used for MBS delivery:

- MTCH: A point-to-multipoint downlink channel for transmitting MBS data of either multicast session or broadcast session from the network to the UE;

- DTCH: A point-to-point channel defined in clause 6.2.2 for transmitting MBS data of a multicast session from the network to the UE;

…

The following connections between logical channels and transport channels for group transmission exist:

…

- MTCH can be mapped to DL-SCH.

[TS 38.300, clause 16.10.5.4]

For multicast service, gNB may deliver Multicast MBS data packets using the following methods:

- PTP Transmission: gNB individually delivers separate copies of MBS data packets to each UEs independently, i.e., gNB uses UE-specific PDCCH with CRC scrambled by UE-specific RNTI (e.g., C-RNTI) to schedule UE-specific PDSCH which is scrambled with the same UE-specific RNTI.

- PTM Transmission: gNB delivers a single copy of MBS data packets to a set of UEs, e.g., gNB uses group-common PDCCH with CRC scrambled by group-common RNTI to schedule group-common PDSCH which is scrambled with the same group-common RNTI.

If a UE is configured with both PTM and PTP transmissions, a gNB dynamically decides whether to deliver multicast data by PTM leg and/or PTP leg for a given UE based on the protocol stack defined in clause 16.10.3, based on information such as MBS Session QoS requirements, number of joined UEs, UE individual feedback on reception quality, and other criteria. The same QoS requirements apply regardless of the decision.

[TS 38.321, clause 5.3.1]

When the MAC entity has a C-RNTI, Temporary C-RNTI, CS-RNTI, G-RNTI or G-CS-RNTI, the MAC entity shall for each PDCCH occasion during which it monitors PDCCH and for each Serving Cell:

1> if a downlink assignment for this PDCCH occasion and this Serving Cell has been received on the PDCCH for the MAC entity's C-RNTI, or Temporary C‑RNTI, or G-RNTI configured for multicast MTCH:

…

2> if the downlink assignment is for the MAC entity's C-RNTI, and if the previous downlink assignment indicated to the HARQ entity of the same HARQ process was either a downlink assignment received for the MAC entity's CS-RNTI or G-CS-RNTI, or a configured downlink assignment for unicast or MBS multicast; or

2> if the downlink assignment is for the MAC entity's G-RNTI configured for multicast MTCH, and if the previous downlink assignment indicated to the HARQ entity of the same HARQ process was either a downlink assignment received for the MAC entity's CS-RNTI or G-CS-RNTI, or other G-RNTI, or C-RNTI, or a configured downlink assignment for unicast or MBS multicast:

3> consider the NDI to have been toggled regardless of the value of the NDI.

[TS 38.321, clause 5.3.2]

For each received TB and associated HARQ information, the HARQ process shall:

1> if the NDI, when provided, has been toggled compared to the value of the previous received transmission corresponding to this TB; or

…

2> consider this transmission to be a new transmission.

1> else:

2> consider this transmission to be a retransmission.

[TS 38.321, clause 5.3.3]

When a MAC entity receives a MAC PDU for MAC entity's G-RNTI or G-CS-RNTI, or by the configured downlink assignment for MBS multicast containing an LCID or eLCID which is not configured, the MAC entity shall at least:

1> discard the received subPDU.

[TS 38.321, clause 7.1]

Table 7.1-2: RNTI usage

|  |  |  |  |
| --- | --- | --- | --- |
| RNTI | Usage | Transport Channel | Logical Channel |
| … | … | … | … |
| C-RNTI | Dynamically scheduled unicast transmission | DL-SCH | CCCH, DCCH, DTCH |
| … | … | … | … |
| G-RNTI | Dynamically scheduled MBS PTM transmission | DL-SCH | MTCH |
| … | … | … | … |

[TS 38.214, clause 5.1.2.2.3]

In downlink resource allocation of type 1 scheduled using DCI format 4\_0 or DCI format 4\_1 with CRC scrambled by G-RNTI, G-CS-RNTI or MCCH-RNTI, the resource block assignment information indicates to a scheduled UE a set of contiguously allocated non-interleaved or interleaved virtual resource blocks.

A downlink type 1 resource block assignment field in the DCI format 4\_0 or DCI format 4\_1 consists of a *RIV* corresponding to a starting resource block in reference to the lowest RB of the CFR and a length in terms of virtually contiguously allocated resource blocks LRBs, where  is given by

- the size of CORESET 0 if CORESET 0 is configured for the cell;

- the size of initial DL bandwidth part if CORESET 0 is not configured for the cell.

The resource indication value is defined by:

if  then



else



where, and where shall not exceed .



If , *K* is the maximum value from set {1, 2, 4, 6, 8, 10, 12} which satisfies ; otherwise *K* = 1.



[TS 38.212, clause 7.3.1.5.2]

DCI format 4\_1 is used for the scheduling of PDSCH for multicast in DL cell.

The following information is transmitted by means of the DCI format 4\_1 with CRC scrambled by G-RNTI configured by *G-RNTI-Config* or G-CS-RNTI:

- Frequency domain resource assignment – bits where equals to as given by clause 7.3.1.0



- Time domain resource assignment – 4 bits as defined in Clause 5.1.2.1 of [6, TS38.214]

- VRB-to-PRB mapping – 1 bit according to Table 7.3.1.2.2-5

- Modulation and coding scheme – 5 bits as defined in Clause 5.1.3 of [6, TS38.214]

- New data indicator – 1 bit

- Redundancy version – 2 bits as defined in Table 7.3.1.1.1-2

- HARQ process number – 4 bits

- Downlink assignment index – 2 bits as defined in Clause 9.1.3 of [5, TS 38.213], as counter DAI

- PUCCH resource indicator – 3 bits as defined in Clause 9.2.3 of [5, TS38.213]

- PDSCH-to-HARQ\_feedback timing indicator – 3 bits as defined in Clause 9.2.3 of [5, TS38.213]

- Reserved bits – 3 bits

14.2.1.1.1.3 Test description

14.2.1.1.1.3.1 Pre-test conditions

System Simulator:

- NR Cell 1.

- The SS configures the NR Cell 1 as the "Serving cell".

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- None.

Preamble:

- The UE is in state 1N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

14.2.1.1.1.3.2 Test procedure sequence

Table 14.2.1.1.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2a1-2a2 | Steps 9a1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1 with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 3 | The SS transmits a downlink assignment addressed to the G-RNTI assigned to the UE | <-- | (PDCCH (G-RNTI)) | - | - |
| 4 | The SS transmits a MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission. | <-- | MBS Packet. | - | - |
| 5 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 6 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 7 | Check: Is the number of reported MBS Packets received on the MRB in step 6 equal to 1? | - | - | 1, 4, 7 | P |
| 8 | The SS transmits a downlink assignment addressed to the C-RNTI assigned to the UE | <-- | (PDCCH (C-RNTI)) | - | - |
| 9 | The SS transmits a MBS Packet on the DTCH with LCID matched with the LCID configured for receiving PTP transmission | <-- | MBS Packet. | - | - |
| 10 | Check: Does the UE transmit a HARQ ACK? | --> | HARQ ACK | 2 | P |
| 11 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 12 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 13 | Check: Is the number of reported MBS Packets received on the MRB in step 12 equal to 2? | - | - | 2 | P |
| 14 | The SS transmits a downlink assignment to including a G-RNTI different from the assigned to the UE | <-- | (PDCCH (unknown G-RNTI)) | - | - |
| 15 | The SS transmits a MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission. | <-- | MBS Packet. | - | - |
| 16 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 17 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 18 | Check: Is the number of reported MBS Packets received on the MRB in step 17 equal to 2? | - | - | 3 | P |
| 19 | The SS transmits *RRCReconfiguration* to configure eLCID for receiving PTM transmission and CFR for multicast to the same size of CORESET 0. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 20 | The UE transmits *RRCReconfigurationComplete*. | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 21 | The SS transmits a downlink assignment addressed to the G-RNTI assigned to the UE | <-- | (PDCCH (G-RNTI)) | - | - |
| 22 | The SS transmits a MBS Packet on the MTCH with eLCID matched with the eLCID configured for receiving PTM transmission. | <-- | MBS Packet. | - | - |
| 23 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 24 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 25 | Check: Is the number of reported MBS Packets received on the MRB in step 24 equal to 3? | - | - | 1, 5, 6 | P |

14.2.1.1.1.3.3 Specific message contents

Table 14.2.1.1.1.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.1.1.1.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.1.1.1.3.3-2: *RRCReconfiguration* (step 1a15, Table 14.2.1.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition MRBm and AMPTP\_UMPTM | m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm and AMPTP\_UMPTM | m=1 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.1.3.3-3: *RRCReconfiguration* (step 1b10, Table 14.2.1.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition DRBn and MRBm and AMPTP\_UMPTM | n is chosen as the next available number higher or equal to 2  m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm\_DRBn and AMPTP\_UMPTM | n is set to the same value as for the radioBearerConfig IE above  m=1 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.1.3.3-4: CLOSE UE TEST LOOP (step 2a1, Table 14.2.1.1.1.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB |

Table 14.2.1.1.1.3.3-5: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 5, step 11, step 16 and step23, Table 14.2.1.1.1.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.1.1.1.3.3-6: *RRCReconfiguration* (step 19, Table 14.2.1.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.1.3.3-7 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.1.3.3-7: *CellGroupConfig* (Table 14.2.1.1.1.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 , condition MRBm and AMPTP\_UMPTM (m=1) | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | 1 entry |  |  |
| RLC-BearerConfig[1] | RLC-BearerConfig | entry 1  Table 14.2.1.1.1.3.3-8 |  |
| } |  |  |  |
| rlc-BearerToReleaseList SEQUENCE (SIZE(1..maxLC-ID)) OF LogicalChannelIdentity { | Not present |  |  |
| LogicalChannelIdentity[1] | LogicalChannelIdentity with condition MRBm and PTM | entry 1  m=1 |  |
| } |  |  |  |
| mac-CellGroupConfig | Not present |  |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig | Table 14.2.1.1.1.3.3-9 |  |
| } |  |  |  |

Table 14.2.1.1.1.3.3-8: *RLC-BearerConfig* (Table 14.2.1.1.1.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.331 [6], Table 4.6.3-148 , conditions UM\_DLonly and PTM and MRBm (m=1) | | | |
| Information Element | Value/remark | Comment | Condition |
| RLC-BearerConfig ::= SEQUENCE { |  |  |  |
| logicalChannelIdentityExt-r17 | 320 |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.1.1.3.3-9: *ServingCellConfig* (Table 14.2.1.1.1.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.331 [6], Table 4.6.3-167 | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfig ::= SEQUENCE { |  |  |  |
| initialDownlinkBWP | BWP-DownlinkDedicated | Table 14.2.1.1.1.3.3-10 |  |

Table 14.2.1.1.1.3.3-10: *BWP-DownlinkDedicated* (Table 14.2.1.1.1.3.3-9)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.331 [6], Table 4.6.3-11 | | | |
| Information Element | Value/remark | Comment | Condition |
| BWP-DownlinkDedicated ::= SEQUENCE { |  |  |  |
| cfr-ConfigMulticast-r17 CHOICE { |  |  |  |
| setup | CFR-ConfigMulticast | Table 14.2.1.1.1.3.3-11 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.1.1.3.3-11: *CFR-ConfigMulticast* (Table 14.2.1.1.1.3.3-10)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-23AA | | | |
| Information Element | Value/remark | Comment | Condition |
| CFR-ConfigMulticast-r17 ::= SEQUENCE { |  |  |  |
| locationAndBandwidthMulticast-r17 | Same as coreset 0 | Note 1 |  |
| } |  |  |  |
| Note 1: The value for *locationAndBandwidth* parameter is calculated as the RIV value in accordance to TS 38.214 [21] with = 275, = Offset Carrier CORESET#0 [RBs] in the TS 38.508-1 [4], 6.2.3.1 and = the length of the CORESET#0 for each test band. | | | |

##### 14.2.1.1.2 MBS Multicast / MAC / DL Data Transfer/ PTM transmission/ DCI format 4\_2

14.2.1.1.2.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and locationAndBandwidthMulticast-r17 does not equal to the value of locationAndBandwidth of the DL BWP in which the cfr-ConfigMulticast is configured and resource allocation type 0 for pdsch-ConfigMulticast }

ensure that {

***when*** { UE receives downlink assignment DCI format 4\_2 with MAC PDU scheduled for UE's G-RNTI }

***then*** { UE receives the MAC PDU and forwards it to higher layer }

}

(2)

***with*** { UE in RRC\_Connected state and locationAndBandwidthMulticast-r17 does not equal to the value of locationAndBandwidth of the DL BWP in which the cfr-ConfigMulticast is configured and resource allocation type 1 for pdsch-ConfigMulticast }

ensure that {

***when*** { UE receives downlink assignment DCI format 4\_2 with MAC PDU scheduled for UE's G-RNTI }

***then*** { UE receives the MAC PDU and forwards it to higher layer }

}

14.2.1.1.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.214, clauses 5.1.2.2.1 and 5.1.2.2.3; TS 38.212, clause 7.3.1.5.3. Unless otherwise stated these are Rel-17 requirements.

[TS 38.214, clause 5.1.2.2.1]

In downlink resource allocation of type 0 scheduled using a DCI with CRC scrambled by G-RNTI for multicast or G-CS-RNTI, the resource block assignment information bitmap is calculated based on the description above with the following changes: the parameter is the starting PRB of the CFR, is the size of the common frequency resource (CFR) and the value of the higher layer parameter *rbg-Size* is configured by *pdsch-ConfigMulticast*.



[TS 38.214, clause 5.1.2.2.3]

In downlink resource allocation of type 1 scheduled using DCI format 4\_2 with CRC scrambled by G-RNTI for multicast or G-CS-RNTI, the description in clause 5.1.2.2.2 with the following changes:  corresponds to a starting resource block in reference to the lowest RB of the CFR and  is the size of the CFR.

[TS 38.214, clause 7.3.1.5.3]

DCI format 4\_2 is used for the scheduling of PDSCH in DL cell.

The following information is transmitted by means of the DCI format 4\_2 with CRC scrambled by G-RNTI for multicast or G-CS-RNTI configured by *MBS-RNTI-SpecificConfig*:

- Frequency domain resource assignment – number of bits determined by the following, where is the size of the common frequency resource as configured by higher layer parameter *locationAndBandwidthMulticast*:



- bits if only resource allocation type 0 is configured, where is defined in Clause 5.1.2.2.1 of [6, TS38.214],



- bits if only resource allocation type 1 is configured, or



- bits if *resourceAllocation* in *pdsch-ConfigMulticast* is configured as '*dynamicSwitch'*.



- If *resourceAllocation* in *pdsch-ConfigMulticast* is configured as '*dynamicSwitch'*, the MSB bit is used to indicate resource allocation type 0 or resource allocation type 1, where the bit value of 0 indicates resource allocation type 0 and the bit value of 1 indicates resource allocation type 1.

- For resource allocation type 0, the LSBs provide the resource allocation as defined in Clause 5.1.2.2.1 of [6, TS 38.214].



- For resource allocation type 1, the LSBs provide the resource allocation as defined in Clause 5.1.2.2.2 of [6, TS 38.214]



14.2.1.1.2.3 Test description

14.2.1.1.2.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 is the serving cell.

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR Cell 1.

UE:

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

Preamble:

- The UE is in state 1N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.2.1.1.2.3.2 Test procedure sequence

Table 14.2.1.1.2.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. (Note 1) (Note 2) | - | - | - | - |
| 13a1-13a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 14 | The SS transmits a MBS Packet. | <-- | MBS Packet. | - | - |
| 15 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 16 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 17 | Check: Is the number of reported MBS Packets received in step 16 equal to 1? | - | - | 1 | P |
| 18 | The SS transmits an *RRCReconfiguration* message including *pdsch-ConfigMulticast* with IE resourceAllocation set to resourceAllocationType1. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 19 | The UE transmit an *RRCReconfigurationComplete* message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 20 | The SS transmits a MBS Packet. | <-- | MBS Packet. | - | - |
| 21 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 22 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 23 | Check: Is the number of reported MBS Packets received in step 22 equal to 2? | - | - | 2 | P |
| Note 1: *LocationAndBandwidthMulticast* is configured to use same frequency domain resources as CORESET#0. *LocationAndBandwidthMulticast* is different from *locationAndBandwidth* of the DL BWP expect for n38, n39, n48 and n50.  Note 2: ResourceAllocationof *pdsch-ConfigMulticast* set to *resourceAllocationType0*. | | | | | |

14.2.1.1.2.3.3 Specific message contents

Table 14.2.1.1.2.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.1.1.2.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.1.1.2.3.3-2: *RRCReconfiguration* (step 1a15, Table 14.2.1.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition MRBm and UM\_PTM | m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.2.3.3-4 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.2.3.3-3: *RRCReconfiguration* (step 1b10, Table 14.2.1.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition DRBn and MRBm and UM\_PTM | n is chosen as the next available number higher or equal to 2  m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.2.3.3-5 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.2.3.3-4: *CellGroupConfig* (Table 14.2.1.1.2.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm and UM\_PTM (m=1) | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig | Table 14.2.1.1.2.3.3-6 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.1.2.3.3-5: *CellGroupConfig* (Table 14.2.1.1.2.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm\_DRBn and UM\_PTM (Note 1) | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig | Table 14.2.1.1.2.3.3-6 |  |
| } |  |  |  |
| } |  |  |  |
| Note 1: n is set to the same value as for the radioBearerConfig IE in Table 14.2.1.1.2.3.3-2 and m=1. | | | |

Table 14.2.1.1.2.3.3-6: *ServingCellConfig* (Table 14.2.1.1.2.3.3-2, Table 14.2.1.1.2.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-167, condition MBS\_Multicast | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfig ::= SEQUENCE { |  |  |  |
| initialDownlinkBWP | BWP-DownlinkDedicated | Table 14.2.1.1.2.3.3-7 |  |
| } |  |  |  |

Table 14.2.1.1.2.3.3-7: *BWP-DownlinkDedicated* (Table 14.2.1.1.2.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-11, condition MBS\_Multicast | | | |
| Information Element | Value/remark | Comment | Condition |
| BWP-DownlinkDedicated ::= SEQUENCE { |  |  |  |
| cfr-ConfigMulticast-r17 CHOICE { |  |  |  |
| setup | CFR-ConfigMulticast | Table 14.2.1.1.2.3.3-8 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.1.2.3.3-8: *CFR-ConfigMulticast* (Table 14.2.1.1.2.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-23AA | | | |
| Information Element | Value/remark | Comment | Condition |
| CFR-ConfigMulticast-r17 ::= SEQUENCE { |  |  |  |
| locationAndBandwidthMulticast-r17 | Same as CORESET#0 | Note 1 |  |
| pdcch-ConfigMulticast-r17 | PDCCH-Config | Note 2  Table 14.2.1.1.2.3.3-9 |  |
| pdsch-ConfigMulticast-r17 | PDSCH-Config with condition MBS\_Multicast and Used\_for\_Type0 |  | Step1a15,  Step1b10 |
|  | PDSCH-Config with condition MBS\_Multicast |  | Step 18 |
| } |  |  |  |
| Note 1: The value for *locationAndBandwidthMulticast* parameter is calculated as the RIV value in accordance to TS 38.214 [21] with = 275, = Offset Carrier CORESET#0 [RBs] in the TS 38.508-1 [4], 6.2.3.1 and = the length of the CORESET#0 for each test band.  Note 2: The DCI format 4-2 is configured to send in CORESET#0. | | | |

Table 14.2.1.1.2.3.3-9: *PDCCH-Config* (Table 14.2.1.1.2.3.3-8)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-95, condition MSS | | | |
| Information Element | Value/remark | Comment | Condition |
| PDCCH-Config ::= SEQUENCE { |  |  |  |
| searchSpacesToAddModList SEQUENCE(SIZE (1..10)) OF SearchSpace { | 1 entry |  |  |
| SearchSpace[1] | SearchSpace | entry 1  Table 14.2.1.1.2.3.3-10 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.1.2.3.3-10: *SearchSpace* (Table 14.2.1.1.2.3.3-9)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-162, condition MSS | | | |
| Information Element | Value/remark | Comment | Condition |
| SearchSpace ::= SEQUENCE { |  |  |  |
| controlResourceSetId | 0 |  |  |
| } |  |  |  |

Table 14.2.1.1.2.3.3-11: CLOSE UE TEST LOOP (step 13a1, Table 14.2.1.1.2.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB |

Table 14.2.1.1.2.3.3-12: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 15 and step 21, Table 14.2.1.1.2.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.1.1.2.3.3-13: *RRCReconfiguration* (step 18, Table 14.2.1.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.2.3.3-14 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.2.3.3-14: *CellGroupConfig* (Table 14.2.1.1.2.3.3-13)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList | Not present |  |  |
| mac-CellGroupConfig | Not present |  |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig | Table 14.2.1.1.2.3.3-6 |  |
| } |  |  |  |
| } |  |  |  |

##### 14.2.1.1.4 MBS Multicast/ MAC / DL Data Transfer/ PTM retransmission for multicast/ RRC-based enabling-disabling HARQ feedback for Multicast / ACK-NACK

14.2.1.1.4.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with ACK-NACK mode is enabled by RRC }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI and successfully decodes it }

***then*** { UE sends ACK for the corresponding HARQ process and forwards it to higher layer }

}

(2)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with ACK-NACK mode is enabled by RRC }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI and decodes it failure }

***then*** { UE sends NACK for the corresponding HARQ process }

}

(3)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with ACK-NACK mode is enabled by RRC }

ensure that {

***when*** { UE receives MAC PDU retransmission for UE's G-RNTI and successfully decodes it }

***then*** { UE sends ACK for the corresponding HARQ process and forwards it to higher layer }

}

(4)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with ACK-NACK mode is enabled by RRC and pdsch-AggregationFactor > 1 }

ensure that {

***when*** { UE receives downlink assignment on the PDCCH for the UE’s G-RNTI and receives data in the associated slot and successive pdsch-AggregationFactor – 1 HARQ retransmissions within a bundle and UE could not successfully decode the data }

***then*** { UE sends NACK on the HARQ process }

}

(5)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with ACK-NACK mode is enabled by RRC and pdsch-AggregationFactor > 1 }

ensure that {

***when*** { UE receives downlink assignment on the PDCCH for the UE’s G-RNTI and receives data in the associated slot and successive pdsch-AggregationFactor – 1 HARQ retransmissions within a bundle and UE could successfully decode the data }

***then*** { UE sends ACK on the HARQ process }

}

(6)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast is disabled by RRC }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI }

***then*** { UE does not send HARQ feedback }

}

14.2.1.1.4.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.300, clause 16.10.5.7; TS 38.321, clause 5.3.2; TS 38.213, clause 18. Unless otherwise stated these are Rel-17 requirements.

[TS 38.300, clause 16.10.5.7]

Two HARQ-ACK reporting modes are defined for MBS:

- For the first HARQ-ACK reporting mode, the UE generates HARQ-ACK information with ACK value when a UE correctly decodes a transport block or detects a DCI format indicating an SPS PDSCH release; otherwise, the UE generates HARQ-ACK information with NACK value.

- For the second HARQ-ACK reporting mode, the UE does not transmit a PUCCH that would include only HARQ-ACK information with ACK values.

HARQ-ACK feedback for multicast can be enabled or disabled by higher layer configuration per G-RNTI or per G-CS-RNTI and/or indication in the DCI scheduling multicast transmission.

[TS 38.321, clause 5.3.2]

For each received TB and associated HARQ information, the HARQ process shall:

1> if the NDI, when provided, has been toggled compared to the value of the previous received transmission corresponding to this TB; or

…

2> consider this transmission to be a new transmission.

1> else:

2> consider this transmission to be a retransmission.

The MAC entity then shall:

1> if this is a new transmission:

2> attempt to decode the received data.

1> else if this is a retransmission:

2> if the data for this TB has not yet been successfully decoded:

3> instruct the physical layer to combine the received data with the data currently in the soft buffer for this TB and attempt to decode the combined data.

…

1> if the HARQ process is associated with a transmission indicated with a G-RNTI or a G-CS-RNTI for MBS multicast and HARQ feedback is disabled; or

1> if the HARQ process is associated with a transmission indicated with a G-RNTI or a G-CS-RNTI for MBS multicast and NACK only HARQ feedback is configured and the data for this TB is successfully decoded; or

…

1> if the HARQ process is configured with disabled HARQ feedback:

2> not instruct the physical layer to generate acknowledgement(s) of the data in this TB.

1> else:

2> instruct the physical layer to generate acknowledgement(s) of the data in this TB.

[TS 38.213, clause 18]

This clause is applicable only for PDCCH receptions, PDSCH receptions, and PUCCH transmissions for MBS on a serving cell. DCI formats with CRC scrambled by G-RNTI or G-CS-RNTI scheduling PDSCH receptions are referred to as multicast DCI formats and the PDSCH receptions are referred to as multicast PDSCH receptions. DCI formats with CRC scrambled by MCCH-RNTI or G-RNTI for MTCH scheduling PDSCH receptions are referred to as broadcast DCI formats and the PDSCH receptions are referred to as broadcast PDSCH receptions. HARQ-ACK information associated with multicast DCI formats or multicast PDSCH receptions is referred to as multicast HARQ-ACK information.

…

A PDSCH reception providing an initial transmission of a transport block is scheduled only by a multicast DCI format. For the first HARQ-ACK reporting mode, a PDSCH reception providing a retransmission of the transport block can be scheduled either by a multicast DCI format using a same G-RNTI as the G-RNTI of the initial transmission of the transport block, or by a unicast DCI format using a C-RNTI [6, TS 38.214].

14.2.1.1.4.3 Test description

14.2.1.1.4.3.1 Pre-test conditions

System Simulator:

- NR Cell 1.

- The SS configures the NR Cell 1 as the "Serving cell".

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- None.

Preamble:

- The UE is in state 1N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

14.2.1.1.4.3.2 Test procedure sequence

Table 14.2.1.1.4.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Step 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2a1-2a2 | Steps 9a1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1 with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 3 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE. | <-- | (PDCCH (G-RNTI)) | - | - |
| 4 | The SS transmits a MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The content of the MBS Packet is set so that UE could successfully decode the data from its soft buffer. | <-- | MBS Packet | - | - |
| 5 | Check: Does the UE transmit a HARQ ACK? | --> | HARQ ACK | 1 | P |
| 6 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 7 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 8 | Check: Is the number of reported MBS Packets received on the MRB in step 7 equal to 1? | - | - | 1 | P |
| 9 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE. | <-- | (PDCCH (G-RNTI)) | - | - |
| 10 | The SS transmits a MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet | - | - |
| 11 | Check: Does the UE transmit a HARQ NACK? | --> | HARQ NACK | 2 | P |
| - | EXCEPTION: Steps 12-13 shall be repeated till HARQ ACK is received at step 13 or until HARQ retransmission count = 4 is reached for MBS Packet at step 13 (Note 1). | - | - | - | - |
| 12 | The SS indicates a retransmission addressed to the G-RNTI assigned to the UE. | <-- | (PDCCH (G-RNTI)) | - | - |
| 13 | The SS transmits the same MBS Packet like step 10 for PTM retransmission for multicast.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 13 | Check: Does the UE transmit a HARQ ACK? | --> | HARQ ACK | 3 | P |
| 14 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 15 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 16 | Check: Is the number of reported MBS Packets received on the MRB in step 15 equal to 2? | - | - | 3 | P |
| 17 | The SS transmits *RRCReconfiguration* to configure *pdsch-AggregationFactor-r17* to n4 for multicast. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 18 | The UE transmits *RRCReconfigurationComplete*. | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 19 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE. | <-- | (PDCCH (G-RNTI)) | - | - |
| 20 | The SS transmits a MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet. | - | - |
| 21 | In the following 3 consecutive slots, the SS transmits same MBS Packet in step 20.  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet. | - | - |
| 22 | Check: Does the UE transmit a HARQ NACK on slot n3+k1? (Note 2) | --> | HARQ NACK | 4 | P |
| 23 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE. | <-- | (PDCCH (G-RNTI)) | - | - |
| 24 | The SS transmits a MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet. | - | - |
| 25 | In the following 3 consecutive slots, the SS transmits same MBS Packet in step 24.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet. | - | - |
| 26 | Check: Does the UE transmit a HARQ ACK on slot n3+k1? (Note 2) | --> | HARQ ACK | 5 | P |
| 27 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 28 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 29 | Check: Is the number of reported MBS Packets received on the MRB in step 28 equal to 3? | - | - | 5 | P |
| 30 | The SS transmits *RRCReconfiguration* to disable HARQ feedback for multicast | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 31 | The UE transmits *RRCReconfigurationComplete*. | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 32 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE. | <-- | (PDCCH (G-RNTI)) | - | - |
| 33 | The SS transmits a MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission. | <-- | MBS Packet | - | - |
| 34 | Check: Does the UE transmit a HARQ ACK/NACK? | --> | HARQ ACK/NACK | 6 | F |
| 35 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 36 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 37 | Check: Is the number of reported MBS Packets received on the MRB in step 36 equal to 4? | - | - | 6 | P |
| Note 1: The value 4 for the maximum number of HARQ retransmissions has been chosen based on an assumption that, given the radio conditions used in this test case, a UE soft combiner implementation should have sufficient retransmissions to be able to successfully decode the data in its soft buffer.  Note 2: n0 is the index of slot when 1st transmission of MBS Packet in step 20/24 happens, n1, n2, n3 are indices of slots when 2nd, 3rd, 4th transmission of MBS Packet in step 21/25 may happen, k1 is obtained from "PDSCH-to-HARQ\_feedback timing indicator" of downlink assignment in step 19/23. | | | | | |

14.2.1.1.4.3.3 Specific message contents

Table 14.2.1.1.4.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.1.1.4.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.1.1.4.3.3-2: *RRCReconfiguration* (step 1a15, Table 14.2.1.1.4.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm and UM\_PTM | Table 14.2.1.1.4.3.3-4 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.4.3.3-3: *RRCReconfiguration* (step 1b10, Table 14.2.1.1.4.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition DRBn and MRBm and UM\_PTM | n is chosen as the next available number higher or equal to 2  m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.4.3.3-4A |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.4.3.3-4: *CellGroupConfig* (Table 14.2.1.1.4.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm (m=1) and UM\_PTM | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast and RRC\_Enable\_HARQFeedback and ACK\_NACK |  |  |
| } |  |  |  |

Table 14.2.1.1.4.3.3-4A: *CellGroupConfig* (Table 14.2.1.1.4.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm\_DRBn and UM\_PTM (Note 1) | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast and RRC\_Enable\_HARQFeedback and ACK\_NACK |  |  |
| } |  |  |  |
| Note 1: n is set to the same value as for the radioBearerConfig IE in Table 14.2.1.1.4.3.3-3 and m=1 | | | |

Table 14.2.1.1.4.3.3-5: CLOSE UE TEST LOOP (step 2a1, Table 14.2.1.1.4.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB |

Table 14.2.1.1.4.3.3-6: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 6, step 14, step 27 and step35, Table 14.2.1.1.4.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.1.1.4.3.3-7: *RRCReconfiguration* (step 17, Table 14.2.1.1.4.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | Not present |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.4.3.3-7 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.4.3.3-8: *CellGroupConfig* (Table 14.2.1.1.4.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList | Not present |  |  |
| rlc-BearerToReleaseList | Not present |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig | Table 14.2.1.1.4.3.3-9 |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig | Not present |  |  |
| } |  |  |  |

Table 14.2.1.1.4.3.3-9: *MAC-CellGroupConfig* (Table 14.2.1.1.4.3.3-8)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-68,condition MBS\_Multicast and RRC\_Enable\_HARQFeedback and ACK\_NACK | | | |
| Information Element | Value/remark | Comment | Condition |
| MAC-CellGroupConfig ::= SEQUENCE { |  |  |  |
| g-RNTI-ConfigToAddModList-r17 SEQUENCE (SIZE (1..maxG-RNTI-r17)) OF MBS-RNTI-SpecificConfig-r17 { | 1 entry |  |  |
| MBS-RNTI-SpecificConfig-r17[1] SEQUENCE { |  | entry 1 |  |
| pdsch-AggregationFactor-r17 | n4 |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.1.4.3.3-10: *RRCReconfiguration* (step 30, Table 14.2.1.1.4.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | Not present |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.4.3.3-11 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.4.3.3-11: *CellGroupConfig* (Table 14.2.1.1.4.3.3-10)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList | Not present |  |  |
| rlc-BearerToReleaseList | Not present |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast |  |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig | Not present |  |  |
| } |  |  |  |

##### 14.2.1.1.5 MBS Multicast/ MAC / DL Data Transfer/ PTP retransmission for multicast / RRC-based enabling-disabling HARQ feedback for Multicast/ ACK-NACK

14.2.1.1.5.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with ACK-NACK mode is enabled by RRC and a MAC PDU for UE's G-RNTI is not successfully decoded }

ensure that {

***when*** { UE receives MAC PDU retransmission for UE's C-RNTI and successfully decodes it }

***then*** { UE sends ACK for the corresponding HARQ process and forwards it to higher layer }

}

14.2.1.1.5.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.321, clause 5.3.2; TS 38.213, clause 18. Unless otherwise stated these are Rel-17 requirements.

[TS 38.321, clause 5.3.2]

For each received TB and associated HARQ information, the HARQ process shall:

1> if the NDI, when provided, has been toggled compared to the value of the previous received transmission corresponding to this TB; or

…

2> consider this transmission to be a new transmission.

1> else:

2> consider this transmission to be a retransmission.

The MAC entity then shall:

1> if this is a new transmission:

2> attempt to decode the received data.

1> else if this is a retransmission:

2> if the data for this TB has not yet been successfully decoded:

3> instruct the physical layer to combine the received data with the data currently in the soft buffer for this TB and attempt to decode the combined data.

…

1> if the HARQ process is associated with a transmission indicated with a G-RNTI or a G-CS-RNTI for MBS multicast and HARQ feedback is disabled; or

1> if the HARQ process is associated with a transmission indicated with a G-RNTI or a G-CS-RNTI for MBS multicast and NACK only HARQ feedback is configured and the data for this TB is successfully decoded; or

…

1> if the HARQ process is configured with disabled HARQ feedback:

2> not instruct the physical layer to generate acknowledgement(s) of the data in this TB.

1> else:

2> instruct the physical layer to generate acknowledgement(s) of the data in this TB.

[TS 38.213, clause 18]

This clause is applicable only for PDCCH receptions, PDSCH receptions, and PUCCH transmissions for MBS on a serving cell. DCI formats with CRC scrambled by G-RNTI or G-CS-RNTI scheduling PDSCH receptions are referred to as multicast DCI formats and the PDSCH receptions are referred to as multicast PDSCH receptions. DCI formats with CRC scrambled by MCCH-RNTI or G-RNTI for MTCH scheduling PDSCH receptions are referred to as broadcast DCI formats and the PDSCH receptions are referred to as broadcast PDSCH receptions. HARQ-ACK information associated with multicast DCI formats or multicast PDSCH receptions is referred to as multicast HARQ-ACK information.

…

A PDSCH reception providing an initial transmission of a transport block is scheduled only by a multicast DCI format. For the first HARQ-ACK reporting mode, a PDSCH reception providing a retransmission of the transport block can be scheduled either by a multicast DCI format using a same G-RNTI as the G-RNTI of the initial transmission of the transport block, or by a unicast DCI format using a C-RNTI [6, TS 38.214].

14.2.1.1.5.3 Test description

14.2.1.1.5.3.1 Pre-test conditions

System Simulator:

- NR Cell 1.

- The SS configures the NR Cell 1 as the "Serving cell".

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- None.

Preamble:

- The UE is in state 1N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

14.2.1.1.5.3.2 Test procedure sequence

Table 14.2.1.1.5.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2a1-2a2 | Steps 9a1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1 with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 3 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE. | <-- | (PDCCH (G-RNTI)) | - | - |
| 4 | The SS transmits a MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet | - | - |
| 5 | Check: Does the UE transmit a HARQ NACK? | --> | HARQ NACK | 1 | P |
| - | EXCEPTION: Steps 6-7 shall be repeated till HARQ ACK is received at step 8 or until HARQ retransmission count = 4 is reached for MBS Packet at step 7 (Note 1). | - | - | - | - |
| 6 | The SS indicates a retransmission addressed to the C-RNTI assigned to the UE. | <-- | (PDCCH (C-RNTI)) | - | - |
| 7 | The SS transmits the same MBS Packet like step 4 for PTP retransmission for multicast.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 8 | Check: Does the UE transmit a HARQ ACK? | --> | HARQ ACK | 1 | P |
| 9 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 10 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 11 | Check: Is the number of reported MBS Packets received on the MRB in step 10 equal to 1? | - | - | 1 | P |
| Note 1: The value 4 for the maximum number of HARQ retransmissions has been chosen based on an assumption that, given the radio conditions used in this test case, a UE soft combiner implementation should have sufficient retransmissions to be able to successfully decode the data in its soft buffer. | | | | | |

14.2.1.1.5.3.3 Specific message contents

Table 14.2.1.1.5.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.1.1.5.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.1.1.5.3.3-2: *RRCReconfiguration* (step 1a15, Table 14.2.1.1.5.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm and UM\_PTM | Table 14.2.1.1.5.3.3-4 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.5.3.3-3: *RRCReconfiguration* (step 1b10, Table 14.2.1.1.5.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition DRBn and MRBm and UM\_PTM | n is chosen as the next available number higher or equal to 2  m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.5.3.3-4A |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.5.3.3-4: *CellGroupConfig* (Table 14.2.1.1.5.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm (m=1) and UM\_ PTM | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast and RRC\_Enable\_HARQFeedback and ACK\_NACK |  |  |
| } |  |  |  |

Table 14.2.1.1.5.3.3-4A: *CellGroupConfig* (Table 14.2.1.1.5.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm\_DRBn and AMPTP\_UMPTM (Note 1) | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast and RRC\_Enable\_HARQFeedback and ACK\_NACK |  |  |
| } |  |  |  |
| Note 1: n is set to the same value as for the radioBearerConfig IE in Table 14.2.1.1.5.3.3-3 and m=1 | | | |

Table 14.2.1.1.5.3.3-5: CLOSE UE TEST LOOP (step 2a1, Table 14.2.1.1.5.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB |

Table 14.2.1.1.5.3.3-6: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 9, Table 14.2.1.1.5.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

##### 14.2.1.1.6 MBS Multicast/ MAC / DL Data Transfer/ PTM retransmission for multicast/ DCI-based enabling-disabling HARQ feedback for Multicast/ ACK-NACK

14.2.1.1.6.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with ACK-NACK mode is enabled by DCI 4\_2 }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI and successfully decodes it }

***then*** { UE sends ACK for the corresponding HARQ process and forwards the MAC PDU to higher layer }

}

(2)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with ACK-NACK mode is enabled by DCI 4\_2 }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI and decodes it failure }

***then*** { UE sends NACK for the corresponding HARQ process }

}

(3)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with ACK-NACK mode is enabled by DCI 4\_2 }

ensure that {

***when*** { UE receives MAC PDU retransmission for UE's G-RNTI and successfully decodes it }

***then*** { UE sends ACK for the corresponding HARQ process and forwards the MAC PDU to higher layer }

}

(4)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast is disabled by DCI 4\_2 }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTIand successfully decodes it }

***then*** { UE does not send HARQ feedback and UE forwards the MAC PDU to higher layer }

}

(5)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and *harq-FeedbackEnablerMulticast* with value set to 'dci-enabler' for a G-RNTI }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled by multicast DCI format 4\_1 associated with the G-RNTI and successfully decodes it }

***then*** { UE send HARQ feedback and forwards the MAC PDU to higher layer }

}

14.2.1.1.6.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.321, clause 5.3.2; TS 38.213, clause 18. Unless otherwise stated these are Rel-17 requirements.

[TS 38.321, clause 5.3.2]

1> if the HARQ process is associated with a transmission indicated with a G-RNTI or a G-CS-RNTI or a configured downlink assignment for MBS multicast and HARQ feedback is disabled; or

…

2> not instruct the physical layer to generate acknowledgement(s) of the data in this TB.

1> else:

2> instruct the physical layer to generate acknowledgement(s) of the data in this TB.

[TS 38.213, clause 18]

A UE can be configured per G-RNTI for multicast or per G-CS-RNTI, by *harq-FeedbackEnablerMulticast* with value set to 'enabled', to provide HARQ-ACK information for PDSCH receptions. When the UE is not provided *harq-FeedbackEnablerMulticast* for a G-RNTI for multicast or G-CS-RNTI and *pdsch-HARQ-ACK-Codebook = dynamic* for multicast HARQ-ACK information, the UE does not provide HARQ-ACK information for respective PDSCH receptions. If a UE is provided *harq-FeedbackEnablerMulticast* with value set to 'dci-enabler' for a G-RNTI for multicast or a G-CS-RNTI, the UE provides HARQ-ACK information for PDSCH receptions scheduled by multicast DCI format 4\_1 associated with the G-RNTI or the G-CS-RNTI, and determines whether or not to provide the HARQ-ACK information for PDSCH receptions scheduled by multicast DCI format 4\_2 based on an indication by the multicast DCI format 4\_2 associated with the G-RNTI for multicast or the G-CS-RNTI [4, TS 38.212]. If a UE is provided *pdsch-HARQ-ACK-Codebook = semi-static* for multicast HARQ-ACK information, the UE does not expect to be provided *harq-FeedbackEnablerMulticast* with value set to 'dci-enabler' for a G-RNTI or a G-CS-RNTI.

14.2.1.1.6.3 Test description

14.2.1.1.6.3.1 Pre-test conditions

System Simulator:

- The SS configures the NR Cell 1 as the "Serving cell".

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

Preamble:

- The UE is in state 1N-A on NR Cell 1 (serving cell) according to TS 38.508-1 [4] Table 4.4A.2-1 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.2.1.1.6.3.2 Test procedure sequence

Table 14.2.1.1.6.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Step 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2a1-2a2 | Steps 9a1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1 with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 3 | The SS indicates a new transmission addressed to G-RNTI and enabling HARQ-ACK feedback in DCI format 4-2. | <-- | (PDCCH (G-RNTI)) | - | - |
| 4 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receving PTM transmission.  The content of the MBS Packet is set so that UE could successfully decode the data from its soft buffer. | <-- | MBS Packet | - | - |
| 5 | Check: Does the UE transmit a HARQ ACK? | --> | HARQ ACK | 1 | P |
| 6 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 7 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 8 | Check: Is the number of reported MBS Packets received on the MRB in step 7 equal to 1? | - | - | 1 | P |
| 9 | The SS indicates a new transmission addressed to G-RNTI and enabling HARQ-ACK feedback in DCI format 4-2. | <-- | (PDCCH (G-RNTI)) | - | - |
| 10 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receving PTM transmission.  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet | - | - |
| 11 | Check: Does the UE transmit a HARQ NACK? | --> | HARQ NACK | 2 | P |
| - | EXCEPTION: Steps 12-13 shall be repeated till HARQ ACK is received at step 13 or until HARQ retransmission count = 4 is reached for MBS Packet at step 13 (Note 1). | - | - | - | - |
| 12 | The SS indicates a retransmission addressed to G-RNTI and enabling HARQ-ACK feedback in DCI format 4-2. | <-- | (PDCCH (G-RNTI)) | - | - |
| 13 | The SS transmits the same MBS Packet as step 10 for PTM retransmission for multicast.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 14 | Check: Does the UE transmit a HARQ ACK? | --> | HARQ ACK | 3 | P |
| 15 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 16 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 17 | Check: Is the number of reported MBS Packets received on the MRB in step 16 equal to 2? | - | - | 3 | P |
| 18 | The SS indicates a new transmission addressed to G-RNTI and disabling HARQ-ACK feedback in DCI format 4-2. | <-- | (PDCCH (G-RNTI)) | - | - |
| 18 | The SS transmits a MBS Packet on the MTCH with LCID matched with the LCID configured for receving PTM transmission.  The content of the MBS Packet is set so that UE could successfully decode the data from its soft buffer. | <-- | MBS Packet | - | - |
| 19 | Check: Does the UE transmit a HARQ ACK/NACK? | --> | HARQ ACK/NACK | 4 | F |
| 20 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 21 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 22 | Check: Is the number of reported MBS Packets received on the MRB in step 21 equal to 3? | - | - | 4 | P |
| 23 | The SS indicates a new transmission addressed to G-RNTI in DCI format 4-1. | <-- | (PDCCH (G-RNTI)) | - | - |
| 24 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receving PTM transmission.  The content of the MBS Packet is set so that UE could successfully decode the data from its soft buffer. | <-- | MBS Packet | - | - |
| 25 | Check: Does the UE transmit a HARQ ACK? | --> | HARQ ACK | 5 | P |
| 26 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 27 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 28 | Check: Is the number of reported MBS Packets received on the MRB in step 27 equal to 4? | - | - | 5 | P |
| Note 1: The value 4 for the maximum number of HARQ retransmissions has been chosen based on an assumption that, given the radio conditions used in this test case, a UE soft combiner implementation should have sufficient retransmissions to be able to successfully decode the data in its soft buffer. | | | | | |

14.2.1.1.6.3.3 Specific message contents

Table 14.2.1.1.6.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.1.1.6.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.1.1.6.3.3-2: *RRCReconfiguration* (step 1a15, Table 14.2.1.1.6.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition MRBm and UM\_PTM | m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.6.3.3-4 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.6.3.3-3: *RRCReconfiguration* (step 1b10, Table 14.2.1.1.6.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition DRBn and MRBm and UM\_PTM | n is chosen as the next available number higher or equal to 2  m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.6.3.3-5 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.6.3.3-4: *CellGroupConfig* (Table 14.2.1.1.6.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm (m=1) and UM\_PTM | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast and DCI and ACK\_NACK |  |  |
| } |  |  |  |

Table 14.2.1.1.6.3.3-5: *CellGroupConfig* (Table 14.2.1.1.6.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm\_DRBn and UM\_PTM (Note 1) | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast and DCI and ACK\_NACK |  |  |
| } |  |  |  |
| Note 1: n is set to the same value as for the radioBearerConfig IE in Table 14.2.1.1.6.3.3-3 and m=1 | | | |

Table 14.2.1.1.6.3.3-6: CLOSE UE TEST LOOP (step 2a1, Table 14.2.1.1.6.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB |

Table 14.2.1.1.6.3.3-7: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 6, step 14 and step 21, Table 14.2.1.1.6.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.1.1.6.3.3-8: Physical layer parameters for DCI format 4\_2 (step 3, step 9, step 12 and step 18, Table 14.2.1.1.6.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.3.6.1.5.3-1 | | | |
| Parameter | Value | Value in binary | Condition |
| Enabling/disabling HARQ-ACK feedback indication | 1 | ‘1’ | Step 3, Step 9, Step 12 |
|  | 0 | ‘0’ | Step 18 |

##### 14.2.1.1.7 MBS Multicast/ MAC / DL Data Transfer/ RRC-based enabling-disabling HARQ feedback for Multicast / NACK-only

14.2.1.1.7.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with NACK-only mode is enabled by RRC }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI and successfully decodes it }

***then*** { UE does not send ACK for the corresponding HARQ process and UE forwards MAC PDU to higher layer }

}

(2)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with NACK-only mode is enabled by RRC }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI and decodes it failure }

***then*** { UE sends NACK for the corresponding HARQ process }

}

(3)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with NACK-only mode is enabled by RRC and pdsch-AggregationFactor > 1 }

ensure that {

***when*** { UE receives downlink assignment on the PDCCH for the UE’s G-RNTI and receives data in the associated slot and successive pdsch-AggregationFactor – 1 HARQ retransmissions within a bundle and UE could not successfully decode the data }

***then*** { UE sends NACK on the HARQ process }

}

(4)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast is disabled by RRC }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI }

***then*** { UE does not send HARQ feedback }

}

(5)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with NACK-only mode is enabled by RRC and moreThanOneNackOnlyMode is configured }

ensure that {

***when*** { UE needs to provide more than one HARQ-ACK information bits in a PUCCH }

***then*** { UE provide more than one HARQ-ACK information bits in a PUCCH by selecting a resource from a set of resources for the PUCCH transmission based on the values of the HARQ-ACK information bits as described in 38.213 Table 18-1 }

}

(6)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with NACK-only mode is enabled by RRC and moreThanOneNackOnlyMode is not configured }

ensure that {

***when*** { UE needs to provide more than one HARQ-ACK information bits in a PUCCH }

***then*** { UE provide more than one HARQ-ACK information bits in a PUCCH according to ACK-NACK mode }

}

14.2.1.1.7.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.321, clause 5.3.2; TS 38.213, clause 18; TS 38.214, clause 5.1.2.1; TS 38.331, clause 6.3.2. Unless otherwise stated these are Rel-17 requirements.

[TS 38.321, clause 5.3.2]

For each received TB and associated HARQ information, the HARQ process shall:

1> if the NDI, when provided, has been toggled compared to the value of the previous received transmission corresponding to this TB; or

…

2> consider this transmission to be a new transmission.

1> else:

2> consider this transmission to be a retransmission.

The MAC entity then shall:

1> if this is a new transmission:

2> attempt to decode the received data.

1> else if this is a retransmission:

2> if the data for this TB has not yet been successfully decoded:

3> instruct the physical layer to combine the received data with the data currently in the soft buffer for this TB and attempt to decode the combined data.

…

1> if the HARQ process is associated with a transmission indicated with a G-RNTI or a G-CS-RNTI for MBS multicast and HARQ feedback is disabled; or

1> if the HARQ process is associated with a transmission indicated with a G-RNTI or a G-CS-RNTI for MBS multicast and NACK only HARQ feedback is configured and the data for this TB is successfully decoded; or

…

1> if the HARQ process is configured with disabled HARQ feedback:

2> not instruct the physical layer to generate acknowledgement(s) of the data in this TB.

1> else:

2> instruct the physical layer to generate acknowledgement(s) of the data in this TB.

[TS 38.213, clause 18]

For the second HARQ-ACK reporting mode, the UE does not transmit a PUCCH that would include only HARQ-ACK information with ACK values. The second HARQ-ACK reporting mode is not applicable for the first SPS PDSCH reception after activation of SPS PDSCH receptions for a SPS configuration, or for DCI formats having associated HARQ-ACK information without scheduling a PDSCH reception.

For the second HARQ-ACK reporting mode, when a number of HARQ-ACK information bits is one, a UE transmits a PUCCH only when the HARQ-ACK information bit has NACK value. The UE determines a PUCCH to provide the HARQ-ACK information as described in clause 9.2.1 when UE is not provided *moreThanOneNackOnlyMode*,or as the first PUCCH in Table 18-1 when UE is provided *moreThanOneNackOnlyMode.* For a PUCCH resource associated with PUCCH format 0, the UE transmits the PUCCH as described in [4, TS 38.211] by obtaining as described for HARQ-ACK information in clause 9.2.3 and by setting . For a PUCCH resource associated with PUCCH format 1, the UE transmits the PUCCH as described in [4, TS 38.211] by setting .



A UE that is indicated the second HARQ-ACK reporting mode, and for the case when the UE reports more than one HARQ-ACK information bits, the UE can be indicated to provide the HARQ-ACK information bits in a PUCCH either according to the first HARQ-ACK reporting mode when the UE is not provided *moreThanOneNackOnlyMode* or, for only one G-RNTI or only one G-CS-RNTI, according to the second HARQ-ACK reporting mode by selecting a PUCCH resource from a set of PUCCH resources for the PUCCH transmission based on the values of the HARQ-ACK information bits as described in Table 18-1 when the UE is provided moreThanOneNackOnlyMode. The UE generates HARQ-ACK information bits for the second HARQ-ACK reporting mode according to a Type-2 HARQ-ACK codebook as described in clause 9.1.3.1. For a PUCCH resource associated with PUCCH format 0, the UE transmits the PUCCH as described in [4, TS 38.211] by obtaining as described for HARQ-ACK information in clause 9.2.3 and by setting . For a PUCCH resource associated with PUCCH format 1, the UE transmits the PUCCH as described in [4, TS 38.211] by setting .



For a UE that is indicated the second HARQ-ACK reporting mode, the UE does not expect to be provided *pdsch-HARQ-ACK-Codebook = semi-static* for multicast HARQ-ACK information.

For a UE that is indicated the second HARQ-ACK reporting mode and *moreThanOneNackOnlyMode*, all PUCCH resources associated with the second HARQ-ACK reporting mode have same starting symbol and same number of symbols and, when PUCCH resources in Table 18-1 are located in more than one PRBs, the more than one PRBs are adjacent and are associated with a same MPR value [8-1, TS 38.101-1].

Table 18-1: Mapping of values of HARQ-ACK information bits to PUCCH resources for the second HARQ-ACK reporting mode

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Value of HARQ-ACK information bits | | | | PUCCH resource |
| {0} | {0,0} | {0,0,0} | {0,0,0,0} | 1st PUCCH resource from *resourceList/sps-PUCCH-AN-ListMulticast* |
|  | {1,0} | {1,0,0} | {1,0,0,0} | 2nd PUCCH resource from *resourceList/sps-PUCCH-AN-ListMulticast* |
|  | {0,1} | {0,1,0} | {0,1,0,0} | 3rd PUCCH resource from *resourceList/sps-PUCCH-AN-ListMulticast* |
|  |  | {1,1,0} | {1,1,0,0} | 4th PUCCH resource from *resourceList* |
|  |  | {0,0,1} | {0,0,1,0} | 5th PUCCH resource from *resourceList* |
|  |  | {1,0,1} | {1,0,1,0} | 6th PUCCH resource from *resourceList* |
|  |  | {0,1,1} | {0,1,1,0} | 7th PUCCH resource from *resourceList* |
|  |  |  | {1,1,1,0} | 8th PUCCH resource from *resourceList* |
|  |  |  | {0,0,0,1} | 9th PUCCH resource from *resourceList* |
|  |  |  | {1,0,0,1} | 10th PUCCH resource from *resourceList* |
|  |  |  | {0,1,0,1} | 11th PUCCH resource from *resourceList* |
|  |  |  | {1,1,0,1} | 12th PUCCH resource from *resourceList* |
|  |  |  | {0,0,1,1} | 13th PUCCH resource from *resourceList* |
|  |  |  | {1,0,1,1} | 14th PUCCH resource from *resourceList* |
|  |  |  | {0,1,1,1} | 15th PUCCH resource from *resourceList* |

[TS 38.214, clause 5.1.2.1]

When receiving PDSCH scheduled by DCI format 4\_1, or 4\_2 in PDCCH with CRC scrambled by G-RNTI for multicast, if the UE is configured with *pdsch-AggregationFactor* in the *MBS-RNTI-SpecificConfig* associated withthe corresponding G-RNTI for multicast, the same symbol allocation is applied across the *pdsch-AggregationFactor* consecutive slots.

[TS 38.331, clause 6.3.2]

***moreThanOneNackOnlyMode***

Indicates the mode of supporting more than one NACK-only feedback in the same PUCCH transmission. Mode 1 means UE multiplexing the HARQ-ACK bits by transforming NACK-only into ACK/NACK HARQ bits. Mode 2 means UE transmitting a specific sequence or a PUCCH transmission corresponding to the combination of more than one NACK-only HARQ feedback. If multicast CFR is not configured, this field is not included. Otherwise, if the field is absent, UE uses mode 1 for multicast CFR.

14.2.1.1.7.3 Test description

14.2.1.1.7.3.1 Pre-test conditions

System Simulator:

- NR Cell 1.

- The SS configures the NR Cell 1 as the "Serving cell".

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- None.

Preamble:

- The UE is in state 1N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

14.2.1.1.7.3.2 Test procedure sequence

Table 14.2.1.1.7.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2a1-2a2 | Steps 9a1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1 with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 3 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE. | <-- | (PDCCH (G-RNTI)) | - | - |
| 4 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 5 | Check: Does the UE transmit a HARQ ACK/NACK? | --> | HARQ ACK/NACK | 1 | F |
| 6 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 7 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 8 | Check: Is the number of reported MBS Packets received on the MRB in step 7 equal to 1? | - | - | 1 | P |
| 9 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE. | <-- | (PDCCH (G-RNTI)) | - | - |
| 10 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet | - | - |
| 11 | Check: Does the UE transmit a HARQ NACK? | --> | HARQ NACK | 2 | P |
| 12 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE in SFN x, slot 2 and the "PDSCH-to-HARQ\_feedback timing indicator" is configured to require UE to feedback HARQ-ACK information in SFN x, slot 9. | <-- | (PDCCH (G-RNTI)) | - | - |
| 13 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 14 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE in SFN x, slot 5 and the "PDSCH-to-HARQ\_feedback timing indicator" is configured to require UE to feedback HARQ-ACK information in SFN x, slot 9. | <-- | (PDCCH (G-RNTI)) | - | - |
| 15 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 16 | Check: Does the UE transmit {HARQ ACK, HARQ ACK}? | --> | {HARQ ACK, HARQ ACK} | 6 | P |
| 17 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 18 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 19 | Check: Is the number of reported MBS Packets received on the MRB in step 18 equal to 3? | - | - | 6 | P |
| 20 | The SS transmits *RRCReconfiguration* to configure *pdsch-AggregationFactor-r17* to n4 for multicast. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 21 | The UE transmits *RRCReconfigurationComplete*. | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 22 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE. | <-- | (PDCCH (G-RNTI)) | - | - |
| 23 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet. | - | - |
| 24 | In the following 3 consecutive slots, the SS transmits same MBS Packet in step 23.  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet. | - | - |
| 25 | Check: Does the UE transmit a HARQ NACK on slot n3+k1? (Note 2) | --> | HARQ NACK | 3 | P |
| 26 | The SS transmits *RRCReconfiguration* to disable HARQ feedback for multicast | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 27 | The UE transmits *RRCReconfigurationComplete*. | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 28 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE. | <-- | (PDCCH (G-RNTI)) | - | - |
| 29 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 30 | Check: Does the UE transmit a HARQ ACK/NACK? | --> | HARQ ACK/NACK | 4 | F |
| 31 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 32 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 33 | Check: Is the number of reported MBS Packets received on the MRB in step 32 equal to 4? | - | - | 4 | P |
| - | EXCEPTION: Steps 34a1-34a12 describe behaviour that depends on UE configuration; the "lower case letter" identifies a step sequence that takes place if pc\_nack\_OnlyFeedbackSpecificResourceForMulticast-r17 is configured | - | - | - | - |
| 34a1 | The SS transmits *RRCReconfiguration* to enable NACK only HARQ feedback for multicast and configure *moreThanOneNackOnlyMode* | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 34a2 | The UE transmits *RRCReconfigurationComplete*. | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 34a3 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE in SFN y, slot 2 and the "PDSCH-to-HARQ\_feedback timing indicator" is configured to require UE to feedback HARQ-ACK information in SFN y, slot 9. | <-- | (PDCCH (G-RNTI)) | - | - |
| 34a4 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 34a5 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE in SFN y, slot 5 and the "PDSCH-to-HARQ\_feedback timing indicator" is configured to require UE to feedback HARQ-ACK information in SFN y, slot 9. | <-- | (PDCCH (G-RNTI)) | - | - |
| 34a6 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 34a7 | Check: Does the UE transmit HARQ ACK/NACK? | --> | {HARQ ACK, HARQ ACK} | 5 | F |
| 34a8 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE in SFN z, slot 2 and the "PDSCH-to-HARQ\_feedback timing indicator" is configured to require UE to feedback HARQ-ACK information in SFN z, slot 9. | <-- | (PDCCH (G-RNTI)) | - | - |
| 34a9 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 34a10 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE in SFN z, slot 5 and the "PDSCH-to-HARQ\_feedback timing indicator" is configured to require UE to feedback HARQ-ACK information in SFN z, slot 9. | <-- | (PDCCH (G-RNTI)) | - | - |
| 34a11 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC fail on UE side. | <-- | MBS Packet | - | - |
| 34a12 | Check: Does the UE transmit {HARQ ACK, HARQ NACK} in the 2nd PUCCH resource from *resourceList*? | --> | {HARQ ACK, HARQ NACK} | 5 | P |
| 34a13 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 34a14 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 34a15 | Check: Is the number of reported MBS Packets received on the MRB in step 34a14 equal to 7? | - | - | 5 | P |
| Note 1: The value 4 for the maximum number of HARQ retransmissions has been chosen based on an assumption that, given the radio conditions used in this test case, a UE soft combiner implementation should have sufficient retransmissions to be able to successfully decode the data in its soft buffer.  Note 2: n0 is the index of slot when 1st transmission of MBS Packet in step 23 happens, n1, n2, n3 are indices of slots when 2nd, 3rd, 4th transmission of MBS Packet in step 24 may happen, k1 is obtained from "PDSCH-to-HARQ\_feedback timing indicator" of downlink assignment in step 22. | | | | | |

14.2.1.1.7.3.3 Specific message contents

Table 14.2.1.1.7.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.1.1.7.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.1.1.7.3.3-2: *RRCReconfiguration* (step 1a15, Table 14.2.1.1.7.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition MRBm and UM\_PTM | m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.7.3.3-4 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.7.3.3-3: *RRCReconfiguration* (step 1b10, Table 14.2.1.1.7.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition DRBn and MRBm and UM\_PTM | n is chosen as the next available number higher or equal to 2  m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.7.3.3-5 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.7.3.3-4: *CellGroupConfig* (Table 14.2.1.1.7.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm (m=1) and UM\_PTM | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast and RRC\_Enable\_HARQFeedback and NACK\_ONLY |  |  |
| } |  |  |  |

Table 14.2.1.1.7.3.3-5: *CellGroupConfig* (Table 14.2.1.1.7.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm\_DRBn and UM\_PTM (Note 1) | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast and RRC\_Enable\_HARQFeedback and NACK\_ONLY |  |  |
| } |  |  |  |
| Note 1: n is set to the same value as for the radioBearerConfig IE in Table 14.2.1.1.7.3.3-3 and m=1 | | | |

Table 14.2.1.1.7.3.3-6: CLOSE UE TEST LOOP (step 2a1, Table 14.2.1.1.7.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB |

Table 14.2.1.1.7.3.3-7: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 6, step 17, step31 and step 34a14, Table 14.2.1.1.7.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.1.1.7.3.3-8: Physical layer parameters for DCI format 4\_1 ( step 12, step 14, step 34a3, step34a5, step34a8 and step 34a10, Table 14.2.1.1.8.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Value | Value in binary | Condition |
| PDSCH-to-HARQ\_feedback timing indicator | K1 = 7 | “110” | Step 12, Step34a3 and Step 34a8 |
|  | K1 = 4 | “011” | Step 14, Step34a5 and Step 34a10 |
| Note: K1 set for DCI 4\_1 is { 1, 2, 3, 4, 5, 6, 7, 8 } because *dl-DataToUL-ACK-MulticastDCI-Format4-1* is not provided | | | |

Table 14.2.1.1.7.3.3-9: *RRCReconfiguration* (step 20, Table 14.2.1.1.7.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | Not present |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.7.3.3-10 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.7.3.3-10: *CellGroupConfig* (Table 14.2.1.1.7.3.3-9)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList | Not present |  |  |
| rlc-BearerToReleaseList | Not present |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig | Table 14.2.1.1.7.3.3-11 |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig | Not present |  |  |
| } |  |  |  |

Table 14.2.1.1.7.3.3-11: *MAC-CellGroupConfig* (Table 14.2.1.1.7.3.3-10)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-68, condition MBS\_Multicast and RRC\_Enable\_HARQFeedback and ACK\_NACK | | | |
| Information Element | Value/remark | Comment | Condition |
| MAC-CellGroupConfig ::= SEQUENCE { |  |  |  |
| g-RNTI-ConfigToAddModList-r17 SEQUENCE (SIZE (1..maxG-RNTI-r17)) OF MBS-RNTI-SpecificConfig-r17 { | 1 entry |  |  |
| MBS-RNTI-SpecificConfig-r17[1] SEQUENCE { |  | entry 1 |  |
| pdsch-AggregationFactor-r17 | n4 |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.1.7.3.3-12: *RRCReconfiguration* (step 26, Table 14.2.1.1.7.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | Not present |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.7.3.3-13 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.7.3.3-13: *CellGroupConfig* (Table 14.2.1.1.7.3.3-12)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList | Not present |  |  |
| rlc-BearerToReleaseList | Not present |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast |  |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig | Not present |  |  |
| } |  |  |  |

Table 14.2.1.1.7.3.3-14: *RRCReconfiguration* (step 34a1, Table 14.2.1.1.7.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | Not present |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.7.3.3-15 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.7.3.3-15: *CellGroupConfig* (Table 14.2.1.1.7.3.3-14)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList | Not present |  |  |
| rlc-BearerToReleaseList | Not present |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast |  |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig | Table 14.2.1.1.7.3.3-16 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.1.7.3.3-16: *ServingCellConfig* (Table 14.2.1.1.7.3.3-15)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-167 | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfig ::= SEQUENCE { |  |  |  |
| tdd-UL-DL-ConfigurationDedicated | Not present |  |  |
| initialDownlinkBWP | Not present |  |  |
| downlinkBWP-ToReleaseList | Not present |  |  |
| downlinkBWP-ToAddModList | Not present |  |  |
| firstActiveDownlinkBWP-Id | Not present |  |  |
| bwp-InactivityTimer | Not present |  |  |
| defaultDownlinkBWP-Id | Not present |  |  |
| uplinkConfig | Not present |  |  |
| supplementaryUplink | Not present |  |  |
| pdcch-ServingCellConfig | Not present |  |  |
| pdcch-ServingCellConfig | Not present |  |  |
| pdsch-ServingCellConfig | Not present |  |  |
| csi-MeasConfig | Not present |  |  |
| sCellDeactivationTimer | Not present |  |  |
| crossCarrierSchedulingConfig | Not present |  |  |
| tag-Id | 0 |  |  |
| dummy1 | Not present |  |  |
| pathlossReferenceLinking | Not present |  |  |
| servingCellMO | Not present |  |  |
| moreThanOneNackOnlyMode-r17 | mode2 |  |  |
| } |  |  |  |

##### 14.2.1.1.8 MBS Multicast/ MAC / DL Data Transfer/ Multiplex multicast HARQ-ACK information with unicast HARQ-ACK information

14.2.1.1.8.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-AM entity for PTP transmission and HARQ feedback for Multicast with ACK-NACK mode is enabled by RRC and unicast is configured to use dynamic harq-ack codebook and multicast is configured to use semi-static harq-ack codebook }

ensure that {

***when*** { UE needs to multiplex the unicast and multicast HARQ-ACK information in a same PUCCH based on SS scheduling }

***then*** { UE uses the last unicast DCI format to determine the PUCCH resource }

}

(2)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-AM entity for PTP transmission and HARQ feedback for Multicast with ACK-NACK mode is enabled by RRC and unicast is configured to use dynamic harq-ack codebook and multicast is configured to use semi-static harq-ack codebook }

ensure that {

***when*** { UE needs to multiplex the unicast and multicast HARQ-ACK information in a same PUCCH based on SS scheduling }

***then*** { UE appends the HARQ-ACK codebooks for the multicast HARQ-ACK information to the HARQ-ACK codebooks for the unicast HARQ-ACK information }

}

14.2.1.1.8.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.213, clause 18 and 9.1.2.1. Unless otherwise stated these are Rel-17 requirements.

[TS 38.213, clause 18]

If a UE would report unicast HARQ-ACK information and multicast HARQ-ACK information with same priority index in a slot, the UE multiplexes the unicast HARQ-ACK information and the multicast HARQ-ACK information following the procedures in this clause and in clauses 9.1.2 and 9.1.3.

If, for unicast and multicast HARQ-ACK information of same priority value, a UE

- is provided

- either *pdsch-HARQ-ACK-Codebook* = *dynamic* or *pdsch-HARQ-ACK-Codebook-r16* for unicast HARQ-ACK information and *pdsch-HARQ-ACK-Codebook* = *semi-static* for multicast HARQ-ACK information,

- or *pdsch-HARQ-ACK-Codebook* = *semi-static* for unicast HARQ-ACK information and *pdsch-HARQ-ACK-Codebook* = *dynamic* for multicast HARQ-ACK information, and

- would multiplex the unicast and multicast HARQ-ACK information in a same PUCCH or PUSCH

the UE

- appends the HARQ-ACK codebooks for the multicast HARQ-ACK information to the HARQ-ACK codebooks for the unicast HARQ-ACK information

- if , the UE determines for obtaining a power of a PUCCH transmission with the HARQ-ACK information, as described in clause 7.2.1, as a sum of the value from clause 9.1.2.1 or clause 9.1.3.3 and the value from clause 9.1.3.1.



A UE determines a PUCCH resource for a PUCCH transmission with HARQ-ACK information as described in clauses 9.2 and 9.2.1 through 9.2.5.

If a UE multiplexes in a PUCCH HARQ-ACK information of same priority associated with unicast DCI formats and with multicast DCI formats in a same PUCCH, the last DCI format that the UE uses to determine the PUCCH resource, as described in clause 9.2.3, is a last unicast DCI format.

[TS 38.213, clause 9.1.2.1]

For a serving cell , an active DL BWP, and an active UL BWP, as described in clause 12, the UE determines a set of occasions for candidate PDSCH receptions for which the UE can transmit corresponding HARQ-ACK information in a PUCCH in slot . If serving cell is deactivated, the UE uses as the active DL BWP for determining the set of occasions for candidate PDSCH receptions a DL BWP provided by *firstActiveDownlinkBWP-Id*. The determination is based:



a) on a set of slot timing values associated with the active UL BWP on the primary cell or, if the PUCCH transmission is indicated by a DCI format to be on the PUCCH-sSCell as described in clause 9A, on a set of slot timing values associated with the active UL BWP on the PUCCH-sSCell



…

- If the UE is configured to monitor PDCCH for multicast DCI formats for serving cell



- if the UE is not provided *type1-Codebook-GenerationMode =* 'mode1', is additionally provided by the union of *dl-DataToUL-ACK* from *pucch-ConfigMulticast1/pucch-ConfigurationListMulticast1* or *pucch-ConfigMulticast2/pucch-ConfigurationListMulticast2* and *dl-DataToUL-ACK-ForDCI Format4-1*



- if the UE is not provided *dl-DataToUL-ACK-ForDCI Format4-1*, is provided by the union of *dl-DataToUL-ACK* from *pucch-ConfigurationListMulticast1 or pucch-ConfigurationListMulticast2* and the slot timing values {1, 2, 3, 4, 5, 6, 7, 8}



14.2.1.1.8.3 Test description

14.2.1.1.8.3.1 Pre-test conditions

System Simulator:

- NR Cell 1.

- The SS configures the NR Cell 1 as the "Serving cell".

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- None.

Preamble:

- The UE is in state 1N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

14.2.1.1.8.3.2 Test procedure sequence

Table 14.2.1.1.8.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2a1-2a2 | Steps 9a1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1 with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 3 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE in SFN x, slot 2 and the "PDSCH-to-HARQ\_feedback timing indicator" is configured to require UE to feedback HARQ-ACK information in SFN x, slot 9. | <-- | (PDCCH (G-RNTI)) | - | - |
| 4 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 5 | The SS indicates a new transmission addressed to the C-RNTI assigned to the UE in SFN x, slot 5 and the "PDSCH-to-HARQ\_feedback timing indicator" is configured to require UE to feedback HARQ-ACK information in SFN x, slot 9. | <-- | (PDCCH (C-RNTI)) | - | - |
| 6 | The SS transmits an MBS Packet on the DTCH with LCID matched with the LCID configured for receiving PTP transmission.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 7 | Check: Does the UE transmit HARQ-ACK codebooks according to Table 14.2.1.1.8.3.2-2 using PUCCH resource indicated by the unicast DCI in step 5? | --> | HARQ ACK/NACK | 1,2 | P |
| 8 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 9 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 10 | Check: Is the number of reported MBS Packets received on the MRB in step 9 equal to 2? | - | - | 1,2 | P |
| 11 | The SS indicates a new transmission addressed to the C-RNTI assigned to the UE in SFN y, slot 2 and the "PDSCH-to-HARQ\_feedback timing indicator" is configured to require UE to feedback HARQ-ACK information in SFN y, slot 9. | <-- | (PDCCH (C-RNTI)) | - | - |
| 12 | The SS transmits an MBS Packet on the DTCH with LCID matched with the LCID configured for receiving PTP transmission.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 13 | The SS indicates a new transmission addressed to the G-RNTI assigned to the UE in SFN y, slot 5 and the "PDSCH-to-HARQ\_feedback timing indicator" is configured to require UE to feedback HARQ-ACK information in SFN y, slot 9. | <-- | (PDCCH (G-RNTI)) | - | - |
| 14 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 15 | Check: Does the UE transmit HARQ-ACK codebooks according to Table 14.2.1.1.8.3.2-2 using PUCCH resource indicated by the unicast DCI in step 11? | --> | HARQ ACK/NACK | 1,2 | P |
| 16 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 17 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 18 | Check: Is the number of reported MBS Packets received on the MRB in step 17 equal to 4? | - | - | 1,2 | P |

Table 14.2.1.1.8.3.2-2: HARQ-ACK codebooks feedback

|  |  |  |
| --- | --- | --- |
| HARQ-ACK codebooks | Comment | Condition |
| {ACK,NACK,ACK,NACK,NACK,NACK,NACK,NACK } |  | Step7 AND FDD AND SCS 15KHz |
| {ACK,NACK,ACK,NACK,NACK,NACK,NACK } |  | Step7 AND TDD AND SCS 15KHz |
| {ACK,NACK,ACK,NACK,NACK,NACK } |  | Step7 AND SCS 30KHz |
| {ACK,NACK,ACK,NACK,NACK } |  | Step7 AND SCS 120KHz |
| {ACK,NACK,NACK,NACK,ACK,NACK,NACK,NACK } |  | Step15 AND FDD AND SCS 15KHz |
| {ACK,NACK,NACK,ACK,NACK,NACK,NACK } |  | Step15 AND TDD AND SCS 15KHz |
| {ACK,NACK,NACK,NACK,ACK,NACK } |  | Step15 AND SCS 30KHz |
| {ACK,NACK,ACK,NACK,NACK } |  | Step15 AND SCS 120KHz |

14.2.1.1.8.3.3 Specific message contents

Table 14.2.1.1.8.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.1.1.8.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.1.1.8.3.3-2: *RRCReconfiguration* (step 1a15, Table 14.2.1.1.8.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition MRBm and AMPTP\_UMPTM | m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.8.3.3-4 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.8.3.3-3: *RRCReconfiguration* (step 1b10, Table 14.2.1.1.8.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition DRBn and MRBm and AMPTP\_UMPTM | n is chosen as the next available number higher or equal to 2  m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.8.3.3-5 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.8.3.3-4: *CellGroupConfig* (Table 14.2.1.1.8.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm (m=1) and AMPTP\_UMPTM | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast and RRC\_Enable\_HARQFeedback and ACK\_NACK |  |  |
| physicalCellGroupConfig | physicalCellGroupConfig | Table 14.2.1.1.8.3.3-6 |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig | Table 14.2.1.1.8.3.3-7 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.1.8.3.3-5: *CellGroupConfig* (Table 14.2.1.1.8.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm\_DRBn and AMPTP\_UMPTM (Note 1) | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast and RRC\_Enable\_HARQFeedback and ACK\_NACK |  |  |
| physicalCellGroupConfig | physicalCellGroupConfig | Table 14.2.1.1.8.3.3-6 |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig | Table 14.2.1.1.8.3.3-7 |  |
| } |  |  |  |
| } |  |  |  |
| Note 1: n is set to the same value as for the radioBearerConfig IE in Table 14.2.1.1.8.3.3-3 and m=1 | | | |

Table 14.2.1.1.8.3.3-6: *PhysicalCellGroupConfig* (Table 14.2.1.1.8.3.3-4, Table 14.2.1.1.8.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-106 | | | |
| Information Element | Value/remark | Comment | Condition |
| PhysicalCellGroupConfig ::= SEQUENCE { |  |  |  |
| MulticastConfig-r17 SEQUENCE { |  |  |  |
| pdsch-HARQ-ACK-CodebookListMulticast-r17 CHOICE { |  |  |  |
| setup SEQUENCE (SIZE (1..2)) OF ENUMERATED { | 1 entry |  |  |
| ENUMERATED [1] | semiStatic | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| type1-Codebook-GenerationMode-r17 | mode2 |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.1.8.3.3-7: *ServingCellConfig* (Table 14.2.1.1.8.3.3-4, Table 14.2.1.1.8.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-167, condition MBS\_Multicast | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfig ::= SEQUENCE { |  |  |  |
| uplinkConfig SEQUENCE { |  |  |  |
| initialUplinkBWP | BWP-UplinkDedicated | Table 14.2.1.1.8.3.3-8 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.1.8.3.3-8: *BWP-UplinkDedicated* (Table 14.2.1.1.8.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-15 | | | |
| Information Element | Value/remark | Comment | Condition |
| BWP-UplinkDedicated ::= SEQUENCE { |  |  |  |
| pucch-ConfigMulticast1-r17 CHOICE { |  |  |  |
| setup | PUCCH-Config | Table 14.2.1.1.8.3.3-9 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.1.8.3.3-9: *PUCCH-Config* (Table 14.2.1.1.8.3.3-8)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-15, condition RF (Note 1) | | | |
| Information Element | Value/remark | Comment | Condition |
| PUCCH-Config ::= SEQUENCE { |  |  |  |
| schedulingRequestResourceToAddModList | Not present |  |  |
| dl-DataToUL-ACK SEQUENCE (SIZE (1..8)) OF INTEGER { | 8 entries |  |  |
| INTEGER[1] | 1 | entry 1 |  |
| INTEGER[2] | 2 | entry 2 |  |
| INTEGER[3] | 3 | entry 3 |  |
| INTEGER[4] | 4 | entry 4 |  |
| INTEGER[5] | 5 | entry 5 |  |
| INTEGER[6] | 6 | entry 6 |  |
| INTEGER[7] | 7 | entry 7 |  |
| INTEGER[8] | 8 | entry 8 |  |
| } |  |  |  |
| } |  |  |  |
| Note 1: Set intraSlotFrequencyHopping = Not present to ensure that PUCCH Resource for Multicast is different from PUCCH Resource for Unicast. | | | |

Table 14.2.1.1.8.3.3-10: CLOSE UE TEST LOOP (step 2a1, Table 14.2.1.1.8.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB |

Table 14.2.1.1.8.3.3-11: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 8 and step 16, Table 14.2.1.1.8.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.1.1.8.3.3-12: Physical layer parameters for DCI format 4\_1 (step 3 and step 13, Table 14.2.1.1.8.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Value | Value in binary | Condition |
| PDSCH-to-HARQ\_feedback timing indicator | K1 = 7 | “110” | Step 3 |
|  | K1 = 4 | “011” | Step 13 |
| Note: K1 set for DCI 4\_1 is { 1, 2, 3, 4, 5, 6, 7, 8 } because *dl-DataToUL-ACK-MulticastDCI-Format4-1* is not provided | | | |

Table 14.2.1.1.8.3.3-13: Physical layer parameters for DCI format 1\_1 (step 5 and step 11, Table 14.2.1.1.8.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Value | Value in binary | Condition |
| PDSCH-to-HARQ\_feedback timing indicator | K1 = 4 | “100” | Step 5 |
|  | K1 = 7 | “101” | Step 11 |
| Note: K1 set for DCI 1\_1 is { 2, 3, 4, 5, 6, 7, 8, 9 } . | | | |

##### 14.2.1.1.9 MBS Multicast/ MAC / DL Data Transfer/ DCI-based enabling-disabling HARQ feedback for Multicast/ NACK-only

14.2.1.1.9.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with NACK-only mode is enabled by DCI 4\_2 }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI and successfully decodes it }

***then*** { UE does not send HARQ feedback and UE forwards the MAC PDU to higher layer }

}

(2)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast with NACK-only mode is enabled by DCI 4\_2 }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI and decodes it failure }

***then*** { UE sends NACK for the corresponding HARQ process }

}

(3)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission and HARQ feedback for Multicast is disabled by DCI 4\_2 }

ensure that {

***when*** { UE receives downlink assignment with MAC PDU scheduled for UE's G-RNTI and decodes it failure }

***then*** { UE does not send HARQ feedback and UE forwards the MAC PDU to higher layer }

}

14.2.1.1.9.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.321, clause 5.3.2; TS 38.213, clause 18. Unless otherwise stated these are Rel-17 requirements.

[TS 38.321, clause 5.3.2]

1> if the HARQ process is associated with a transmission indicated with a G-RNTI or a G-CS-RNTI or a configured downlink assignment for MBS multicast and HARQ feedback is disabled; or

1> if the HARQ process is associated with a transmission indicated with a G-RNTI or a G-CS-RNTI or a configured downlink assignment for MBS multicast and NACK only HARQ feedback is configured and the data for this TB is successfully decoded; or

…

2> not instruct the physical layer to generate acknowledgement(s) of the data in this TB.

1> else:

2> instruct the physical layer to generate acknowledgement(s) of the data in this TB.

[TS 38.213, clause 18]

A UE can be configured per G-RNTI for multicast or per G-CS-RNTI, by *harq-FeedbackEnablerMulticast* with value set to 'enabled', to provide HARQ-ACK information for PDSCH receptions. When the UE is not provided *harq-FeedbackEnablerMulticast* for a G-RNTI for multicast or G-CS-RNTI and *pdsch-HARQ-ACK-Codebook = dynamic* for multicast HARQ-ACK information, the UE does not provide HARQ-ACK information for respective PDSCH receptions. If a UE is provided *harq-FeedbackEnablerMulticast* with value set to 'dci-enabler' for a G-RNTI for multicast or a G-CS-RNTI, the UE provides HARQ-ACK information for PDSCH receptions scheduled by multicast DCI format 4\_1 associated with the G-RNTI or the G-CS-RNTI, and determines whether or not to provide the HARQ-ACK information for PDSCH receptions scheduled by multicast DCI format 4\_2 based on an indication by the multicast DCI format 4\_2 associated with the G-RNTI for multicast or the G-CS-RNTI [4, TS 38.212]. If a UE is provided *pdsch-HARQ-ACK-Codebook = semi-static* for multicast HARQ-ACK information, the UE does not expect to be provided *harq-FeedbackEnablerMulticast* with value set to 'dci-enabler' for a G-RNTI or a G-CS-RNTI.

14.2.1.1.9.3 Test description

14.2.1.1.9.3.1 Pre-test conditions

System Simulator:

- The SS configures the NR Cell 1 as the "Serving cell".

