**3GPP TSG- Meeting # *R2-25xxxxx***

**Bengaluru, India, -**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.331** | **CR** | **5437** | **rev** | **2** | **Current version:** | **18.6.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network | **x** | Core Network |  |

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| ***Title:*** | Introduction of AIML for NR air interface | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_AIML\_air-Core | | | | |  | ***Date:*** | | | 2025-09-05 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Introduction of AI/ML specification support for NR air interface in Rel-19. | | | | | | | | |
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| ***Summary of change:*** | | Implementation of agreements up to RAN2#131. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Rel-19 RRC specification does not include the new AI/ML for NR air interface features agreed for Rel-19. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3.1, 4.2.1, 4.2.2, 5.3.1.2, 5.3.5.3, 5.3.5.5.7, 5.3.5.5.9, 5.3.5.6.1, 5.3.5.6.2, 5.3.5.6.3, 5.3.5.9, 5.3.7.2, 5.3.7.3, 5.3.8.3, 5.3.10.3, 5.3.11, 5.3.13.2, 5.3.13.4, 5.4.3.4, 5.5.4.2, 5.5.4.3, 5.5x (new), 5.5x.1 (new), 5.5x.1.1 (new), 5.5x.1.2 (new), 5.5x.1.3 (new), 5.5x.2 (new), 5.5x.2.1 (new), 5.5x.2.2 (new), 5.5x.3 (new), 5.5x.3.1 (new), 5.5x.3.2 (new), 5.7.4.1, 5.7.4.2, 5.7.4.3, 5.7.10.3, 6.2.2, 6.3.2, 6.3.4, 6.4, 7.4, 11.2.2, 12 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **x** |  | Other core specifications | | | | TS 38.300 CR 1006, TS 38.306 CR 1321, TS 38.321 CR 2104 | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Revision 1: CR uplifted from V18.5.1 in R2-2505777 to V18.6.0.  Revision 2: Updated based on the agreements at RAN2#131 | | | | | | | | |

FIRST CHANGE

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

**2Rx XR UE:** Two antenna port XR UE as specified in TS 38.101-1 [15].

**A2X communication:** A communication to support A2X services leveraging PC5 reference points, as defined in TS 23.256 [76]. A2X services are realized by various types of A2X applications, e.g., BRID or DAA.

**Additional sidelink RLC bearer:** If the sidelink PDCP entity is associated with two sidelink RLC entities, the additional sidelink RLC bearer is the RLC bearer configured by *sl-RLC-BearerToAddModListSizeExt* in *sl-ConfigDedicatedNR*, or *sl-RLC-BearerConfigListSizeExt* in *SIB12* or in *SidelinkPreconfigNR*.

**Aerial UE:** UE performingAerial UE communication, as defined in TS 38.300 [2], clause 16.18 and TS 23.256 [76].

**AM MRB:** An MRB associated with at least an AM RLC bearer for PTP transmission.

**Applicable AI/ML configuration:** Configuration according to which anAI/ML functionality is determined to be applicable by the UE, as defined in TS 38.300 [2].

**BH RLC channel:** An RLC channel between two nodes, which is used to transport backhaul packets.

**Broadcast MRB:** A radio bearer configured for MBS broadcast delivery.

**CEIL:** Mathematical function used to 'round up' i.e. to the nearest integer having a higher or equal value.

**DAPS bearer:** a bearer whose radio protocols are located in both the source gNB and the target gNB during DAPS handover to use both source gNB and target gNB resources.

**Data Burst:** A set of multiple PDUs generated and sent by the application in a short period of time, as defined in TS 23.501 [32].

**Dedicated signalling:** Signalling sent on DCCH logical channel between the network and a single UE.

**Dormant BWP:** The dormant BWP is one of downlink BWPs configured by the network via dedicated RRC signalling. In the dormant BWP, the UE stops monitoring PDCCH on/for the SCell, but continues performing CSI measurements, Automatic Gain Control (AGC) and beam management, if configured. For each serving cell other than the SpCell or PUCCH SCell, the network may configure one BWP as a dormant BWP.

**Earth-fixed cell:** An NTN cell fixed with respect to a certain geographic area on Earth. It can be provisioned by beam(s) continuously covering the same geographical area (e.g., the case of GSO satellites).