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

Preamble:

- The UE is in state 1N-A on NR Cell 1 (serving cell) according to TS 38.508-1 [4] Table 4.4A.2-1 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.2.1.1.9.3.2 Test procedure sequence

Table 14.2.1.1.9.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Step 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2a1-2a2 | Steps 9a1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1 with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 3 | The SS indicates a new transmission addressed to G-RNTI and enabling HARQ-ACK feedback in DCI format 4-2. | <-- | (PDCCH (G-RNTI)) | - | - |
| 4 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The content of the MBS Packet is set so that UE could successfully decode the data from its soft buffer. | <-- | MBS Packet | - | - |
| 5 | Check: Does the UE transmit a HARQ ACK/NACK? | --> | HARQ ACK/NACK | 1 | F |
| 6 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 7 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 8 | Check: Is the number of reported MBS Packets received on the MRB in step 7 equal to 1? | - | - | 1 | P |
| 9 | The SS indicates a new transmission addressed to G-RNTI and enabling HARQ-ACK feedback in DCI format 4-2. | <-- | (PDCCH (G-RNTI)) | - | - |
| 10 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet | - | - |
| 11 | Check: Does the UE transmit a HARQ NACK? | --> | HARQ NACK | 2 | P |
| 12 | The SS indicates a new transmission addressed to G-RNTI and disabling HARQ-ACK feedback in DCI format 4-2. | <-- | (PDCCH (G-RNTI)) | - | - |
| 13 | The SS transmits an MBS Packet on the MTCH with LCID matched with the LCID configured for receiving PTM transmission.  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet | - | - |
| 14 | Check: Does the UE transmit a HARQ ACK/NACK? | --> | HARQ ACK/NACK | 3 | F |

14.2.1.1.9.3.3 Specific message contents

Table 14.2.1.1.9.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.1.1.9.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.1.1.9.3.3-2: *RRCReconfiguration* (step 1a15, Table 14.2.1.1.9.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition MRBm and UM\_PTM | m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.9.3.3-4 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.9.3.3-3: *RRCReconfiguration* (step 1b10, Table 14.2.1.1.9.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition DRBn and MRBm and UM\_PTM | n is chosen as the next available number higher or equal to 2  m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.1.9.3.3-5 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.1.9.3.3-4: *CellGroupConfig* (Table 14.2.1.1.9.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm (m=1) and UM\_PTM | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast and DCI and NACK\_ONLY |  |  |
| } |  |  |  |

Table 14.2.1.1.9.3.3-5: *CellGroupConfig* (Table 14.2.1.1.9.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm\_DRBn and UM\_PTM (Note 1) | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast and DCI and NACK\_ONLY |  |  |
| } |  |  |  |
| Note 1: n is set to the same value as for the radioBearerConfig IE in Table 14.2.1.1.9.3.3-3 and m=1 | | | |

Table 14.2.1.1.9.3.3-6: CLOSE UE TEST LOOP (step 2a1, Table 14.2.1.1.9.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB |

Table 14.2.1.1.9.3.3-7: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 6, Table 14.2.1.1.9.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.1.1.9.3.3-8: Physical layer parameters for DCI format 4\_2 (step 3, step 9 and step 12, Table 14.2.1.1.9.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.3.6.1.5.3-1 | | | |
| Parameter | Value | Value in binary | Condition |
| Enabling/disabling HARQ-ACK feedback indication | 1 | ‘1’ | Step 3, Step 9 |
|  | 0 | ‘0’ | Step 12 |

#### 14.2.1.2 MBS Multicast/ MAC/ DRX operation

##### 14.2.1.2.1 MBS Multicast/ MAC/ DRX operation/ PTM transmission / PTP transmission

14.2.1.2.1.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-UM entity for PTP transmission, and Multicast DRX and unicast DRX are configured }

ensure that {

***when*** { Long DRX cycle for a G-RNTI is configured and [(SFN \* 10) + subframe number] modulo (drx-LongCycle-PTM) = drx-StartOffset-PTM }

***then*** { UE starts the drx-OnDurationTimerPTM and monitors the PDCCH for this G-RNTI during drx-OnDurationTimerPTM }

}

(2)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-UM entity for PTP transmission, and Multicast DRX and unicast DRX are configured }

ensure that {

***when*** { Long DRX cycle for a G-RNTI is configured and a new DL transmission is indicated on the PDCCH during Active Time }

***then*** { UE starts or restarts the drx-InactivityTimerPTM in the first symbol after the end of the PDCCH reception and monitors the PDCCH for this G-RNTI during drx-InactivityTimerPTM }

}

(3)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-UM entity for PTP transmission, and Multicast DRX and unicast DRX are configured }

ensure that {

***when*** { Long DRX cycle for C-RNTI is configured and [(SFN \* 10) + subframe number] modulo (drx-LongCycle) = drx-StartOffset }

***then*** { UE monitors the PDCCH for C-RNTI during drx-OnDurationTimer }

}

(4)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-UM entity for PTP transmission, and Multicast DRX and unicast DRX are configured }

ensure that {

***when*** { Long DRX cycle for C-RNTI is configured and a new DL transmission is indicated on the PDCCH during Active Time }

***then*** { UE starts or restarts the drx-InactivityTimer in the first symbol after the end of the PDCCH reception and monitors the PDCCH for C-RNTI during drx-InactivityTimer }

}

(5)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-UM entity for PTP transmission, and Multicast DRX and unicast DRX are configured }

ensure that {

***when*** { DRX Command MAC CE indicated by PDCCH addressed to with DCI scrambled with a G-RNTI is received }

***then*** { UE stops *drx-onDurationTimerPTM* of the DRX for this G-RNTI }

}

(6)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-UM entity for PTP transmission, and only unicast DRX is configured }

ensure that {

***when*** { PDCCH indicated a DL multicast transmission is received }

***then*** { UE stops *drx-RetransmissionTimerDL* for the corresponding HARQ process }

}

(7)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-UM entity for PTP transmission, both multicast DRX and unicast DRX are configured, and *allowCSI-SRS-Tx-MulticastDRX-Active* is configured }

ensure that {

***when*** { Both unicast DRX and multicast DRX are not in Active Time }

***then*** { UE stop report CSI on PUCCH }

}

(8)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-UM entity for PTP transmission, only unicast DRX is configured, and *allowCSI-SRS-Tx-MulticastDRX-Active* is not configured }

ensure that {

***when*** { Unicast DRX is not in Active Time }

***then*** { UE stop report CSI on PUCCH }

}

(9)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-UM entity for PTP transmission, both multicast DRX and unicast DRX are configured, and *allowCSI-SRS-Tx-MulticastDRX-Active* is configured }

ensure that {

***when*** { Unicast DRX or multicast DRX are in Active Time}

***then*** { UE does not stop report CSI on PUCCH }

}

(10)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-UM entity for PTP transmission, only unicast DRX is configured, and *allowCSI-SRS-Tx-MulticastDRX-Active* is not configured }

ensure that {

***when*** { Unicast DRX is in Active Time }

***then*** { UE does not stop report CSI on PUCCH }

}

14.2.1.2.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.321, clause 5.7, 5.7b. Unless otherwise stated these are Rel-17 requirements.

[TS 38.321, clause 5.7]

1> if the Long DRX cycle is used for a DRX group, and [(SFN × 10) + subframe number] modulo (*drx-LongCycle*) = *drx-StartOffset*:

2> if DCP monitoring is configured for the active DL BWP as specified in TS 38.213 [6], clause 10.3:

….

2> else:

3> start *drx-onDurationTimer* for this DRX group after *drx-SlotOffset* from the beginning of the subframe.

…

1> if a DRX group is in Active Time:

2> monitor the PDCCH on the Serving Cells in this DRX group as specified in TS 38.213 [6];

2> if the PDCCH indicates a DL transmission; or

2> if the PDCCH indicates a one-shot HARQ feedback as specified in clause 9.1.4 of TS 38.213 [6]; or

2> if the PDCCH indicates a retransmission of HARQ feedback as specified in clause 9.1.5 of TS 38.213 [6]:

3> if this Serving Cell is configured with *downlinkHARQ-FeedbackDisabled*:

…

3> else:

4> start or restart the *drx-HARQ-RTT-TimerDL* for the corresponding HARQ process(es) whose HARQ feedback is reported in the first symbol after the end of the corresponding transmission carrying the DL HARQ feedback.

…

3> stop the *drx-RetransmissionTimerDL* for the corresponding HARQ process(es) whose HARQ feedback is reported;

3> stop the *drx-RetransmissionTimerDL-PTM* for the corresponding HARQ process;

…

2> if the PDCCH indicates a new transmission (DL, UL or SL) on a Serving Cell in this DRX group:

3> start or restart *drx-InactivityTimer* for this DRX group in the first symbol after the end of the PDCCH reception.

…

1> if DCP monitoring is configured for the active DL BWP as specified in TS 38.213 [6], clause 10.3; and

1> if the current symbol n occurs within *drx-onDurationTimer* duration; and

1> if *drx-onDurationTimer* associated with the current DRX cycle is not started as specified in this clause:

…

1> else:

2> in current symbol n, if a DRX group would not be in Active Time considering grants/assignments scheduled on Serving Cell(s) in this DRX group and DRX Command MAC CE/Long DRX Command MAC CE received and Scheduling Request sent until 4 ms prior to symbol n when evaluating all DRX Active Time conditions as specified in this clause; and

2> if *allowCSI-SRS-Tx-MulticastDRX-Active* is not configured or, in current symbol n, if all multicast DRXes corresponding to the DRX group would not be in Active Time considering multicast assignments/DRX Command MAC CE for MBS multicast received until 4 ms prior to symbol n when evaluating all DRX Active Time conditions as specified in Clause 5.7b and all multicast sessions corresponding to the DRX group are configured with multicast DRX:

3> not transmit periodic SRS and semi-persistent SRS defined in TS 38.214 [7] in this DRX group;

3> not report CSI on PUCCH and semi-persistent CSI configured on PUSCH in this DRX group.

…

[TS 38.321, clause 5.7b]

For MBS multicast, the MAC entity may be configured by RRC with a DRX functionality per G-RNTI or per G-CS-RNTI that controls the UE's PDCCH monitoring activity for the MAC entity's G-RNTI(s) and G-CS-RNTI(s) as specified in TS 38.331 [5]. When in RRC\_CONNECTED, if multicast DRX is configured for a G-RNTI or G-CS-RNTI, the MAC entity is allowed to monitor the PDCCH for this G-RNTI or G-CS-RNTI discontinuously using the multicast DRX operation specified in this clause; otherwise the MAC entity monitors the PDCCH for this G-RNTI or G-CS-RNTI as specified in TS 38.213 [6]. The multicast DRX operation specified in this clause is performed independently for each G-RNTI or G-CS-RNTI and independently from the DRX operation specified in clauses 5.7 and 5.7a.

RRC controls multicast DRX operation per G-RNTI or per G-CS-RNTI by configuring the following parameters:

- *drx-onDurationTimerPTM*: the duration at the beginning of a DRX cycle;

- *drx-SlotOffsetPTM*: the delay before starting the *drx-onDurationTimerPTM*;

- *drx-InactivityTimerPTM*: the duration after the PDCCH occasion in which a PDCCH indicates a new DL multicast transmission for the MAC entity;

- *drx-LongCycleStartOffsetPTM*: the long DRX cycle *drx-LongCycle-PTM* and *drx-StartOffset-PTM* which defines the subframe where the long DRX cycle starts;

…

When multicast DRX is configured for a G-RNTI or G-CS-RNTI, the Active Time includes the time while:

- *drx-onDurationTimerPTM* or *drx-InactivityTimerPTM* or *drx-RetransmissionTimerDL-PTM* for this G-RNTI or G-CS-RNTI is running.

When multicast DRX is not configured for a G-RNTI or G-CS-RNTI and unicast DRX is configured, the MAC entity shall for this G-RNTI or G-CS-RNTI:

1> monitor the PDCCH as specified in TS 38.213 [6];

1> if the PDCCH indicates a DL multicast transmission; or

1> if a MAC PDU is received in a configured downlink multicast assignment and CS-RNTI is configured:

…

2> stop the *drx-RetransmissionTimerDL* for the corresponding HARQ process.

When multicast DRX is configured for a G-RNTI or G-CS-RNTI, the MAC entity shall for this G-RNTI or G-CS-RNTI:

…

1> if a *drx-HARQ-RTT-TimerDL-PTM* expires:

2> if the data of the corresponding HARQ process was not successfully decoded:

3> start the *drx-RetransmissionTimerDL-PTM* for the corresponding HARQ process in the first symbol after the expiry of *drx-HARQ-RTT-TimerDL-PTM*.

1> if a DRX Command MAC CE indicated by PDCCH addressed to a G-RNTI or G-CS-RNTI, or by a configured downlink multicast assignment is received:

2> stop *drx-onDurationTimerPTM* of the DRX for this G-RNTI or G-CS-RNTI;

2> stop *drx-InactivityTimerPTM* of the DRX for this G-RNTI or G-CS-RNTI.

1> if [(SFN × 10) + subframe number] modulo (*drx-LongCycle-PTM*) = *drx-StartOffset-PTM*:

2> start *drx-onDurationTimerPTM* after *drx-SlotOffsetPTM* from the beginning of the subframe.

1> if the MAC entity is in Active Time for this G-RNTI or G-CS-RNTI:

2> monitor the PDCCH for this G-RNTI or G-CS-RNTI as specified in TS 38.213 [6];

2> if the PDCCH indicates a DL multicast transmission:

…

3> stop the *drx-RetransmissionTimerDL-PTM* for the corresponding HARQ process;

3> stop the *drx-RetransmissionTimerDL* for the corresponding HARQ process.

2> if the PDCCH indicates a new multicast transmission for this G-RNTI or G-CS-RNTI:

3> start or restart *drx-InactivityTimerPTM* in the first symbol after the end of the PDCCH reception.

14.2.1.2.1.3 Test description

14.2.1.2.1.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 is the serving cell.

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR Cell 1.

UE:

- None.

Preamble:

- The UE is in state 1N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

14.2.1.2.1.3.2 Test procedure sequence

Table 14.2.1.2.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2a1-2a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 3 | The SS transmits RRCReconfiguration to configure unicast DRX and multicast DRX parameters. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 4 | The UE transmits RRCReconfigurationComplete. | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 5 | In the first PDCCH occasion when the *drx-onDurationTimerPTM* is running, the SS indicates the transmission of a MBS Packet via RLC-UM for PTM transmission on the PDCCH for G-RNTI. | <-- | MBS Packet. | - | - |
| 6 | In the last PDCCH occasion while the *drx-onDurationTimerPTM* is still running, the SS indicates the transmission of a MBS Packet via RLC-UM for PTM transmission on the PDCCH for G-RNTI. | <-- | MBS Packet. | - | - |
| 7 | *drx-InactivityTimerPTM* PDCCH-occasions after the transmission of the MBS Packet transmitted in step 6 was indicated on the PDCCH, the SS indicates the transmission of a MBS Packet via RLC-UM for PTM transmission on the PDCCH for G-RNTI. | <-- | MBS Packet. | - | - |
| 8 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 9 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 10 | Check: Is the number of reported MBS Packets received on in step 9 equal to 3? | - | - | 1,2 | P |
| 11 | In the first PDCCH occasion when the *drx-onDurationTimer* is running, the SS indicates the transmission of a MBS Packet via RLC-UM for PTP transmission on the PDCCH for C-RNTI. | <-- | MBS Packet. | - | - |
| 12 | Check: Does the UE transmit a HARQ ACK for the MBS Packet in Step 11? | --> | HARQ ACK | 3 | P |
| 13 | In the last PDCCH occasion while the *drx-onDurationTimer* is still running, the SS indicates the transmission of a MBS Packet via RLC-UM for PTP transmission on the PDCCH for C-RNTI. | <-- | MBS Packet. | - | - |
| 14 | Check: Does the UE transmit a HARQ ACK for the MBS Packet in Step 13? | --> | HARQ ACK | 3 | P |
| 15 | *drx-InactivityTimer* PDCCH-occasions after the transmission of the MBS Packet transmitted in step 13 was indicated on the PDCCH, the SS indicates the transmission of a MBS Packet via RLC-UM for PTP transmission on the PDCCH for C-RNTI. | <-- | MBS Packet. | - | - |
| 16 | Check: Does the UE transmit a HARQ ACK for the MBS Packet in Step 15? | --> | HARQ ACK | 4 | P |
| 17 | Check: Does the UE transmit a CSI Report during when the *drx-onDurationTimerPTM* is running? | --> | CSI Report | 9 | P |
| 18 | In the first PDCCH occasion when the *drx-onDurationTimerPTM* is running, the SS indicates the transmission of a DRX MAC Control element on the PDCCH for G-RNTI.  UE successfully decodes the MAC PDU and stop the *drx-onDurationTimerPTM.* | <-- | DRX MAC Control element | - | - |
| 19 | Wait *drx-InactivityTimerPTM* expiresafter step18. | - | - | - | - |
| 20 | Check: Does the UE transmit a CSI Report after Step19? | --> | CSI Report | 5,7 | F |
| 21 | The SS transmits RRCReconfiguration to disable multicast DRX parameters. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 22 | The UE transmits RRCReconfigurationComplete. | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 23 | In the last PDCCH occasion while the *drx-onDurationTimer* is still running, the SS indicates the transmission of a MBS Packet via RLC-UM for PTP transmission on the PDCCH for C-RNTI.  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet. | - | - |
| 24 | The UE transmit a HARQ ACK for the MBS Packet in Step 23? | --> | HARQ NACK | - | - |
| 25 | Check: Does the UE transmit a CSI Report during when the *drx-RetransmissionTimerDL* is running? | --> | CSI Report | 10 | P |
| 26 | In a PDCCH occasion which is X PDCCH sub frames before the PDCCH occasion in which the *drx-RetransmissionTimerDL* expires, with X > period of CSI Report, the SS indicates the transmission of a MBS Packet via RLC-UM for PTM transmission on the PDCCH for G-RNTI.  UE stops *drx-RetransmissionTimerDL.* | <-- | MBS Packet. | - | - |
| 27 | Check: Does the UE transmit a CSI Report after step 26? | --> | CSI Report | 6,8 | F |

14.2.1.2.1.3.3 Specific message contents

Table 14.2.1.2.1.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.1.2.1.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.1.2.1.3.3-2: *RRCReconfiguration* (step 1a15, Table 14.2.1.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition MRBm and UMPTP\_UMPTM | m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm and UMPTP\_UMPTM | m=1 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.2.1.3.3-3: *RRCReconfiguration* (step 1b10, Table 14.2.1.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition DRBn and MRBm and UMPTP\_UMPTM | n is chosen as the next available number higher or equal to 2  m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm\_DRBn and UMPTP\_UMPTM | n is set to the same value as for the radioBearerConfig IE above  m=1 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.2.1.3.3-4: CLOSE UE TEST LOOP (step 2a1, Table 14.2.1.2.1.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB |

Table 14.2.1.2.1.3.3-5: *RRCReconfiguration* (step 3, Table 14.2.4.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.2.1.3.3-6 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.2.1.3.3-6: *CellGroupConfig* (Table 14.2.1.2.1.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig | Table 14.2.1.2.1.3.3-7 |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| servCellIndex | Not present |  |  |
| reconfigurationWithSync | Not present |  |  |
| rlf-TimersAndConstants | Not present |  |  |
| rlmInSyncOutOfSyncThreshold | Not present |  |  |
| spCellConfigDedicated | ServingCellConfig | Table 14.2.1.2.1.3.3-10 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.2.1.3.3-7: *MAC-CellGroupConfig* (Table 14.2.1.2.1.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-68, condition DRX and MBS\_Multicast and DRX\_MBS\_Multicast | | | |
| Information Element | Value/remark | Comment | Condition |
| MAC-CellGroupConfig ::= SEQUENCE { |  |  |  |
| drx-Config CHOICE { |  |  |  |
| setup | DRX-Config | Table 14.2.1.2.1.3.3-8 |  |
| } |  |  |  |
| g-RNTI-ConfigToAddModList-r17 SEQUENCE (SIZE (1..maxG-RNTI-r17)) OF MBS-RNTI-SpecificConfig-r17 { | 1 entry |  |  |
| MBS-RNTI-SpecificConfig-r17[1] SEQUENCE { |  | entry 1 |  |
| mbs-RNTI-SpecificConfigId-r17 | 0 |  |  |
| groupCommon-RNTI-r17 CHOICE { |  |  |  |
| g-RNTI | RNTI-Value |  |  |
| } |  |  |  |
| drx-ConfigPTM-r17 CHOICE { |  |  |  |
| setup | DRX-ConfigPTM | Table 14.2.1.2.1.3.3-9 |  |
| } |  |  |  |
| } |  |  |  |
| allowCSI-SRS-Tx-MulticastDRX-Active-r17 | true |  |  |
| } |  |  |  |

Table 14.2.1.2.1.3.3-8: *DRX-Config* (Table 14.2.1.2.1.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.6.3.56 | | | |
| Information Element | Value/remark | Comment | Condition |
| DRX-Config ::= SEQUENCE { |  |  |  |
| drx-onDurationTimer CHOICE { |  |  |  |
| milliSeconds | ms40 |  |  |
| } |  |  |  |
| drx-InactivityTimer | ms10 |  |  |
| drx-HARQ-RTT-TimerDL | 56 | 4 slots |  |
| drx-HARQ-RTT-TimerUL | 56 | 4 slots |  |
| drx-RetransmissionTimerDL | sl80 |  |  |
| drx-RetransmissionTimerUL | sl80 |  |  |
| drx-LongCycleStartOffset CHOICE { |  |  |  |
| ms640 | 7 |  |  |
| } |  |  |  |
| shortDRX | not present |  |  |
| drx-SlotOffset | 0 |  |  |
| } |  |  |  |

Table 14.2.1.2.1.3.3-9: *DRX-ConfigPTM* (Table 14.2.1.2.1.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.6.7-3 | | | |
| Information Element | Value/remark | Comment | Condition |
| DRX-ConfigPTM-r17 ::= SEQUENCE { |  |  |  |
| drx-onDurationTimerPTM-r17 CHOICE { |  |  |  |
| milliSeconds | ms40 |  |  |
| } |  |  |  |
| drx-InactivityTimerPTM-r17 | ms10 |  |  |
| drx-HARQ-RTT-TimerDL-PTM-r17 | Not present |  |  |
| drx-RetransmissionTimerDL-PTM-r17 | Not present |  |  |
| drx-LongCycleStartOffsetPTM-r17 CHOICE { |  |  |  |
| ms640 | 27 |  |  |
| } |  |  |  |
| drx-SlotOffsetPTM-r17 | 0 |  |  |
| } |  |  |  |

Table 14.2.1.2.1.3.3-10: *ServingCellConfig* (Table 14.2.1.2.1.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.6.3-167, condition MBS\_Multicast | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfig ::= SEQUENCE { |  |  |  |
| csi-MeasConfig CHOICE { |  |  |  |
| setup | csi-MeasConfig | Table 14.2.1.2.1.3.3-11 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.2.1.3.3-11: *CSI-MeasConfig* (Table 14.2.1.2.1.3.3-10)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.6.3-38 | | | |
| Information Element | Value/remark | Comment | Condition |
| CSI-MeasConfig::= SEQUENCE { |  |  |  |
| csi-SSB-ResourceSetToAddModList SEQUENCE (SIZE (1..maxNrofCSI-SSB-ResourceSets)) OF CSI-SSB-ResourceSet { | 1 entry |  |  |
| CSI-SSB-ResourceSet[1] | CSI-SSB-ResourceSet | entry 1 |  |
| } |  |  |  |
| csi-ResourceConfigToAddModList SEQUENCE (SIZE (1..maxNrofCSI-ResourceConfigurations)) OF CSI-ResourceConfig { | 1 entry |  |  |
| CSI-ResourceConfig[1] SEQUENCE { | CSI-ResourceConfig | entry 1 |  |
| csi-ResourceConfigId | 0 |  |  |
| csi-RS-ResourceSetList CHOICE { |  |  |  |
| nzp-CSI-RS-SSB SEQUENCE { |  |  |  |
| csi-SSB-ResourceSetList SEQUENCE (SIZE (1..maxNrofCSI-SSB-ResourceSetsPerConfig)) OF CSI-SSB-ResourceSetId { |  |  |  |
| CSI-SSB-ResourceSetId [1] | 0 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| bwp-Id | 0 |  |  |
| resourceType | periodic |  |  |
| } |  |  |  |
| } |  |  |  |
| csi-ReportConfigToAddModList SEQUENCE (SIZE (1..maxNrofCSI-ReportConfigurations)) OF CSI-ReportConfig { | 1 entry |  |  |
| CSI-ReportConfig[1] | CSI-ReportConfig | entry 1  Table 14.2.1.2.1.3.3-12 |  |
| } |  |  |  |
| reportTriggerSize | 0 |  |  |
| } |  |  |  |

Table 14.2.1.2.1.3.3-12: *CSI-ReportConfig* (Table 14.2.1.2.1.3.3-11)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.6.3-39 | | | |
| Information Element | Value/remark | Comment | Condition |
| CSI-ReportConfig ::= SEQUENCE { |  |  |  |
| reportConfigId | 0 |  |  |
| carrier | Not present |  |  |
| resourcesForChannelMeasurement | 0 |  |  |
| csi-IM-ResourcesForInterference | Not present |  |  |
| nzp-CSI-RS-ResourcesForInterference | Not present |  |  |
| reportConfigType CHOICE { |  |  |  |
| periodic SEQUENCE { |  |  |  |
| reportSlotConfig CHOICE { |  |  |  |
| slots20 | 9 |  |  |
| } |  |  |  |
|  |  |  |  |
| pucch-CSI-ResourceList SEQUENCE (SIZE (1..maxNrofBWPs)) OF PUCCH-CSI-Resource { | 1 entry |  |  |
| PUCCH-CSI-Resource [1] SEQUENCE { |  | entry 1 |  |
| uplinkBandwidthPartId | 0 |  |  |
| pucch-Resource | 9 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| reportQuantity CHOICE { |  |  |  |
| ssb-Index-RSRP | NULL |  |  |
| } |  |  |  |
| timeRestrictionForChannelMeasurements | notConfigured |  |  |
| timeRestrictionForInterferenceMeasurements | notConfigured |  |  |
| codebookConfig | Not present |  |  |
| dummy | Not present |  |  |
| groupBasedBeamReporting CHOICE { |  |  |  |
| disabled SEQUENCE { |  |  |  |
| nrofReportedRS | n1 |  |  |
| } |  |  |  |
| } |  |  |  |
| cqi-Table | table1 |  |  |
| subbandSize | value2 |  |  |
| } |  |  |  |

Table 14.2.1.2.1.3.3-13: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 8, Table 14.2.1.2.1.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.1.2.1.3.3-14: RRCReconfiguration (Step 21, Table 14.2.4.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1, table 4.6.1-3 | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.2.1.3.3-15 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.2.1.3.3-15: *CellGroupConfig* (Table 14.2.1.2.1.3.3-14)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig | Table 14.2.1.2.1.3.3-16 |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig | Not present |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.2.1.3.3-16: *MAC-CellGroupConfig* (Table 14.2.1.2.1.3.3-15)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-68, DRX and MBS\_Multicast | | | |
| Information Element | Value/remark | Comment | Condition |
| MAC-CellGroupConfig ::= SEQUENCE { |  |  |  |
| drx-Config CHOICE { |  |  |  |
| setup | DRX-Config | Table 14.2.1.2.1.3.3-8 |  |
| } |  |  |  |
| g-RNTI-ConfigToAddModList-r17 SEQUENCE (SIZE (1..maxG-RNTI-r17)) OF MBS-RNTI-SpecificConfig-r17 { | 1 entry |  |  |
| MBS-RNTI-SpecificConfig-r17[1] SEQUENCE { |  | entry 1 |  |
| mbs-RNTI-SpecificConfigId-r17 | 0 |  |  |
| groupCommon-RNTI-r17 CHOICE { |  |  |  |
| g-RNTI | RNTI-Value |  |  |
| } |  |  |  |
| drx-ConfigPTM-r17 CHOICE { |  |  |  |
| release |  |  |  |
| } |  |  |  |
| } |  |  |  |
| allowCSI-SRS-Tx-MulticastDRX-Active-r17 | false |  |  |
| } |  |  |  |

##### 14.2.1.2.2 MBS Multicast/ MAC/ DRX operation/ PTM retransmission for multicast

14.2.1.2.2.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission, and multicast DRX is configured, and HARQ ACK/NACK feedback for multicast is enabled }

ensure that {

***when*** { UE receives a PTM transmission with G-RNTI and the data in the soft buffer of the corresponding HARQ process for MBS multicast was not successfully decoded }

***then*** { UE starts the drx-RetransmissionTimerDL-PTM for the corresponding HARQ processs after expiry of drx-HARQ-RTT-TimerDL-PTM and monitors the G-RNTI PDCCH for drx-RetransmissionTimerDL-PTM consecutive PDCCH Occasion }

}

14.2.1.2.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.321, clauses 5.7b. Unless otherwise stated these are Rel-17 requirements.

[TS 38.321, clause 5.7b]

RRC controls multicast DRX operation per G-RNTI or per G-CS-RNTI by configuring the following parameters:

…

- *drx-RetransmissionTimerDL-PTM* (per DL HARQ process for MBS multicast): the maximum duration until a DL multicast retransmission is received;

- *drx-HARQ-RTT-TimerDL-PTM* (per DL HARQ process for MBS multicast): the minimum duration before a DL multicast assignment for HARQ retransmission is expected by the MAC entity.

…

When multicast DRX is configured for a G-RNTI or G-CS-RNTI, the MAC entity shall for this G-RNTI or G-CS-RNTI:

…

1> if a *drx-HARQ-RTT-TimerDL-PTM* expires:

2> if the data of the corresponding HARQ process was not successfully decoded:

3> start the *drx-RetransmissionTimerDL-PTM* for the corresponding HARQ process in the first symbol after the expiry of *drx-HARQ-RTT-TimerDL-PTM*.

…

1> if the MAC entity is in Active Time for this G-RNTI or G-CS-RNTI:

2> monitor the PDCCH for this G-RNTI or G-CS-RNTI as specified in TS 38.213 [6];

2> if the PDCCH indicates a DL multicast transmission:

3> if HARQ feedback is enabled:

4> start the *drx-HARQ-RTT-TimerDL-PTM* for the corresponding HARQ process in the first symbol after the end of the corresponding transmission carrying the DL HARQ feedback;

4> if the first HARQ-ACK reporting mode (i.e. ack-nack) is configured as specified in TS 38.213 [6]:

5> if the PDCCH addressed to G-RNTI indicates a DL multicast transmission; or

5> if the PDCCH addressed to G-CS-RNTI indicates a DL multicast transmission and CS-RNTI is configured:

6> start the *drx-HARQ-RTT-TimerDL* for the corresponding HARQ process in the first symbol after the end of the corresponding transmission carrying the DL HARQ feedback.

3> stop the *drx-RetransmissionTimerDL-PTM* for the corresponding HARQ process;

3> stop the *drx-RetransmissionTimerDL* for the corresponding HARQ process.

2> if the PDCCH indicates a new multicast transmission for this G-RNTI or G-CS-RNTI:

3> start or restart *drx-InactivityTimerPTM* in the first symbol after the end of the PDCCH reception.

14.2.1.2.2.3 Test description

14.2.1.2.2.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 is the serving cell.

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

Preamble:

- The UE is in state 1N-A on NR Cell 1 (serving cell) according to TS 38.508-1 [4] Table 4.4A.2-1 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.2.1.2.2.3.2 Test procedure sequence

Table 14.2.1.2.2.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2a1-2a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 3 | The SS transmits RRCReconfiguration to configure multicast DRX parameters and enable HARQ feedback for multicast. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 4 | The UE transmits RRCReconfigurationComplete. | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 5 | In the last PDCCH occasion before the *drx-onDurationTimerPTM* expires, the SS indicates the new transmission of an MBS Packet on the PDCCH addressed to G-RNTI. (Note 1)  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet. | - | - |
| 6 | Check: Does the UE transmit a HARQ NACK for the MBS Packet in step 5? | --> | HARQ NACK | - | - |
| 7 | In the first PDCCH occasion when the *drx-RetransmissionTimerDL-PTM* for the MBS Packet in step 5 is started (i.e. after expiry of *drx-HARQ-RTT-TimerDL-PTM* after step 5*)*, the SS indicates the retransmission of a MBS Packet in step 5 using PTM retransmission for multicast on the PDCCH addressed to G-RNTI. (Note 1)  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet. | - | - |
| 8 | Check: Does the UE transmit a HARQ ACK/ NACK for the MBS Packet in step 7? | --> | HARQ ACK/NACK | 1 | P |
| 9 | In the last PDCCH occasion before the *drx-onDurationTimerPTM* expires, the SS indicates the new transmission of an MBS Packet on the PDCCH addressed to G-RNTI. (Note 1)  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet. | - | - |
| 10 | Check: Does the UE transmit a HARQ NACK for the MBS Packet in step 9? | --> | HARQ NACK | - | - |
| - | EXCEPTION: Step 11 shall be repeated till HARQ ACK is received at step 12 or until HARQ retransmission count = 4 is reached for MBS Packet at step 9 (Note 2) (Note 3). | - | - | - | - |
| 11 | In the last PDCCH occasion when the *drx-RetransmissionTimerDL-PTM* for the MBS Packet is started (i.e. after expiry of *drx-HARQ-RTT-TimerDL-PTM)*, the SS indicates the retransmission of a MBS Packet in step 9 using PTM retransmission for multicast on the PDCCH addressed to G-RNTI. (Note 1)  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet. | - | - |
| - | EXCEPTION: Up to 3 HARQ NACK from the UE should be allowed at step 12 (Note 2). | - | - | - | - |
| 12 | Check: Does the UE transmit a HARQ ACK/NACK for the MBS Packet in step 11? | --> | HARQ ACK/NACK | 1 | P |
| Note 1: The DCI format for all the PDCCH addressed to G-RNTI is DCI format 4-1.  Note 2: The value 4 for the maximum number of HARQ retransmissions has been chosen based on an assumption that, given the radio conditions used in this test case, a UE soft combiner implementation should have sufficient retransmissions to be able to successfully decode the data in its soft buffer.  Note 3: SS performs new transmission for a MBS Packet in step9, and UE starts drx-HARQ-RTT-TimerDL and drx-HARQ-RTT-TimerDL-PTM after sending HARQ NACK in step 10. UE starts drx-RetransmissionTimerDL after expiry of drx-HARQ-RTT-TimerDL, and SS performs retransmission for the MBS Packet using PTM retransmission for multicast during retransmission timer running. If UE decodes the retransmited MBS Packet successfully, UE feedbacks HARQ ACK. If UE fails to decode the retransmited MBS Packet successfully, UE feedbacks HARQ NACK and starts drx-HARQ-RTT-TimerDL again. | | | | | |

14.2.1.2.2.3.3 Specific message contents

Table 14.2.1.2.2.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.1.2.2.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.1.2.2.3.3-2: *RRCReconfiguration* (step 3, Table 14.2.1.2.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.2.2.3.3-3 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.2.2.3.3-3: *CellGroupConfig* (Table 14.2.1.2.2.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig | Table 14.2.1.2.2.3.3-4 |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig | Not present |  |  |
| } |  |  |  |

Table 14.2.1.2.2.3.3-4: *MAC-CellGroupConfig* (Table 14.2.1.2.2.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-68, condition MBS\_Multicast and RRC\_Enable\_HARQFeedback and ACK\_NACK | | | |
| Information Element | Value/remark | Comment | Condition |
| MAC-CellGroupConfig ::= SEQUENCE { |  |  |  |
| g-RNTI-ConfigToAddModList-r17 SEQUENCE (SIZE (1..maxG-RNTI-r17)) OF MBS-RNTI-SpecificConfig-r17 { | 1 entry |  |  |
| MBS-RNTI-SpecificConfig-r17[1] SEQUENCE { |  | entry 1 |  |
| mbs-RNTI-SpecificConfigId-r17 | 0 |  |  |
| groupCommon-RNTI-r17 CHOICE { |  |  |  |
| g-RNTI | RNTI-Value |  |  |
| } |  |  |  |
| drx-ConfigPTM-r17 CHOICE { |  |  |  |
| setup | DRX-ConfigPTM | Table 14.2.1.2.2.3.3-5 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.2.2.3.3-5: *DRX-ConfigPTM* (Table 14.2.1.2.2.3.3-4)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.6.7-3 | | | |
| Information Element | Value/remark | Comment | Condition |
| DRX-ConfigPTM-r17 ::= SEQUENCE { |  |  |  |
| drx-onDurationTimerPTM-r17 CHOICE { |  |  |  |
| milliSeconds | ms40 |  |  |
| } |  |  |  |
| drx-InactivityTimerPTM-r17 | ms0 |  |  |
| drx-HARQ-RTT-TimerDL-PTM-r17 | 56 |  |  |
| drx-RetransmissionTimerDL-PTM-r17 | sl80 |  |  |
| drx-LongCycleStartOffsetPTM-r17 CHOICE { |  |  |  |
| ms1280 | 27 |  |  |
| } |  |  |  |
| drx-SlotOffsetPTM-r17 | 0 |  |  |
| } |  |  |  |

##### 14.2.1.2.3 MBS Multicast/ MAC/ DRX operation/ PTP retransmission for multicast

14.2.1.2.3.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and Multicast MRB established with RLC-UM entity for PTM transmission, both multicast DRX and unicast DRX are configured, and HARQ ACK/NACK feedback for multicast is enabled }

ensure that {

***when*** { UE receives a PTM transmission with G-RNTI and the data in the soft buffer of the corresponding HARQ process for MBS multicast was not successfully decoded }

***then*** { UE starts the drx-RetransmissionTimerDL for the corresponding HARQ process for MBS multicast after expiry of drx-HARQ-RTT-TimerDL and monitors the PDCCH addressed to C-RNTI for drx-RetransmissionTimerDL consecutive PDCCH Occasion }

}

(2)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-UM entity for PTP transmission, both multicast DRX and unicast DRX are configured, and HARQ ACK/NACK feedback for multicast is enabled }

ensure that {

***when*** { UE receives a DL transmission with C-RNTI during drx-RetransmissionTimerDL for the corresponding HARQ process for MBS multicast }

***then*** { UE stops the drx-RetransmissionTimerDL and drx-RetransmissionTimerDL-PTM for the corresponding HARQ process }

}

(3)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-UM entity for PTP transmission, both multicast DRX and unicast DRX are configured, and period CSI report is configured, and *allowCSI-SRS-Tx-MulticastDRX-Active* is configured }

ensure that {

***when*** { Both unicast DRX and multicast DRX are not in Active Time }

***then*** { UE stop report CSI on PUCCH }

}

(4)

***with*** { UE in RRC\_Connected state and Multicast MRB established with one RLC-UM entity for PTM transmission and one RLC-UM entity for PTP transmission, both multicast DRX and unicast DRX are configured, and period CSI report is configured, and *allowCSI-SRS-Tx-MulticastDRX-Active* is configured }

ensure that {

***when*** { Unicast DRX or multicast DRX are in Active Time}

***then*** { UE does not stop report CSI on PUCCH }

}

14.2.1.2.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.321, clauses 5.7 and 5.7b. Unless otherwise stated these are Rel-17 requirements.

[TS 38.321, clause 5.7]

1> if a DRX group is in Active Time:

2> monitor the PDCCH on the Serving Cells in this DRX group as specified in TS 38.213 [6];

2> if the PDCCH indicates a DL transmission; or

2> if the PDCCH indicates a one-shot HARQ feedback as specified in clause 9.1.4 of TS 38.213 [6]; or

2> if the PDCCH indicates a retransmission of HARQ feedback as specified in clause 9.1.5 of TS 38.213 [6]:

3> if this Serving Cell is configured with *downlinkHARQ-FeedbackDisabled*:

…

3> else:

4> start or restart the *drx-HARQ-RTT-TimerDL* for the corresponding HARQ process(es) whose HARQ feedback is reported in the first symbol after the end of the corresponding transmission carrying the DL HARQ feedback.

NOTE 3: When HARQ feedback is postponed by PDSCH-to-HARQ\_feedback timing indicating an inapplicable k1 value, as specified in TS 38.213 [6], the corresponding transmission opportunity to send the DL HARQ feedback is indicated in a later PDCCH requesting the HARQ-ACK feedback.

3> stop the *drx-RetransmissionTimerDL* for the corresponding HARQ process(es) whose HARQ feedback is reported;

3> stop the *drx-RetransmissionTimerDL-PTM* for the corresponding HARQ process;

…

1> if DCP monitoring is configured for the active DL BWP as specified in TS 38.213 [6], clause 10.3; and

1> if the current symbol n occurs within *drx-onDurationTimer* duration; and

1> if *drx-onDurationTimer* associated with the current DRX cycle is not started as specified in this clause:

…

1> else:

2> in current symbol n, if a DRX group would not be in Active Time considering grants/assignments scheduled on Serving Cell(s) in this DRX group and DRX Command MAC CE/Long DRX Command MAC CE received and Scheduling Request sent until 4 ms prior to symbol n when evaluating all DRX Active Time conditions as specified in this clause; and

2> if *allowCSI-SRS-Tx-MulticastDRX-Active* is not configured, or if *cfr-ConfigMulticast* is not configured for any of the active BWP(s) of the Serving Cell(s), or, in current symbol n, if all multicast DRXes corresponding to the DRX group would not be in Active Time considering multicast assignments/DRX Command MAC CE for MBS multicast received until 4 ms prior to symbol n when evaluating all DRX Active Time conditions as specified in Clause 5.7b and all multicast sessions corresponding to the DRX group are configured with multicast DRX:

3> not transmit periodic SRS and semi-persistent SRS defined in TS 38.214 [7] in this DRX group;

3> not report CSI on PUCCH and semi-persistent CSI configured on PUSCH in this DRX group

[TS 38.321, clause 5.7b]

RRC controls multicast DRX operation per G-RNTI or per G-CS-RNTI by configuring the following parameters:

…

- *drx-RetransmissionTimerDL-PTM* (per DL HARQ process for MBS multicast): the maximum duration until a DL multicast retransmission is received;

- *drx-HARQ-RTT-TimerDL-PTM* (per DL HARQ process for MBS multicast): the minimum duration before a DL multicast assignment for HARQ retransmission is expected by the MAC entity.

…

When multicast DRX is configured for a G-RNTI or G-CS-RNTI, the MAC entity shall for this G-RNTI or G-CS-RNTI:

…

1> if a *drx-HARQ-RTT-TimerDL-PTM* expires:

2> if the data of the corresponding HARQ process was not successfully decoded:

3> start the *drx-RetransmissionTimerDL-PTM* for the corresponding HARQ process in the first symbol after the expiry of *drx-HARQ-RTT-TimerDL-PTM*.

…

1> if the MAC entity is in Active Time for this G-RNTI or G-CS-RNTI:

2> monitor the PDCCH for this G-RNTI or G-CS-RNTI as specified in TS 38.213 [6];

2> if the PDCCH indicates a DL multicast transmission:

3> if HARQ feedback is enabled:

4> start the *drx-HARQ-RTT-TimerDL-PTM* for the corresponding HARQ process in the first symbol after the end of the corresponding transmission carrying the DL HARQ feedback;

4> if the first HARQ-ACK reporting mode (i.e. ack-nack) is configured as specified in TS 38.213 [6]:

5> if the PDCCH addressed to G-RNTI indicates a DL multicast transmission; or

5> if the PDCCH addressed to G-CS-RNTI indicates a DL multicast transmission and CS-RNTI is configured:

6> start the *drx-HARQ-RTT-TimerDL* for the corresponding HARQ process in the first symbol after the end of the corresponding transmission carrying the DL HARQ feedback.

3> stop the *drx-RetransmissionTimerDL-PTM* for the corresponding HARQ process;

3> stop the *drx-RetransmissionTimerDL* for the corresponding HARQ process.

2> if the PDCCH indicates a new multicast transmission for this G-RNTI or G-CS-RNTI:

3> start or restart *drx-InactivityTimerPTM* in the first symbol after the end of the PDCCH reception.

14.2.1.2.3.3 Test description

14.2.1.2.3.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 is the serving cell.

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

Preamble:

- The UE is in state 1N-A on NR Cell 1 (serving cell) according to TS 38.508-1 [4] Table 4.4A.2-1 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.2.1.2.3.3.2 Test procedure sequence

Table 14.2.1.2.3.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2a1-2a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 3 | The SS transmits RRCReconfiguration to configure multicast DRX parameters and unicast DRX parameters and enable HARQ feedback for multicast. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 4 | The UE transmits RRCReconfigurationComplete. | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 5 | In the last PDCCH occasion before the *drx-onDurationTimerPTM* expires, the SS indicates the new transmission of an MBS Packet on the PDCCH addressed to G-RNTI.  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet. | - | - |
| 6 | UE transmits a HARQ NACK for the MBS Packet in step 5. | --> | HARQ NACK | - | - |
| 7 | In the first PDCCH occasion when the *drx-RetransmissionTimerDL* for the MBS Packet in step 5 is started (i.e. after expiry of *drx-HARQ-RTT-TimerDL* after step 5), the SS indicates the retransmission of a MBS Packet in step 5 using PTP retransmission for multicast on the PDCCH addressed to C-RNTI.(Note 1)  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 8 | Check: Does the UE transmit a HARQ ACK/ NACK for the MBS Packet in step 7? | --> | HARQ ACK/NACK | 1 | P |
| 9 | In the last PDCCH occasion before the *drx-onDurationTimerPTM* expires, the SS indicates the new transmission of a MBS Packet on the PDCCH addressed to G-RNTI.  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet | - | - |
| 10 | Check: Does the UE transmit a HARQ NACK for the MBS Packet in step 9? | --> | HARQ NACK | - | - |
| - | EXCEPTION: Step 11 shall be repeated till HARQ ACK is received at step 12 or until HARQ retransmission count = 4 is reached for MBS Packet at step 11 (Note 2). | - | - | - | - |
| 11 | In the last PDCCH occasion when the *drx-RetransmissionTimerDL* for the MBS Packet is started (i.e. after expiry of *drx-HARQ-RTT-TimerDL)*, the SS indicates the retransmission of a MBS Packet in step 9 using PTP retransmission for multicast on the PDCCH addressed to C-RNTI.(Note 3)  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| - | EXCEPTION: Up to 3 HARQ NACK from the UE should be allowed at step 12 (Note 2). | - | - | - | - |
| 12 | Check: Does the UE transmit a HARQ ACK/NACK for the MBS Packet in step 11? | --> | HARQ ACK/NACK | 1 | P |
| 13 | The SS transmits RRCReconfiguration to configure CSI report and allowCSI-SRS-Tx-MulticastDRX-Active-r17. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 14 | The UE transmits RRCReconfigurationComplete. | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 15 | In the last PDCCH occasion before the *drx-onDurationTimerPTM* expires, the SS indicates the new transmission of an MBS Packet via RLC-UM for PTM transmission on the PDCCH addressed to G-RNTI.  The CRC is calculated in such a way, it will result in CRC error on UE side. | <-- | MBS Packet | - | - |
| 16 | The UE transmits a HARQ NACK for the MBS Packet in step 15. | --> | HARQ NACK | - | - |
| 17 | Check: Does the UE transmit a CSI Report during when the *drx-RetransmissionTimerDL* and *drx-RetransmissionTimerDL-PTM* are running? | --> | CSI Report | 4 | P |
| 18 | In a PDCCH occasion which is X PDCCH sub frames before the PDCCH occasion in which the *drx-RetransmissionTimerDL* expires, with X > period of CSI Report, the SS indicates the new transmission of an MBS Packet via RLC-UM for PTP transmission on the PDCCH addressed to C-RNTI. (Note 5)  The CRC is calculated in such a way, it will result in CRC pass on UE side. | <-- | MBS Packet | - | - |
| 19 | Check: Does the UE transmit a CSI Report after step 18? | --> | CSI Report | 2,3 | F |
| Note 1: If UE support PTP retransmission for multicast, UE start *drx-HARQ-RTT-TimerDL* and *drx-HARQ-RTT-TimerDL-PTM* for the corresponding HARQ process in the first symbol after the end of the corresponding transmission carrying the DL HARQ feedback (i.e HARQ NACK in step 10).  Note 2: The value 4 for the maximum number of HARQ retransmissions has been chosen based on an assumption that, given the radio conditions used in this test case, a UE soft combiner implementation should have sufficient retransmissions to be able to successfully decode the data in its soft buffer.  Note 3: SS performs new transmission for a MBS Packet in step9, UE starts *drx-HARQ-RTT-TimerDL* and *drx-HARQ-RTT-TimerDL-PTM* after sending HARQ NACK in step 10. UE starts *drx-RetransmissionTimerDL* after expiry of *drx-HARQ-RTT-TimerDL*, SS performs retransmission for the MBS Packet using PTP retransmission for multicast. If UE decode the MBS Packet successfully, UE feedback HARQ ACK. If UE fail to decode the MBS Packet successfully, UE feedbacks HARQ NACK and starts drx-HARQ-RTT-TimerDL again.  Note 4: The DCI format for all the PDCCH addressed to G-RNTI is DCI format 4-1.  Note 5: UE stops *drx-RetransmissionTimerDL* and *drx-RetransmissionTimerDL-PTM,* and *drx-inactiveTimer*=0ms. Therefore, UE leaves Active Time. | | | | | |

14.2.1.2.3.3.3 Specific message contents

Table 14.2.1.2.3.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.1.2.3.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.1.2.3.3.3-2: *RRCReconfiguration* (step 3, Table 14.2.1.2.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.2.3.3.3-3 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.2.3.3.3-3: *CellGroupConfig* (Table 14.2.1.2.3.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig | Table 14.2.1.2.3.3.3-4 |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig | Not present |  |  |
| } |  |  |  |

Table 14.2.1.2.3.3.3-4: *MAC-CellGroupConfig* (Table 14.2.1.2.3.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-68, condition MBS\_Multicast and RRC\_Enable\_HARQFeedback and ACK\_NACK | | | |
| Information Element | Value/remark | Comment | Condition |
| MAC-CellGroupConfig ::= SEQUENCE { |  |  |  |
| drx-Config CHOICE { |  |  |  |
| setup | DRX-Config | Table 14.2.1.2.3.3.3-5 |  |
| } |  |  |  |
| g-RNTI-ConfigToAddModList-r17 SEQUENCE (SIZE (1..maxG-RNTI-r17)) OF MBS-RNTI-SpecificConfig-r17 { | 1 entry |  |  |
| MBS-RNTI-SpecificConfig-r17[1] SEQUENCE { |  | entry 1 |  |
| mbs-RNTI-SpecificConfigId-r17 | 0 |  |  |
| groupCommon-RNTI-r17 CHOICE { |  |  |  |
| g-RNTI | RNTI-Value |  |  |
| } |  |  |  |
| drx-ConfigPTM-r17 CHOICE { |  |  |  |
| setup | DRX-ConfigPTM | Table 14.2.1.2.3.3.3-6 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.2.3.3.3-5: *DRX-Config* (Table 14.2.1.2.3.3.3-4)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.6.3.56 | | | |
| Information Element | Value/remark | Comment | Condition |
| DRX-Config ::= SEQUENCE { |  |  |  |
| drx-onDurationTimer CHOICE { |  |  |  |
| milliSeconds | ms40 |  |  |
| } |  |  |  |
| drx-InactivityTimer | ms0 |  |  |
| drx-HARQ-RTT-TimerDL | 56 | 4 slots |  |
| drx-HARQ-RTT-TimerUL | 56 | 4 slots |  |
| drx-RetransmissionTimerDL | sl80 |  |  |
| drx-RetransmissionTimerUL | sl80 |  |  |
| drx-LongCycleStartOffset CHOICE { |  |  |  |
| ms1280 | 7 |  |  |
| } |  |  |  |
| shortDRX | not present |  |  |
| drx-SlotOffset | 0 |  |  |
| } |  |  |  |

Table 14.2.1.2.3.3.3-6: *DRX-ConfigPTM* (Table 14.2.1.2.3.3.3-4)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.6.7-3 | | | |
| Information Element | Value/remark | Comment | Condition |
| DRX-ConfigPTM-r17 ::= SEQUENCE { |  |  |  |
| drx-onDurationTimerPTM-r17 CHOICE { |  |  |  |
| milliSeconds | ms40 |  |  |
| } |  |  |  |
| drx-InactivityTimerPTM-r17 | ms0 |  |  |
| drx-HARQ-RTT-TimerDL-PTM-r17 | 56 | 4 slots |  |
| drx-RetransmissionTimerDL-PTM-r17 | sl80 |  |  |
| drx-LongCycleStartOffsetPTM-r17 CHOICE { |  |  |  |
| ms1280 | 27 |  |  |
| } |  |  |  |
| drx-SlotOffsetPTM-r17 | 0 |  |  |
| } |  |  |  |

Table 14.2.1.2.3.3.3-7: *RRCReconfiguration* (step 13, Table 14.2.1.2.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition MRBm and UMPTP\_UMPTM | m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.1.2.3.3.3-8 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | Not present |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.1.2.3.3.3-8: *CellGroupConfig* (Table 14.2.1.2.3.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition MRBm and UMPTP\_UMPTM | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig | Table 14.2.1.2.3.3.3-9 |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig | Table 14.2.1.2.3.3.3-10 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.2.3.3.3-9: *MAC-CellGroupConfig* (Table 14.2.1.2.3.3.3-8)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-68, condition DRX and MBS\_Multicast and DRX\_MBS\_Multicast | | | |
| Information Element | Value/remark | Comment | Condition |
| MAC-CellGroupConfig ::= SEQUENCE { |  |  |  |
| drx-Config CHOICE { |  |  |  |
| setup | DRX-Config | Table 14.2.1.2.3.3.3-5 |  |
| } |  |  |  |
| g-RNTI-ConfigToAddModList-r17 SEQUENCE (SIZE (1..maxG-RNTI-r17)) OF MBS-RNTI-SpecificConfig-r17 { | 1 entry |  |  |
| MBS-RNTI-SpecificConfig-r17[1] SEQUENCE { |  | entry 1 |  |
| mbs-RNTI-SpecificConfigId-r17 | 0 |  |  |
| groupCommon-RNTI-r17 CHOICE { |  |  |  |
| g-RNTI | RNTI-Value |  |  |
| } |  |  |  |
| drx-ConfigPTM-r17 CHOICE { |  |  |  |
| setup | DRX-ConfigPTM | Table 14.2.1.2.3.3.3-6 |  |
| } |  |  |  |
| } |  |  |  |
| allowCSI-SRS-Tx-MulticastDRX-Active-r17 | true |  |  |
| } |  |  |  |

Table 14.2.1.2.3.3.3-10: *ServingCellConfig* (Table 14.2.1.2.3.3.3-8)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.6.3-167, condition MBS\_Multicast | | | |
| Information Element | Value/remark | Comment | Condition |
| ServingCellConfig ::= SEQUENCE { |  |  |  |
| csi-MeasConfig CHOICE { |  |  |  |
| setup | csi-MeasConfig | Table 14.2.1.2.3.3.3-11 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.1.2.3.3.3-11: *CSI-MeasConfig* (Table 14.2.1.2.3.3.3-10)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.6.3-38 | | | |
| Information Element | Value/remark | Comment | Condition |
| CSI-MeasConfig::= SEQUENCE { |  |  |  |
| csi-SSB-ResourceSetToAddModList SEQUENCE (SIZE (1..maxNrofCSI-SSB-ResourceSets)) OF CSI-SSB-ResourceSet { | 1 entry |  |  |
| CSI-SSB-ResourceSet[1] | CSI-SSB-ResourceSet | entry 1 |  |
| } |  |  |  |
| csi-ResourceConfigToAddModList SEQUENCE (SIZE (1..maxNrofCSI-ResourceConfigurations)) OF CSI-ResourceConfig { | 1 entry |  |  |
| CSI-ResourceConfig[1] SEQUENCE { | CSI-ResourceConfig | entry 1 |  |
| csi-ResourceConfigId | 0 |  |  |
| csi-RS-ResourceSetList CHOICE { |  |  |  |
| nzp-CSI-RS-SSB SEQUENCE { |  |  |  |
| csi-SSB-ResourceSetList SEQUENCE (SIZE (1..maxNrofCSI-SSB-ResourceSetsPerConfig)) OF CSI-SSB-ResourceSetId { |  |  |  |
| CSI-SSB-ResourceSetId [1] | 0 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| bwp-Id | 0 |  |  |
| resourceType | periodic |  |  |
| } |  |  |  |
| } |  |  |  |
| csi-ReportConfigToAddModList SEQUENCE (SIZE (1..maxNrofCSI-ReportConfigurations)) OF CSI-ReportConfig { | 1 entry |  |  |
| CSI-ReportConfig[1] | CSI-ReportConfig | entry 1  Table 14.2.1.2.3.3.3-12 |  |
| } |  |  |  |
| reportTriggerSize | 0 |  |  |
| } |  |  |  |

Table 14.2.1.2.3.3.3-12: *CSI-ReportConfig* (Table 14.2.1.2.3.3.3-11)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 38.508-1 [4], Table 4.6.3-39 | | | |
| Information Element | Value/remark | Comment | Condition |
| CSI-ReportConfig ::= SEQUENCE { |  |  |  |
| reportConfigId | 0 |  |  |
| carrier | Not present |  |  |
| resourcesForChannelMeasurement | 0 |  |  |
| csi-IM-ResourcesForInterference | Not present |  |  |
| nzp-CSI-RS-ResourcesForInterference | Not present |  |  |
| reportConfigType CHOICE { |  |  |  |
| periodic SEQUENCE { |  |  |  |
| reportSlotConfig CHOICE { |  |  |  |
| slots20 | 9 |  |  |
| } |  |  |  |
|  |  |  |  |
| pucch-CSI-ResourceList SEQUENCE (SIZE (1..maxNrofBWPs)) OF PUCCH-CSI-Resource { | 1 entry |  |  |
| PUCCH-CSI-Resource [1] SEQUENCE { |  | entry 1 |  |
| uplinkBandwidthPartId | 0 |  |  |
| pucch-Resource | 9 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| reportQuantity CHOICE { |  |  |  |
| ssb-Index-RSRP | NULL |  |  |
| } |  |  |  |
| timeRestrictionForChannelMeasurements | notConfigured |  |  |
| timeRestrictionForInterferenceMeasurements | notConfigured |  |  |
| codebookConfig | Not present |  |  |
| dummy | Not present |  |  |
| groupBasedBeamReporting CHOICE { |  |  |  |
| disabled SEQUENCE { |  |  |  |
| nrofReportedRS | n1 |  |  |
| } |  |  |  |
| } |  |  |  |
| cqi-Table | table1 |  |  |
| subbandSize | value2 |  |  |
| } |  |  |  |

### 14.2.3 MBS Multicast / PDCP

#### 14.2.3.1 MBS Multicast / PDCP/ PDCP HFN and SN maintenance / Non-Lossless handover / 12 bit SN

14.2.3.1.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and Multicast MRB established with DL only RLC-UM entity for PTM transmission and initialRX-DELIV-r17 in PDCP-Config for this Multicast MRB is not zero and PDCP configured for 12 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT < initialRX-DELIV }

***then*** { UE discards the PDCP DATA PDU with RCVD\_COUNT }

}

(2)

***with*** { UE in RRC\_Connected state and Multicast MRB established with DL only RLC-UM entity for PTM transmission and initialRX-DELIV-r17 in PDCP-Config for this Multicast MRB is not zero and PDCP configured for 12 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT = initialRX-DELIV }

***then*** { UE delivers PDCP Data PDU to upper layers }

}

(3)

***with*** { UE is requested to make a non-lossless handover with pdcp re-establishment and initialRX-DELIV-r17 in PDCP-Config for this Multicast MRB is not zero and PDCP configured for 12 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT < initialRX-DELIV }

***then*** { UE discards the PDCP DATA PDU with RCVD\_COUNT }

}

(4)

***with*** { UE is requested to make a non-lossless handover with pdcp re-establishment and initialRX-DELIV-r17 in PDCP-Config for this Multicast MRB is not zero and PDCP configured for 12 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT = initialRX-DELIV }

***then*** { UE delivers PDCP Data PDU to upper layers }

}

(5)

***with*** { UE is requested to make a non-lossless handover with pdcp re-establishment and initialRX-DELIV-r17 in PDCP-Config is not configured and PDCP configured for 12 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT < RX\_DELIV }

***then*** { UE discards the PDCP DATA PDU with RCVD\_COUNT }

}

(6)

***with*** { UE is requested to make a non-lossless handover with pdcp re-establishment and initialRX-DELIV-r17 in PDCP-Config is not configured and PDCP configured for 12 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT = RX\_DELIV }

***then*** { UE delivers PDCP Data PDU to upper layers }

}

14.2.3.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.323, clause 5.1.2, 5.2.2.1, 7.1. Unless otherwise stated these are Rel-17 requirements.

[TS 38. 323, clause 5.1.2]

When upper layers request a PDCP entity re-establishment, the receiving PDCP entity shall:

…

- for SRBs and UM DRBs, set RX\_NEXT and RX\_DELIV to the initial value;

- for UM MRBs and AM MRBs, set RX\_NEXT and RX\_DELIV to the initial value if *initialRX-DELIV* is configured in TS 38.331 [3];

…

[TS 38. 323, clause 5.2.2.1]

After determining the COUNT value of the received PDCP Data PDU = RCVD\_COUNT, the receiving PDCP entity shall:

…

- if RCVD\_COUNT < RX\_DELIV; or

- if the PDCP Data PDU with COUNT = RCVD\_COUNT has been received before:

- discard the PDCP Data PDU;

If the received PDCP Data PDU with COUNT value = RCVD\_COUNT is not discarded above, the receiving PDCP entity shall:

- store the resulting PDCP SDU in the reception buffer;

- if RCVD\_COUNT >= RX\_NEXT:

- update RX\_NEXT to RCVD\_COUNT + 1.

…

- if RCVD\_COUNT = RX\_DELIV:

- deliver to upper layers in ascending order of the associated COUNT value after performing header decompression, if not decompressed before;

- all stored PDCP SDU(s) with consecutively associated COUNT value(s) starting from COUNT = RX\_DELIV;

- update RX\_DELIV to the COUNT value of the first PDCP SDU which has not been delivered to upper layers, with COUNT value > RX\_DELIV;

…

[TS 38.323, clause 7.1]

The receiving PDCP entity shall maintain the following state variables:

a) RX\_NEXT

This state variable indicates the COUNT value of the next PDCP SDU expected to be received. The initial value is 0, except for sidelink broadcast and groupcast, for SRBs configured with state variables continuation, and for broadcast MRBs.

…

b) RX\_DELIV

This state variable indicates the COUNT value of the first PDCP SDU not delivered to the upper layers, but still waited for. The initial value is 0, except for sidelink broadcast and groupcast, for SRBs configured with state variables continuation, and for MRBs. For NR sidelink communication for broadcast and groupcast or sidelink SRB4 for broadcast and groupcast based sidelink discovery, the initial value of the SN part of RX\_DELIV is (x – 0.5 × 2[*sl-PDCP-SN-Size*–1]) modulo (2[*sl-PDCP-SN-Size*]), where x is the SN of the first received PDCP Data PDU. For broadcast MRBs, the initial value of the SN part of RX\_DELIV is set to (x – 0.5 × 2[*PDCP-SN-SizeDL*–1]) modulo (2[*PDCP-SN-SizeDL*]), where x is the SN of the first received PDCP Data PDU. For multicast MRBs, the initial value of RX\_DELIV is set, if provided, by *initialRXDELIV* in TS 38.331 [3].

14.2.3.1.3 Test description

14.2.3.1.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 is the serving cell and NR Cell 2 is a suitable neighbour intra-frequency cell.

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR Cell 1 and NR Cell 2.

UE:

- None.

Preamble:

- The UE is in state 1N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

14.2.3.1.3.2 Test procedure sequence

Table 14.2.3.1.3.2-1 for FR1 and table 14.2.3.1.3.2-2 for FR2 illustrate the downlink power levels to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" and "T2" are to be applied subsequently in the Main behaviour. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 14.2.3.1.3.2-1: Cell configuration changes over time for FR1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 2 | Remarks |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | -88 | “Off” | Power level “Off” is defined in TS 38.508-1 [4] Table 6.2.2.1-3 |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | -88 | -82 |  |
| T2 | SS/PBCH  SSS EPRE | dBm/SCS | -82 | -88 |  |

Table 14.2.3.1.3.2-2: Cell configuration changes over time for FR2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 2 | Remarks |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | -91 | “Off” | Power level “Off” is defined in TS 38.508-1 [4] Table 6.2.2.2-2 |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | -91 | -82 |  |
| T2 | SS/PBCH  SSS EPRE | dBm/SCS | -82 | -91 |  |

Table 14.2.3.1.3.2-3: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2a1-2a2 | Steps 9a1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1 with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 3 | SS sets TX\_NEXT = (K-1).  UE sets RX\_NEXT = 0 and sets RX\_DELIV = initialRXDELIV = K. (Note 1) | - | - | - | - |
| 4 | The SS sends the PDCP Data PDU #0 via RLC-UM of MRB with the following content to the UE:  D/C field = 1 (PDCP Data PDU) and PDCP SN = (K-1).  After having sent a PDU, the SS sets TX\_NEXT= K. (Note 1)  After receiving the PDU, UE discards it because RCVD\_COUNT < RX\_DELIV. | <-- | MBS Packet (PDCP Data PDU #0) | - | - |
| 5 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 6 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 7 | Check: Is the number of reported MBS Packets received on the MRB in step 6 equal to 0? | - | - | 1 | P |
| 8 | The SS sends the PDCP Data PDU #1 via RLC-UM of MRB with the following content to the UE:  D/C field = 1 (PDCP Data PDU) and PDCP SN = K.  After having sent a PDU, the SS sets TX\_NEXT= (K+1). (Note 1)  After receiving the PDU, UE delivers it to upper layer and sets RX\_NEXT to (K+1) and sets RX\_DELIV to (K+1). | <-- | MBS Packet (PDCP Data PDU #1) | - | - |
| 9 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 10 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 11 | Check: Is the number of reported MBS Packets received on the MRB in step 10 equal to 1? | - | - | 2 | P |
| 12 | The SS sends the PDCP Data PDU #2 via RLC-UM of MRB with the following content to the UE:  D/C field = 1 (PDCP Data PDU) and PDCP SN = 0.  After having sent a PDU, the SS sets TX\_NEXT= (K+2). (Note 1)  After receiving the PDU, UE delivers it to upper layer and sets RX\_NEXT to (K+2) and sets RX\_DELIV to (K+2). | <-- | MBS Packet (PDCP Data PDU #2) | - | - |
| 13 | The SS creates a PDCP Data PDU#3 (not transmitted). | - | - | - | - |
| 14 | The SS changes NR Cell 2 power level according to the row "T1" in table 14.2.3.1.3.2-1 (FR1) / 14.2.3.1.3.2-2 (FR2). | - | - | - | - |
| 15 | The SS transmits NR *RRCReconfiguration* message to perform PCell change from NR Cell1 to NR Cell2 and sets initialRXDELIV= K+3. (Note 1) | <-- | *RRCReconfiguration* | - | - |
| 16 | The UE transmits a NR *RRCReconfigurationComplete* message. | --> | *RRCReconfigurationComplete* | - | - |
| 17 | The SS sends the PDCP Data PDU #3 via RLC-UM of MRB with the following content to the UE:  D/C field = 1 (PDCP Data PDU) and PDCP SN = 1.  After having sent a PDU, the SS sets TX\_NEXT=(K+3). (Note 1)  After receiving the PDU, UE discards it because RCVD\_COUNT < RX\_DELIV. | <-- | MBS Packet (PDCP Data PDU #3) | - | - |
| 18 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 19 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 20 | Check: Is the number of reported MBS Packets received on the MRB in step 19 equal to 1? | - | - | 3 | P |
| 21 | The SS sends the PDCP Data PDU #4 via RLC-UM of MRB with the following content to the UE:  D/C field = 1 (PDCP Data PDU) and PDCP SN = 2.  After having sent a PDU, the SS sets TX\_NEXT= (K+4). (Note 1)  After receiving the PDU, UE delivers it to upper layer and sets RX\_NEXT to (K+4) and sets RX\_DELIV to (K+4). | <-- | MBS Packet (PDCP Data PDU #4) | - | - |
| 22 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 23 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 24 | Check: Is the number of reported MBS Packets received on the MRB in step 23 equal to 2? | - | - | 4 | P |
| 25 | The SS changes NR Cell 1 and NR Cell 2 power level according to the row "T2" in table 14.2.3.1.3.2-1 (FR1) / 14.2.3.1.3.2-2 (FR2). | - | - | - | - |
| 26 | The SS transmits NR *RRCReconfiguration* message to perform PCell change from NR Cell 2 to NR Cell 1. | <-- | *RRCReconfiguration* | - | - |
| 27 | The UE transmits a NR *RRCReconfigurationComplete* message. | --> | *RRCReconfigurationComplete* | - | - |
| 28 | The SS sends the PDCP Data PDU #1 via RLC-UM of MRB with the following content to the UE.  After receiving the PDU, UE discards it because RCVD\_COUNT < RX\_DELIV. | <-- | MBS Packet (PDCP Data PDU #3) | - | - |
| 29 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 30 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 31 | Check: Is the number of reported MBS Packets received on the MRB in step 30 equal to 2? | - | - | 5 | P |
| 32 | The SS sends the PDCP Data PDU #5 via RLC-UM of MRB with the following content to the UE:  D/C field = 1 (PDCP Data PDU) and PDCP SN = 3.  After having sent a PDU, the SS sets TX\_NEXT= (K+5). (Note 1)  After receiving the PDU, UE delivers it to upper layer and sets RX\_NEXT to (K+5) and sets RX\_DELIV to (K+5). | <-- | MBS Packet (PDCP Data PDU #5) | - | - |
| 33 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 34 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 35 | Check: Is the number of reported MBS Packets received on the MRB in step 34 equal to 3? | - | - | 6 | P |
| Note 1: K = (2^[PDCP-SN-SizeDL])-1. If PDCP-SN-SizeDL=12, K=4095. If PDCP-SN-SizeDL=18, K= 262143. | | | | | |

14.2.3.1.3.3 Specific message contents

Table 14.2.3.1.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.3.1.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.3.1.3.3-2: *RRCReconfiguration* (step 1a15, Table 14.2.3.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.3.1.3.3-4 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm and UM\_PTM | m=1 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.3.1.3.3-3: *RRCReconfiguration* (step 1b10, Table 14.2.3.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.3.1.3.3-5 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm\_DRBn and UM\_PTM | n is set to the same value as for the radioBearerConfig IE above  m=1 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.3.1.3.3-4: *RadioBearerConfig* (Table 14.2.3.1.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132, condition MRBm and UM\_PTM (m=1) | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| pdcp-Config-r17 | PDCP-Config | Table 14.2.3.1.3.3-6 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.3.1.3.3-5: *RadioBearerConfig* (Table 14.2.3.1.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132, condition DRBn and MRBm and UM\_PTM (Note 1) | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| pdcp-Config-r17 | PDCP-Config | Table 14.2.3.1.3.3-6 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| Note 1: n is chosen as the next available number higher or equal to 2. m =1. | | | |

Table 14.2.3.1.3.3-6: *PDCP-Config* (Table 14.2.3.1.3.3-4, Table 14.2.3.1.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-99 and condition UM\_MRB | | | |
| Information Element | Value/remark | Comment | Condition |
| PDCP-Config ::= SEQUENCE { |  |  |  |
| drb SEQUENCE { |  |  |  |
| pdcp-SN-Size-UL | Not present |  |  |
| pdcp-SN-Size-DL | len12bits |  |  |
| } |  |  |  |
| initialRX-DELIV-r17 | 4095 |  |  |
| } |  |  |  |

Table 14.2.3.1.3.3-7: CLOSE UE TEST LOOP (step 2a1, Table 14.2.3.1.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB |

Table 14.2.3.1.3.3-8: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 5, step9, step 18, step 22, step 29 and step33, Table 14.2.3.1.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.3.1.3.3-9: *RRCReconfiguration* (step 15 and step 26, Table 14.2.3.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.3.1.3.3-10 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.3.1.3.3-12 |  |
| masterKeyUpdate ::= SEQUENCE { | |  |  |  |
| keySetChangeIndicator | | false |  |  |
| nextHopChainingCount | | 0 |  |  |
| nas-Container | | Not present |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.3.1.3.3-10: *RadioBearerConfig* (Table 14.2.3.1.3.3-9)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| srb-ToAddModList SEQUENCE (SIZE (1..2)) OF SRB-ToAddMod { | 2 entries |  |  |
| SRB-ToAddMod[1] SEQUENCE { |  | entry 1 |  |
| SRB-Identity | SRB-Identity with condition SRB1 |  |  |
| reestablishPDCP | true |  |  |
| } |  |  |  |
| SRB-ToAddMod[2] SEQUENCE { |  | entry 2 |  |
| SRB-Identity | SRB-Identity with condition SRB2 |  |  |
| reestablishPDCP | true |  |  |
| } |  |  |  |
| } |  |  |  |
| drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod { | n entries | n is the number of DRBs |  |
| DRB-ToAddMod[k, k=1..n] SEQUENCE { |  | entry [k, k=1..n] |  |
| cnAssociation CHOICE { |  |  |  |
| sdap-Config | SDAP-Config |  |  |
| } |  |  |  |
| drb-Identity | DRB-Identity with condition DRBk |  |  |
| reestablishPDCP | true |  |  |
| pdcp-Config | PDCP-Config |  |  |
| } |  |  |  |
| } |  |  |  |
| securityConfig SEQUENCE { |  |  |  |
| securityAlgorithmConfig | SecurityAlgorithmConfig |  |  |
| keyToUse | master |  |  |
| } |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | TMGI |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=1 |  |
| reestablishPDCP-r17 | true |  |  |
| pdcp-Config-r17 | PDCP-Config | Table 14.2.3.1.3.3-11 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.3.1.3.3-11: *PDCP-Config* (Table 14.2.3.1.3.3-10)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-99, condition UM\_MRB | | | |
| Information Element | Value/remark | Comment | Condition |
| PDCP-Config ::= SEQUENCE { |  |  |  |
| drb SEQUENCE { |  |  |  |
| pdcp-SN-Size-UL | Not present |  |  |
| pdcp-SN-Size-DL | len12bits |  |  |
| } |  |  |  |
| initialRX-DELIV-r17 | 4098 |  | Step 15 |
|  | Not present |  | Step 26 |
| } |  |  |  |

Table 14.2.3.1.3.3-12: *CellGroupConfig* (Table 14.2.3.1.3.3-9)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition PCell\_change | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | 3+n entries | n is the number of DRBs established before RRC re-establishement |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with condition SRB1 and Re-establish\_RLC | entry 1 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig with condition SRB2 and Re-establish\_RLC | entry 2 |  |
| RLC-BearerConfig[k+2, k=1..n] | RLC-BearerConfig with condition DRBk and Re-establish\_RLC | entry [k+2, k=1..n] |  |
| RLC-BearerConfig[n+1] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm and Re-establish\_RLC | entry n+1  m=1 |  |
| } |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast |  |  |
| physicalCellGroupConfig | PhysicalCellGroupConfig |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig with condition MBS\_Multicast |  |  |
| } |  |  |  |
| } |  |  |  |

#### 14.2.3.2 MBS Multicast / PDCP/ PDCP HFN and SN maintenance / Non-Lossless handover / 18 bit SN

14.2.3.2.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and Multicast MRB established with DL only RLC-UM entity for PTM transmission and initialRX-DELIV-r17 in PDCP-Config for this Multicast MRB is not zero and PDCP configured for 18 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT < initialRX-DELIV }

***then*** { UE discards the PDCP DATA PDU with RCVD\_COUNT }

}

(2)

***with*** { UE in RRC\_Connected state and Multicast MRB established with DL only RLC-UM entity for PTM transmission and initialRX-DELIV-r17 in PDCP-Config for this Multicast MRB is not zero and PDCP configured for 18 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT = initialRX-DELIV }

***then*** { UE delivers PDCP Data PDU to upper layers }

}

(3)

***with*** { UE is requested to make a non-lossless handover with pdcp re-establishment and initialRX-DELIV-r17 in PDCP-Config for this Multicast MRB is not zero and PDCP configured for 18 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT < initialRX-DELIV }

***then*** { UE discards the PDCP DATA PDU with RCVD\_COUNT }

}

(4)

***with*** { UE is requested to make a non-lossless handover with pdcp re-establishment and initialRX-DELIV-r17 in PDCP-Config for this Multicast MRB is not zero and PDCP configured for 18 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT = initialRX-DELIV }

***then*** { UE delivers PDCP Data PDU to upper layers }

}

(5)

***with*** { UE is requested to make a non-lossless handover with pdcp re-establishment and initialRX-DELIV-r17 in PDCP-Config is not configured and PDCP configured for 18 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT < RX\_DELIV }

***then*** { UE discards the PDCP DATA PDU with RCVD\_COUNT }

}

(6)

***with*** { UE is requested to make a non-lossless handover with pdcp re-establishment and initialRX-DELIV-r17 in PDCP-Config is not configured and PDCP configured for 18 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT = RX\_DELIV }

***then*** { UE delivers PDCP Data PDU to upper layers }

}

14.2.3.2.2 Conformance requirements

Same as conformance requirements in clause 14.2.3.1.2

14.2.3.2.3 Test description

14.2.3.2.3.1 Pre-test conditions

Same as pre-test conditions in clause 14.2.3.1.3.1

14.2.3.2.3.2 Test procedure sequence

Same as test procedure sequence in clause 14.2.3.1.3.2.

14.2.3.2.3.3 Specific message contents

Same as specific message contents in clause 14.2.3.1.3.3 with exception of Tables 14.2.3.1.3.3-6 and 14.2.3.1.3.3-11. Instead the Tables 14.2.3.2.3.3-6 and 14.2.3.2.3.3-11 below apply:

Table 14.2.3.2.3.3-6: *PDCP-Config* (Table 14.2.3.1.3.3-4, Table 14.2.3.1.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-99, condition UM\_MRB | | | |
| Information Element | Value/remark | Comment | Condition |
| PDCP-Config ::= SEQUENCE { |  |  |  |
| drb SEQUENCE { |  |  |  |
| pdcp-SN-Size-UL | Not present |  |  |
| pdcp-SN-Size-DL | len18bits |  |  |
| } |  |  |  |
| initialRX-DELIV-r17 | 262143 |  |  |
| } |  |  |  |

Table 14.2.3.2.3.3-11: *PDCP-Config* (Table 14.2.3.1.3.3-10)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-99, condition UM\_MRB | | | |
| Information Element | Value/remark | Comment | Condition |
| PDCP-Config ::= SEQUENCE { |  |  |  |
| drb SEQUENCE { |  |  |  |
| pdcp-SN-Size-UL | Not present |  |  |
| pdcp-SN-Size-DL | len18bits |  |  |
| } |  |  |  |
| initialRX-DELIV-r17 | 262146 |  | Step 15 |
|  | Not present |  | Step 26 |
| } |  |  |  |

#### 14.2.3.3 MBS Multicast / PDCP/ PDCP HFN and SN maintenance / Lossless handover/ PDCP status report / 12 bit SN

14.2.3.3.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and Multicast MRB established with DL only RLC-UM entity for PTM transmission and RLC-AM entity for PTP transmission and initialRX-DELIV-r17 in PDCP-Config for this Multicast MRB is not zero and PDCP configured for 12 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT < initialRX-DELIV }

***then*** { UE discards the PDCP DATA PDU with RCVD\_COUNT }

}

(2)

***with*** { UE in RRC\_Connected state and Multicast MRB established with DL only RLC-UM entity for PTM transmission and RLC-AM entity for PTP transmission and initialRX-DELIV-r17 in PDCP-Config for this Multicast MRB is not zero and PDCP configured for 12 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT = initialRX-DELIV }

***then*** { UE delivers PDCP Data PDU to upper layers }

}

(3)

***with*** { UE in RRC\_Connected state and Multicast MRB established with DL only RLC-UM entity for PTM transmission and RLC-AM entity for PTP transmission and PDCP configured for 12 bit SN }

ensure that {

***when*** { UE is requested to make a lossless handover with pdcp data recovery }

***then*** { UE creates a PDCP status report to SS }

}

(4)

***with*** { UE is requested to make a lossless handover with pdcp data recovery and UE is configured with DL only RLC-UM entity for PTM transmission and RLC-AM entity for PTP transmission and PDCP configured for 12 bit SN }

ensure that {

***when*** { UE receives the retransmitted PDCP DATA PDU in RLC-AM entity for PTP transmission which failed in RLC-UM entity for PTM transmission before handover}

***then*** { UE delivers PDCP Data PDU to upper layers }

}

(5)

***with*** { UE in RRC\_Connected state and Multicast MRB established with DL only RLC-UM entity for PTM transmission and RLC-AM entity for PTP transmission and PDCP configured for 12 bit SN }

ensure that {

***when*** { UE is requested to make a lossless handover with pdcp re-establishment }

***then*** { UE creates a PDCP status report to SS }

}

(6)

***with*** { UE is requested to make a lossless handover with pdcp re-establishment and UE is configured with DL only RLC-UM entity for PTM transmission and RLC-AM entity for PTP transmission and PDCP configured for 12 bit SN }

ensure that {

***when*** { UE receives the retransmitted PDCP DATA PDU in RLC-AM entity for PTP transmission which failed in RLC-UM entity for PTM transmission before handover}

***then*** { UE delivers PDCP Data PDU to upper layers }

}

14.2.3.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in TS 38.300, clause 16.10.5.3.2; TS 38.323, clause 5.1.2, 5.2.2.1, 5.4.1,7.1; TS 38.331, clause 5.3.5.1. Unless otherwise stated these are Rel-17 requirements.

[TS 38. 300, clause 16.10.5.3.2]

The source gNB may propose data forwarding for some MRBs to minimize data loss and may exchange the corresponding MRB PDCP Sequence Number with the target gNB during the handover preparation:

- The lossless handover for multicast service is supported for the handover between MBS supporting cells if the UE is configured with PTP RLC AM entity in target cell MRB of a UE, regardless of whether the UE is configured with PTP RLC AM entity in the source cell or not.

- In order to support lossless handover for multicast service, the network has to ensure DL PDCP COUNT value synchronization and continuity between the source cell and the target cell. Furthermore, data forwarding from the source gNB to the target gNB and/or PDCP status report provided by a UE for an MRB for multicast session can be used during lossless handover.

[TS 38. 323, clause 5.1.2]

When upper layers request a PDCP entity re-establishment, the receiving PDCP entity shall:

…

- for SRBs and UM DRBs, set RX\_NEXT and RX\_DELIV to the initial value;

- for UM MRBs and AM MRBs, set RX\_NEXT and RX\_DELIV to the initial value if *initialRX-DELIV* is configured in TS 38.331 [3];

…

[TS 38. 323, clause 5.2.2.1]

After determining the COUNT value of the received PDCP Data PDU = RCVD\_COUNT, the receiving PDCP entity shall:

…

- if RCVD\_COUNT < RX\_DELIV; or

- if the PDCP Data PDU with COUNT = RCVD\_COUNT has been received before:

- discard the PDCP Data PDU;

If the received PDCP Data PDU with COUNT value = RCVD\_COUNT is not discarded above, the receiving PDCP entity shall:

- store the resulting PDCP SDU in the reception buffer;

- if RCVD\_COUNT >= RX\_NEXT:

- update RX\_NEXT to RCVD\_COUNT + 1.

…

- if RCVD\_COUNT = RX\_DELIV:

- deliver to upper layers in ascending order of the associated COUNT value after performing header decompression, if not decompressed before;

- all stored PDCP SDU(s) with consecutively associated COUNT value(s) starting from COUNT = RX\_DELIV;

- update RX\_DELIV to the COUNT value of the first PDCP SDU which has not been delivered to upper layers, with COUNT value > RX\_DELIV;

…

[TS 38. 323, clause 5.4.1]

For AM MRBs configured by upper layers to send a PDCP status report in the uplink (*statusReportRequired* in TS 38.331 [3]), the receiving PDCP entity shall trigger a PDCP status report when:

- upper layer requests a PDCP entity re-establishment;

- upper layer requests a PDCP data recovery.

If a PDCP status report is triggered, the receiving PDCP entity shall:

- compile a PDCP status report as indicated below by:

- setting the FMC field to RX\_DELIV;

- if RX\_DELIV < RX\_NEXT:

- allocating a Bitmap field of length in bits equal to the number of COUNTs from and not including the first missing PDCP SDU up to and including the last out-of-sequence PDCP SDUs, rounded up to the next multiple of 8, or up to and including a PDCP SDU for which the resulting PDCP Control PDU size is equal to 9000 bytes, whichever comes first;

- setting in the bitmap field as '0' for all PDCP SDUs that have not been received, and optionally PDCP SDUs for which decompression have failed;

- setting in the bitmap field as '1' for all PDCP SDUs that have been received;

- submit the PDCP status report to lower layers as the first PDCP PDU for transmission via the transmitting PDCP entity as specified in clause 5.2.1 for Uu interface and in clause 5.2.3 for PC5 interface.

[TS 38.323, clause 7.1]

The receiving PDCP entity shall maintain the following state variables:

a) RX\_NEXT

This state variable indicates the COUNT value of the next PDCP SDU expected to be received. The initial value is 0, except for sidelink broadcast and groupcast, for SRBs configured with state variables continuation, and for broadcast MRBs.

…

b) RX\_DELIV

This state variable indicates the COUNT value of the first PDCP SDU not delivered to the upper layers, but still waited for. The initial value is 0, except for sidelink broadcast and groupcast, for SRBs configured with state variables continuation, and for MRBs. For NR sidelink communication for broadcast and groupcast or sidelink SRB4 for broadcast and groupcast based sidelink discovery, the initial value of the SN part of RX\_DELIV is (x – 0.5 × 2[*sl-PDCP-SN-Size*–1]) modulo (2[*sl-PDCP-SN-Size*]), where x is the SN of the first received PDCP Data PDU. For broadcast MRBs, the initial value of the SN part of RX\_DELIV is set to (x – 0.5 × 2[*PDCP-SN-SizeDL*–1]) modulo (2[*PDCP-SN-SizeDL*]), where x is the SN of the first received PDCP Data PDU. For multicast MRBs, the initial value of RX\_DELIV is set, if provided, by *initialRXDELIV* in TS 38.331 [3].

[TS 38.331, clause 5.3.5.1]

RRC reconfiguration to perform reconfiguration with sync includes, but is not limited to, the following cases:

- reconfiguration with sync and security key refresh, involving RA to the PCell/PSCell, MAC reset, refresh of security and re-establishment of RLC and PDCP triggered by explicit L2 indicators;

- reconfiguration with sync but without security key refresh, involving RA to the PCell/PSCell, MAC reset and RLC re-establishment and PDCP data recovery (for AM DRB or AM MRB) triggered by explicit L2 indicators.

…

14.2.3.3.3 Test description

14.2.3.3.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 is the serving cell and NR Cell 2 is a suitable neighbour intra-frequency cell.

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR Cell 1 and NR Cell 2.

UE:

- None.

Preamble:

- The UE is in state 1N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

14.2.3.3.3.2 Test procedure sequence

Table 14.2.3.3.3.2-1 for FR1 and table 14.2.3.3.3.2-2 for FR2 illustrate the downlink power levels to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" and "T2" are to be applied subsequently in the Main behaviour. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 14.2.3.3.3.2-1: Cell configuration changes over time for FR1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 2 | Remarks |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | -88 | “Off” | Power level “Off” is defined in TS 38.508-1 [4] Table 6.2.2.1-3 |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | -88 | -82 |  |
| T2 | SS/PBCH  SSS EPRE | dBm/SCS | -82 | -88 |  |

Table 14.2.3.3.3.2-2: Cell configuration changes over time for FR2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 2 | Remarks |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | -91 | “Off” | Power level “Off” is defined in TS 38.508-1 [4] Table 6.2.2.2-2 |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | -91 | -82 |  |
| T2 | SS/PBCH  SSS EPRE | dBm/SCS | -82 | -91 |  |

Table 14.2.3.3.3.2-3: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2a1-2a2 | Steps 9a1 to 9a2 of the generic procedures described in TS 38.508-1 subclause 4.5.4.2-3 are performed on NR Cell 1 with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 3 | SS sets TX\_NEXT = (K-1).  UE sets RX\_NEXT = 0 and sets RX\_DELIV = initialRXDELIV = K. (Note 1) | - | - | - | - |
| 4 | The SS sends the PDCP Data PDU #0 via RLC-UM for PTM transmission in MRB with the following content to the UE:  D/C field = 1 (PDCP Data PDU) and PDCP SN = (K-1).  After having sent a PDU, the SS sets TX\_NEXT= K. (Note 1)  After receiving the PDU, UE discards it because RCVD\_COUNT < RX\_DELIV. | <-- | MBS Packet (PDCP Data PDU #0) | - | - |
| 5 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 6 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 7 | Check: Is the number of reported MBS Packets received on the MRB in step 6 equal to 0? | - | - | 1 | P |
| 8 | The SS sends the PDCP Data PDU #1 via RLC-UM for PTM transmission in MRB with the following content to the UE:  D/C field = 1 (PDCP Data PDU) and PDCP SN = K.  After having sent a PDU, the SS sets TX\_NEXT= (K+1). (Note 1)  After receiving the PDU, UE delivers it to upper layer and sets RX\_NEXT to (K+1) and sets RX\_DELIV to (K+1). | <-- | MBS Packet (PDCP Data PDU #1) | - | - |
| 9 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 10 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 11 | Check: Is the number of reported MBS Packets received on the MRB in step 10 equal to 1? | - | - | 2 | P |
| 12 | The SS creates a PDCP Data PDU#2 via RLC-UM for PTM transmission in MRB (not transmitted).  After having created a PDU, the SS sets TX\_NEXT= (K+2). (Note 1) | - | - | - | - |
| 13 | The SS sends the PDCP Data PDU #3 via RLC-UM for PTM transmission in MRB with the following content to the UE:  D/C field = 1 (PDCP Data PDU) and PDCP SN = 1.  After having sent a PDU, the SS sets TX\_NEXT= (K+3). (Note 1)  After receiving the PDU, UE stores it but does not deliver it to upper layer and UE sets RX\_NEXT to (K+3) and sets RX\_DELIV to (K+1). | <-- | MBS Packet (PDCP Data PDU #3) | - | - |
| 15 | The SS transmits NR *RRCReconfiguration* message to perform PCell change from NR Cell1 to NR Cell2 without key change. | <-- | *RRCReconfiguration* | - | - |
| - | EXCEPTION: Steps 16 and 17 can occur in any order. | - | - | - | - |
| 16 | The UE transmits a NR *RRCReconfigurationComplete* message. | --> | *RRCReconfigurationComplete* | - | - |
| 17 | Check: Does the UE send PDCP Control PDUs via AM MRB with the following content to the SS:  D/C field = 0 (PDCP control PDU) and PDU Type =000, FMC field = (K+1), Bitmap = 0x80  on NR Cell 2? | --> | PDCP STATUS REPORT | 3 | P |
| 18 | The SS sends the PDCP Data PDU #2 via RLC-AM for PTP transmission in MRB with the following content to the UE:  D/C field = 1 (PDCP Data PDU) and PDCP SN = 0.  After receiving the PDU, UE delivers PDCP Data PDU #2 and PDCP Data PDU #3 to upper layer and sets RX\_NEXT to (K+3) and sets RX\_DELIV to (K+3). | <-- | MBS Packet (PDCP Data PDU #2) | - | - |
| 19 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 20 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 21 | Check: Is the number of reported MBS Packets received on the MRB in step 20 equal to 3? | - | - | 4 | P |
| - | The SS creates a PDCP Data PDU#4 via RLC-UM for PTM transmission in MRB (not transmitted).  After having created a PDU, the SS sets TX\_NEXT= (K+4). (Note 1) | - | - | - | - |
| 22 | The SS sends the PDCP Data PDU #5 via RLC-UM of MRB with the following content to the UE:  D/C field = 1 (PDCP Data PDU) and PDCP SN = 3.  After having sent a PDU, the SS set TX\_NEXT= (K+5). (Note 1)  After receiving the PDU, UE delivers it to upper layer and sets RX\_NEXT to (K+5) and sets RX\_DELIV to (K+3). | <-- | MBS Packet (PDCP Data PDU #5) | - | - |
| 23 | The SS changes NR Cell 1 and NR Cell 2 power level according to the row "T2" in table 14.2.3.3.3.2-1 (FR1) / 14.2.3.3.3.2-2 (FR2). | - | - | - | - |
| 24 | The SS transmits NR *RRCReconfiguration* message to perform PCell change from NR Cell 2 to NR Cell 1 with key change. | <-- | *RRCReconfiguration* | - | - |
| - | EXCEPTION: Steps 25 and 26 can occur in any order. | - | - | - | - |
| 25 | The UE transmits a NR *RRCReconfigurationComplete* message. | --> | *RRCReconfigurationComplete* | - | - |
| 26 | Check: Does the UE send PDCP Control PDUs via AM MRB with the following content to the SS:  D/C field = 0 (PDCP control PDU) and PDU Type =000, FMC field = K+3, Bitmap = 0x80 on NR Cell 1? | --> | PDCP STATUS REPORT | 5 | P |
| 27 | The SS sends the PDCP Data PDU #2 via RLC-AM of MRB to retransmit it in PTP with the following content to the UE:  D/C field = 1 (PDCP Data PDU) and PDCP SN = 2.  After receiving the PDU, UE delivers PDCP Data PDU #4 and PDCP Data PDU #5 to upper layer and sets RX\_NEXT to (K+5) and sets RX\_DELIV to (K+5). | <-- | MBS Packet (PDCP Data PDU #4) | - | - |
| 28 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 29 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 30 | Check: Is the number of reported MBS Packets received on the MRB in step 29 equal to 5? | - | - | 6 | P |
| Note 1: K = (2^[PDCP-SN-SizeDL])-1. If PDCP-SN-SizeDL=12, K=4095. If PDCP-SN-SizeDL=18, K= 262143. | | | | | |

14.2.3.3.3.3 Specific message contents

Table 14.2.3.3.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.3.3.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.3.3.3.3-2: *RRCReconfiguration* (step 1a15, Table 14.2.3.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.3.3.3.3-4 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm and AMPTP\_UMPTM | m=1 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.3.3.3.3-3: *RRCReconfiguration* (step 1b10, Table 14.2.3.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.3.3.3.3-5 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm\_DRBn and AMPTP\_UMPTM | n is set to the same value as for the radioBearerConfig IE above  m=1 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.3.3.3.3-4: *RadioBearerConfig* (Table 14.2.3.3.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132, condition MRBm (m=1) | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| pdcp-Config-r17 | PDCP-Config | Table 14.2.3.3.3.3-6 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.3.3.3.3-5: *RadioBearerConfig* (Table 14.2.3.3.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132, condition DRBn and MRBm (Note 1) | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| pdcp-Config-r17 | PDCP-Config | Table 14.2.3.3.3.3-6 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| Note 1: n is chosen as the next available number higher or equal to 2. m =1. | | | |

Table 14.2.3.3.3.3-6: *PDCP-Config* (Table 14.2.3.3.3.3-4, Table 14.2.3.3.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-99 | | | |
| Information Element | Value/remark | Comment | Condition |
| PDCP-Config ::= SEQUENCE { |  |  |  |
| drb SEQUENCE { |  |  |  |
| pdcp-SN-Size-UL | Not present |  |  |
| pdcp-SN-Size-DL | len12bits |  |  |
| } |  |  |  |
| initialRX-DELIV-r17 | 4095 |  |  |
| } |  |  |  |

Table 14.2.3.3.3.3-7: CLOSE UE TEST LOOP (step 2a1, Table 14.2.3.3.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB |

Table 14.2.3.3.3.3-8: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 5, step9, step 19 and step 28 Table 14.2.3.3.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.3.3.3.3-9: *RRCReconfiguration* (step 15 and step 24, Table 14.2.3.3.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.3.3.3.3-10 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.3.3.3.3-12 |  |
| masterKeyUpdate | | Not present |  | Step 15 |
| masterKeyUpdate SEQUENCE { | |  |  | Step 24 |
| keySetChangeIndicator | | false |  |  |
| nextHopChainingCount | | 0 |  |  |
| nas-Container | | Not present |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.3.3.3.3-10: *RadioBearerConfig* (Table 14.2.3.3.3.3-9)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| srb-ToAddModList | Not present |  | Step 15 |
| srb-ToAddModList SEQUENCE (SIZE (1..2)) OF SRB-ToAddMod { | 2 entries |  | Step 24 |
| SRB-ToAddMod[1] SEQUENCE { |  | entry 1 |  |
| SRB-Identity | SRB-Identity with condition SRB1 |  |  |
| reestablishPDCP | true |  |  |
| } |  |  |  |
| SRB-ToAddMod[2] SEQUENCE { |  | entry 2 |  |
| SRB-Identity | SRB-Identity with condition SRB2 |  |  |
| reestablishPDCP | true |  | Step 24 |
| } |  |  |  |
| } |  |  |  |
| drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod { | n entries | n is the number of DRBs |  |
| DRB-ToAddMod[k, k=1..n] SEQUENCE { |  | entry [k, k=1..n] |  |
| cnAssociation CHOICE { |  |  |  |
| sdap-Config | SDAP-Config |  |  |
| } |  |  |  |
| drb-Identity | DRB-Identity with condition DRBk |  |  |
| reestablishPDCP | true |  | Step 24 |
|  | Not present |  | Step 15 |
| recoverPDCP | true |  | Step 15 |
|  | Not present |  | Step 24 |
| pdcp-Config | PDCP-Config |  |  |
| } |  |  |  |
| } |  |  |  |
| securityConfig | Not present |  | Step 15 |
| securityConfig SEQUENCE { |  |  | Step 24 |
| securityAlgorithmConfig | SecurityAlgorithmConfig |  |  |
| keyToUse | master |  |  |
| } |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | TMGI |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=1 |  |
| reestablishPDCP-r17 | true |  | Step 24 |
|  | Not present |  | Step 15 |
| recoverPDCP-r17 | true |  | Step 15 |
|  | Not present |  | Step 24 |
| pdcp-Config-r17 | PDCP-Config | Table 14.2.3.3.3.3-11 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.3.3.3.3-11: *PDCP-Config* (Table 14.2.3.3.3.3-10)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-99 | | | |
| Information Element | Value/remark | Comment | Condition |
| PDCP-Config ::= SEQUENCE { |  |  |  |
| drb SEQUENCE { |  |  |  |
| pdcp-SN-Size-UL | Not present |  |  |
| pdcp-SN-Size-DL | len12bits |  |  |
| } |  |  |  |
| initialRX-DELIV-r17 | Not present |  |  |
| } |  |  |  |

Table 14.2.3.3.3.3-12: *CellGroupConfig* (Table 14.2.3.3.3.3-9)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19, condition PCell\_change | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | 3+n entries | n is the number of DRBs established before RRC re-establishement |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with condition SRB1 and Re-establish\_RLC | entry 1 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig with condition SRB2 and Re-establish\_RLC | entry 2 |  |
| RLC-BearerConfig[k+2, k=1..n] | RLC-BearerConfig with condition DRBk and Re-establish\_RLC | entry [k+2, k=1..n] |  |
| RLC-BearerConfig[n+1] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm and Re-establish\_RLC | entry n+1  m=1 |  |
| } |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast |  |  |
| physicalCellGroupConfig | PhysicalCellGroupConfig |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig with condition MBS\_Multicast |  |  |
| } |  |  |  |
| } |  |  |  |

#### 14.2.3.4 MBS Multicast / PDCP/ PDCP HFN and SN maintenance / Non-Lossless handover / 18 bit SN

14.2.3.4.1 Test Purpose (TP)

(1)

***with*** { UE in RRC\_Connected state and Multicast MRB established with DL only RLC-UM entity for PTM transmission and RLC-AM entity for PTP transmission and initialRX-DELIV-r17 in PDCP-Config for this Multicast MRB is not zero and PDCP configured for 18 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT < initialRX-DELIV }

***then*** { UE discards the PDCP DATA PDU with RCVD\_COUNT }

}

(2)

***with*** { UE in RRC\_Connected state and Multicast MRB established with DL only RLC-UM entity for PTM transmission and RLC-AM entity for PTP transmission and initialRX-DELIV-r17 in PDCP-Config for this Multicast MRB is not zero and PDCP configured for 18 bit SN }

ensure that {

***when*** { UE receives a PDCP Data PDU with RCVD\_COUNT = initialRX-DELIV }

***then*** { UE delivers PDCP Data PDU to upper layers }

}

(3)

***with*** { UE in RRC\_Connected state and Multicast MRB established with DL only RLC-UM entity for PTM transmission and RLC-AM entity for PTP transmission and PDCP configured for 18 bit SN }

ensure that {

***when*** { UE is requested to make a lossless handover with pdcp data recovery }

***then*** { UE creates a PDCP status report to SS }

}

(4)

***with*** { UE is requested to make a lossless handover with pdcp data recovery and UE is configured with DL only RLC-UM entity for PTM transmission and RLC-AM entity for PTP transmission and PDCP configured for 18 bit SN }

ensure that {

***when*** { UE receives the retransmitted PDCP DATA PDU in RLC-AM entity for PTP transmission which failed in RLC-UM entity for PTM transmission before handover}

***then*** { UE delivers PDCP Data PDU to upper layers }

}

(5)

***with*** { UE in RRC\_Connected state and Multicast MRB established with DL only RLC-UM entity for PTM transmission and RLC-AM entity for PTP transmission and PDCP configured for 18 bit SN }

ensure that {

***when*** { UE is requested to make a lossless handover with pdcp re-establishment }

***then*** { UE creates a PDCP status report to SS }

}

(6)

***with*** { UE is requested to make a lossless handover with pdcp re-establishment and UE is configured with DL only RLC-UM entity for PTM transmission and RLC-AM entity for PTP transmission and PDCP configured for 18 bit SN }

ensure that {

***when*** { UE receives the retransmitted PDCP DATA PDU in RLC-AM entity for PTP transmission which failed in RLC-UM entity for PTM transmission before handover}

***then*** { UE delivers PDCP Data PDU to upper layers }

}

14.2.3.4.2 Conformance requirements

Same as conformance requirements in clause 14.2.3.3.2

14.2.3.4.3 Test description

14.2.3.4.3.1 Pre-test conditions

Same as pre-test conditions in clause 14.2.3.3.3.1

14.2.3.4.3.2 Test procedure sequence

Same as test procedure sequence in clause 14.2.3.3.3.2.

14.2.3.4.3.3 Specific message contents

Same as specific message contents in clause 14.2.3.3.3.3 with exception of Tables 14.2.3.3.3.3-6 and 14.2.3.3.3.3-11. Instead the Tables 14.2.3.4.3.3-6 and 14.2.3.4.3.3-11 below apply:

Table 14.2.3.4.3.3-6: *PDCP-Config* (Table 14.2.3.3.3.3-4, Table 14.2.3.3.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-99 | | | |
| Information Element | Value/remark | Comment | Condition |
| PDCP-Config ::= SEQUENCE { |  |  |  |
| drb SEQUENCE { |  |  |  |
| pdcp-SN-Size-UL | Not present |  |  |
| pdcp-SN-Size-DL | len18bits |  |  |
| } |  |  |  |
| initialRX-DELIV-r17 | 262143 |  |  |
| } |  |  |  |

Table 14.2.3.4.3.3-11: *PDCP-Config* (Table 14.2.3.3.3.3-10)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-99 | | | |
| Information Element | Value/remark | Comment | Condition |
| PDCP-Config ::= SEQUENCE { |  |  |  |
| drb SEQUENCE { |  |  |  |
| pdcp-SN-Size-UL | Not present |  |  |
| pdcp-SN-Size-DL | len18bits |  |  |
| } |  |  |  |
| initialRX-DELIV-r17 | Not present |  |  |
| } |  |  |  |

### 14.2.4 MBS Multicast/ RRC

#### 14.2.4.1 MBS Multicast / RRC / Paging

##### 14.2.4.1.1 MBS Multicast / RRC / Paging for group notification/ RRC\_IDLE

14.2.4.1.1.1 Test Purpose (TP)

(1)

***with*** { UE in NR RRC\_IDLE state and UE has joined one MBS multicast session }

ensure that {

***when*** { UE receives a Paging message including TMGIs unmatched with MBS multicast session which the UE has joined, not including ue-Identity }

***then*** { UE does not establish any RRC connection }

}

(2)

***with*** { UE in NR RRC\_IDLE state and UE has joined one MBS multicast session }

ensure that {

***when*** { UE receives a Paging message including a TMGI matched with MBS multicast session which the UE has joined, not including ue-Identity }

***then*** { UE successfully establishes the RRC connection }

}

(3)

***with*** { UE in NR RRC\_IDLE state and UE has released MBS multicast session }

ensure that {

***when*** { UE receives a Paging message including a TMGI matched with MBS multicast session which the UE has released, not including ue-Identity }

***then*** { UE does not establish any RRC connection }

}

14.2.4.1.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.300, clause 16.10.5.2; TS 38.331, clause 5.3.2.3; TS 24.501, clause 5.6.2.2.1, 5.6.1.1. Unless otherwise stated these are Rel-17 requirements.

[TS 38.300, clause 16.10.5.2]

A UE can receive data of MBS multicast session only in RRC\_CONNECTED state. If the UE which joined a multicast session is in RRC\_CONNECTED state and when the multicast session is activated, the gNB sends *RRCReconfiguration* message with relevant MBS configuration for the multicast session to the UE.

When there is (temporarily) no data to be sent to the UEs for a multicast session, the gNB may move the UE to RRC IDLE/INACTIVE state. gNBs supporting MBS use a group notification mechanism to notify the UEs in RRC IDLE/INACTIVE state when a multicast session has been activated by the CN or the gNB has multicast session data to deliver. Upon reception of the group notification, the UEs reconnect to the network. The group notification is addressed with P-RNTI on PDCCH, and the paging channels are monitored by the UE as described in clause 9.2.5. Paging message for group notification contains MBS session ID which is utilized to page all UEs in RRC IDLE and RRC INACTIVE states that joined the associated MBS multicast session, i.e., UEs are not paged individually. The UE stops monitoring for group notifications related to a specific multicast session once the UE leaves this multicast session.

[TS 38.331, clause 5.3.2.3]

1> for each *TMGI* included in *pagingGroupList*, if any, included in the *Paging* message:

2> if the UE has joined an MBS session indicated by the *TMGI* included in the *pagingGroupList*:

3> forward the *TMGI* to the upper layers;

[TS 24.501, clause 5.6.2.2.1]

If TMGI is used as paging identity and the TMGI matches with MBS multicast session which the has UE joined, the UE shall respond to the paging. Otherwise, the UE shall not respond to the paging.

[TS 24.501, clause 5.6.1.1]

…

The UE shall invoke the service request procedure when:

a) the UE, in 5GMM-IDLE mode over 3GPP access, receives a paging request from the network;

14.2.4.1.1.3 Test description

14.2.4.1.1.3.1 Pre-test conditions

System Simulator:

- NR Cell 1.

- The SS configures the NR Cell 1 as the "Serving cell".

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- None.

Preamble:

- The UE is in state 1N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

- The UE is made interested in receiving MBS Multicast service.

14.2.4.1.1.3.2 Test procedure sequence

Table 14.2.4.1.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2 | The SS transmits an *RRCRelease* message | <-- | NR RRC: *RRCRelease* | - | - |
| 3 | The SS transmits a *Paging* message including TMGIs unmatched with MBS multicast session which the UE has joined. | <-- | NR RRC: *Paging* | - | - |
| 4 | Check: Does the UE transmit an *RRCSetupRequest* message within 10s? | --> | NR RRC: *RRCSetupRequest* | 1 | F |
| 5 | The SS transmits a *Paging* message including a TMGI matched with MBS multicast session which the UE has joined | <-- | NR RRC: *Paging* | - | - |
| 6 | Check: Does the UE transmit an *RRCSetupRequest* message? | --> | NR RRC: *RRCSetupRequest* | 2 | P |
| 7 | The SS transmits an *RRCSetup* message. | <-- | NR RRC: *RRCSetup* | - | - |
| 8 | The UE transmit an *RRCSetupComplete* message including SERVICE REQUEST to confirm the successful completion of the connection establishment. | --> | NR RRC: *RRCSetupComplete*  5GMM: SERVICE REQUEST | - | - |
| 9-12 | Steps 5 to 8 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 to complete service procedure. | - | - | - | - |
| 13 | The SS transmits an *RRCReconfiguration* message to establish MRB. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 14 | The UE transmit an *RRCReconfigurationComplete* message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 15a1-15a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 16 | The SS transmits a MBS Packet. | <-- | MBS Packet. | - | - |
| 17 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 18 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 19 | Check: Is the number of reported MBS Packets received on the MRB in step 18 equal to 1? | - | - | 2 | P |
| 20-22 | Steps 1 to 3 of the generic procedures described in TS 38.508-1 subclause 4.9.37 are performed on NR Cell 1 to release MBS Multicast session. | - | - | - | - |
| 23 | The SS transmits an *RRCRelease* message | <-- | NR RRC: *RRCRelease* | - | - |
| 24 | The SS transmits a *Paging* message including a TMGI matched with MBS multicast session which the UE has released. | <-- | NR RRC: *Paging* | - | - |
| 25 | Check: Does the UE transmit an *RRCSetupRequest* message within 10s? | --> | NR RRC: *RRCSetupRequest* | 3 | F |

14.2.4.1.1.3.3 Specific message contents

Table 14.2.4.1.1.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.4.1.1.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.4.1.1.3.3-2: *Paging* (step 3, Table 14.2.4.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-9, condition TMGI | | | |
| Information Element | Value/remark | Comment | Condition |
| Paging ::= SEQUENCE { |  |  |  |
| pagingRecordList | Not present |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| pagingGroupList-r17 SEQUENCE (SIZE(1..maxNrofPageGroup-r17)) OF TMGI-r17 { | 3 entries |  |  |
| TMGI-r17[1] | Set to the different value from the TMGI UE have joined. | entry 1 |  |
| TMGI-r17[2] | Set to the different value from the TMGI UE have joined. | entry 2 |  |
| TMGI-r17[3] | Set to the different value from the TMGI UE have joined. | entry 3 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.1.1.3.3-3: *Paging* (step 5, Table 14.2.4.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-9, condition TMGI | | | |
| Information Element | Value/remark | Comment | Condition |
| Paging ::= SEQUENCE { |  |  |  |
| pagingRecordList | Not present |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| pagingGroupList-r17 SEQUENCE (SIZE(1..maxNrofPageGroup-r17)) OF TMGI-r17 { | 3 entries |  |  |
| TMGI-r17[1] | Set to the different value from the TMGI UE have joined. | entry 1 |  |
| TMGI-r17[2] | Set to the different value from the TMGI UE have joined. | entry 2 |  |
| TMGI-r17[3] | Set to the value of the TMGI UE have joined. | entry 3 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.1.1.3.3-4: *RRCSetupRequest* (step 6, Table 14.2.4.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-23 | | | |
| Information Element | Value/remark | Comment | Condition |
| RRCSetupRequest ::= SEQUENCE { |  |  |  |
| rrcSetupRequest SEQUENCE { |  |  |  |
| establishmentCause | mt-Access |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.1.1.3.3-5: *RRCReconfiguration* (step 13, Table 14.2.4.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition MRBm and UM\_PTM | m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm and UM\_PTM | m=1 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.1.1.3.3-6: CLOSE UE TEST LOOP (step 15a1, Table 14.2.4.1.1.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB |

Table 14.2.4.1.1.3.3-7: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 17, Table 14.2.4.1.1.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.4.1.1.3.3-8: *Paging* (step 24, Table 14.2.4.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-9, condition TMGI | | | |
| Information Element | Value/remark | Comment | Condition |
| Paging ::= SEQUENCE { |  |  |  |
| pagingRecordList | Not present |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| pagingGroupList-r17 SEQUENCE (SIZE(1..maxNrofPageGroup-r17)) OF TMGI-r17 { | 1 entries |  |  |
| TMGI-r17[1] | Set to the value of the TMGI UE have released | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

##### 14.2.4.1.2 MBS Multicast / RRC / Paging for group notification / RRC\_INACTIVE

14.2.4.1.2.1 Test Purpose (TP)

(1)

***with*** { UE in NR RRC\_INACTIVE state and UE has joined one MBS multicast session }

ensure that {

***when*** { UE receives a Paging message including TMGIs unmatched with MBS multicast session which the UE has joined, not including ue-Identity }

***then*** { UE does not resume RRC connection }

}

(2)

***with*** { UE in NR RRC\_INACTIVE state and UE has joined one MBS multicast session }

ensure that {

***when*** { UE receives a Paging message including a TMGI matched with MBS multicast session which the UE has joined, not including ue-Identity }

***then*** { UE successfully resumes the RRC connection with resumecause set to mt-Access }

}

(3)

***with*** { UE in NR RRC\_INACTIVE state and UE has released MBS multicast session }

ensure that {

***when*** { UE receives a Paging message including a TMGI matched with MBS multicast session which the UE has released, not including ue-Identity }

***then*** { UE does not resume RRC connection }

}

(4)

***with*** { UE in NR RRC\_INACTIVE state and UE has joined one MBS multicast session }

ensure that {

***when*** { UE receives a Paging message including a TMGI matched with MBS multicast session which the UE has joined, and including a matched identity fullI-RNTI }

***then*** { UE successfully resumes the RRC connection with resumecause set to mt-Access}

}

(5)

***with*** { UE in NR RRC\_INACTIVE state and UE has joined one MBS multicast session }

ensure that {

***when*** { UE receives a Paging message including a TMGI matched with MBS multicast session which the UE has joined, and including a matched identity ng-5G-S-TMSI }

***then*** { UE releases RRC connection with release cause ‘other’ and goes to NR RRC\_IDLE state }

}

(6)

***with*** { UE in NR RRC\_INACTIVE state and UE has joined one MBS multicast session }

ensure that {

***when*** { UE receives a Paging message including a TMGI matched with MBS multicast session which the UE has joined, and including a unmatched identity ng-5G-S-TMSI }

***then*** { UE successfully resumes the RRC connection with resumecause set to mt-Access}

}

14.2.4.1.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.300, clause 16.10.5.2; TS 38.331, clause 5.3.2.3; TS 24.501, clause 5.6.2.2.1 and 5.3.1.4. Unless otherwise stated these are Rel-17 requirements.

[TS 38.300, clause 16.10.5.2]

When there is (temporarily) no data to be sent to the UEs for a multicast session, the gNB may move the UE to RRC IDLE/INACTIVE state. gNBs supporting MBS use a group notification mechanism to notify the UEs in RRC IDLE/INACTIVE state when a multicast session has been activated by the CN or the gNB has multicast session data to deliver. Upon reception of the group notification, the UEs reconnect to the network. The group notification is addressed with P-RNTI on PDCCH, and the paging channels are monitored by the UE as described in clause 9.2.5. Paging message for group notification contains MBS session ID which is utilized to page all UEs in RRC IDLE and RRC INACTIVE states that joined the associated MBS multicast session, i.e., UEs are not paged individually. The UE stops monitoring for group notifications related to a specific multicast session once the UE leaves this multicast session.

[TS 38.331, clause 5.3.2.3]

1> if in RRC\_INACTIVE, for each of the *PagingRecord*, if any, included in the *Paging* message, or

…

2> if the *ue-Identity* included in the *PagingRecord* matches the UE's stored *fullI-RNTI*:

…

3> else:

4> initiate the RRC connection resumption procedure according to 5.3.13 with *resumeCause* set to *mt-Access*;

…

2> else if the *ue-Identity* included in the *PagingRecord* matches the UE identity allocated by upper layers:

3> if upper layers indicate the support of paging cause:

4> forward the *ue-Identity*, *accessType* (if present) and paging cause (if determined) to the upper layers;

3> else:

4> forward the *ue-Identity* and *accessType* (if present) to the upper layers;

3> perform the actions upon going to RRC\_IDLE as specified in 5.3.11 with release cause 'other';

1> for each *TMGI* included in *pagingGroupList*, if any, included in the *Paging* message:

2> if the UE has joined an MBS session indicated by the *TMGI* included in the *pagingGroupList*:

3> forward the *TMGI* to the upper layers;

1> if in RRC\_INACTIVE and the UE has joined one or more MBS session(s) indicated by the *TMGI* included in the *pagingGroupList*;and

1> if none of the *ue-Identity* included in any of the *PagingRecord*, if included in the *Paging* message, matches the UE identity allocated by upper layers:

2> initiate the RRC connection resumption procedure according to 5.3.13 with *resumeCause* set as below:

…

3> else:

4> *resumeCause* is set to *mt-Access*.

[TS 24.501, clause 5.6.2.2.1]

If TMGI is used as paging identity and the TMGI matches with MBS multicast session which the has UE joined, the UE shall respond to the paging. Otherwise, the UE shall not respond to the paging.

[TS 24.501, clause 5.3.1.4]

…

Upon receiving AMF paging indication from the lower layers, the UE shall transition from 5GMM-CONNECTED mode with RRC inactive indication to 5GMM-IDLE mode over 3GPP access and handle the AMF paging same as the paging request received in the 5GMM-IDLE mode over 3GPP access as specified in clause 5.6.1.

14.2.4.1.2.3 Test description

14.2.4.1.2.3.1 Pre-test conditions

System Simulator:

- NR Cell 1.

- The SS configures the NR Cell 1 as the "Serving cell".

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- None.

Preamble:

- The UE is in state 1N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

- The UE is made interested in receiving MBS Multicast service.

14.2.4.1.2.3.2 Test procedure sequence

Table 14.2.4.1.2.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2 | The SS transmits an *RRCRelease* message including s*uspendConfig*. | <-- | NR RRC: *RRCRelease* | - | - |
| 3 | The SS transmits a *Paging* message including TMGIs unmatched with MBS multicast session which the UE has joined. | <-- | NR RRC: *Paging* | - | - |
| 4 | Check: Does the UE transmit an *RRCResumeRequest* message within 10s? | --> | NR RRC: *RRCResumeRequest* | 1 | F |
| 5 | The SS transmits a *Paging* message including a TMGI matched with MBS multicast session which the UE has joined | <-- | NR RRC: *Paging* | - | - |
| 6 | Check: Does the UE transmit an *RRCResumeRequest* message? | --> | NR RRC: *RRCResumeRequest* | 2 | P |
| 7 | The SS transmits an *RRCResume* message. | <-- | NR RRC: *RRCResume* | - | - |
| 8 | The UE transmits an *RRCResumeComplete* message. | --> | NR RRC: *RRCResumeComplete* | - | - |
| 9a1-9a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 10 | The SS transmits a MBS Packet. | <-- | MBS Packet | - | - |
| 11 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 12 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 13 | Check: Is the number of reported MBS Packets received on the MRB in step 12 equal to 1? | - | - | 2 | P |
| 14 | The SS transmits an *RRCRelease* message including s*uspendConfig*. | <-- | NR RRC: *RRCRelease* | - | - |
| 15 | The SS transmits a *Paging* message including a TMGI matched with MBS multicast session which the UE has joined and include a matched fullI-RNTI. | <-- | NR RRC: *Paging* | - | - |
| 16 | Check: Does the UE transmit an *RRCResumeRequest* message? | --> | NR RRC: *RRCResumeRequest* | 4 | P |
| 17 | The SS transmits an *RRCResume* message. | <-- | NR RRC: *RRCResume* | - | - |
| 18 | The UE transmits an *RRCResumeComplete* message. | --> | NR RRC: *RRCResumeComplete* | - | - |
| 19 | The SS transmits an OPEN UE TEST LOOP message. | <-- | NR RRC: *DLInformationTransfer*  TC: OPEN UE TEST LOOP | - | - |
| 20 | The UE transmits an OPEN UE TEST LOOP COMPLETE message. | --> | NR RRC: *ULInformationTransfer*  TC: OPEN UE TEST LOOP COMPLETE | - | - |
| 21 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 22 | The SS transmits a MBS Packet. | <-- | MBS Packet | - | - |
| 23 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 24 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 25 | Check: Is the number of reported MBS Packets received on the MRB in step 24 equal to 1? | - | - | 4 | P |
| 26 | The SS transmits an *RRCRelease* message including s*uspendConfig*. | <-- | NR RRC: *RRCRelease* | - | - |
| 27 | The SS transmits a *Paging* message including a TMGI matched with MBS multicast session which the UE has joined and include a matched fullI-RNTI. | <-- | NR RRC: *Paging* | - | - |
| 28 | Check: Does the UE transmit an *RRCSetupRequest* message? | --> | NR RRC: *RRCSetupRequest* | 5 | P |
| 29 | The SS transmits an *RRCSetup* message. | <-- | NR RRC: *RRCSetup* | - | - |
| 30 | The UE transmit an *RRCSetupComplete* message including SERVICE REQUEST to confirm the successful completion of the connection establishment. | --> | NR RRC: *RRCSetupComplete*  5GMM: SERVICE REQUEST | - | - |
| 31-34 | Steps 5 to 8 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 to complete service procedure | - | - | - | - |
| 35 | The SS transmits an *RRCReconfiguration* message to establish MRB. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 36 | The UE transmit an *RRCReconfigurationComplete* message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 37 | The SS transmits an OPEN UE TEST LOOP message. | <-- | NR RRC: *DLInformationTransfer*  TC: OPEN UE TEST LOOP | - | - |
| 38 | The UE transmits an OPEN UE TEST LOOP COMPLETE message. | --> | NR RRC: *ULInformationTransfer*  TC: OPEN UE TEST LOOP COMPLETE | - | - |
| 39a1-39a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 40 | The SS transmits a MBS Packet. | <-- | MBS Packet | - | - |
| 41 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 42 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 43 | Check: Is the number of reported MBS Packets received on the MRB in step 40 equal to 1? | - | - | 5 | P |
| 44 | The SS transmits an *RRCRelease* message including s*uspendConfig*. | <-- | NR RRC: *RRCRelease* | - | - |
| 45 | The SS transmits a *Paging* message including a TMGI matched with MBS multicast session which the UE has joined and include an unmatched identity ng-5G-S-TMSI. | <-- | NR RRC: *Paging* | - | - |
| 46 | Check: Does the UE transmit an *RRCResumeRequest* message? | --> | NR RRC: *RRCResumeRequest* | 6 | P |
| 47 | The SS transmits an *RRCResume* message. | <-- | NR RRC: *RRCResume* | - | - |
| 48 | The UE transmits an *RRCResumeComplete* message. | --> | NR RRC: *RRCResumeComplete* | - | - |
| 49 | The SS transmits an OPEN UE TEST LOOP message. | <-- | NR RRC: *DLInformationTransfer*  TC: OPEN UE TEST LOOP | - | - |
| 50 | The UE transmits an OPEN UE TEST LOOP COMPLETE message. | --> | NR RRC: *ULInformationTransfer*  TC: OPEN UE TEST LOOP COMPLETE | - | - |
| 51a1-51a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 52 | The SS transmits a MBS Packet. | <-- | MBS Packet | - | - |
| 53 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 54 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 55 | Check: Is the number of reported MBS Packets received on the MRB in step 52 equal to 1? | - | - | 6 | P |
| 56-58 | Steps 1 to 3 of the generic procedures described in TS 38.508-1 subclause 4.9.37 are performed on NR Cell 1 to release MBS Multicast session. | - | - | - | - |
| 59 | The SS transmits an *RRCRelease* message including s*uspendConfig*. | <-- | NR RRC: *RRCRelease* | - | - |
| 60 | The SS transmits a *Paging* message including a TMGI matched with MBS multicast session which the UE has joined. | <-- | NR RRC: *Paging* | - | - |
| 61 | Check: Does the UE transmit an *RRCResumeRequest* message within 10s? | --> | NR RRC: *RRCResumeRequest* | 3 | F |

14.2.4.1.2.3.3 Specific message contents

Table 14.2.4.1.2.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.4.1.2.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.4.1.2.3.3-2: *RRCRelease* (step 2, step 14, step 26, step 44 and step 59, Table 14.2.4.1.2.3.2-1)

|  |
| --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-16, condition NR\_RRC\_INACTIVE |

Table 14.2.4.1.2.3.3-3: *Paging* (step 3, Table 14.2.4.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-9, condition TMGI | | | |
| Information Element | Value/remark | Comment | Condition |
| Paging ::= SEQUENCE { |  |  |  |
| pagingRecordList | Not present |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| pagingGroupList-r17 SEQUENCE (SIZE(1..maxNrofPageGroup-r17)) OF TMGI-r17 { | 3 entries |  |  |
| TMGI-r17[1] | Set to the different value from the TMGI UE have joined. | entry 1 |  |
| TMGI-r17[2] | Set to the different value from the TMGI UE have joined. | entry 2 |  |
| TMGI-r17[3] | Set to the different value from the TMGI UE have joined. | entry 3 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.1.2.3.3-4: *Paging* (step 5, Table 14.2.4.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-9, condition TMGI | | | |
| Information Element | Value/remark | Comment | Condition |
| Paging ::= SEQUENCE { |  |  |  |
| pagingRecordList | Not present |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| pagingGroupList-r17 SEQUENCE (SIZE(1..maxNrofPageGroup-r17)) OF TMGI-r17 { | 3 entries |  |  |
| TMGI-r17[1] | Set to the different value from the TMGI UE have joined. | entry 1 |  |
| TMGI-r17[2] | Set to the different value from the TMGI UE have joined. | entry 2 |  |
| TMGI-r17[3] | Set to the value of the TMGI UE have joined. | entry 3 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.1.2.3.3-5: *RRCResumeRequest* (step 6, step16 and step46, Table 14.2.4.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-19 | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCResumeRequest ::= SEQUENCE { | |  |  |  |
| rrcResumeRequest SEQUENCE { | |  |  |  |
| resumeCause | | mt-Access |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.1.2.3.3-6: CLOSE UE TEST LOOP (step 9a1, step 21a1, step 39a1 and step 51a1, Table 14.2.4.1.2.3.2-1)

|  |
| --- |
| Derivation Path: 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB |

Table 14.2.4.1.2.3.3-7: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 11, step 23, step 41 and step53, Table 14.2.4.1.2.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.4.1.2.3.3-8: *Paging* (step 15, Table 14.2.4.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-9, condition TMGI | | | |
| Information Element | Value/remark | Comment | Condition |
| Paging ::= SEQUENCE { |  |  |  |
| pagingRecordList SEQUENCE (SIZE(1..maxNrofPageRec)) OF PagingRecord { | 1 entry |  |  |
| PagingRecord[1] SEQUENCE { |  | entry 1 |  |
| ue-Identity CHOICE { |  |  |  |
| *fullI*-RNTI | Set to the value of the I-RNTI-Value of the UE |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| pagingGroupList-r17 SEQUENCE (SIZE(1..maxNrofPageGroup-r17)) OF TMGI-r17 { | 1 entry |  |  |
| TMGI-r17[1] | Set to the value of the TMGI UE have joined. | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.1.2.3.3-9: *Paging* (step 27, Table 14.2.4.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-9, condition TMGI | | | |
| Information Element | Value/remark | Comment | Condition |
| Paging ::= SEQUENCE { |  |  |  |
| pagingRecordList SEQUENCE (SIZE(1..maxNrofPageRec)) OF PagingRecord { | 1 entry |  |  |
| PagingRecord[1] SEQUENCE { |  | entry 1 |  |
| ue-Identity CHOICE { |  |  |  |
| ng-5G-S-TMSI | Set to the value of the NG-5G-S-TMSI of the UE |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| pagingGroupList-r17 SEQUENCE (SIZE(1..maxNrofPageGroup-r17)) OF TMGI-r17 { | 1 entry |  |  |
| TMGI-r17[1] | Set to the value of the TMGI UE have joined. | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.1.2.3.3-10: *RRCSetupRequest* (step 28, Table 14.2.4.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-23 | | | |
| Information Element | Value/remark | Comment | Condition |
| RRCSetupRequest ::= SEQUENCE { |  |  |  |
| rrcSetupRequest SEQUENCE { |  |  |  |
| establishmentCause | mt-Access |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.1.2.3.3-11: *RRCReconfiguration* (step 35, Table 14.2.4.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition MRBm and UM\_PTM | m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm and UM\_PTM | m=1 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.1.2.3.3-12: *Paging* (step 45, Table 14.2.4.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-9, condition TMGI | | | |
| Information Element | Value/remark | Comment | Condition |
| Paging ::= SEQUENCE { |  |  |  |
| pagingRecordList SEQUENCE (SIZE(1..maxNrofPageRec)) OF PagingRecord { | 1 entry |  |  |
| PagingRecord[1] SEQUENCE { |  | entry 1 |  |
| ue-Identity CHOICE { |  |  |  |
| ng-5G-S-TMSI | Set to the different value from the NG-5G-S-TMSI of the UE |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| pagingGroupList-r17 SEQUENCE (SIZE(1..maxNrofPageGroup-r17)) OF TMGI-r17 { | 1 entry |  |  |
| TMGI-r17[1] | Set to the value of the TMGI UE have joined. | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.1.2.3.3-13: *Paging* (step 60, Table 14.2.4.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-9, condition TMGI | | | |
| Information Element | Value/remark | Comment | Condition |
| Paging ::= SEQUENCE { |  |  |  |
| pagingRecordList | Not present |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| pagingGroupList-r17 SEQUENCE (SIZE(1..maxNrofPageGroup-r17)) OF TMGI-r17 { | 1 entries |  |  |
| TMGI-r17[1] | Set to the value of the TMGI UE have released | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

#### 14.2.4.2 MBS Multicast / RRC / MRB Reconfiguration

##### 14.2.4.2.1 MBS Multicast / RRC / MRB Reconfiguration / Establishment / Modification / Release / Success

14.2.4.2.1.1 Test Purpose (TP)

(1)

***with*** { UE in NR RRC\_IDLE state and UE has joined one MBS multicast session }

ensure that {

***when*** { UE receives a Paging with matched TMGI and moves to RRC\_CONNECTED state and receives RRCReconfiguration message including a MRB-ToAddModList to add an UM MRB with one UM RLC for PTM transmission as MRB-Identity 1 and an AM MRB with one AM RLC for PTP transmission as MRB-Identity 2 }

***then*** { UE successfully establishes the MRBs }

}

(2)

***with*** { UE in NR RRC\_CONNECTED state and MRB-Identity 1 and MRB-Identity 2 have established }

ensure that {

***when*** { UE receives RRCReconfiguration message including a MRB-ToReleaseList to release a MRB-Identity which is not part of current UE configuration }

***then*** { UE does not consider the message as erroneous and replies RRCReconfigurationComplete }

}

(3)

***with*** { UE in NR RRC\_CONNECTED state and MRB-Identity 1 and MRB-Identity 2 have established }

ensure that {

***when*** { UE receives RRCReconfiguration message including a MRB-ToReleaseList to release MRB-Identity 2 and including rlc-BearerToaddModList to modify MRB-Identity 1 by adding a RLC-AM for PTP transmission }

***then*** { UE releases PDCP entity for MRB-Identity 2 and MRB-Identity 2 and changes MRB-Identity 1 to AM MRB with one UM RLC for PTM transmission and one AM RLC for PTP transmission and could receives MBS data of MRB-Identity 1 with PTM transmission and PTP transmission }

}

(4)

***with*** { UE in NR RRC\_CONNECTED state and MRB-Identity 1 have established }

ensure that {

***when*** { UE receives RRCReconfiguration message including a MRB-ToAddModList to update the MRB-Identity 1 to the MRB-Identity 3 by setting the value of MRB-IdentityNew to 3 }

***then*** { UE updates the MRB-Identity to the value MRB-IdentityNew }

}

(5)

***with*** { UE in NR RRC\_CONNECTED state and MRB(s) have established }

ensure that {

***when*** { UE receives RRCReconfiguration message including a MRB-ToReleaseList to release all the MRB configured with same *mbs-SessionId* }

***then*** { UE releases PDCP entity and the MRB-Identity and indicate release of the user plane resources for *mbs-SessionId* to upper layers }

}

14.2.4.2.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331, clause 5.3.5.5.4, 5.3.5.6.6 and 5.3.5.6.7. Unless otherwise stated these are Rel-17 requirements.

[TS 38. 331, clause 5.3.5.5.4]

For each *RLC-BearerConfig* received in the *rlc-BearerToAddModList* IE the UE shall:

1> if the UE's current configuration contains an RLC bearer with the received *logicalChannelIdentity/LogicalChannelIdentityExt* within the same cell group:

2> if the RLC bearer is associated with an DAPS bearer, or

2> if any DAPS bearer is configured and the RLC bearer is associated with an SRB:

…

2> else:

3> if *reestablishRLC* is received:

4> re-establish the RLC entity as specified in TS 38.322 [4];

3> reconfigure the RLC entity or entities in accordance with the received *rlc-Config*;

3> reconfigure the logical channel in accordance with the received *mac-LogicalChannelConfig*;

3> if *servedMBS-RadioBearer* is received:

4> associate this logical channel with the PDCP entity identified by *servedMBS-RadioBearer*;

NOTE 1: For DRB and SRB, the network does not re-associate an already configured logical channel with another radio bearer. Hence *servedRadioBearer* is not present in this case. For MRB, the network does not re-associate an already configured logical channel with DRB or SRB or another MRB (i.e. MRB with another PDCP entity). Hence *multicastRLC-BearerConfig* is not present in this case.

…

1> else (a logical channel with the given *logicalChannelIdentity/LogicalChannelIdentityExt* is not configured within the same cell group, including the case when full configuration option is used):

2> if the *servedRadioBearer* associates the logical channel with an SRB and *rlc-Config* is not included:

3> establish an RLC entity in accordance with the default configuration defined in 9.2 for the corresponding SRB;

2> else:

3> establish an RLC entity in accordance with the received *rlc-Config*;

2> if the *servedRadioBearer* associates the logical channel with an SRB and if *mac-LogicalChannelConfig* is not included:

3> configure this MAC entity with a logical channel in accordance to the default configuration defined in 9.2 for the corresponding SRB;

2> else:

3> configure this MAC entity with a logical channel in accordance to the received *mac-LogicalChannelConfig*;

2> associate this logical channel with the PDCP entity identified by *servedRadioBearer* or *servedMBS-RadioBearer*.

[TS 38. 331, clause 5.3.5.6.6]

The UE shall:

1> for each *mrb-Identity* value included in the *mrb-ToReleaseList* that is part of the current UE configuration; or

1> for each *mrb-Identity* value that is to be released as the result of full configuration according to 5.3.5.11:

2> release the PDCP entity and the *mrb-Identity*;

2> if there is no other multicast MRB configured with the same *mbs-SessionId* as configured for the released multicast MRB:

3> indicate the release of the user plane resources for the *mbs-SessionId* to upper layers.

NOTE 1: The UE does not consider the message as erroneous if the *mrb-ToReleaseList* includes any *mrb-Identity* value that is not part of the current UE configuration.

NOTE 2: Whether or not the RLC and MAC entities associated with this PDCP entity are reset or released is determined by the *CellGroupConfig*.

[TS 38.331, clause 5.3.5.6.7]

The UE shall for each element in the order of entry in the list *mrb-ToAddModList*:

1> if *mrb-Identity* value included in the *mrb-ToAddModList* is part of the UE configuration:

2> if *mrb-Identity* value included in the *mrb-ToAddModList* for which *mrb-IdentityNew* is included (i.e., multicast MRB ID change):

3> update the *mrb-Identity* to the value *mrb-IdentityNew*;

…

2> if the *pdcp-Config* is included:

3> reconfigure the PDCP entity in accordance with the received *pdcp-Config*;

1> else if *mrb-Identity* value included in the *mrb-ToAddModList* is not part of the UE configuration (i.e., multicast MRB establishment including the case when full configuration option is used):

2> establish a PDCP entity and configure it in accordance with the received *pdcp-Config*;

2> associate the established multicast MRB with the corresponding *mbs-SessionId*;

2> if an SDAP entity with the received *mbs-SessionId* does not exist:

3> establish an SDAP entity as specified in TS 37.324 [24] clause 5.1.1;

3> if an SDAP entity with the received *mbs-SessionId* did not exist prior to receiving this reconfiguration:

4> indicate the establishment of the user plane resources for the *mbs-SessionId* to upper layers.

NOTE 1: When setting the *reestablishPDCP* flag for a radio bearer, the network ensures that the RLC receiver entities do not deliver old PDCP PDUs to the re-established PDCP entity. It does that e.g., by triggering a reconfiguration with sync of the cell group hosting the old RLC entity or by releasing the old RLC entity.

NOTE 2: In this specification, UE configuration refers to the parameters configured by NR RRC unless otherwise stated.

NOTE 3: When updating the mrb-Identity, the network ensures new MRBs are listed at the end of the mrb-ToAddModList if they have the same MRB ID as in the existing UE configuration.

14.2.4.2.1.3 Test description

14.2.4.2.1.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 is the serving cell.

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR Cell 1.

UE:

- None.

Preamble:

- The UE is in state 1N-A on NR Cell 1(serving cell) according to TS 38.508-1 [4] Table 4.4A.2-3 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

14.2.4.2.1.3.2 Test procedure sequence

Table 14.2.4.2.1.3.2-1 for FR1 and table 14.2.4.2.1.3.2-2 for FR2 illustrate the downlink power levels to be applied for the cells at various time instants of the test execution. Row marked "T0" denotes the initial conditions after preamble, while columns marked "T1" and "T2" are to be applied subsequently in the Main behaviour. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 14.2.4.2.1.3.2-1: Cell configuration changes over time for FR1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 2 | Remarks |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | -88 | “Off” | Power level “Off” is defined in TS 38.508-1 [4] Table 6.2.2.1-3 |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | -88 | -82 |  |
| T2 | SS/PBCH  SSS EPRE | dBm/SCS | -82 | -88 |  |

Table 14.2.4.2.1.3.2-2: Cell configuration changes over time for FR2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 2 | Remarks |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | -91 | “Off” | Power level “Off” is defined in TS 38.508-1 [4] Table 6.2.2.2-2 |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | -91 | -82 |  |
| T2 | SS/PBCH  SSS EPRE | dBm/SCS | -82 | -91 |  |

Table 14.2.4.2.1.3.2-3: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2 | The SS transmits an *RRCRelease* message | <-- | NR RRC: *RRCRelease* | - | - |
| 3 | The SS transmits a *Paging* message including a TMGI matched with MBS multicast session which the UE has joined | <-- | NR RRC: *Paging* | - | - |
| 4-10 | Steps 2 to 8 of the NR RRC\_CONNECTED procedure in TS 38.508-1 [4] Table 4.5.4.2-3 to complete service procedure. | - | - | - | - |
| 11 | The SS transmits an *RRCReconfiguration* message to establish MRB-Identity 1 and MRB-Identity 2. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 12 | The UE transmit an *RRCReconfigurationComplete* message | --> | NR RRC: *RRCReconfigurationComplete* | - | - |
| 13a1-13a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 14 | The SS transmits a MBS Packet via RLC-UM in MRB-Identity 1 | <-- | MBS Packet. | - | - |
| 15 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 16 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 17 | Check: Is the number of reported MBS Packets received on the MRB-Identity 1 in step 16 equal to 1? | - | - | 1 | P |
| 18 | The SS transmits an OPEN UE TEST LOOP message. | <-- | NR RRC: *DLInformationTransfer*  TC: OPEN UE TEST LOOP | - | - |
| 19 | The UE transmits an OPEN UE TEST LOOP COMPLETE message. | --> | NR RRC: *ULInformationTransfer*  TC: OPEN UE TEST LOOP COMPLETE | - | - |
| 20a1-20a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 21 | The SS transmits a MBS Packet via RLC-AM in MRB-Identity 2. | <-- | MBS Packet. | - | - |
| 22 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 23 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 24 | Check: Is the number of reported MBS Packets received on the MRB-Identity 2 in step 23 equal to 1? | - | - | 1 | P |
| 25 | The SS transmits an *RRCReconfiguration* message to release MRB-Identity 3. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 26 | The UE transmit an *RRCReconfigurationComplete* message | --> | NR RRC: *RRCReconfigurationComplete* | 2 | P |
| 27 | The SS transmits an *RRCReconfiguration* message to release MRB-Identity 2 and modify MRB-Identity 1. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 28 | The UE transmit an *RRCReconfigurationComplete* message | --> | NR RRC: *RRCReconfigurationComplete* | 3 | P |
| 29 | The SS transmits an OPEN UE TEST LOOP message. | <-- | NR RRC: *DLInformationTransfer*  TC: OPEN UE TEST LOOP | - | - |
| 30 | The UE transmits an OPEN UE TEST LOOP COMPLETE message. | --> | NR RRC: *ULInformationTransfer*  TC: OPEN UE TEST LOOP COMPLETE | - | - |
| 31a1-31a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 32 | The SS transmits a MBS Packet via RLC-AM of MRB-Identity 1. | <-- | MBS Packet. | - | - |
| 33 | The SS transmits a MBS Packet via RLC-UM of MRB-Identity 1. | <-- | MBS Packet. | - | - |
| 34 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 35 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 36 | Check: Is the number of reported MBS Packets received on the MRB-Identity 1 in step 35 equal to 2? | - | - | 3 | P |
| 37 | The SS transmits an *RRCReconfiguration* message to change MRB-Identity 1 to MRB-Identity 3. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 38 | The UE transmit an *RRCReconfigurationComplete* message | --> | NR RRC: *RRCReconfigurationComplete* | 4 | P |
| 39 | The SS transmits an OPEN UE TEST LOOP message. | <-- | NR RRC: *DLInformationTransfer*  TC: OPEN UE TEST LOOP | - | - |
| 40 | The UE transmits an OPEN UE TEST LOOP COMPLETE message. | --> | NR RRC: *ULInformationTransfer*  TC: OPEN UE TEST LOOP COMPLETE | - | - |
| 41a1-41a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 42 | The SS transmits a MBS Packet via RLC-AM of MRB-Identity 3. | <-- | MBS Packet. | - | - |
| 43 | The SS transmits a MBS Packet via RLC-UM of MRB-Identity 3. | <-- | MBS Packet. | - | - |
| 44 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 45 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 46 | Check: Is the number of reported MBS Packets received on the MRB-Identity 3 in step 45 equal to 2? | - | - | 4 | P |
| 47 | The SS transmits an *RRCReconfiguration* message to release MRB-Identity 3 a PDU SESSION MODIFICATION COMMAND. | <-- | NR RRC: *RRCReconfiguration*  5GMM: DL NAS TRANSPORT  5GSM: PDU SESSION MODIFICATION COMMAND | - | - |
| 48 | The UE transmit an *RRCReconfigurationComplete* message | --> | NR RRC: *RRCReconfigurationComplete* | 5 | P |
| 49 | The UE transmits an ULInformationTransfer message and a PDU SESSION MODIFICATION COMPLETE message. | --> | NR RRC: ULInformationTransfer  5GMM: UL NAS TRANSPORT  5GSM: PDU SESSION MODIFICATION COMPLETE | - | - |

14.2.4.2.1.3.3 Specific message contents

Table 14.2.4.2.1.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.4.2.1.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.4.2.1.3.3-2: *Paging* (step 3, Table 14.2.4.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-9 with condition TMGI | | | |
| Information Element | Value/remark | Comment | Condition |
| Paging ::= SEQUENCE { |  |  |  |
| pagingRecordList | Not present |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| pagingGroupList-r17 SEQUENCE (SIZE(1..maxNrofPageGroup-r17)) OF TMGI-r17 { | 1 entry |  |  |
| TMGI-r17[1] | Set to the value of the TMGI UE have joined. | entry 1 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.2.1.3.3-3: *RRCReconfiguration* (step 11, Table 14.2.4.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.4.2.1.3.3-6 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.4.2.1.3.3-7 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.2.1.3.3-4: *RadioBearerConfig* (Table 14.2.4.2.1.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 2 entries |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | TMGI |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=1 | UM MRB |
| pdcp-Config-r17 | PDCP-Config with condition MRB\_Initialization and UM\_MRB |  |  |
| } |  |  |  |
| MRB-ToAddMod-r17 [2] SEQUENCE { |  | entry 2 |  |
| mbs-SessionId-r17 | TMGI |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=2 | AM MRB |
| pdcp-Config-r17 | PDCP-Config with condition MRB\_Initialization |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.2.1.3.3-5: *CellGroupConfig* (Table 14.2.4.2.1.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | 2 entries |  |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm | entry 1  m=1 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig with conditions AM and PTP and MRBm | entry 2  m=2 |  |
| } |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast |  |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| servCellIndex | Not present |  |  |
| reconfigurationWithSync | Not present |  |  |
| rlf-TimersAndConstants | Not present |  |  |
| rlmInSyncOutOfSyncThreshold | Not present |  |  |
| spCellConfigDedicated | ServingCellConfig with condition MBS\_Multicast |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.2.1.3.3-6: CLOSE UE TEST LOOP (step 13a1, step 20a1, step 31a1 and step41a1 Table 14.2.4.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB | | | |
| Information Element | Value/remark | Comment | Condition |
| UE test loop mode C LB setup |  |  |  |
| MRB ID | ‘ 0 0 0 0 0 0 0 0  0 0 0 0 0 0 0 0  0 0 0 0 0 0 0 0 ’B | MRB-Identity is 1 | Step 13a1,  Step 31a1 |
|  | ‘ 0 0 0 0 0 0 0 0  0 0 0 0 0 0 0 0  1 0 0 0 0 0 0 0 ’B | MRB-Identity is 2 | Step 20a1 |
|  | ‘ 0 0 0 0 0 0 0 0  0 0 0 0 0 0 0 1  1 0 0 0 0 0 0 0 ’B | MRB-Identity is 3 | Step 41a1 |

Table 14.2.4.2.1.3.3-7: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 15, step22, step 34 and step 44, Table 14.2.4.2.1.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.4.2.1.3.3-8: *RRCReconfiguration* (step 25 and step 47, Table 14.2.4.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1, table 4.6.1-3 | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.4.2.1.3.3-9 |  |
| nonCriticalExtension | | Not present |  | Step 25 |
| nonCriticalExtension SEQUENCE { | |  |  | Step 47 |
| masterCellGroup | | CellGroupConfig | Table 14.2.4.2.1.3.3-10 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  | Step 47 |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.2.1.3.3-9: *RadioBearerConfig* (Table 14.2.4.2.1.3.3-8)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| mrb-ToReleaseList-r17 SEQUENCE (SIZE (1..maxMRB-r17)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-Identity-r17[1] | 3 | entry 1 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.2.1.3.3-10: *CellGroupConfig* (Table 14.2.4.2.1.3.3-8)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList | Not Present |  |  |
| rlc-BearerToReleaseList SEQUENCE (SIZE(1..maxLC-ID)) OF LogicalChannelIdentity { | 2 entries |  |  |
| logicalChannelIdentity[1] | LogicalChannelIdentity with conditions PTM and MRBm | entry 1  m=1 |  |
| logicalChannelIdentity[2] | LogicalChannelIdentity with conditions PTP and MRBm | entry 2  m=1 |  |
| } |  |  |  |
| mac-CellGroupConfig | Not Present |  |  |
| physicalCellGroupConfig | Not Present |  |  |
| spCellConfig | Not Present |  |  |
| } |  |  |  |

Table 14.2.4.2.1.3.3-11: *RRCReconfiguration* (Step 27, Table 14.2.4.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1, table 4.6.1-3 | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.4.2.1.3.3-12 |  |
| nonCriticalExtension | | Not present |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.4.2.1.3.3-13 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.2.1.3.3-12: *RadioBearerConfig* (Table 14.2.4.2.1.3.3-11)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | TMGI |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=1 |  |
| pdcp-Config-r17 | PDCP-Config |  |  |
| } |  |  |  |
| mrb-ToReleaseList-r17 SEQUENCE (SIZE (1..maxMRB-r17)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-Identity-r17[1] | MRB-Identity with condition MRBm | m=2 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.2.1.3.3-13: *CellGroupConfig* (Table 14.2.4.2.1.3.3-11)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | 2 entries |  |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm | entry 1  m=1 |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with conditions AM and PTP and MRBm | entry 2  m=1 |  |
| } |  |  |  |
| rlc-BearerToReleaseList SEQUENCE (SIZE(1..maxLC-ID)) OF LogicalChannelIdentity { | 1 entry |  |  |
| logicalChannelIdentity[1] | LogicalChannelIdentity with conditions MRBm and PTP | entry 1  m=2 |  |
| } |  |  |  |
| mac-CellGroupConfig | Not Present |  |  |
| physicalCellGroupConfig | Not Present |  |  |
| spCellConfig | Not Present |  |  |
| } |  |  |  |

Table 14.2.4.2.1.3.3-14: *RRCReconfiguration* (Step 37, Table 8.1.2.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1, table 4.6.1-3 | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.4.2.1.3.3-15 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.4.2.1.3.3-16 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.2.1.3.3-15: *RadioBearerConfig* (Table 14.2.4.2.1.3.3-14)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | Not present |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=1 |  |
| mrb-IdentityNew-r17 | 3 |  |  |
| reestablishPDCP-r17 | Not present |  |  |
| recoverPDCP-r17 | Not present |  |  |
| pdcp-Config-r17 | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.2.1.3.3-16: *CellGroupConfig* (Table 14.2.4.2.1.3.3-14)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | 1 entry |  |  |
| RLC-BearerConfig[1] | RLC-BearerConfig | entry 1  Table 14.2.4.2.1.3.3-17 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig | entry 2  Table 14.2.4.2.1.3.3-18 |  |
| } |  |  |  |
| mac-CellGroupConfig | Not Present |  |  |
| physicalCellGroupConfig | Not Present |  |  |
| spCellConfig | Not Present |  |  |
| } |  |  |  |

Table 14.2.4.2.1.3.3-17: *RLC-BearerConfig* (Table 14.2.4.2.1.3.3-16)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-148, conditions UM\_DLonly and PTM and MRBm (m=1) | | | |
| Information Element | Value/remark | Comment | Condition |
| RLC-BearerConfig ::= SEQUENCE { |  |  |  |
| multicastRLC-BearerConfig-r17 SEQUENCE { |  |  |  |
| servedMBS-RadioBearer-r17 | 3 |  |  |
| } |  |  |  |

Table 14.2.4.2.1.3.3-18: *RLC-BearerConfig* (Table 14.2.4.2.1.3.3-16)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-148, conditions AM and PTP and MRBm (m=1) | | | |
| Information Element | Value/remark | Comment | Condition |
| RLC-BearerConfig ::= SEQUENCE { |  |  |  |
| multicastRLC-BearerConfig-r17 SEQUENCE { |  |  |  |
| servedMBS-RadioBearer-r17 | 3 |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.2.1.3.3-19:PDU SESSION MODIFICATION COMMAND (step 47, Table 8.1.2.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: Table 4.7.2-9. | | | |
| Information Element | | Value/remark | Comment | Condition |
| Received MBS container | |  |  |  |
| Received MBS information | |  |  |  |
| Rejection cause | | ‘110’B | MBS session is released |  |
| MSAI | | ‘00’B | MBS service area not included |  |
| MD | | ‘100’B | Remove UE from MBS session |  |
| MSCI | | ‘0’B | MBS security container not included |  |
| MTI | | ‘00’B | No MBS timers included |  |
| IPAE | | ‘0’B | Source and destination IP address information not included |  |
| TMGI | |  |  |  |
| MBMS Service ID | | ‘000101’B |  |  |
| MCC | | See table 4.4.2-3 |  |  |
| MNC | | See table 4.4.2-3 |  |  |
| Source IP address information | | Not present |  |  |
| Destination IP address information | | Not present |  |  |
| MBS service area | | Not present |  |  |
| MBS timers | | Not present |  |  |
| MBS security container | | Not present |  |  |

#### 14.2.4.3 MBS Multicast/ RRC/ Handover

##### 14.2.4.3.1 MBS Multicast/ RRC/ Handover between multicast supporting cell / Success

14.2.4.3.1.1 Test Purpose (TP)

(1)

***with*** { UE in NR RRC\_CONNECTED state and UE has joined one MBS multicast session and receives MBS data in MRB }

ensure that {

***when*** { UE receives an RRCReconfiguration message including a reconfigurationWithSync for handover to a multicast supporting cell and not updating the mrb-Identity}

***then*** { UE performs handover to the target cell and transmits an RRCReconfigurationComplete message and receives MBS data in MRB }

}

(2)

***with*** { UE in NR RRC\_CONNECTED state and UE has joined one MBS multicast session and receives MBS data in MRB }

ensure that {

***when*** { UE receives an RRCReconfiguration message including a reconfigurationWithSync for handover to a multicast supporting cell and updating the mrb-Identity to the value mrb-IdentityNew }

***then*** { UE performs handover to the target cell and transmits an RRCReconfigurationComplete message and receives MBS data in the updated MRB }

}

14.2.4.3.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.300, clause 16.10.5.3.2; TS 38.331, clause 5.3.5. Unless otherwise stated these are Rel-17 requirements.

[TS 38.300, clause 16.10.5.3.2]

Mobility procedures for multicast reception allow the UE to continue receiving multicast service(s) via PTM or PTP in a new cell after handover.

During handover preparation phase, the source gNB transfers to the target gNB about the MBS multicast sessions the UE has joined in the UE context information. To support provision of local multicast service with location dependent content as specified in TS 23.247 [45], for each active multicast session, service area information per Area Session ID may be provided to the target gNB.

…

During handover execution, the MBS configuration decided at target gNB is sent to the UE via the source gNB within an RRC container as specified in TS 38.331 [12]. The PDCP entities for multicast MRBs in the UE can either be re-established or remain as it is. When the UE connects to the target gNB, the target gNB sends an indication that it is an MBS-supporting node to the SMF in the Path Switch Request message (Xn handover) or Handover Request Acknowledge message (NG handover).

[TS 23.247, clause 7.2.3.2]

This clause describes an Xn based handover with MBS traffic delivered to the UE at the source NG-RAN node supporting MBS.



Figure 7.2.3.2-1: Xn based handover with MBS Session

The following additions apply compared to clause 4.9.1.2 of TS 23.502 [6]:

**Before Handover:**

The source NG RAN has been provided with MBS Session Resource information (including the MBS Session ID and multicast QoS flow information) and the UE Context information contains a mapping information within the PDU Session Resource associated with the MBS Session Resource, e.g. including mapped unicast QoS Flows associated with the multicast QoS flow(s) of the MBS Session Resource.

**Handover Preparation Phase:**

At Xn handover, the target NG-RAN is provided with MBS session information by the source NG-RAN which causes:

…

‐ an MBS supporting target NG-RAN node to allocate to the UE shared NG-RAN resources according to the MBS session information. If the 5GC Shared MBS traffic delivery for the indicated multicast MBS Session has not been established in target NG-RAN, target NG-RAN triggers setup of the resources for the 5GC Shared MBS traffic delivery, see clause 7.2.1.4 for details.

1. Target NG-RAN to AMF: the target NG-RAN sends N2 Path Switch Request to AMF.

The target NG-RAN node, if MBS-capable, indicates it supports of MBS to SMF in N2 SM information. Per the received N2 SM information, the SMF knows whether the target NG-RAN node supports MBS and determines the delivery method, i.e. whether the 5GC Shared MBS traffic delivery or 5GC Individual MBS traffic delivery is used for MBS data transferring.

The SMF differentiates two cases:

Case A) The target NG-RAN supports MBS. Step 3 applies and step 4 is skipped.

3. SMF to UPF: The SMF invokes N4 Session Modification procedure with the UPF (PSA) only for unicast PDU Session.

…

The details of how to perform data forwarding refers to clause 7.2.3.5.

5. SMF to AMF: The SMF responds to AMF through Nsmf\_PDUSession\_UpdateSMContext response.

6. AMF to target NG-RAN: The AMF sends the path switch Ack to target NG-RAN.

[TS 38.331, clause 5.3.5.6.7]

The UE shall for each element in the order of entry in the list *mrb-ToAddModList*:

1> if *mrb-Identity* value included in the *mrb-ToAddModList* is part of the UE configuration:

2> if *mrb-Identity* value included in the *mrb-ToAddModList* for which *mrb-IdentityNew* is included (i.e., multicast MRB ID change):

3> update the *mrb-Identity* to the value *mrb-IdentityNew*;

14.2.4.3.1.3 Test description

14.2.4.3.1.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 is the Serving cell and NR Cell 2 is the intra-frequency neighbour cell of NR Cell 1.

- NR Cell 1 and NR Cell 2 are Multicast-supporting cells.

- System information combination NR-2 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cells.

UE:

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

Preamble:

- The UE is in state 1N-A on NR Cell 1 (serving cell) according to TS 38.508-1 [4] Table 4.4A.2-1 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.2.4.3.1.3.2 Test procedure sequence

Tables 14.2.4.3.1.3.2-1 and 14.2.4.3.1.3.2-2 illustrate the downlink power levels to be applied for NR Cell 1 and NR Cell 3 at various time instants of the test execution. Row marked "T0" denotes the conditions after the preamble, while the configuration marked "T1", are applied at the point indicated in the Main behaviour description in Table 14.2.4.3.1.3.2-3.

Table 14.2.4.3.1.3.2-1: Power levels in FR1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 3 | Remark |
| T0 | SS/PBCH SSS EPRE | dBm/SCS | -88 | -91 |  |
| T1 | SS/PBCH SSS EPRE | dBm/SCS | -91 | -88 |  |

Table 14.2.4.3.1.3.2-2: Power levels in FR2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR  Cell 1 | NR  Cell 3 | Remark |
| T0 | SS/PBCH SSS EPRE | dBm/ SCS | FFS | FFS |  |
| T1 | SS/PBCH SSS EPRE | dBm/ SCS | FFS | FFS |  |

Table 14.2.4.3.1.3.2-3: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2a1-2a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 3 | The SS changes the power level setting according to the row "T1". | - | - | - | - |
| 4 | The SS transmits an *RRCReconfiguration* message to order the UE to perform intra-frequency handover to NR Cell 2 | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 5 | Check: Does the UE transmit RRCReconfigurationComplete message in NR Cell 2? | --> | NR RRC: *RRCReconfigurationComplete* | 1 | P |
| 6 | The SS transmits an MBS Packet on Multicast MRB ID 1. | <-- | MBS Packet. | - | - |
| 7 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 8 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 9 | Check: Is the number of reported MBS Packets received on the MRB in step 8 equal to 1? | - | - | 1 | P |
| 10 | The SS changes the power level setting according to the row "T0". | - | - | - | - |
| 11 | The SS transmits an *RRCReconfiguration* message to order the UE to perform intra-frequency handover to NR Cell 1 and update the mrb-Identity to the value mrb-IdentityNew. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 12 | Check: Does the UE transmit RRCReconfigurationComplete message in NR Cell 1? | --> | NR RRC: *RRCReconfigurationComplete* | 2 | P |
| 13 | The SS transmits an OPEN UE TEST LOOP message. | <-- | NR RRC: *DLInformationTransfer*  TC: OPEN UE TEST LOOP | - | - |
| 14 | The UE transmits an OPEN UE TEST LOOP COMPLETE message. | --> | NR RRC: *ULInformationTransfer*  TC: OPEN UE TEST LOOP COMPLETE | - | - |
| 15a1-15a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 16 | The SS transmits an MBS Packet on Multicast MRB ID 2. | <-- | MBS Packet. | - | - |
| 17 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 18 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 19 | Check: Is the number of reported MBS Packets received on the MRB in step 18 equal to 1? | - | - | 2 | P |

14.2.4.3.1.3.3 Specific message contents

Table 14.2.4.3.1.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.4.3.1.3.2-3)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.4.3.1.3.3-2: *RRCReconfiguration* (step 4, Table 14.2.4.3.1.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.8.1-1A with condition RBConfig\_KeyChange | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.4.3.1.3.3-3 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.4.3.1.3.3-4 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.3.1.3.3-3: *RadioBearerConfig* (Table 14.2.4.3.1.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 with conditions SRB\_NR\_PDCP and Re-establish\_PDCP | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod { | n entries | n is the number of DRBs established before handover |  |
| DRB-ToAddMod[k, k=1..n] SEQUENCE { |  | entry [k, k=1..n] |  |
| cnAssociation | Not present |  |  |
| drb-Identity | DRB-Identity with condition DRBk |  |  |
| reestablishPDCP | true |  |  |
| pdcp-Config | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | Not present |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=1 |  |
| reestablishPDCP-r17 | true |  |  |
| pdcp-Config-r17 | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.1.3.3-4: *CellGroupConfig* (Table 14.2.4.3.1.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 with condition PCell\_change and UM\_PTM | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | n+3 entries | n is the number of DRBs established before re-establishment |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with condition SRB1 and Re-establish\_RLC | entry 1 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig with condition SRB2 and Re-establish\_RLC | entry 2 |  |
| RLC-BearerConfig[k+2, k=1..n] | RLC-BearerConfig with condition DRBk and Re-establish\_RLC | entry [k+2, k=1..n] |  |
| RLC-BearerConfig[n+3] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm and Re-establish\_RLC | entry n+3  m=1 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.1.3.3-5: CLOSE UE TEST LOOP (step 15a1, Table 14.2.4.3.1.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB | | | |
| Information Element | Value/remark | Comment | Condition |
| UE test loop mode C LB setup |  |  |  |
| MRB ID | ‘ 0 0 0 0 0 0 0 0  0 0 0 0 0 0 0 0  1 0 0 0 0 0 0 0 ’B | MRB-Identity is 2 |  |

Table 14.2.4.3.1.3.3-6: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 7 and step 12, Table 14.2.4.3.1.3.2-3)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.4.3.1.3.3-7: *RRCReconfiguration* (step 11, Table 14.2.4.3.1.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.8.1-1A with condition RBConfig\_KeyChange | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.4.3.1.3.3-8 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.4.3.1.3.3-9 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.3.1.3.3-8: *RadioBearerConfig* (Table 14.2.4.3.1.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 with conditions SRB\_NR\_PDCP and Re-establish\_PDCP | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod { | n entries | n is the number of DRBs established before handover |  |
| DRB-ToAddMod[k, k=1..n] SEQUENCE { |  | entry [k, k=1..n] |  |
| cnAssociation | Not present |  |  |
| drb-Identity | DRB-Identity with condition DRBk |  |  |
| reestablishPDCP | true |  |  |
| pdcp-Config | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | Not present |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=1 |  |
| mrb-IdentityNew-r17 | MRB-Identity with condition MRBm | m=2 |  |
| reestablishPDCP-r17 | true |  |  |
| pdcp-Config-r17 | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.1.3.3-9: *CellGroupConfig* (Table 14.2.4.3.1.3.3-7)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 with condition PCell\_change and UM\_PTM | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | n+3 entries | n is the number of DRBs established before re-establishment |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with condition SRB1 and Re-establish\_RLC | entry 1 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig with condition SRB2 and Re-establish\_RLC | entry 2 |  |
| RLC-BearerConfig[k+2, k=1..n] | RLC-BearerConfig with condition DRBk and Re-establish\_RLC | entry [k+2, k=1..n] |  |
| RLC-BearerConfig[n+3] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm | entry n+3  m=2 |  |
| } |  |  |  |
| } |  |  |  |

##### 14.2.4.3.2 MBS Multicast / RRC / Handover between multicast supporting cell / Failure/ Re-establishment successful

14.2.4.3.2.1 Test Purpose (TP)

(1)

***with*** { UE in NR RRC\_CONNECTED state and UE has joined one MBS multicast session and having received an RRCReconfiguration message including a reconfigurationWithSync for handover to the target cell }

ensure that {

***when*** { UE detects handover failure and the initial cell is selectable }

***then*** { UE performs an RRCReestablishment procedure on the source cell }

}

(2)

***with*** { UE detects handover failure and having performed an RRCReestablishment procedure }

ensure that {

***when*** { UE receives first RRCReconfiguration message }

***then*** { UE transmits an RRCReconfigurationComplete message and resumes multicast MRB }

}

14.2.4.3.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.331, clauses 5.3.5.3, 5.3.5.8.3 and 5.3.7.1. Unless otherwise stated these are Rel-17 requirements.

[TS 38.331, clause 5.3.5.3]

1> else(*RRCReconfiguration* was received via SRB1):

…

2> if this is the first *RRCReconfiguration* message after successful completion of the RRC re-establishment procedure:

3> resume SRB2, SRB4, DRBs, multicast MRB, and BH RLC channels for IAB-MT, and Uu Relay RLC channels for L2 U2N Relay UE, that are suspended;

[TS 38.331, clause 5.3.5.8.3]

The UE shall:

1> if T304 of the MCG expires; or

1> if T420 expires; or,

1> if the target L2 U2N Relay UE (i.e., the UE indicated by *targetRelayUE-Identity* in the received *RRCReconfiguration* message containing *reconfigurationWithSync* indicating path switch as specified in 5.3.5.5.2) changes its serving PCell before path switch:

2> release dedicated preambles provided in *rach-ConfigDedicated* if configured;

2> release dedicated msgA PUSCH resources provided in *rach-ConfigDedicated* if configured;

2> if any DAPS bearer is configured, and radio link failure is not detected in the source PCell, according to clause 5.3.10.3:

…

2> else:

3> revert back to the UE configuration used in the source PCell;

3> if the associated T304 was not initiated upon cell selection performed while timer T311 was running, as defined in clause 5.3.7.3:

4> store the handover failure information in *VarRLF-Report* as described in the clause 5.3.10.5;

3> initiate the connection re-establishment procedure as specified in clause 5.3.7.

NOTE 1: In the context above, "the UE configuration" includes state variables and parameters of each radio bearer.

[TS 38.331, clause 5.3.7.1]

Upon initiation of the procedure, the UE shall:

1> stop timer T310, if running;

1> stop timer T312, if running;

1> stop timer T304, if running;

1> start timer T311;

1> stop timer T316, if running;

1> if UE is not configured with *attemptCondReconfig*:

2> reset MAC;

2> release *spCellConfig*, if configured;

2> suspend all RBs, and BH RLC channels for IAB-MT, and Uu Relay RLC channels for L2 U2N Relay UE, except SRB0 and broadcast MRBs;

14.2.4.3.2.3 Test description

14.2.4.3.2.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 is the Serving cell and NR Cell 2 is the intra-frequency neighbour cell of NR Cell 1.

- NR Cell 1 and NR Cell 2 are Multicast-supporting cells.

- System information combination NR-2 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cells.

UE:

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

Preamble:

- The UE is in state 1N-A on NR Cell 1 (serving cell) according to TS 38.508-1 [4] Table 4.4A.2-1 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.2.4.3.2.3.2 Test procedure sequence

Tables 14.2.4.3.2.3.2-1 and 14.2.4.3.2.3.2-2 illustrate the downlink power levels to be applied for NR Cell 1 and NR Cell 2 at various time instants of the test execution. Row marked "T0" denotes the conditions after the preamble, while the configuration marked "T1", are applied at the point indicated in the Main behaviour description in Table 14.2.4.3.2.3.2-3.