**Earth-moving cell:** An NTN cell moving on the ground. It can be provisioned by beam(s) whose coverage area slides over the Earth's surface (e.g., the case of NGSO satellites generating fixed or non-steerable beams).

**eRedCap UE:** A UE with enhanced reduced capabilities as specified in clause 4.2.22.1 in TS 38.306 [26].

**Field:** The individual contents of an information element are referred to as fields.

**FLOOR:** Mathematical function used to 'round down' i.e. to the nearest integer having a lower or equal value.

**Frequency Selection Area ID:** An identity used for broadcast MBS session to guide the frequency selection of the UE as defined in TS 23.247 [67].

**Global cell identity:** An identity to uniquely identifying an NR cell. It is consisted of *cellIdentity* and *plmn-Identity* of the first *PLMN-Identity* in *plmn-IdentityList* in SIB1.

**Information element:** A structural element containing single or multiple fields is referred as information element.

**Candidate configuration:** A configuration part of an *RRCReconfiguration* message associated with a candidate cell, e.g., for LTM or subsequent CPAC. A candidate configuration can be a complete candidate configuration or a delta configuration relatively to a reference configuration.

**Reference configuration:** A configuration provided by the network to the UE that is common, within the same cell group, to a group of configured non-complete candidate configurations.

**MBS Radio Bearer:** A radio bearer that is configured for MBS delivery.

**Mobile IAB-MT**: mobile IAB-node function that terminates the Uu interface to the parent node using the procedures and behaviours specified for UEs unless stated otherwise. The mobile IAB-MT uses the same procedures and behaviours specified for the IAB-MT, unless explicitly stated otherwise.

**Mobile IAB-node**: RAN node that supports NR access links to UEs and an NR backhaul link to a parent node, and that can conduct physical mobility across the RAN area. The mobile IAB-node function used in 38-series of 3GPP Specifications corresponds to the MBSR function defined in TS 23.501 [32]. The mobile IAB-node uses the same procedures and behaviours specified for the IAB-node, unless explicitly stated otherwise.

**Multicast/Broadcast Service:** A point-to-multipoint service as defined in TS 23.247 [67].

**Multicast MRB:** A radio bearer configured for MBS multicast delivery.

**MUSIM gap:** Period that the UE may use to perform MUSIM operations.

**Multi-path:** Mode of operation of a UE in RRC\_CONNECTED configured with one direct path on which the UE connects to gNB using NR Uu, and one indirect path on which the UE connects to the same gNB via another UE using PC5 unicast link or Non-3GPP Connection.

**MP remote UE:** A UE configured with Multi-path. When the connectivity of indirect path is PC5 unicast link, the MP remote UE is acting as a L2 U2N Remote UE. When the connectivity of indirect path is Non-3GPP Connection, the MP remote UE is acting as a N3C remote UE.

**MP relay UE:** A UE that provides connectivity of indirect path to a MP remote UE. When the connectivity is PC5 unicast link, the MP relay UE is acting as a L2 U2N Relay UE. When the connectivity is Non-3GPP Connection, the MP relay UE is acting as a N3C relay UE.

**NCSG:** Network controlled small gap as defined in TS 38.133 [14].

**NPN-only Cell**: A cell that is only available for normal service for NPNs' subscriber. An NPN-capable UE determines that a cell is NPN-only Cell by detecting that the *cellReservedForOtherUse* IE is set to true while the *npn-IdentityInfoList* IE is present in *CellAccessRelatedInfo*.

**N3C indirect path:** In Multi-path, the indirect path using Non-3GPP Connection between remote UE and relay UE.

**NR sidelink communication**: AS functionality enabling at least V2X Communication as defined in TS 23.287 [55] and/or A2X Communication as defined in TS 23.256 [76] and/or ProSe Communication (including ProSe UE-to-Network Relay, non-Relay communication, and ProSe UE-to-UE Relay Communication including UE-to-UE Relay communication with integrated discovery) as defined in TS 23.304 [65] between two or more nearby UEs, using NR technology but not traversing any network node.

**NR sidelink discovery**: AS functionality enabling ProSe non-Relay Discovery, ProSe UE-to-Network Relay discovery and ProSe UE-to-UE Relay discovery for Proximity based Services as defined in TS 23.304 [65] between two or more nearby UEs, using NR technology but not traversing any network node.