Table 14.2.4.3.2.3.2-1: Time instances of cell power level and parameter changes for FR1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 2 | Remark |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | -88 | -94 |  |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | -88 | -88 |  |

Table 14.2.4.3.2.3.2-2: Time instances of cell power level and parameter changes for FR2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 2 | Remark |
| T0 | SS/PBCH  SSS EPRE | dBm/SCS | FFS | FFS |  |
| T1 | SS/PBCH  SSS EPRE | dBm/SCS | FFS | FFS |  |

Table 14.2.4.3.2.3.2-3: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2a1-2a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 3 | The SS changes the power level setting according to the row "T1". | - | - | - | - |
| 4 | The SS transmits an *RRCReconfiguration* message to order the UE to perform inter-frequency handover to NR Cell 2 | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 5 | EXCEPTION: In parallel to the events  described in step 6 the steps specified in Table  14.2.4.3.2.3.2-4 should take place. | - | - | - | - |
| 6 | The SS changes the power level setting according to the row "T0". | - | - | - | - |
| 7 | Check: Does the UE transmit an RRCReestablishmentRequest message on NR Cell 1? | --> | NR RRC: *RRCReestablishmentRequest* | 1 | P |
| 8 | The SS transmits an RRCReestablishment message to resume SRB1 operation on NR Cell 1. | <-- | NR RRC: *RRCReestablishment* | - | - |
| 9 | The UE transmit an  RRCReestablishmentComplete message using the security key derived from the nextHopChainingCount on NR Cell 1? | --> | NR RRC: *RRCReestablishmentComplete* | - | - |
| 10 | The SS transmits an RRCReconfiguration message to resume suspended MRB on NR Cell 1. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 11 | Check: Does the UE transmit an *RRCReconfigurationComplete* message on NR Cell 1? | --> | NR RRC: *RRCReconfigurationComplete* | 2 | P |
| 12 | The SS transmits a MBS Packet on Multicast MRB. | <-- | MBS Packet. | - | - |
| 13 | The SS transmits an UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 14 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 15 | Check: Is the number of reported MBS Packets received on the MRB in step 14 equal to 1? | - | - | 2 | P |

Table 14.2.4.3.2.3.2-4: Parallel behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| - | EXCEPTION: The steps 1 and 2 below are repeated for the duration of T304. | - | *-* | - | - |
| 1 | The UE attempts to perform the handover using MAC Random Access Preamble on NR Cell 2. | - | *-* | - | - |
| 2 | The SS does not respond. | - | *-* | - | - |

14.2.4.3.2.3.3 Specific message contents

Table 14.2.4.3.2.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.4.3.2.3.2-3)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.4.3.2.3.3-2: *RRCReconfiguration* (step 4, Table 14.2.4.3.2.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.8.1-1A with condition RBConfig\_KeyChange | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.4.3.2.3.3-3 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.4.3.2.3.3-4 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.3.2.3.3-3: *RadioBearerConfig* (Table 14.2.4.3.2.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 with conditions SRB\_NR\_PDCP and Re-establish\_PDCP | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod { | n entries | n is the number of DRBs established before handover |  |
| DRB-ToAddMod[k, k=1..n] SEQUENCE { |  | entry [k, k=1..n] |  |
| cnAssociation | Not present |  |  |
| drb-Identity | DRB-Identity with condition DRBk |  |  |
| reestablishPDCP | true |  |  |
| pdcp-Config | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | Not present |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=1 |  |
| reestablishPDCP-r17 | true |  |  |
| pdcp-Config-r17 | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.2.3.3-4: *CellGroupConfig* (Table 14.2.4.3.2.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 with condition PCell\_change and UM\_PTM | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | n+3 entries | n is the number of DRBs established before re-establishment |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with condition SRB1 and Re-establish\_RLC | entry 1 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig with condition SRB2 and Re-establish\_RLC | entry 2 |  |
| RLC-BearerConfig[k+2, k=1..n] | RLC-BearerConfig with condition DRBk and Re-establish\_RLC | entry [k+2, k=1..n] |  |
| RLC-BearerConfig[n+3] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm and Re-establish\_RLC | entry n+3  m=1 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.2.3.3-5: *RRCReestablishmentRequest* (step 7, Table 14.2.4.3.2.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1, Table 4.6.1-12 | | | |
| Information Element | Value/remark | Comment | Condition |
| RRCReestablishmentRequest ::= SEQUENCE { |  |  |  |
| ue-Identity SEQUENCE { |  |  |  |
| c-RNTI | the value of the C-RNTI of the UE |  |  |
| physCellId | PhysicalCellIdentity of NR Cell 1 |  |  |
| shortMAC-I | The same value as the 16 least significant bits of the MAC-I value  calculated by SS. |  |  |
| } |  |  |  |
| reestablishmentCause | handoverFailure |  |  |
| } |  |  |  |

Table 14.2.4.3.2.3.3-6: *RRCReestablishment* (step 8, Table 14.2.4.3.2.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1, Table 4.6.1-10 | | | |
| Information Element | Value/remark | Comment | Condition |
| RRCReestablishment ::= SEQUENCE { |  |  |  |
| criticalExtensions CHOICE { |  |  |  |
| rrcReestablishment SEQUENCE { |  |  |  |
| nextHopChainingCount | 2 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.2.3.3-7: *RRCReconfiguration* (step 10, Table 14.2.4.3.2.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1[4], table 4.6.1-13 with condition REEST | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.4.3.2.3.3-8 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.4.3.2.3.3-9 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.3.2.3.3-8: *RadioBearerConfig* (Table 14.2.4.3.2.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 with conditions REEST | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| srb-ToAddModList SEQUENCE (SIZE (1..2)) OF SRB-ToAddMod { | 1 entry |  |  |
| SRB-ToAddMod[1] SEQUENCE { |  | entry 1 |  |
| srb-Identity | SRB-Identity with condition SRB2 |  |  |
| reestablishPDCP | true |  |  |
| } |  |  |  |
| } |  |  |  |
| drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod { | n entries | n is the number of DRBs established before re-establishment |  |
| DRB-ToAddMod[k, k=1..n] SEQUENCE { |  | entry [k, k=1..n] |  |
| cnAssociation | Not present |  |  |
| drb-Identity | DRB-Identity with condition DRBk |  |  |
| reestablishPDCP | true |  |  |
| pdcp-Config | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | Not present |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=1 |  |
| reestablishPDCP-r17 | true |  |  |
| pdcp-Config-r17 | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.2.3.3-9: *CellGroupConfig* (Table 14.2.4.3.2.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 with condition UM\_PTM | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | n+3 entries | n is the number of DRBs established before re-establishment |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with condition SRB1 | entry 1 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig with condition SRB2 and Re-establish\_RLC | entry 2 |  |
| RLC-BearerConfig[k+2, k=1..n] | RLC-BearerConfig with condition DRBk and Re-establish\_RLC | entry [k+2, k=1..n] |  |
| RLC-BearerConfig[n+3] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm and Re-establish\_RLC | entry n+3  m=1 |  |
| } |  |  |  |
| } |  |  |  |

##### 14.2.4.3.3 MBS Multicast/ RRC/ Handover between Multicast-supporting cell and Multicast non-supporting cell / Success

14.2.4.3.3.1 Test Purpose (TP)

(1)

***with*** { UE in NR RRC\_CONNECTED state and UE has joined one MBS multicast session and receives MBS data in MRB }

ensure that {

***when*** { UE receives an RRCReconfiguration message to switch the MBS data transmission from the MRB to DRB }

***then*** { UE transmits an RRCReconfigurationComplete }

}

(2)

***with*** { UE in NR RRC\_CONNECTED state and UE has switched to receive MBS data in DRB }

ensure that {

***when*** { UE receives an RRCReconfiguration message including a reconfigurationWithSync for handover to a multicast non-supporting cell }

***then*** { UE performs handover to the target cell and transmits an RRCReconfigurationComplete message }

}

(3)

***with*** { UE in NR RRC\_CONNECTED state and UE has joined one MBS multicast session and configured to receive MBS data in DRB }

ensure that {

***when*** { UE receives an RRCReconfiguration message including a reconfigurationWithSync for handover to a multicast supporting cell }

***then*** { UE performs handover to the target cell and transmits an RRCReconfigurationComplete message and successfully established MRB and receives MBS data in MRB }

}

(4)

***with*** { UE in NR RRC\_CONNECTED state and UE has joined one MBS multicast session and receives MBS data in MRB }

ensure that {

***when*** { UE receives an RRCReconfiguration message including a reconfigurationWithSync and full configuration for handover to a multicast non-supporting cell }

***then*** { UE performs handover to the target cell and transmits an RRCReconfigurationComplete message }

}

14.2.4.3.3.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.300, clause 16.10.5.3.3; TS 38.331, clause 5.3.5.11; TS 23.247, clauses 7.2.3.2, 7.2.3.4 and 7.2.3.5. Unless otherwise stated these are Rel-17 requirements.

[TS 38.300, clause 16.10.5.3.3]

During an MBS multicast session, at mobility from an MBS-supporting cell to an MBS non-supporting cell, the target gNB sets up PDU Session Resources mapped to the MBS multicast Session. The 5GC infers from the absence of an "MBS-support" indication from gNB in the Path Switch Request message (Xn handover) or Handover Request Acknowledge message (NG handover) that MBS multicast data packets delivery has to be switched to 5GC individual MBS traffic delivery as specified in TS 23.247 [45]. If data forwarding is applied, the source gNB infers from the handover preparation response message that the target gNB does not support MBS and changes the QFI(s) in the forwarded packets to the associated PDU Session QFI(s) if respective mapping information is available. The source gNB may be aware that the target gNB is non-MBS supporting already before Handover Preparation.

For mobility from MBS non-supporting cell to MBS-supporting cell, the existing Xn/NG handover procedures apply. The 5GC infers from the presence of the "MBS-support" indicator from gNB in the Path Switch Request message (Xn handover) or in the Handover Request Acknowledge message (NG handover) that MBS multicast data packets delivery can be switched from 5GC Individual MBS traffic delivery to 5GC Shared MBS traffic delivery. After Xn handover, the SMF triggers switching MBS multicast data packets delivery from 5GC Individual to 5GC Shared MBS traffic delivery by providing MBS Session IDs joined by the UE to the target gNB by means of the PDU Session Resource Modification procedure. And for NG handover, the SMF provides the MBS Session IDs joined by the UE to the target gNB by means of NGAP Handover Request. Minimization of data loss and duplication avoidance may be applied by means of identical MBS QFI SNs received over the shared NG-U tunnel against those received over unicast NG-U tunnels or forwarding tunnels.

Mobility from a multicast-supporting cell to a multicast non-supporting cell can be achieved by switching the MRB to a DRB in the source gNB before a handover.

NOTE: A UE may be handed over to a target gNB not supporting MBS without prior reconfiguration from MRB to the DRB in the source gNB. In this case, the AS configuration may not be comprehended by the target gNB causing full configuration.

[TS 38.331, clause 5.3.5.11]

The UE shall:

1> release/ clear all current dedicated radio configurations except for the following:

- the MCG C-RNTI;

- the AS security configurations associated with the master key;

- the SRB1/SRB2 configurations and DRB/multicast MRB configurations as configured by *radioBearerConfig* or *radioBearerConfig2*.

…

NOTE 1b: To establish the RLC bearer of SRB(s) after release due to *fullConfig*, the network can include the *srb-Identity* within *srb-ToAddModList* (i.e. the UE applies RLC default configuration) and/or provide *rlc-BearerToAddModList* of concerned SRB(s) explicitly.

- the logged measurement configuration;

1> if the *spCellConfig* in the *masterCellGroup* includes the *reconfigurationWithSync*:

2> release/ clear all current common radio configurations;

2> if *sl-PathSwitchConfig* was included in *reconfigurationWithSync*:

…

2> else:

3> use the default values specified in 9.2.3 for timers T310, T311 and constants N310, N311;

1> else (full configuration after re-establishment or during RRC resume):

…

1> if the UE is acting as L2 U2N Remote UE at the target side during reconfiguration with sync, or after re-establishment, or during RRC resume:

…

1> else:

2> apply the default L1 parameter values as specified in corresponding physical layer specifications except for the following:

- parameters for which values are provided in *SIB1*;

2> apply the default MAC Cell Group configuration as specified in 9.2.2;

2> for each *srb-Identity* value included in the *srb-ToAddModList* (SRB reconfiguration):

3> establish an RLC entity for the corresponding SRB;

3> apply the default SRB configuration defined in 9.2.1 for the corresponding SRB;

NOTE 2: This is to get the SRBs (SRB1 and SRB2 for reconfiguration with sync and SRB2 for resume and reconfiguration after re-establishment) to a known state from which the reconfiguration message can do further configuration.

1> for each *pdu-Session* that is part of the current UE configuration:

2> release the SDAP entity (clause 5.1.2 in TS 37.324 [24]);

2> release each DRB associated to the *pdu-Session* as specified in 5.3.5.6.4;

NOTE 3: This will retain the *pdu-Session* but remove the DRBs including *drb-identity* of these bearers from the current UE configuration. Setup of the DRBs within the AS is described in clause 5.3.5.6.5 using the new configuration. The *pdu-Session* acts as the anchor for associating the released and re-setup DRB. In the AS the DRB re-setup is equivalent with a new DRB setup (including new PDCP and logical channel configurations).

1> for each *mbs-SessionId* that is part of the current UE configuration and associated to a multicast MRB:

2> release the SDAP entity (clause 5.1.2 in TS 37.324 [24]);

2> release each multicast MRB associated to the *mbs-SessionId* as specified in 5.3.5.6.6;

NOTE 4: This will retain the *mbs-SessionId* but remove the multicast MRBs including *mrb-identity* of these bearers from the current UE configuration. Setup of the multicast MRBs within the AS is described in clause 5.3.5.6.7 using the new configuration. The *mbs-SessionId* acts as the anchor for associating the released and re-setup multicast MRB. In the AS the multicast MRB re-setup is equivalent with a new multicast MRB setup (including new PDCP and logical channel configurations).

1> for each *pdu-Session* that is part of the current UE configuration but not added with same *pdu-Session* in the *drb-ToAddModList*:

2> if the procedure was triggered due to reconfiguration with sync:

3> indicate the release of the user plane resources for the *pdu-Session* to upper layers after successful reconfiguration with sync;

2> else:

3> indicate the release of the user plane resources for the *pdu-Session* to upper layers immediately;

1> for each *mbs-SessionId* that is part of the current UE configuration but not added with the same *mbs-SessionId* in the *mrb-ToAddModList*:

2> if the procedure was triggered due to reconfiguration with sync:

3> indicate the release of the user plane resources for the *mbs-SessionId* to upper layers after successful reconfiguration with sync;

2> else:

3> indicate the release of the user plane resources for the *mbs-SessionId* to upper layers immediately.

[TS 23.247, clause 7.2.3.2]

This clause describes an Xn based handover with MBS traffic delivered to the UE at the source NG-RAN node supporting MBS.



Figure 7.2.3.2-1: Xn based handover with MBS Session

The following additions apply compared to clause 4.9.1.2 of TS 23.502 [6]:

**Before Handover:**

The source NG RAN has been provided with MBS Session Resource information (including the MBS Session ID and multicast QoS flow information) and the UE Context information contains a mapping information within the PDU Session Resource associated with the MBS Session Resource, e.g. including mapped unicast QoS Flows associated with the multicast QoS flow(s) of the MBS Session Resource.

**Handover Preparation Phase:**

At Xn handover, the target NG-RAN is provided with MBS session information by the source NG-RAN which causes:

- an MBS non-supporting target NG-RAN node to prepare the unicast resources according to associated QoS flow(s) information.

…

1. Target NG-RAN to AMF: the target NG-RAN sends N2 Path Switch Request to AMF.

The target NG-RAN node, if MBS-capable, indicates it supports of MBS to SMF in N2 SM information. Per the received N2 SM information, the SMF knows whether the target NG-RAN node supports MBS and determines the delivery method, i.e. whether the 5GC Shared MBS traffic delivery or 5GC Individual MBS traffic delivery is used for MBS data transferring.

The SMF differentiates two cases:

...

Case B) The target NG-RAN does not support MBS. Step 3 is skipped, step 4 applies.

4. This steps is same as described in step 11 of clause 7.2.1.3.

The details of how to perform data forwarding refers to clause 7.2.3.5.

5. SMF to AMF: The SMF responds to AMF through Nsmf\_PDUSession\_UpdateSMContext response.

6. AMF to target NG-RAN: The AMF sends the path switch Ack to target NG-RAN.

[TS 23.247, clause 7.2.3.4]

When the UE has joined the multicast MBS session and the source NG-RAN node does not support MBS, the 5GC Individual MBS traffic delivery method is used for the multicast MBS session data delivery. When the Xn/N2 based handover procedure is triggered, the UE is handed over to the target NG-RAN node per existing Xn /N2 based handover procedure defined in TS 23.502 [6].

[TS 23.247, clause 7.2.3.5]

To minimize data loss of a multicast MBS session during the handover procedure the following functions apply:

…

- If source NG-RAN node supports MBS and target NG-RAN node does not support MBS, the multicast MBS session data is forwarded from source NG-RAN node to target NG-RAN node via data forwarding tunnels allocated by the target NG-RAN node associated with the mapped unicast QoS flows within the associated PDU session according to the data forwarding mechanism defined in TS 23.502 [6].

- If source NG-RAN node does not support MBS and target NG-RAN node supports MBS, for Xn/N2 handover, the multicast MBS session data is forwarded to the target NG-RAN node as the data forwarding mechanism defined in TS 23.502 [6]. Directly after the handover the target NG-RAN node thus still receives MBS session data via individual delivery. The UPF forwards multicast MBS session data within the associated PDU session which includes the sequence number received from the MB-UPF to the target NG-RAN node. Shared delivery of MBS data towards the target RAN node is being established as described in clause 7.2.1.4 and the target RAN node receives sequence numbers as part of the MBS data with sequence numbers via shared delivery.

14.2.4.3.3.3 Test description

14.2.4.3.3.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 is the Serving cell and NR Cell 3 is the inter-frequency neighbour cell of NR Cell 1.

- NR Cell 1 is a Multicast-supporting cell and NR Cell 3 is a Multicast non-supporting cell.

- System information combination NR-4 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cells.

UE:

- The UE is made interested in receiving MBS Multicast service with MBS service ID '000101'H.

Preamble:

- The UE is in state 1N-A on NR Cell 1 (serving cell) according to TS 38.508-1 [4] Table 4.4A.2-1 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.2.4.3.3.3.2 Test procedure sequence

Tables 14.2.4.3.3.3.2-1 and 14.2.4.3.3.3.2-2 illustrate the downlink power levels to be applied for NR Cell 1 and NR Cell 3 at various time instants of the test execution. Row marked "T0" denotes the conditions after the preamble, while the configuration marked "T1", are applied at the point indicated in the Main behaviour description in Table 14.2.4.3.3.3.2-3.

Table 14.2.4.3.3.3.2-1: Power levels in FR1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR Cell 1 | NR Cell 3 | Remark |
| T0 | SS/PBCH SSS EPRE | dBm/SCS | -88 | -91 |  |
| T1 | SS/PBCH SSS EPRE | dBm/SCS | -91 | -88 |  |

Table 14.2.4.3.3.3.2-2: Power levels in FR2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | NR  Cell 1 | NR  Cell 3 | Remark |
| T0 | SS/PBCH SSS EPRE | dBm/ SCS | FFS | FFS |  |
| T1 | SS/PBCH SSS EPRE | dBm/ SCS | FFS | FFS |  |

Table 14.2.4.3.3.3.2-3: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in MBS Multicast session. | - | - | - | - |
| 2 | The SS changes the power level setting according to the row "T1". | - | - | - | - |
| 3 | The SS transmits an *RRCReconfiguration* message to swtich MRB to DRB | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 4 | Check: Does the UE transmit RRCReconfigurationComplete message in NR Cell 1? | --> | NR RRC: *RRCReconfigurationComplete* | 1 | P |
| 5 | The SS transmits an *RRCReconfiguration* message to order the UE to perform inter-frequency handover to NR Cell 3 | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 6 | Check: Does the UE transmit RRCReconfigurationComplete message in NR Cell 3? | --> | NR RRC: *RRCReconfigurationComplete* | 2 | P |
| 7 | The SS changes the power level setting according to the row "T0". | - | - | - | - |
| 8 | The SS transmits an *RRCReconfiguration* message to order the UE to perform inter-frequency handover to NR Cell 1. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 9 | Check: Does the UE transmit RRCReconfigurationComplete message in NR Cell 1? | --> | NR RRC: *RRCReconfigurationComplete* | 3 | P |
| 10 | The SS transmits an *RRCReconfiguration* message to release the DRB used to receive MBS packet. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 11 | Check: Does the UE transmit RRCReconfigurationComplete message in NR Cell 1? | --> | NR RRC: *RRCReconfigurationComplete* | 3 | P |
| 12a1-12a2 | Steps 9a1 to 9a2 of the NR RRC\_CONNECTED procedure in TS 38.508-1 Table 4.5.4.2-3 are executed with condition UE TEST LOOP MODE C and Multicast MRB. | - | - | - | - |
| 13 | The SS transmits a MBS Packet on Multicast MRB. | <-- | MBS Packet. | - | - |
| 14 | The SS transmits a UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST message. | <-- | NR RRC: *DLInformationTransfer*  TC: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST | - | - |
| 15 | UE responds with UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE. | --> | NR RRC: *ULInformationTransfer*  TC:UE TEST LOOP MODE C MBMS PACKET COUNTER RESPONSE | - | - |
| 16 | Check: Is the number of reported MBS Packets received on the MRB in step 15 equal to 1? | - | - | 3 | P |
| 17 | The SS changes the power level setting according to the row "T1". | - | - | - | - |
| 18 | The SS transmits an *RRCReconfiguration* message including full configuration to order the UE to perform inter-frequency handover to NR Cell 3. | <-- | NR RRC: *RRCReconfiguration* | - | - |
| 19 | Check: Does the UE transmit RRCReconfigurationComplete message in NR Cell 3? | --> | NR RRC: *RRCReconfigurationComplete* | 4 | P |

14.2.4.3.3.3.3 Specific message contents

Table 14.2.4.3.3.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.4.3.3.3.2-3)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.4.3.3.3.3-2: *RRCReconfiguration* (step 3, Table 14.2.4.3.3.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.4.3.3.3.3-3 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.4.3.3.3.3-5 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.3.3.3.3-3: *RadioBearerConfig* (Table 14.2.4.3.3.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod { | 1 entry |  |  |
| DRB-ToAddMod[1] SEQUENCE { |  | entry 1 |  |
| cnAssociation CHOICE { |  |  |  |
| sdap-Config | SDAP-Config | Table 14.2.4.3.3.3.3-4 |  |
| } |  |  |  |
| drb-Identity | DRB-Identity using condition DRBn | n is chosen as the next available number higher than the number of DRB established in Step 1a10 or Step 1b10. |  |
| reestablishPDCP | Not present |  |  |
| recoverPDCP | Not present |  |  |
| pdcp-Config | PDCP-Config |  |  |
| } |  |  |  |
| } |  |  |  |
| mrb-ToReleaseList-r17 SEQUENCE (SIZE (1..maxMRB-r17)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-Identity-r17[1] | MRB-Identity with condition MRBm | entry 1  m=1 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.3.3.3-4: *SDAP-Config* (Table 14.2.4.3.3.3.3-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-161 | | | |
| Information Element | Value/remark | Comment | Condition |
| SDAP-Config ::= SEQUENCE { |  |  |  |
| pdu-Session | The same value as the PDU session ID IE in PDU SESSION ESTABLISHMENT ACCEPT in step 1a10 or step 1b10 | PDU session ID for the PDU session associated with MBS session. |  |
| sdap-HeaderDL | absent |  |  |
| sdap-HeaderUL | absent |  |  |
| defaultDRB | false |  |  |
| mappedQoS-FlowsToAdd | Not present | UL is not needed |  |
| } |  |  |  |

Table 14.2.4.3.3.3.3-5: *CellGroupConfig* (Table 14.2.4.3.3.3.3-2)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | 1 entry |  |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with conditions AM and DRBn | entry 1  n is set to the same value as for the radioBearerConfig in Table 14.2.4.3.3.3.3-3 |  |
| } |  |  |  |
| rlc-BearerToReleaseList SEQUENCE (SIZE(1..maxLC-ID)) OF LogicalChannelIdentity { | 1 entry |  |  |
| logicalChannelIdentity[1] | LogicalChannelIdentity with conditions PTM and MRBm | entry 1  m=1 |  |
| } |  |  |  |
| mac-CellGroupConfig | Not Present |  |  |
| physicalCellGroupConfig | Not Present |  |  |
| spCellConfig | Not Present |  |  |
| } |  |  |  |

Table 14.2.4.3.3.3.3-6: *RRCReconfiguration* (step 5, Table 14.2.4.3.3.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.8.1-1A with condition RBConfig\_KeyChange | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.4.3.3.3.3-7 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.4.3.3.3.3-8 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.3.3.3.3-7: *RadioBearerConfig* (Table 14.2.4.3.3.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 with conditions SRB\_NR\_PDCP and Re-establish\_PDCP | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod { | n entries | n is the number of DRBs established before handover |  |
| DRB-ToAddMod[k, k=1..n] SEQUENCE { |  | entry [k, k=1..n] |  |
| cnAssociation | Not present |  |  |
| drb-Identity | DRB-Identity with condition DRBk |  |  |
| reestablishPDCP | true |  |  |
| pdcp-Config | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.3.3.3-8: *CellGroupConfig* (Table 14.2.4.3.3.3.3-6)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 with condition PCell\_change | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | n+2 entries | n is the number of DRBs established before handover |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with condition SRB1 and Re-establish\_RLC | entry 1 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig with condition SRB2 and Re-establish\_RLC | entry 2 |  |
| RLC-BearerConfig[k+2, k=1..n] | RLC-BearerConfig with condition DRBk and Re-establish\_RLC | entry [k+2, k=1..n] |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.3.3.3-9: *RRCReconfiguration* (step 8, Table 14.2.4.3.3.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.8.1-1A with condition RBConfig\_KeyChange | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.4.3.3.3.3-10 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.4.3.3.3.3-11 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.3.3.3.3-10: *RadioBearerConfig* (Table 14.2.4.3.3.3.3-9)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 with conditions SRB\_NR\_PDCP and Re-establish\_PDCP | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod { | n entries | n is the number of DRBs established before handover |  |
| DRB-ToAddMod[k, k=1..n] SEQUENCE { |  | entry [k, k=1..n] |  |
| cnAssociation | Not present |  |  |
| drb-Identity | DRB-Identity with condition DRBk |  |  |
| reestablishPDCP | true |  |  |
| pdcp-Config | Not present |  |  |
| } |  |  |  |
| } |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 1 entry |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | TMGI |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=2 |  |
| pdcp-Config-r17 | PDCP-Config with condition MRB\_Initialization and UM\_MRB and MRBm | m=2 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.3.3.3-11: *CellGroupConfig* (Table 14.2.4.3.3.3.3-9)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 with condition PCell\_change | | | |
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | n+3 entries | n is the number of DRBs established before handover |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with condition SRB1 and Re-establish\_RLC | entry 1 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig with condition SRB2 and Re-establish\_RLC | entry 2 |  |
| RLC-BearerConfig[k+2, k=1..n] | RLC-BearerConfig with condition DRBk and Re-establish\_RLC | entry [k+2, k=1..n] |  |
| RLC-BearerConfig[n+3] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm | entry n+3  m=2 |  |
| } |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast |  |  |
| physicalCellGroupConfig | PhysicalCellGroupConfig |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig with condition MBS\_Multicast |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.3.3.3-12: *RRCReconfiguration* (step 10, Table 14.2.4.3.3.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.4.3.3.3.3-13 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.4.3.3.3.3-14 |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.3.3.3.3-13: *RadioBearerConfig* (Table 14.2.4.3.3.3.3-12)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 with conditions MRBm (m=2) and UM\_PTM | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| drb-ToReleaseList SEQUENCE (SIZE (1..maxDRB)) OF DRB-Identity { | 1 entry |  |  |
| DRB-Identity[1] | DRB-Identity of DRBn | entry 1  DRBn is the DRB established in Table 14.2.4.3.3.3.3-3 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.3.3.3-14: *CellGroupConfig* (Table 14.2.4.3.3.3.3-12)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 with conditions MRBm (m=2) and UM\_PTM | | | |
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToReleaseList SEQUENCE (SIZE(1..maxLC-ID)) OF LogicalChannelIdentity { | 1 entry |  |  |
| LogicalChannelIdentity [1] | LogicalChannelIdentity with condition DRBn | entry 1  DRBn is the DRB established in Table 14.2.4.3.3.3.3-3 |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.3.3.3-15: CLOSE UE TEST LOOP (step 10a1, Table 14.2.4.3.3.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB | | | |
| Information Element | Value/remark | Comment | Condition |
| UE test loop mode C LB setup |  |  |  |
| MRB ID | ‘ 0 0 0 0 0 0 0 0  0 0 0 0 0 0 0 0  1 0 0 0 0 0 0 0 ’B | MRB-Identity is 2 |  |

Table 14.2.4.3.3.3.3-16: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 12, Table 14.2.4.3.3.3.2-3)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.4.3.3.3.3-17: *RRCReconfiguration* (step 16, Table 14.2.4.3.3.3.2-3)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4] Table 4.8.1-1A with condition RBConfig\_KeyChange | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.4.3.3.3.3-18 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.4.3.3.3.3-19 |  |
| fullConfig | | true |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.4.3.3.3.3-18: *RadioBearerConfig* (Table 14.2.4.3.3.3.3-17)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 with conditions SRB\_NR\_PDCP and Re-establish\_PDCP | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod { | 2 entries |  |  |
| DRB-ToAddMod[1] SEQUENCE { |  | entry 1  Default DRB in the PDU session associated with MBS session. This DRB is established in step 1a10 or step 1b10 |  |
| cnAssociation CHOICE { |  |  |  |
| sdap-Config | SDAP-Config |  |  |
| } |  |  |  |
| drb-Identity | DRB-Identity using condition DRBn | n is same as the number of DRB established in step 1a10 or step 1b10. |  |
| reestablishPDCP | Not present |  |  |
| recoverPDCP | Not present |  |  |
| pdcp-Config | PDCP-Config |  |  |
| } |  |  |  |
| DRB-ToAddMod[2] SEQUENCE { |  | entry 2  Non-default DRB for the associated Qos flow mapped to MBS Qos flow. |  |
| cnAssociation CHOICE { |  |  |  |
| sdap-Config | SDAP-Config | Table 14.2.4.3.3.3.3-4 |  |
| } |  |  |  |
| drb-Identity | DRB-Identity using condition DRBn | n is chosen as the next available number higher than the number of DRB established in step 1a10 or step 1b10. |  |
| reestablishPDCP | Not present |  |  |
| recoverPDCP | Not present |  |  |
| pdcp-Config | PDCP-Config |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.4.3.3.3.3-19: *CellGroupConfig* (Table 14.2.4.3.3.3.3-17)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 with condition PCell\_change | | | |
| **Information Element** | **Value/remark** | **Comment** | **Condition** |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | 4 entries |  |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with conditions SRB1 | entry 1 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig with conditions SRB2 | entry 2 |  |
| RLC-BearerConfig[3] | RLC-BearerConfig with conditions AM and DRBn | entry 3  n is set to the same value as for DRB-ToAddMod[1] in Table 14.2.4.3.3.3.3-18 |  |
| RLC-BearerConfig[4] | RLC-BearerConfig with conditions AM and DRBn | entry 4  n is set to the same value as for DRB-ToAddMod[2] in Table 14.2.4.3.3.3.3-18 |  |
| } |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig |  |  |
| physicalCellGroupConfig | PhysicalCellGroupConfig |  |  |
| } |  |  |  |

### 14.2.5 MBS Multicast/ Session management

#### 14.2.5.1 MBS Multicast/ Session management / Network-requested PDU session modification

14.2.5.1.1 MBS Multicast/ Session management / Network-requested PDU session modification / Remove UE from multicast MBS session14.2.5.1.1.1 Test Purpose (TP)

(1)

***with*** { UE is in 5GMM-REGISTERED state and has joined two MBS multicast session associated with a PDU session. One MBS session Id is TMGI-1, and another MBS session Id is TMGI-2.}

ensure that {

***when*** { UE receives PDU SESSION MODIFICATION COMMAND message including Received MBS container IE with MBS decision setting to " Remove UE from multicast MBS session" and Rejection cause setting to "MBS session is released" for TMGI-1. }

***then*** { UE sends PDU SESSION MODIFICATION COMPLETE and UE shall consider the MBS session for TMGI-1 as released and MBS session for TMGI-2 is not released. }

}

14.2.5.1.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.501, clauses 5.6.2.2.1, 6.3.2.2 and 6.3.2.3. Unless otherwise stated these are Rel-17 requirements.

[TS 24.501, clause 6.3.2.2]

If:

a) the SMF wants to remove joined UE from one or more multicast MBS sessions; or

b) the network-requested PDU session modification procedure is triggered by a UE-requested PDU session modification procedure and the UE has included the Requested MBS container IE in the PDU SESSION MODIFICATION REQUEST message with the MBS operation set to "Leave multicast MBS session",

the SMF shall include the multicast MBS session IDs that the UE is removed from, if any, in the Received MBS container IE in the PDU SESSION MODIFICATION COMMAND message and shall set the MBS decision to "Remove UE from multicast MBS session" for each of those Received MBS information. The SMF may include the updated MBS service area in each of the Received MBS information, if any. The SMF may delete the QoS flows associated for the multicast by including the Authorized QoS flow descriptions IE in the PDU SESSION MODIFICATION COMMAND message. If the UE is removed from multicast MBS session due to the multicast MBS session release, the SMF shall set the Rejection cause to "MBS session is released". The SMF shall include the Rejection cause for each of the Received MBS information, if any, and set its value with the reason of removing the UE from the corresponding multicast MBS session.

[TS 24.501, clause 6.3.2.3]

If the PDU SESSION MODIFICATION COMMAND message includes the Received MBS container IE, for each of the Received MBS informations:

…

c) if the MBS decision is set to "Remove UE from multicast MBS session", the UE shall consider that it has successfully left the multicast MBS session, and if the received Rejection cause is set to "multicast MBS session is released", the UE shall consider the multicast MBS session as released. Then the UE shall indicate to lower layers to delete the stored TMGI;

[TS 24.501, clause 5.6.2.2.1]

If TMGI is used as paging identity and the TMGI matches with multicast MBS session which the has UE joined, the UE shall respond to the paging. Otherwise, the UE shall not respond to the paging.

14.2.5.1.1.3 Test description

14.2.5.1.1.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 is the Serving Cell.

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- UE is made interested in receiving MBS Multicast service with MBS Service ID ‘000101’H and ‘000102’H.

Preamble:

- The UE is in state 1N-A on NR Cell 1 (serving cell) according to TS 38.508-1 [4] Table 4.4A.2-1 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.2.5.1.1.3.2 Test procedure sequence

Table 14.2.5.1.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in two MBS Multicast session. One MBS session Id is TMGI-1, and another MBS session Id is TMGI-2. | - | - | - | - |
| 2 | The SS transmits an *RRCRelease* message | <-- | NR RRC: *RRCRelease* | - | - |
| 3-17 | Check: Does UE respond to paging with TMGI-1 and receive the MRB associated with TMGI-1 as specified in steps 1 to 15 of the procedure in TS 38.508-1[4] Table 4.9.38.2.2-1? | - | - | 1 | - |
| 18 | The SS transmits an OPEN UE TEST LOOP message. | <-- | NR RRC: *DLInformationTransfer*  TC: OPEN UE TEST LOOP | - | - |
| 19 | The UE transmits an OPEN UE TEST LOOP COMPLETE message. | --> | NR RRC: *ULInformationTransfer*  TC: OPEN UE TEST LOOP COMPLETE | - | - |
| 20 | The SS transmits an *RRCReconfiguration* message and a PDU SESSION MODIFICATION COMMAND to release MBS Session associated with TMGI-1. | <-- | NR RRC:  *RRCReconfiguration*  5GMM: DL NAS TRANSPORT  5GSM: PDU SESSION MODIFICATION COMMAND | - | - |
| - | EXCEPTION: Depending upon UE implementation, step 21 and 22 can occur in any order | - | - | - | - |
| 21 | The UE transmits an *RRCReconfigurationComplete* message. | --> | NR RRC:  *RRCReconfigurationComplete* | - | - |
| 22 | The UE transmits a PDU SESSION MODIFICATION COMPLETE message. | --> | NR RRC: *ULInformationTransfer*  5GMM: UL NAS TRANSPORT  5GSM: PDU SESSION MODIFICATION COMPLETE | 1 | P |
| 23 | The SS transmits an *RRCRelease* message | <-- | NR RRC: *RRCRelease* | - | - |
| 24 | The SS transmits a *Paging* message including TMGI-1. | <-- | NR RRC: *Paging* | - | - |
| 25 | Check: Does the UE transmit an *RRCSetupRequest* message within 10s? | --> | NR RRC: *RRCSetupRequest* | 1 | F |
| 26-40 | Check: Does UE respond to paging with TMGI-2 and receive the MRB associated with TMGI-2 as specified in steps 1 to 15 of the procedure in TS 38.508-1[4] Table 4.9.38.2.2-1? | - | - | 1 | - |

14.2.5.1.1.3.3 Specific message contents

Table 14.2.5.1.1.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.5.1.1.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.5.1.1.3.3-2:PDU SESSION MODIFICATION REQUEST (step 1a14, Table 14.2.5.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-7. | | | |
| Information Element | | Value/remark | Comment | Condition |
| Requested MBS container | |  |  |  |
| MBS session information | |  |  |  |
| MBS operation | | ‘01’B | Join MBS session |  |
| Type of MBS session ID | | Not checked |  |  |
| MBS session ID | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MBS session information | |  |  |  |
| MBS operation | | ‘01’B | Join MBS session |  |
| Type of MBS session ID | | Not checked |  |  |
| MBS session ID | |  | TMGI-2 |  |
| MBMS Service ID | | ‘000102’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |

Table 14.2.5.1.1.3.3-3:PDU SESSION MODIFICATION COMMAND (step 1a15, Table 14.2.5.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-9 | | | |
| Information Element | | Value/remark | Comment | Condition |
| Received MBS container | |  |  |  |
| Received MBS information | |  |  |  |
| Rejection cause | | ‘000’B | No additional information provided |  |
| MSAI | | ‘00’B | MBS service area not included |  |
| MD | | ‘010’B | MBS join is accepted |  |
| MSCI | | ‘0’B | MBS security container not included |  |
| MTI | | ‘00’B | No MBS timers included |  |
| IPAE | | ‘0’B | Source and destination IP address information not included |  |
| TMGI | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| Source IP address information | | Not present |  |  |
| Destination IP address information | | Not present |  |  |
| MBS service area | | Not present |  |  |
| MBS timers | | Not present |  |  |
| MBS security container | | Not present |  |  |
| Received MBS information | |  |  |  |
| Rejection cause | | ‘000’B | No additional information provided |  |
| MSAI | | ‘00’B | MBS service area not included |  |
| MD | | ‘010’B | MBS join is accepted |  |
| MSCI | | ‘0’B | MBS security container not included |  |
| MTI | | ‘00’B | No MBS timers included |  |
| IPAE | | ‘0’B | Source and destination IP address information not included |  |
| TMGI | |  | TMGI-2 |  |
| MBMS Service ID | | ‘000102’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| Source IP address information | | Not present |  |  |
| Destination IP address information | | Not present |  |  |
| MBS service area | | Not present |  |  |
| MBS timers | | Not present |  |  |
| MBS security container | | Not present |  |  |

Table 14.2.5.1.1.3.3-4: *RRCReconfiguration* (step 1a15, Table 14.2.5.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | m=1  Table 14.2.5.1.1.3.3-5 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | m=1  Table 14.2.5.1.1.3.3-6 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.5.1.1.3.3-5: *RadioBearerConfig* (Table 14.2.5.1.1.3.3-4)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 2 entries |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | TMGI with condition TMGI-1 | Table 14.2.5.1.1.3.3-7 |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=1 |  |
| pdcp-Config-r17 | PDCP-Config with condition MRB\_Initialization and UM\_MRB and MRBm | m=1 |  |
| } |  |  |  |
| MRB-ToAddMod-r17 [2] SEQUENCE { |  | entry 2 |  |
| mbs-SessionId-r17 | TMGI with condition TMGI-2 | Table 14.2.5.1.1.3.3-7 |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=2 |  |
| pdcp-Config-r17 | PDCP-Config with condition MRB\_Initialization and UM\_MRB and MRBm | m=2 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.5.1.1.3.3-6: *CellGroupConfig* (Table 14.2.5.1.1.3.3-4)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | 2 entries |  |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm | entry 1  m=1 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm | entry 2  m=2 |  |
| } |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast |  |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig with condition MBS\_Multicast |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.5.1.1.3.3-7: *TMGI* (Table 14.2.5.1.1.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.7-9 | | | |
| Information Element | Value/remark | Comment | Condition |
| TMGI-r17 ::= SEQUENCE { |  |  |  |
| plmn-Id-r17 CHOICE { |  |  |  |
| plmn-Index-r17 | 1 |  |  |
| } |  |  |  |
| serviceId-r17 | ‘000101’H | OCTET STRING (SIZE (3)) | TMGI-1 |
|  | ‘000102’H | OCTET STRING (SIZE (3)) | TMGI-2 |
| } |  |  |  |

Table 14.2.5.1.1.3.3-8:PDU SESSION ESTABLISHMENT REQUEST (step 1b9, Table 14.2.5.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-1. | | | |
| Information Element | | Value/remark | Comment | Condition |
| Requested MBS container | |  |  |  |
| MBS session information | |  |  |  |
| MBS operation | | ‘01’B | Join MBS session |  |
| Type of MBS session ID | | Not checked |  |  |
| MBS session ID | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MBS session information | |  |  |  |
| MBS operation | | ‘01’B | Join MBS session |  |
| Type of MBS session ID | | Not checked |  |  |
| MBS session ID | |  |  |  |
| MBMS Service ID | | ‘000101’H | TMGI-2 |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |

Table 14.2.5.1.1.3.3-9:PDU SESSION ESTABLISHMENT ACCEPT (step 1b10, Table 14.2.5.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-2. | | | |
| Information Element | | Value/remark | Comment | Condition |
| Received MBS container | |  |  |  |
| Received MBS information | |  |  |  |
| Rejection cause | | ‘000’B | No additional information provided |  |
| MSAI | | ‘00’B | MBS service area not included |  |
| MD | | ‘010’B | MBS join is accepted |  |
| MSCI | | ‘0’B | MBS security container not included |  |
| MTI | | ‘00’B | No MBS timers included |  |
| IPAE | | ‘0’B | Source and destination IP address information not included |  |
| TMGI | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| Source IP address information | | Not present |  |  |
| Destination IP address information | | Not present |  |  |
| MBS service area | | Not present |  |  |
| MBS timers | | Not present |  |  |
| MBS security container | | Not present |  |  |
| Received MBS information | |  |  |  |
| Rejection cause | | ‘000’B | No additional information provided |  |
| MSAI | | ‘00’B | MBS service area not included |  |
| MD | | ‘010’B | MBS join is accepted |  |
| MSCI | | ‘0’B | MBS security container not included |  |
| MTI | | ‘00’B | No MBS timers included |  |
| IPAE | | ‘0’B | Source and destination IP address information not included |  |
| TMGI | |  | TMGI-2 |  |
| MBMS Service ID | | ‘000102’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| Source IP address information | | Not present |  |  |
| Destination IP address information | | Not present |  |  |
| MBS service area | | Not present |  |  |
| MBS timers | | Not present |  |  |
| MBS security container | | Not present |  |  |

Table 14.2.5.1.1.3.3-10: *RRCReconfiguration* (step 1b10, Table 14.2.5.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.5.1.1.3.3-11 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.5.1.1.3.3-12 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.5.1.1.3.3-11: *RadioBearerConfig* (Table 14.2.5.1.1.3.3-10)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod { | 1 entry |  |  |
| DRB-ToAddMod[1] SEQUENCE { |  | entry 1 |  |
| cnAssociation CHOICE { |  |  |  |
| sdap-Config | SDAP-Config |  |  |
| } |  |  |  |
| drb-Identity | DRB-Identity with condition DRBn | n is chosen as the next available number higher or equal to 2 |  |
| reestablishPDCP | Not present |  |  |
| recoverPDCP | Not present |  |  |
| pdcp-Config | PDCP-Config |  |  |
| } |  |  |  |
| } |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 2 entries |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | TMGI with condition TMGI-1 |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=1 |  |
| pdcp-Config-r17 | PDCP-Config with condition MRB\_Initialization and UM\_MRB and MRBm | m=1 |  |
| } |  |  |  |
| MRB-ToAddMod-r17 [2] SEQUENCE { |  | entry 2 |  |
| mbs-SessionId-r17 | TMGI with condition TMGI-2 |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=2 |  |
| pdcp-Config-r17 | PDCP-Config with condition MRB\_Initialization and UM\_MRB and MRBm | m=2 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.5.1.1.3.3-12: *CellGroupConfig* (Table 14.2.5.1.1.3.3-11)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | 3 entries |  |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm | entry 1  m=1 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm | entry 2  m=2 |  |
| RLC-BearerConfig[3] | RLC-BearerConfig with conditions AM and DRBn | entry 3  n is set to the same value as for the radioBearerConfig IE in Table 14.2.5.1.1.3.3-11 |  |
| } |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast |  |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig with condition MBS\_Multicast |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.5.1.1.3.3-13: *Paging* (step 3, step 24 and step 26, Table 14.2.5.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-9, condition TMGI | | | |
| Information Element | Value/remark | Comment | Condition |
| Paging ::= SEQUENCE { |  |  |  |
| pagingRecordList | Not present |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| pagingGroupList-r17 SEQUENCE (SIZE(1..maxNrofPageGroup-r17)) OF TMGI-r17 { | 1 entry |  |  |
| TMGI-r17[1] | TMGI-1 | entry 1 | Step 3, Step 24 |
|  | TMGI-2 | entry 1 | Step 26 |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.5.1.1.3.3-14: *RRCReconfiguration* (step 11 and step 34, Table 14.2.5.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition MRBm | m=1 | Step 11 |
|  | | RadioBearerConfig with condition MRBm | m=2 | Step 34 |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm and UM\_PTM | m=1 | Step 11 |
|  | | CellGroupConfig with condition MRBm and UM\_PTM | m=2 | Step 34 |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.5.1.1.3.3-15: CLOSE UE TEST LOOP (step 13a1 and step 36a1, Table 14.2.5.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB | | | |
| Information Element | Value/remark | Comment | Condition |
| UE test loop mode C LB setup |  |  |  |
| MRB ID | ‘ 0 0 0 0 0 0 0 0  0 0 0 0 0 0 0 0  0 0 0 0 0 0 0 0 ’B | MRB-Identity is 1 |  |
|  | ‘ 0 0 0 0 0 0 0 0  0 0 0 0 0 0 0 0  1 0 0 0 0 0 0 0 ’B | MRB-Identity is 2 |  |

Table 14.2.5.1.1.3.3-16: UE TEST LOOP MODE C MBMS PACKET COUNTER REQUEST (step 15 and step 38, Table 14.2.5.1.1.3.2-1)

|  |
| --- |
| Derivation Path: 36.508 [6], Table 4.7A-9 |

Table 14.2.5.1.1.3.3-17: *RRCReconfiguration* (step 20, Table 14.2.5.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13. | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration SEQUENCE { | |  |  |  |
| radioBearerConfig SEQUENCE { | |  |  |  |
| mrb-ToReleaseList-r17 SEQUENCE (SIZE (1..maxMRB-r17)) OF MRB-Identity-r17 | | 1 entry |  |  |
| MRB-Identity[1] | | MRB-Identity linked to the MBS Session ID TMGI-1 | entry 1 |  |
| } | |  |  |  |
| } | |  |  |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup SEQUENCE { | |  |  |  |
| rlc-BearerToReleaseList SEQUENCE (SIZE (1..maxLC-ID)) OF LogicalChannelIdentity { | | 1 entry |  |  |
| logicalChannelIdentity[1] | | logicalChannelIdentity linked to MRB-Identity [1] | entry 1 |  |
| } | |  |  |  |
| } | |  |  |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.5.1.1.3.3-18:PDU SESSION MODIFICATION COMMAND (step 20, Table 14.2.5.1.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-9. | | | |
| Information Element | | Value/remark | Comment | Condition |
| Received MBS container | |  |  |  |
| Received MBS information | |  |  |  |
| Rejection cause | | ‘110’B | MBS session is released |  |
| MSAI | | ‘00’B | MBS service area not included |  |
| MD | | ‘100’B | Remove UE from MBS session |  |
| MSCI | | ‘0’B | MBS security container not included |  |
| MTI | | ‘00’B | No MBS timers included |  |
| IPAE | | ‘0’B | Source and destination IP address information not included |  |
| TMGI | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’B |  |  |
| MCC | | See table 4.4.2-3 |  |  |
| MNC | | See table 4.4.2-3 |  |  |
| Source IP address information | | Not present |  |  |
| Destination IP address information | | Not present |  |  |
| MBS service area | | Not present |  |  |
| MBS timers | | Not present |  |  |
| MBS security container | | Not present |  |  |

14.2.5.1.2 MBS Multicast/ Session management / Network-requested PDU session modification / MBS service area update14.2.5.1.2.1 Test Purpose (TP)

(1)

***with*** { UE is in 5GMM-REGISTERED state and UE is camping on a cell that is outside the received MBS service area }

ensure that {

***when*** { UE receives PDU SESSION MODIFICATION COMMAND message including Received MBS container IE with MBS decision setting to "MBS service area update" for including the current cell into MBS servcie area }

***then*** { UE sends PDU SESSION MODIFICATION COMPLETE and UE shall store the received MBS service area associated with the received TMGI and replace the current MBS service area with the received one }

}

(2)

***with*** { UE is in 5GMM-REGISTERED state and UE updates MBS service area associated with TMGI based on received MBS service area in PDU SESSION MODIFICATION COMMAND message }

ensure that {

***when*** { UE is camping on a cell that is inside the received MBS service area associated with one TMGI and join MBS session with this TMGI is still needed }

***then*** { UE sends PDU SESSION MODIFICATION REQUEST message to join MBS session with this TMGI }

}

14.2.5.1.2.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.501, clauses 6.4.1.3 and 6.3.2.3. Unless otherwise stated these are Rel-17 requirements.

[TS 24.501, clause 6.3.2.2]

If the SMF wants to update the MBS service area of an multicast MBS session that the UE has joined, the SMF shall include the corresponding multicast MBS session ID and the updated MBS service area in the Received MBS container IE in the PDU SESSION MODIFICATION COMMAND message, and shall set the MBS decision to "MBS service area update" in the Received MBS information.

[TS 24.501, clause 6.3.2.3]

If the PDU SESSION MODIFICATION COMMAND message includes the Received MBS container IE, for each of the Received MBS information:

…

d) if the MBS decision is set to "MBS service area update", the UE shall store the received MBS service area associated with the received TMGI and replace the current MBS service area with the received one. Or

…

14.2.5.1.2.3 Test description

14.2.5.1.2.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 is the Serving Cell.

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- UE is made interested in receiving MBS Multicast service with MBS Service ID ‘000101’H.

Preamble:

- The UE is in state 1N-A on NR Cell 1 (serving cell) according to TS 38.508-1 [4] Table 4.4A.2-1 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.2.5.1.2.3.2 Test procedure sequence

Table 14.2.5.1.2.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| - | EXCEPTION: Step 1a1 to 1b12a1 describe behaviour that depends on the UE capability the “lower case letter” identifies a step sequence that take place. | - | - | - | - |
| 1a1-1a14 | IF pc\_Join\_MBS\_by\_PDU\_Modification (UE firstly establishes an associated PDU session and then joins MBS Multicast by PDU seession modification procedure) THEN  steps 1a1 to 1a14 of the generic procedures described in TS 38.508-1[4] subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and request to join an MBS Multicast session with TMGI-1. | - | - | - | - |
| 1a15 | The SS transmits a PDU SESSION MODIFICATION COMMAND to reject MBS Multicast session UE requested to join.  The reject cause is "User is outside of local MBS service area". | <-- | NR RRC: DLInformationTransfer  5GMM: DL NAS TRANSPORT  5GSM: PDU SESSION MODIFICATION COMMAND | - | - |
| 1a16 | The UE transmits an ULInformationTransfer message and a PDU SESSION MODIFICATION COMPLETE message. | --> | NR RRC: ULInformationTransfer  5GMM: UL NAS TRANSPORT  5GSM: PDU SESSION MODIFICATION COMPLETE | - | - |
| 1b1-1b12a1 | ELSE (UE establishes an associated PDU session and joins MBS Multicast at the same time)  steps 1b1 to 1b12a1 of the generic procedures described in TS 38.508-1[4] subclause 4.9.34 are performed on NR Cell 1 to establish an associated PDU Session to the MBS DNN and request to join an MBS Multicast session with TMGI-1.  MBS Multicast session is rejected with cause "User is outside of local MBS service area". | - | - | - | - |
| 2 | The SS transmits an *RRCRelease* message | <-- | NR RRC: *RRCRelease* | - | - |
| 3-10 | Steps 1 to 8 of the procedure in TS 38.508-1[4] Table 4.5.4.2-3 to trigger UE move to RRC\_CONNECTED mode with CN paging. | - | - | - | - |
| 11 | The SS transmits a PDU SESSION MODIFICATION COMMAND to update MBS service area. | <-- | NR RRC:  *DLInformationTransfer*  5GMM: DL NAS TRANSPORT  5GSM: PDU SESSION MODIFICATION COMMAND | - | - |
| 12 | The UE transmits a PDU SESSION MODIFICATION COMPLETE message. | --> | NR RRC: *ULInformationTransfer*  5GMM: UL NAS TRANSPORT  5GSM: PDU SESSION MODIFICATION COMPLETE | 1 | P |
| 13 | Start Timer = 5 sec. | - | - | - | - |
| - | EXCEPTION: Steps 14a1-14b3 describe optional behaviour that depends on the UE implementation. | - | - | - | - |
| 14a1 | Check: Does the UE transmit a PDU SESSION MODIFICATION REQUEST message to join MBS Multicast session with TMGI-1? | --> | NR RRC: *ULInformationTransfer*  5GMM: UL NAS TRANSPORT  5GSM: PDU SESSION MODIFICATION REQUEST | 2 | P |
| 14a2 | Stop Timer = 5 sec. | - | - | - | - |
| 14b1 | Timer =5 sec expires. | - | - | - | - |
| 14b2 | Cause the UE to join MBS session with TMGI-1. (NOTE 1) | - | - | - | - |
| 14b3 | Check: Does the UE transmit a PDU SESSION MODIFICATION REQUEST message to join MBS Multicast session with TMGI-1? | --> | NR RRC: *ULInformationTransfer*  5GMM: UL NAS TRANSPORT  5GSM: PDU SESSION MODIFICATION REQUEST | 2 | P |
| 15 | The SS transmits an *RRCReconfiguration* message and a PDU SESSION MODIFICATION COMMAND to accept MBS Multicast session join request. | <-- | NR RRC:  *RRCReconfiguration*  5GMM: DL NAS TRANSPORT  5GSM: PDU SESSION MODIFICATION COMMAND | - | - |
| - | EXCEPTION: Depending upon UE implementation, step 16 and 17 can occur in any order | - | - | - | - |
| 16 | The UE transmits an *RRCReconfigurationComplete* message. | --> | NR RRC:  *RRCReconfigurationComplete* | - | - |
| 17 | The UE transmits a PDU SESSION MODIFICATION COMPLETE message. | --> | NR RRC: *ULInformationTransfer*  5GMM: UL NAS TRANSPORT  5GSM: PDU SESSION MODIFICATION COMPLETE | - | - |
| 18 | The SS transmits an *RRCRelease* message | <-- | NR RRC: *RRCRelease* | - | - |
| 19-33 | Check: Does UE respond to paging with TMGI-1 and receive the MRB associated with TMGI-1 as specified in steps 1 to 15 of the procedure in TS 38.508-1[4] Table 4.9.38.2.2-1? | - | - | 2 | - |
| NOTE 1: This could be done by e.g. MMI or AT command. | | | | | |

14.2.5.1.2.3.3 Specific message contents

Table 14.2.5.1.2.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.5.1.2.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.5.1.2.3.3-2:PDU SESSION MODIFICATION REQUEST (step 1a14, step 14a1 and 14b3, Table 14.2.5.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-7. | | | |
| Information Element | | Value/remark | Comment | Condition |
| Requested MBS container | |  |  |  |
| MBS session information | |  |  |  |
| MBS operation | | ‘01’B | Join MBS session |  |
| Type of MBS session ID | | Not checked |  |  |
| MBS session ID | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 | MCC for NR Cell 1 |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 | MNC for NR Cell 1 |  |

Table 14.2.5.1.2.3.3-3:PDU SESSION MODIFICATION COMMAND (step 1a15, Table 14.2.5.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-9 | | | |
| Information Element | | Value/remark | Comment | Condition |
| Received MBS container | |  |  |  |
| Received MBS information | |  |  |  |
| Rejection cause | | ‘100’B | User is outside of local MBS service area |  |
| MSAI | | ‘01’B | MBS service area included as MBS TAI list |  |
| MD | | ‘011’B | MBS join is rejected |  |
| MSCI | | ‘0’B | MBS security container not included |  |
| MTI | | ‘00’B | No MBS timers included |  |
| IPAE | | ‘0’B | Source and destination IP address information not included |  |
| TMGI | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 | MCC for NR Cell 1 |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 | MNC for NR Cell 1 |  |
| Source IP address information | | Not present |  |  |
| Destination IP address information | | Not present |  |  |
| MBS service area | |  |  |  |
| Length of 5GS tracking area identity list contents | |  |  |  |
| Partial tracking area identity list 1 | |  |  |  |
| Number of elements | | '0 0000'B | 1 element |  |
| Type of list | | '00'B | list of TACs belonging to one PLMN, with non-consecutive TAC values |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 | MCC for NR Cell 11 |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 | MNC for NR Cell 11 |  |
| TAC 1 | | See 38.508-1[4] table 4.4.2-3 | TAC for NR Cell 11 |  |
| MBS timers | | Not present |  |  |
| MBS security container | | Not present |  |  |

Table 14.2.5.1.2.3.3-4:PDU SESSION ESTABLISHMENT REQUEST (step 1b9, Table 14.2.5.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-1. | | | |
| Information Element | | Value/remark | Comment | Condition |
| Requested MBS container | |  |  |  |
| MBS session information | |  |  |  |
| MBS operation | | ‘01’B | Join MBS session |  |
| Type of MBS session ID | | Not checked |  |  |
| MBS session ID | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |

Table 14.2.5.1.2.3.3-5:PDU SESSION ESTABLISHMENT ACCEPT (step 1b10, Table 14.2.5.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-2. | | | |
| Information Element | | Value/remark | Comment | Condition |
| Received MBS container | |  |  |  |
| Received MBS information | |  |  |  |
| Rejection cause | | ‘100’B | User is outside of local MBS service area |  |
| MSAI | | ‘01’B | MBS service area included as MBS TAI list |  |
| MD | | ‘011’B | MBS join is rejected |  |
| MSCI | | ‘0’B | MBS security container not included |  |
| MTI | | ‘00’B | No MBS timers included |  |
| IPAE | | ‘0’B | Source and destination IP address information not included |  |
| TMGI | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 | MCC for NR Cell 1 |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 | MCC for NR Cell 1 |  |
| Source IP address information | | Not present |  |  |
| Destination IP address information | | Not present |  |  |
| MBS service area | |  |  |  |
| Length of 5GS tracking area identity list contents | |  |  |  |
| Partial tracking area identity list 1 | |  |  |  |
| Number of elements | | '0 0000'B | 1 element |  |
| Type of list | | '00'B | list of TACs belonging to one PLMN, with non-consecutive TAC values |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 | MCC for NR Cell 11 |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 | MNC for NR Cell 11 |  |
| TAC 1 | | See 38.508-1[4] table 4.4.2-3 | TAC for NR Cell 11 |  |
| MBS timers | | Not present |  |  |
| MBS security container | | Not present |  |  |

Table 14.2.5.1.2.3.3-6: *RRCReconfiguration* (step 1b10, Table 14.2.5.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition DRBn | n is chosen as the next available number higher or equal to 2 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition DRBn | n is set to the same value as for the radioBearerConfig IE |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.5.1.2.3.3-7:PDU SESSION MODIFICATION COMMAND (step 11, Table 14.2.5.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-9 | | | |
| Information Element | | Value/remark | Comment | Condition |
| Received MBS container | |  |  |  |
| Received MBS information | |  |  |  |
| Rejection cause | | ‘000’B | No additional information provided |  |
| MSAI | | ‘01’B | MBS service area included as MBS TAI list |  |
| MD | | ‘001’B | MBS service area update |  |
| MSCI | | ‘0’B | MBS security container not included |  |
| MTI | | ‘00’B | No MBS timers included |  |
| IPAE | | ‘0’B | Source and destination IP address information not included |  |
| TMGI | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 | MCC for NR Cell 1 |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 | MCC for NR Cell 1 |  |
| Source IP address information | | Not present |  |  |
| Destination IP address information | | Not present |  |  |
| MBS service area | |  |  |  |
| Length of 5GS tracking area identity list contents | |  |  |  |
| Partial tracking area identity list 1 | |  |  |  |
| Number of elements | | '0 0000'B | 1 element |  |
| Type of list | | '00'B | list of TACs belonging to one PLMN, with non-consecutive TAC values |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 | MCC for NR Cell 1 |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 | MNC for NR Cell 1 |  |
| TAC 1 | | See 38.508-1[4] table 4.4.2-3 | TAC for NR Cell 1 |  |
| MBS timers | | Not present |  |  |
| MBS security container | | Not present |  |  |

Table 14.2.5.1.2.3.3-8: *RRCReconfiguration* (step 15, Table 14.2.5.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition MRBm and UM\_PTM | m=1 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm and UM\_PTM | m=1 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.5.1.2.3.3-9:PDU SESSION MODIFICATION COMMAND (step 15, Table 14.2.5.1.2.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-9 | | | |
| Information Element | | Value/remark | Comment | Condition |
| Received MBS container | |  |  |  |
| Received MBS information | |  |  |  |
| Rejection cause | | ‘000’B | No additional information provided |  |
| MSAI | | ‘00’B | MBS service area not included |  |
| MD | | ‘010’B | MBS join is accepted |  |
| MSCI | | ‘0’B | MBS security container not included |  |
| MTI | | ‘00’B | No MBS timers included |  |
| IPAE | | ‘0’B | Source and destination IP address information not included |  |
| TMGI | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| Source IP address information | | Not present |  |  |
| Destination IP address information | | Not present |  |  |
| MBS service area | | Not present |  |  |
| MBS timers | | Not present |  |  |

#### 14.2.5.2 MBS Multicast/ Session management / UE-requested PDU session establishment / UE-requested PDU session modification

14.2.5.2.1 MBS Multicast/ Session management / UE-requested PDU session establishment / UE-requested PDU session modification / Join MBS multicast session / Accepted14.2.5.2.1.1 Test Purpose (TP)

(1)

***with*** { UE is in 5GMM-REGISTERED state}

ensure that {

***when*** { UE requests to establish a new PDU session associated with MBS multicast sessions and the UE at the same time intends to join two MBS multicast sessions }

***then*** { UE sends PDU SESSION ESTABLISHMENT REQUEST or PDU SESSION MODIFICATION REQUEST including the Requested MBS container IE with MBS operation setting to "Join MBS session" }

}

(2)

***with*** { UE is in 5GMM-REGISTERED state and has sent PDU SESSION ESTABLISHMENT REQUEST or PDU SESSION MODIFICATION REQUEST including the Requested MBS container IE with MBS operation setting to "Join MBS session"}

ensure that {

***when*** { UE receives PDU SESSION ESTABLISHMENT ACCEPT or PDU SESSION MODIFICATION COMMAND message including Received MBS container IE with MBS decision setting to "MBS join is accepted" }

***then*** { UE shall consider that it has successfully joined the MBS session and shall store the received TMGI}

}

14.2.5.2.1.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 24.501, clauses 6.4.1.2, 6.4.1.3, 6.4.2.2 and 6.3.2.2. Unless otherwise stated these are Rel-17 requirements.

[TS 24.501, clause 6.4.1.2]

If the UE requests to:

a) establish a new PDU session;

b) perform handover of an existing PDU session from non-3GPP access to 3GPP access;

c) transfer an existing PDN connection in the EPS to the 5GS according to subclause 4.8.2.3.1;

d) transfer an existing PDN connection in untrusted non-3GPP access connected to the EPC to the 5GS; or

e) establish user plane resources over 3GPP access of an MA PDU session established over non-3GPP access only;

and the UE at the same time intends to join one or more multicast MBS sessions that is associated to the PDU session, the UE should include the Requested MBS container IE in the PDU SESSION ESTABLISHMENT REQUEST message. In that case, the UE shall set the MBS operation to "Join multicast MBS session" and include the multicast MBS session information(s) and shall set the Type of multicast MBS session ID for each of the multicast MBS session information to either "Temporary Mobile Group Identity (TMGI)" or "Source specific IP multicast address" depending on the type of the multicast MBS session ID available in the UE. Then the remaining values of each of the multicast MBS session information shall be set as following:

a) if the Type of multicast MBS session ID is set to "Temporary Mobile Group Identity (TMGI)", the UE shall set the multicast MBS session ID to the TMGI; or

b) if the Type of multicast MBS session ID is set to "Source specific IP multicast address for IPv4" or " Source specific IP multicast address for IPv6", the UE shall set the Source IP address information and the Destination IP address information to the corresponding values.

[TS 24.501, clause 6.4.1.3]

If the PDU SESSION ESTABLISHMENT REQUEST included the Requested MBS container IE with the MBS operation set to "Join multicast MBS session", the SMF:

a) shall include the TMGI for the multicast MBS session IDs that the UE is allowed to join, if any, in the Received MBS container IE, shall set the MBS decision to "MBS join is accepted" for each of those Received MBS information, may include the MBS start time to indicate the time when the multicast MBS session starts and shall include the MBS security container in each of those Received MBS information if security protection is applied for that multicast MBS session and the control plane security procedure is used as specified in annex W.4.1.2 in 3GPP TS 33.501 [24], and shall use separate QoS flows dedicated for multicast by including the Authorized QoS flow descriptions IE if no separate QoS flows dedicated for multicast exist or if the SMF wants to establish new QoS flows dedicated for multicast;

[TS 24.501, clause 6.4.2.2]

If the UE requests to join or leave one or more multicast MBS sessions associated with a PDU session, the UE shall include the Requested MBS container IE in the PDU SESSION MODIFICATION REQUEST message and shall set the MBS operation to "Join multicast MBS session" for the join case or to "Leave multicast MBS session" for the leave case. The UE shall include the multicast MBS session information(s) and shall set the Type of multicast MBS session ID for each of the multicast MBS session information to either "Temporary Mobile Group Identity (TMGI)" or "Source specific IP multicast address" depending on the type of the multicast MBS session ID available in the UE. Then the remaining values of each of the multicast MBS session informations shall be set as following:

a) if the Type of multicast MBS session ID is set to "Temporary Mobile Group Identity (TMGI)", the UE shall set the multicast MBS session ID to the TMGI; or

b) if the Type of multicast MBS session ID is set to "Source specific IP multicast address for IPv4" or " Source specific IP multicast address for IPv6", the UE shall set the Source IP address information and the Destination IP address information to the corresponding values.

[TS 24.501, clause 6.3.2.2]

If the network-requested PDU session modification procedure is triggered by a UE-requested PDU session modification procedure and the UE has included the Requested MBS container IE in the PDU SESSION MODIFICATION REQUEST message with the MBS operation set to "Join multicast MBS session", the SMF:

a) shall include the TMGI for the multicast MBS session IDs that the UE is allowed to join, if any, in the Received MBS container IE, shall set the MBS decision to "MBS join is accepted" for each of those Received MBS information, may include the MBS start time to indicate the time when the multicast MBS session starts, and shall include the MBS security container in each of those Received MBS information if security protection is applied for that multicast MBS session and the control plane security procedure is used as specified in annex W.4.1.2 in 3GPP TS 33.501 [24], and shall use separate QoS flows dedicated for multicast by including the Authorized QoS flow descriptions IE if no separate QoS flows dedicated for multicast exist or if the SMF wants to establish new QoS flows dedicated for multicast;

14.2.5.2.1.3 Test description

14.2.5.2.1.3.1 Pre-test conditions

System Simulator:

- NR Cell 1 is the Serving cell.

- System information combination NR-1 as defined in TS 38.508-1 [4] clause 4.4.3.1.2 is used in NR cell 1.

UE:

- UE is made interested in receiving MBS Multicast service with MBS Service ID ‘000101’H and ‘000102’H.

Preamble:

- The UE is in state 1N-A on NR Cell 1 (serving cell) according to TS 38.508-1 [4] Table 4.4A.2-1 with Test Mode = on to activate UE TEST MODE C and Test Loop Function = off.

14.2.5.2.1.3.2 Test procedure sequence

Table 14.2.5.2.1.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| 1a1-1b12a1 | Check: Does steps 1a1 to 1b12a1 of the generic procedures described in TS 38.508-1 subclause 4.9.34 perform on NR Cell 1 to establish an associated PDU Session to the MBS DNN and join in two MBS Multicast session?  Note: One MBS session Id is TMGI-1, and another MBS session Id is TMGI-2. | - | - | 1 | - |
| 2 | The SS transmits an *RRCRelease* message | <-- | NR RRC: *RRCRelease* | - | - |
| 3-17 | Check: Does UE respond to paging with TMGI-1 and receive the MRB associated with TMGI-1 as specified in steps 1 to 15 of the procedure in TS 38.508-1[4] Table 4.9.38.2.2-1? | - | - | 2 | - |
| 18 | The SS transmits an OPEN UE TEST LOOP message. | <-- | NR RRC: *DLInformationTransfer*  TC: OPEN UE TEST LOOP | - | - |
| 19 | The UE transmits an OPEN UE TEST LOOP COMPLETE message. | --> | NR RRC: *ULInformationTransfer*  TC: OPEN UE TEST LOOP COMPLETE | - | - |
| 20 | The SS transmits an *RRCRelease* message | <-- | NR RRC: *RRCRelease* | - | - |
| 21-35 | Check: Does UE respond to paging with TMGI-2 and receive the MRB associated with TMGI-2 as specified in steps 1 to 15 of the procedure in TS 38.508-1[4] Table 4.9.38.2.2-1? | - | - | 2 | - |

14.2.5.2.1.3.3 Specific message contents

Table 14.2.5.2.1.3.3-1: ACTIVATE TEST MODE (preamble, Table 14.2.5.2.1.3.2-1)

|  |
| --- |
| Derivation Path: TS 36.508 [6], Table 4.7A-1, condition UE TEST LOOP MODE C |

Table 14.2.5.2.1.3.3-2:PDU SESSION MODIFICATION REQUEST (step 1a14, Table 14.2.5.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-7. | | | |
| Information Element | | Value/remark | Comment | Condition |
| Requested MBS container | |  |  |  |
| MBS session information | |  |  |  |
| MBS operation | | ‘01’B | Join MBS session |  |
| Type of MBS session ID | | Not checked |  |  |
| MBS session ID | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MBS session information | |  |  |  |
| MBS operation | | ‘01’B | Join MBS session |  |
| Type of MBS session ID | | Not checked |  |  |
| MBS session ID | |  | TMGI-2 |  |
| MBMS Service ID | | ‘000102’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |

Table 14.2.5.2.1.3.3-3:PDU SESSION MODIFICATION COMMAND (step 1a15, Table 14.2.5.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-9 | | | |
| Information Element | | Value/remark | Comment | Condition |
| Received MBS container | |  |  |  |
| Received MBS information | |  |  |  |
| Rejection cause | | ‘000’B | No additional information provided |  |
| MSAI | | ‘00’B | MBS service area not included |  |
| MD | | ‘010’B | MBS join is accepted |  |
| MSCI | | ‘0’B | MBS security container not included |  |
| MTI | | ‘00’B | No MBS timers included |  |
| IPAE | | ‘0’B | Source and destination IP address information not included |  |
| TMGI | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| Source IP address information | | Not present |  |  |
| Destination IP address information | | Not present |  |  |
| MBS service area | | Not present |  |  |
| MBS timers | | Not present |  |  |
| MBS security container | | Not present |  |  |
| Received MBS information | |  |  |  |
| Rejection cause | | ‘000’B | No additional information provided |  |
| MSAI | | ‘00’B | MBS service area not included |  |
| MD | | ‘010’B | MBS join is accepted |  |
| MSCI | | ‘0’B | MBS security container not included |  |
| MTI | | ‘00’B | No MBS timers included |  |
| IPAE | | ‘0’B | Source and destination IP address information not included |  |
| TMGI | |  | TMGI-2 |  |
| MBMS Service ID | | ‘000102’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| Source IP address information | | Not present |  |  |
| Destination IP address information | | Not present |  |  |
| MBS service area | | Not present |  |  |
| MBS timers | | Not present |  |  |
| MBS security container | | Not present |  |  |

Table 14.2.5.2.1.3.3-4: *RRCReconfiguration* (step 1a15, Table 14.2.5.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | m=1  Table 14.2.4.1.1.3.3-5 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm and UM\_PTM | m=1  Table 14.2.4.1.1.3.3-6 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.5.2.1.3.3-5: *RadioBearerConfig* (Table 14.2.5.2.1.3.3-4)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 with condition MRBm and UM\_PTM (m=1) | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 2 entries |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | TMGI with condition TMGI-1 | Table 14.2.5.2.1.3.3-7 |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=1 |  |
| pdcp-Config-r17 | PDCP-Config with condition MRB\_Initialization and UM\_MRB and MRBm | m=1 |  |
| } |  |  |  |
| MRB-ToAddMod-r17 [2] SEQUENCE { |  | entry 2 |  |
| mbs-SessionId-r17 | TMGI with condition TMGI-2 | Table 14.2.5.2.1.3.3-7 |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=2 |  |
| pdcp-Config-r17 | PDCP-Config with condition MRB\_Initialization and UM\_MRB and MRBm | m=2 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.5.2.1.3.3-6: *CellGroupConfig* (Table 14.2.5.2.1.3.3-4)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 with condition MRBm and UM\_PTM (m=1) | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | 2 entries |  |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm | entry 1  m=1 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm | entry 2  m=2 |  |
| } |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast |  |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig with condition MBS\_Multicast |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.5.2.1.3.3-7: *TMGI* (Table 14.2.5.2.1.3.3-5)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.7-9 | | | |
| Information Element | Value/remark | Comment | Condition |
| TMGI-r17 ::= SEQUENCE { |  |  |  |
| plmn-Id-r17 CHOICE { |  |  |  |
| plmn-Index-r17 | 1 |  |  |
| } |  |  |  |
| serviceId-r17 | ‘000101’H | OCTET STRING (SIZE (3)) | TMGI-1 |
|  | ‘000102’H | OCTET STRING (SIZE (3)) | TMGI-2 |
| } |  |  |  |

Table 14.2.5.2.1.3.3-8:PDU SESSION ESTABLISHMENT REQUEST (step 1b9, Table 14.2.5.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-1. | | | |
| Information Element | | Value/remark | Comment | Condition |
| Requested MBS container | |  |  |  |
| MBS session information | |  |  |  |
| MBS operation | | ‘01’B | Join MBS session |  |
| Type of MBS session ID | | Not checked |  |  |
| MBS session ID | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MBS session information | |  |  |  |
| MBS operation | | ‘01’B | Join MBS session |  |
| Type of MBS session ID | | Not checked |  |  |
| MBS session ID | |  |  |  |
| MBMS Service ID | | ‘000101’H | TMGI-2 |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |

Table 14.2.5.2.1.3.3-9:PDU SESSION ESTABLISHMENT ACCEPT (step 1b10, Table 14.2.5.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7.2-2. | | | |
| Information Element | | Value/remark | Comment | Condition |
| Received MBS container | |  |  |  |
| Received MBS information | |  |  |  |
| Rejection cause | | ‘000’B | No additional information provided |  |
| MSAI | | ‘00’B | MBS service area not included |  |
| MD | | ‘010’B | MBS join is accepted |  |
| MSCI | | ‘0’B | MBS security container not included |  |
| MTI | | ‘00’B | No MBS timers included |  |
| IPAE | | ‘0’B | Source and destination IP address information not included |  |
| TMGI | |  | TMGI-1 |  |
| MBMS Service ID | | ‘000101’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| Source IP address information | | Not present |  |  |
| Destination IP address information | | Not present |  |  |
| MBS service area | | Not present |  |  |
| MBS timers | | Not present |  |  |
| MBS security container | | Not present |  |  |
| Received MBS information | |  |  |  |
| Rejection cause | | ‘000’B | No additional information provided |  |
| MSAI | | ‘00’B | MBS service area not included |  |
| MD | | ‘010’B | MBS join is accepted |  |
| MSCI | | ‘0’B | MBS security container not included |  |
| MTI | | ‘00’B | No MBS timers included |  |
| IPAE | | ‘0’B | Source and destination IP address information not included |  |
| TMGI | |  | TMGI-2 |  |
| MBMS Service ID | | ‘000102’H |  |  |
| MCC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| MNC | | See 38.508-1[4] table 4.4.2-3 |  |  |
| Source IP address information | | Not present |  |  |
| Destination IP address information | | Not present |  |  |
| MBS service area | | Not present |  |  |
| MBS timers | | Not present |  |  |
| MBS security container | | Not present |  |  |

Table 14.2.5.2.1.3.3-10: *RRCReconfiguration* (step 1b10, Table 14.2.5.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig | Table 14.2.5.2.1.3.3-11 |  |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig | Table 14.2.5.2.1.3.3-12 |  |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | DedicatedNAS-Message |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.5.2.1.3.3-11: *RadioBearerConfig* (Table 14.2.5.2.1.3.3-10)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-132 | | | |
| Information Element | Value/remark | Comment | Condition |
| RadioBearerConfig ::= SEQUENCE { |  |  |  |
| drb-ToAddModList SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod { | 1 entry |  |  |
| DRB-ToAddMod[1] SEQUENCE { |  | entry 1 |  |
| cnAssociation CHOICE { |  |  |  |
| sdap-Config | SDAP-Config |  |  |
| } |  |  |  |
| drb-Identity | DRB-Identity with condition DRBn | n is chosen as the next available number higher or equal to 2 |  |
| reestablishPDCP | Not present |  |  |
| recoverPDCP | Not present |  |  |
| pdcp-Config | PDCP-Config |  |  |
| } |  |  |  |
| } |  |  |  |
| mrb-ToAddModList-r17 SEQUENCE (SIZE (1..maxDRB)) OF MRB-ToAddMod-r17 { | 2 entries |  |  |
| MRB-ToAddMod-r17 [1] SEQUENCE { |  | entry 1 |  |
| mbs-SessionId-r17 | TMGI with condition TMGI-1 |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=1 |  |
| pdcp-Config-r17 | PDCP-Config with condition MRB\_Initialization and UM\_MRB and MRBm | m=1 |  |
| } |  |  |  |
| MRB-ToAddMod-r17 [2] SEQUENCE { |  | entry 2 |  |
| mbs-SessionId-r17 | TMGI with condition TMGI-2 |  |  |
| mrb-Identity-r17 | MRB-Identity with condition MRBm | m=2 |  |
| pdcp-Config-r17 | PDCP-Config with condition MRB\_Initialization and UM\_MRB and MRBm | m=2 |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.5.2.1.3.3-12: *CellGroupConfig* (Table 14.2.5.2.1.3.3-11)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList SEQUENCE (SIZE(1..maxLCH)) OF RLC-BearerConfig { | 3 entries |  |  |
| RLC-BearerConfig[1] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm | entry 1  m=1 |  |
| RLC-BearerConfig[2] | RLC-BearerConfig with conditions UM\_DLonly and PTM and MRBm | entry 2  m=2 |  |
| RLC-BearerConfig[3] | RLC-BearerConfig with conditions AM and DRBn | entry 3  n is set to the same value as for the radioBearerConfig IE in Table 14.2.5.2.1.3.3-11 |  |
| } |  |  |  |
| mac-CellGroupConfig | MAC-CellGroupConfig with condition MBS\_Multicast |  |  |
| physicalCellGroupConfig | Not present |  |  |
| spCellConfig SEQUENCE { |  |  |  |
| spCellConfigDedicated | ServingCellConfig with condition MBS\_Multicast |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.5.2.1.3.3-13: *Paging* (step 3, step 21, Table 14.2.5.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.6.1-9, condition TMGI | | | |
| Information Element | Value/remark | Comment | Condition |
| Paging ::= SEQUENCE { |  |  |  |
| pagingRecordList | Not present |  |  |
| nonCriticalExtension SEQUENCE { |  |  |  |
| pagingGroupList-r17 SEQUENCE (SIZE(1..maxNrofPageGroup-r17)) OF TMGI-r17 { | 1 entry |  |  |
| TMGI-r17[1] | TMGI with condition TMGI-1 | entry 1  Table 14.2.5.2.1.3.3-7 | Step 3 |
|  | TMGI with condition TMGI-2 | entry 1  Table 14.2.5.2.1.3.3-7 | Step 21 |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

Table 14.2.5.2.1.3.3-14: *RRCReconfiguration* (step 11 and step 29, Table 14.2.5.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4],Table 4.6.1-13 and condition NR | | | |
| Information Element | | Value/remark | Comment | Condition |
| RRCReconfiguration ::= SEQUENCE { | |  |  |  |
| criticalExtensions CHOICE { | |  |  |  |
| rrcReconfiguration ::= SEQUENCE { | |  |  |  |
| radioBearerConfig | | RadioBearerConfig with condition MRBm | m=1 | Step 11 |
|  | | RadioBearerConfig with condition MRBm | m=2 | Step 29 |
| nonCriticalExtension SEQUENCE { | |  |  |  |
| masterCellGroup | | CellGroupConfig with condition MRBm and UM\_PTM | m=1 | Step 11 |
|  | | CellGroupConfig with condition MRBm and UM\_PTM | m=2 | Step 29 |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |
| } | |  |  |  |

Table 14.2.5.2.1.3.3-15: CLOSE UE TEST LOOP (step 13 and step 31, Table 14.2.5.2.1.3.2-1)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], Table 4.7A-3, condition UE TEST LOOP MODE C and Multicast MRB | | | |
| Information Element | Value/remark | Comment | Condition |
| UE test loop mode C LB setup |  |  |  |
| MRB ID | ‘ 0 0 0 0 0 0 0 0  0 0 0 0 0 0 0 0  0 0 0 0 0 0 0 0 ’B | MRB-Identity is 1 | Step 13 |
|  | ‘ 0 0 0 0 0 0 0 0  0 0 0 0 0 0 0 0  1 0 0 0 0 0 0 0 ’B | MRB-Identity is 2 | Step 31 |

Annex A (informative):  
Change history

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Change history | | | | | | | | | | | | | | | |
| Date | | Meeting | | TDoc | | CR | | Rev | | Cat | | Subject/Comment | | New version | |
| 2017-08 | | RAN5#76 | | R5-174427 | | - | | - | | - | | Introduction of TS 38.523-1. | | 0.0.1 | |
| 2017-12 | | RAN5#77 | | R5-176926 | | - | | - | | - | | Addition of new NR PDCP test case 7.3.1.2 | | 0.1.0 | |
| 2017-12 | | RAN5#77 | | R5-176928 | | - | | - | | - | | Addition of new NR MAC test case 7.1.3.1 | | 0.1.0 | |
| 2017-12 | | RAN5#77 | | R5-177072 | | - | | - | | - | | Addition of new NR RLC UM test case 7.2.2.1 | | 0.1.0 | |
| 2017-12 | | RAN5#77 | | R5-177073 | | - | | - | | - | | Addition of new NR RLC UM test case 7.2.2.2 | | 0.1.0 | |
| 2017-12 | | RAN5#77 | | R5-177074 | | - | | - | | - | | Addition of new NR PDCP test case 7.3.1.1 | | 0.1.0 | |
| 2017-12 | | RAN5#77 | | R5-177075 | | - | | - | | - | | Addition of new NR MAC test case 7.1.2.1 | | 0.1.0 | |
| 2018-03 | | RAN5#77 | | R5-181171 | | - | | - | | - | | 5GS RRC TC 8.2.2.2.1 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181172 | | - | | - | | - | | 5GS RRC TC 8.2.2.2.6 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181173 | | - | | - | | - | | 5GS RRC TC 8.2.3.1 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181174 | | - | | - | | - | | 5GS RRC TC 8.2.3.16 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181175 | | - | | - | | - | | 5GS RRC TC 8.2.5.1 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181176 | | - | | - | | - | | 5GS MAC Test case 7.1.1.2 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181177 | | - | | - | | - | | Addition of new NR MAC test case 7.1.3.2 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181178 | | - | | - | | - | | Addition of new NR MAC test case 7.1.3.3 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181179 | | - | | - | | - | | Addition of new NR MAC test case 7.1.3.4 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181180 | | - | | - | | - | | Addition of new NR MAC test case 7.1.3.5 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181181 | | - | | - | | - | | Addition of new NR MAC test case 7.1.3.6 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181182 | | - | | - | | - | | Addition of new NR RLC test case 7.2.3.1 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181183 | | - | | - | | - | | Addition of new NR RLC test case 7.2.3.2 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181184 | | - | | - | | - | | Addition of new NR PDCP test case 7.3.2.1 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181185 | | - | | - | | - | | Addition of new NR PDCP test case 7.3.2.2 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181186 | | - | | - | | - | | Addition of new NR PDCP test case 7.3.2.3 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181187 | | - | | - | | - | | Addition of new NR PDCP test case 7.3.3.1 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181188 | | - | | - | | - | | Addition of new NR PDCP test case 7.3.3.2 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181189 | | - | | - | | - | | Addition of new NR PDCP test case 7.3.3.3 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181201 | | - | | - | | - | | Addition of new NR MAC test case 7.1.5.1 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181202 | | - | | - | | - | | Addition of new NR MAC test case 7.1.5.2 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181203 | | - | | - | | - | | Addition of new NR PDCP test case 7.3.5.1 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181204 | | - | | - | | - | | Addition of new NR RRC test case 8.2.2.2.5 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181205 | | - | | - | | - | | Addition of new NR RRC test case 8.2.3.5 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181206 | | - | | - | | - | | Update of NR MAC test cases | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181207 | | - | | - | | - | | Update of NR RLC test cases | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181208 | | - | | - | | - | | Update of NR PDCP test cases | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181209 | | - | | - | | - | | 5GS MAC Test case 7.1.5.3 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181312 | | - | | - | | - | | Addition of new NR PDCP test case 7.3.5.2 | | 0.2.0 | |
| 2018-03 | | RAN5#77 | | R5-181334 | | - | | - | | - | | Addition of new NR PDCP test case 7.3.4.2 | | 0.2.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181805 | | - | | - | | - | | Corrections to RRC TC 8.2.3.1 Measurement configuration control and reporting / Inter-RAT measurements / Event B1 / Measurement of NR cells | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181806 | | - | | - | | - | | 5GS RRC TC 8.2.1.2 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181914 | | - | | - | | - | | Addition of 5GS NR RRC test case 8.2.3.6 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181951 | | - | | - | | - | | Correction to RLC UM Test cases | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181952 | | - | | - | | - | | Correction to RLC AM Test cases | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181967 | | - | | - | | - | | Correction to PDCP ciphering test cases | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181980 | | - | | - | | - | | 5GS RRC TC 8.2.2.2.9 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181981 | | - | | - | | - | | Corrections to RRC TC 8.2.3.16 Handover with PSCell release / SCG DRB | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181982 | | - | | - | | - | | 5GS RRC TC 8.2.3.2 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181983 | | - | | - | | - | | 5GS RRC TC 8.2.3.3 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181984 | | - | | - | | - | | 5GS RRC TC 8.2.3.4 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181986 | | - | | - | | - | | Addition of new NR RRC test case 8.2.2.2.4 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181988 | | - | | - | | - | | Addition of new NR NAS test case for dedicated EPS bearer context activation | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181991 | | - | | - | | - | | Addition of text to clarify that 5GS requirements may be implicitly tested in other specs | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181992 | | - | | - | | - | | New NAS test case EPS bearer resource allocation / New EPS bearer context | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181994 | | - | | - | | - | | Addition of new NR MAC test case 7.1.4.1.1 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181995 | | - | | - | | - | | Addition of new NR MAC test case 7.1.4.1.2 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181996 | | - | | - | | - | | Addition of new NR MAC test case 7.1.4.1.3 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181997 | | - | | - | | - | | Addition of new NR MAC test case 7.1.4.1.4 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181998 | | - | | - | | - | | Addition of new NR RLC test case 7.2.2.6 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-181999 | | - | | - | | - | | Addition of new NR RLC test case 7.2.3.5 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182050 | | - | | - | | - | | Addition of new NR RLC test case 7.2.2.5 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182051 | | - | | - | | - | | Addition of new NR RLC test case 7.2.3.6 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182052 | | - | | - | | - | | Addition of new NR RLC test case 7.2.3.7 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182053 | | - | | - | | - | | Addition of new NR RLC test case 7.2.3.8 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182054 | | - | | - | | - | | Addition of new NR RLC test case 7.2.3.3 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182055 | | - | | - | | - | | Addition of new NR RLC test case 7.2.3.4 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182056 | | - | | - | | - | | Addition of new NR RRC test case 8.2.3.9 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182057 | | - | | - | | - | | Addition of new NR RRC test case 8.2.3.10 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182058 | | - | | - | | - | | Addition of new NR RRC test case 8.2.3.11 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182059 | | - | | - | | - | | Addition of new NR RRC test case 8.2.3.12 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182060 | | - | | - | | - | | Correction to MAC test case 7.1.2.1 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182061 | | - | | - | | - | | Addition of new NR RRC test case 8.2.3.19 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182076 | | - | | - | | - | | 5GS PDCP Test case 7.3.4.1 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182077 | | - | | - | | - | | 5GS PDCP Test case 7.3.5.4 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182078 | | - | | - | | - | | 5GS RLC test case 7.2.3.11 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182079 | | - | | - | | - | | 5GS RLC test case 7.2.3.12 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182080 | | - | | - | | - | | Addition of new NR RRC test case 8.2.3.7 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182081 | | - | | - | | - | | Addition of new NR RLC test case 7.2.2.3 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182082 | | - | | - | | - | | Addition of new NR RLC test case 7.2.2.4 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182083 | | - | | - | | - | | Addition of new NR RRC test case 8.2.3.17 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182085 | | - | | - | | - | | Correction to PDCP integrity protection test cases | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182089 | | - | | - | | - | | 5GS RRC TC 8.2.5.5 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182100 | | - | | - | | - | | 5GS RRC TC 8.2.5.6 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182101 | | - | | - | | - | | 5GS RRC TC 8.2.5.7 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182102 | | - | | - | | - | | 5GS RRC TC 8.2.2.2.7 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182103 | | - | | - | | - | | Corrections to RRC TC 8.2.5.1 RRC connection reconfiguration / PSCell addition failure | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182104 | | - | | - | | - | | Corrections to RRC TC 8.2.2.2.1 PSCell addition, modification and release / SCG DRB | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182105 | | - | | - | | - | | Corrections to RRC TC 8.2.2.2.6 Bearer Modification / SCG DRB / Split DRB Reconfiguration | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182106 | | - | | - | | - | | Addition of new NR RRC test case 8.2.2.1.2 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182115 | | - | | - | | - | | Introduction of 5GS RRC TC 8.2.4.3.1 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182116 | | - | | - | | - | | Adding NR test case 8.2.2.1.1 | | 0.3.0 | |
| 2018-04 | | RAN5#2-5G-NR Adhoc | | R5-182117 | | - | | - | | - | | Adding NR test case 8.2.2.1.3 | | 0.3.0 | |
| 2018-04 | | post RAN5#2-5G-NR Adhoc | | - | | - | | - | | - | | Editorial update to apply with the 3GPP drafting rules (styles) | | 0.3.1 | |
| 2018-05 | | RAN5#79 | | [R5-183094](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183094.zip) | | - | | - | | - | | Addition of UE power headroom reporting test case 7.1.1.3.7 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183101](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183101.zip) | | - | | - | | - | | Addition of DRX Operation test case 7.1.1.5.4 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183102](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183102.zip) | | - | | - | | - | | Addition of Correct handling of DL assignment/Semi-persistent test case 7.1.1.6.1 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183103](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183103.zip) | | - | | - | | - | | Addition of AM RLC test case 7.1.2.3.10 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183227](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183227.zip) | | - | | - | | - | | Editorial updates to 38.523-1 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183229](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183229.zip) | | - | | - | | - | | Correction to PDCP Test case - PDCP reordering/Maximum re-ordering delay below t-Reordering/ t-Reordering timer operations | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183109](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183109.zip) | | - | | - | | - | | Update to MAC Test case - Random access procedure / Successful/ C-RNTI Based/Preamble selected by MAC itself | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | R5-183111 | | - | | - | | - | | Update RLC test case - AM RLC / Re-transmission of RLC PDU with and without re-segmentation | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | R5-183112 | | - | | - | | - | | Correction to MAC Test case - DRX operation / Short cycle configured / Parameters configured by RRC | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | R5-183113 | | - | | - | | - | | Correction to PDCP Test case - PDCP handover / Lossless handover / PDCP sequence number maintenance/PDCP status report to convey the information on missing or acknowledged PDCP SDUs at handover/ In-order delivery and duplicate elimination in the downlink | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | R5-182497 | | - | | - | | - | | Corrections to RRC TC - BandwidthPart Configuration / SCG | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | R5-183230 | | - | | - | | - | | Corrections to RRC TC - PSCell addition, modification and release / SCG DRB | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183114](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183114.zip) | | - | | - | | - | | Corrections to RRC TC - Bearer Modification / Handling for bearer type change with security key change | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183115](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183115.zip) | | - | | - | | - | | Corrections to RRC TC - Bearer Modification / Uplink data path / Split DRB Reconfiguration | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183117](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183117.zip) | | - | | - | | - | | Corrections to RRC TC - Measurement configuration control and reporting / Inter-RAT measurements / Event B1 / Measurement of NR cells | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183116](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183116.zip) | | - | | - | | - | | Corrections to RRC TC - RRC connection reconfiguration / PSCell addition failure | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183231](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183231.zip) | | - | | - | | - | | Corrections to RRC TC - NR SCG Failure Information / RLC-MaxNumRetx | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183118](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183118.zip) | | - | | - | | - | | Corrections to RRC TC - SCG Reconfiguration Failure / SRB3 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183119](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183119.zip) | | - | | - | | - | | Corrections to RRC TC - SCG Reconfiguration Failure / SRB1 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-182508](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-182508.zip) | | - | | - | | - | | Void RRC TC - Handover with PSCell release / SCG DRB | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-182509](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-182509.zip) | | - | | - | | - | | Void RRC TC - Bearer Modification / SCG DRB / Split DRB Reconfiguration | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183120](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183120.zip) | | - | | - | | - | | Correction to NR RRC test case 8.2.3.17 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183121](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183121.zip) | | - | | - | | - | | Correction to NR RRC test case 8.2.3.19 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183228](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183228.zip) | | - | | - | | - | | Correction to NR MAC test case 7.1.1.3.2 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183122](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183122.zip) | | - | | - | | - | | Correction to NR PDCP test case 7.1.3.4.2 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183123](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183123.zip) | | - | | - | | - | | Addition of new NR RRC test case 8.2.5.2.1 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183124](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183124.zip) | | - | | - | | - | | Addition of new NR RRC test case 8.2.5.4.1 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-182601](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-182601.zip) | | - | | - | | - | | Removal of NR RRC test case 8.2.2.2.5 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183126](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183126.zip) | | - | | - | | - | | Addition of new 5GS RRC TC 8.2.4.3.1.1 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183127](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183127.zip) | | - | | - | | - | | Addition of new NR RRC test case - Bearer Modification / Handling for bearer type change without security key change / EN-DC | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-182652](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-182652.zip) | | - | | - | | - | | Void RRC TC - Bearer Modification / MCG DRB / SCG DRB Reconfiguration | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-182774](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-182774.zip) | | - | | - | | - | | Addition of 5GS NR RRC test case 8.2.3.8.1 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183130](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183130.zip) | | - | | - | | - | | Removal of RRC TC 8.2.4.3.1 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-182798](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-182798.zip) | | - | | - | | - | | Update of 5GS NR RRC test case 8.2.3.6 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183232](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183232.zip) | | - | | - | | - | | Addition of 5GS NR RRC test case 8.2.2.6.1 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183233](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183233.zip) | | - | | - | | - | | Addition of 5GS NR PDCP test case 7.1.3.5.3 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183132](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183132.zip) | | - | | - | | - | | Update of NR RRC TC - Measurement configuration control and reporting / Inter-RAT measurements / Event B1 / Measurement of NR cells / RSRQ based measurements | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183133](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183133.zip) | | - | | - | | - | | Update of NR RRC TC - Measurement configuration control and reporting / Inter-RAT measurements / Periodic reporting / Measurement of NR cells | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183134](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183134.zip) | | - | | - | | - | | Update of NR RRC TC - Measurement configuration control and reporting / Event A1 / Measurement of NR PSCell | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183135](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183135.zip) | | - | | - | | - | | Addition of NR RRC TC - PSCell addition, modification and release / Split DRB / EN-DC | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183137](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183137.zip) | | - | | - | | - | | Addition of 5GS NR RRC test case 8.2.1.1.1 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183138](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183138.zip) | | - | | - | | - | | Addition of new NR MAC UL TBS test case 7.1.1.4.2.1 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183139](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183139.zip) | | - | | - | | - | | Addition of new NR MAC UL TBS test case 7.1.1.4.2.2 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183140](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183140.zip) | | - | | - | | - | | Addition of new NR MAC UL TBS test case 7.1.1.4.2.3 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183141](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183141.zip) | | - | | - | | - | | Addition of new NR MAC UL TBS test case 7.1.1.4.2.4 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183142](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183142.zip) | | - | | - | | - | | Addition of Layer 2 test case specific parameters | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183143](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183143.zip) | | - | | - | | - | | Correction to MAC Pre-test conditions | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183144](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183144.zip) | | - | | - | | - | | Correction to RLC Pre-test conditions | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183145](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183145.zip) | | - | | - | | - | | Correction to PDCP Pre-test conditions | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183146](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183146.zip) | | - | | - | | - | | Correction to MAC RACH Test Cases | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-182940](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-182940.zip) | | - | | - | | - | | Correction to MAC DL Data Transfer test cases | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183147](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183147.zip) | | - | | - | | - | | Correction to MAC UL Data Transfer test cases | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183148](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183148.zip) | | - | | - | | - | | Correction to MAC DL-SCH TBS test cases | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183149](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183149.zip) | | - | | - | | - | | Correction to RLC UM Test cases | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183150](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183150.zip) | | - | | - | | - | | Correction to RLC AM Test cases | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-182945](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-182945.zip) | | - | | - | | - | | Corrections to PDCP sequence number test cases | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183151](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183151.zip) | | - | | - | | - | | Correction to PDCP integrity protection test cases | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-182947](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-182947.zip) | | - | | - | | - | | Correction to PDCP Ciphering test cases | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183152](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183152.zip) | | - | | - | | - | | Corrections to PDCP other test cases | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183153](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183153.zip) | | - | | - | | - | | Addition of new NR RACH test case 7.1.1.1.1 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-182966](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-182966.zip) | | - | | - | | - | | Correction to NR RLC test case 7.1.2.3.4 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183154](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183154.zip) | | - | | - | | - | | Correction to PDCP test case 7.1.3.5.2 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183155](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183155.zip) | | - | | - | | - | | Correction to NR MAC DRX Test cases | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183156](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183156.zip) | | - | | - | | - | | Correction to NR RRC intra frequency measurement Test case 8.2.3.9 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183157](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183157.zip) | | - | | - | | - | | Correction to NR RRC inter frequency measurement Test case 8.2.3.10 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183016](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183016.zip) | | - | | - | | - | | Removal of NR RRC test case 8.2.3.11 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183017](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183017.zip) | | - | | - | | - | | Removal of NR RRC test case 8.2.3.12 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183129](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183129.zip) | | - | | - | | - | | Addition of new 5GS RRC TC 8.2.3.13.1 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183136](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183136.zip) | | - | | - | | - | | Correction to NR RRC test case 8.2.3.5 | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183263](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183263.zip) | | - | | - | | - | | Addition of new NR NAS test case Default EPS bearer context activation | | 1.0.0 | |
| 2018-05 | | RAN5#79 | | [R5-183265](file:///C:\Users\Users\Users\Users\Users\Users\sigovich\AppData\Roaming\Tdoc\R5-183265.zip) | | - | | - | | - | | Updates to session management TC 10.2.2.1 | | 1.0.0 | |
| 2018-06 | | RAN#80 | | RP-181210 | | - | | - | | - | | put under revision control as v15.0.0 with small editorial changes | | 15.0.0 | |
| 2018-09 | | RAN#81 | | R5-184226 | | 0010 | | - | | F | | Addition of Correct handling of Configured UL grant Type 1 test case 7.1.1.6.2 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184227 | | 0011 | | - | | F | | Addition of Correct handling of Configured UL grant Type 2 test case 7.1.1.6.3 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184228 | | 0012 | | - | | F | | CR of Correct handling of DL assignment Semi persistent test case 7.1.1.6.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184229 | | 0013 | | - | | F | | CR of UE power headroom reporting test case 7.1.1.3.7 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184343 | | 0020 | | - | | F | | Correction to 5GS PDCP Test case 7.1.3.4.1 PDCP handover / Lossless handover / PDCP sequence number maintenance / PDCP status report to convey the information on missing or acknowledged PDCP SDUs at handover / In-order delivery and duplicate elimination in the downlink | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184344 | | 0021 | | - | | F | | Correction to 5GS PDCP Test case 7.1.3.5.4 PDCP reordering / Maximum re-ordering delay below t-Reordering / t-Reordering timer operations | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184353 | | 0023 | | - | | F | | Corrections to RRC TC - BandwidthPart Configuration / SCG / EN-DC | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184500 | | 0031 | | - | | F | | Addition of new 5GS RRC TC 8.2.4.3.1.3 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184517 | | 0032 | | - | | F | | Correction to NR PDCP test case 7.1.3.4.2 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184523 | | 0036 | | - | | F | | Corrections to MAC TBS test cases | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184527 | | 0040 | | - | | F | | Addition of new MAC test case for Reset | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184680 | | 0055 | | - | | F | | Update of RRC SCG failure TC 8.2.5.5.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184681 | | 0056 | | - | | F | | Update of RRC SCG failure TC 8.2.5.6.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184760 | | 0059 | | - | | F | | Correction to RRC TC - PSCell addition, modification and release / Split DRB / EN-DC | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184761 | | 0060 | | - | | F | | Correction to RRC TC - Measurement configuration control and reporting / Inter-RAT measurements / Periodic reporting / Measurement of NR cells / EN-DC | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184763 | | 0061 | | - | | F | | Correction to RRC TC - Measurement configuration control and reporting / Inter-RAT measurements / Event B1 / Measurement of NR cells / RSRQ based measurements / EN-DC | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-184769 | | 0063 | | - | | F | | Update of 5GS NR RRC test case 8.2.2.6.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185059 | | 0001 | | 1 | | F | | Correction to NR MAC test case 7.1.1.3.2 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185060 | | 0004 | | 1 | | F | | Addition of Correct Handling of DL HARQ process PDSCH Aggregation test case 7.1.1.2.2 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185061 | | 0005 | | 1 | | F | | Addition of NR CA reconfiguration test case 8.2.4.2.1.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185062 | | 0006 | | 1 | | F | | Addition of NR CA reconfiguration test case 8.2.4.2.1.2 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185064 | | 0015 | | 1 | | F | | Addition of 5GS NR SDAP test case 7.1.4.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185065 | | 0016 | | 1 | | F | | Correction to 5GS MAC Test case 7.1.1.1.2 Random access procedure / Successful / C-RNTI Based / Preamble selected by MAC itself | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185066 | | 0017 | | 1 | | F | | Correction to 5GS MAC Test case 7.1.1.5.3 DRX operation / Short cycle configured / Parameters configured by RRC | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185067 | | 0018 | | 1 | | F | | Correction to 5GS RLC Test case 7.1.2.3.10 AM RLC / Re-transmission of RLC PDU with and without re-segmentation | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185068 | | 0019 | | 1 | | F | | Correction to 5GS RLC Test case 7.1.2.3.11 AM RLC / RLC re-establishment procedure | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185069 | | 0022 | | 1 | | F | | Addition of NR CA / NR SCell addition / modification / release / Success test cases 8.2.4.1.1.1, 8.2.4.1.1.2 and 8.2.4.1.1.3 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185070 | | 0027 | | 1 | | F | | Corrections to RRC TC - Measurement configuration control and reporting / Inter-RAT measurements / Event B1 / Measurement of NR cells / EN-DC | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185071 | | 0029 | | 1 | | F | | Correction to 5GS RRC TC 8.2.4.3.1.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185072 | | 0030 | | 1 | | F | | Addition of 5GS RRC TC 8.2.4.3.1.2 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185073 | | 0033 | | 1 | | F | | Corrections to Layer 2 test cases | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185074 | | 0034 | | 1 | | F | | Corrections to MAC test case 7.1.2.2.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185075 | | 0035 | | 1 | | F | | Corrections to MAC test case 7.1.2.3.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185076 | | 0037 | | 1 | | F | | Addition of new MAC RACH test case for PDCCH order | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185077 | | 0039 | | 1 | | F | | Addition of new MAC test case for Scell Activation Deactivation | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185078 | | 0041 | | 1 | | F | | Addition of new MAC UL TBS test case with transform precoding configured | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185079 | | 0042 | | 1 | | F | | Correction to default pre-test conditions for UM RLC test cases | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185080 | | 0043 | | 1 | | F | | New NAS test case 9.1.5.1.12 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185082 | | 0045 | | 1 | | F | | Correction to NR PDCP test case 7.1.3.5.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185083 | | 0046 | | 1 | | F | | Correction to NR RLC test case 7.1.2.3.3 and 7.1.2.3.4 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185089 | | 0049 | | 1 | | F | | Corrections to RRC TC - Measurement configuration control and reporting / Inter-RAT measurements / Event B2 / Measurement of NR cells / EN-DC | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185090 | | 0050 | | 1 | | F | | CR of AM RLC test case 7.1.2.3.10 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185091 | | 0051 | | 1 | | F | | Update of RRC SCG failure TC 8.2.5.1.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185092 | | 0052 | | 1 | | F | | Update of RRC SCG failure TC 8.2.5.2.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185093 | | 0053 | | 1 | | F | | Update of RRC SCG failure TC 8.2.5.3.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185094 | | 0054 | | 1 | | F | | Update of RRC SCG failure TC 8.2.5.4.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185095 | | 0057 | | 1 | | F | | Addition of 5GS NR SDAP test case 7.1.4.2 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185096 | | 0064 | | 1 | | F | | Update of 5GS NR RRC test case 8.2.3.6.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185097 | | 0066 | | 1 | | F | | Update of 5GS NR RRC test case 8.2.3.8.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185098 | | 0067 | | 1 | | F | | Update of 5GS NR RRC test case 8.2.1.1.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185099 | | 0068 | | 1 | | F | | L2 Preamble Parameter Update for Multi-PDN configuration | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185100 | | 0069 | | 1 | | F | | Correction to NR RLC test cases 7.1.2.2.3 and 7.1.2.2.4 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185101 | | 0070 | | 1 | | F | | Correction to NR RRC test case 8.2.3.14.1 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185148 | | 0007 | | 1 | | F | | Addition of NR CA reconfiguration test case 8.2.4.2.1.3 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185149 | | 0024 | | 1 | | F | | Corrections to RRC TC - PSCell addition, modification and release / SCG DRB / EN-DC | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185150 | | 0025 | | 1 | | F | | Corrections to RRC TC - Bearer Modification / Handling for bearer type change with security key change / EN-DC | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185151 | | 0026 | | 1 | | F | | Corrections to RRC TC - Bearer Modification / Uplink data path / Split DRB Reconfiguration / EN-DC | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185152 | | 0038 | | 1 | | F | | Addition of new MAC test case for Power Headroom report | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185153 | | 0047 | | 1 | | F | | Addition of RRC Default Pre-test conditions for NSA | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185154 | | 0058 | | 1 | | F | | Correction to RRC TC - Measurement configuration control and reporting / Event A1 / Measurement of NR PSCell / EN-DC | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185155 | | 0062 | | 1 | | F | | Updates to NAS test case 10.2.1.2 | | 15.1.0 | |
| 2018-09 | | RAN#81 | | R5-185167 | | 0071 | | 1 | | F | | Update to EPS SM Test case for Multi-PDN | | 15.1.0 | |
| 2018-12 | | RAN#82 | | R5-186649 | | 0157 | | - | | F | | Correction to NR PDCP test case 7.1.3.5.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-186650 | | 0158 | | - | | F | | Correction to NR PDCP test case 7.1.3.5.2 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-186679 | | 0163 | | - | | F | | Corrections to PDCP test case 7.1.3.5.3 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-186725 | | 0167 | | - | | F | | Correction to 5GS test case 7.1.2.2.5 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-186801 | | 0178 | | - | | F | | Update RRC TC 8.2.2.2.1 - Split SRB Establishment and Release / EN-DC | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-186802 | | 0179 | | - | | F | | Update RRC TC 8.2.2.7.1 - Bearer Modification / Handling for bearer type change without security key change / EN-DC | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-186803 | | 0180 | | - | | F | | Update RRC TC8.2.3.7.1 - Measurement configuration control and reporting / Event A4 (intra-frequency, inter-frequency and inter-band measurements) / Measurement of Neighbour NR cell / EN-DC | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-186872 | | 0181 | | - | | F | | Removal of RRC SCG failure TC 8.2.5.5.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-186873 | | 0182 | | - | | F | | Removal of RRC SCG failure TC 8.2.5.6.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-186890 | | 0185 | | - | | F | | Correction to NR RRC test case 8.2.3.14.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-186891 | | 0186 | | - | | F | | Correction to NR RRC test case 8.2.3.13.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-186892 | | 0187 | | - | | F | | Correction to NR PDCP test case 7.1.3.4.2 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-186995 | | 0228 | | - | | F | | CR of test case 8.2.4.2\_NR CA release\_Resubmission of 186101 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187104 | | 0229 | | - | | F | | Correction to MAC test cases | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187105 | | 0230 | | - | | F | | Correction to RLC UM test cases | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187106 | | 0231 | | - | | F | | Correction to RLC AM test cases | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187236 | | 0235 | | - | | F | | Update RRC TC 8.2.1.2.1 - BandwidthPart Configuration / SCG / EN-DC | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187237 | | 0236 | | - | | F | | Update RRC TC 8.2.2.4.1 - PSCell addition, modification and release / SCG DRB / EN-DC | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187238 | | 0237 | | - | | F | | Update RRC TC 8.2.2.8.1 - Bearer Modification / Handling for bearer type change with security key change / EN-DC | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187239 | | 0238 | | - | | F | | Update RRC TC 8.2.2.9.1 - Bearer Modification / Uplink data path / Split DRB Reconfiguration / EN-DC | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187248 | | 0247 | | - | | F | | Correction to MAC Test case 7.1.1.1.2 Random access procedure / Successful / C-RNTI Based / Preamble selected by MAC itself | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187249 | | 0248 | | - | | F | | Correction to MAC Test case 7.1.1.5.3 DRX operation / Short cycle configured / Parameters configured by RRC | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187250 | | 0249 | | - | | F | | Correction to RLC Test case 7.1.2.3.10 AM RLC / Re-transmission of RLC PDU with and without re-segmentation | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187251 | | 0250 | | - | | F | | Correction to RLC Test case 7.1.2.3.11 AM RLC / RLC re-establishment procedure | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187252 | | 0251 | | - | | F | | Correction to PDCP Test case 7.1.3.4.1 PDCP handover / Lossless handover / PDCP sequence number maintenance / PDCP status report to convey the information on missing or acknowledged PDCP SDUs at handover / In-order delivery and duplicate elimination | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187254 | | 0253 | | - | | F | | Update RRC TCs 8.2.4.1.1.1, 8.2.4.1.1.2 and 8.2.4.1.1.3 NR CA / NR SCell addition / modification / release / Success | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187255 | | 0254 | | - | | F | | Correction to EN-DC NAS test case 10.2.1.1 - Default EPS bearer context activation | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187302 | | 0260 | | - | | F | | Correction to test case 8.2.4.3.1.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187410 | | 0273 | | - | | F | | Update of 5GS NR RRC test case 8.2.2.6.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187411 | | 0274 | | - | | F | | Addition of 5GS NR MAC test case 7.1.1.3.9 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187492 | | 0278 | | - | | F | | Correction to test case 8.2.2.1.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187497 | | 0279 | | - | | F | | Correction to test case 8.2.2.3.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187528 | | 0285 | | - | | F | | Update to RRC TC - PSCell addition, modification and release / Split DRB / EN-DC | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187530 | | 0286 | | - | | F | | Update to RRC TC - Measurement configuration control and reporting / Inter-RAT measurements / Event B1 / Measurement of NR cells / RSRQ based measurements / EN-DC | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187534 | | 0287 | | - | | F | | Update to RRC TC - Measurement configuration control and reporting / Inter-RAT measurements / Periodic reporting / Measurement of NR cells / EN-DC | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187540 | | 0290 | | - | | F | | Update to 5G-NR RRC TCs for Multi-PDN support and specific message content IEs | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187611 | | 0294 | | - | | F | | Correction to MAC TBS test cases | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187686 | | 0283 | | 1 | | F | | Adding test case 6.1.1.7 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187688 | | 0202 | | 1 | | F | | Addition of NR test case 7.1.1.1.3\_SI Request | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187689 | | 0203 | | 1 | | F | | Addition of NR test case 7.1.1.1.6\_Random access | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187690 | | 0204 | | 1 | | F | | Addition of NR test case 7.1.1.2.3\_CCCH HARQ | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187691 | | 0213 | | 1 | | F | | CR of NR test case 7.1.2.3.9\_RLC Reassembling | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187692 | | 0252 | | 1 | | F | | Correction to PDCP Test case 7.1.3.5.4 PDCP reordering / Maximum re-ordering delay below t-Reordering / t-Reordering timer operations | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187693 | | 0234 | | 1 | | F | | Correction to SDAP test cases | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187695 | | 0243 | | 1 | | F | | Addition of 5GS SA RRC TC 8.1.1.1.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187696 | | 0246 | | 1 | | F | | Addition of 5GS SA RRC TC 8.1.5.2.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187698 | | 0159 | | 1 | | F | | Correction to NR RRC test case 8.2.3.5.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187699 | | 0160 | | 1 | | F | | Correction to NR RRC test case 8.2.3.9.1 and 8.2.3.10.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187700 | | 0239 | | 1 | | F | | Update RRC TC 8.2.3.1.1 - Measurement configuration control and reporting / Inter-RAT measurements / Event B1 / Measurement of NR cells / EN-DC | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187701 | | 0272 | | 1 | | F | | Update RRC TC 8.2.3.12.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187702 | | 0276 | | 1 | | F | | Update of 5GS NR RRC test case 8.2.3.6.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187703 | | 0277 | | 1 | | F | | Update of 5GS NR RRC test case 8.2.3.8.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187704 | | 0288 | | 1 | | F | | Update to RRC TC - Measurement configuration control and reporting / Event A1 / Measurement of NR PSCell / EN-DC | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187705 | | 0289 | | 1 | | F | | Update to 5G-NR RRC measurement report TCs for FR1/FR2 cell power level | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187706 | | 0168 | | 1 | | F | | Updates to EN-DC TC 8.2.5.3.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187707 | | 0140 | | 1 | | F | | Corrections to NAS test case 9.1.5.1.14 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187778 | | 0284 | | 1 | | F | | Adding test case 6.1.1.8 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187779 | | 0226 | | 1 | | F | | Addition of NR test case 7.1.1.1.4\_Beam Failure | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187780 | | 0227 | | 1 | | F | | Addition of NR test case 7.1.1.1.5 SUL | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187781 | | 0281 | | 1 | | F | | Correction to NR MAC test case 7.1.1.3.2 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187782 | | 0291 | | 1 | | F | | Addition of 5GS NR MAC test case 7.1.1.8.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187784 | | 0184 | | 1 | | F | | Correction to the default Pre-Test Conditions for AM and UM RLC test cases | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187785 | | 0232 | | 1 | | F | | Correction to PDCP Ciphering test cases | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187786 | | 0233 | | 1 | | F | | Correction to PDCP Integrity test cases | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187787 | | 0216 | | 1 | | F | | Addition of NR test case 8.1.1.2.3\_T300 expiry | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187789 | | 0245 | | 1 | | F | | Addition of 5GS SA RRC TC 8.1.1.2.5 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187790 | | 0275 | | 1 | | F | | Addition of 5GS NR RRC test case 8.1.1.3.2 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187792 | | 0224 | | 1 | | F | | Addition of NR test case 8.2.3.11.1\_gapFR1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187794 | | 0221 | | 1 | | F | | Addition of NR test case 8.1.5.3.1\_PWS notification | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187795 | | 0240 | | 1 | | F | | Update RRC SCG failure TC 8.2.5.1.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-187797 | | 0263 | | 1 | | F | | Addition of new 5GC TC 9.1.6.1.1 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-188159 | | 0222 | | 2 | | F | | Addition of NR test case 9.1.5.1.1\_Registration Request | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-188187 | | 0296 | | - | | F | | Correction to NR MAC DRX test cases 7.1.1.5.1 and 7.1.1.5.2 | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-188188 | | 0217 | | 2 | | F | | Addition of NR test case 8.1.1.3.1\_Redirection to NR | | 15.2.0 | |
| 2018-12 | | RAN#82 | | R5-188190 | | 0225 | | 2 | | F | | Addition of NR test case 8.2.3.11.2\_gapFR2 | | 15.2.0 | |
| 2019-01 | | RAN#82 | | R5-188192 | | 0205 | | 2 | | F | | Addition of NR test case 7.1.1.2.4\_BCCH HARQ | | 15.2.1 | |
| 2019-01 | | RAN#82 | | R5-188193 | | 0295 | | 2 | | F | | Correction to Layer 2 Pre Test conditions | | 15.2.1 | |
| 2019-01 | | RAN#82 | | R5-188194 | | 0218 | | 2 | | F | | Addition of NR test case 8.1.3.1.1\_Event A1 | | 15.2.1 | |
| 2019-01 | | RAN#82 | | R5-188195 | | 0183 | | 2 | | F | | Update to 5G TC TA registration update | | 15.2.1 | |
| 2019-01 | | RAN#82 | | R5-188202 | | 0280 | | 2 | | F | | Update of 5GS NR RRC test case 8.2.1.1.1 | | 15.2.1 | |
| 2019-03 | | RAN#83 | | R5-191197 | | 0421 | | - | | F | | Correction to 5GS RLC Test case 7.1.2.2.5 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191198 | | 0422 | | - | | F | | Correction to 5GS RLC Test case 7.1.2.3.8 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191199 | | 0423 | | - | | F | | Correction to 5GS RLC Test case 7.1.2.3.9 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191200 | | 0424 | | - | | F | | Correction to EN-DC RRC test case 8.2.5.3.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191202 | | 0426 | | - | | F | | Correction to 5GS RLC Test case 7.1.2.3.10 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191203 | | 0427 | | - | | F | | Correction to EN-DC RRC test case 8.2.2.2.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191353 | | 0431 | | - | | F | | Correcting test case 7.1.1.3.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191393 | | 0445 | | - | | F | | Correction to NR test case 7.1.1.1.6-Random access procedure | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191397 | | 0449 | | - | | F | | Correction to NR test case 7.1.2.3.9-RLC Reassembling | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191403 | | 0455 | | - | | F | | Correction to NR test case 8.1.3.1.1-Event A1 and A2 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191405 | | 0457 | | - | | F | | Correction to NR test case 8.2.3.11.2-ENDC measurement gap FR2 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191415 | | 0466 | | - | | F | | Addition of TC 8.1.3.2.3-inter-RAT measurement B2 RSRQ | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191426 | | 0475 | | - | | F | | Addition of NR test case 6.1.2.4-Cell Reselection for interband operation | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191427 | | 0476 | | - | | F | | Addition of NR test case 6.1.2.5-Cell Reselection for interband operation using Pcompensation Between FDD and TDD | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191430 | | 0479 | | - | | F | | Addition of NR test case 6.1.2.21-Cell reselection,SIntra SearchQ and SnonIntraSeqrchQ | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191431 | | 0480 | | - | | F | | Addition of NR test case 6.1.2.22-Inter-frequency cell reselection with parameters ThreshX, HighQ, ThreshX, LowQ and ThreshServing, LowQ | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191432 | | 0481 | | - | | F | | Correction to NR test case 7.1.1.3.7-Power Headroom Reporting | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191433 | | 0482 | | - | | F | | Correction to NR test case 7.1.1.6.1-Correct handling of DL assignment Semi persistent | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191434 | | 0483 | | - | | F | | Addition of NR test case 8.1.1.1.2-Paging | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191435 | | 0484 | | - | | F | | Correction to NR test case 8.1.1.2.1-T300 expiry | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191436 | | 0485 | | - | | F | | Addition of NR test case 8.1.5.3.3-PWS notification | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191445 | | 0494 | | - | | F | | Correction to NR test case 9.1.5.1.1-Initial Registration | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191447 | | 0495 | | - | | F | | Addition of NR test case 8.1.3.1.5-Two event A3 RSRQ | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191448 | | 0496 | | - | | F | | Addition of NR test case 8.1.3.1.6\_Two event A5 SINR | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191449 | | 0497 | | - | | F | | Correction to NR test case 8.1.5.3.1-ETWS | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191509 | | 0504 | | - | | F | | Addition of new RRC TC 8.1.5.3.2 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191621 | | 0514 | | - | | F | | Update of 5GS NR RRC test case 8.1.1.3.2 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191641 | | 0523 | | - | | F | | Updates to 5GS SA RRC TC - RRC / Paging for connection / Multiple paging records | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191642 | | 0524 | | - | | F | | Updates to 5GS SA RRC TC - RRC connection establishment / RRC Reject with wait time | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191643 | | 0525 | | - | | F | | Updates to 5GS SA RRC TC - SI change / Notification of BCCH modification / Short message for SI update | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191651 | | 0530 | | - | | F | | Update EN-DC RRC TC 8.2.2.4.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191652 | | 0531 | | - | | F | | Update EN-DC RRC TC 8.2.2.8.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191653 | | 0532 | | - | | F | | Update EN-DC RRC TC 8.2.2.9.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191654 | | 0533 | | - | | F | | Update EN-DC RRC TC 8.2.4.1.1.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191656 | | 0535 | | - | | F | | Update EN-DC RRC TC 8.2.5.3.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191660 | | 0539 | | - | | F | | Addition of 5GC TC- PDU session authentication and authorization / during the UE-requested PDU session procedure | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191661 | | 0540 | | - | | F | | Addition of Idle Mode TC - Steering of UE in roaming during registration/security check successful using List Type 1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191663 | | 0542 | | - | | F | | Addition of Idle mode Test Case - PLMN selection of RPLMN, HPLMN/EHPLMN, UPLMN and OPLMN / Automatic mode | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191733 | | 0546 | | - | | F | | Update RRC TC 8.2.2.1.1 - SRB3 Establishment, Reconfiguration and Release / NR addition, modification and release / EN-DC | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191764 | | 0550 | | - | | F | | Addition of new TC 8.2.3.15 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191804 | | 0552 | | - | | F | | Title correction to MAC TC 7.1.1.7.1.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191806 | | 0553 | | - | | F | | Addition of new RRC TC 8.1.1.4.3 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191810 | | 0554 | | - | | F | | Addition of new 5GC TC 9.1.5.2.9 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191823 | | 0555 | | - | | F | | Addition of new 5GC TC 9.1.6.1.4 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191827 | | 0556 | | - | | F | | Addition of new RRC TC 8.1.1.4.2 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191859 | | 0559 | | - | | F | | Addition of new 5G-NR Idle Mode TC 6.1.1.6 - PLMN selection / Periodic reselection / MinimumPeriodicSearchTimer | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191869 | | 0561 | | - | | F | | Update to 5G-NR RRC Measurement configuration and reporting TC 8.2.3.3.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191877 | | 0562 | | - | | F | | Update to 5G-NR RRC Measurement configuration and reporting TC 8.2.3.4.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191897 | | 0570 | | - | | F | | Update to TC 8.2.5.4.1 SCG change failure / EN-DC | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191898 | | 0571 | | - | | F | | Editorial update to TC 7.1.3.2.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191911 | | 0574 | | - | | F | | Correction to MAC TBS test cases | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-191916 | | 0577 | | - | | F | | Introduction of Non 3GPP Access over WLAN test cases | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192203 | | 0587 | | - | | F | | Update to 5G-NR RRC Measurement configuration and reporting TCs 8.2.3.x.x | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192222 | | 0589 | | - | | F | | Correction to NR RRC test case 8.2.3.5.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192282 | | 0429 | | 1 | | F | | Addition of new 5G-NR Idle Mode TC 6.1.2.19 - Speed-dependent cell reselection | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192283 | | 0440 | | 1 | | F | | Addition of NR test case 6.1.2.15-Cell reselection in shared network environment | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192284 | | 0441 | | 1 | | F | | Addition of NR test case 6.1.2.17-Cell reselection | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192285 | | 0541 | | 1 | | F | | Addition of Idle mode Test Case 6.1.2.7: Cell reselection / Equivalent PLMN | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192286 | | 0446 | | 1 | | F | | Correction to NR test case 7.1.1.5.4-CDRX | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192287 | | 0447 | | 1 | | F | | Correction to NR test case 7.1.1.6.2-Configured grant Type 1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192288 | | 0448 | | 1 | | F | | Correction to NR test case 7.1.1.6.3-Configured grant Type 2 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192289 | | 0548 | | 1 | | F | | Addition of a new test purpose to TC 7.1.1.2.1 and TC 7.1.1.3.1 for a TDD-UL-DL-ConfigCommon including pattern2 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192291 | | 0575 | | 1 | | F | | Reduction of loops in MAC TBS test cases | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192293 | | 0565 | | 1 | | F | | Correction to 5GS RLC Test case 7.1.2.3.11 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192296 | | 0536 | | 1 | | F | | Correction to PDCP Test case 7.1.3.4.1 PDCP handover / Lossless handover / PDCP sequence number maintenance / PDCP status report to convey the information on missing or acknowledged PDCP SDUs at handover / In-order delivery and duplicate elimination in th | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192297 | | 0544 | | 1 | | F | | Correction to SDAP Test Cases | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192298 | | 0451 | | 1 | | F | | Addition of NR test case 8.1.1.3.4-RRCRelease with priority information of E-UTRA | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192299 | | 0526 | | 1 | | F | | Addition of 5GS SA RRC TC - RRC connection release / With priority information / T320 expiry | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192300 | | 0527 | | 1 | | F | | Addition of 5GS SA RRC TC - RRC connection release / With priority information / T320 expiry / E-UTRA | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192301 | | 0528 | | 1 | | F | | Addition of 5GS SA RRC TC - RRC resume / Suspend-Resume / Success | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192302 | | 0588 | | 1 | | F | | Addition of 5GS SA RRC TC - 8.1.2.1.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192303 | | 0590 | | 1 | | F | | Addition of 5GS SA RRC TC - 8.1.2.1.3 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192304 | | 0591 | | 1 | | F | | Addition of 5GS SA RRC TC - 8.1.5.3.4 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192307 | | 0557 | | 1 | | F | | Update ENDC TC 8.2.2.3.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192308 | | 0420 | | 1 | | F | | Update to 5G-NR RRC Measurement configuration and reporting TC 8.2.3.2.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192329 | | 0456 | | 1 | | F | | Correction to NR test case 8.2.3.11.1-ENDC measurement gap FR1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192330 | | 0428 | | 1 | | F | | Correction to NR RRC test case 8.2.3.13.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192331 | | 0579 | | 1 | | F | | Correction to NR RRC test case 8.2.3.12.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192332 | | 0581 | | 1 | | F | | Correction to NR RRC test case 8.2.3.14.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192333 | | 0582 | | 1 | | F | | Correction to NR RRC test case 8.2.3.1.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192334 | | 0596 | | 1 | | F | | Correction to NR RRC test case 8.2.3.9.1 and 8.2.3.10.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192339 | | 0534 | | 1 | | F | | Update EN-DC RRC TC 8.2.5.1.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192340 | | 0506 | | 1 | | F | | Update to 5G testcase 9.1.5.1.14 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192341 | | 0572 | | 1 | | F | | Update to 5G TC 9.1.5.2.1 TA registration update | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192342 | | 0543 | | 1 | | F | | Correction to EN-DC NAS  test case 10.2.1.1 - Default EPS bearer context activation | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192343 | | 0537 | | 1 | | F | | Addition of 5GC TC SMS over NAS service | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192383 | | 0459 | | 1 | | F | | Addition of NR test case 9.1.5.1.10-PLMN not allowed | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192385 | | 0498 | | 1 | | F | | Addition of new 5GC TC 9.1.7.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192386 | | 0502 | | 1 | | F | | Addition of new 5GC TC 9.1.5.1.11 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192387 | | 0503 | | 1 | | F | | Addition of new 5GC TC 9.1.5.1.12 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192388 | | 0507 | | 1 | | F | | Addition of 5G testcase 9.1.5.1.4 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192389 | | 0508 | | 1 | | F | | Addition of 5G testcase 9.1.3.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192390 | | 0538 | | 1 | | F | | Addition of 5GC TC - Initial registration / 5GS services / NSSAI handling | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192391 | | 0545 | | 1 | | F | | Addition of new 5GC TC 9.1.5.1.5 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192392 | | 0547 | | 1 | | F | | Introduction of TC 9.1.1.1 EAP based primary authentication and key agreement | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192393 | | 0549 | | 1 | | F | | Introduction of TC 9.1.1.3 EAP based primary authentication and key agreement | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192394 | | 0558 | | 1 | | F | | Addition of new 5GC TC 9.1.5.1.7 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192396 | | 0564 | | 1 | | F | | Addition of new 5GC TC 9.1.5.1.8 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192397 | | 0566 | | 1 | | F | | Update TC 9.1.6.1.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192398 | | 0573 | | 1 | | F | | Introduction of TC 9.1.5.2.4 Mobility registration update / The lower layer requests NAS signalling connection recovery | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192399 | | 0580 | | 1 | | F | | New 5GC test case 9.1.2.2 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192700 | | 0499 | | 1 | | F | | Addition of new 5GC TC 10.1.3.2 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192701 | | 0500 | | 1 | | F | | Addition of new 5GC TC 10.1.6.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192702 | | 0501 | | 1 | | F | | Addition of new 5GC TC 10.1.6.2 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192703 | | 0563 | | 1 | | F | | Addition of new 5GC TC 10.1.2.2 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192749 | | 0474 | | 1 | | F | | Addition of NR test case 6.1.2.2-Cell selection based on Qqualmin | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192750 | | 0432 | | 1 | | F | | Correcting test case 6.1.1.7 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192751 | | 0433 | | 1 | | F | | Updating test case 6.1.1.8 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192754 | | 0599 | | - | | F | | Addition of NR test case 6.1.2.1-Cell selection based on Qrxlevmin and Cell Reselection for Intra Frequency | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192756 | | 0600 | | - | | F | | Addition of NR test case 6.1.2.3-Cell selection-Serving cell bar | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192757 | | 0470 | | 1 | | F | | Addition of NR test case 6.1.1.2- PLMN selection of Other PLMN | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192758 | | 0471 | | 1 | | F | | Addition of NR test case 6.1.1.3-Cell reselection of ePLMN | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192759 | | 0473 | | 1 | | F | | Addition of NR test case 6.1.1.5-PLMN selection | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192760 | | 0477 | | 1 | | F | | Addition of NR test case 6.1.2.9-Cell Reselection using Qhyst, Qoffset and Treselection | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192761 | | 0478 | | 1 | | F | | Addition of NR test case 6.1.2.20-Inter-frequency cell reselection according to priority | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192762 | | 0509 | | 1 | | F | | Adding test case 6.2.1.2 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192763 | | 0510 | | 1 | | F | | Adding test case 6.2.1.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192764 | | 0511 | | 1 | | F | | Adding test case 6.2.1.3 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192765 | | 0512 | | 1 | | F | | Adding test case 6.2.1.4 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192766 | | 0513 | | 1 | | F | | Adding test case 6.2.1.5 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192767 | | 0592 | | 1 | | F | | Addition of Idle Mode test case 6.1.2.8 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192768 | | 0472 | | 1 | | F | | Addition of NR test case 6.1.1.4-PLMN selection in shared network environment | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192769 | | 0444 | | 1 | | F | | Correction to NR test case 7.1.1.1.3-SI request | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192770 | | 0585 | | 1 | | F | | Update to NR MAC Bandwidth Part operation TC 7.1.1.8.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192771 | | 0521 | | 1 | | F | | Correction to 5GS PDCP Test case 7.1.3.5.3 PDCP Data Recovery | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192772 | | 0450 | | 1 | | F | | Addition of NR test case 8.1.1.3.3-RRC connection release-Success-With priority information | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192774 | | 0453 | | 1 | | F | | Addition of NR test case 8.1.4.2.2.1-L2NR handover success | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192776 | | 0464 | | 1 | | F | | Addition of TC 8.1.3.2.1-Event B1 E-UTRA | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192777 | | 0465 | | 1 | | F | | Addition of TC 8.1.3.2.2-Event B2 E-UTRA | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192782 | | 0488 | | 1 | | F | | Addition of NR test case 8.1.3.1.11.1\_intra-band Contiguous CA Event A6 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192783 | | 0489 | | 1 | | F | | Addition of NR test case 8.1.3.1.11.2\_inter-band CA Event A6 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192784 | | 0490 | | 1 | | F | | Addition of NR test case 8.1.3.1.11.3\_intra-band non Contiguous CA Event A6 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192785 | | 0491 | | 1 | | F | | Addition of NR test case 8.1.3.1.12.1\_ Additional intra-band Contiguous CA | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192786 | | 0492 | | 1 | | F | | Addition of NR test case 8.1.3.1.12.2\_ Additional inter-band CA | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192787 | | 0493 | | 1 | | F | | Addition of NR test case 8.1.3.1.12.3\_ Additional intra-band non Contiguous CA | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192794 | | 0516 | | 1 | | F | | Addition of 5GS NR RRC test case 8.1.5.1.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192795 | | 0586 | | 1 | | F | | Addition of TC 8.1.4.2.1.1 Inter-RAT handover / From NR to E-UTRA | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192796 | | 0598 | | 1 | | F | | New RRC test case 8.1.5.2.2 SI change / Notification of BCCH modification / Short message for SI update in NR RRC\_CONNECTED state | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192798 | | 0425 | | 1 | | F | | Update to EN-DC test case 8.2.3.7.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192800 | | 0435 | | 1 | | F | | Addition of 5GC test case 9.1.1.2 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192801 | | 0458 | | 1 | | F | | Addition of NR test case 9.1.1.6-Authentication abnormal | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192802 | | 0460 | | 1 | | F | | Addition of NR test case 9.1.6.1.2-T3521 timeout | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192803 | | 0461 | | 1 | | F | | Addition of NR test case 9.1.6.2.1-Network-initiated deregistration-deregistration for 3GPP access-reregistration required | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192805 | | 0463 | | 1 | | F | | Addition of NR test case 9.1.7.2-Service request for user data pending | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192806 | | 0568 | | 1 | | F | | Addition of new 5GC TC 9.1.5.2.2 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192815 | | 0567 | | 1 | | F | | Addition of new 5GC TC 9.1.2.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192816 | | 0569 | | 1 | | F | | Addition of 5GC Test case 10.1.5.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192819 | | 0576 | | 2 | | F | | Update of 5GS NR MAC test case 7.1.1.9.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192824 | | 0560 | | 2 | | F | | Addition of new 5GC TC 9.1.5.1.13 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192829 | | 0517 | | 2 | | F | | Update of 5GS NR RRC test case 8.2.1.1.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192830 | | 0595 | | 2 | | F | | Addition of 5GS PDCP TC 7.1.3.5.5 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192838 | | 0603 | | - | | F | | Addition of 5GS SA RRC TC - 8.1.3.1.13 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192839 | | 0604 | | - | | F | | Addition of 5GS SA RRC TC - 8.1.3.1.14 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192852 | | 0601 | | 1 | | F | | Addition of NR test case Event A4 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192853 | | 0602 | | 1 | | F | | Addition of NR test case Event A5 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192854 | | 0518 | | 2 | | F | | Update of 5GS NR RRC test case 8.2.3.6.1 and 8.2.3.8.1 | | 15.3.0 | |
| 2019-03 | | RAN#83 | | R5-192855 | | 0462 | | 2 | | F | | Addition of NR test case 9.1.6.2.2-Reregistration not required | | 15.3.0 | |
| 2019-03 | | RAN#83 | | - | | - | | - | | - | | Editorial update to align referenced to TS 38.508-1 table numbers | | 15.3.0 | |
| 2019-06 | | RAN#84 | | R5-193861 | | 0676 | | - | | F | | Correction to NR RLC test cases 7.1.2.2.3 and 7.1.2.2.4 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-193869 | | 0677 | | - | | F | | Correction to 5GMM test case 9.1.5.2.4 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-193884 | | 0681 | | - | | F | | Update of TC 9.1.5.1.13 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-193898 | | 0687 | | - | | F | | Removal of TC 9.1.5.1.7 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-193984 | | 0689 | | - | | F | | Clarification on DRB to use in MAC test cases | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-193986 | | 0691 | | - | | F | | Clarification on DRB to use in RLC test cases | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-193987 | | 0692 | | - | | F | | Correction to NR RLC test case 7.1.2.3.9 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-193988 | | 0693 | | - | | F | | Clarification on DRB to use in PDCP test cases | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194008 | | 0698 | | - | | F | | Correction to EN-DC RRC test case 8.2.5.2.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194031 | | 0703 | | - | | F | | Correction to PDCP test case 7.1.3.5.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194033 | | 0705 | | - | | F | | Correction to 5GC NAS test case 9.1.8.1 - SMS over NAS / MO and MT SMS over NAS - Idle mode | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194045 | | 0713 | | - | | F | | Updates to 5GS SA RRC TC 8.1.1.4.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194046 | | 0714 | | - | | F | | Updates to 5GS SA RRC TC 8.1.5.2.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194050 | | 0718 | | - | | F | | Addition of 5GS SA RRC TC - Intra NR handover / Success / Security key reconfiguration | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194051 | | 0719 | | - | | F | | Addition of 5GS SA RRC TC - Intra NR handover / Failure / Security key reconfiguration | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194119 | | 0730 | | - | | F | | Correction to EN-DC RRC measurement test cases | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194266 | | 0735 | | - | | F | | Correction to EN-DC RRC test case 8.2.5.1.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194288 | | 0742 | | - | | F | | Correction to EN-DC RRC test case 8.2.5.3.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194296 | | 0745 | | - | | F | | Correction to RLC test case - AM RLC / RLC re-establishment procedure | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194395 | | 0751 | | - | | F | | Update of NR RRC TC 8.2.3.12.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194396 | | 0752 | | - | | F | | Addition of new RRC TC 8.1.5.6.5.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194448 | | 0759 | | - | | F | | Addition of new TC 9.1.5.1.6 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194481 | | 0764 | | - | | F | | Updates to 5GC NAS test case 9.1.2.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194514 | | 0776 | | - | | F | | Update of TC 9.1.5.2.4 Mobility registration update / The lower layer requests NAS signalling connection recovery | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194637 | | 0786 | | - | | F | | Update to TC 8.1.4.2.1.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194696 | | 0791 | | - | | F | | Correction to NR RLC test case 7.1.2.3.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194699 | | 0793 | | - | | F | | Correction to NR PDCP test case 7.1.3.5.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194787 | | 0795 | | - | | F | | Correction to NR test case 6.1.2.3-Cell selection-Serving cell bar | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194788 | | 0796 | | - | | F | | Correction to NR test case 6.1.2.9-Cell reselection using Qhyst, Qoffset and Treselection | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194792 | | 0797 | | - | | F | | Update to IDLE mode test case 6.1.1.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194819 | | 0727 | | 1 | | F | | Correction to MAC test cases | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194822 | | 0629 | | 1 | | F | | Correction to NR test case 7.1.1.1.3-SI request | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194823 | | 0611 | | 1 | | F | | Addition of NR test case 6.1.2.12-Cell reselection CellReservedForOtherUse | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194833 | | 0628 | | 1 | | F | | Correction to NR test case 6.1.2.1-Cell selection Qrxlevmin | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194834 | | 0746 | | 1 | | F | | Editorial Corrections to Test Cases 6.3.1.1, 6.1.1.1, 6.1.2.7, 7.1.1.1.3, 8.1.1.3.1, 8.1.1.3.5, 9.1.5.2.4 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194835 | | 0747 | | 1 | | F | | Corrections to Test Case 6.3.1.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194836 | | 0726 | | 1 | | F | | Correction to EN-DC RLC test cases 7.1.2.2.1, 7.1.2.2.2, 7.1.2.3.1 and 7.1.2.3.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194837 | | 0704 | | 1 | | F | | Correction to PDCP test case 7.1.3.5.4 - PDCP reordering / Maximum re-ordering delay below t-Reordering / t-Reordering timer operations | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194838 | | 0711 | | 1 | | F | | Updates to 5GS SA RRC TC 8.1.1.1.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194839 | | 0712 | | 1 | | F | | Updates to 5GS SA RRC TC 8.1.1.2.3 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194840 | | 0734 | | 1 | | F | | Correction of 5GC Test case 8.1.1.3.5 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194841 | | 0641 | | 1 | | F | | Correction of NR test case 8.1.3.1.5-Intra Freq Event A4 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194842 | | 0642 | | 1 | | F | | Correction of NR test case 8.1.3.1.8-Intra Freq Event A5 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194843 | | 0717 | | 1 | | F | | Removal of EN-DC RRC TC - BandwidthPart Configuration / SCG | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194844 | | 0770 | | 1 | | F | | Update of 5GS NR RRC test case 8.2.1.1.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194845 | | 0657 | | 1 | | F | | Correction to NR test case 8.2.3.11.1-ENDC measurement gap FR1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194846 | | 0658 | | 1 | | F | | Correction to NR test case 8.2.3.11.2-ENDC measurement gap FR2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194847 | | 0661 | | 1 | | F | | Corrections to 5G-NR RRC Measurement configuration and reporting test cases | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194848 | | 0673 | | 1 | | F | | Correction to EN-DC RRC test case 8.2.3.6.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194849 | | 0674 | | 1 | | F | | Correction to EN-DC RRC test case 8.2.3.7.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194850 | | 0675 | | 1 | | F | | Correction to EN-DC RRC test case 8.2.3.3.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194851 | | 0740 | | 1 | | F | | Correction to EN-DC RRC test case 8.2.3.8.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194853 | | 0741 | | 1 | | F | | Correction to EN-DC RRC test case 8.2.3.4.1 and 8.2.3.5.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194854 | | 0749 | | 1 | | F | | Update TC 8.2.3.15.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194855 | | 0755 | | 1 | | F | | Correction to EN-DC RRC measurement test cases 8.2.3.9.1 and 8.2.3.10.1  Editor’s note: could not be implemented | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194856 | | 0665 | | 1 | | F | | Update of RRC TC 8.2.5.4.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194857 | | 0679 | | 1 | | F | | Correction to 5GMM test case 9.1.2.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194858 | | 0756 | | 1 | | F | | Correction to NR5GC testcase 9.1.3.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194859 | | 0659 | | 1 | | F | | Correction to NR test case 9.1.5.1.1-Registration Request | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194867 | | 0668 | | 1 | | F | | Update of TC 9.1.6.1.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194868 | | 0758 | | 1 | | F | | Correction to NR5GC testcase 9.1.5.1.14 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194869 | | 0609 | | 1 | | F | | Correction to 5GC TC 9.1.7.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194871 | | 0610 | | 1 | | F | | Correction to 5GC TC 10.1.3.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194872 | | 0680 | | 1 | | F | | Correction on 5GC TC 10.1.2.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194873 | | 0607 | | 1 | | F | | Correction to 5GC TC 10.1.6.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194874 | | 0608 | | 1 | | F | | Correction to 5GC TC 10.1.6.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-194890 | | 0728 | | 1 | | F | | Introduction of Non 3GPP Access over WLAN test cases | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195208 | | 0765 | | 1 | | F | | Addition of new TC 9.1.5.1.9 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195209 | | 0707 | | 1 | | F | | Addition of 5GC NAS Test Case -  Generic UE configuration update / New 5G-GUTI / NITZ / registration requested / Network slicing indication / New Allowed NSSAI / acknowledgement from the UE | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195210 | | 0708 | | 1 | | F | | Addition of 5GC NAS Test Case - UE-initiated de-registration / Abnormal / Change of cell into a new tracking area | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195211 | | 0757 | | 1 | | F | | Addition of NR5GC testcase 9.1.5.1.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195212 | | 0774 | | 1 | | F | | Introduction of TC 9.1.5.2.7 Mobility and periodic registration update / Rejected / UE identity cannot be derived by the network | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195213 | | 0775 | | 1 | | F | | Introduction of TC 9.1.5.2.8 Mobility and periodic registration update / Rejected / Implicitly de-registered | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195226 | | 0794 | | 1 | | F | | Addition of 5GSM test case 10.1.1.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195228 | | 0777 | | 1 | | F | | Introduction of TC 9.3.1.1 Mobility registration update / Single-registration mode with N26 / 5GMM-IDLE / 5GC to EPC | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195229 | | 0778 | | 1 | | F | | Introduction of TC 9.3.1.2 Mobility registration update / Single-registration mode with N26 / 5GMM-IDLE / EPC to 5GC | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195230 | | 0779 | | 1 | | F | | Introduction of TC 9.3.1.3 Mobility and periodic registration update / Rejected / Single-registration mode with N26 / Handling of EPS relevant parameters | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195231 | | 0682 | | 1 | | F | | New multilayer test case 11.1.3 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195238 | | 0780 | | 1 | | F | | Introduction of new TC 11.1.7 Emergency call setup from NR RRC\_IDLE / Emergency Services Fallback to EPS with redirection / Single registration mode with N26 interface / Success | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195243 | | 0616 | | 1 | | F | | Addition of NR test case 6.2.3.3-Inter-RAT Cell reselection NR2L by priority Srxlev based | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195244 | | 0612 | | 1 | | F | | Addition of NR test case 6.1.2.13-Cell reselection CellReservedForOperatorUse with Access Identity 1-2-12-13-14 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195245 | | 0613 | | 1 | | F | | Addition of NR test case 6.1.2.14-Cell reselection CellReservedForOperatorUse with Access Identity 11-15 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195247 | | 0618 | | 1 | | F | | Addition of NR test case 6.2.3.5-Inter-RAT Cell reselection NR2L by priority from dedicated signalling | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195249 | | 0620 | | 1 | | F | | Addition of NR test case 6.2.3.7-Inter-RAT Cell reselection NR2L Snonintrasearch | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195252 | | 0623 | | 1 | | F | | Addition of NR test case 6.4.2.1-Cell selection Qrxlevmin and Cell reselection | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195256 | | 0627 | | 1 | | F | | Addition of NR test case 6.4.1.2-Cell reselection of ePLMN in manual mode | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195257 | | 0709 | | 1 | | F | | Addition of Idle Mode Test Case -  Steering of UE in roaming during registration/security check successful but SOR Transparent container indicates ACK has been NOT been requested | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195259 | | 0631 | | 1 | | F | | Addition of NR test case 8.1.3.1.6-Inter Freq Event A4 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195260 | | 0632 | | 1 | | F | | Addition of NR test case 8.1.3.1.7-Inter Band Event A4 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195261 | | 0633 | | 1 | | F | | Addition of NR test case 8.1.3.1.9-Inter Freq Event A5 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195262 | | 0634 | | 1 | | F | | Addition of NR test case 8.1.3.1.10-Inter Band Event A5 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195268 | | 0640 | | 1 | | F | | Addition of NR test case 8.1.3.2.5-Event A2 and B2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195269 | | 0643 | | 1 | | F | | Correction of NR test case 8.1.3.1.11-Two Event A3 RSRQ | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195270 | | 0644 | | 1 | | F | | Correction of NR test case 8.1.3.1.12-Two Event A5 SINR | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195271 | | 0645 | | 1 | | F | | Correction of NR test case 8.1.3.1.17.1-Intra Band Event A6 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195272 | | 0646 | | 1 | | F | | Correction of NR test case 8.1.3.1.17.2-Inter Band Event A6 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195273 | | 0647 | | 1 | | F | | Correction of NR test case 8.1.3.1.17.3-Intra Band non Contiguous Event A6 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195274 | | 0648 | | 1 | | F | | Correction of NR test case 8.1.3.1.18.1-Additional Reporting Intra Band | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195275 | | 0649 | | 1 | | F | | Correction of NR test case 8.1.3.1.18.2-Additional Reporting Inter Band | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195276 | | 0650 | | 1 | | F | | Correction of NR test case 8.1.3.1.18.3-Additional Reporting Intra Band non Contiguous | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195277 | | 0782 | | 1 | | F | | Addition of 5GS NR RRC test case 8.1.3.1.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195278 | | 0783 | | 1 | | F | | Addition of 5GS NR RRC test case 8.1.3.1.3 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195279 | | 0784 | | 1 | | F | | Addition of 5GS NR RRC test case 8.1.3.1.4 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195280 | | 0790 | | 1 | | F | | Addition of 5GS NR RRC test case for Intra NR measurements / Blacklisting | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195285 | | 0699 | | 1 | | F | | New 5GS SA RRC TC 8.1.4.1.9.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195286 | | 0700 | | 1 | | F | | New 5GS SA RRC TC 8.1.4.1.9.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195287 | | 0701 | | 1 | | F | | New 5GS SA RRC TC 8.1.4.1.9.3 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195288 | | 0724 | | 1 | | F | | Addition of 5GS SA RRC TC - Intra NR handover / Failure / Re-establishment successful | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195289 | | 0725 | | 1 | | F | | Addition of 5GS SA RRC TC - Intra NR handover / Failure / Re-establishment failure | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195290 | | 0731 | | 1 | | F | | Addition of Intra-NR intra-frequency handover test case 8.1.4.1.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195291 | | 0732 | | 1 | | F | | Addition of Intra-NR inter-frequency handover test case 8.1.4.1.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195292 | | 0720 | | 1 | | F | | Addition of 5GS SA RRC TC - Redirection to NR / From E-UTRA / Success | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195293 | | 0736 | | 1 | | F | | New 5G Radio link failure test case 8.1.5.6.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195294 | | 0753 | | 1 | | F | | Addition of new RRC TC 8.1.5.6.5.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195295 | | 0754 | | 1 | | F | | Addition of new RRC TC 8.1.5.6.5.3  Editor’s note: could not be implemented | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195296 | | 0768 | | 1 | | F | | Addition of 5GS NR RRC test case 8.1.5.4.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195297 | | 0771 | | 1 | | F | | New 5G Radio link failure test case 8.1.5.6.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195298 | | 0772 | | 1 | | F | | New 5G Radio link failure test case 8.1.5.6.3 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195299 | | 0773 | | 1 | | F | | New 5G Radio link failure test case 8.1.5.6.4 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195300 | | 0696 | | 1 | | F | | Correction to RRC test case 8.2.3.13.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195301 | | 0697 | | 1 | | F | | Correction to RRC test case 8.2.3.14.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195302 | | 0722 | | 1 | | F | | Addition of new EN-DC RRC TC - Measurement configuration control and reporting / Event A4 / Measurement of Neighbour NR cell / Inter-frequency measurements / EN-DC | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195303 | | 0723 | | 1 | | F | | Addition of new EN-DC RRC TC - Measurement configuration control and reporting / Event A4 / Measurement of Neighbour NR cell / Inter-band measurements / EN-DC | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195336 | | 0690 | | 1 | | F | | Correction to NR MAC test case 7.1.1.1.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195338 | | 0694 | | 1 | | F | | Correction to NR PDCP test case 7.1.3.4.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195339 | | 0715 | | 1 | | F | | Updates to PDCP Integrity Protection TCs 7.1.3.2.x | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195340 | | 0716 | | 1 | | F | | Updates to PDCP Ciphering and Deciphering TCs 7.1.3.3.x | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195341 | | 0662 | | 1 | | F | | Update of RRC TC 8.1.1.4.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195342 | | 0743 | | 1 | | F | | Correction to RRC test case 8.1.2.1.3 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195343 | | 0744 | | 1 | | F | | Correction to 5GS SA RRC TC - 8.1.2.1.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195344 | | 0669 | | 1 | | F | | Correction of NR test case 8.1.3.1.1-Intra Freq Event A1 A2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195345 | | 0670 | | 1 | | F | | Correction of NR test case 8.1.3.2.1-Event B1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195346 | | 0671 | | 1 | | F | | Correction of NR test case 8.1.3.2.2-Event B2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195347 | | 0672 | | 1 | | F | | Correction of NR test case 8.1.3.2.3-Event B2 RSRQ | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195350 | | 0667 | | 1 | | F | | Update of 5GC TC 9.1.5.1.5 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195351 | | 0688 | | 1 | | F | | New multilayer test case 11.1.4 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195352 | | 0683 | | 1 | | F | | Addition of Multilayer test case 11.1.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195353 | | 0684 | | 1 | | F | | Addition of Multilayer test case 11.1.5 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195354 | | 0685 | | 1 | | F | | Addition of Multilayer test case 11.1.6 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195355 | | 0710 | | 1 | | F | | Addition of 5GS Multilayer Test Case 11.1.1 MO MMTEL voice call setup from NR RRC\_IDLE / EPS Fallback with redirection / Single registration mode with N26 interface / Success | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195358 | | 0798 | | 1 | | F | | Update of EN-DC RRC TC 8.2.3.2.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195363 | | 0781 | | 2 | | F | | Update to NR MAC Bandwidth Part operation TC 7.1.1.8.1 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195364 | | 0695 | | 2 | | F | | Correction to NR PDCP test case 7.1.3.4.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195365 | | 0785 | | 2 | | F | | Addition of 5GS NR RRC test case 8.2.3.6.1a | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195366 | | 0787 | | 2 | | F | | Addition of 5GS NR RRC test case 8.2.3.6.1b | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195367 | | 0788 | | 2 | | F | | Addition of 5GS NR RRC test case 8.2.3.8.1a | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195368 | | 0789 | | 2 | | F | | Addition of 5GS NR RRC test case 8.2.3.8.1b | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195369 | | 0799 | | 2 | | F | | Correction to EN-DC RRC Measurement test cases for FR2 Power table | | 15.4.0 | |
| 2019-06 | | RAN#84 | | R5-195370 | | 0666 | | 2 | | F | | Update of 5GC TC 9.1.6.1.2 | | 15.4.0 | |
| 2019-06 | | RAN#84 | | - | | - | | - | | - | | Administrative release upgrade to match the release of 3GPP TS 38.508-1 which was upgraded at RAN#84 to Rel-16 due to Rel-16 relevant CR(s) | | 16.0.0 | |
| 2019-09 | | RAN#85 | | R5-195649 | | 0810 | | - | | F | | Addition of NR test case 6.4.1.1-HPLMN in Automatic PLMN Selection Mode in RRC\_INACTIVE state | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195650 | | 0811 | | - | | F | | Addition of NR test case 6.4.2.2-Inter-Freq Cell reselection by priority of SIBs | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195663 | | 0824 | | - | | F | | Addition of NR test case 8.1.4.1.7.2-PCell Change and SCell addition Inter-band CA | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195664 | | 0825 | | - | | F | | Addition of NR test case 8.1.4.1.7.3-PCell Change and SCell addition Intra-band non-contiguous CA | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195666 | | 0827 | | - | | F | | Addition of NR test case 8.1.4.1.8.2-SCell no change Inter-band CA | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195667 | | 0828 | | - | | F | | Addition of NR test case 8.1.4.1.8.3-SCell no change Intra-band non-contiguous CA | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195676 | | 0837 | | - | | F | | Correction to NR test case 8.1.5.3.1-PWS reception in NR RRC\_IDLE state | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195677 | | 0838 | | - | | F | | Correction to NR test case 8.1.5.3.3-PWS reception in NR RRC\_CONNECTED state | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195681 | | 0842 | | - | | F | | Correction to NR test case 9.1.5.1.10-PLMN not allowed | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195712 | | 0850 | | - | | F | | Update to RRC measurement test cases in EN-DC for FR2 support | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195929 | | 0863 | | - | | F | | Update to PDCP test cases in EN-DC for FR2 support | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195947 | | 0870 | | - | | F | | Correction to references to test procedure for Switch off / Power off UE | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195948 | | 0871 | | - | | F | | Correction of power level units for test case 7.1.1.7.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195949 | | 0872 | | - | | F | | Correction of power level units for test cases 8.1.3.1.11, 8.1.3.1.12, 8.1.3.1.15A, 8.1.3.2.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195981 | | 0876 | | - | | F | | Correction to 5GC TC 10.1.6.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195996 | | 0878 | | - | | F | | Update PDCP test case 7.1.3.2.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-195997 | | 0879 | | - | | F | | Update PDCP test case 7.1.3.3.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196002 | | 0884 | | - | | F | | Update RRC measurement test case 8.2.3.14 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196039 | | 0889 | | - | | F | | Addition of new 5GC TC 10.1.2.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196046 | | 0895 | | - | | F | | Correction to 5GC TC 8.1.5.1.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196055 | | 0902 | | - | | F | | Correction to TC 9.1.7.1-Service Request in Idle state | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196093 | | 0919 | | - | | F | | Correction to RLC test case 7.1.2.3.11 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196109 | | 0930 | | - | | F | | To void TC 8.1.1.3.5 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196110 | | 0931 | | - | | F | | To void TC 8.1.1.3.6 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196111 | | 0932 | | - | | F | | To void TC 8.1.1.4.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196112 | | 0933 | | - | | F | | To void TC 8.1.4.1.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196113 | | 0934 | | - | | F | | To void TC 8.1.4.1.4 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196114 | | 0935 | | - | | F | | Correction to EN-DC RRC TCs 8.2.2.4.1 & 8.2.2.5.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196118 | | 0939 | | - | | F | | Updates to EN-DC RRC TC 8.2.3.7.1a | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196119 | | 0940 | | - | | F | | Updates to EN-DC RRC TC 8.2.3.7.1b | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196156 | | 0947 | | - | | F | | Correction to NR Idle test case 6.1.1.6 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196217 | | 0954 | | - | | F | | Update of NR test case 6.1.2.2-Intra-NR Cell Selection Qqualmin based | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196218 | | 0955 | | - | | F | | Update of NR test case 6.1.2.21-Cell reselection, SIntraSearchQ and SnonIntraSeqrchQ | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196261 | | 0962 | | - | | F | | Correction to NR test case 7.1.3.4.1 - PDCP Lossless handover | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196285 | | 0964 | | - | | F | | Correction to EN-DC RRC test case 8.2.5.3.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196306 | | 0969 | | - | | F | | Removal of NR RRC test case 8.1.2.1.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196353 | | 0971 | | - | | F | | Correction to test cases 6.1.1.8 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196354 | | 0972 | | - | | F | | Update sub-clause 6.2.1 test cases with the latest generic procedure references | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196355 | | 0973 | | - | | F | | Update to test case 9.1.5.1.5 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196489 | | 0976 | | - | | F | | Update of RRC TC 8.1.5.6.5.2 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196492 | | 0977 | | - | | F | | New RRC TC 8.1.5.6.5.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196598 | | 0982 | | - | | F | | Correction to Idle TC 6.1.1.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196610 | | 0985 | | - | | F | | Correction to Idle TC 6.1.2.8 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196614 | | 0988 | | - | | F | | Deletion of TC 8.1.4.1.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196624 | | 0991 | | - | | F | | Correction to RLC TC 7.1.2.2.5 and 7.1.2.2.6 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196633 | | 0995 | | - | | F | | Correction to 5GC TC 9.1.6.1.4 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196642 | | 0996 | | - | | F | | Adding specs to TS 38.523-1 References section | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196730 | | 1009 | | - | | F | | Update of test case 9.3.1.1 Mobility registration update / Single-registration mode with N26 / 5GMM-IDLE / 5GC to EPC | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196731 | | 1010 | | - | | F | | Update of test case 9.3.1.2 Mobility registration update / Single-registration mode with N26 / 5GMM-IDLE / EPC to 5GC | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196732 | | 1011 | | - | | F | | Update of test case 9.3.1.3 Mobility and periodic registration update / Rejected / Single-registration mode with N26 / Handling of EPC relevant parameters | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196745 | | 1013 | | - | | F | | Correction to pre-condition of MAC test cases | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196753 | | 1019 | | - | | F | | Correction to ENDC test case 7.1.2.2.6 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196755 | | 1020 | | - | | F | | Correction to NR5GC test case 9.1.5.2.8 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196779 | | 1029 | | - | | F | | Update to TC 8.1.3.1.15A | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196827 | | 1031 | | - | | F | | Removal of Radio Link Failure test cases | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196828 | | 1032 | | - | | F | | Editorial changes to SERVICE REQUEST parameters for multi layer test cases | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-196835 | | 1036 | | - | | F | | Update to 5GS NR RRC test case 8.1.5.4.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197001 | | 0941 | | 1 | | F | | Correction of NR test case 7.1.1.3.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197002 | | 0943 | | 1 | | F | | Correction to test case 7.1.1.3.4 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197003 | | 0944 | | 1 | | F | | Correction to test case 7.1.1.3.5 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197005 | | 0905 | | 1 | | F | | Correction to test case 8.1.1.4.2 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197006 | | 0914 | | 1 | | F | | Correction to ENDC test case 10.2.2.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197007 | | 0983 | | 1 | | F | | Correction to RLC AM test case 7.1.2.3.9 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197008 | | 0953 | | 1 | | F | | Correction to RLC test case 7.1.2.3.10 in EN-DC | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197011 | | 1026 | | 1 | | F | | Correction to ENDC test case 7.1.2.3.5 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197012 | | 0918 | | 1 | | F | | Correction to PDCP test case 7.1.3.2.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197013 | | 1002 | | 1 | | F | | Correction to NR PDCP test case 7.1.3.4.2 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197015 | | 0904 | | 1 | | F | | Updates to EN-DC RRC measurement test case 8.2.3.3.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197016 | | 1012 | | 1 | | F | | Correction to EN-DC RRC test case 8.2.3.4.1 and 8.2.3.7.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197017 | | 0865 | | 1 | | F | | Update to NR RRC Idle mode test cases for FR2 support | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197018 | | 0864 | | 1 | | F | | Update to CA test cases in EN-DC for FR2 support | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197019 | | 0897 | | 1 | | F | | Correction to NR test case 6.1.2.1-cell selection | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197020 | | 0898 | | 1 | | F | | Correction to NR test case 6.1.2.13-Cell reselection CellReservedForOperatorUse with Access Identity 0-1-2-12-13-14 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197021 | | 0814 | | 1 | | F | | Correction to NR test case 7.1.1.1.4-BeamFailure | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197022 | | 0899 | | 1 | | F | | Correction to TC 7.1.1.3.5-Padding BSR | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197023 | | 0961 | | 1 | | F | | Correction to NR test case 7.1.1.9.1 - MAC Reset | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197026 | | 0978 | | 1 | | F | | Correction to Several MAC test cases | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197027 | | 0990 | | 1 | | F | | Correction to MAC TC 7.1.1.1.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197029 | | 0911 | | 1 | | F | | Correction to 5GS RLC test case 7.1.2.3.6 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197030 | | 0974 | | 1 | | F | | Correction to RLC test case 7.1.2.3.7 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197051 | | 0949 | | 1 | | F | | Updates to 5GS PDCP test cases 7.1.3.1.1 and 7.1.3.1.2 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197052 | | 0901 | | 1 | | F | | Correction to TC 8.1.1.3.4-NR2L reselection by RRCRelease | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197053 | | 0927 | | 1 | | F | | Updates to 5GS SA RRC TC 8.1.1.4.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197054 | | 0956 | | 1 | | F | | Correction to TC 8.1.1.2.1-T300 expiry | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197055 | | 0957 | | 1 | | F | | Correction to TC 8.1.1.3.3-T320 expiry | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197057 | | 0968 | | 1 | | F | | Correction to NR RRC Test case 8.1.2.1.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197058 | | 0832 | | 1 | | F | | Correction to NR test case 8.1.3.1.11-two RSRQ A3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197059 | | 0833 | | 1 | | F | | Correction to NR test case 8.1.3.1.12-two SINR A5 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197060 | | 0834 | | 1 | | F | | Correction to NR test case 8.1.3.1.17.3-A6 intraband non contiguous | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197061 | | 0835 | | 1 | | F | | Correction to NR test case 8.1.3.1.18.3-A6 intraband non contiguous additional reporting | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197062 | | 0836 | | 1 | | F | | Correction to NR test case 8.1.3.2.5-A2 and B2 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197063 | | 0861 | | 1 | | F | | Editorial update MeasurementReport table | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197064 | | 1028 | | 1 | | F | | Correction to RRC TC 8.1.3.1.11, 8.1.3.1.12, 8.1.3.2.3 and 8.1.4.1.9.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197065 | | 0928 | | 1 | | F | | Updates to 5GS SA RRC TC 8.1.5.2.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197066 | | 0929 | | 1 | | F | | Updates to 5GS SA RRC TC 8.1.5.5.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197067 | | 1033 | | 1 | | F | | Updates to RLF test case 8.1.5.6.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197068 | | 1034 | | 1 | | F | | Updates to RLF test case 8.1.5.6.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197070 | | 1001 | | 1 | | F | | Correction to EN-DC RRC test case 8.2.1.1.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197071 | | 1003 | | 1 | | F | | Correction to EN-DC RRC test case 8.2.2.7.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197072 | | 0839 | | 1 | | F | | Correction to NR test case 8.2.3.15.1-A2 and A3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197073 | | 0873 | | 1 | | F | | Correction to EN-DC RRC measurement test case 8.2.3.9.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197074 | | 1030 | | 1 | | F | | Correction to EN-DC RRC measurement test case 8.2.3.10.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197075 | | 0948 | | 1 | | F | | Correction to EN-DC RRC test case 8.2.4.3.1.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197076 | | 1035 | | 1 | | F | | Updates to test cases using SERVICE REQUEST procedure | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197077 | | 0840 | | 1 | | F | | Correction to NR test case 9.1.1.6-5G AKA authentication abnormal | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197078 | | 0993 | | 1 | | F | | Correction to 5GC TC 9.1.2.2 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197079 | | 0841 | | 1 | | F | | Correction to NR test case 9.1.5.1.1-Initial registration | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197080 | | 0843 | | 1 | | F | | Correction to NR test case 9.1.5.2.4-Mobility registration update by lower layer failure | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197081 | | 0896 | | 1 | | F | | Correction to 5GC TC 9.1.5.1.9 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197082 | | 0920 | | 1 | | F | | Correction to 5GC NAS test case 9.1.6.1.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197083 | | 0945 | | 1 | | F | | Update of 5GC TC 9.1.5.1.11 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197084 | | 0946 | | 1 | | F | | Update of 5GC TC 9.1.5.1.12 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197085 | | 0965 | | 1 | | F | | Correction to NR5GC testcase 9.1.5.1.2 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197086 | | 0966 | | 1 | | F | | Correction to NR5GC testcase 9.1.5.1.14 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197087 | | 0981 | | 1 | | F | | Correction to 5GC test case 9.1.6.1.1 De-registration | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197088 | | 0844 | | 1 | | F | | Correction to NR test case 9.1.7.2-Data pending without user-plane resource | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197089 | | 0924 | | 1 | | F | | Corrections to 5GS Multilayer Test Case 11.1.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197090 | | 0975 | | 1 | | F | | Correction to 5GS\EPS Fallback test case 11.1.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197091 | | 0997 | | 1 | | F | | Update of 5GS\EPS Fallback test cases for System information, type of cells and more | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197092 | | 1007 | | 1 | | F | | Correction to 5GS\EPS Fallback test case 11.1.4 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197093 | | 1015 | | 1 | | F | | Update multi-layer test case 11.1.2 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197094 | | 1016 | | 1 | | F | | Update multi-layer test case 11.1.5 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197095 | | 1017 | | 1 | | F | | Update multi-layer test case 11.1.6 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197097 | | 1039 | | - | | F | | Correction to NR test case 8.1.5.3.4-PWS reception using dedicatedSystemInformationDelivery | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197185 | | 0804 | | 1 | | F | | Addition of NR test case 6.2.3.1-Inter-RAT Cell reselection L2NR by priority Srxlev based | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197186 | | 0805 | | 1 | | F | | Addition of NR test case 6.2.3.2-Inter-RAT Cell reselection L2NR by priority Squal based | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197187 | | 0806 | | 1 | | F | | Addition of NR test case 6.2.3.4-Inter-RAT Cell reselection NR2L by priority Squal based | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197188 | | 0807 | | 1 | | F | | Addition of NR test case 6.2.3.6-Inter-RAT Cell reselection L2NR by priority from dedicated signalling | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197189 | | 0808 | | 1 | | F | | Addition of NR test case 6.2.3.8-Inter-RAT Cell reselection L2NR Snonintrasearch | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197190 | | 0809 | | 1 | | F | | Addition of NR test case 6.2.3.9-Inter-RAT Cell reselection NR2L Speed Dependent | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197191 | | 0812 | | 1 | | F | | Addition of NR test case 6.4.3.1-Inter-RAT Cell reselection NR2L Srxlev based | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197192 | | 1043 | | - | | F | | Correction to UE capability transfer test case 8.1.5.1.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197193 | | 0813 | | 1 | | F | | Update of NR test case 6.1.2.22-Inter-frequency cell reselection with parameters | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197195 | | 0846 | | 1 | | F | | Addition of test case 6.3.1.3 of TS 38.523-1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197196 | | 0847 | | 1 | | F | | Addition of test case 6.3.1.4 of TS 38.523-1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197197 | | 0848 | | 1 | | F | | Addition of test case 6.3.1.8 of TS 38.523-1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197198 | | 0849 | | 1 | | F | | Addition of test case 6.3.1.9 of TS 38.523-1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197199 | | 0893 | | 1 | | F | | Addition of NR Idle test case 6.1.2.23 - Cell reselection/ MFBI | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197201 | | 1014 | | 1 | | F | | Update of 5GC test case 9.1.1.2 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197202 | | 1038 | | 1 | | F | | Addition of new NR MAC test case 7.1.1.3.2b | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197203 | | 0923 | | 1 | | F | | Addition of Idle Mode Test Case -Cell reselection, Sintrasearch, Snonintrasearch | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197205 | | 0866 | | 1 | | F | | Add RRC reconfiguration test case 8.1.2.1.4 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197206 | | 0867 | | 1 | | F | | Add RRC reconfiguration test case 8.1.2.1.5.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197207 | | 0868 | | 1 | | F | | Add RRC reconfiguration test case 8.1.2.1.5.2 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197208 | | 0869 | | 1 | | F | | Add RRC reconfiguration test case 8.1.2.1.5.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197209 | | 0817 | | 1 | | F | | Addition of NR test case 8.1.3.1.16-whitelisting | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197210 | | 0818 | | 1 | | F | | Addition of NR test case 8.1.3.1.20-GapFR1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197211 | | 0819 | | 1 | | F | | Addition of NR test case 8.1.3.1.21-GapFR2 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197213 | | 0822 | | 1 | | F | | Addition of NR test case 8.1.3.2.4-Event B2 SINR | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197214 | | 0984 | | 1 | | F | | Addition of SA NR measurement test case TC 8.1.3.1.23 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197215 | | 0823 | | 1 | | F | | Addition of NR test case 8.1.4.1.7.1-PCell Change and SCell addition Intra-band Contiguous CA | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197216 | | 0826 | | 1 | | F | | Addition of NR test case 8.1.4.1.8.1-SCell no change Intra-band Contiguous CA | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197217 | | 0894 | | 1 | | F | | Addition of 5GC test case 9.1.1.4 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197218 | | 0887 | | 1 | | F | | Addition of new 5GC TC 10.1.3.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197219 | | 0998 | | 1 | | F | | Introduction of new TC 11.4.1 5GMM-REGISTERED.NORMAL-SERVICE / 5GMM-IDLE / Emergency call / Utilising emergency number stored on the USIM / New emergency PDU session | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197220 | | 0999 | | 1 | | F | | Introduction of new TC 11.4.2 5GMM-DEREGISTERED.LIMITED-SERVICE / Emergency call / Handling of forbidden PLMNs | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197221 | | 1000 | | 1 | | F | | Introduction of new TC 11.4.3 5GMM-DEREGISTERED.NO-SUPI / Emergency call / Utilisation of emergency numbers stored on the ME / Initial registration for emergency services | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197227 | | 0979 | | 1 | | F | | Non 3GPP Access over WLAN test cases | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197247 | | 0877 | | 1 | | F | | Update MAC test case 7.1.1.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197250 | | 0989 | | 1 | | F | | Correction to RLC UM test case 7.1.2.2.5 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197255 | | 0938 | | 1 | | F | | Correction to PDCP TC 7.1.3.5.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197256 | | 0986 | | 1 | | F | | Corrections to TC 8.1.4.1.2 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197258 | | 1023 | | 1 | | F | | Correction to test cases 8.1.1.2.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197259 | | 0917 | | 1 | | F | | Correction to test case 10.1.5.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197260 | | 0880 | | 1 | | F | | Update PDCP test case 7.1.3.4.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197263 | | 0915 | | 2 | | F | | Correction to NR test case 7.1.1.2.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197264 | | 0916 | | 2 | | F | | Correction to NR test case 7.1.1.3.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197266 | | 1027 | | 1 | | F | | Correction to test case 7.1.2.3.8 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197267 | | 0922 | | 1 | | F | | Initial registration / 5GS services / NSSAI handling / NSSAI Storage | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197292 | | 1044 | | - | | F | | Update of 5GC test case 9.1.1.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197297 | | 1045 | | - | | F | | Update of 5GC test case 9.1.1.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197299 | | 1005 | | 2 | | F | | Correction to NR MAC test case 7.1.1.3.2 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197661 | | 1037 | | 1 | | F | | Update to NR MAC Bandwidth Part operation TC 7.1.1.8.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197662 | | 1042 | | 1 | | F | | Corrections to NR MAC test case 7.1.1.1.1a | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197663 | | 0900 | | 2 | | F | | Correction to TC 7.1.2.3.4-18 bit SN processing | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197664 | | 1022 | | 3 | | F | | Correction to ENDC test case 7.1.2.3.3 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197665 | | 1041 | | 1 | | F | | Correction to EN-DC RRC Test case 8.2.3.13.1 | | 16.1.0 | |
| 2019-09 | | RAN#85 | | R5-197666 | | 1040 | | 1 | | F | | Correction to NR test case 9.1.3.1-Identification procedure | | 16.1.0 | |
| 2019-12 | | RAN#86 | | R5-197740 | | 1046 | | - | | F | | Update RRC reconfiguration test case 8.1.2.1.4 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197741 | | 1047 | | - | | F | | Update RRC reconfiguration test case 8.1.2.1.5.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197744 | | 1049 | | - | | F | | Update RRC reconfiguration test case 8.1.3.1.18.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197745 | | 1050 | | - | | F | | Update RRC reconfiguration test case 8.1.5.6.5.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197838 | | 1054 | | - | | F | | Update of TC 6.4.1.1-HPLMN in Automatic PLMN Selection Mode | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197839 | | 1055 | | - | | F | | Correction to NR test case 6.1.2.14-Cell reselection CellReservedForOperatorUse with Access Identity 11 or 15 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197840 | | 1056 | | - | | F | | Correction of NR test case 6.2.3.2-Inter-RAT cell reselection from L2NR | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197841 | | 1057 | | - | | F | | Correction of NR test case 6.2.3.4-Inter-RAT cell reselection from NR2L | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197842 | | 1058 | | - | | F | | Correction of NR test case 6.2.3.5-Inter-RAT cell reselection from N2L by dedicated signalling | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197843 | | 1059 | | - | | F | | Correction of NR test case 6.2.3.6-Inter-RAT cell reselection from L2N by dedicated signalling | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197849 | | 1065 | | - | | F | | Correction to NR test case 7.1.2.3.5-Control of receive window for AM RLC | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197854 | | 1070 | | - | | F | | Correction of NR test case 8.1.3.1.2 - Event A3 intra-Freq | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197856 | | 1072 | | - | | F | | Correction to NR TC 8.1.3.1.8-Event A5 Intra-Freq | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197860 | | 1076 | | - | | F | | Correction to NR test case 8.1.5.3.1-PWS reception in NR RRC\_IDLE state | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197867 | | 1083 | | - | | F | | Correction to NR test case 9.1.6.2.2-Re-registration not required | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-197904 | | 1089 | | - | | F | | Correction to NR MAC test case 7.1.1.3.5 to accommodate the DCI format change to DCI\_0\_1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198006 | | 1099 | | - | | F | | Addition of new 5GC test case 9.1.2.3 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198085 | | 1110 | | - | | F | | Update of References in 38.523-1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198086 | | 1111 | | - | | F | | Introduction of new TC 9.1.5.2.6 Mobility registration update / Registered slice(s) change | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198147 | | 1127 | | - | | F | | Updates to 5GMM test case 9.1.4.1 for NAS cells definition in pre-test conditions | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198148 | | 1128 | | - | | F | | Updates to 5GMM initial registration test cases for NAS cells definition in pre-test conditions | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198180 | | 1130 | | - | | F | | Correction to PDCP Test Case 7.1.3.5.3 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198181 | | 1131 | | - | | F | | Correction to EN-DC Inter-RAT Measurement Test Cases 8.2.3.1.1, 8.2.3.2.1, 8.2.3.3.1, 8.2.3.12.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198184 | | 1134 | | - | | F | | Corrections to 5GC NAS Test Case 10.1.1.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198185 | | 1135 | | - | | F | | Corrections to 5GC NAS Test Case 9.1.6.1.3 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198186 | | 1136 | | - | | F | | Corrections to 5GC NAS Test Case 9.1.4.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198187 | | 1137 | | - | | F | | Correction to RLC Test Case 7.1.2.3.5 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198188 | | 1138 | | - | | F | | Correction to RLC Test Case 7.1.2.3.11 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198189 | | 1139 | | - | | F | | Correction to 5GC NAS NSSAI Test Case 9.1.5.1.3a | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198216 | | 1149 | | - | | F | | Correction to TC 7.1.1.1.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198235 | | 1151 | | - | | F | | Correction to 5GC test case 9.1.1.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198242 | | 1153 | | - | | F | | Correction to 5GC test case 9.1.1.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198299 | | 1164 | | - | | F | | Correction to NR TC 9.1.5.1.9 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198322 | | 1166 | | - | | F | | Corrections to 5GC test case 10.1.1.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198323 | | 1167 | | - | | F | | Correction to NR MAC test case 7.1.1.1.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198325 | | 1168 | | - | | F | | Correction to 5GC test case 9.1.5.1.6 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198331 | | 1169 | | - | | F | | Correction to NR MAC test cases 7.1.1.2.1 and 7.1.1.3.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198355 | | 1174 | | - | | F | | Correction to ENDC RLC AM testcases 7.1.2.3.1 and 7.1.2.3.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198361 | | 1176 | | - | | F | | Update to test case 10.2.1.1 to align EPS bearer ID description | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198362 | | 1177 | | - | | F | | Update to test case 11.1.5 to align EPS bearer ID description | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198438 | | 1182 | | - | | F | | Updates of 5GC test case titles | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198757 | | 1199 | | - | | F | | Correction to test cases 8.1.1.2.3 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198759 | | 1200 | | - | | F | | Correction to NR MAC test case 7.1.1.3.2b | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198772 | | 1210 | | - | | F | | Correction to test case 9.1.5.2.7 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198784 | | 1214 | | - | | F | | Corrections to MAC Test Case 7.1.1.5.3 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198786 | | 1215 | | - | | F | | Update of 5GC TC 9.1.5.2.9 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198825 | | 1219 | | - | | F | | Update of test case 8.1.5.1.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198874 | | 1053 | | 1 | | F | | Addition of NR TC 6.1.2.11-systemInformationAreaID | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198875 | | 1060 | | 1 | | F | | Correction of NR test case 6.2.3.7-Inter-RAT cell reselection N2L, Snonintrasearch | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198877 | | 1132 | | 1 | | F | | Corrections to Idle Mode SoR Test Case 6.3.1.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198878 | | 1133 | | 1 | | F | | Corrections to Idle Mode SoR Test Case 6.3.1.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198879 | | 1178 | | 1 | | F | | Correction to FR1 power levels for several test cases | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198880 | | 1195 | | 1 | | F | | Update to test cases 6.1.1.7 and 6.1.1.8 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198881 | | 1196 | | 1 | | F | | Update to test cases 6.2.1.1 and 6.2.1.5 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198882 | | 1197 | | 1 | | F | | Update to test cases 6.2.1.2, 6.2.1.3 and 6.2.1.4 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198883 | | 1183 | | 1 | | F | | Update FR2 power of NR TC 7.1.1.1.3-SI request | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198884 | | 1091 | | 1 | | F | | Correction to NR MAC test case 7.1.1.4.2.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198885 | | 1129 | | 1 | | F | | Correction to NR MAC transport size selection test cases | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198886 | | 1145 | | 1 | | F | | Corrections to MAC Test Case 7.1.1.1.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198887 | | 1154 | | 1 | | F | | Update to NR MAC test case 7.1.1.1.5 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198888 | | 1158 | | 1 | | F | | Correction to EN-DC MAC Test Case 7.1.1.1.1a | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198889 | | 1184 | | 1 | | F | | Correction to MAC test case 7.1.1.7.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198890 | | 1186 | | 1 | | F | | Addition of new MAC test case for data inactivity timer | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198891 | | 1187 | | 1 | | F | | Split of CA MAC test case into 3 variants | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198892 | | 1095 | | 1 | | F | | Correction to NR test case 7.1.2.3.10-Re-transmission of RLC PDU | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198893 | | 1090 | | 1 | | F | | Correction to NR RLC test cases to accommodate the DCI format change to DCI\_0\_1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198894 | | 1093 | | 1 | | F | | Correction to RLC UM test case 7.1.2.2.5 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198900 | | 1123 | | 1 | | F | | Correction to NR RLC test case 7.1.2.3.10 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198901 | | 1157 | | 1 | | F | | Correction to RLC test case 7.1.2.2.6 in EN-DC | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198902 | | 1172 | | 1 | | F | | Correction to RLC AM test case 7.1.2.3.9 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198903 | | 1193 | | 1 | | F | | Correction to RLC AM Test case 7.1.2.3.8 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198904 | | 1122 | | 1 | | F | | Correction to NR PDCP test case 7.1.3.4.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198905 | | 1141 | | 1 | | F | | Corrections to PDCP Test Case 7.1.3.5.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198906 | | 1150 | | 1 | | F | | Correction to PDCP TC 7.1.3.4.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198907 | | 1092 | | 1 | | F | | Corrections to SDAP test cases 7.1.4.1 and 7.1.4.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198909 | | 1221 | | - | | F | | Correction to NR TCs | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198910 | | 1175 | | 1 | | F | | Update to 5GS NR RRC test case 8.1.1.3.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198911 | | 1198 | | 1 | | F | | Correction to test case 8.1.1.2.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198912 | | 1201 | | 1 | | F | | Correction to test case 8.1.1.4.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198913 | | 1066 | | 1 | | F | | Addition of NR test case 8.1.2.1.2-uplinkTxDirectCurrentList | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198914 | | 1048 | | 1 | | F | | Update RRC reconfiguration test case 8.1.3.1.17.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198915 | | 1067 | | 1 | | F | | Addition of NR TC 8.1.3.3.1-CGI reporting of NR cell | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198916 | | 1068 | | 1 | | F | | Addition of NR TC 8.1.3.3.2-CGI reporting of E-UTRA cell | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198917 | | 1071 | | 1 | | F | | Correction to NR TC 8.1.3.1.5-Event A4 Intra-Freq | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198918 | | 1073 | | 1 | | F | | correction of NR TC 8.1.3.1.18.1-Additional measurement report of Intra-band Contiguous CA | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198920 | | 1222 | | - | | F | | correction of NR TCs 8.1.3.2.1 and TC 8.1.3.2.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198921 | | 1220 | | 1 | | F | | Update of test case 8.1.3.2.4 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198922 | | 1075 | | 1 | | F | | Correction to NR test case 8.1.4.2.2.1 E-UTRA To NR handover success | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198923 | | 1203 | | 1 | | F | | Correction to test case 8.1.4.2.2.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198924 | | 1119 | | 1 | | F | | Correction to 5GS SA RRC test case 8.1.4.1.5 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198925 | | 1077 | | 1 | | F | | Correction to NR test case 8.1.5.3.4-PWS reception using dedicatedSystemInformationDelivery | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198926 | | 1204 | | 1 | | F | | Correction to test case 8.1.5.5.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198927 | | 1173 | | 1 | | F | | Update to 5GS NR RRC test case 8.1.5.4.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198928 | | 1148 | | 1 | | F | | Correction to ENDC test case 8.2.2.8.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198930 | | 1216 | | 1 | | F | | Correction to test case 8.2.2.6.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198931 | | 1078 | | 1 | | F | | Correction to NR test case 8.2.3.11.X-ENDC-GAP | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198932 | | 1125 | | 1 | | F | | Correction to EN-DC RRC measurement test case 8.2.3.9.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198933 | | 1126 | | 1 | | F | | Correction to EN-DC RRC measurement test case 8.2.3.10.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198935 | | 1069 | | 1 | | F | | Addition of NR TC 8.2.6.2.1-Processing delay of ENDC | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198937 | | 1096 | | 1 | | F | | Addition of 5GC test case 9.1.1.5 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198938 | | 1152 | | 1 | | F | | Correction to 5GC test case 9.1.1.3 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198939 | | 1080 | | 1 | | F | | Correction to NR test case 9.1.2.1-NAS security mode command | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198940 | | 1100 | | 1 | | F | | Addition of new 5GC test case 9.1.2.4 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198941 | | 1101 | | 1 | | F | | Addition of new 5GC test case 9.1.2.5 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198942 | | 1103 | | 1 | | F | | Addition of new 5GC test case 9.1.2.7 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198943 | | 1104 | | 1 | | F | | Addition of new 5GC test case 9.1.2.8 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198944 | | 1102 | | 1 | | F | | Addition of new 5GC test case 9.1.2.6 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198947 | | 1052 | | 1 | | F | | Correction to 5GC TC 9.1.5.1.12 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198948 | | 1081 | | 1 | | F | | Correction to NR test case 9.1.5.1.10-PLMN not allowed | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198949 | | 1082 | | 1 | | F | | Correction to NR test case 9.1.6.1.2-Transmission failure of De-registration | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198950 | | 1084 | | 1 | | F | | Update of NR TC 9.1.7.2-Service request | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198951 | | 1140 | | 1 | | F | | Correction to 5GC NAS NSSAI Test Case 9.1.5.1.3 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198952 | | 1189 | | 1 | | F | | Correction to NR5GC testcase 9.1.5.1.5 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198953 | | 1208 | | 1 | | F | | Correction to test case 9.1.5.1.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198954 | | 1217 | | 1 | | F | | Update of 5GC TC 9.1.6.1.4 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198972 | | 1098 | | 1 | | F | | Correction to 5GC test case 10.1.2.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198975 | | 1112 | | 1 | | F | | Update of 11.1.7 Emergency call setup from NR RRC\_IDLE - Emergency Services Fallback to EPS with redirection | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198977 | | 1224 | | - | | F | | Editorial improvements of Multilayer EPS Fallback test cases | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198978 | | 1161 | | 1 | | F | | Update EPS fallback test case 11.1.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198979 | | 1162 | | 1 | | F | | Update EPS fallback test case 11.1.5 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198980 | | 1163 | | 1 | | F | | Update EPS fallback test case 11.1.6 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198981 | | 1170 | | 1 | | F | | Correction to test case 11.1.4 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198982 | | 1171 | | 1 | | F | | Correction to test case 11.1.3 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198985 | | 1106 | | 1 | | F | | Addition of new UAC test case 11.3.4 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198986 | | 1113 | | 1 | | F | | Update to TC 11.4.1 5GMM-REGISTERED.NORMAL-SERVICE / 5GMM-IDLE / Emergency call / ... / New emergency PDU session | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198987 | | 1114 | | 1 | | F | | Update to TC 11.4.2 5GMM-DEREGISTERED.LIMITED-SERVICE / Emergency call / ... / Handling of forbidden PLMNs | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198988 | | 1115 | | 1 | | F | | Update to TC 11.4.3 5GMM-DEREGISTERED.NO-SUPI / Emergency call / ... / Initial registration for emergency services | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198989 | | 1116 | | 1 | | F | | Introduction of new TC 11.4.4 5GMM-REGISTERED.ATTEMPTING-REGISTRATION-UPDATE T3346 running / Emergency call establishment | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198990 | | 1117 | | 1 | | F | | Introduction of new 11.4.5 5GMM-REGISTERED.LIMITED-SERVICE / 5GMM-IDLE / Emergency call establishment and release / Handling of 5GS forbidden tracking areas for roaming | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-198991 | | 1118 | | 1 | | F | | Introduction of new TC 11.4.6 5GMM-REGISTERED.NON-ALLOWED-SERVICE / Emergency call establishment and release / Handling of non-allowed tracking areas | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199000 | | 1185 | | 1 | | F | | Non 3GPP Access over WLAN test cases | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199027 | | 1190 | | 1 | | F | | Update of QBASED in pre-test condition for RSRQ test cases | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199028 | | 1194 | | 1 | | F | | Addition of NR Idle mode cell reselection test case 6.1.2.16 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199029 | | 1202 | | 1 | | F | | Correction to test case 8.1.1.4.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199030 | | 1156 | | 1 | | F | | Correction to RRC test case 8.2.2.1.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199033 | | 1223 | | 1 | | F | | Corrections to Test Case 8.2.4.1.1.1 and 8.2.4.1.1.2 and 8.2.4.1.1.3 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199034 | | 1207 | | 1 | | F | | Correction to test case 9.1.3.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199035 | | 1227 | | - | | F | | New 5GC NAS test case 10.1.4.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199036 | | 1086 | | 1 | | F | | Addition of new NR test case 11.3.6-Access Identity 2-accessibility AC7-RRC\_INACTIVE | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199037 | | 1105 | | 1 | | F | | Addition of new UAC test case 11.3.3 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199038 | | 1191 | | 1 | | F | | Correction to RRC test case 8.1.3.1.2 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199072 | | 1107 | | 2 | | F | | Update of 5G Idle test case 6.1.2.23 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199095 | | 1225 | | 1 | | F | | Correction to NR RRC Test case 8.1.5.6.3 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199096 | | 1212 | | 1 | | F | | Correction to test cases 8.2.3.6.1 / 1a and 1b | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199097 | | 1228 | | 1 | | F | | Corrections to EN-DC inter frequency and inter band measurement test cases | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199098 | | 1079 | | 2 | | F | | Correction to NR test case 9.1.1.6-5G AKA authentication abnormal | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199099 | | 1211 | | 2 | | F | | Correction to test case 9.1.7.1 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199101 | | 1051 | | 2 | | F | | Correction to 5GC TC 9.1.5.1.11 | | 16.2.0 | |
| 2019-12 | | RAN#86 | | R5-199102 | | 1226 | | 1 | | F | | Correction to NR Idle mode test case 6.1.2.1 | | 16.2.0 | |
| 2020-03 | | RAN#87 | | R5-200148 | | 1250 | | - | | F | | Correction to test case 6.1.1.6 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200150 | | 1252 | | - | | F | | Correction to test case 8.1.3.1.16 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200175 | | 1268 | | - | | F | | Correction to NR TC 6.2.3.9-Speed Dependent Cell Reselection N2L | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200182 | | 1275 | | - | | F | | Correction to NR TC 8.1.2.1.2-uplinkTxDirectCurrentList | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200185 | | 1278 | | - | | F | | Correction to NR TC 8.1.4.1.6-Handover Failure | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200187 | | 1280 | | - | | F | | Correction to NR TC 8.1.4.1.8.1-SCell no change Intra-band Contiguous CA | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200188 | | 1281 | | - | | F | | Correction to NR TC 8.1.4.2.2.1-L2N Handover | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200195 | | 1285 | | - | | F | | Correction to NR TC 9.1.1.1-EAP-AKA related procedures | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200205 | | 1295 | | - | | F | | Correction to NR TC 9.1.5.2.2-Periodic Register T3512 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200206 | | 1296 | | - | | F | | Correction to NR TC 9.1.5.2.8-Registration Reject 10 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200208 | | 1298 | | - | | F | | Correction to NR TC 9.1.6.1.3-Deregistration in new TA | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200211 | | 1301 | | - | | F | | Correction to NR TC 9.3.1.1-5GC to EPC | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200213 | | 1303 | | - | | F | | Correction to NR TC 10.1.1.1-Authentication during PDU establish | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200214 | | 1304 | | - | | F | | Correction to NR TC 10.1.1.2-Authentication after PDU establish | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200221 | | 1311 | | - | | F | | Correction to NR RLC testcase 7.1.2.3.10 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200226 | | 1313 | | - | | F | | Adding core specs to section References | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200227 | | 1314 | | - | | F | | Corrections to IMS Emergency Services TC 11.4.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200229 | | 1316 | | - | | F | | Corrections to IMS Emergency Services TC 11.4.2 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200230 | | 1317 | | - | | F | | Corrections to IMS Emergency Services TC 11.4.4 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200232 | | 1319 | | - | | F | | Corrections to IMS Emergency Services TC 11.4.6 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200233 | | 1320 | | - | | F | | Introduction of new TC 11.4.7 Handling of Local and extended emergency numbers / Mobility | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200234 | | 1321 | | - | | F | | Introduction of new TC 11.4.8 Handling of Local and extended emergency numbers / Switch-off and maximum local numbers storage | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200250 | | 1326 | | - | | F | | Corrections to NR RLC test case 7.1.2.3.8 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200253 | | 1329 | | - | | F | | Corrections to EN-DC test case 8.2.2.3.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200254 | | 1330 | | - | | F | | Corrections to 5GC test case 9.1.5.1.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200338 | | 1332 | | - | | F | | Correction to NR TC 6.1.1.3-Cell reselection of ePLMN in manual mode | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200339 | | 1333 | | - | | F | | Correction to NR TC 6.4.1.2-Cell reselection of ePLMN in manual mode INACTIVE | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200341 | | 1335 | | - | | F | | Correction to NR TC 8.1.3.1.17.1-Event A6 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200347 | | 1338 | | - | | F | | Correction to NR test case 8.1.5.2.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200354 | | 1342 | | - | | F | | Correction to 5G RRC test case 8.1.1.2.3 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200355 | | 1343 | | - | | F | | Correction to 5G RRC test case 8.1.1.4.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200357 | | 1345 | | - | | F | | Correction to 5G UAC test case 11.3.3 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200358 | | 1346 | | - | | F | | Correction to 5G UAC test case 11.3.4 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200360 | | 1348 | | - | | F | | Update of 5GC test case 10.1.3.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200366 | | 1351 | | - | | F | | Correction of NR test case 6.4.3.1-Inter-RAT cell reselection in RRC\_INACTIVE | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200551 | | 1354 | | - | | F | | Correction to NR PDCP test case 7.1.3.5.5 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200579 | | 1358 | | - | | F | | Corrections to RRC TC 8.2.2.7.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200583 | | 1362 | | - | | F | | Correction to RRC TC 8.2.2.5.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200587 | | 1365 | | - | | F | | Correction to 5G TC 9.1.5.2.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200616 | | 1373 | | - | | F | | Update to 5GC test case 9.1.1.3 in 38.523-1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200622 | | 1375 | | - | | F | | Inclusion of 5G-NR Idle Mode TC 6.1.2.19 - Speed-dependent cell reselection | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200623 | | 1376 | | - | | F | | Update of RRC TC 8.1.5.6.5.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200625 | | 1377 | | - | | F | | Update of RRC TC 8.2.3.12.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200634 | | 1378 | | - | | F | | Corrections to NR MAC Test Case | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200673 | | 1382 | | - | | F | | Editorial correction: Assign title to section 10.1.4 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200675 | | 1384 | | - | | F | | Correction to NR Idle mode test case 6.1.2.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200680 | | 1386 | | - | | F | | Correction to NSSAI TC 9.1.5.1.3 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200803 | | 1398 | | - | | F | | Correction to NR TC 8.1.3.1.23-Intra NR measurements | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200872 | | 1403 | | - | | F | | Correction to Multilayer TC 11.1.5 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200877 | | 1404 | | - | | F | | Correction to Multilayer TC 11.1.6 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200997 | | 1249 | | 1 | | F | | Correction to EN-DC RRC Test case 8.2.3.2.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-200999 | | 1230 | | 1 | | F | | Correction to NR RLC test case 7.1.2.3.5 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201000 | | 1248 | | 1 | | F | | Correction to NR PDCP test case 7.1.3.5.3 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201001 | | 1236 | | 1 | | F | | Correction to NR SDAP test case 7.1.4.2 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201002 | | 1243 | | 1 | | F | | Correction to 5GMM test case 9.1.5.1.8 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201006 | | 1389 | | 1 | | F | | Correction to NR TC 6.1.2.11-Area Specific SIBs using systemInformationAreaID | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201007 | | 1368 | | 1 | | F | | Editorial Correction to TC 8.1.1.1.2 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201009 | | 1379 | | 1 | | F | | Correction to Non 3GPP Access test cases | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201018 | | 1374 | | 1 | | F | | Correction to NR test case 8.2.3.8.1x | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201031 | | 1312 | | 1 | | F | | Adding generic test parameters references and updating subclause 5 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201032 | | 1315 | | 1 | | F | | Update to IMS Emergency Services TC 11.4.1 for adding new TPs | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201033 | | 1318 | | 1 | | F | | Update of TC 11.4.4 5G Emergency Services to add a new TP | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201084 | | 1287 | | 1 | | F | | Correction to NR TC 9.1.1.6-5G AKA abnormal | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201085 | | 1288 | | 1 | | F | | Correction to NR TC 9.1.2.2-Initial NAS msg ciphering | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201086 | | 1290 | | 1 | | F | | Correction to NR TC 9.1.5.1.2-Equivalent PLMN list handling | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201087 | | 1293 | | 1 | | F | | Correction to NR TC 9.1.5.1.9-Change of cell into a new tracking area | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201088 | | 1299 | | 1 | | F | | Correction to NR TC 9.1.7.2-Service Request | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201089 | | 1300 | | 1 | | F | | Correction to NR TC 9.1.8.1-SMS | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201094 | | 1353 | | 1 | | F | | Correction to EN-DC RLC test case 7.1.2.3.11 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201095 | | 1385 | | 1 | | F | | Correction to NR RLC AM test case 7.1.2.3.9 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201096 | | 1355 | | 1 | | F | | Correction to NR PDCP Test cases 7.1.3.2.1, 7.1.3.2.2 and 7.1.3.2.3 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201097 | | 1381 | | 1 | | F | | Correction to NR RRC measurement test case for SINR report of serving cell | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201098 | | 1393 | | 1 | | F | | Correction NR CA Test case 8.2.4.1.1.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201100 | | 1369 | | 1 | | F | | Corrections to MAC TC 7.1.1.1.2 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201101 | | 1359 | | 1 | | F | | Corrections to RRC TC 8.2.2.8.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201103 | | 1395 | | 1 | | F | | Correction to test case 11.1.2 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201107 | | 1256 | | 1 | | F | | Correction to 5GC TC 10.1.3.2 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201112 | | 1262 | | 1 | | F | | Correction to NR TC 6.1.2.21-Cell reselection | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201113 | | 1322 | | 1 | | F | | Correction to NR TC 6.1.2.4-Cell Reselection for interband operation | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201114 | | 1323 | | 1 | | F | | Correction to NR TC 6.1.2.5-Cell reselection for interband operation Between FDD and TDD | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201115 | | 1334 | | 1 | | F | | Correction to NR TC 6.1.2.18-Cell reselection with parameters Sintrasearch and Snonintrasearch | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201117 | | 1336 | | 1 | | F | | Correction to NR test case 7.1.2.3.6 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201118 | | 1337 | | 1 | | F | | Correction to NR test case 8.1.3.2.2 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201119 | | 1339 | | 1 | | F | | Correction to NR test case 9.1.5.2.6 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201125 | | 1258 | | 1 | | F | | Correction to NR TC 6.1.1.2-PLMN selection of Other PLMN | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201126 | | 1259 | | 1 | | F | | Correction to NR TC 6.1.1.4-PLMN selection in shared network environment with Automatic mode | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201127 | | 1260 | | 1 | | F | | Correction to NR TC 6.1.1.5-PLMN selection with Automatic mode and user reselection | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201128 | | 1263 | | 1 | | F | | Correction to NR TC 6.1.2.22-Inter frequency cell reselection based on common priority information | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201129 | | 1264 | | 1 | | F | | Correction to NR TC 6.2.3.2-Inter-RAT cell reselection L2N | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201130 | | 1265 | | 1 | | F | | Correction to NR TC 6.2.3.5-Inter-RAT cell reselection N2L by dedicated signalling | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201131 | | 1266 | | 1 | | F | | Correction to NR TC 6.2.3.6-Inter-RAT cell reselection | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201132 | | 1267 | | 1 | | F | | Correction to NR TC 6.2.3.8-Inter-RAT cell reselection L2N Snonintrasearch | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201133 | | 1269 | | 1 | | F | | Correction to NR TC 6.4.2.1-Inactive-Reselection | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201134 | | 1270 | | 1 | | F | | Correction to NR TC 7.1.1.1.4-Beam Failure | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201135 | | 1272 | | 1 | | F | | Correction to NR TC 8.1.1.3.1-Redirection | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201136 | | 1273 | | 1 | | F | | Correction to NR TC 8.1.1.3.3-With priority information of NR Cell | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201137 | | 1274 | | 1 | | F | | Correction to NR TC 8.1.1.3.4-With priority information of LTE Cell | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201138 | | 1276 | | 1 | | F | | Correction to NR TC 8.1.3.3.1-NR CGI | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201139 | | 1277 | | 1 | | F | | Correction to NR TC 8.1.3.3.2-LTE CGI | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201140 | | 1279 | | 1 | | F | | Correction to NRTC 8.1.4.1.7.1-PCell Change and SCell addition Intra-band Contiguous CA | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201141 | | 1282 | | 1 | | F | | Correction to NR TC 8.2.1.1.1-UE Capability | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201142 | | 1286 | | 1 | | F | | Correction to NR TC 9.1.1.2-Authentication Reject | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201143 | | 1289 | | 1 | | F | | Correction to NR TC 9.1.4.1-Generic UE configuration update | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201144 | | 1294 | | 1 | | F | | Correction to NR TC 9.1.5.1.14-RegisterReject 22 and T3346 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201145 | | 1297 | | 1 | | F | | Correction to NR TC 9.1.6.1.2-UE initiated deregistration procedure | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201146 | | 1306 | | 1 | | F | | Correction to NR TC 10.1.4.1-T3580 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201149 | | 1324 | | 1 | | F | | Update to NR MAC test case 7.1.1.1.5 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201153 | | 1310 | | 1 | | F | | Correction to NR RLC testcase 7.1.2.3.7 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201170 | | 1340 | | 1 | | F | | Correction to NR RRC measurement Test cases 8.1.3.1.13 and 8.1.3.1.14A | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201171 | | 1350 | | 1 | | F | | Correction to NR test case 6.2.3.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201200 | | 1302 | | 1 | | F | | Correction to NR TC 9.3.1.2-Inter-system mobility registration update EPC to 5GC | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201204 | | 1253 | | 1 | | F | | Update to test case 8.2.2.2.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201206 | | 1257 | | 1 | | F | | Correction to NR TC 6.1.1.1-PLMN selection with Automatic mode | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201208 | | 1231 | | 1 | | F | | Correction to Inter-frequency Cell reselection test case 6.1.2.20 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201209 | | 1232 | | 1 | | F | | Correction to NR Idle mode test case 6.1.2.9 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201210 | | 1233 | | 1 | | F | | Correction to NR MAC test case 7.1.1.1.2 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201211 | | 1234 | | 1 | | F | | Correction to NR RLC test case 7.1.2.2.6 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201212 | | 1237 | | 1 | | F | | Correction to NR RRC test case 8.1.1.4.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201213 | | 1239 | | 1 | | F | | Correction to NR5GC IRAT test case 8.1.3.2.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201214 | | 1247 | | 1 | | F | | Correction to NR5GC RRC test case 8.1.3.1.2 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201215 | | 1240 | | 1 | | F | | Correction to NR5GC IRAT test case 8.1.4.2.1.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201216 | | 1383 | | 1 | | F | | Correction to NR5GC RRC test case 8.1.1.2.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201218 | | 1327 | | 1 | | F | | Enhancement of NR PDCP test cases 7.1.3.1.x | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201219 | | 1328 | | 1 | | F | | Corrections to NR PDCP test case 7.1.3.4.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201223 | | 1347 | | 1 | | F | | Update of 5G Idle test case 6.1.2.23 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201224 | | 1341 | | 1 | | F | | Correction to 5G RRC test case 8.2.4.3.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201225 | | 1392 | | 1 | | F | | Correction to 5G RRC test case 8.2.4.3.1.3 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201226 | | 1352 | | 1 | | F | | Correction to 5GC test case 10.1.2.2 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201227 | | 1344 | | 1 | | F | | Correction to 5G UAC test case 11.3.6 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201230 | | 1399 | | 1 | | F | | Corrections to EN-DC RRC TC 8.2.2.1.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201231 | | 1402 | | 1 | | F | | Correction to Multilayer TC 11.1.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201235 | | 1396 | | 2 | | F | | Correction to NR Idle mode test case 6.1.2.3 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201236 | | 1397 | | 2 | | F | | Update of RRC TC 8.1.3.1.1 | | 16.3.0 | |
| 2020-03 | | RAN#87 | | R5-201241 | | 1367 | | 2 | | F | | Correction to 5G TC 9.1.7.1 | | 16.3.0 | |
| 2020-06 | | RAN#88 | | R5-201326 | | 1405 | | - | | F | | Correction to EN-DC Carrier Aggregation test case 8.2.4.1.1.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201340 | | 1408 | | - | | F | | Correction to NR TC 6.1.2.18-Cell reselection with Sintrasearch and Snonintrasearch | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201341 | | 1409 | | - | | F | | Correction to NR TC 6.1.2.19-N2N Speed dependent cell reselection | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201344 | | 1412 | | - | | F | | Correction to NR TC 6.2.3.9-N2L Speed dependent cell reselection | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201349 | | 1417 | | - | | F | | Correction to NR TC 6.4.1.1-PLMN selection Automatic mode in RRC\_INACTIVE state | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201353 | | 1421 | | - | | F | | Correction to NR TC 8.1.2.1.4-RRC reconfiguration Dedicated RLF timer | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201356 | | 1424 | | - | | F | | Correction to NR TC 8.1.3.1.23-Continuation of the measurements after RRC Resume | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201361 | | 1429 | | - | | F | | Correction to NR TC 8.1.5.4.1-Reception of CounterCheck message by the UE | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201367 | | 1434 | | - | | F | | Addition of NR TC 8.1.5.8.1-Connected state latency check | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201372 | | 1439 | | - | | F | | Correction to NR TC 9.1.5.1.2-Equivalent PLMN list handling | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201379 | | 1446 | | - | | F | | Addition of new NR TC 11.3.5-UAC AI1-accessibility AC5-MMTEL-Video call | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201431 | | 1461 | | - | | F | | Correction to ENDC TC 7.1.3.3.2-Correct functionality of encryption algorithm AES | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201432 | | 1462 | | - | | F | | Correction to ENDC TC 7.1.3.3.3-Correct functionality of encryption algorithm ZUC | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201440 | | 1470 | | - | | F | | Correction to NR TC 6.1.2.2-Qqualmin Serving Cell non-suitable | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201471 | | 1479 | | - | | F | | Addition of NR TC 6.2.2.1-N2L Serving cell becomes non-suitable | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201477 | | 1482 | | - | | F | | Correction to FR1 power level table for several test cases to not to assign beyond maximum power level -78 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201484 | | 1485 | | - | | F | | Correction 7.1.2.3.7 to use downlink timing reference for scheduling less than 100ms timing gap | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201499 | | 1486 | | - | | F | | Correction to NR Idle mode test case 6.1.2.5 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201500 | | 1487 | | - | | F | | Correction to NR idle mode test case 6.4.2.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201501 | | 1488 | | - | | F | | Correction to NR MAC test case 7.1.1.1.1a | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201502 | | 1489 | | - | | F | | Correction to BWP Dependent Parameters for RA type 0 in MAC testcases | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201519 | | 1497 | | - | | F | | Corrections to MAC test cases for Logical Channel ID | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201574 | | 1499 | | - | | F | | Updates to NR RLC test case 7.1.2.3.11 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201575 | | 1500 | | - | | F | | Enhancement of NR PDCP test case 7.1.3.1.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201578 | | 1503 | | - | | F | | Correction to NR test cases 8.1.3.1.13 and 8.1.3.1.14A | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201629 | | 1510 | | - | | F | | Correction to 5GC TC 10.1.3.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201632 | | 1511 | | - | | F | | Corrections to RRC TCs 8.2.3.1.1, 8.2.3.2.1, 8.2.3.3.1 and 8.2.3.12.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201633 | | 1512 | | - | | F | | Addition of NR5G UAC TC 11.3.7 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201637 | | 1516 | | - | | F | | Corrections to NR5G MAC TC 7.1.1.3.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201638 | | 1517 | | - | | F | | Corrections to NR5G RRC TC 8.1.4.2.1.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201644 | | 1522 | | - | | F | | Corrections to NR5G NAS TC 9.1.6.1.4 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201646 | | 1524 | | - | | F | | Corrections to NR5G RRC TC 8.1.1.4.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201650 | | 1528 | | - | | F | | Corrections to NR5G SDAP TC 7.1.4.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201651 | | 1529 | | - | | F | | Corrections to NR5G RRC TC 8.1.5.4.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201761 | | 1538 | | - | | F | | Correction to NR UE Capability test case 8.2.1.1.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201790 | | 1539 | | - | | F | | Correction to NR idle mode test case 6.4.2.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201791 | | 1540 | | - | | F | | Correction to NR5GC IRAT test case 6.2.3.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201793 | | 1542 | | - | | F | | Removal of requirement of USIM configuration 14 from 5GMM Idle mode test cases | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201802 | | 1545 | | - | | F | | Update of RRC TC 8.2.3.12.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201913 | | 1547 | | - | | F | | Update of RRC TC 8.1.5.6.5.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-201943 | | 1549 | | - | | F | | Correction to NR TC 6.2.3.4-inter-RAT reselection | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202026 | | 1559 | | - | | F | | Corrections to NR MAC Test Case 7.1.1.3.2b | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202048 | | 1560 | | - | | F | | Corrections to EN-DC test case 8.2.3.12.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202107 | | 1561 | | - | | F | | Editorial Corrections to NR5G MAC TC 7.1.1.1.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202140 | | 1564 | | - | | F | | Addition of new DRX TC 7.1.1.5.5 for short DRX configured and Long DRX command MAC CE is received | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202178 | | 1566 | | - | | F | | Correction to 5G test case 6.2.1.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202183 | | 1567 | | - | | F | | Editorial update to NR measurements test case 8.1.3.1.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202185 | | 1568 | | - | | F | | Correction to 5G test case 6.2.1.3 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202205 | | 1569 | | - | | F | | Correction to 5G test case 6.2.1.4 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202221 | | 1572 | | - | | F | | Removal of 5GC test case 10.1.3.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202411 | | 1581 | | - | | F | | Correction to EN-DC RRC test case 8.2.2.1.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202506 | | 1584 | | - | | F | | Correction to NR PDCP test case 7.1.3.5.5 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202530 | | 1585 | | - | | F | | Correction to NR CA RRC test cases 8.1.3.1.18.x | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202535 | | 1442 | | 1 | | F | | Correction to NR TC 9.3.1.3-Handling of EPC relevant parameters | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202537 | | 1586 | | - | | F | | Correction to NR RRC IDLE testcase 6.1.2.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202538 | | 1587 | | - | | F | | Correction to the ENDC testcase 7.1.1.3.7 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202539 | | 1588 | | - | | F | | Correction to NR MAC test case 7.1.1.3.3 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202540 | | 1589 | | - | | F | | Correction to NR TC 8.2.3.2.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202543 | | 1554 | | 1 | | F | | Correction to NR MAC test case 7.1.1.3.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202550 | | 1555 | | 1 | | F | | Corrections to IMS Emergency Services TC 11.4.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202551 | | 1556 | | 1 | | F | | Introduction of new IMS Emergency TC 11.4.9 5GMM-DEREGISTERED.LIMITED-SERVICE No suitable cells in tracking area call | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202592 | | 1577 | | 1 | | F | | Adding generic test parameters references to section 5.3 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202593 | | 1406 | | 1 | | F | | Correction to NR TC 6.1.1.1-PLMN selection Automatic mode | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202594 | | 1407 | | 1 | | F | | Correction to NR TC 6.1.1.5-PLMN selection with Automatic mode and user reselection | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202595 | | 1411 | | 1 | | F | | Correction to NR TC 6.2.3.3-From NR RRC\_IDLE to E-UTRA\_IDLE | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202596 | | 1413 | | 1 | | F | | Correction to NR TC 6.3.1.1-Security check successful using List Type 1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202597 | | 1416 | | 1 | | F | | Correction to NR TC 6.3.1.4-Security check unsuccessful manual mode | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202598 | | 1449 | | 1 | | F | | Corrections to Idle Mode SoR Test Case 6.3.1.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202599 | | 1450 | | 1 | | F | | Corrections to Idle Mode SoR Test Case 6.3.1.3 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202600 | | 1452 | | 1 | | F | | Addition of Idle Mode SoR Test Case 6.3.1.5 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202601 | | 1453 | | 1 | | F | | Addition of Idle Mode SoR Test Case 6.3.1.7 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202602 | | 1480 | | 1 | | F | | Addition of NR TC 6.2.2.2-L2N Serving cell becomes non-suitable | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202603 | | 1531 | | 1 | | F | | Correction to NR5G Idle Mode TC 6.1.2.11 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202604 | | 1543 | | 1 | | F | | Correction to NR TC 6.3.1.8-SoR after registration Automatic mode | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202605 | | 1544 | | 1 | | F | | Correction to NR TC 6.3.1.9-SoR after registration Manual mode | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202606 | | 1570 | | 1 | | F | | Correction to test case 6.1.2.23 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202607 | | 1474 | | 1 | | F | | Correction to NR TC 7.1.1.4.2.x-TBS ambiguity of UL | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202608 | | 1490 | | 1 | | F | | Correction to NR MAC test case 7.1.1.4.2.3 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202609 | | 1558 | | 1 | | F | | Corrections to NR DRX Test Cases | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202610 | | 1574 | | 1 | | F | | Corrections to MAC TBS test cases with dynamicSwitch | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202611 | | 1583 | | 1 | | F | | Correction to NR MAC CA Test Case | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202612 | | 1498 | | 1 | | F | | Editorial corrections to NR RLC test cases 7.1.2.3.x | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202613 | | 1507 | | 1 | | F | | Correction to 7.1.2.3.3 and 7.1.2.3.4 to reduce test execution time | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202614 | | 1457 | | 1 | | F | | Correction to ENDC TC 7.1.3.2.1-Correct functionality of Integrity algorithm SNOW3G | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202615 | | 1458 | | 1 | | F | | Correction to ENDC TC 7.1.3.2.2-Correct functionality of Integrity algorithm AES | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202616 | | 1459 | | 1 | | F | | Correction to ENDC TC 7.1.3.2.3-Correct functionality of Integrity algorithm ZUC | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202617 | | 1460 | | 1 | | F | | Correction to ENDC TC 7.1.3.3.1-Correct functionality of encryption algorithm SNOW3G | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202618 | | 1520 | | 1 | | F | | Corrections to NR5G PDCP TC 7.1.3.4.1 and 7.1.3.4.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202619 | | 1418 | | 1 | | F | | Correction to NR TC 8.1.1.2.1-T300 expiry | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202620 | | 1419 | | 1 | | F | | Correction to NR TC 8.1.1.3.2-Redirection from NR to E-UTRA | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202621 | | 1464 | | 1 | | F | | Correction to test case 8.1.1.3.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202622 | | 1465 | | 1 | | F | | Correction to test case 8.1.1.3.3 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202623 | | 1466 | | 1 | | F | | Correction to test case 8.1.1.3.4 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202624 | | 1467 | | 1 | | F | | Correction to test case 8.1.1.4.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202625 | | 1468 | | 1 | | F | | Correction to test case 8.1.1.4.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202626 | | 1469 | | 1 | | F | | Correction to test case 8.1.2.1.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202627 | | 1515 | | 1 | | F | | Corrections to NR5G RRC TC 8.2.2.6.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202628 | | 1576 | | 1 | | F | | Update RRC TC 8.1.2.1.5 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202629 | | 1582 | | 1 | | F | | Corrections to EN-DC RRC TC 8.2.2.7.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202630 | | 1422 | | 1 | | F | | Correction to NR TC 8.1.3.1.11-Two RSRQ event A3 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202631 | | 1423 | | 1 | | F | | Correction to NR TC 8.1.3.1.16-Intra NR measurements with Whitelisting | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202632 | | 1425 | | 1 | | F | | Correction to NR TC 8.1.3.2.3-RSRQ event B2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202633 | | 1426 | | 1 | | F | | Correction to NR TC 8.1.3.3.1-NR CGI | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202634 | | 1427 | | 1 | | F | | Correction to NR TC 8.1.3.3.2-LTE CGI | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202635 | | 1501 | | 1 | | F | | Corrections to NR measurement test cases 8.1.3.x | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202636 | | 1518 | | 1 | | F | | Corrections to NR5G RRC TC 8.1.3.1.15A | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202637 | | 1536 | | 1 | | F | | Correction to NR TC 8.1.3.1.15a-Intra NR measurements with Blacklisting | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202638 | | 1550 | | 1 | | F | | Correction to NR TC 8.1.3.2.4-SINR event B2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202639 | | 1428 | | 1 | | F | | Correction to NR TC 8.1.4.2.2.1-L2N handover | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202640 | | 1492 | | 1 | | F | | Correction to NR5GC IRAT test case 8.1.4.2.1.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202641 | | 1563 | | 1 | | F | | Correction to NR RRC test case 8.1.4.1.2 to update the security | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202642 | | 1433 | | 1 | | F | | Addition of NR TC 8.1.5.7.1-MCG RLC failure | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202643 | | 1506 | | 1 | | F | | Updates on RRC others TC 8.1.5.2.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202644 | | 1546 | | 1 | | F | | Corrections to NR5G RRC TC 8.1.5.5.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202645 | | 1483 | | 1 | | F | | Correction to 8.2.2.8.1 not to check reception of RRCReconfigurationComplete if RRCReconfiguration is not sent | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202646 | | 1493 | | 1 | | F | | Correction to EN-DC RRC test case 8.2.2.7.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202647 | | 1505 | | 1 | | F | | Corrections to EN-DC test case 8.2.2.3.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202648 | | 1526 | | 1 | | F | | Addition of NRDC RRC TC 8.2.2.4.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202649 | | 1527 | | 1 | | F | | Addition of NRDC RRC TC 8.2.2.5.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202650 | | 1435 | | 1 | | F | | Addition of NR TC 8.2.3.16.1-MeasConfig via SRB3 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202651 | | 1504 | | 1 | | F | | Corrections to NR measurement test cases 8.2.3.x | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202652 | | 1475 | | 1 | | F | | Correction to NR TC 8.2.4.2.1.x-CA release | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202653 | | 1537 | | 1 | | F | | Corrections to EN-DC test case 8.2.4.3.1.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202654 | | 1436 | | 1 | | F | | Addition of NR TC 8.2.6.1.1-RLC failure | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202655 | | 1551 | | 1 | | F | | Corrections to 5GC Test Case 9.1.1.3 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202656 | | 1494 | | 1 | | F | | Correction to 5GMM test case 9.1.2.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202657 | | 1495 | | 1 | | F | | Correction to 5GMM test case 9.1.4.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202658 | | 1438 | | 1 | | F | | Correction to NR TC 9.1.5.1.3-NSSAI handling | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202659 | | 1440 | | 1 | | F | | Correction to NR TC 9.1.5.1.9-Change of cell into a new tracking area | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202660 | | 1508 | | 1 | | F | | Correction to NR TC 9.1.6.1.3-Deregistration in new TA | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202661 | | 1530 | | 1 | | F | | Corrections to NR5G NAS TC 9.1.7.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202662 | | 1578 | | 1 | | F | | Correction to test case 9.1.7.1 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202663 | | 1573 | | 1 | | F | | Addition to 5GC SMS test case 9.1.8.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202664 | | 1444 | | 1 | | F | | Correction to NR TC 10.1.4.1-T3580 expiry | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202665 | | 1476 | | 1 | | F | | Update of multilayer test case 11.1.5 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202666 | | 1477 | | 1 | | F | | Update of multilayer test case 11.1.6 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202667 | | 1478 | | 1 | | F | | Update of multilayer test case 11.1.2 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202668 | | 1445 | | 1 | | F | | Addition of new NR TC 11.3.1-UAC AI0-MTSI MO speech call-SMSoIP-Uplink User data transfer | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202669 | | 1447 | | 1 | | F | | Addition of new NR TC 11.3.9-UAC Operator Defined Access Category | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202670 | | 1513 | | 1 | | F | | Addition of NR5G UAC TC 11.3.8 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202671 | | 1571 | | 1 | | F | | Update to UAC test case 11.3.4 | | 16.4.0 | |
| 2020-06 | | RAN#88 | | R5-202672 | | 1557 | | 1 | | F | | Introduction of new IMS emergency TC 11.4.10 5GMM-REGISTERED.NORMAL-SERVICE N26 interface not supported N1 to S1 | | 16.4.0 | |
| 2020-09 | | RAN#89 | | R5-203363 | | 1590 | | - | | F | | Correction to NR TC 6.1.1.1-PLMN selection in automatic mode | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203367 | | 1594 | | - | | F | | Correction to NR TC 6.1.1.5-PLMN selection in Automatic mode User reselection | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203372 | | 1599 | | - | | F | | Correction to NR TC 6.1.2.21-Cell reselection | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203373 | | 1600 | | - | | F | | Correction to NR TC 6.1.2.23-Cell Reselection MFBI | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203374 | | 1601 | | - | | F | | Correction to NR TC 6.2.1.1-Selection of correct RAT for OPLMN | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203375 | | 1602 | | - | | F | | Correction to NR TC 6.2.1.4-Inter-RAT PLMN Selection with Manual mode | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203377 | | 1604 | | - | | F | | Correction to NR TC 6.2.3.9-Inter-RAT Speed Dependent Cell Reselection | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203382 | | 1609 | | - | | F | | Correction to NR TC 6.4.1.1-PLMN Selection | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203383 | | 1610 | | - | | F | | Correction to NR TC 7.1.1.1.1-Correct selection of RACH parameters | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203389 | | 1616 | | - | | F | | Correction to NR TC 8.1.1.3.1-Redirection to another NR frequency | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203394 | | 1621 | | - | | F | | Correction to NR TC 8.1.3.1.15A-Intra NR measurements Blacklisting | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203396 | | 1623 | | - | | F | | Correction to NR TC 8.1.5.7.1.X-RLC Failure MCG | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203397 | | 1624 | | - | | F | | Correction to ENDC TC 8.2.2.1.1-SRB3 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203398 | | 1625 | | - | | F | | Addition of NRDC TC 8.2.2.1.2-SRB3 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203403 | | 1630 | | - | | F | | Correction to ENDC TC 8.2.3.11.X-Measurement Gap | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203405 | | 1632 | | - | | F | | Correction to ENDC TC 8.2.6.1.1.X-RLC Failure SCG | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203406 | | 1633 | | - | | F | | Addition of NRDC TC 8.2.6.1.2.1-RLC Failure SCG intra-band | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203407 | | 1634 | | - | | F | | Addition of NRDC TC 8.2.6.1.2.2-RLC Failure SCG inter-band | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203408 | | 1635 | | - | | F | | Addition of NRDC TC 8.2.6.1.2.3-RLC Failure SCG intra-band NC | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203409 | | 1636 | | - | | F | | Correction to ENDC TC 8.2.6.2.1-Processing delay | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203412 | | 1639 | | - | | F | | Correction to NR TC 9.1.5.1.1-Initial registration with 5G-GUTI reallocation | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203413 | | 1640 | | - | | F | | Correction to NR TC 9.1.5.1.8-Serving network not authorized | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203481 | | 1648 | | - | | F | | Correction to NR TC 6.1.1.4-PLMN selection in shared network environment | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203502 | | 1652 | | - | | F | | Correction to 5G NR Idle mode test case 6.4.2.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203503 | | 1653 | | - | | F | | Correction to NR CA RRC test cases 8.1.3.1.18.x | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203504 | | 1654 | | - | | F | | Correction to NR RRC test cases 8.1.3.2.3 and 8.1.3.2.4 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203505 | | 1655 | | - | | F | | Correction to 5GMM test case 9.1.5.1.13 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203524 | | 1661 | | - | | F | | Corrections to NR MAC Test Case 7.1.1.5.4 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203535 | | 1662 | | - | | F | | Splitting and updates to NR RLC test case 7.1.2.3.5 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203539 | | 1666 | | - | | F | | Correction to NR test case 8.1.3.1.15A | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203540 | | 1667 | | - | | F | | Editorial correction to EN-DC test case 8.2.3.5.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203567 | | 1671 | | - | | F | | Correction to NR TC 7.1.1.1.2-Random access procedure for Preamble selected by MAC itself | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203648 | | 1690 | | - | | F | | Editorial updates to NR5G Idle Mode TC 6.1.2.11 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203649 | | 1691 | | - | | F | | Corrections to NR5G BWP TC 7.1.1.8.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203650 | | 1692 | | - | | F | | Corrections to NR5G RRC NR-DC TC 8.2.2.4.2 and 8.2.2.5.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203656 | | 1695 | | - | | F | | Corrections to NR5G MAC DRX TC 7.1.1.5.3 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203657 | | 1696 | | - | | F | | Corrections to NR5G RRC TC 8.1.3.1.16 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203658 | | 1697 | | - | | F | | Void NR5G NAS TC 9.1.5.2.6 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203659 | | 1698 | | - | | F | | Corrections to NR5G MAC TC 7.1.1.2.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203665 | | 1703 | | - | | F | | Corrections to NR5G RRC CA TCs to add Data Path verification | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203666 | | 1704 | | - | | F | | Corrections to ENDC RRC CA TCs to add Data Path verification | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203706 | | 1708 | | - | | F | | Correction to NR test case 7.1.2.3.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203709 | | 1711 | | - | | F | | Correction to NR test case 8.1.3.1.5 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203710 | | 1712 | | - | | F | | Correction to NR test case 8.1.3.1.8 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203728 | | 1715 | | - | | F | | Correction to NR test case 8.1.3.1.16 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203739 | | 1717 | | - | | F | | Corrections to 5GS Non-3GPP Access TC 9.2.1.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203740 | | 1718 | | - | | F | | Corrections to 5GS Non-3GPP Access TC 9.2.5.1.4 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203741 | | 1719 | | - | | F | | Corrections to 5GS Non-3GPP Access TC 9.2.7.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203742 | | 1720 | | - | | F | | Corrections to 5GS Non-3GPP Access TC 9.2.7.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203745 | | 1721 | | - | | F | | Correction to 5G NR Idle mode test case 6.4.3.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203772 | | 1727 | | - | | F | | Correction to NR5GC testcase 9.1.4.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203785 | | 1728 | | - | | F | | Correction to NR5GC testcase 10.1.1.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203810 | | 1729 | | - | | F | | Correction to NR5GC test case 6.1.2.9 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-203811 | | 1730 | | - | | F | | Correction to NR CA RRC Test cases 8.1.3.1.17.x and 8.1.3.1.18.x | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204015 | | 1733 | | - | | F | | Correction of NR TC 6.2.2.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204016 | | 1734 | | - | | F | | Correction to NR TC 8.1.4.1.8.X-Scell no change | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204018 | | 1735 | | - | | F | | Correction of NR TC 6.2.2.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204019 | | 1736 | | - | | F | | Correction to NR5G UAC TC 11.3.8 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204107 | | 1740 | | - | | F | | Correction to NR test case 7.1.2.3.11 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204217 | | 1744 | | - | | F | | Addition of NR-DC RRC test case 8.2.2.9.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204237 | | 1746 | | - | | F | | Correction to NR5G RRC TC 8.1.4.1.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204254 | | 1748 | | - | | F | | Correction to NR UE Capability test case 8.1.5.1.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204334 | | 1749 | | - | | F | | Correction to NR5GC RRC test case 8.1.5.2.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204336 | | 1750 | | - | | F | | Correction to test case 11.1.3 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204341 | | 1751 | | - | | F | | Correction to the NR5GC testcase 8.1.3.1.12 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204359 | | 1754 | | - | | F | | Correction to NR test case 8.1.4.1.6 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204363 | | 1755 | | - | | F | | Corrections to NR5G PDCP TC 7.1.3.4.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204372 | | 1756 | | - | | F | | Correction to NR5GC CA RRC test cases 8.1.2.1.5.x | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204379 | | 1678 | | 1 | | F | | Correction to Idle mode test case 6.4.1.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204380 | | 1680 | | 1 | | F | | Correction to Idle mode test case 6.1.2.9 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204381 | | 1689 | | 1 | | F | | Correction to the power level of NR RRC TC 8.1.1.2.1 and 8.1.1.4.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204382 | | 1739 | | 1 | | F | | Correction to NR RRC TC 8.1.3.2.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204403 | | 1592 | | 1 | | F | | Correction to NR TC 6.1.1.2-access technology combinations | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204404 | | 1596 | | 1 | | F | | Correction to NR TC 6.1.1.7-PLMN selection of RPLMN or HPLMN in Automatic mode | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204405 | | 1598 | | 1 | | F | | Correction to NR TC 6.1.2.19-Speed-dependent cell reselection | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204406 | | 1603 | | 1 | | F | | Correction to NR TC 6.2.1.5-Inter-RAT Background HPLMN Search with Automatic Mode | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204407 | | 1605 | | 1 | | F | | Correction to NR TC 6.3.1.1-SOR during registration with security check successful using List Type 1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204408 | | 1606 | | 1 | | F | | Correction to NR TC 6.3.1.2-SOR during registration with security check successful but no requested acknowledgement | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204409 | | 1608 | | 1 | | F | | Correction to NR TC 6.3.1.5-SOR during registration with no SOR information received | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204410 | | 1645 | | 1 | | F | | Correction to Idle Mode SoR TC 6.3.1.7 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204411 | | 1647 | | 1 | | F | | Correction to NR TC 6.3.1.8-Steering of UE in roaming after registration | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204412 | | 1669 | | 1 | | F | | Correction to NR TC 6.2.2.1-N2L cell reselection | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204413 | | 1670 | | 1 | | F | | Correction to NR TC 6.2.2.2-L2N cell reselection | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204414 | | 1677 | | 1 | | F | | Correction to the power level of Idle mode test cases | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204415 | | 1693 | | 1 | | F | | Corrections to NR5G Idle Mode TC 6.4.2.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204416 | | 1700 | | 1 | | F | | Corrections to NR5G Idle Mode TC 6.1.2.13 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204417 | | 1722 | | 1 | | F | | Correction to 5G NR Idle mode inter-RAT test cases | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204418 | | 1613 | | 1 | | F | | Correction to NR TC 7.1.1.9.1-MAC Reset | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204419 | | 1614 | | 1 | | F | | Correction to NR TC 7.1.1.2.2-PDSCH Aggregation | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204420 | | 1656 | | 1 | | F | | Correction to NR MAC test case 7.1.1.5.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204421 | | 1694 | | 1 | | F | | Corrections to NR5G MAC TC 7.1.1.2.4 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204422 | | 1699 | | 1 | | F | | Corrections to NR5G MAC TC 7.1.1.1.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204423 | | 1743 | | 1 | | F | | Addition of NR-DC MAC Test Case | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204426 | | 1682 | | 1 | | F | | Modification of PDCP TC 7.1.3.5.2 to add testing for change of ul-DataSplitThreshold and transmission of SRs | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204429 | | 1709 | | 1 | | F | | Correction to NR test case 7.1.3.5.5 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204430 | | 1724 | | 1 | | F | | Update to test case NR5GC 7.1.3.5.3 (NR-DC) | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204431 | | 1725 | | 1 | | F | | Correction to NR5GC SDAP test cases 7.1.4.1 and 7.1.4.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204432 | | 1617 | | 1 | | F | | Correction to NR TC 8.1.1.3.3-With priority information | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204433 | | 1685 | | 1 | | F | | Addition of new RRC TC for checking extended / spare field handling in SI | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204434 | | 1723 | | 1 | | F | | Correction to NR RRC IRAT test case 8.1.1.3.4 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204435 | | 1737 | | 1 | | F | | Correction to NR5GC testcase 8.1.1.3.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204436 | | 1745 | | 1 | | F | | Correction to NR5G RRC TC 8.1.1.4.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204437 | | 1619 | | 1 | | F | | Correction to NR TC 8.1.X on SINR related configuration | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204438 | | 1620 | | 1 | | F | | Correction to NR TC 8.1.3.1.13-CSI-RS based intra-freq | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204439 | | 1627 | | 1 | | F | | Correction to ENDC TC 8.2.2.6.1-PDCP version change | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204440 | | 1646 | | 1 | | F | | Correction to NR TC 8.1.3.1.14A-CSI-RS based inter-freq | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204441 | | 1649 | | 1 | | F | | Addition of new test purpose to test case 8.1.3.1.23 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204442 | | 1659 | | 1 | | F | | Correction to NR RRC test case 8.1.3.1.20 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204444 | | 1674 | | 1 | | F | | Correction to NR5GC test case 8.1.3.1.12 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204445 | | 1675 | | 1 | | F | | Addition of NR-DC RRC test case 8.2.2.8.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204446 | | 1622 | | 1 | | F | | Correction to NR TC 8.1.4.1.7.X-Scell Release | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204447 | | 1628 | | 1 | | F | | Correction to ENDC TC 8.2.3.9.1-CSI-RS based Intra-frequency measurements | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204448 | | 1629 | | 1 | | F | | Correction to ENDC TC 8.2.3.10.1-CSI-RS based Inter-frequency measurements | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204449 | | 1631 | | 1 | | F | | Addition of NRDC TC 8.2.3.16.2-Intra-NR Measurement configuration control and reporting | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204450 | | 1650 | | 1 | | F | | Correction to include data path check after handover in test case 8.1.4.1.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204451 | | 1672 | | 1 | | F | | Correction to Inter-RAT HO test case 8.1.4.2.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204452 | | 1679 | | 1 | | F | | Correction to Inter-RAT HO test case 8.1.4.2.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204453 | | 1702 | | 1 | | F | | Corrections to NR5G RRC IRAT TC 8.1.4.2.2.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204454 | | 1731 | | 1 | | F | | Addition of NR-DC RRC test case 8.2.3.14.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204455 | | 1742 | | 1 | | F | | Correction to MR-DC RRC TC 8.2.3.8.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204456 | | 1676 | | 1 | | F | | Correction to NR RRC TC 8.1.5.1.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204457 | | 1637 | | 1 | | F | | Correction to NR TC 9.1.1.3-EAP message transport abnormal | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204458 | | 1638 | | 1 | | F | | Correction to NR TC 9.1.1.6-5G AKA abnormal | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204459 | | 1716 | | 1 | | F | | Correction to 5GC TC 9.1.3.1 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204460 | | 1641 | | 1 | | F | | Correction to NR TC 9.1.5.1.9-Initial registration with Change of cell into a new tracking area | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204461 | | 1642 | | 1 | | F | | Correction to NR TC 9.1.6.1.4-Transmission failure with TAI change from lower layers | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204462 | | 1706 | | 1 | | F | | Correction to 5GC TC 9.1.5.2.9 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204463 | | 1752 | | 1 | | F | | Correction to NR TC 9.1.5.1.14 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204464 | | 1753 | | 1 | | F | | Corrections to NR5G NAS TC 9.1.6.1.3 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204465 | | 1726 | | 1 | | F | | Correction to Multilayer TC 11.1.2 and 11.1.5 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204466 | | 1732 | | 1 | | F | | Corrections to EPS Fallback regarding IMS procedures | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204467 | | 1738 | | 1 | | F | | Correction to test case 11.1.7 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204468 | | 1643 | | 1 | | F | | Correction to NR TC 11.3.9-UAC AI-0 Operator Defined Access Category | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204512 | | 1701 | | 1 | | F | | Corrections to NR5G RLC TC 7.1.2.3.11 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204513 | | 1660 | | 1 | | F | | Addition of new test case 8.1.4.2.1.2 for Inter-RAT handover from NR to EN-DC | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204517 | | 1658 | | 1 | | F | | Introduction of a new test case for voice fallback indication under EPS Fallback with redirection | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204518 | | 1747 | | 1 | | F | | Addition of NR5G UAC TC 11.3.2 | | 16.5.0 | |
| 2020-09 | | RAN#89 | | R5-204543 | | 1607 | | 1 | | F | | Correction to NR TC 6.3.1.3-SOR during registration with security check unsuccessful for Automatic mode | | 16.5.0 | |
| 2020-12 | | RAN#90 | | R5-205142 | | 1758 | | - | | F | | Update of test case 9.3.1.2 Inter-system mobility registration update / Single-registration mode with N26 / 5GMM-IDLE / EPC to 5GC | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205176 | | 1768 | | - | | F | | Correction to ENDC TC 8.2.6.2.1 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205180 | | 1770 | | - | | F | | Corrections to TC 8.1.4.2.2 regarding IMS usage | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205192 | | 1771 | | - | | F | | Correction to 5G NR Idle mode test case 6.1.2.14 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205244 | | 1778 | | - | | F | | Correction to the Preamble of Test case 8.1.4.1.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205279 | | 1779 | | - | | F | | Correction to NR-DC RRC test case 8.2.3.14.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205292 | | 1783 | | - | | F | | Corrections to EPS Fallback test cases regarding IMS usage | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205320 | | 1787 | | - | | F | | Correction to NR5G Idle Mode TC 6.1.1.1 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205321 | | 1788 | | - | | F | | Correction to NR5G UAC TC 11.3.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205341 | | 1790 | | - | | F | | Updates to PDCP default Pre-Test Conditions | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205342 | | 1791 | | - | | F | | Corrections to NR CA HO test cases 8.1.4.1.9.x | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205361 | | 1795 | | - | | F | | Correction to Idle Mode SoR Test Case 6.3.1.7 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205365 | | 1796 | | - | | F | | Correction to NR TC 6.1.2.9-Cell reselection using Qhyst and Qoffset | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205366 | | 1797 | | - | | F | | Correction to NR TC 6.1.2.13-Cell reselection CellReservedForOperatorUse with Access Identity 0-1-2-12-13-14 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205368 | | 1799 | | - | | F | | Correction to NR TC 6.3.1.3-SOR security check unsuccessful | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205369 | | 1800 | | - | | F | | Correction to NR TC 6.3.1.5-Steering of UE in roaming during registration | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205373 | | 1804 | | - | | F | | Correction to NR TC 8.1.3.1.11-RSRQ based | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205374 | | 1805 | | - | | F | | Correction to NR TC 8.1.3.2.X-Inter-RAT | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205377 | | 1808 | | - | | F | | Correction to MRDC TC 8.2.2.8.2-key change | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205379 | | 1810 | | - | | F | | Correction to MRDC TC 8.2.3.9.1-CSI-RS based intra-freq | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205381 | | 1812 | | - | | F | | Correction to MRDC TC 8.2.3.16.2-Measurement via SRB3 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205383 | | 1814 | | - | | F | | Correction to NR TC 9.1.4.1-Generic UE configuration update | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205385 | | 1816 | | - | | F | | Correction to NR TC 9.1.6.1.3-DeRegistration | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205388 | | 1819 | | - | | F | | Correction to NR TC 11.3.9-UAC AI-0 Operator Defined Access Category | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205575 | | 1862 | | - | | F | | Correction to NR PDCP test case 7.1.3.5.2 for NR-DC | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205577 | | 1864 | | - | | F | | Correction to ENDC CA RRC test cases 8.2.4.1.1.x | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205578 | | 1865 | | - | | F | | Correction to NR5G MAC TC 7.1.1.8.1 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205579 | | 1866 | | - | | F | | Correction NR5G NAS TC 9.1.1.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205600 | | 1871 | | - | | F | | Correction to NR TC 6.4.2.1-Cell Selection in RRC\_INACTIVE state | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205615 | | 1879 | | - | | F | | Correction to 5GS Non-3GPP Access Test Case 9.2.4.1 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205616 | | 1880 | | - | | F | | Correction to 5GS Non-3GPP Access Test Case 9.2.5.1.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205637 | | 1882 | | - | | F | | Update to TC 7.1.3.5.5 PDCP Duplication | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205671 | | 1884 | | - | | F | | Correction to ENDC RLC TC 7.1.2.3.6 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205673 | | 1885 | | - | | F | | Correction to RLC TCs 7.1.2.3.7 and 7.1.2.3.8 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205718 | | 1887 | | - | | F | | Correction to NR testcases 8.1.3.1.11, 8.1.3.1.12 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205752 | | 1888 | | - | | F | | Correction to NR test case 8.2.2.1.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205753 | | 1889 | | - | | F | | Correction to NR test case 8.2.2.2.1 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205759 | | 1891 | | - | | F | | Correction to NR5G RRC TC 8.1.1.4.1 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205856 | | 1897 | | - | | F | | Correction to Inter-RAT Idle mode test case 6.2.1.4 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205866 | | 1903 | | - | | F | | Correction of NR test case 9.1.5.1.8 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-205942 | | 1906 | | - | | F | | Update for Flexible PDU-PDN - Test Cases | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206123 | | 1907 | | - | | F | | Corrections to NR MAC Test Case 7.1.1.5.4 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206265 | | 1912 | | - | | F | | Correction of Idle TC 6.2.3.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206280 | | 1815 | | 1 | | F | | Correction to NR TC 9.1.5.2.9-Mobility and periodic registration update | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206311 | | 1772 | | 1 | | F | | Correction to Idle TC 6.3.1.9 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206312 | | 1792 | | 1 | | F | | Correction to Cell Reselection Test Case 6.1.2.18 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206313 | | 1793 | | 1 | | F | | Correction to Cell Reselection Test Case 6.1.2.21 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206314 | | 1798 | | 1 | | F | | Correction to NR TC 6.3.1.1-SOR | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206315 | | 1856 | | 1 | | F | | Addition of new NR TC-Additional extended field in LTE SIB1\_schedulingInfoList-v12j0 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206316 | | 1857 | | 1 | | F | | Addition of new NR TC-Additional extended field in LTE SIB1\_schedulingInfoListExt-r12 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206317 | | 1909 | | 1 | | F | | Correction to test case 6.2.3.9 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206318 | | 1910 | | 1 | | F | | Correction to NR IDLE mode test case 6.1.2.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206319 | | 1801 | | 1 | | F | | Correction to NR TC 7.1.1.5.5-Long DRX command MAC control element reception | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206320 | | 1802 | | 1 | | F | | Correction to NR TC 7.1.1.9.1-MAC Reset | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206321 | | 1858 | | 1 | | F | | Correction to MAC TC 7.1.1.8.1 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206322 | | 1869 | | 1 | | F | | Correction to NR TC 7.1.1.10.1-DataInactivityTimer expiry | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206323 | | 1892 | | 1 | | F | | Addition of MAC Test Case for Recommended Bit Rate | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206324 | | 1893 | | 1 | | F | | Corrections to MAC CA Power Headroom Test case | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206325 | | 1895 | | 1 | | F | | Correction to MAC CA test case | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206326 | | 1803 | | 1 | | F | | Correction to NR TC 7.1.2.3.3 and 7.1.2.3.4-SN | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206327 | | 1761 | | 1 | | F | | Correction to NR PDCP test cases 7.1.3.2.x | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206328 | | 1762 | | 1 | | F | | Correction to NR PDCP test cases 7.1.3.3.x | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206329 | | 1863 | | 1 | | F | | Correction to NR PDCP test case 7.1.3.5.5 for NR-DC | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206330 | | 1886 | | 1 | | F | | Update to test case NR5GC 7.1.3.5.3 (NR-DC) | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206331 | | 1769 | | 1 | | F | | Correction to SDAP testcase 7.1.4.1 and 7.1.4.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206332 | | 1785 | | 1 | | F | | Correction to NR5G RRC TC 8.1.1.3.4 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206333 | | 1896 | | 1 | | F | | Correction to NR5GC test case 8.1.2.1.4 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206334 | | 1781 | | 1 | | F | | Correction to RRC TC 8.1.3.1.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206335 | | 1786 | | 1 | | F | | Correction to NR5G RRC TC 8.1.3.1.2, 8.1.3.1.3 and 8.1.3.1.4 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206336 | | 1900 | | 1 | | F | | Correction to NR5GC test case 8.1.4.1.5 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206337 | | 1806 | | 1 | | F | | Correction to NR TC 8.1.5.2.2-SI Change in NR RRC\_CONNECTED state | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206338 | | 1807 | | 1 | | F | | Correction to NR TC 8.1.5.7.1-MCG RLC failure | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206339 | | 1902 | | 1 | | F | | Correction to NR5GC test case 8.1.5.6.1 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206340 | | 1760 | | 1 | | F | | Correction to ENDC RRC test case 8.2.2.3.1 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206341 | | 1809 | | 1 | | F | | Correction to MRDC TC 8.2.2.9.2-split DRB | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206342 | | 1867 | | 1 | | F | | Correction to NRDC TC 8.2.2.4.2 and 8.2.2.5.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206343 | | 1890 | | 1 | | F | | Correction to NR5G RRC TC 8.2.2.1.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206344 | | 1911 | | 1 | | F | | Addition of NR-DC RRC test case 8.2.2.7.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206345 | | 1759 | | 1 | | F | | Correction to ENDC CA RRC test cases 8.2.4.3.1.x | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206346 | | 1777 | | 1 | | F | | Addition of new Test Case 8.2.5.1.2 Radio link failure / Random access problem / NR-DC | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206347 | | 1789 | | 1 | | F | | Addition of NRDC TC 8.2.5.2.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206348 | | 1813 | | 1 | | F | | Correction to MRDC TC 8.2.6.1.X-SCG RLC failure | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206349 | | 1773 | | 1 | | F | | Correction to 5GC TC 9.1.1.3 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206350 | | 1774 | | 1 | | F | | Correction to 5GC TC 9.1.1.6 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206351 | | 1766 | | 1 | | F | | Correction to NR5GC testcase 9.1.5.2.1 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206352 | | 1775 | | 1 | | F | | Correction to 5GC TC 9.1.5.1.3 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206353 | | 1859 | | 1 | | F | | Update preamble of 5GC TC 9.1.5.1.2, 9.1.5.1.4 and 9.1.5.1.14 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206354 | | 1868 | | 1 | | F | | Correction to NR5GC testcase 10.1.1.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206355 | | 1767 | | 1 | | F | | Correction to NR5GC testcase 10.1.3.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206356 | | 1872 | | 1 | | F | | Correction to NR5GC testcase 10.1.2.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206357 | | 1873 | | 1 | | F | | Correction to NR5GC testcase 10.1.4.1 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206358 | | 1874 | | 1 | | F | | Correction to NR5GC testcase 10.1.6.1 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206359 | | 1875 | | 1 | | F | | Correction to NR5GC testcase 10.1.6.2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206360 | | 1776 | | 1 | | F | | Correction to Multilayer TC 11.1.4 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206361 | | 1817 | | 1 | | F | | Correction to NR TC 11.1.1-MO MMTEL voice call setup from NR RRC\_IDLE with EPS Fallback | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206362 | | 1818 | | 1 | | F | | Correction to NR TC 11.1.3-MO MMTEL voice call setup from NR RRC\_CONNECTED with EPS Fallback | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206363 | | 1784 | | 1 | | F | | Corrections to Unified Access Control test cases regarding IMS usage | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206364 | | 1794 | | 1 | | F | | Correction to Access Barring test 11.3.4 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206365 | | 1876 | | 1 | | F | | Correction to Emergency Services testcase 11.4.1 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206366 | | 1877 | | 1 | | F | | Correction to Emergency Services testcase 11.4.4 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206396 | | 1820 | | 1 | | F | | Addition of TC for DL assignment Multi Semi-persistent configuration | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206397 | | 1860 | | 1 | | F | | Addition of TC PDCP Duplication for Rel-16 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206398 | | 1908 | | 1 | | F | | New testcase for ethernet header compression and decompression for NR | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206405 | | 1824 | | 1 | | F | | Addition of NR TC 8.1.4.3.1-MobEnh DAPS handover | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206411 | | 1822 | | 1 | | F | | Addition of NR V2X TC 12.1.2.1.3-Network Scheduling | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206412 | | 1823 | | 1 | | F | | Addition of NR V2X TC 12.1.2.3.1-C1 and C2 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206415 | | 1904 | | 1 | | F | | Addition of eMIMO MAC Test Case | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206417 | | 1780 | | 1 | | F | | Addition of UE power saving test case 7.1.1.12.1 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206418 | | 1782 | | 1 | | F | | Addition of UE power saving test case 7.1.1.12.3 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206429 | | 1764 | | 1 | | F | | Update test case 8.1.5.1.1 to add UE capability nr-HO-ToEN-DC-r16 | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206430 | | 1765 | | 1 | | F | | Update of test case 8.2.1.1.1 to support Inter-RAT handover from NR to EN-DC | | 16.6.0 | |
| 2020-12 | | RAN#90 | | R5-206431 | | 1878 | | 1 | | F | | Correction to 5GS Non-3GPP Access Test Case 9.2.2.1 | | 16.6.0 | |
| 2021-03 | | RAN#91 | | R5-210022 | | 1913 | | - | | F | | Correction to NR MAC test case 7.1.1.4.2.5 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210032 | | 1920 | | - | | F | | Addition of new MDT test case 8.1.6.1.2.4 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210033 | | 1921 | | - | | F | | Addition of new MDT test case 8.1.6.1.2.5 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210034 | | 1922 | | - | | F | | Addition of new MDT test case 8.1.6.1.2.6 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210037 | | 1925 | | - | | F | | Addition of new MDT test case 8.1.6.1.2.9 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210038 | | 1926 | | - | | F | | Addition of new MDT test case 8.1.6.1.2.10 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210039 | | 1927 | | - | | F | | Addition of new MDT test case 8.1.6.1.2.11 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210062 | | 1930 | | - | | F | | Correction to NR Idle mode test case 6.4.1.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210066 | | 1934 | | - | | F | | Correction to NR5GC IRAT test case 8.1.4.2.1.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210131 | | 1939 | | - | | F | | Correction of NR CA TC 8.1.4.1.7.x | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210133 | | 1941 | | - | | F | | Update of power level tables for Multilayer EPSFB TC 11.1.x | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210159 | | 1944 | | - | | F | | Editorial changes to 38.523-1 Section 8 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210160 | | 1945 | | - | | F | | Editorial changes to 38.523-1 Sections 9-12 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210163 | | 1946 | | - | | F | | Update of TC for IMS emergency TC 11.4.10 5GMM-REGISTERED.NORMAL-SERVICE N26 interface not supported N1 to S1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210164 | | 1947 | | - | | F | | Update to indication of Max nr cells in emergency test cases being active during test execution | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210165 | | 1948 | | - | | F | | Introduction of new IMS emergency TC 11.4.11 5GMM-REGISTERED.NORMAL-SERVICE N26 interface not supported S1 to N1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210191 | | 1949 | | - | | F | | Correction of NR test case 9.1.5.1.8 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210197 | | 1950 | | - | | F | | Corrections to RLC test case 7.1.2.3.8 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210200 | | 1952 | | - | | F | | Corrections to test case 8.1.4.2.1.2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210320 | | 1957 | | - | | F | | Correction to NR Idle mode test cases | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210321 | | 1958 | | - | | F | | Correction to UL-SCH TBS selection test cases common clause 7.1.1.4.2.0 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210322 | | 1959 | | - | | F | | Correction to 5GMM Initial Registration test cases | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210356 | | 1964 | | - | | F | | Corrections to test case 11.3.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210361 | | 1966 | | - | | F | | Correction to NR5G RRC TC 8.1.1.3.3 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210366 | | 1971 | | - | | F | | Correction to NR-DC RRC TC 8.2.5.2.2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210367 | | 1972 | | - | | F | | Correction to NR5G RRC IRAT TC 8.1.4.2.1.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210378 | | 1974 | | - | | F | | Update of RRC TC 8.2.3.12.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210379 | | 1975 | | - | | F | | Update of RRC TC 8.1.5.6.5.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210389 | | 1977 | | - | | F | | Correction to MR-DC test case 8.2.3.2.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210390 | | 1978 | | - | | F | | Correction to MR-DC test case 8.2.3.6.1a and 8.2.3.6.1b | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210392 | | 1980 | | - | | F | | Correction to MR-DC test case 8.2.3.9.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210397 | | 1981 | | - | | F | | Correction to NR-DC Test case 8.2.2.8.2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210398 | | 1982 | | - | | F | | Correction to NR5GC NAS test cases for handling additional PDN | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210401 | | 1983 | | - | | F | | Correction to NR Idle mode test case 6.1.1.6 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210430 | | 1985 | | - | | F | | Addition of new NAS Test case 9.1.9.2 for testing RACS UE Configuration Update | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210542 | | 1986 | | - | | F | | Corrections to MAC RACH Beam Failure test case | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210561 | | 1987 | | - | | F | | Correction to EN-DC test case 8.2.4.3.1.3 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210567 | | 1988 | | - | | F | | Corrections to DL SPS test case | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210568 | | 1989 | | - | | F | | Corrections to UL configured grant type 1 test case | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210569 | | 1990 | | - | | F | | Corrections to UL configured grant type 2 test case | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210571 | | 1991 | | - | | F | | Correction to 11.4.8 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210575 | | 1994 | | - | | F | | Correction to NR5G MAC TC 7.1.1.1.3 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210610 | | 1998 | | - | | F | | Correction to Inter-RAT Cell Reselection Test Case 6.4.3.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210628 | | 2002 | | - | | F | | Correction to NR TC 6.1.1.6-PLMN Selection with MinimumPeriodicSearchTimer | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210630 | | 2004 | | - | | F | | Correction to NR TC 6.1.2.9-Cell Reselection | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210631 | | 2005 | | - | | F | | Correction to NR TC 6.2.3.2-L2N cell reselection | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210632 | | 2006 | | - | | F | | Correction to NR TC 6.2.3.4-N2L cell reselection | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210643 | | 2017 | | - | | F | | Correction to NR TC 8.1.3.1.15A-bliacklisting | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210644 | | 2018 | | - | | F | | Correction to NR TC 8.1.3.2.2-Event B2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210645 | | 2019 | | - | | F | | Correction to NR TC 8.1.5.6.1-RLF | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210648 | | 2022 | | - | | F | | Addition of NR TC 8.1.5.8.2.2-inter-band SCell Latency check | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210649 | | 2023 | | - | | F | | Addition of NR TC 8.1.5.8.2.3-intra-band non-contiguous SCell Latency check | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210650 | | 2024 | | - | | F | | Correction to NR-DC TC 8.2.2.7.2-bearer type change without security key change | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210651 | | 2025 | | - | | F | | Correction to NR-DC TC 8.2.2.9.2-Split DRB | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210652 | | 2026 | | - | | F | | Correction to NR-DC TC 8.2.3.16.2-Intra NR measurements | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210799 | | 2044 | | - | | F | | Addition of new MDT TC 8.1.6.1.3.2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210807 | | 2046 | | - | | F | | Correction to NR Idle Mode Test Case 6.3.1.7 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210809 | | 2048 | | - | | F | | Correction to 5GS Non-3GPP Access Test Case 9.2.4.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210810 | | 2049 | | - | | F | | Correction to 5GS Non-3GPP Access Test Case 9.2.5.1.4 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-210880 | | 2051 | | - | | F | | Correction to MultipleCoreset test case | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211022 | | 2056 | | - | | F | | Update to idle mode test cases 6.2.1.2, 6.2.1.3, 6.4.3.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211173 | | 2059 | | - | | F | | Correction NR RRC idle mode test case 6.1.2.14 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211234 | | 2060 | | - | | F | | Update to NR RRC UE capability transfer test case 8.1.5.1.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211246 | | 2061 | | - | | F | | Update to MR-DC RRC UE capability transfer test case 8.2.1.1.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211312 | | 2064 | | - | | F | | Correction to NR5GC RRC test case 8.1.1.2.4 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211313 | | 2065 | | - | | F | | Addition of TC 7.1.1.3.11 - UL grant prioritization | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211321 | | 2069 | | - | | F | | Voiding 5GS Non-3GPP Access Test Case 9.2.5.2.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211329 | | 1993 | | 1 | | F | | Correction to test case 6.1.1.3 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211330 | | 1995 | | 1 | | F | | Correction to test case 6.1.2.8 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211331 | | 1996 | | 1 | | F | | Correction to test case 6.4.1.2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211332 | | 1935 | | 1 | | F | | Correction of NR RRC test case 8.1.4.1.5 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211333 | | 1992 | | 1 | | F | | Removing test case 9.1.5.2.9 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211358 | | 2070 | | - | | F | | Adding new test cases of SCell Dormancy Indication for UE power saving in NR | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211377 | | 1942 | | 1 | | F | | Editorial changes to 38.523-1 Section 6 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211378 | | 1968 | | 1 | | F | | Correction to NR5G Idle mode TCs | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211379 | | 2007 | | 1 | | F | | Correction to NR TC 6.3.1.1-SoR security check successful | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211380 | | 2008 | | 1 | | F | | Correction to NR TC 6.3.1.2-SoR ACK has NOT requested | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211381 | | 2066 | | 1 | | F | | Remove Idle Mode test case 6.2.3.9 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211382 | | 1931 | | 1 | | F | | Correction to NR MAC test case 7.1.1.8.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211383 | | 1943 | | 1 | | F | | Editorial changes to 38.523-1 Section 7 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211384 | | 2012 | | 1 | | F | | Correction to NR TC 7.1.1.2.2-PDSCH Aggregate | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211385 | | 2013 | | 1 | | F | | Correction to NR TC 7.1.1.3.8.X-PHR report | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211386 | | 2014 | | 1 | | F | | Correction to NR TC 7.1.2.3.3 and 7.1.2.3.4-RLC SN sequence | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211387 | | 2015 | | 1 | | F | | Correction to NR TC 7.1.3.1.1 and 7.1.3.1.2-PDCP SN sequence | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211388 | | 2054 | | 1 | | F | | Update to NR RRC test case 8.1.1.3.2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211389 | | 1967 | | 1 | | F | | Correction to NR5G TCs 8.1.X on SINR reporting | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211390 | | 2016 | | 1 | | F | | Correction to NR test case 8.1.3.1.13-CSI-RS based intra-freq measure | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211391 | | 1940 | | 1 | | F | | Correction of NR CA TC 8.1.4.1.9.x | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211392 | | 2020 | | 1 | | F | | Correction to NR TC 8.1.5.8.1-Latency check | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211393 | | 2021 | | 1 | | F | | Addition of NR TC 8.1.5.8.2.1-intra-band SCell Latency check | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211394 | | 2062 | | 1 | | F | | Correction to test case 8.1.5.1.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211395 | | 2063 | | 1 | | F | | Correction to test case 8.2.1.1.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211396 | | 1979 | | 1 | | F | | Correction to MR-DC test case 8.2.3.7.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211397 | | 2000 | | 1 | | F | | Correction to NR-DC RRC test case 8.2.3.14.2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211398 | | 1953 | | 1 | | F | | Addition of NR-DC RRC TC 8.2.5.3.2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211399 | | 1954 | | 1 | | F | | Addition of NR-DC RRC TC 8.2.5.4.2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211400 | | 1970 | | 1 | | F | | Correction to NR-DC RRC TC 8.2.5.1.2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211401 | | 2027 | | 1 | | F | | Correction to NR-DC TC 8.2.6.1.2.1-RLC failure | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211402 | | 1914 | | 1 | | F | | Addition of new 5GS NAS test case to test handling of extended octets | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211403 | | 2053 | | 1 | | F | | Correction to NR TC 9.1.8.1-SMS | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211404 | | 2042 | | 1 | | F | | Correction to 5GMM Inter-system mobility test case 9.3.1.2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211405 | | 2055 | | 1 | | F | | Update of Inter system mobility test case 9.3.1.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211406 | | 2028 | | 1 | | F | | Correction to NR TC 11.1.3-EPS Fallback with handover | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211407 | | 2068 | | 1 | | F | | Correction to EPS FallBack test cases 11.1.X | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211408 | | 1969 | | 1 | | F | | Correction to NR5G UAC TC 11.3.4 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211409 | | 2057 | | 1 | | F | | Update of UAC test case 11.3.6 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211410 | | 2067 | | 1 | | F | | Correction to NR5GC UAC test case 11.3.7 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211411 | | 1976 | | 1 | | F | | Correction to 11.4.2 and 11.4.3 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211454 | | 2041 | | 1 | | F | | Corrections to DL Multi SPS test case | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211458 | | 2038 | | 1 | | F | | Addition of NR TC 8.1.4.4.1-Conditional handover Success | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211459 | | 2039 | | 1 | | F | | Addition of NR TC 8.1.4.4.2 -Conditional handover modify conditional handover configuration | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211460 | | 2040 | | 1 | | F | | Addition of NR TC 8.1.4.4.3-Conditional handover Failure | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211470 | | 1917 | | 1 | | F | | Addition of new MDT test case 8.1.6.1.2.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211471 | | 1918 | | 1 | | F | | Addition of new MDT test case 8.1.6.1.2.2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211472 | | 1919 | | 1 | | F | | Addition of new MDT test case 8.1.6.1.2.3 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211473 | | 1923 | | 1 | | F | | Addition of new MDT test case 8.1.6.1.2.7 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211474 | | 1924 | | 1 | | F | | Addition of new MDT test case 8.1.6.1.2.8 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211475 | | 1928 | | 1 | | F | | Addition of new MDT test case 8.1.6.1.2.12 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211476 | | 1929 | | 1 | | F | | Addition of new MDT test case 8.1.6.1.2.13 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211477 | | 1937 | | 1 | | F | | Addition of new test case 8.1.6.1.1.1 for NR Immediate MDT | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211478 | | 1938 | | 1 | | F | | Addition of new test case 8.1.6.1.1.2 for NR L2 measurement | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211479 | | 2030 | | 1 | | F | | Addition of MDT TC 8.1.6.1.4.3-CEF-intra-NR handover | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211480 | | 2031 | | 1 | | F | | Addition of MDT TC 8.1.6.1.4.4-CEF-RRC re-establishment | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211481 | | 2032 | | 1 | | F | | Addition of MDT TC 8.1.6.1.4.5-CEF-location info | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211482 | | 2033 | | 1 | | F | | Addition of MDT TC 8.1.6.1.4.6-CEF-intra-freq measurements | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211483 | | 2034 | | 1 | | F | | Addition of MDT TC 8.1.6.1.4.7-CEF-inter-freq measurements | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211484 | | 2035 | | 1 | | F | | Addition of MDT TC 8.1.6.1.4.8-CEF-rach failure | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211485 | | 2043 | | 1 | | F | | Addition of new MDT TC 8.1.6.1.3.1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211486 | | 2045 | | 1 | | F | | Addition of new MDT TC 8.1.6.1.3.3 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211493 | | 1984 | | 1 | | F | | Addition of a new test case for 5G-SRVCC from NG-RAN to 3GPP UTRAN | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211494 | | 2036 | | 1 | | F | | Addition of 5G SRVCC TC 8.1.3.2.6-NR to UMTS Inter-RAT measurements-Event B1 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211495 | | 2037 | | 1 | | F | | Addition of 5G SRVCC TC 8.1.3.2.7-NR to UMTS Inter-RAT measurements-Event B2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211500 | | 1916 | | 1 | | F | | Update test case 8.1.5.1.1 to add UE capability nr-HO-ToEN-DC-r16 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211501 | | 1915 | | 1 | | F | | Update of test case 8.2.1.1.1 to support Inter-RAT handover from NR to EN-DC | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211502 | | 2047 | | 1 | | F | | Correction to 5GS Non-3GPP Access Test Case 9.2.2.2 | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211503 | | 1963 | | 1 | | F | | Introduction of a new test case for voice fallback indication under EPS Fallback with handover | | 16.7.0 | |
| 2021-03 | | RAN#91 | | R5-211547 | | 1956 | | 1 | | F | | Correction to EPS Fallback Test Case 11.1.1 | | 16.7.0 | |
| 2021-06 | | RAN#92 | | R5-212046 | | 2076 | | - | | F | | Update test case 8.1.2.1.5.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212079 | | 2077 | | - | | F | | Correction to NR-DC RRC TC 8.2.5.2.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212084 | | 2080 | | - | | F | | Correction to Idle mode TC 6.4.2.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212085 | | 2081 | | - | | F | | Update of RSRP threshold in MAC TC 7.1.1.1.4 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212086 | | 2082 | | - | | F | | Update of servCellIndex in MAC TC 7.1.1.6.1 and 7.1.1.6.4 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212087 | | 2083 | | - | | F | | Update of cnType in RRC TC 8.1.1.3.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212088 | | 2084 | | - | | F | | Update of RRC message in RRC TC 8.1.1.3.3 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212089 | | 2085 | | - | | F | | Update of RSRP threshold in RRC TC 8.1.3.1.14A and 8.1.3.1.18.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212090 | | 2086 | | - | | F | | Update of MeasurementReport in RRC TC 8.1.3.1.20 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212091 | | 2087 | | - | | F | | Update of RRC messages in RRC TC 8.1.3.1.21, 8.1.3.3.1 and 8.1.3.3.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212092 | | 2088 | | - | | F | | Update of RRC message in RRC TC 8.1.4.1.9.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212093 | | 2089 | | - | | F | | Update of TAU Req for I-RAT TC 8.1.4.2.1.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212094 | | 2090 | | - | | F | | Update of RRC message in RRC TC 8.1.5.6.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212095 | | 2091 | | - | | F | | Correction of MR-DC RRC TC 8.2.3.1.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212096 | | 2092 | | - | | F | | Editorial correction of MR-DC RRC TC 8.2.3.6.1b and 8.2.3.7.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212098 | | 2094 | | - | | F | | Update of RSRP threshold in MR-DC RRC TC 8.2.3.8.1a and 8.2.3.15.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212100 | | 2096 | | - | | F | | Update of RSRP threshold in MR-DC RRC 8.2.4.3.1.3 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212101 | | 2097 | | - | | F | | Update of SMS over NAS TC 9.1.8.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212106 | | 2100 | | - | | F | | Editorial update TP of MDT TC 8.1.6.1.3.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212107 | | 2101 | | - | | F | | Update of RRC messages in MDT TC 8.1.6.1.2.7, 8.1.6.1.2.8, and 8.1.6.1.4.8 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212113 | | 2106 | | - | | F | | Update of EPSFB TC 11.1.8 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212115 | | 2107 | | - | | F | | Correction to test case 8.1.6.1.4.3 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212116 | | 2108 | | - | | F | | Correction to test case 8.1.6.1.4.8 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212118 | | 2109 | | - | | F | | Correction to NSSAI Test Case 9.1.5.1.3 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212130 | | 2111 | | - | | F | | Addition of 5G SRVCC TC 8.1.3.2.8-NR to UMTS Inter-RAT measurements-Periodic reporting | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212155 | | 2114 | | - | | F | | Editorial update of EPS Fallback test cases | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212156 | | 2115 | | - | | F | | Correction of TC 11.4.8 Handling of Local and extended emergency numbers | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212159 | | 2116 | | - | | F | | Update test case 9.3.1.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212173 | | 2117 | | - | | F | | Removal of technical content in 38.523-1 v15.4.0 and substitution with pointer to the next Release | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212368 | | 2128 | | - | | F | | Correction to NR Idle mode test case 6.4.3.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212369 | | 2129 | | - | | F | | Correction to NR Idle mode test case 6.2.3.4 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212370 | | 2130 | | - | | F | | Correction to NR PDCP test case 7.1.3.2.x | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212371 | | 2131 | | - | | F | | Correction to NR PDCP test case 7.1.3.3.x | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212374 | | 2134 | | - | | F | | Correction to NR5GC IRAT test case 8.1.4.2.2.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212383 | | 2138 | | - | | F | | Correction of TC 11.4.10 N26 interface not supported - N1 to S1 transfer of an existing emergency PDU session | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212384 | | 2139 | | - | | F | | Correction of TC 11.4.11 N26 interface not supported - S1 to N1 transfer of an existing emergency PDN connection | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212392 | | 2142 | | - | | F | | Updates to NR-DC MAC TC 7.1.1.11.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212393 | | 2143 | | - | | F | | Updates to NR-DC RRC test cases for SysInfo combination | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212411 | | 2146 | | - | | F | | Correction to NR TC 6.1.2.2-Cell Selection Qqualmin | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212413 | | 2148 | | - | | F | | Correction to NR TC 6.3.1.7-Emergency service pending to be activated | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212415 | | 2150 | | - | | F | | Correction to NR TC 7.1.1.5.4-DRX command MAC control element reception | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212417 | | 2152 | | - | | F | | Correction to NR TC 7.1.3.3.1-Ciphering and deciphering SNOW3G | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212420 | | 2155 | | - | | F | | Correction to NR TC 8.1.5.8.1-Latency check | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212424 | | 2159 | | - | | F | | Correction to NR TC 11.1.2-EPS Fallback with redirection without N26 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212425 | | 2160 | | - | | F | | Correction to NR TC 11.1.4-Fallback with redirection | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212431 | | 2166 | | - | | F | | Correction to NR TC 11.3.8-UAC AI0 Cell re-selection while T390 is running | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212494 | | 2176 | | - | | F | | Addition of NR MDT TC 8.1.6.3.1.3-inter system immediate-sensor | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212495 | | 2177 | | - | | F | | Addition of NR MDT TC 8.1.6.3.2.1-inter system logged-bluetooth | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212538 | | 2188 | | - | | F | | Remove MAC cross slot scheduling test cases | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212763 | | 2207 | | - | | F | | Editorial updates to NR5G Idle Mode Test Case 6.1.2.23 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212764 | | 2208 | | - | | F | | Void NR5G Idle Mode Test Cases 6.3.1.6, 6.1.2.6 and 6.1.2.10 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212767 | | 2211 | | - | | F | | Void NR5G RRC Test Case 8.1.5.2.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212791 | | 2222 | | - | | F | | Addition of NR5G RRC Test Case 8.1.1.3.7 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-212847 | | 2233 | | - | | F | | Update of test case titles of 5GC | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213064 | | 2238 | | - | | F | | Addition of NR-DC TC 8.2.2.3.2-SRB3 and split SRB | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213078 | | 2242 | | - | | F | | Update test case 8.2.4.2.1.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213108 | | 2247 | | - | | F | | Correction to 5GMM test case 9.1.5.1.3 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213111 | | 2249 | | - | | F | | Correction to EN-DC SM Test case 10.2.2.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213112 | | 2250 | | - | | F | | Update to NR RRC test cases 8.1.1.1.1 and 8.1.1.1.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213113 | | 2251 | | - | | F | | Update to NR RRC test cases 8.1.3.1.23 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213117 | | 2252 | | - | | F | | Correction of NR test cases 9.1.5.1.3a | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213121 | | 2254 | | - | | F | | Editorial Correction to NR RRC test case 8.1.5.1.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213132 | | 2255 | | - | | F | | Correction to NR MAC test case 7.1.1.9.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213161 | | 2256 | | - | | F | | Update test case 10.2.1.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213163 | | 2257 | | - | | F | | Correction to test case 6.4.1.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213164 | | 2258 | | - | | F | | Update test case 10.2.1.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213185 | | 2262 | | - | | F | | New MAC test case on 2-Step RACH | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213186 | | 2263 | | - | | F | | New MAC test case on 2-Step RACH Explicitly signalled | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213277 | | 2270 | | - | | F | | Editorial correction to NR RRC test case 8.1.2.1.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213349 | | 2271 | | - | | F | | Correction to NR Idle mode SOR test case 6.3.1.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213384 | | 2273 | | - | | F | | Update of CellGroupConfig for RRC TC 8.1.4.1.8.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213401 | | 2274 | | - | | F | | Addition of unrestricted nr PDN parameter for Idle Mode TCs | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213402 | | 2275 | | - | | F | | Addition of unrestricted nr PDN parameter for RRC Connection Management Procedures TCs | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213403 | | 2276 | | - | | F | | Addition of unrestricted nr PDN parameter for RRC Handover TCs | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213404 | | 2277 | | - | | F | | Addition of unrestricted nr PDN parameter for RRC Others TCs | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213410 | | 2125 | | 1 | | F | | Corrections to NR MAC TC 7.1.1.3.9 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213411 | | 2153 | | 1 | | F | | Correction to NR TC 8.1.3.1.13-SS/PBCH block and CSI-RS based intra-frequency measurements | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213412 | | 2156 | | 1 | | F | | Correction to ENDC TC 8.2.2.3.1-SRB3 and Split SRB | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213413 | | 2135 | | 1 | | F | | Correction to 5GMM test case 9.1.5.1.15 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213422 | | 2174 | | 1 | | F | | Correction to 5G-SRVCC TC 8.1.3.2.6-MkHz typo | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213455 | | 2147 | | 1 | | F | | Correction to NR TC 6.2.3.4-N2L cell reselection | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213456 | | 2203 | | 1 | | F | | Addition of new test case 6.3.1.10 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213457 | | 2234 | | 1 | | F | | Update of clearing RPLMN in Idle mode TCs | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213458 | | 2149 | | 1 | | F | | Correction to NR TC 7.1.1.3.2b-Logical channel prioritization | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213459 | | 2221 | | 1 | | F | | Corrections to NR5G MAC BWP TC 7.1.1.8.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213460 | | 2144 | | 1 | | F | | Correction to RLC TCs to clarify reception of UL PDUs | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213461 | | 2132 | | 1 | | F | | Correction to NR PDCP test case 7.1.3.5.5 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213462 | | 2145 | | 1 | | F | | Correction to PDCP TCs to clarify reception of UL PDUs | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213463 | | 2133 | | 1 | | F | | Correction of NR RRC test case 8.1.1.3.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213464 | | 2209 | | 1 | | F | | Editorial Updates to NR5G RRC Test Cases 8.1.1.2.1, 8.1.1.3.3 and 8.1.1.3.4 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213465 | | 2210 | | 1 | | F | | Updates to NR5G RRC Test Case 8.1.1.4.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213466 | | 2237 | | 1 | | F | | Correction to NR SA TC 8.1.1.2.1-T300 expiry | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213467 | | 2246 | | 1 | | F | | Correction to test case RRC NR5GC TC 8.1.1.2.4 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213468 | | 2260 | | 1 | | F | | Correction to test case 8.2.1.1.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213469 | | 2119 | | 1 | | F | | Update test case 8.2.2.4.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213470 | | 2127 | | 1 | | F | | Update test case 8.2.2.5.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213471 | | 2137 | | 1 | | F | | Update test case 8.2.2.6.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213472 | | 2205 | | 1 | | F | | Correction to MR-DC RRC test case 8.2.2.2.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213473 | | 2272 | | 1 | | F | | Correction to NR CA RRC test cases 8.1.3.1.18.x | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213474 | | 2093 | | 1 | | F | | Correction to MR-DC RRC TC 8.2.3.9.1 and 8.2.3.10.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213476 | | 2216 | | 1 | | F | | Update test case 8.2.3.1.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213477 | | 2217 | | 1 | | F | | Update test case 8.2.3.2.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213478 | | 2218 | | 1 | | F | | Update test case 8.2.3.3.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213479 | | 2219 | | 1 | | F | | Update test case 8.2.3.12.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213480 | | 2126 | | 1 | | F | | Correction to NR CA test case 8.2.4.3.1.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213481 | | 2253 | | 1 | | F | | Correction to NR RRC testcase 8.1.5.4.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213482 | | 2259 | | 1 | | F | | Correction to test case 8.1.5.1.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213483 | | 2223 | | 1 | | F | | Addition of NRDC Test Case 8.2.6.2.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213484 | | 2245 | | 1 | | F | | Update test case 8.2.6.2.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213485 | | 2110 | | 1 | | F | | Correction of TC 9.1.5.1.15 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213486 | | 2157 | | 1 | | F | | Correction to NR TC 9.1.5.2.2-Periodic registration update accepted | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213487 | | 2158 | | 1 | | F | | Correction to NR TC 9.1.5.2.4-Mobility registration update | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213488 | | 2113 | | 1 | | F | | Update test case 9.3.1.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213489 | | 2120 | | 1 | | F | | Update test case 9.3.1.3 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213490 | | 2187 | | 1 | | F | | Correction to NR TC 10.1.4.1-T3580 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213491 | | 2278 | | 1 | | F | | Updates to test case 10.2.2.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213492 | | 2121 | | 1 | | F | | Update test case 11.1.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213493 | | 2122 | | 1 | | F | | Update test case 11.1.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213494 | | 2140 | | 1 | | F | | Update test case 11.1.3 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213495 | | 2141 | | 1 | | F | | Update test case 11.1.4 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213496 | | 2161 | | 1 | | F | | Correction to NR TC 11.1.5-Fallback with redirection without N26 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213497 | | 2162 | | 1 | | F | | Correction to NR TC 11.1.7-Emergency Services Fallback to EPS with redirection | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213498 | | 2204 | | 1 | | F | | Update test case 11.1.5 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213499 | | 2206 | | 1 | | F | | Update test case 11.1.6 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213500 | | 2213 | | 1 | | F | | Update test case 11.1.7 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213501 | | 2136 | | 1 | | F | | Correction to UAC test case 11.3.8 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213502 | | 2163 | | 1 | | F | | Correction to NR TC 11.3.1-UAC AI0 with 0 percentage access probability | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213503 | | 2165 | | 1 | | F | | Correction to NR TC 11.3.5-UAC AI1 MPS | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213504 | | 2220 | | 1 | | F | | Corrections to NR5G UAC TC 11.3.7 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213505 | | 2224 | | 1 | | F | | Corrections to NR5G UAC TC 11.3.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213506 | | 2239 | | 1 | | F | | Correction to NR TC 11.3.6-UAC AI2 MCS | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213507 | | 2243 | | 1 | | F | | Correction to NR5GC testcase 11.3.9 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213508 | | 2169 | | 1 | | F | | Correction to NR TC 11.4.4-Emergency call establishment before T3396 expiry | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213510 | | 2171 | | 1 | | F | | Correction to NR TC 11.4.6-Handling of non-allowed tracking areas | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213512 | | 2241 | | 1 | | F | | Correction to NR TC 11.4.1-Emergency Call with Network failing the authentication check | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213553 | | 2112 | | 1 | | F | | Addition of NR TC 8.1.4.3.4 for Mobility Enhancement Inter-frequency DAPS handover | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213554 | | 2173 | | 1 | | F | | Correction to NR TC 8.1.4.3.1-DAPS handover Success | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213555 | | 2236 | | 1 | | F | | Addition to NR TC 7.1.3.4.3-PDCP DAPS handover for Intra-frequency | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213570 | | 2268 | | 1 | | B | | Addition of NR V2X test case 12.1.7.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213576 | | 2228 | | 1 | | F | | Addition of Rel-16 NPN TC 6.5.1.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213577 | | 2229 | | 1 | | F | | Addition of Rel-16 NPN TC 6.5.2.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213578 | | 2230 | | 1 | | F | | Addition of Rel-16 NPN TC 6.5.1.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213579 | | 2231 | | 1 | | F | | Addition of Rel-16 NPN TC 6.5.2.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213583 | | 2225 | | 1 | | F | | Addition of Rel-16 RACS RRC TC 8.1.5.9.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213584 | | 2226 | | 1 | | F | | Addition of Rel-16 RACS TC 9.1.9.5 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213585 | | 2227 | | 1 | | F | | Addition of Rel-16 RACS TC 9.1.9.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213603 | | 2072 | | 1 | | F | | Addition of new test case 8.1.6.1.4.1 for Connection Establishment Failure | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213604 | | 2073 | | 1 | | F | | Addition of new test case 8.1.6.1.4.2 for Connection Establishment Failure | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213605 | | 2074 | | 1 | | F | | Addition of new test case 8.1.6.3.1.1 for Bluetooth measurement collection in Immediate MDT | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213606 | | 2075 | | 1 | | F | | Addition of new test case 8.1.6.3.1.2 for WLAN measurement collection in Immediate MDT | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213607 | | 2099 | | 1 | | F | | Update of MDT TC 8.1.6.1.3.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213608 | | 2102 | | 1 | | F | | Addition of new MDT TC 8.1.6.1.3.4 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213609 | | 2103 | | 1 | | F | | Addition of new MDT TC 8.1.6.1.3.5 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213610 | | 2104 | | 1 | | F | | Addition of new MDT TC 8.1.6.1.3.6 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213611 | | 2105 | | 1 | | F | | Addition of new MDT TC 8.1.6.1.3.7 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213612 | | 2178 | | 1 | | F | | Addition of NR MDT TC 8.1.6.3.2.2-inter system logged-WLAN | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213613 | | 2179 | | 1 | | F | | Addition of NR MDT TC 8.1.6.3.2.3-inter system logged-sensor | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213614 | | 2180 | | 1 | | F | | Addition of NR MDT TC 8.1.6.3.3.1-inter system RLF-bluetooth | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213615 | | 2181 | | 1 | | F | | Addition of NR MDT TC 8.1.6.3.3.2-inter system RLF-WLAN | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213616 | | 2182 | | 1 | | F | | Addition of NR MDT TC 8.1.6.3.3.3-inter system RLF-sensor | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213617 | | 2183 | | 1 | | F | | Correction to NR MDT TC 8.1.6.1.4.4-CEF-RRC re-establishment | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213618 | | 2184 | | 1 | | F | | Correction to NR MDT TC 8.1.6.1.4.5-CEF-location info | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213619 | | 2185 | | 1 | | F | | Correction to NR MDT TC 8.1.6.1.4.6-CEF-intra-freq measurements | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213620 | | 2186 | | 1 | | F | | Correction to NR MDT TC 8.1.6.1.4.7-CEF-inter-freq measurements | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213621 | | 2189 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.1 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213622 | | 2190 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.2 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213623 | | 2191 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.3 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213624 | | 2192 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.4 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213625 | | 2193 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.5 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213626 | | 2194 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.6 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213627 | | 2195 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.7 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213628 | | 2196 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.8 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213629 | | 2197 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.9 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213630 | | 2198 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.10 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213631 | | 2199 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.11 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213632 | | 2200 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.12 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213633 | | 2201 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.13 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213637 | | 2267 | | 1 | | F | | New MAC test case for NR URLLC | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213647 | | 2214 | | 1 | | F | | Update test case 11.1.8 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213648 | | 2215 | | 1 | | F | | Update test case 11.1.9 | | 16.8.0 | |
| 2021-06 | | RAN#92 | | R5-213673 | | 2079 | | 1 | | F | | Correction to Idle mode TC 6.1.1.1, 6.1.1.5 and 6.1.1.6 | | 16.8.0 | |
| 2021-09 | | RAN#93 | | R5-214208 | | 2279 | | - | | F | | Addition of new test case 7.1.1.6.5 for Multi configured uplink grants in NR IIoT | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214390 | | 2284 | | - | | F | | Add test case 8.1.1.4.4 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214391 | | 2285 | | - | | F | | Add test case 8.1.1.4.5 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214392 | | 2286 | | - | | F | | Add test case 8.1.1.4.6 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214433 | | 2289 | | - | | F | | Add test case 8.1.1.4.7 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214434 | | 2290 | | - | | F | | Add test case 8.1.1.4.8 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214435 | | 2291 | | - | | F | | Add test case 8.1.1.4.9 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214512 | | 2296 | | - | | F | | Editorial changes of the title for subclause 8.1.6.3.2 and 8.1.6.3.3 in Inter-System MDT | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214547 | | 2297 | | - | | F | | Update of RSRP threshold for RRC TC 8.1.3.1.13 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214548 | | 2298 | | - | | F | | Correction of 5GMM TC 9.1.5.1.8 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214550 | | 2300 | | - | | F | | Update of MDT TC 8.1.6.1.3.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214587 | | 2303 | | - | | F | | Correction to NR MAC test cases 7.1.1.7.1.x | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214588 | | 2304 | | - | | F | | Correction to NR MAC test case 7.1.1.4.2.3 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214591 | | 2307 | | - | | F | | Correction to NR RRC test case 8.1.1.2.3 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214592 | | 2308 | | - | | F | | Correction to NR RRC test case 8.1.1.4.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214593 | | 2309 | | - | | F | | Correction to EPS fallback test case 11.1.4 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214614 | | 2312 | | - | | F | | Updates to NR CA test cases 8.1.3.1.18.x | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214615 | | 2313 | | - | | F | | Updates to NR CA test cases 8.1.4.1.8.x | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214616 | | 2314 | | - | | F | | Updates to NR CA test cases 8.1.5.6.5.x | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214617 | | 2315 | | - | | F | | Updates to NR CA test cases 8.1.5.7.1.x | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214618 | | 2316 | | - | | F | | Updates to NR CA test cases 8.1.5.8.2.x | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214698 | | 2319 | | - | | F | | Update of MDT TC 8.1.6.1.3.5 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214703 | | 2324 | | - | | F | | Correction of SIB1 for NR RRC TC 8.1.1.4.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214704 | | 2325 | | - | | F | | Correction of SIB1 for NR RRC TC 8.1.5.2.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214707 | | 2328 | | - | | F | | Update of TP for EPSFB TC 11.1.3 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214708 | | 2329 | | - | | F | | Update of TP for EPSFB TC 11.1.8 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214739 | | 2332 | | - | | F | | Updates to NR-DC RRC TC 8.2.6.2.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214742 | | 2335 | | - | | F | | Corrections to NR5G UAC TC 11.3.7 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214746 | | 2338 | | - | | F | | Update of Rel-16 NPN TC 6.5.2.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214747 | | 2339 | | - | | F | | Update of Rel-16 NPN TC 6.5.2.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214749 | | 2340 | | - | | F | | Correction to NR-DC RRC test case 8.2.2.4.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214750 | | 2341 | | - | | F | | Correction to NR-DC RRC test case 8.2.2.5.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214751 | | 2342 | | - | | F | | Correction to NR-DC RRC test case 8.2.2.9.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214752 | | 2343 | | - | | F | | Correction to NR-DC RRC test case 8.2.5.1.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214753 | | 2344 | | - | | F | | Correction to NR-DC RRC test case 8.2.5.3.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214756 | | 2346 | | - | | F | | Correction to MDT TC 8.1.6.1.1.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214764 | | 2352 | | - | | F | | Correction to NR TC 7.1.1.7.1.1-sCellDeactivationTimer | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214767 | | 2355 | | - | | F | | Correction to NR TC 8.1.1.3.7-Deprioritisation | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214769 | | 2357 | | - | | F | | Correction to NR TC 8.1.5.8.1-Latency check | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214783 | | 2369 | | - | | F | | Correction to NR TC 11.3.9-UAC for Operator Defined Access Category | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214829 | | 2386 | | - | | F | | Addition of MDT NR TC 8.1.6.3.4.2-Inter System\_CEF\_wlan | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214830 | | 2387 | | - | | F | | Addition of MDT NR TC 8.1.6.3.4.3-Inter System\_CEF\_sensor | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214872 | | 2400 | | - | | F | | Addition of new NR 2-step RACH test case 7.1.1.1.10 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214890 | | 2401 | | - | | F | | Void NR5G RRC TC 8.1.3.1.22 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214894 | | 2402 | | - | | F | | Editorial Updates to NR5G NPN TC 6.5.1.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214895 | | 2403 | | - | | F | | Updates to NR5G NPN TC 6.5.1.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214899 | | 2407 | | - | | F | | Addition of NR-DC TC 8.2.3.11.3 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-214946 | | 2414 | | - | | F | | Addition of new NR 2-step RACH test case 7.1.1.1.9 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215149 | | 2427 | | - | | F | | Update to title of test case 8.1.3.1.23 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215171 | | 2431 | | - | | F | | Correction to NR MAC test case 7.1.1.9.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215356 | | 2437 | | - | | F | | Correction to 8.1.4.1.5 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215404 | | 2439 | | - | | F | | Correction to 5GMM TC 9.1.5.1.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215407 | | 2440 | | - | | F | | Correction to NR MAC test case 7.1.1.3.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215437 | | 2441 | | - | | F | | Update of specific message content for MAC TC 7.1.1.1.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215507 | | 2448 | | - | | F | | Update to test case 6.2.1.4 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215578 | | 2452 | | - | | F | | Resubmission of New MAC test case on 2-Step RACH | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215579 | | 2453 | | - | | F | | Resubmission of New MAC test case on 2-Step RACH Explicitly signalled | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215671 | | 2455 | | - | | F | | Addition of Rel-16 SNPN TC 9.1.10.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215675 | | 2456 | | - | | F | | Correction to NR TC 7.1.1.3.8.1-PHR report with Intra-band Contiguous CA | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215677 | | 2457 | | - | | F | | Addition of NR TC 8.2.3.18.1-Conditional PSCell change Success | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215680 | | 2458 | | - | | F | | Update of System information combination for NR-DC PDCP test cases | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215681 | | 2459 | | - | | F | | Corrections to Rel-16 MDT TC 8.1.6.1.4.4 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215685 | | 2460 | | - | | F | | Correction to NR testcase 8.1.5.4.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215696 | | 2462 | | - | | F | | Update of RRC messages for MAC TC 7.1.1.5.1 and 7.1.1.5.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215697 | | 2463 | | - | | F | | Update of RRC messages for MAC TC 7.1.1.3.11 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215698 | | 2464 | | - | | F | | Correction to NR TC 7.1.1.3.2b-Logical channel prioritization handling with Mapping restrictions | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215699 | | 2465 | | - | | F | | Correction to NR TC 6.4.1.2-Cell reselection of ePLMN in manual mode | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215714 | | 2429 | | 1 | | F | | Correction to SDAP TC 7.1.4.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215715 | | 2345 | | 1 | | F | | Correction to NR-DC RRC test case 8.2.5.2.2 and 8.2.5.4.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-215716 | | 2406 | | 1 | | F | | Correction to NR5G NAS TC 9.1.5.1.3a | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216162 | | 2302 | | 1 | | F | | Correction to NR Idle mode test case 6.3.1.5 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216163 | | 2322 | | 1 | | F | | Correction of Srxlev for Idle TC 6.1.2.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216164 | | 2348 | | 1 | | F | | Correction to NR TC 6.2.3.10-Inter-RAT cell reselection schedulingInfoList-v12j0 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216165 | | 2349 | | 1 | | F | | Correction to NR TC 6.3.1.7-Emergency service pending to be activated | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216166 | | 2405 | | 1 | | F | | Corrections to Idle mode TC 6.2.3.10 and 6.2.3.11 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216168 | | 2442 | | 1 | | F | | Correction to Idle TC 6.3.1.10 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216169 | | 2331 | | 1 | | F | | Corrections to NR5G MAC BWP TC 7.1.1.8.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216170 | | 2424 | | 1 | | F | | Correction to NR MAC 7.1.1.4.x test cases | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216171 | | 2461 | | 1 | | F | | Corrections to NR MAC Recommended bit rate test case | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216172 | | 2426 | | 1 | | F | | Correction to the test cases 7.1.2.3.5 and 7.1.2.3.5a | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216173 | | 2305 | | 1 | | F | | Correction to NR PDCP test case 7.1.3.5.5 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216174 | | 2330 | | 1 | | F | | Updates to NR RRC TC 8.1.1.3.7 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216175 | | 2354 | | 1 | | F | | Correction to NR TC 8.1.1.2.1-T300 expired | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216176 | | 2466 | | 1 | | F | | Addition of NR5G RRC TC 8.1.1.3.7a | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216177 | | 2287 | | 1 | | F | | Correction to RRC reconfiguration Test Case 8.1.2.1.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216178 | | 2359 | | 1 | | F | | Addition of NR SA TC 8.1.3.1.19-SFTD | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216179 | | 2423 | | 1 | | F | | Update to NR RRC test cases 8.1.3.1.11 and 8.1.3.1.12 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216180 | | 2356 | | 1 | | F | | Correction to NR TC 8.1.4.1.9.1-Reestablish intra-band | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216181 | | 2358 | | 1 | | F | | Correction to NR-DC TC 8.2.2.3.2-Split SRB and SRB3 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216182 | | 2360 | | 1 | | F | | Addition of EN-DC TC 8.2.3.17.1-SFTD | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216183 | | 2361 | | 1 | | F | | Addition of NR-DC TC 8.2.3.17.2-SFTD | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216184 | | 2288 | | 1 | | F | | Correction to Carrier Aggregation Test Case 8.2.4.1.1.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216185 | | 2326 | | 1 | | F | | Correction of 5GMM capability for 5GMM TC 9.3.1.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216186 | | 2362 | | 1 | | F | | Correction to NR TC 10.1.1.1 and 10.3.1.1-PDU Establish Accept | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216187 | | 2327 | | 1 | | F | | Correction of 5GMM capability for EPSFB TC 11.1.7 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216188 | | 2363 | | 1 | | F | | Correction to NR TC 11.1.2-EPS Fallback from NR Idle | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216189 | | 2364 | | 1 | | F | | Correction to NR TC 11.1.5-EPS Fallback from NR connected | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216190 | | 2450 | | 1 | | F | | Correction to EPS FB Testcases 11.1.x for FR2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216191 | | 2293 | | 1 | | F | | Corrections to NR5GC testcase 11.3.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216192 | | 2365 | | 1 | | F | | Correction to NR TC 11.3.1-UAC AI0 with 0 percentage access probability | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216193 | | 2367 | | 1 | | F | | Correction to NR TC 11.3.5-UAC Access Identity 1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216194 | | 2368 | | 1 | | F | | Correction to NR TC 11.3.6-UAC AI2 MCS | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216195 | | 2422 | | 1 | | F | | Addition of new RRC Inactive UAC test case 11.3.1a | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216196 | | 2292 | | 1 | | F | | Correction to NR5GC testcase 11.4.6 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216198 | | 2371 | | 1 | | F | | Correction to NR TC 11.4.2-Handling of forbidden PLMNs | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216199 | | 2372 | | 1 | | F | | Correction to NR TC 11.4.3-Initial registration for emergency services | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216200 | | 2373 | | 1 | | F | | Correction to NR TC 11.4.4-T3346, T3396 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216201 | | 2374 | | 1 | | F | | Correction to NR TC 11.4.5-Handling of 5GS forbidden tracking areas for roaming | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216202 | | 2375 | | 1 | | F | | Correction to NR TC 11.4.9-Emergency call establishment and release | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216203 | | 2413 | | 1 | | F | | Correction of Emergency Number list for TC 11.4.8 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216259 | | 2376 | | 1 | | F | | Correction to NR TC 7.1.3.4.3-DAPS handover L2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216260 | | 2377 | | 1 | | F | | Correction to NR TC 8.1.4.3.1-DAPS handover Success | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216261 | | 2378 | | 1 | | F | | Addition of NR TC 8.1.4.3.2-DAPS handover Success RLF in source | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216272 | | 2347 | | 1 | | F | | Addition of NR5G Power saving TC 8.1.5.10.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216273 | | 2454 | | 1 | | F | | Addition of Rel-16 SNPN TC 9.1.11.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216276 | | 2294 | | 1 | | F | | Update Test Case 8.1.5.1.1 to allow segmentation of UE Capability Information | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216277 | | 2295 | | 1 | | F | | Modification of the TC 8.2.1.1.1 to allow uplink segmentation for Rel-16 RACS | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216278 | | 2336 | | 1 | | F | | Updates to Rel-16 RACS RRC TC 8.1.5.9.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216279 | | 2337 | | 1 | | F | | Updates to Rel-16 RACS TC 9.1.9.5 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216285 | | 2280 | | 1 | | F | | Addition of new test case 8.1.6.2.1 for Immediate MDT in Inter-RAT MDT | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216286 | | 2281 | | 1 | | F | | Addition of new test case 8.1.6.2.2 for Logged MDT in Inter-RAT MDT | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216287 | | 2282 | | 1 | | F | | Addition of new test case 8.1.6.2.3 for Radio Link Failure in Inter-RAT MDT | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216288 | | 2283 | | 1 | | F | | Addition of new test case 8.1.6.2.4 for Connection Establishment Failure in Inter-RAT MDT | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216289 | | 2299 | | 1 | | F | | Update of MDT TC 8.1.6.1.3.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216290 | | 2301 | | 1 | | F | | Update of MDT TC 8.1.6.1.3.3 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216291 | | 2318 | | 1 | | F | | Update of MDT TC 8.1.6.1.3.4 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216292 | | 2320 | | 1 | | F | | Update of MDT TC 8.1.6.1.3.6 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216293 | | 2381 | | 1 | | F | | Correction to NR TC 8.1.6.1.3.7-PLMN list | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216294 | | 2382 | | 1 | | F | | Correction to MDT NR TC 8.1.6.3.1.3-inter system immediate-sensor | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216295 | | 2384 | | 1 | | F | | Correction to MDT NR TC 8.1.6.1.4.6-CEF Intra-Freq measurements | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216296 | | 2385 | | 1 | | F | | Addition of MDT NR TC 8.1.6.3.4.1-Inter System\_CEF\_bluetooth | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216297 | | 2389 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.1 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216298 | | 2390 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.2 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216299 | | 2391 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.3 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216300 | | 2392 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.4 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216301 | | 2393 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.5 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216302 | | 2394 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.6 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216303 | | 2395 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.7 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216304 | | 2397 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.9 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216305 | | 2398 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.10 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216306 | | 2399 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.11 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216307 | | 2411 | | 1 | | F | | Correction to MDT TC 8.1.6.1.4.3 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216308 | | 2415 | | 1 | | F | | Correction to MDT test case 8.1.6.1.2.8 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216309 | | 2416 | | 1 | | F | | Correction to MDT test case 8.1.6.1.2.12 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216310 | | 2417 | | 1 | | F | | Correction to MDT test case 8.1.6.1.2.13 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216311 | | 2443 | | 1 | | F | | Correction of MDT Test Case 8.1.6.1.4.1 and 8.1.6.1.4.4 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216312 | | 2444 | | 1 | | F | | Correction of MDT Test Case 8.1.6.1.4.2 and 8.1.6.1.4.3 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216313 | | 2445 | | 1 | | F | | Correction of MDT Test Case 8.1.6.1.4.5 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216314 | | 2446 | | 1 | | F | | Correction of MDT Test Case 8.1.6.1.4.6 and 8.1.6.1.4.7 | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216316 | | 2428 | | 1 | | F | | Correction to test case 11.2.1 5G-SRVCC from NG-RAN to 3GPP UTRAN | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216317 | | 2408 | | 1 | | F | | New UL TBS MAC test Case for NR URLLC | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216318 | | 2409 | | 1 | | F | | Addition of New DL MAC NR URLLC Test Case | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216319 | | 2410 | | 1 | | F | | Correction to NR URLLC Test Case | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216325 | | 2433 | | 1 | | F | | Addition of new test case 9.1.10.1 for R16 eNS | | 16.9.0 | |
| 2021-09 | | RAN#93 | | R5-216326 | | 2434 | | 1 | | F | | Addition of new test case 9.1.10.6 for R16 eNS | | 16.9.0 | |
| 2021-12 | | RAN#94 | | R5-216480 | | 2468 | | - | | F | | Correction to 5G-SRVCC test case 11.2.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216482 | | 2470 | | - | | F | | Update to 5GC test case 9.1.4.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216483 | | 2471 | | - | | F | | Update to 5GC test case 9.1.5.1.3 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216484 | | 2472 | | - | | F | | Update to 5GC test case 9.1.5.1.4 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216490 | | 2474 | | - | | F | | Update to 5GC test case 9.1.5.1.11 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216491 | | 2475 | | - | | F | | Update to 5GC test case 9.1.5.1.12 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216492 | | 2476 | | - | | F | | Update to 5GC test case 9.1.5.1.13 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216493 | | 2477 | | - | | F | | Update to 5GC test case 9.1.5.1.14 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216494 | | 2478 | | - | | F | | Update to 5GC test case 9.1.5.2.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216496 | | 2479 | | - | | F | | Update of cell power level for FR2 in NR Immediate MDT TC 8.1.6.1.1.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216497 | | 2480 | | - | | F | | Correction to Inter-RAT Immediate MDT TC 8.1.6.2.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216498 | | 2481 | | - | | F | | Update of cell power level for FR2 in Inter-RAT Logged MDT TC 8.1.6.2.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216499 | | 2482 | | - | | F | | Update of cell power level for FR2 in Radio Link Failure TC 8.1.6.2.3 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216500 | | 2483 | | - | | F | | Update of cell power level for FR2 in BT measurement collection TC 8.1.6.3.1.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216501 | | 2484 | | - | | F | | Update of cell power level for FR2 in WLAN measurement collection TC 8.1.6.3.1.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216508 | | 2485 | | - | | F | | Addition to NR TC 7.1.3.4.4-PDCP DAPS handover for Inter-frequency | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216509 | | 2486 | | - | | F | | Addition of NR TC 8.1.4.3.5-DAPS handover Success RLF in source for Inter-frequency | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216560 | | 2496 | | - | | F | | Update of MDT test case 8.1.6.1.2.7 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216562 | | 2498 | | - | | F | | Update of MDT test case 8.1.6.1.2.11 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216637 | | 2500 | | - | | F | | Removal of DL-only reference for neighbour cells in NR Measurements test cases | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216639 | | 2502 | | - | | F | | Introducing SCell types in Pre-test conditions in TC 8.2.4.3.1.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216640 | | 2503 | | - | | F | | Updates to NR/5GC TC 11.3.1a | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216775 | | 2505 | | - | | F | | Correction to NR RRC TC 8.1.1.2.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216797 | | 2510 | | - | | F | | Editorial changes to eNS TC 9.1.10.1 and 9.1.10.6 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216799 | | 2511 | | - | | F | | Updates to NR measurement test cases for event A3 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216806 | | 2514 | | - | | F | | Correction to EPS Fallback TC 11.1.8 and 11.1.9 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216814 | | 2516 | | - | | F | | Update to NR-DC TC 8.2.6.2.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216816 | | 2518 | | - | | F | | Correction to NR5G RRC TC 8.1.4.1.7.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216995 | | 2556 | | - | | F | | Correction to NR TC 6.4.1.1-PLMN Selection Higher priority | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-216996 | | 2557 | | - | | F | | Correction to NR TC 6.1.2.9-Cell Selection Qqualmin | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217001 | | 2561 | | - | | F | | Correction to NR TC 11.3.2-Emergency Call | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217002 | | 2562 | | - | | F | | Correction to NR TC 11.3.5-UAC Access Identity 1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217011 | | 2566 | | - | | F | | Correction to NR RRC TC 8.1.4.4.1-Conditional handover success | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217012 | | 2567 | | - | | F | | Correction to NR RRC TC 8.1.4.4.2-Conditional handover configuration update | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217013 | | 2568 | | - | | F | | Correction to NR RRC TC 8.1.4.4.3-Conditional handover failure | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217014 | | 2569 | | - | | F | | Correction to NR RRC TC 8.2.3.18.1-Conditional PSCell change | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217053 | | 2577 | | - | | F | | Correction to NR MDT TC 8.1.6.3.2.1-Inter System-Logged-Bluetooth | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217054 | | 2578 | | - | | F | | Correction to NR MDT TC 8.1.6.3.2.3-Inter System-Logged-Sensor | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217055 | | 2579 | | - | | F | | Correction to NR MDT TC 8.1.6.3.3.1-Inter System-RLF-Bluetooth | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217056 | | 2580 | | - | | F | | Correction to NR MDT TC 8.1.6.3.3.3-Inter System-RLF-sensor | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217069 | | 2582 | | - | | F | | Update of NR 2-step RACH test case 7.1.1.1.10 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217075 | | 2583 | | - | | F | | Update of FR2 q-RxLevMin for Idle mode TC 6.1.2.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217076 | | 2584 | | - | | F | | Editorial update of Idle mode TC 6.1.2.x | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217077 | | 2585 | | - | | F | | Update of exception for NRRC TC 8.1.4.2.2.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217078 | | 2586 | | - | | F | | Update of ServingCellConfig for MR-DC RRC TC 8.2.4.1.1.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217079 | | 2587 | | - | | F | | Update of TP for 5GC TC 9.1.5.1.15 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217080 | | 2588 | | - | | F | | Update of missing NAS message for 5GC TC 9.1.5.2.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217081 | | 2589 | | - | | F | | Update of step 5C for UAC TC 11.3.8 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217188 | | 2599 | | - | | F | | Editorial update of table numbers for Idle mode TC 6.2.3.3 and 6.2.3.4 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217254 | | 2600 | | - | | F | | Update of NR 2-step RACH test case 7.1.1.1.9 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217275 | | 2607 | | - | | F | | Correction to RRC test case 8.1.1.4.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217279 | | 2611 | | - | | F | | Correction to 5GSM test case 10.1.1.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217280 | | 2612 | | - | | F | | Correction to 5GSM test case 10.1.4.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217281 | | 2613 | | - | | F | | Correction to 5GSM test case 10.1.5.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217288 | | 2616 | | - | | F | | Updates to NR5G NPN TC 6.5.1.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217290 | | 2618 | | - | | F | | Corrections to MDT TC 8.1.6.3.1.3 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217413 | | 2627 | | - | | F | | Correction to NPN TC 6.5.2.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217546 | | 2636 | | - | | F | | Correction to NR TC 11.3.6 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217683 | | 2647 | | - | | F | | Correction of MFBI test case 6.1.2.23 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217689 | | 2648 | | - | | F | | Update of NR RRC test case 8.1.5.1.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217690 | | 2649 | | - | | F | | Update of MRDC RRC test case 8.2.1.1.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217714 | | 2652 | | - | | F | | Correction to EPS Fallback test case 11.1.7 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217765 | | 2659 | | - | | F | | Addition of RRC Resume NR DC Test Case | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217771 | | 2501 | | 1 | | F | | Update to SCell configuration in 8.1.4.1.7.x, 8.1.4.1.8.x and 8.1.4.1.9.x | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217772 | | 2653 | | 1 | | F | | Correction to Split SRB Establishment and Release Test Case 8.2.2.2.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217775 | | 2643 | | 1 | | F | | New testcase for Idle/Inactive measurements on E-UTRA cells in RRC\_IDLE state with configuration through SIB11 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217776 | | 2644 | | 1 | | F | | New testcase for Idle/Inactive measurements on NR cells in RRC\_IDLE state with configuration through RRCRelease | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217777 | | 2645 | | 1 | | F | | New testcase for Idle/Inactive measurements on E-UTRA cells in RRC\_IDLE state with configuration through RRCRelease | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217805 | | 2558 | | 1 | | F | | Correction to System Information Combination of SOR TCs 6.3.1.X | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217806 | | 2595 | | 1 | | F | | Correction to NR-DC testcase 7.1.1.11.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217807 | | 2633 | | 1 | | F | | NE-DC specific enhancements test case pre-conditions | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217808 | | 2634 | | 1 | | F | | NE-DC specific enhancements PDCP test case pre-conditions | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217809 | | 2519 | | 1 | | F | | Correction to SDAP TC 7.1.4.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217810 | | 2517 | | 1 | | F | | Addition of NR5G RRC TC 8.1.1.3.7b | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217811 | | 2507 | | 1 | | F | | Addition of new test case 8.2.1.1.2 for UE capability transfer in NE-DC | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217812 | | 2594 | | 1 | | F | | Correction to NR test Case 8.1.2.1.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217813 | | 2508 | | 1 | | F | | Addition of new test case 8.2.2.4.3 for SCG DRB in NE-DC | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217814 | | 2509 | | 1 | | F | | Addition of new test case 8.2.2.5.3 for Split DRB in NE-DC | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217815 | | 2559 | | 1 | | F | | Correction to NR TC 8.1.5.8.1\_Latency check | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217816 | | 2560 | | 1 | | F | | Correction to NR TC 9.1.5.1.8-Serving network not authorized | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217817 | | 2654 | | 1 | | F | | Correction to PDU session authentication and authorization Test Case 10.1.2.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217818 | | 2655 | | 1 | | F | | Correction to PDU session authentication and authorization Test Case 10.1.4.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217820 | | 2564 | | 1 | | F | | Correction to NR TC 11.4.5-Handling of 5GS forbidden tracking areas for roaming | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217821 | | 2591 | | 1 | | F | | Correction to NR5GC testcase 11.4.3 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217823 | | 2593 | | 1 | | F | | Correction to NR5GC testcase 11.4.9 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217824 | | 2657 | | 1 | | F | | New Test Case 11.6.2 Data Off / MO Video Call | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217825 | | 2658 | | 1 | | F | | New Test Case 11.6.1 Data Off / MO Voice Call | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217874 | | 2565 | | 1 | | F | | Correction to NR TC 8.1.4.3.2-DAPS handover | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217875 | | 2570 | | 1 | | F | | Addition of NR RRC TC 8.1.4.4.4-Conditional handover and legacy handover | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217876 | | 2572 | | 1 | | F | | Addition of NR RRC TC 8.2.3.18.2-Conditional PSCell change failure | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217890 | | 2573 | | 1 | | F | | Addition of NR V2X TC 13.1.1-V2X policy delivery | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217891 | | 2601 | | 1 | | F | | Addition of NR V2X test case 12.1.3.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217892 | | 2603 | | 1 | | F | | Addition of NR V2X test case 12.2.3.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217893 | | 2615 | | 1 | | F | | Addition of NR V2X test case 13.2.5 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217894 | | 2617 | | 1 | | F | | Addition of NR V2X test case 12.1.1.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217897 | | 2522 | | 1 | | F | | Addition of NR5G SNPN TC 6.5.1.3 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217898 | | 2523 | | 1 | | F | | Addition of NR5G NPN TC 6.5.2.4 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217899 | | 2524 | | 1 | | F | | Addition of NR5G NPN TC 8.1.7.1.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217901 | | 2520 | | 1 | | F | | Correction to Rel-16 RACS TC 9.1.9.1, 9.1.9.2 and 9.1.9.5 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217902 | | 2521 | | 1 | | F | | Correction to Rel-16 RACS TC 8.1.5.9.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217916 | | 2469 | | 1 | | F | | Update of TC Title for matching TC content in TC 8.1.6.2.4 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217917 | | 2495 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.3 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217918 | | 2497 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.10 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217919 | | 2499 | | 1 | | F | | Addition of new test case 8.1.6.4.1 for RACH logging and reporting in NR SON/MDT | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217920 | | 2513 | | 1 | | F | | Correction to NR MDT test case 8.1.6.1.4.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217921 | | 2525 | | 1 | | F | | Correction to MDT TC 8.1.6.1.3.1 and 8.1.6.1.3.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217922 | | 2526 | | 1 | | F | | Correction to MDT TC 8.1.6.1.3.3 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217923 | | 2528 | | 1 | | F | | Correction to MDT TC 8.1.6.1.1.1, 8.1.6.1.3.5 and 8.1.6.1.4.5 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217924 | | 2574 | | 1 | | F | | Correction to MDT NR TC 8.1.6.1.4.6-CEF Intra-Freq measurements | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217925 | | 2575 | | 1 | | F | | Correction to MDT NR TC 8.1.6.1.4.7-CEF Inter-Freq measurements | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217926 | | 2590 | | 1 | | F | | Correction of MDT TC 8.1.6.1.4.8 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217927 | | 2596 | | 1 | | F | | Corrections to MDT TC 8.1.6.3.4.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217928 | | 2597 | | 1 | | F | | Corrections to MDT TC 8.1.6.3.4.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217929 | | 2598 | | 1 | | F | | Corrections to MDT TC 8.1.6.3.4.3 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217930 | | 2619 | | 1 | | F | | Corrections to MDT TC 8.1.6.3.2.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217931 | | 2620 | | 1 | | F | | Corrections to MDT TC 8.1.6.3.3.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217934 | | 2581 | | 1 | | F | | Correction to SRVCC TC 8.1.3.2.X - UTRA Inter-RAT | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217939 | | 2529 | | 1 | | F | | Correction to R16 eNS TC 9.1.10.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217940 | | 2631 | | 1 | | F | | New Test Case 9.1.10.3 NSSAA / Initial registration / Rejected NSSAI, pending NSSAI | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217941 | | 2632 | | 1 | | F | | New Test Case 9.1.10.4 NSSAA / Initial registration / Reject | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217945 | | 2650 | | 1 | | F | | Addition of new NR EIEI eCall only mode test case 11.5.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217946 | | 2651 | | 1 | | F | | Addition of new NR EIEI eCall only mode test case 11.5.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217952 | | 2642 | | 1 | | F | | New testcase for Idle/Inactive measurements on NR cells in RRC\_IDLE state with configuration through SIB11 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217988 | | 2628 | | 1 | | F | | NE-DC specific enhancements for UE power headroom test case | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217989 | | 2625 | | 1 | | F | | NE-DC specific enhancements for PDCP split bearer test case | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217996 | | 2605 | | 1 | | F | | Correction to SOR test case 6.3.1.3 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217997 | | 2660 | | 1 | | F | | Correction to NR TC 8.1.4.1.9.1-Reestablish intra-band | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-217999 | | 2621 | | 1 | | F | | Addition of new CVX TC 12.1.3.1-PC5-only operation / Measurement configuration and reporting via PC5 RRC / PSBCH-RSRP measurement configuration | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-218000 | | 2622 | | 1 | | F | | Addition of new CVX TC 12.1.5.1-PC5-only operation / Sidelink CSI reporting / Configuration | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-218001 | | 2623 | | 1 | | F | | Addition of new CVX TC 12.1.5.2- PC5-only operation / Sidelink CSI reporting / Reporting | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-218002 | | 2624 | | 1 | | F | | Addition of new CVX TC 12.2.4.1-Inter-carrier concurrent operation / Sidelink Reconfiguration via Uu RRC / SL DRB management / transmission side | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-218003 | | 2626 | | 1 | | F | | Addition of new CVX TC 12.2.5.3-Inter-carrier concurrent operation / Measurement configuration and reporting via PC5 RRC / PSBCH-RSRP measurement reporting / Periodical reporting | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-218004 | | 2637 | | 1 | | F | | Addition of NR V2X TC 12.2.6.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-218005 | | 2638 | | 1 | | F | | Addition of NR V2X TC 12.2.7.1 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-218006 | | 2639 | | 1 | | F | | Addition of NR V2X TC 12.2.8.2 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-218007 | | 2640 | | 1 | | F | | Addition of NR V2X TC 12.1.3.3 | | 16.10.0 | |
| 2021-12 | | RAN#94 | | R5-218012 | | 2635 | | 2 | | F | | Addition of new eNS Abnormal test case | | 16.10.0 | |
| 2022-03 | | RAN#95 | | R5-220046 | | 2663 | | - | | F | | Addition of new test case for PDCP Duplication 3 RLC entities with NR intra-band non-contiguous CA in NR IIoT | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220050 | | 2664 | | - | | F | | Update of cell power level for FR2 in NR Immediate MDT TC 8.1.6.2.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220052 | | 2666 | | - | | F | | Update of cell power level for FR2 in NR Immediate MDT TC 8.1.6.2.3 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220053 | | 2667 | | - | | F | | Update of cell power level for FR2 in NR Immediate MDT TC 8.1.6.1.3.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220054 | | 2668 | | - | | F | | Update of cell power level for FR2 in NR Immediate MDT TC 8.1.6.1.3.4 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220095 | | 2670 | | - | | F | | Update the FR2 cell powers of test case 11.2.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220098 | | 2671 | | - | | F | | Update the FR2 cell powers of test case 8.1.3.2.6 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220100 | | 2673 | | - | | F | | Update the FR2 cell powers of test case 8.1.3.2.8 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220156 | | 2692 | | - | | F | | Correction to NR-DC TC 8.2.7.2.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220188 | | 2698 | | - | | F | | Editorial update of NR RRC TC 8.1.4.1.7.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220189 | | 2699 | | - | | F | | Editorial update of NR RRC TC 8.1.4.1.8.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220287 | | 2705 | | - | | F | | Correction to NR MAC test case 7.1.1.3.8.x | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220289 | | 2707 | | - | | F | | Correction to NR MDT test case 8.1.6.1.4.6 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220329 | | 2718 | | - | | F | | Update of MDT test case 8.1.6.1.2.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220330 | | 2719 | | - | | F | | Update of MDT test case 8.1.6.1.2.3 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220331 | | 2720 | | - | | F | | Update of MDT test case 8.1.6.1.2.4 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220333 | | 2722 | | - | | F | | Update of MDT test case 8.1.6.1.2.8 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220334 | | 2723 | | - | | F | | Update of MDT test case 8.1.6.1.2.9 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220367 | | 2726 | | - | | F | | Correction to NAS 5GMM test case 9.1.5.1.15 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220392 | | 2733 | | - | | F | | Align the terminology being used for OTA environment (MAC TCs) | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220397 | | 2738 | | - | | F | | Align the terminology being used for OTA environment (RRC 8.2.4.x) | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220398 | | 2739 | | - | | F | | Align the terminology being used for OTA environment (EPS Fallback TCs) | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220453 | | 2742 | | - | | F | | Deletion of Editor's Note below clause 7.1.2 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220454 | | 2743 | | - | | F | | Correction to 5GC test case 9.1.1.3 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220531 | | 2750 | | - | | F | | Update of NR5G NPN TC 6.5.2.2 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220532 | | 2751 | | - | | F | | Update of NR5G NPN TC 6.5.2.4 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220543 | | 2752 | | - | | F | | Correction to NR TC 6.4.1.1-PLMN Selection-Higher priority PLMN | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220544 | | 2753 | | - | | F | | Correction to NR TC 7.1.1.5.3-Short Cycle DRX | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220545 | | 2754 | | - | | F | | Correction to NR SA TC 8.1.1.3.7-RRC release | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220548 | | 2757 | | - | | F | | Correction to NR SA TC 8.2.2.2.1-Split SRB | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220549 | | 2758 | | - | | F | | Correction to NR TC 9.1.4.1-Generic UE configuration update | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220550 | | 2759 | | - | | F | | Correction to NR TC 10.1.1.1-PDU session authentication and authorization | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220551 | | 2760 | | - | | F | | Correction to NR TC 10.1.1.2-After the UE-requested PDU session procedure | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220552 | | 2761 | | - | | F | | Correction to ENDC TC 10.2.2.1-EPS bearer resource allocation | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220557 | | 2766 | | - | | F | | Correction to NR TC 11.3.5-UAC New cell not in the country of its HPLMN | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220559 | | 2768 | | - | | F | | Correction to NR TC 11.3.9-UAC for ODAC | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220560 | | 2769 | | - | | F | | Correction to NR TC 11.4.1-emergency call and authentication failure | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220612 | | 2780 | | - | | F | | Correction to NR MDT TC 8.1.6.1.4.3-Intra NR\_Connection Establishment Failure\_Reporting at intra-NR handover | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220613 | | 2781 | | - | | F | | Correction to NR MDT TC 8.1.6.1.4.4-Intra NR\_Connection Establishment Failure\_RRC connection re-establishment | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220641 | | 2790 | | - | | F | | Correction to NR PDCP test case 7.1.3.5.2 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220644 | | 2791 | | - | | F | | Correction to NR5GC testcase 11.1.7 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220648 | | 2792 | | - | | F | | Correction to NR MAC testcase 7.1.1.3.3 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220682 | | 2800 | | - | | F | | Correction to NR5GC testcase 6.5.1.2 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-220849 | | 2812 | | - | | F | | Editorial Updates to Clause 8.2 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221041 | | 2813 | | - | | F | | Updates to Inter-System MDT test cases 8.1.6.3.1.x | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221105 | | 2831 | | - | | F | | Correction to NR testcase 8.1.5.2.2 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221238 | | 2851 | | - | | F | | Addition of new test case 11.6.3 Data Off / SMSoIP | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221368 | | 2857 | | - | | F | | Correction to NR RRC test case 8.1.5.2.2 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221391 | | 2860 | | - | | F | | Correction to NR RRC test cases 8.2.1.1.1 and 8.2.1.1.2 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221392 | | 2861 | | - | | F | | Correction to the NR5GC testcases 8.1.4.1.9.1, 8.1.4.1.9.2 and 8.1.4.1.9.3 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221406 | | 2821 | | - | | F | | Correction to NR TC 11.1.2-EPS Fallback with redirection without N26 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221418 | | 2864 | | - | | F | | Removal of test case 11.4.10 - N26 not supported - N1 to S1 transfer of an existing emergency PDU session | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221431 | | 2697 | | 1 | | F | | Update of SIB modification steps for Idle TC 6.1.2.9, 6.1.2.18, 6.2.3.1 and 6.2.3.3 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221432 | | 2715 | | 1 | | F | | Correction to Idle Mode SOR test case 6.3.1.5 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221433 | | 2732 | | 1 | | F | | Align the terminology being used for OTA environment (Idle Mode TCs) | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221434 | | 2789 | | 1 | | F | | Correction to NR-DC testcase 7.1.1.11.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221435 | | 2716 | | 1 | | F | | Correction to NR SDAP test case 7.1.4.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221436 | | 2734 | | 1 | | F | | Align the terminology being used for OTA environment (RRC 8.1.1.x TCs) | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221437 | | 2793 | | 1 | | F | | Correction to NR test case 8.1.1.4.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221438 | | 2755 | | 1 | | F | | Correction to NR TC 8.1.2.1.1-RRC Reconfiguration | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221439 | | 2735 | | 1 | | F | | Align the terminology being used for OTA environment (RRC 8.1.3.x TCs) | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221440 | | 2706 | | 1 | | F | | Correction to NR RRC test case 8.1.4.1.2 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221441 | | 2736 | | 1 | | F | | Align the terminology being used for OTA environment (RRC 8.1.4.x TCs) | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221442 | | 2756 | | 1 | | F | | Correction to NR SA TC 8.1.4.1.7.x-SCell release | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221443 | | 2675 | | 1 | | F | | Addition of new test case 8.2.3.6.2 for Intra-frequency measurements Event A3 in NE-DC | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221444 | | 2676 | | 1 | | F | | Addition of new test case 8.2.3.6.2a for Inter-frequency measurements Event A3 in NE-DC | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221445 | | 2696 | | 1 | | F | | Addition of new test case 8.2.3.6.2b for Inter-band measurements Event A3 in NE-DC | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221446 | | 2709 | | 1 | | F | | Correction to NR-DC RRC test case 8.2.3.14.2 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221447 | | 2737 | | 1 | | F | | Align the terminology being used for OTA environment (RRC 8.2.3.x) | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221448 | | 2804 | | 1 | | F | | Correction to NR-DC RRC test case 8.2.3.11.3 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221449 | | 2795 | | 1 | | F | | Correction to NR testcases 8.2.4.1.1.1, 8.2.4.1.1.2 and 8.2.4.1.1.3 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221450 | | 2704 | | 1 | | F | | Clarifications on 5G NR connectivity options for SIG | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221451 | | 2677 | | 1 | | F | | Update of date for 5GC TC 9.1.4.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221452 | | 2703 | | 1 | | F | | Add test case 11.1.1a | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221453 | | 2762 | | 1 | | F | | Correction to NR TC 11.1.5-EPS Fallback from NR Connected without N26 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221454 | | 2763 | | 1 | | F | | Correction to NR TC 11.1.6-EPS Fallback from NR Idle without N26 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221455 | | 2833 | | 1 | | F | | Update to test cases 11.1.1, 11.1.3, 11.1.4, 11.1.8 and 11.1.9 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221456 | | 2713 | | 1 | | F | | Correction to UAC test case 11.3.2 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221457 | | 2714 | | 1 | | F | | Correction to UAC test case 11.3.6 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221459 | | 2764 | | 1 | | F | | Correction to NR TC 11.3.1-UAC for MO Speech Call and SMSoIP | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221460 | | 2741 | | 1 | | F | | Addition of new 5GS IMS test case 11.4.12 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221461 | | 2836 | | 1 | | F | | Update to test case 11.6.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221494 | | 2821 | | 1 | | F | | Update of TC 7.1.3.5.6 for PDCP Duplication 3 RLC entities in NR IIoT | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221495 | | 2854 | | 1 | | F | | Modification of testcase 7.1.3.5.7 Ethernet header compression and decompression / Correct functionality of ethernet header compression and decompression | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221496 | | 2669 | | 1 | | F | | Addition of Rel-16 NR Mobility Enhancement test case for Conditional PSCell change / PCell change / PSCell change / EN-DC | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221497 | | 2777 | | 1 | | F | | Correction to NR TC 8.1.4.3.4-RRC DAPS HO Success Inter-frequency | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221498 | | 2779 | | 1 | | F | | Correction to NR TC 8.2.3.18.1-Conditional PSCell change Success | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221518 | | 2674 | | 1 | | F | | Addition of new CVX TC 12.2.1.6- Inter-carrier concurrent operation / Sidelink communication / RRC\_CONNECTED / Reception | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221519 | | 2693 | | 1 | | F | | Addition of sub-clause titles for NR V2X TCs | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221520 | | 2771 | | 1 | | F | | Addition of V2X TC 13.2.1-Conflict Layer 2 ID | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221521 | | 2772 | | 1 | | F | | Addition of V2X TC 13.2.2-Security Mode | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221522 | | 2773 | | 1 | | F | | Addition of V2X TC 13.2.6-Link keep alive | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221523 | | 2794 | | 1 | | F | | Correction to NR V2X TC 13.1.1-policy provisioning | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221524 | | 2827 | | 1 | | F | | Addition of new NR V2X PC5 RRC reconfiguration failure / Initiating UE side | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221525 | | 2828 | | 1 | | F | | Addition of new NR V2X PC5 RRC reconfiguration failure / Peer UE side test case | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221526 | | 2829 | | 1 | | F | | Addition of new NR V2X Sidelink radio link failure / Transmission side test case | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221530 | | 2748 | | 1 | | F | | Correction to TC 7.1.1.12.3 DRX adaptation / UE wakeup indication | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221531 | | 2749 | | 1 | | F | | Update of NR5G NPN TC 6.5.2.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221532 | | 2799 | | 1 | | F | | Correction to NR5GC testcase 6.5.1.3 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221533 | | 2801 | | 1 | | F | | Correction to NR5GC testcase 6.5.1.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221534 | | 2826 | | 1 | | F | | Addition of new SNPN test case for EAP based primary authentication and key agreement | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221536 | | 2730 | | 1 | | F | | Addition of Rel-16 RACS TC 9.1.9.6 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221537 | | 2731 | | 1 | | F | | Addition of Rel-16 RACS TC 9.1.9.3 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221538 | | 2802 | | 1 | | F | | Correction to RACS test case 9.1.9.5 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221539 | | 2830 | | 1 | | F | | Addition of new RACS test case 9.1.9.4 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221540 | | 2863 | | 1 | | F | | Correction to NR5GC testcase 8.1.5.9.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221556 | | 2665 | | 1 | | F | | Update of cell power level for FR2 in NR Immediate MDT TC 8.1.6.2.2 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221557 | | 2679 | | 1 | | F | | Update of MDT TC 8.1.6.1.2.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221558 | | 2680 | | 1 | | F | | Update of MDT TC 8.1.6.1.2.2 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221559 | | 2681 | | 1 | | F | | Update of MDT TC 8.1.6.1.2.3 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221560 | | 2682 | | 1 | | F | | Update of MDT TC 8.1.6.1.2.4 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221561 | | 2683 | | 1 | | F | | Update of MDT TC 8.1.6.1.2.5 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221562 | | 2684 | | 1 | | F | | Update of MDT TC 8.1.6.1.2.6 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221563 | | 2685 | | 1 | | F | | Update of MDT TC 8.1.6.1.2.7 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221564 | | 2686 | | 1 | | F | | Update of MDT TC 8.1.6.1.2.8 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221565 | | 2687 | | 1 | | F | | Update of MDT TC 8.1.6.1.2.9 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221566 | | 2688 | | 1 | | F | | Update of MDT TC 8.1.6.1.2.10 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221567 | | 2689 | | 1 | | F | | Update of MDT TC 8.1.6.1.2.11 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221568 | | 2690 | | 1 | | F | | Update of MDT TC 8.1.6.1.2.12 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221569 | | 2691 | | 1 | | F | | Update of MDT TC 8.1.6.1.2.13 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221570 | | 2701 | | 1 | | F | | Update of MDT TC 8.1.6.1.4.7 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221571 | | 2724 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.12 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221572 | | 2725 | | 1 | | F | | Update of MDT test case 8.1.6.1.2.13 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221573 | | 2746 | | 1 | | F | | Correction to SON-MDT test case 8.1.6.1.4.2 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221574 | | 2747 | | 1 | | F | | Update to test case 8.1.6.1.3.7 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221575 | | 2783 | | 1 | | F | | Correction to NR MDT TC 8.1.6.3.1.3-Inter System\_Immediate MDT\_Sensor | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221576 | | 2785 | | 1 | | F | | Correction to NR MDT TC 8.1.6.3.2.3-Inter System\_Logged\_Sensor | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221577 | | 2786 | | 1 | | F | | Correction to NR MDT TC 8.1.6.3.3.3-Inter System\_RLF\_Sensor | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221578 | | 2787 | | 1 | | F | | Correction to NR MDT TC 8.1.6.3.4.3-Inter System\_Connection Establishment Failure\_Sensor | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221579 | | 2796 | | 1 | | F | | Correction to MDT test case 8.1.6.1.3.3 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221580 | | 2808 | | 1 | | F | | Correction to NR MDT test case 8.1.6.1.3.4 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221581 | | 2814 | | 1 | | F | | Updates to Inter-System MDT test cases 8.1.6.3.2.x | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221582 | | 2815 | | 1 | | F | | Updates to Inter-System MDT test cases 8.1.6.3.3.x | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221583 | | 2816 | | 1 | | F | | Updates to Inter-System MDT test cases 8.1.6.3.4.x | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221586 | | 2822 | | 1 | | F | | Correction to NR URLLC MAC Test Case 7.1.1.4.1.5 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221587 | | 2823 | | 1 | | F | | Addition of new NR URLLC MAC Test Case for DL Grant Prioritisation | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221588 | | 2824 | | 1 | | F | | Addition of new NR URLLC MAC Test Case for UL Data prioritisation | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221589 | | 2832 | | 1 | | F | | Correction to NR URLLC MAC Test Case 7.1.1.4.2.6 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-221595 | | 2817 | | 1 | | F | | Addition of new NR EIEI test case 11.5.5 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222003 | | 2834 | | 1 | | F | | New testcase for Idle/Inactive measurements on NR cells in RRC\_INACTIVE state with configuration through SIB11 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222004 | | 2835 | | 1 | | F | | New testcase for Idle/Inactive measurements on E-UTRA cells in RRC\_INACTIVE state with configuration through SIB11 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222005 | | 2855 | | 1 | | F | | New testcase for Idle/Inactive measurements on NR cells in RRC\_INACTIVE state with configuration through RRCRelease | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222006 | | 2856 | | 1 | | F | | New testcase for Idle/Inactive measurements on E-UTRA cells in RRC\_INACTIVE state with configuration through RRCRelease | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222007 | | 2805 | | 1 | | F | | Correction to R16 eNS TC 9.1.10.6 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222008 | | 2806 | | 1 | | F | | Correction to R16 eNS TC 9.1.10.3 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222009 | | 2807 | | 1 | | F | | Correction to R16 eNS TC 9.1.10.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222010 | | 2818 | | 1 | | F | | Correction to test case name of TC 9.1.10.3 and TC 9.1.10.4 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222011 | | 2825 | | 1 | | F | | Correction to Rel16 eNS EPS Mobility Management test case | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222012 | | 2853 | | 1 | | F | | Updates to test case 9.1.10.4 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222013 | | 2678 | | 1 | | F | | Update of date for 5GC TC 9.2.4.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222014 | | 2788 | | 1 | | F | | Correction to NR SRVCC TC 8.1.3.2.8-Inter RAT | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222040 | | 2775 | | 1 | | F | | Correction to NR TC 8.1.4.3.1-RRC DAPS HO Success | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222041 | | 2776 | | 1 | | F | | Correction to NR TC 8.1.4.3.2-RRC DAPS HO Failure | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222042 | | 2778 | | 1 | | F | | Correction to NR TC 8.1.4.4.4-Conditional handover and legacy handover | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222043 | | 2858 | | 1 | | F | | Correction to NR TCs 7.1.3.4.3 and TC 7.1.3.4.4 - PDCP DAPS HO | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222044 | | 2797 | | 1 | | F | | Correction to NR test case 7.1.1.9.1 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222047 | | 2710 | | 1 | | F | | Addition of new RACS test case 9.1.9.7 | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222048 | | 2712 | | 1 | | F | | Correction to UAC test case 11.3.1a | | 16.11.0 | |
| 2022-03 | | RAN#95 | | R5-222049 | | 2695 | | 1 | | F | | Addition of NR V2X test case 12.2.1.2 | | 16.11.0 | |
| 2022-06 | | RAN#96 | | R5-222113 | | 2880 | | - | | F | | Correction to NR MAC test case 7.1.1.2.4 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222114 | | 2881 | | - | | F | | Correction to NR SDAP test case 7.1.4.1 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222115 | | 2882 | | - | | F | | Correction to NR RRC test case 8.1.5.2.2 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222116 | | 2883 | | - | | F | | Correction to SON-MDT test case 8.1.6.1.2.1 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222117 | | 2884 | | - | | F | | Correction to SON-MDT test case 8.1.6.1.2.3 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222118 | | 2885 | | - | | F | | Correction to SON-MDT test case 8.1.6.1.2.4 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222119 | | 2886 | | - | | F | | Correction to SON-MDT test case 8.1.6.1.2.9 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222120 | | 2887 | | - | | F | | Correction to RACS test case 9.1.9.7 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222178 | | 2889 | | - | | F | | Update to Rel-16 NR Mobility Enhancement test case 8.2.3.18.3 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222261 | | 2894 | | - | | F | | Editorial update of NR RRC TC 8.1.1.3.7b | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222262 | | 2895 | | - | | F | | Editorial update of NR RRC TC 8.1.3.1.20 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222271 | | 2900 | | - | | F | | Correction to R16 eNS TC 9.1.10.1 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222272 | | 2901 | | - | | F | | Correction to EN-DC RRC TC 8.2.3.17.1 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222273 | | 2902 | | - | | F | | Editorial update of NR TC 10.1.3.2 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222277 | | 2903 | | - | | F | | Editorial update of NR TC 11.1.1 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222362 | | 2906 | | - | | F | | Correction to DRX adaptation test case 7.1.1.12.3 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222376 | | 2907 | | - | | F | | Correction to Inter-System MDT test case 8.1.6.3.3.3 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222382 | | 2908 | | - | | F | | Correction to NR PDCP test case 7.1.3.5.2 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222384 | | 2910 | | - | | F | | Update to UE Radio Capability Id field in RACS test cases | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222418 | | 2912 | | - | | F | | Correction to NR5GC testcase 8.1.5.9.1 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222430 | | 2913 | | - | | F | | Update test case 11.1.1a | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222446 | | 2915 | | - | | F | | Correction to NR testcase 8.1.4.4.2 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222470 | | 2921 | | - | | F | | Update of test case 8.2.2.4.3 for SCG DRB in NE-DC | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222511 | | 2923 | | - | | F | | Correction to NR PDCP test case 7.1.3.4.1 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222653 | | 2925 | | - | | F | | Correction to EN-DC TC 8.2.6.1.1.x - RLC failure | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222715 | | 2936 | | - | | F | | Update of TC 12.2.4.1- Inter-carrier concurrent operation / Sidelink Reconfiguration via Uu RRC / SL DRB management / transmission side | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222811 | | 2941 | | - | | F | | Correction to NR TC 7.1.1.10.1-DataInactivityTimer expiry | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222813 | | 2943 | | - | | F | | Correction to NR TC 11.3.1-UAC for MO Speech Call and SMSoIP | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222941 | | 2954 | | - | | F | | Correction to NR V2X test case 12.1.6.2 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222942 | | 2955 | | - | | F | | Correction to NR V2X test case 12.1.6.1 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222953 | | 2961 | | - | | F | | Correction to NR URLLC MAC Test Case 7.1.1.4.1.5 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222954 | | 2962 | | - | | F | | Correction to NR URLLC MAC Test Case 7.1.1.4.2.6 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-222995 | | 2964 | | - | | F | | Correction to MDT test case 8.1.6.1.3.3 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223052 | | 2970 | | - | | F | | Update of NR MDT test case 8.1.6.1.4.5 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223059 | | 2971 | | - | | F | | Update of NR MDT test case 8.1.6.3.4.x | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223064 | | 2974 | | - | | F | | Correction to NR V2X NAS TC 13.2.1-Conflict Layer 2 ID | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223065 | | 2975 | | - | | F | | Correction to NR V2X NAS TC 13.2.2-link security mode | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223085 | | 2981 | | - | | F | | Correction to NR RLC test case 7.1.2.3.7 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223249 | | 2986 | | - | | F | | Update to NR EIEI test cases 11.5.1, 11.5.2, 11.5.5 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223252 | | 2987 | | - | | F | | Correction of USIM configuration in RACS test case 9.1.9.4 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223264 | | 2991 | | - | | F | | Update of test case 8.1.6.1.1.2 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223273 | | 2996 | | - | | F | | Update of test case TC 8.1.6.2.3 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223274 | | 2997 | | - | | F | | Update to test case 8.1.6.1.3.6 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223340 | | 2911 | | 1 | | F | | Editorial Correction to NR Test case 8.1.4.4.3 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223342 | | 2890 | | 1 | | F | | Update to SRVCC from 5G to 3G test case 8.1.3.2.6 and 8.1.3.2.7 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223343 | | 2977 | | 1 | | F | | Correction of cell number in the test procedure of 8.1.3.1.15A | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223344 | | 2920 | | 1 | | F | | Update of test case 8.2.1.1.2 for UE capability transfer in NE-DC | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223345 | | 2917 | | 1 | | F | | Update of test case 8.2.3.6.2 for Intra-frequency measurements Event A3 in NE-DC | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223346 | | 2918 | | 1 | | F | | Update of test case 8.2.3.6.2a for Inter-frequency measurements Event A3 in NE-DC | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223347 | | 2919 | | 1 | | F | | Update of test case 8.2.3.6.2b for Inter-band measurements Event A3 in NE-DC | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223350 | | 2920 | | - | | F | | Correction to emergency services test case 11.4.4 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223358 | | 2914 | | 1 | | F | | Correction to NR testcase 8.1.4.4.4 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223366 | | 2932 | | 1 | | F | | Update of TC 12.1.3.1- PC5-only operation / Measurement configuration and reporting via PC5 RRC / PSBCH-RSRP measurement configuration | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223367 | | 2933 | | 1 | | F | | Update of TC 12.1.5.1- PC5-only operation / Sidelink CSI reporting | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223368 | | 2934 | | 1 | | F | | Update of TC 12.1.5.2- PC5-only operation / Sidelink CSI reporting | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223369 | | 2935 | | 1 | | F | | Update of TC 12.2.1.6- Inter-carrier concurrent operation / Sidelink communication / RRC\_CONNECTED / Reception | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223370 | | 2937 | | 1 | | F | | Update of TC 12.2.5.3- Inter-carrier concurrent operation / Measurement configuration and reporting via PC5 RRC / PSBCH-RSRP measurement reporting / Periodical reporting | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223371 | | 2956 | | 1 | | F | | Addition of new NR V2X test case 12.1.4.1 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223372 | | 2957 | | 1 | | F | | Addition of new NR V2X test case 13.2.3 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223373 | | 2958 | | 1 | | F | | Addition of new NR V2X test case 13.2.4 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223374 | | 2963 | | 1 | | F | | Addition of new NR V2X test case 12.1.4.2 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223375 | | 2965 | | 1 | | F | | Update of NR V2X TC 12.1.3.3 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223376 | | 2976 | | 1 | | F | | Correction to NR V2X NAS TC 13.2.6-link keep alive | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223379 | | 2896 | | 1 | | F | | Addition of new NR5G NPN TC 6.5.2.3 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223380 | | 2922 | | 1 | | B | | Addition of new NR5GC CAG testcase 6.5.2.6 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223381 | | 2924 | | 1 | | F | | Correction to NR5GC CAG testcase 6.5.2.1 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223382 | | 2953 | | 1 | | F | | Update of NR5G NPN TC 6.5.2.2 and 6.5.2.4 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223385 | | 2904 | | 1 | | F | | Correction to NR MDT test case 8.1.6.1.4.8 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223386 | | 2979 | | 1 | | F | | Update of NR MDT test case 8.1.6.3.2.x | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223392 | | 2988 | | 1 | | F | | Addition of new NR EIEI test case 8.1.4.1.10 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223393 | | 2989 | | 1 | | F | | Addition of NR EIEI test case 11.5.6 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223394 | | 2990 | | 1 | | F | | Addition of NR EIEI test case 11.5.7 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223395 | | 2992 | | 1 | | F | | Addition of NR EIEI test case 11.5.9 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223396 | | 2993 | | 1 | | F | | Addition of NR EIEI test case 11.5.10 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223397 | | 2994 | | 1 | | F | | Addition of NR EIEI test case 11.5.11 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223398 | | 2995 | | 1 | | F | | Addition of NR EIEI test case 11.5.13 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223402 | | 2926 | | 1 | | F | | Modification of testcase 8.1.5.11.2 Idle/Inactive measurements | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223403 | | 2929 | | 1 | | F | | Modification of testcase 8.1.5.11.3 Idle/Inactive measurements | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223404 | | 2973 | | 1 | | F | | Modification of testcase 8.1.5.11.4 idle/inactive measurements | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223405 | | 2984 | | 1 | | F | | Modification of testcase 8.1.5.11.5 idle/inactive measurements | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223406 | | 2985 | | 1 | | F | | Modification of testcase 8.1.5.11.6 idle/inactive measurements | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223418 | | 2983 | | 1 | | F | | Correction to SOR test case 6.3.1.10 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223419 | | 2878 | | 1 | | F | | Correction to NR MAC test case 7.1.1.1.2 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223420 | | 2879 | | 1 | | F | | Correction to NR MAC test case 7.1.1.3.3 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223421 | | 2909 | | 1 | | F | | Corrections to NR IIoT PDCP test cases 7.1.3.5.6.x | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223422 | | 2916 | | 1 | | F | | Correction to NR5GC testcase 7.1.3.4.1 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223423 | | 2949 | | 1 | | F | | Correction to NR5GC testcase 8.1.1.2.4 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223424 | | 2946 | | 1 | | F | | Correction to NR CA TC 8.1.5.7.1-CA duplication | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223425 | | 2951 | | 1 | | F | | Update of RACS TC 8.1.5.9.1 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223426 | | 2930 | | 1 | | F | | Addition of new test case 8.2.5.3.3 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223427 | | 2952 | | 1 | | F | | Update of 5GMM TC 9.1.5.1.15 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223428 | | 2978 | | 1 | | F | | Correction of Equivalent PLMN ID in the test procedure of 9.1.5.1.2 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223429 | | 2899 | | 1 | | F | | Correction to R16 eNS TC 9.1.10.3 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223430 | | 2905 | | 1 | | F | | Correction to NR5GC testcase 11.1.2 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223431 | | 2945 | | 1 | | F | | Correction to NR TC 11.1.2-EPS Fallback with redirection without N26 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223432 | | 2950 | | 1 | | F | | Add test case 11.1.3a | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223433 | | 2968 | | 1 | | F | | Update of 5G-SRVCC TC 11.2.1 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223434 | | 2892 | | 1 | | F | | Correction to TC 11.3.8 UAC / Access Identity 0 / NR RRC\_IDLE / Cell re-selection while T390 is running | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223435 | | 2928 | | 1 | | F | | Correction to UAC test case 11.3.1a | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223436 | | 2939 | | 1 | | F | | Correction to NR TC 11.3.5-UAC New cell not in the country of its HPLMN | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223437 | | 2940 | | 1 | | F | | Correction to NR TC 11.3.6-UAC for Access Identity 2 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223438 | | 2891 | | 1 | | F | | Correction of 5GS IMS test case 11.4.12 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223439 | | 2972 | | 1 | | F | | Correction to Emergency Call test cases 11.4.x | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223440 | | 2898 | | 1 | | F | | Correction to NR5GC testcase 11.6.x | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223441 | | 2980 | | 1 | | F | | Updates to test case 11.6.1 | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223495 | | 2959 | | 1 | | F | | Addition of new SNPN test case | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223496 | | 2927 | | 1 | | F | | Correction to SON-MDT test case 8.1.6.1.2.x | | 16.12.0 | |
| 2022-06 | | RAN#96 | | R5-223497 | | 2960 | | 1 | | F | | Addition of new NR-NR Dual Connectivity test case | | 16.12.0 | |
| 2022-09 | | RAN#97 | | R5-223931 | | 3004 | | - | | F | | Corrections to NR MAC TC 7.1.1.3.12 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-223935 | | 3005 | | - | | F | | Correction to NR MAC TC 7.1.1.1.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-223986 | | 3009 | | - | | F | | Update of NR5GC CAG TC 6.5.2.4 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-223990 | | 3010 | | - | | F | | Update of SRVCC TC 8.1.3.2.6 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-223991 | | 3011 | | - | | F | | Update of SRVCC TC 8.1.3.2.7 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-223992 | | 3012 | | - | | F | | Update of SRVCC TC 8.1.3.2.8 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-223993 | | 3013 | | - | | F | | Update of NR MDT TC 8.1.6.1.2.7 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-223994 | | 3014 | | - | | F | | Update of NR MDT TC 8.1.6.1.4.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-223995 | | 3015 | | - | | F | | Update of NR MDT TC 8.1.6.1.4.4 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-223997 | | 3017 | | - | | F | | Editorial update of UAC TC 11.3.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224007 | | 3018 | | - | | F | | Update of NR MDT TC 8.1.6.3.1.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224029 | | 3019 | | - | | F | | Update to 5GC test case 9.1.6.1.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224031 | | 3021 | | - | | F | | Editorial update to UAC test case titles in 38.523-1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224048 | | 3023 | | - | | F | | New NE-DC RRC Radio Bearer test case 8.2.2.2.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224050 | | 3025 | | - | | F | | New NE-DC RRC Radio Bearer test case 8.2.2.8.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224051 | | 3026 | | - | | F | | New NE-DC RRC Radio Bearer test case 8.2.2.9.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224127 | | 3045 | | - | | F | | Correction to NR MAC test case 7.1.1.1.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224128 | | 3046 | | - | | F | | Editorial correction to NR MAC test case 7.1.1.1.1a | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224129 | | 3047 | | - | | F | | Correction to NR MAC test case 7.1.1.3.9 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224130 | | 3048 | | - | | F | | Correction to NR RRC test cases 8.1.4.1.5 and 8.1.4.1.6 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224131 | | 3049 | | - | | F | | Correction to Inter-RAT SON-MDT test case 8.1.6.2.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224165 | | 3052 | | - | | F | | Correction to NR5GC testcase 9.1.10.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224180 | | 3053 | | - | | F | | Correction to NR5GC MDT testcase 8.1.6.1.4.8 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224191 | | 3054 | | - | | F | | Correction to NR5GC MDT testcase 8.1.6.1.1.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224192 | | 3055 | | - | | F | | Correction to NR5GC MDT testcase 8.1.6.1.3.4 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224195 | | 3056 | | - | | F | | Correction to NR testcase 9.1.4.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224200 | | 3058 | | - | | F | | Correction to NR test case 8.1.5.2.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224201 | | 3059 | | - | | F | | Correction to NR test case 8.1.1.4.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224202 | | 3060 | | - | | F | | Correction to NR test case 7.1.1.1.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224203 | | 3061 | | - | | F | | Correction to NR testcase 7.1.1.1.1a | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224340 | | 3066 | | - | | F | | Editorial Correction - Add VOID to CAG TC 6.5.2.5 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224342 | | 3067 | | - | | F | | Correction to NR 5GC CAG TC 6.5.2.4 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224344 | | 3068 | | - | | F | | Correction to SNPN NAS test case 9.1.11.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224352 | | 3074 | | - | | F | | Editorial update to UAC test case 11.3.8 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224354 | | 3076 | | - | | F | | Corrections to NR TC 8.1.4.4.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224355 | | 3077 | | - | | F | | Correction to NR TC 8.1.4.4.4 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224383 | | 3080 | | - | | F | | Correction to NR testcase 8.2.6.2.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224388 | | 3084 | | - | | F | | Correction to NR5GC CAG TC 6.5.2.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224440 | | 3089 | | - | | F | | Addition of new NR EIEI test case 11.5.8 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224445 | | 3092 | | - | | F | | Addition of NR EIEI test case 11.5.12 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224446 | | 3093 | | - | | F | | Update to NR EIEI test case 11.5.5 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224447 | | 3094 | | - | | F | | Update to NR EIEI test cases 11.5.1, 11.5.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224448 | | 3095 | | - | | F | | Update to SDAP test case 7.1.4.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224449 | | 3096 | | - | | F | | Editorial update to test case 9.1.5.2.7 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224450 | | 3097 | | - | | F | | Editorial update to UAC Test Case 11.3.1a | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224452 | | 3098 | | - | | F | | Correction to NR DC test case 8.2.3.14.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224455 | | 3100 | | - | | F | | Editorial update to test case 11.3.6 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224456 | | 3101 | | - | | F | | Updates to NR MAC TC 7.1.1.3.9 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224482 | | 3104 | | - | | F | | Correction to 5GS Test case 11.3.4 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224485 | | 3107 | | - | | F | | Update of test case 8.1.6.4.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224559 | | 3110 | | - | | F | | Addition of NR SL SIG TC 12.1.2.1 - PC5 only SyncRef reeselection | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224560 | | 3111 | | - | | F | | Addition of NR SL SIG TC 12.1.2.2 - PC5 only S-SSB Tx | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224561 | | 3112 | | - | | F | | Addition of NR SL SIG TC 12.2.2.1 - Concurrent SyncRef reeselection | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224562 | | 3113 | | - | | F | | Addition of NR SL SIG TC 12.2.2.2 - Concurrent S-SSB Tx | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224563 | | 3114 | | - | | F | | Correction to NR SL SIG TC 12.2.3.1 - Concurrent Event C1 and C2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224564 | | 3115 | | - | | F | | Addition of NR SL SIG TC 12.2.5.1 - Concurrent SL-RSRP Config | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224565 | | 3116 | | - | | F | | Addition of NR SL SIG TC 12.2.5.2 - Concurrent Event S1 and S2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224567 | | 3118 | | - | | F | | Addition of NR SL SIG TC 12.2.8.1 - Concurrent Reconfig failure | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224568 | | 3119 | | - | | F | | Addition of NR SL SIG TC 12.2.8.3 - Concurrent SL radio link failure | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224571 | | 3121 | | - | | F | | Correction to NR TC 6.4.1.1- Automatic PLMN Selection | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224572 | | 3122 | | - | | F | | Correction to NR TC 6.4.1.2- ePLMN manual selection | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224573 | | 3123 | | - | | F | | Correction to NR TC 6.4.2.1- Cell Reselection | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224574 | | 3124 | | - | | F | | Correction to NR TC 6.4.2.2- Cell Reselection SIB priority | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224575 | | 3125 | | - | | F | | Correction to NR TC 8.1.3.1.12 - SINR A5 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224577 | | 3127 | | - | | F | | Correction to NE-DC TC 8.2.2.5.3 - Split DRB | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224581 | | 3130 | | - | | F | | Update of TC 12.2.1.2- Inter-carrier concurrent operation / Sidelink communication / RRC\_IDLE / Reception | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224582 | | 3131 | | - | | F | | Update of TC 12.1.3.2- PC5-only operation / Measurement configuration and reporting via PC5 RRC / PSBCH-RSRP measurement reporting / Event S1 and S2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224597 | | 3141 | | - | | F | | Addition of new NE-DC test case 8.2.3.12.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224598 | | 3142 | | - | | F | | Update of NE-DC test case 8.2.3.6.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224599 | | 3143 | | - | | F | | Update of test case 8.2.3.4.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224713 | | 3154 | | - | | F | | Correction to NR TC 7.1.1.4.2.4 - DCI format 0\_1 256QAM | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224716 | | 3157 | | - | | F | | Correction to NR TC 11.3.7 - 0 accessibility for AC2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224717 | | 3158 | | - | | F | | Correction to NR TC 11.3.9 - ODAC | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224718 | | 3159 | | - | | F | | Correction to NR TC 11.4.1 - Emergency call and AKA fail | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224720 | | 3161 | | - | | F | | Addition NR TC 11.4.10 back and rename it to 11.4.10a | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224921 | | 3174 | | - | | F | | Update to NR EIEI test case 11.5.6 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224928 | | 3179 | | - | | F | | Correction of UL Grant Prioritization MAC test case | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224929 | | 3180 | | - | | F | | Addition of new NR-NR Dual Connectivity test case | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225052 | | 3189 | | - | | F | | 38523-1 correction of Back-off timer value in the test procedure of 10.1.3.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225129 | | 3195 | | - | | F | | 38523-1 correction on handover type in test case 8.1.4.4.4 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225171 | | 3197 | | - | | F | | 38523-1 power level adjustment in test case 8.1.4.4.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225199 | | 3201 | | - | | F | | Updates to test case 8.1.1.4.4 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225200 | | 3202 | | - | | F | | Updates to test case 8.1.1.4.7 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225245 | | 3204 | | - | | F | | Update test case 11.1.3a | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225246 | | 3205 | | - | | F | | Correction to the test case 8.1.4.2.1.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225260 | | 3206 | | - | | F | | Addition of new test case 11.3.10 for access category 9 on Access identitiy 0 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225281 | | 3057 | | 1 | | F | | Correction to NR testcases 8.1.5.7.1.1, 8.1.5.7.1.2 and 8.1.5.7.1.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225282 | | 3144 | | 1 | | F | | Correction to NR5GC RRC test case 8.2.2.1.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225283 | | 3073 | | 1 | | F | | Editorial Corrections for TC 9.1.2.6 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225292 | | 3128 | | 1 | | F | | Update of TC 13.2.5- PC5 unicast / link identifier update | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225293 | | 3129 | | 1 | | F | | Update of TC 12.2.3.2- Inter-carrier concurrent operation / Measurement configuration and reporting via Uu RRC / CBR measurement reporting / Periodical reporting | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225294 | | 3175 | | 1 | | F | | Correction of NR V2X test case 12.1.6.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225295 | | 3176 | | 1 | | F | | Correction of NR V2X test case 13.2.4 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225297 | | 3086 | | 1 | | F | | Correction of test cases 7.1.1.12.4 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225302 | | 3064 | | 1 | | F | | Correction to Idle Mode Test Case to enable SNPN Only UE | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225303 | | 3065 | | 1 | | F | | Correction to SNPN TC 6.5.1.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225304 | | 3069 | | 1 | | F | | Correction to NR 5GC CAG testcase 8.1.7.1.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225305 | | 3082 | | 1 | | F | | Correction to NR CAG testcase 6.5.2.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225306 | | 3203 | | 1 | | F | | Correction to NR CAG testcase 6.5.2.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225307 | | 3085 | | 1 | | F | | Correction to NR CAG testcase 6.5.2.6 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225308 | | 3177 | | 1 | | F | | Correction of NR SNPN test case 10.1.7.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225317 | | 3038 | | 1 | | F | | Update 2-step RACH test case 7.1.1.1.7 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225318 | | 3039 | | 1 | | F | | Update 2-step RACH test case 7.1.1.1.8 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225319 | | 3040 | | 1 | | F | | Update 2-step RACH test case 7.1.1.1.10 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225320 | | 3090 | | 1 | | F | | Addition of NR EIEI test case 11.5.4 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225323 | | 3062 | | 1 | | F | | Update RRC UE capability for PC1.5 duty cycle | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225372 | | 3103 | | 1 | | F | | Correction to idle mode test cases (applicable only for FR1 bands) | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225373 | | 3120 | | 1 | | F | | Correction to NR TC 6.1.2.11 - Area Specific SIBs | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225374 | | 3191 | | 1 | | F | | 38523-1 correction on pre-test conditions of test case 6.1.1.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225375 | | 3196 | | 1 | | F | | Correction to NR testcase 6.3.1.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225376 | | 3200 | | 1 | | F | | Correction to NR testcase 6.3.1.5 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225377 | | 3081 | | 1 | | F | | Correction to NR testcase 7.1.1.6.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225378 | | 3155 | | 1 | | F | | Correction to NR TC 7.1.1.6.1 - SPS | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225379 | | 3099 | | 1 | | F | | Correction to PDCP test case 7.1.3.5.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225380 | | 3105 | | 1 | | F | | Correction to RRC Connection Management test cases (applicable only for FR1 bands) | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225381 | | 3194 | | 1 | | F | | Correction to NR5GC RRC test case 8.1.1.2.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225382 | | 3190 | | 1 | | F | | 38523-1 correction to test case 8.1.2.1.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225383 | | 3106 | | 1 | | F | | Correction to RRC Measurement test cases (applicable only for FR1 bands) | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225384 | | 3006 | | 1 | | F | | Updates for NR RRC test case 8.1.5.1.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225385 | | 3193 | | 1 | | F | | Addition of test case for RRC downlink segmentation | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225386 | | 3016 | | 1 | | F | | Update of NR MDT TC 8.1.6.2.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225387 | | 3041 | | 1 | | F | | Update of Inter-RAT MDT test cases 8.1.6.2.x | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225388 | | 3042 | | 1 | | F | | Update of Inter-System MDT test cases 8.1.6.3.x | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225389 | | 3079 | | 1 | | F | | Correction to Intra NR MDT test cases 8.1.6.1.x | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225390 | | 3186 | | 1 | | F | | Update of NR MDT test case 8.1.6.1.3.6 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225391 | | 3007 | | 1 | | F | | Updates for EN-DC RRC test case 8.2.1.1.1 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225392 | | 3008 | | 1 | | F | | Updates for NE-DC RRC test case 8.2.1.1.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225393 | | 3022 | | 1 | | F | | New NR-DC RRC Radio Bearer test case 8.2.2.2.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225394 | | 3024 | | 1 | | F | | New NE-DC RRC Radio Bearer test case 8.2.2.7.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225395 | | 3027 | | 1 | | F | | New NE-DC measurements test case 8.2.3.1.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225396 | | 3030 | | 1 | | F | | New NE-DC measurements test case 8.2.3.2.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225397 | | 3031 | | 1 | | F | | New NE-DC measurements test case 8.2.3.7.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225398 | | 3032 | | 1 | | F | | New NE-DC measurements test case 8.2.3.7.2a | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225399 | | 3033 | | 1 | | F | | New NE-DC measurements test case 8.2.3.7.2b | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225400 | | 3034 | | 1 | | F | | New NE-DC measurements test case 8.2.3.8.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225401 | | 3035 | | 1 | | F | | New NE-DC measurements test case 8.2.3.8.2a | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225402 | | 3036 | | 1 | | F | | New NE-DC measurements test case 8.2.3.8.2b | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225403 | | 3108 | | 1 | | F | | Correction to ENDC Measurement test cases (applicable only for FR1 bands) | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225404 | | 3139 | | 1 | | F | | Addition of new NE-DC test case 8.2.3.4.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225405 | | 3140 | | 1 | | F | | Addition of new NE-DC test case 8.2.3.5.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225406 | | 3050 | | 1 | | F | | Correction to ENDC test cases 8.2.4.2.1.x | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225407 | | 3078 | | 1 | | F | | Editorial update to NR Test case 9.1.6.1.3 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225408 | | 3188 | | 1 | | F | | Update of test case 9.1.10.6 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225409 | | 3051 | | 1 | | F | | Correction to NR5GC IRAT test case 11.4.11 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225410 | | 3160 | | 1 | | F | | Correction to NR TC 11.4.5 - Emergency call and forbidden TA | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225411 | | 3192 | | 1 | | F | | Update of test case 11.4.5 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225412 | | 3183 | | 1 | | F | | Add new test case 11.8.5 Inter-system mobility between untrusted Non-3GPP and 3GPP system/Handover from 5GS to EPC/ePDG | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225448 | | 3117 | | 1 | | F | | Addition of NR SL SIG TC 12.2.7.2 - Concurrent SL CSI reporting | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-225449 | | 3083 | | 1 | | F | | Correction to EPS FB Test case 11.1.2 | | 16.13.0 | |
| 2022-09 | | RAN#97 | | R5-224269 | | 3063 | | - | | F | | Add Msg3 repetition protocol test case | | 17.0.0 | |
| 2022-09 | | RAN#97 | | R5-225173 | | 3199 | | - | | F | | New RedCap test case 11.7.2 | | 17.0.0 | |
| 2022-09 | | RAN#97 | | R5-225335 | | 3133 | | 1 | | F | | Addition of new test case 10.1.8.1- NASC / PDU session establishment reject / Maximum number of PDU sessions reached / Back-off timer is neither zero nor deactivated | | 17.0.0 | |
| 2022-09 | | RAN#97 | | R5-225336 | | 3135 | | 1 | | F | | Addition of new test case 10.1.8.2- NASC / PDU session establishment reject / Maximum number of PDU sessions reached / Back-off timer is deactivated | | 17.0.0 | |
| 2022-09 | | RAN#97 | | R5-225337 | | 3136 | | 1 | | F | | Addition of new test case 10.1.8.3-NASC / PDU session establishment reject / Maximum number of PDU sessions reached / Back-off timer is zero or not included | | 17.0.0 | |
| 2022-09 | | RAN#97 | | R5-225338 | | 3137 | | 1 | | F | | Addition of new eNS Ph2 test case 9.1.12.1 | | 17.0.0 | |
| 2022-09 | | RAN#97 | | R5-225339 | | 3138 | | 1 | | F | | Addition of new eNS Ph2 test case 9.1.12.2 | | 17.0.0 | |
| 2022-09 | | RAN#97 | | R5-225340 | | 3178 | | 1 | | F | | Addition of new eNS Test Case for NSAC Initial registration rejected | | 17.0.0 | |
| 2022-09 | | RAN#97 | | R5-225344 | | 3152 | | 1 | | F | | Addition of RedCap TC 7.1.1.8.3 - Separate BWP | | 17.0.0 | |
| 2022-09 | | RAN#97 | | R5-225345 | | 3153 | | 1 | | F | | Addition of RedCap TC 7.1.1.1.16 - MSG3 identification on CCCH1 | | 17.0.0 | |
| 2022-09 | | RAN#97 | | R5-225346 | | 3171 | | 1 | | F | | Addition of RedCap TC 6.1.2.26 - Cell Selection | | 17.0.0 | |
| 2022-09 | | RAN#97 | | R5-225347 | | 3172 | | 1 | | F | | Addition of RedCap TC 7.1.1.1.17 - Msg1-based UE identification | | 17.0.0 | |
| 2022-09 | | RAN#97 | | R5-225348 | | 3198 | | 1 | | F | | New RedCap test case 8.1.3.4.1 | | 17.0.0 | |
| 2022-12 | | RAN#98 | | R5-226018 | | 3208 | |  | | F | | Correction of SIB1 for CAG TC 6.5.2.x | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226019 | | 3209 | |  | | F | | Correction of NR URLLC MAC TC 7.1.1.4.1.5 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226021 | | 3210 | |  | | F | | Correction of NR MAC TC 7.1.1.7.1.3 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226023 | | 3212 | |  | | F | | Correction of NAS MICO test case 9.1.5.1.4 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226042 | | 3214 | |  | | F | | Correction to test case 11.4.10a | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226043 | | 3215 | |  | | F | | Corrections to NR PDCP test case 7.1.3.5.6 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226044 | | 3216 | |  | | F | | Corrections to NR PDCP test case 7.1.3.5.7 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226045 | | 3217 | |  | | F | | Updates to NR RRC TC 8.1.1.2.4 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226047 | | 3219 | |  | | F | | Updates to NR RRC TC 8.1.5.8.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226235 | | 3224 | |  | | F | | Correction of NR5GC CAG TC 6.5.2.4 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226241 | | 3230 | |  | | F | | Update of reference in Emergency Services TC 11.4.10a and 11.4.11 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226302 | | 3232 | |  | | F | | Correction to NR testcase 6.5.2.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226304 | | 3234 | |  | | F | | Correction to NR testcases 11.4.3 and 11.4.5 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226306 | | 3236 | |  | | F | | Correction to NR5GC testcase 11.4.12 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226307 | | 3237 | |  | | F | | Correction to NR testcase 6.3.1.5 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226313 | | 3239 | |  | | F | | Update test case 8.1.1.4.7 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226315 | | 3241 | |  | | F | | Add test case 8.1.2.1.5.5 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226316 | | 3242 | |  | | F | | Add test case 8.1.2.1.5.6 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226394 | | 3256 | |  | | F | | Correction to NR testcase 7.1.1.2.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226407 | | 3259 | |  | | F | | Correction to NR5GC MDT Test case 8.1.6.1.2.7 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226408 | | 3260 | |  | | F | | Correction to RRC test case 8.1.5.9.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226603 | | 3282 | |  | | F | | Update of SNPN TC 6.5.1.3- SNPN / User Reselection in Automatic Mode | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226605 | | 3284 | |  | | F | | Correction to EPS Fallback test case 11.1.5 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226607 | | 3286 | |  | | F | | Correction to NR5GC RRC test case 8.1.1.2.3 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226608 | | 3287 | |  | | F | | Correction to NR MAC test case 7.1.1.4.2.4 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226618 | | 3289 | |  | | F | | Update of TC 12.1.3.2- PC5-only operation / Measurement configuration and reporting via PC5 RRC / PSBCH-RSRP measurement reporting / Event S1 and S2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226619 | | 3290 | |  | | F | | Update of V2X TC 12.1.4.1- PC5-only operation / Sidelink Reconfiguration via PC5 RRC / SL-DRB management / initiating UE side | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226620 | | 3291 | |  | | F | | Update of V2X TC 12.1.4.2- PC5-only operation / Sidelink Reconfiguration via PC5 RRC / SL DRB management / Peer UE side | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226621 | | 3292 | |  | | F | | Update of TC 12.2.1.2- Inter-carrier concurrent operation / Sidelink communication / RRC\_IDLE / Reception | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226780 | | 3298 | |  | | F | | Update of TC 10.1.8.1- NASC / PDU session establishment reject / Maximum number of PDU sessions reached / Back-off timer is neither zero nor deactivated | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226783 | | 3299 | |  | | F | | Update of TC 10.1.8.2-NSAC / PDU session establishment reject / Maximum number of PDU sessions reached / Back-off timer is deactivated | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226897 | | 3313 | |  | | F | | Updates to Correct Handling of HARQ process / Multiple CORESETPoolIndex | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226943 | | 3316 | |  | | F | | Correction to Mob\_Enh SIG TC 7.1.3.4.3-DAPS PDCP HO | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226944 | | 3317 | |  | | F | | Correction to Mob\_Enh SIG TC 8.1.4.4.4-Conditional HO | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226947 | | 3320 | |  | | F | | Update to NR TC 7.1.2.3.6 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226948 | | 3321 | |  | | F | | Update to NR TC 7.1.2.3.8 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226953 | | 3324 | |  | | F | | Correction to NR RACS test case 9.1.9.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226954 | | 3325 | |  | | F | | Correction to NR RACS test case 9.1.9.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226955 | | 3326 | |  | | F | | Correction to NR RACS test case 9.1.9.3 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226956 | | 3327 | |  | | F | | Correction to NR RACS test case 9.1.9.4 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226957 | | 3328 | |  | | F | | Correction to NR RACS test case 9.1.9.5 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226959 | | 3330 | |  | | F | | Correction to NR RACS test case 9.1.9.7 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226964 | | 3332 | |  | | F | | Inclusive Language review\_38523-1\_s06 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226965 | | 3333 | |  | | F | | Inclusive Language review\_38523-1\_s08\_01\_01 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226967 | | 3335 | |  | | F | | Inclusive Language review\_38523-1\_s08\_01\_06 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226968 | | 3336 | |  | | F | | Inclusive Language review\_38523-1\_s08\_02\_03 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-226969 | | 3337 | |  | | F | | Inclusive Language review\_38523-1\_s08\_02\_05 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227018 | | 3341 | |  | | F | | Corrections to UL Multi configured Grant test case | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227022 | | 3344 | |  | | F | | Corrections to mapping restriction test case | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227051 | | 3358 | |  | | F | | Update NE-DC RRC Radio Bearer test case 8.2.2.2.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227053 | | 3360 | |  | | F | | Update NE-DC RRC Radio Bearer test case 8.2.2.2.3 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227054 | | 3361 | |  | | F | | Update NE-DC RRC Radio Bearer test case 8.2.2.7.3 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227055 | | 3362 | |  | | F | | Update NE-DC RRC Radio Bearer test case 8.2.2.9.3 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227056 | | 3363 | |  | | F | | Update NE-DC RRC Radio Bearer test case 8.2.3.2.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227058 | | 3365 | |  | | F | | New MR-DC handover test case 8.2.3.14.3 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227126 | | 3374 | |  | | F | | Correction to NR TC 10.1.1.1-PDU session authentication and authorization | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227127 | | 3375 | |  | | F | | Correction to NR TC 9.1.4.1-Generic UE configuration update | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227130 | | 3378 | |  | | F | | Addition of MBS Broadcast TC 14.1.1.1-acquire MCCH information after enter a Cell providing SIB20 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227131 | | 3379 | |  | | F | | Addition of MBS Broadcast TC 14.1.2.1-frequency prioritization for Cell reselection | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227132 | | 3380 | |  | | F | | Addition of MBS Broadcast TC 14.1.2.2-MBS Interest Indication-interfreq | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227133 | | 3381 | |  | | F | | Addition of MBS Broadcast TC 14.1.2.3-MBS Interest Indication-intrafreq | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227134 | | 3382 | |  | | F | | Addition of MBS Broadcast TC 14.1.3.1-Harq | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227135 | | 3383 | |  | | F | | Addition of MBS Broadcast TC 14.1.3.2-DRX | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227156 | | 3390 | |  | | F | | Correction of RedCap TC 6.1.2.26-Cell Selection | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227162 | | 3394 | |  | | F | | Update to NR TC 7.1.1.3.4 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227163 | | 3395 | |  | | F | | Update to NR TC 7.1.1.4.1.1 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227164 | | 3396 | |  | | F | | Update to NR TC 7.1.2.3.7 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227166 | | 3398 | |  | | F | | Update to NR TC 7.1.1.4.2.1 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227167 | | 3399 | |  | | F | | Update to NR TC 7.1.1.4.2.3 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227168 | | 3400 | |  | | F | | Update to NR TC 7.1.1.4.2.4 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227169 | | 3401 | |  | | F | | Update to NR TC 7.1.1.4.2.5 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227170 | | 3402 | |  | | F | | Update to NR TC 7.1.1.9.1 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227171 | | 3403 | |  | | F | | Correction of V2X TC 13.1.1-V2X policy provisioning. | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227172 | | 3404 | |  | | F | | Correction of V2X TC 13.2.1-PC5 unicast Conflict Layer 2 ID | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227239 | | 3408 | |  | | F | | Correction to SOR test case 6.3.1.7 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227241 | | 3410 | |  | | F | | Update to NR EIEI test case 11.5.7 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227244 | | 3411 | |  | | F | | Update to NR EIEI test case 11.5.5 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227256 | | 3413 | |  | | F | | Addition of NR EIEI test case 11.5.14 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227280 | | 3418 | |  | | F | | Addition of NR-U test case 8.1.8.2.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227393 | | 3426 | |  | | F | | Removal of Editors note in DL grant prioritization test case | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227412 | | 3272 | | 1 | | F | | Addition of new Idle mode TC 6.1.1.4a | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227413 | | 3273 | | 1 | | F | | Addition of new Idle mode TC 6.1.2.15a | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227414 | | 3211 | | 1 | | F | | Correction of NR MAC TC 7.1.1.7.1.x | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227415 | | 3255 | | 1 | | F | | Correction to NR testcase 7.1.1.6.3 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227416 | | 3257 | | 1 | | F | | Correction to NR testcases 7.1.1.4.2.x | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227417 | | 3270 | | 1 | | F | | Corrections to Bandwidth Part TC 7.1.1.8.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227418 | | 3422 | | 1 | | F | | Correction to NR MAC test case 7.1.1.9.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227419 | | 3340 | | 1 | | F | | Corrections to DL Multi Semi-persistent configuration test case | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227420 | | 3423 | | 1 | | F | | Correction to NR RLC test case 7.1.2.2.6 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227421 | | 3424 | | 1 | | F | | Correction to NR RLC test case 7.1.2.3.11 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227422 | | 3415 | | 1 | | F | | Editorial corrections to TC 8.1.2.1.5.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227423 | | 3226 | | 1 | | F | | Correction of NRRC TC 8.1.3.2.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227424 | | 3222 | | 1 | | F | | Correction to Mob\_Enh SIG TC 8.1.4.3.1 - DAPS HO key change | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227425 | | 3223 | | 1 | | F | | Correction to Mob\_Enh SIG TC 8.1.4.3.2 - DAPS HO failure | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227426 | | 3231 | | 1 | | F | | Correction to NR testcase 8.1.4.2.1.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227427 | | 3266 | | 1 | | F | | Editorial Corrections to RRC TC 8.1.4.4.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227428 | | 3271 | | 1 | | F | | Editorial Corrections to RRC TC 8.1.5.8.2.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227429 | | 3227 | | 1 | | F | | Correction of MDT TC 8.1.6.2.3 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227430 | | 3283 | | 1 | | F | | Correction to NR5GC SON-MDT test case 8.1.6.1.3.6 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227431 | | 3359 | | 1 | | F | | Update NE-DC RRC Radio Bearer test case 8.2.2.2.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227432 | | 3228 | | 1 | | F | | Correction of NRRC TC 8.2.3.12.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227433 | | 3364 | | 1 | | F | | New MR-DC handover test case 8.2.3.13.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227434 | | 3276 | | 1 | | F | | Correction to NR-DC TC 8.2.6.2.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227435 | | 3280 | | 1 | | F | | Editorial Correction to clause 8.2.7 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227436 | | 3376 | | 1 | | F | | Correction to NR TC 9.1.5.1.3-request NSSAI | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227437 | | 3213 | | 1 | | F | | Correction of NSSAI test case 9.1.10.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227438 | | 3258 | | 1 | | F | | Correction to NR testcases 9.1.10.1, 9.1.10.3, 9.1.10.4 and 9.1.10.6 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227439 | | 3377 | | 1 | | F | | Correction to NR eNS TC 9.1.10.4-NSSAA | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227440 | | 3253 | | 1 | | F | | Editorial correction for test procedure sequence in 9.2.6.1.1.3.2 on TS38.523-1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227441 | | 3406 | | 1 | | F | | Update of test case 9.1.10.6 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227442 | | 3229 | | 1 | | F | | Update of reference in EPS Fallback TC 11.1.x | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227443 | | 3285 | | 1 | | F | | Correction to EPS Fallback test case 11.1.7 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227444 | | 3275 | | 1 | | F | | Corrections to NR5GC test case 11.4.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227445 | | 3366 | | 1 | | F | | New IMS emergency call test case 11.4.13 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227446 | | 3367 | | 1 | | F | | New IMS emergency call test case 11.4.14 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227451 | | 3254 | | 1 | | F | | Correction to NR CAG Testcase 6.5.2.3 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227452 | | 3267 | | 1 | | F | | Addition of new SNPN Multilayer UAC test case for AI2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227453 | | 3268 | | 1 | | F | | Addition of new SNPN Multilayer UAC test case for ODAC | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227454 | | 3274 | | 1 | | F | | Editorial Corrections to SNPN TC 9.1.11.3 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227455 | | 3277 | | 1 | | F | | Editorial update to UAC test case 11.3.4 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227456 | | 3278 | | 1 | | F | | Editorial update to UAC test case 11.3.8 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227457 | | 3279 | | 1 | | F | | Editorial update to UAC test case 11.3.1a | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227458 | | 3306 | | 1 | | F | | Correction of UAC TC 11.3.1a | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227461 | | 3416 | | 1 | | F | | Addition of NR-U test case 6.6.1.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227462 | | 3419 | | 1 | | F | | Addition of NR-U test case 8.1.5.6.6.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227463 | | 3288 | | 1 | | F | | Update of TC 12.1.1.2- PC5-only operation / Sidelink communication / Reception | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227464 | | 3293 | | 1 | | F | | Update of TC 12.2.3.2- Inter-carrier concurrent operation / Sidelink communication / RRC\_IDLE / Reception | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227465 | | 3300 | | 1 | | F | | Update of TC 12.2.1.6- Inter-carrier concurrent operation / Sidelink communication / RRC\_CONNECTED / Reception | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227466 | | 3302 | | 1 | | F | | Update of TC 12.2.5.3- Inter-carrier concurrent operation / Measurement configuration and reporting via PC5 RRC / PSBCH-RSRP measurement reporting / Periodical reporting | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227467 | | 3303 | | 1 | | F | | Update of TC 12.2.8.1- Inter-carrier concurrent operation / Sidelink CSI reporting / Reporting | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227468 | | 3305 | | 1 | | F | | Update of V2X TC 12.2.8.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227469 | | 3307 | | 1 | | F | | Addition of NR V2X TC 12.2.1.5 Inter-carrier concurrent operation / Sidelink communication / RRC\_CONNECTED / Transmission / Exceptional pool | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227470 | | 3405 | | 1 | | F | | Update of TC 13.2.5-PC5 unicast link identifier update | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227478 | | 3420 | | 1 | | F | | Addition of MultiSIM test case 9.1.5.1.16 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227479 | | 3421 | | 1 | | F | | Addition of new MUSIM test case 9.1.7.4 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227483 | | 3345 | | 1 | | F | | Addition of new SDT 2-Step RACH test case | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227484 | | 3346 | | 1 | | F | | Addition of new SDT 4-Step RACH test case | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227489 | | 3412 | | 1 | | F | | Addition of NR EIEI test case 11.5.3 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227496 | | 3262 | | 1 | | F | | Addition of new test case 7.1.3.6.1 for PDCP UDC | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227497 | | 3263 | | 1 | | F | | Addition of new test case 7.1.3.6.2 for PDCP UDC | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227498 | | 3264 | | 1 | | F | | Addition of new test case 7.1.3.6.3 for PDCP UDC | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227501 | | 3407 | | 1 | | F | | Adding new test case 8.1.1.1a.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227504 | | 3310 | | 1 | | F | | Addition of new test case 6.3.2.3 for match all in SOR-CMCI | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227505 | | 3311 | | 1 | | F | | Addition of new test case 6.3.2.4 for updating Tsor-cm timer in SOR-CMCI | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227506 | | 3312 | | 1 | | F | | Addition of new test case 6.3.2.5 for storing SOR-CMCI in the USIM after power off-on the UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227515 | | 3384 | | 1 | | F | | Addition of MBS Multicast TC 14.2.1.1.1-PTM transmission and PTP transmission | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227516 | | 3385 | | 1 | | F | | Addition of MBS Multicast TC 14.2.1.1.4-PTM retransmission for multicast | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227517 | | 3386 | | 1 | | F | | Addition of MBS Multicast TC 14.2.1.1.5-PTP retransmission for multicast | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227522 | | 3269 | | 1 | | F | | Addition of eDRX TC 11.7.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227523 | | 3318 | | 1 | | F | | Update to NR TC 7.1.2.3.3 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227528 | | 3319 | | 1 | | F | | Update to NR TC 7.1.2.3.5 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227529 | | 3322 | | 1 | | F | | Update to NR TC 7.1.2.3.9 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227530 | | 3369 | | 1 | | F | | Correction to RedCap TC 7.1.1.8.3-Separate BWP | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227531 | | 3372 | | 1 | | F | | Update to NR TC 8.1.5.2.2 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227533 | | 3392 | | 1 | | F | | Correction of RedCap TC 7.1.1.1.17-Msg1-based UE identification | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227535 | | 3397 | | 1 | | F | | Update to NR TC 7.1.3.4.1 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227536 | | 3414 | | 1 | | F | | Addition of Cell Reselection RedCap TC 6.1.2.27 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227538 | | 3427 | |  | | F | | Correction to NR RRC test case 8.1.1.4.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227543 | | 3247 | | 1 | | F | | Addition of new test case 8.1.6.1.2.14 for SON\_MDT | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227545 | | 3246 | | 1 | | F | | Addition of new test case 9.1.13.1 for eNS Ph2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227546 | | 3342 | | 1 | | F | | Addition of new eNS Test Case for NSAC Generic UE configuration update rejected NSSAI | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227547 | | 3343 | | 1 | | F | | Addition of new eNS Test Case for NSAC De-registration rejected NSSAI | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227550 | | 3348 | | 1 | | F | | Update of testcase 8.1.5.11.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227551 | | 3349 | | 1 | | F | | Update of testcase 8.1.5.11.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227552 | | 3350 | | 1 | | F | | Update of testcase 8.1.5.11.3 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227553 | | 3351 | | 1 | | F | | Update of testcase 8.1.5.11.4 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227554 | | 3352 | | 1 | | F | | Addition of testcase 8.2.6.3.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227555 | | 3353 | | 1 | | F | | Addition of testcase 8.2.6.3.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227556 | | 3354 | | 1 | | F | | Update to testcase 8.2.6.3.3 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227557 | | 3355 | | 1 | | F | | Update to testcase 8.2.6.3.4 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227558 | | 3356 | | 1 | | F | | Update to testcase 8.2.6.3.5 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227559 | | 3357 | | 1 | | F | | Update to testcase 8.2.6.3.6 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227561 | | 3238 | | 1 | | F | | Update test case 8.1.1.4.4 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227562 | | 3240 | | 1 | | F | | Add test case 8.1.2.1.5.4 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227565 | | 3347 | | 1 | | F | | Correction of NR-NR Dual Connectivity test cases | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227570 | | 3296 | | 1 | | F | | Correction to NR5GC RRC CA test cases 8.1.4.1.9.x | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227571 | | 3218 | | 1 | | F | | Updates for NR RRC test case 8.1.5.1.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227572 | | 3220 | | 1 | | F | | Updates for EN-DC RRC test case 8.2.1.1.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227573 | | 3221 | | 1 | | F | | Updates for NE-DC RRC test case 8.2.1.1.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227574 | | 3261 | | 1 | | F | | Correction to NR5GC RACS test case 9.1.9.6 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227575 | | 3244 | | 1 | | F | | Correction to Emergency Services test case 11.4.5 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227649 | | 3281 | | 2 | | F | | Add new test case 11.8.6 Inter-system mobility between untrusted Non-3GPP and 3GPP system/Handover from EPC/ePDG to 5GS/ UE in 5GMM-DEREGISTERED and EMM-DEREGISTERED states | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227578 | | 3225 | | 1 | | F | | Correction of NRRC TC 8.1.3.1.12 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227580 | | 3297 | | 1 | | F | | Update of V2X TC 12.2.6.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227581 | | 3301 | | 1 | | F | | Update of TC 12.2.4.1- Inter-carrier concurrent operation / Sidelink Reconfiguration via Uu RRC / SL DRB management / transmission side | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227582 | | 3304 | | 1 | | F | | Update of V2X TC 12.2.7.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227586 | | 3417 | | 1 | | F | | Addition of NR-U test case 8.1.8.1.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227589 | | 3314 | | 1 | | F | | Updates to test case 8.1.3.4.1 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227590 | | 3315 | | 1 | | F | | Updates to test case 11.7.2 | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227594 | | 3308 | | 1 | | F | | Addition of new test case 6.3.2.1 for DNN in SOR-CMCI | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227595 | | 3309 | | 1 | | F | | Addition of new test case 6.3.2.2 for MMTEL voice call in SOR-CMCI | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227601 | | 3323 | | 1 | | F | | Update to NR TC 7.1.2.3.10 to test RedCap UE | | 17.1.0 | |
| 2022-12 | | RAN#98 | | R5-227608 | | 3334 | | 1 | | F | | Inclusive Language review\_38523-1\_s08\_01\_03 | | 17.1.0 | |
| 2023-03 | | RAN#99 | | R5-230094 | | 3434 | | - | | F | | Update test case 8.1.1.4.4 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230108 | | 3437 | | - | | F | | Corrections to test case 11.4.13 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230109 | | 3438 | | - | | F | | Updates to NR RRC TC 8.1.1.2.4 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230110 | | 3439 | | - | | F | | Updates for NR RRC test case 8.1.5.1.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230112 | | 3441 | | - | | F | | Updates for NE-DC RRC test case 8.2.1.1.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230113 | | 3442 | | - | | F | | Update to NSSAA test case 9.1.10.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230183 | | 3443 | | - | | F | | Addition of ATSSS new TC 10.4.1.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230275 | | 3452 | | - | | F | | VOID SNPN NR5GC TC 10.1.7.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230296 | | 3456 | | - | | F | | Correction to NR MDT TC 8.1.6.1.2.11 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230297 | | 3457 | | - | | F | | correction to TC 6.1.1.3 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230376 | | 3466 | | - | | F | | Update the CGI specific elements in UE-NR-Capability for MR-DC | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230377 | | 3467 | | - | | F | | Addition of new test case 8.1.6.1.2.15 for SON\_MDT | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230383 | | 3470 | | - | | F | | Update to NE-DC test case 8.2.3.4.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230384 | | 3471 | | - | | F | | Updates to NE-DC test case 8.2.3.5.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230435 | | 3472 | | - | | F | | Correction of Cell Reselection RedCap TC 6.1.2.27 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230437 | | 3473 | | - | | F | | Update to NR unlicensed test case 8.1.8.1.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230438 | | 3474 | | - | | F | | Correction of NR EIEI test case 11.5.3 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230442 | | 3475 | | - | | F | | Correction of Pre-test conditions on TC 6.3.2.x | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230547 | | 3485 | | - | | F | | Addition of NR MUSIM test case 9.1.5.2.10 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230548 | | 3486 | | - | | F | | Addition of NR MUSIM test case 9.1.7.3 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230579 | | 3488 | | - | | F | | Correction to NR5GC testcase 9.1.10.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230581 | | 3489 | | - | | F | | Correction to NR5GC testcase 9.1.10.4 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230582 | | 3490 | | - | | F | | Correction to NR5GC testcase 11.3.10 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230583 | | 3491 | | - | | F | | Correction to NR5GC testcase 11.4.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230584 | | 3492 | | - | | F | | Add test case 8.2.5.7.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230585 | | 3493 | | - | | F | | Add test case 8.2.5.7.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230589 | | 3494 | | - | | F | | Update test case 8.1.5.6.6.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230592 | | 3495 | | - | | F | | Update NE-DC RRC Radio Bearer test case 8.2.3.7.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230593 | | 3496 | | - | | F | | Update NE-DC RRC Radio Bearer test case 8.2.3.7.2a | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230594 | | 3497 | | - | | F | | Update NE-DC RRC Radio Bearer test case 8.2.3.8.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230595 | | 3498 | | - | | F | | Update NE-DC RRC Radio Bearer test case 8.2.3.8.2a | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230596 | | 3499 | | - | | F | | Update NE-DC RRC Radio Bearer test case 8.2.3.13.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230598 | | 3501 | | - | | F | | Editorial correction to NE-DC RRC Radio Bearer test case 8.2.3.17.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230676 | | 3534 | | - | | F | | Correction to ENDC CA testcases 8.2.4.2.1.x | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230687 | | 3536 | | - | | F | | Addition of testcase 7.1.1.3.16.1 Correct Handling of UL grant DRB configured with survival time on split DRB | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230688 | | 3537 | | - | | F | | Addition of testcase 7.1.1.3.16.2 Correct Handling of UL grant DRB configured with survival time on MCG or SCG intra-band contiguous CA | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230689 | | 3538 | | - | | F | | Addition of testcase 7.1.1.3.16.3 Correct Handling of UL grant DRB configured with survival time on MCG or SCG intra-band non-contiguous CA | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230690 | | 3539 | | - | | F | | Addition of testcase 7.1.1.3.16.4 correct Handling of UL grant DRB configured with survival time on MCG or SCG inter-band CA | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230726 | | 3547 | | - | | F | | Correction of MDT TC 8.1.6.1.2.3 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230727 | | 3548 | | - | | F | | Correction of MDT TC 8.1.6.1.2.8 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230728 | | 3549 | | - | | F | | Correction of NR5GC testcase 11.1.7 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230729 | | 3550 | | - | | F | | Correction of Emergency Services TC 11.4.4 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230730 | | 3551 | | - | | F | | Correction of Emergency Services TC 11.4.10a | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230757 | | 3553 | | - | | F | | Correction of MDT TC 8.1.6.1.2.12 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230846 | | 3554 | | - | | F | | Correction of MICO TC 9.1.5.1.4 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-230963 | | 3567 | | - | | F | | Update of TC 12.1.3.2- PC5-only operation / Measurement configuration and reporting via PC5 RRC / PSBCH-RSRP measurement reporting / Event S1 and S2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231061 | | 3570 | | - | | F | | Update to test case 8.1.1.3.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231062 | | 3571 | | - | | F | | Update to test case 8.1.4.2.1.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231063 | | 3572 | | - | | F | | Update to test case 8.1.4.3.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231064 | | 3573 | | - | | F | | Update to test case 8.1.4.3.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231065 | | 3574 | | - | | F | | Update to test case 8.1.4.4.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231066 | | 3575 | | - | | F | | Update to test case 8.1.4.4.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231069 | | 3578 | | - | | F | | Update to test case 8.1.5.6.5.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231070 | | 3579 | | - | | F | | Update to test case 8.2.2.4.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231071 | | 3580 | | - | | F | | Update to test case 8.2.2.4.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231072 | | 3581 | | - | | F | | Update to test case 8.2.2.4.3 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231167 | | 3589 | | - | | F | | Update to NR TC 9.1.10.6-NSSAA configuration update | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231174 | | 3592 | | - | | F | | Correction to Inter-Rat Cell Reselection test case 6.2.3.6 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231194 | | 3595 | | - | | F | | Correction to NR MDT test case 8.1.6.1.1.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231195 | | 3596 | | - | | F | | Correction to NR MDT test case 8.1.6.1.3.5 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231197 | | 3598 | | - | | F | | Correction to Inter RAT MDT test case 8.1.6.2.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231198 | | 3599 | | - | | F | | Correction to NR RRC SON-MDT test case 8.1.6.1.4.8 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231202 | | 3601 | | - | | F | | Addition of new NR unlicensed test case 6.6.2.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231213 | | 3605 | | - | | F | | Correction to NR EIEI test case 11.5.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231257 | | 3606 | | - | | F | | Corrections to DL grant prioritization test case | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231261 | | 3610 | | - | | F | | Addition of new MAC test case for 4 step RACH with Slice specific RACH configuration | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231262 | | 3611 | | - | | F | | Addition of new MAC test case for 4 step RACH with RACH Prioritization For Slicing | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231263 | | 3612 | | - | | F | | Addition of new MAC test case for 2 step RACH with Slice specific RACH configuration | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231264 | | 3613 | | - | | F | | Addition of new MAC test case for 2 step RACH with RACH Prioritization for Slicing | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231402 | | 3455 | | 1 | | F | | Editorial Corrections to Idle mode TC 6.1.1.4 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231404 | | 3514 | | 1 | | F | | Correction to SOR test case 6.3.1.7 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231405 | | 3597 | | 1 | | F | | Correction to DAPS PDCP Test case 7.1.3.4.3 and 7.1.3.4.4 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231406 | | 3436 | | 1 | | F | | Update test case 8.1.2.1.5.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231407 | | 3513 | | 1 | | F | | Corrections to RRC TC 8.1.4.4.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231408 | | 3576 | | 1 | | F | | Update to test case 8.1.4.4.3 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231409 | | 3600 | | 1 | | F | | Correction to NR RRC IRAT HO test case 8.1.4.2.1.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231410 | | 3440 | | 1 | | F | | Updates for EN-DC RRC test case 8.2.1.1.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231411 | | 3535 | | 1 | | F | | Correction to NR5GC testcase 8.2.2.1.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231412 | | 3560 | | 1 | | F | | Correction to NR5GC RRC test case 8.2.2.3.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231413 | | 3587 | | 1 | | F | | Update to NR TC 9.1.10.2-NSSAA de-registration | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231414 | | 3588 | | 1 | | F | | Update to NR TC 9.1.10.3-NSSAA Rejected NSSAI | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231415 | | 3556 | | 1 | | F | | Correction to EPS Fallback test case 11.1.6 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231416 | | 3593 | | 1 | | F | | Correction to Emergency Services test case 11.4.12 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231417 | | 3594 | | 1 | | F | | Correction to emergency services test case 11.4.11 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231418 | | 3508 | | 1 | | F | | Addition of inter-system mobility test case 11.8.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231419 | | 3509 | | 1 | | F | | Addition of inter-system mobility test case 11.8.4 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231425 | | 3477 | | 1 | | F | | Correction to NR SL SIG TC 12.1.2.1 - SyncRef Reselect PC5 only | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231426 | | 3478 | | 1 | | F | | Correction to NR SL SIG TC 12.1.2.2 - SL-SSB Tx control PC5 only | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231427 | | 3479 | | 1 | | F | | Correction to NR SL SIG TC 12.1.5.x and 12.2.7.x - SL CSI reporting | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231428 | | 3480 | | 1 | | F | | Correction to NR SL SIG TC 12.2.2.1 - SyncRef Reselect Con-current | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231429 | | 3481 | | 1 | | F | | Correction to NR SL SIG TC 12.2.2.2 - SL-SSB Tx control Con-current | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231430 | | 3482 | | 1 | | F | | Correction to NR SL SIG TC 12.2.3.1 – Event C1 and C2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231432 | | 3484 | | 1 | | F | | Correction to NR SL SIG TC 12.2.8.3 - PC5 RLF | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231433 | | 3546 | | 1 | | F | | Update of TC 12.1.7.1 - PC5-only operation / Sidelink UE capability transfer via PC5 RRC / One-way and two-way transfer | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231434 | | 3564 | | 1 | | F | | Update of TC 12.2.4.1- Inter-carrier concurrent operation / Sidelink Reconfiguration via Uu RRC | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231435 | | 3565 | | 1 | | F | | Update of TC 12.2.8.1- Inter-carrier concurrent operation / Sidelink CSI reporting / Reporting | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231436 | | 3566 | | 1 | | F | | Update of TC 12.2.3.2- Inter-carrier concurrent operation / Measurement configuration and reporting via Uu RRC / CBR measurement reporting / Periodical reporting | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231437 | | 3568 | | 1 | | F | | Update of TC 12.2.1.5- Inter-carrier concurrent operation / Sidelink communication / RRC\_CONNECTED / Transmission / Exceptional pool | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231438 | | 3602 | | 1 | | F | | Addition of NR unlicensed test case 6.6.2.3 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231439 | | 3603 | | 1 | | F | | Addition of NR-U test case 8.1.8.1.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231440 | | 3604 | | 1 | | F | | Addition of NR unlicensed test case 8.1.8.2.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231442 | | 3449 | | 1 | | F | | Addition of new MDT test case 8.1.6.1.4.9 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231444 | | 3614 | | 1 | | F | | Addition of new MAC test case for 2 step to 4 step RACH SDT fallback | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231445 | | 3615 | | 1 | | F | | Addition of new MAC test case for 4 step RACH SDT with time alignment timer expiry | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231449 | | 3460 | | 1 | | F | | Addition of new test case 7.1.3.6.4 for PDCP UDC | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231450 | | 3461 | | 1 | | F | | Addition of new test case 7.1.3.6.5 for PDCP UDC | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231451 | | 3462 | | 1 | | F | | Addition of new test case 7.1.3.6.6 for PDCP UDC | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231452 | | 3463 | | 1 | | F | | Addition of new test case 7.1.3.6.7 for PDCP UDC | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231454 | | 3433 | | 1 | | F | | Addition of power saving enhancements new TC 8.1.1.1a.3 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231455 | | 3458 | | 1 | | F | | Correction to TC 8.1.1.1a.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231456 | | 3450 | | 1 | | F | | Addition of new powersaving TC 8.1.1.1a.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231457 | | 3617 | | 1 | | F | | Adding new test case 9.1.14.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231459 | | 3444 | | 1 | | F | | Addition of ATSSS new TC 10.4.1.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231460 | | 3451 | | 1 | | F | | Addition of new RRC test case 8.2.6.2.4 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231462 | | 3510 | | 1 | | F | | Addition of ATSSS test case 10.4.1.3 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231463 | | 3511 | | 1 | | F | | Addition of ATSSS test case 10.4.1.4 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231474 | | 3518 | | 1 | | F | | Addition of MBS Multicast TC 14.2.1.1.7-NACK-only | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231475 | | 3519 | | 1 | | F | | Addition of MBS Multicast TC 14.2.1.1.8-Multiplex\_Multicast\_and\_Unicast\_HARQ | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231476 | | 3520 | | 1 | | F | | Addition of MBS Multicast TC 14.2.1.2.1-DRX PTM and PTP transmission | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231477 | | 3521 | | 1 | | F | | Addition of MBS Multicast TC 14.2.2.1 and 14.2.2.2-RLC UM | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231478 | | 3522 | | 1 | | F | | Addition of MBS Multicast TC 14.2.3.1 and 14.2.3.2-PDCP UM MRB | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231479 | | 3523 | | 1 | | F | | Addition of MBS Multicast TC 14.2.3.3 and 14.2.3.4-PDCP AM MRB | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231480 | | 3524 | | 1 | | F | | Addition of MBS Multicast TC 14.2.4.1.1-group paging in RRC\_IDLE | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231481 | | 3525 | | 1 | | F | | Addition of MBS Multicast TC 14.2.4.1.2-group paging in RRC\_INACTIVE | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231482 | | 3526 | | 1 | | F | | Addition of MBS Multicast TC 14.2.4.2.1-MRB Reconfiguration | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231483 | | 3527 | | 1 | | F | | Correction of MBS Multicast TC 14.2.1.1.1-14.2.1.1.4-14.2.1.1.5 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231510 | | 3590 | | 1 | | F | | Correction to the eCall TC 11.5.1-T3444 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231511 | | 3591 | | 1 | | F | | Correction to the eCall TC 11.5.2-T3445 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231514 | | 3430 | | 1 | | F | | Add new NR Multi-SIM test case 8.1.2.1.6 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231521 | | 3561 | | 1 | | F | | Addition of New MUSIM TC 8.1.5.10.3- UE Assistance Information / MUSIM / Leaving RRC\_CONNECTED / T346g expires | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231529 | | 3530 | | 1 | | F | | Correction of RedCap TC 7.1.1.1.17-UE identification | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231530 | | 3531 | | 1 | | F | | Correction of RedCap TC 7.1.1.8.3-BWP | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231531 | | 3532 | | 1 | | F | | Update of RedCap TC 6.1.2.26-Cell Selection | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231532 | | 3582 | | 1 | | F | | Update to NR TC 6.1.2.27 to test RedCap UE | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231533 | | 3583 | | 1 | | F | | Update to NR TC 7.1.3.5.4 to test RedCap UE | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231534 | | 3584 | | 1 | | F | | Update to NR eDRX TC 11.7.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231535 | | 3585 | | 1 | | F | | Update to NR eDRX TC 11.7.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231537 | | 3504 | | 1 | | F | | Addition of eNS test case 9.1.13.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231538 | | 3505 | | 1 | | F | | Addition of eNS test case 9.3.1.4 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231539 | | 3506 | | 1 | | F | | Addition of eNS test case 10.1.8.4 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231540 | | 3507 | | 1 | | F | | Addition of eNS test case10.1.8.5 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231542 | | 3515 | | 1 | | F | | Correction of eNS\_Ph2 TC 9.1.12.3-NSAC Registration Reject | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231543 | | 3516 | | 1 | | F | | Correction of eNS\_Ph2 TC 9.1.12.4-NSAC Configuration update | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231544 | | 3517 | | 1 | | F | | Correction of eNS\_Ph2 TC 9.1.12.5-NSAC De-registration | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231545 | | 3562 | | 1 | | F | | Update of TC 10.1.8.2- NSAC / PDU session establishment reject / Maximum number of PDU sessions reached / Back-off timer is deactivated | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231546 | | 3607 | | 1 | | F | | Correction to eNS test case 9.1.12.3 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231553 | | 3464 | | 1 | | F | | Update to eNS\_Ph2 test case 9.1.12.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231554 | | 3465 | | 1 | | F | | Update to eNS\_Ph2 test case 9.1.12.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231555 | | 3468 | | 1 | | F | | Addition of new test case 6.1.2.24 for NR slice | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231556 | | 3469 | | 1 | | F | | Addition of new test case 6.4.2.3 for NR slice | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231573 | | 3500 | | 1 | | F | | Update NE-DC RRC Radio Bearer test case 8.2.3.14.3 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231574 | | 3502 | | 1 | | F | | Addition of NE-DC RRC Radio Bearer test case 8.2.3.17.3 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231576 | | 3503 | | 1 | | F | | Addition of NE-DC RRC Radio Bearer test case 8.2.7.3.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231578 | | 3448 | | 1 | | F | | Corrections to Bandwidth Part TC 7.1.1.8.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231579 | | 3586 | | 1 | | F | | Correction to NR TC 8.1.4.4.3-Conditional Handover | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231580 | | 3618 | | 1 | | F | | Addition of test case for RRC downlink segmentation | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231581 | | 3555 | | 1 | | F | | Correction to EPS Fallback test case 11.1.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231583 | | 3563 | | 1 | | F | | Update of TC 12.2.1.6- Inter-carrier concurrent operation / Sidelink communication / RRC\_CONNECTED / Reception | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231584 | | 3542 | | 1 | | F | | Corrections to testcase 8.2.6.3.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231585 | | 3543 | | 1 | | F | | Corrections to testcase 8.2.6.3.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231587 | | 3569 | | 1 | | F | | Move RedCap TC 8.1.3.4.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231589 | | 3453 | | 1 | | F | | Corrections to SDT TC 7.1.1.13.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231590 | | 3454 | | 1 | | F | | Corrections to SDT TC 7.1.1.13.2 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231591 | | 3528 | | 1 | | F | | Addition of SDT TC 7.1.1.13.5-cg-SDT-TimeAlignmentTimer | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231592 | | 3529 | | 1 | | F | | Addition of SDT TC 8.1.5.13.1-CG-SDT Success | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231594 | | 3544 | | 1 | | F | | Addition of testcase 8.1.5.13.3 Data on non-SDT Radio Bearers | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231595 | | 3545 | | 1 | | F | | Addition of testcase 8.1.5.13.4 SDT-SRB2-Indication | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231598 | | 3619 | | 1 | | F | | Adding new test case 11.4.1a | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231900 | | 3476 | | 1 | | F | | Addition of new test case 6.3.2.6 for emergency call in SOR-CMCI | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231905 | | 3558 | | 1 | | F | | Correction to NR MAC test case 7.1.1.9.1 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231906 | | 3559 | | 1 | | F | | Correction to NR MAC test case 7.1.1.12.3 | | 17.2.0 | | |
| 2023-03 | | RAN#99 | | R5-231914 | | 3557 | | 1 | | F | | Correction to UAC test case 11.3.7 | | 17.2.0 | | |
| 2023-06 | | RAN#100 | | R5-232051 | | 3627 | | - | | F | | Correction to power saving enhancements TC 8.1.1.1a.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232052 | | 3628 | | - | | F | | Correction to power saving enhancements TC 8.1.1.1a.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232053 | | 3629 | | - | | F | | Correction to power saving enhancements TC 9.1.14.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232059 | | 3631 | | - | | F | | Correction to Idle mode TC 6.1.1.4a and 6.1.2.15a | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232060 | | 3632 | | - | | F | | Correction to CAG TC 6.5.2.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232062 | | 3634 | | - | | F | | Correction to CAG TC 6.5.2.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232063 | | 3635 | | - | | F | | Correction to CAG TC 6.5.2.4 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232064 | | 3636 | | - | | F | | Correction to CAG TC 6.5.2.6 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232065 | | 3637 | | - | | F | | Correction to MAC TC 7.1.1.12.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232067 | | 3639 | | - | | F | | Correction to MDT TC 8.1.6.2.4 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232070 | | 3642 | | - | | F | | Correction to 5GC TC 9.1.5.x | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232071 | | 3643 | | - | | F | | Correction to RACS TC 9.1.9.x | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232073 | | 3645 | | - | | F | | Correction to 5GC TC 9.2.5.1.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232085 | | 3649 | | - | | F | | Correction to ATSSS TC 10.4.1.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232092 | | 3656 | | - | | F | | Correction to SDT TC 7.1.1.13.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232093 | | 3657 | | - | | F | | Correction to SDT TC 7.1.1.13.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232095 | | 3658 | | - | | F | | Correction to SDT TC 7.1.1.13.4 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232096 | | 3659 | | - | | F | | Editorial corrections to SDT TC 8.1.5.13.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232131 | | 3660 | | - | | F | | Correction to NR Inter-RAT test case 6.2.3.4 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232155 | | 3661 | | - | | F | | Correction to FR2 Power level tables for NR RRC test cases | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232179 | | 3662 | | - | | F | | Update to MAC test case for 4 step RACH with Slice specific RACH configuration | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232180 | | 3663 | | - | | F | | Update to MAC test case for 4 step RACH with Slice specific RACH configuration with ra-PrioritizationForSlicing | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232181 | | 3664 | | - | | F | | Update to MAC test case for 2 step RACH with Slice specific RACH configuration | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232182 | | 3665 | | - | | F | | Update to MAC test case for 2 step RACH with Slice specific RACH configuration with ra-PrioritizationForSlicing | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232197 | | 3671 | | - | | F | | Corrections to EN-DC test case 8.2.6.3.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232200 | | 3673 | | - | | F | | Corrections to NR MAC test cases 7.1.1.12.4.x | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232202 | | 3675 | | - | | F | | Updates for NR RRC test case 8.1.5.1.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232203 | | 3676 | | - | | F | | Updates for EN-DC RRC test case 8.2.1.1.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232204 | | 3677 | | - | | F | | Updates for NE-DC RRC test case 8.2.1.1.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232281 | | 3683 | | - | | F | | Update NE-DC Handover test case 8.2.3.13.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232282 | | 3684 | | - | | F | | Update NE-DC Measurement Configuration Control and Reporting test case 8.2.3.7.2a | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232283 | | 3685 | | - | | F | | Update NE-DC Measurement Configuration Control and Reporting test case 8.2.3.8.2a | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232317 | | 3696 | | - | | F | | Update test case 8.1.1.4.8 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232331 | | 3699 | | - | | F | | Correction to NR RRC IRAT HO test case 8.1.4.2.1.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232332 | | 3700 | | - | | F | | Correction to NR5GC RACS Test case 9.1.9.5 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232333 | | 3701 | | - | | F | | Correction to Rel-16 MDT Test Case 8.1.6.2.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232339 | | 3702 | | - | | F | | Correction to NR5GC testcase 9.1.10.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232361 | | 3703 | | - | | F | | Correction to NR5GC testcase 11.3.5 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232366 | | 3704 | | - | | F | | Correction to NR testcase 7.1.1.6.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232385 | | 3706 | | - | | F | | Correction to RLC UM test case 7.1.2.2.5 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232393 | | 3709 | | - | | F | | Correction to FR2 Power level tables for NR MDT test cases | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232397 | | 3711 | | - | | F | | Correction to NR MAC test case 7.1.1.12.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232425 | | 3715 | | - | | F | | Corrections to NAS TC 9.1.2.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232499 | | 3723 | | - | | F | | Addition of NR cov enh SIG TC 7.1.1.2.6 dynamic PUCCH repetition | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232500 | | 3724 | | - | | F | | Addition of NR cov enh SIG TC 7.1.1.3.14.1 DG PUSCH repetition 32 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232501 | | 3725 | | - | | F | | Addition of NR cov enh SIG TC 7.1.1.3.14.2 CG PUSCH repetition 32 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232502 | | 3726 | | - | | F | | Addition of NR cov enh SIG TC 7.1.1.3.14.3 DG PUSCH availableSlotCouting | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232503 | | 3727 | | - | | F | | Addition of NR cov enh SIG TC 7.1.1.3.14.4 CG PUSCH availableSlotCouting | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232504 | | 3728 | | - | | F | | Addition of NR cov enh SIG TC 7.1.1.3.15.1 TBoMS | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232505 | | 3729 | | - | | F | | Addition of NR cov enh SIG TC 7.1.1.3.15.2 TBoMS repetition | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232506 | | 3730 | | - | | F | | Addition of NR cov enh SIG TC 7.1.1.4.2.7 TBoMS TBS selection | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232510 | | 3733 | | - | | F | | Correction to NR SA SIG TC 8.1.3.1.18.x additional reporting | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232641 | | 3739 | | - | | F | | Correction to NR MAC test case 7.1.1.9.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232643 | | 3741 | | - | | F | | Addition of FR2 cell power levels for SON-MDT test cases | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232682 | | 3745 | | - | | F | | Corrections to MDT test case 8.1.6.1.4.9 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232705 | | 3749 | | - | | F | | Addition of ATSSS TC 10.4.1.5 - UE-requested MA PDU session modification / ATSSS / Success | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232716 | | 3752 | | - | | F | | Correction to NR SL SIG TC 12.2.8.3 - PC5 RLF | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232729 | | 3754 | | - | | F | | Update of TC 8.1.5.11.3- Idle/Inactive measurements / Inactive mode / SIB11 configuration / Measurement of NR cells | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232730 | | 3755 | | - | | F | | Update of TC 8.1.5.11.4-Idle/Inactive measurements / Inactive mode / RRCRelease configuration / Measurement of NR cells | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232778 | | 3757 | | - | | F | | Update to eNS\_Ph2 test case 9.1.12.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232872 | | 3761 | | - | | F | | Correction to NR testcase 7.1.1.3.2b | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232940 | | 3767 | | - | | F | | Addition of new RedCap TC 7.1.1.1.15-SI request | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232948 | | 3770 | | - | | F | | Correction of MBS Broadcast TCs 14.1.x | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232949 | | 3771 | | - | | F | | Correction of MBS Multicast TC 14.2.4.1.x-group paging | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232951 | | 3773 | | - | | F | | Addition of MBS Broadcast TC 14.1.1.3-MCCH Information change notification | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232952 | | 3774 | | - | | F | | Addition of MBS Broadcast TC 14.1.1.4-receiving SIB20 of an SCell via dedicated signalling | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232953 | | 3775 | | - | | F | | Addition of MBS Multicast TC 14.2.1.1.2-DCI format 4\_2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232954 | | 3776 | | - | | F | | Addition of MBS Multicast TC 14.2.1.1.6-DCI-based ACK-NACK HARQ feedback for Multicast | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232955 | | 3777 | | - | | F | | Addition of MBS Multicast TC 14.2.1.1.9-DCI-based NACK-only HARQ feedback for Multicast | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232956 | | 3778 | | - | | F | | Addition of MBS Multicast TC 14.2.1.2.2-DRX-PTM retransmission for multicast | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232957 | | 3779 | | - | | F | | Addition of MBS Multicast TC 14.2.1.2.3-DRX-PTP retransmission for multicast | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232960 | | 3782 | | - | | F | | Addition of MBS Multicast TC 14.2.4.3.3-Handover between Multicast-supporting cell and Multicast non-supporting cell | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232969 | | 3788 | | - | | F | | Correction of SDT TC 7.1.1.13.5-cg-SDT-TATimer | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232972 | | 3789 | | - | | F | | Correction of NR TC 7.1.2.3.11-RLC re-establishment | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-232981 | | 3793 | | - | | F | | Correction to RedCap testcase 6.1.2.26 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233070 | | 3796 | | - | | F | | Updates for NR RRC test case 8.1.5.1.1 for RedCap | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233071 | | 3797 | | - | | F | | Updates for NR RRC test case 8.1.5.8.1 for RedCap | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233072 | | 3798 | | - | | F | | Updates to MAC TC 7.1.1.5.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233073 | | 3799 | | - | | F | | Updates to MAC TC 7.1.3.3.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233074 | | 3800 | | - | | F | | Updates to RRC TC 8.1.1.1.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233076 | | 3802 | | - | | F | | Updates to RRC TCs 8.2.2.4.1 and 8.2.2.5.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233077 | | 3803 | | - | | F | | Updates to RRC TCs 8.2.3.13.1 and 8.2.3.14.x | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233078 | | 3804 | | - | | F | | Updates to RRC TCs 8.2.4.1.1.1 and 8.2.4.2.1.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233080 | | 3805 | | - | | F | | Addition of NR unlicensed test case 6.6.2.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233081 | | 3806 | | - | | F | | Addition of NR unlicensed test case 6.6.2.4 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233143 | | 3825 | | - | | F | | Update to NR MUSIM test case 9.1.5.1.16 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233144 | | 3826 | | - | | F | | Update to NR MUSIM test case 9.1.7.4 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233145 | | 3827 | | - | | F | | Update to NR MUSIM test case 9.1.7.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233146 | | 3828 | | - | | F | | Correction of multi layer test case 11.1.5 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233147 | | 3829 | | - | | F | | Correction of emergency services test case 11.4.11 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233278 | | 3834 | | - | | F | | Addition of new RRC test case for Logging and reporting of on-Demand SI | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233279 | | 3835 | | - | | F | | Addition of new RRC test case for Logging and reporting of 2-step RACH report | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233280 | | 3836 | | - | | F | | Addition of new RRC test case for Logging and reporting fallback to 4-step RA | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233282 | | 3837 | | - | | F | | Update NR 2 step RACH test case 7.1.1.1.7 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233289 | | 3841 | | - | | F | | Update of test case 8.1.5.9.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233295 | | 3842 | | - | | F | | Correction to NR SA SIG TC 8.1.5.1.1 UE capability transfer | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233321 | | 3633 | | 1 | | F | | Correction to CAG TC 6.5.2.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233322 | | 3732 | | 1 | | F | | Correction to NR SA SIG TC 6.1.2.2 Squal based | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233323 | | 3743 | | 1 | | F | | Addition of FR2 cell power levels for SNPN test cases | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233324 | | 3738 | | 1 | | F | | Correction to NR MAC test cases 7.1.1.7.1.x | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233325 | | 3838 | | 1 | | F | | Update NR 2 step RACH test case 7.1.1.1.8 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233326 | | 3844 | | - | | F | | Addition of new NR 2 step RACH test case 7.1.1.1.9a | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233327 | | 3801 | | 1 | | F | | Updates to RRC TCs 8.1.3.1.17 and 8.1.3.1.18 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233328 | | 3845 | | - | | F | | Addition of new NR 2 step RACH test case 7.1.1.1.10a | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233329 | | 3682 | | 1 | | F | | Update NE-DC RRC Radio Bearer test case 8.2.2.7.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233330 | | 3807 | | 1 | | F | | Update to test case 8.2.2.5.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233331 | | 3808 | | 1 | | F | | Update to test case 8.2.2.5.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233332 | | 3809 | | 1 | | F | | Update to test case 8.2.2.5.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233333 | | 3810 | | 1 | | F | | Update to test case 8.2.2.6.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233334 | | 3811 | | 1 | | F | | Update to test case 8.2.2.7.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233335 | | 3812 | | 1 | | F | | Update to test case 8.2.2.7.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233336 | | 3814 | | 1 | | F | | Update to test case 8.2.2.8.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233337 | | 3815 | | 1 | | F | | Update to test case 8.2.2.8.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233338 | | 3816 | | 1 | | F | | Update to test case 8.2.2.8.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233339 | | 3817 | | 1 | | F | | Update to test case 8.2.2.9.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233340 | | 3818 | | 1 | | F | | Update to test case 8.2.2.9.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233341 | | 3819 | | 1 | | F | | Update to test case 8.2.2.9.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233342 | | 3820 | | 1 | | F | | Update to test case 8.2.3.13.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233343 | | 3821 | | 1 | | F | | Update to test case 8.2.3.13.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233344 | | 3822 | | 1 | | F | | Update to test case 8.2.3.14.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233345 | | 3823 | | 1 | | F | | Update to test case 8.2.3.14.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233346 | | 3824 | | 1 | | F | | Update to test case 8.2.3.14.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233347 | | 3640 | | 1 | | F | | Correction to 5GC TC 9.1.1.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233348 | | 3641 | | 1 | | F | | Correction to MICO TC 9.1.5.1.4 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233349 | | 3646 | | 1 | | F | | Correction to 5GC TC 9.3.1.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233350 | | 3647 | | 1 | | F | | Correction to UAC TC 11.3.10 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233351 | | 3747 | | 1 | | F | | Corrections to SNPN TC 11.3.9a | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233353 | | 3648 | | 1 | | F | | Correction to emergency service TC 11.4.12 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233354 | | 3833 | | 1 | | F | | Update 5GMM Emergency Service test case 11.4.13 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233355 | | 3694 | | 1 | | F | | Addition of inter-system mobility test case 11.8.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233356 | | 3695 | | 1 | | F | | Addition of inter-system mobility test case 11.8.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233358 | | 3638 | | 1 | | F | | Correction to NR RRC TC 8.1.1.3.7a | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233359 | | 3736 | | 1 | | F | | Update test case 8.2.5.7.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233360 | | 3737 | | 1 | | F | | Update test case 8.2.5.7.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233362 | | 3680 | | 1 | | F | | Addition of new test case 7.1.3.6.8 for PDCP UDC | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233363 | | 3681 | | 1 | | F | | Addition of new test case 7.1.3.6.9 for PDCP UDC | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233377 | | 3758 | | 1 | | F | | Update of test case 8.1.6.1.2.15 for SON\_MDT | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233378 | | 3756 | | 1 | | F | | Update to eNS\_Ph2 test case 9.1.12.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233384 | | 3772 | | 1 | | F | | Addition of MBS Broadcast TC 14.1.1.2-becoming interested to receive MBS broadcast services | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233385 | | 3780 | | 1 | | F | | Addition of MBS Multicast TC 14.2.4.3.1-Handover between multicast supporting cell | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233386 | | 3781 | | 1 | | F | | Addition of MBS Multicast TC 14.2.4.3.2-Re-establishment | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233387 | | 3783 | | 1 | | F | | Addition of MBS Multicast TC 14.2.5.1.1-Network-requested PDU session modification to remove UE from MBS session | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233388 | | 3784 | | 1 | | F | | Addition of MBS Multicast TC 14.2.5.1.2-Network-requested PDU session modification to update MBS service area | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233389 | | 3785 | | 1 | | F | | Addition of MBS Multicast TC 14.2.5.2.1-UE-requested to join MBS multicast session-accept | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233391 | | 3786 | | 1 | | F | | Addition of UPIP TC 8.2.6.4.2-RRC re-establishment | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233392 | | 3787 | | 1 | | F | | Addition of UPIP TC 8.2.6.4.3-HO | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233400 | | 3690 | | 1 | | F | | Update eNS test case 9.1.13.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233401 | | 3692 | | 1 | | F | | Update eNS test case 10.1.8.4 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233402 | | 3693 | | 1 | | F | | Update eNS test case10.1.8.5 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233403 | | 3753 | | 1 | | F | | Update of TC 10.1.8.3- NSAC / PDU session establishment reject / Maximum number of PDU sessions reached / Back-off timer is zero or not included | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233404 | | 3790 | | 1 | | F | | Correction of NR TC 10.1.8.1-NSAC | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233405 | | 3791 | | 1 | | F | | Correction of NR TC 10.1.8.2-NSAC | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233407 | | 3765 | | 1 | | F | | Update NR MAC TC 7.1.1.1.1-7.1.1.1.1a-7.1.1.1.8 for HD-FDD UE-PRACH | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233408 | | 3766 | | 1 | | F | | Update NR MAC TC 7.1.1.1.2 and RRC TC 8.1.5.2.2 for HD-FDD UE-PRACH | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233409 | | 3768 | | 1 | | F | | Update URLLC TC 7.1.1.3.12 for HD-FDD UE-PUSCH repetition Type B | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233410 | | 3769 | | 1 | | F | | Correction of NR TC 7.1.2.3.6-Polling for status | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233411 | | 3653 | | 1 | | F | | Correction to RedCap test case 11.7.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233412 | | 3654 | | 1 | | F | | Correction to RedCap test case 11.7.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233413 | | 3655 | | 1 | | F | | Correction to SDT TC 7.1.1.13.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233415 | | 3666 | | 1 | | F | | Update to MAC test case for RA Based SDT / 2-step RACH | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233416 | | 3667 | | 1 | | F | | Update to MAC test case for RA Based SDT / 4-step RACH | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233420 | | 3678 | | 1 | | F | | Addition of Enhancement of RAN slicing for NR test case 6.1.2.25 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233421 | | 3759 | | 1 | | F | | Update of test case 6.1.2.24 for NR slice | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233422 | | 3760 | | 1 | | F | | Update of test case 6.4.2.3 for NR slice | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233427 | | 3626 | | 1 | | F | | Correction to power saving enhancements TC 8.1.1.1a.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233428 | | 3630 | | 1 | | F | | Correction to power saving enhancements TC 11.4.1a | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233430 | | 3625 | | 1 | | F | | Addition of ATSSS new TC 10.4.2.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233431 | | 3650 | | 1 | | F | | Correction to ATSSS TC 10.4.1.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233432 | | 3651 | | 1 | | F | | Correction to ATSSS TC 10.4.1.4 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233433 | | 3750 | | 1 | | F | | Addition of new ATSSS test case 10.4.1.6 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233445 | | 3698 | | 1 | | F | | Correction to FR2 Power level tables for NR Idle mode test cases | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233449 | | 3705 | | 1 | | F | | Correction to NR testcase 7.1.3.5.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233455 | | 3672 | | 1 | | F | | Corrections to EN-DC test case 8.2.6.3.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233456 | | 3716 | | 1 | | F | | Correction of test procedure on TC 6.3.2.1 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233457 | | 3717 | | 1 | | F | | Correction of test procedure on TC 6.3.2.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233458 | | 3718 | | 1 | | F | | Correction of test procedure on TC 6.3.2.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233459 | | 3719 | | 1 | | F | | Correction of test procedure on TC 6.3.2.4 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233460 | | 3720 | | 1 | | F | | Correction of test procedure on TC 6.3.2.5 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233461 | | 3721 | | 1 | | F | | Correction of test procedure on TC 6.3.2.6 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233462 | | 3742 | | 1 | | F | | Addition of FR2 cell power levels for Idle mode test cases | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233463 | | 3748 | | 1 | | F | | Addition of new Idle mode TC to test the intraFreqReselection in MIB message is set to not allowed | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233467 | | 3708 | | 2 | | F | | Correction to NR testcase 7.1.1.12.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233468 | | 3691 | | 1 | | F | | Update eNS test case 9.3.1.4 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233469 | | 3624 | | 1 | | F | | Add new NR Multi-SIM test case 8.1.5.10.2 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233470 | | 3751 | | 1 | | F | | Correction to NR MUSIM TC 8.1.5.10.3 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233482 | | 3679 | | 1 | | F | | Update test case 8.1.1.4.7 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233483 | | 3697 | | 1 | | F | | Update test case 8.1.1.4.9 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233776 | | 3843 | | 2 | | F | | Update of NR TC 6.1.2.3-Cell selection | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233777 | | 3746 | | 1 | | F | | Addition of new RRC TC for RRCRelease with redirection with mpsPriorityIndication-r16 | | 17.3.0 | | |
| 2023-06 | | RAN#100 | | R5-233779 | | 3707 | | 2 | | F | | Correction to Emergency Services test case 11.4.1 | | 17.3.0 | | |