**NR sidelink positioning:** AS functionality which determines geographical or relative location and possibly velocity of a target UE or ranging via PC5 interface using SL-PRS transmission and reception as defined in TS 38.305 [73] and TS 38.355 [77].

**PNI-NPN identity:** an identifier of a PNI-NPN comprising of a PLMN ID and a CAG-ID combination.

**Primary Cell**: The MCG cell, operating on the primary frequency, in which the UE either performs the initial connection establishment procedure or initiates the connection re-establishment procedure.

**PC5 Relay RLC channel**: An RLC channel between L2 U2N Remote UE and L2 U2N Relay UE, or between L2 U2U Remote UE and L2 U2U Relay UE, which is used to transport packets over PC5 for L2 UE-to-Network relay or L2 UE-to-UE relay.

**PDU Set**: one or more PDUs carrying the payload of one unit of information generated at the application level (e.g. frame(s) or video slice(s) for XR Services), as defined in TS 23.501 [32].

**Primary SCG Cell**: For dual connectivity operation, the SCG cell in which the UE performs random access when performing the Reconfiguration with Sync procedure.

**Primary Timing Advance Group**: Timing Advance Group containing the SpCell.

**PUCCH SCell:** An SCell configured with PUCCH by *PUCCH-Config*.

**PUSCH-Less SCell:** An SCell configured without PUSCH.

**Quasi-Earth-fixed cell**: An NTN cell fixed with respect to a certain geographic area on Earth during a certain time duration. It can be provisioned by beam(s) covering one geographic area for a limited period and a different geographic area during another period (e.g., the case of NGSO satellites generating steerable beams).

**RedCap UE:** A UE with reduced capabilities as specified in clause 4.2.21.1 in TS 38.306 [26].

**RLC bearer configuration:** The lower layer part of the radio bearer configuration comprising the RLC and logical channel configurations.

**Secondary Cell**: For a UE configured with CA, a cell providing additional radio resources on top of Special Cell.

**Secondary Cell Group**: For a UE configured with dual connectivity, the subset of serving cells comprising of the PSCell and zero or more secondary cells.

**Serving Cell**: For a UE in RRC\_CONNECTED not configured with CA/DC there is only one serving cell comprising of the primary cell. For a UE in RRC\_CONNECTED configured with CA/ DC the term 'serving cells' is used to denote the set of cells comprising of the Special Cell(s) and all secondary cells.

**Small Data Transmission**: A procedure used for transmission of data and/or signalling over allowed radio bearers in RRC\_INACTIVE state (i.e. without the UE transitioning to RRC\_CONNECTED state). The SDT procedure is considered to be ongoing once the conditions for initating SDT as specified in clause 5.3.13.1b are fulfilled until the SDT procedure is completed either successfully or unsuccessfully as specified in clause 18.0 in TS 38.300 [2].

**SNPN identity:** an identifier of an SNPN comprising of a PLMN ID and an NID combination.

**SL indirect path:** In Multi-path, the indirect path using PC5 unicast link between remote UE and relay UE.

**Special Cell:** For Dual Connectivity operation the term Special Cell refers to the PCell of the MCG or the PSCell of the SCG, otherwise the term Special Cell refers to the PCell.

**Split DRB:** In MR-DC, a DRB that supports transmission via MCG and SCG, as well as duplication of PDCP PDUs as defined in TS 37.340 [41]; or in MP, a DRB that supports transmission via direct path and indirect path, as well as duplication of PDCP PDUs.

**Split SRB**: In MR-DC, an SRB that supports transmission via MCG and SCG as well as duplication of RRC PDUs as defined in TS 37.340 [41]; or in MP, a SRB that supports transmission via direct path and indirect path, as well as duplication of PDCP PDUs.

**SSB Frequency**: Frequency referring to the position of resource element RE=#0 (subcarrier #0) of resource block RB#10 of the SS block.

**U2N Relay UE**: A UE that provides functionality to support connectivity to the network for U2N Remote UE(s).

**U2N Remote UE**: A UE that communicates with the network via a U2N Relay UE.

**U2U Relay UE:** A UE that provides functionality to support connectivity between two U2U Remote UEs.

**U2U Remote UE:** A UE that communicates with other UEs via a U2U Relay UE.

**Uu Relay RLC channel**: An RLC channel between L2 U2N Relay UE and gNB, which is used to transport packets over Uu for L2 UE-to-Network relay or for indirect path in case of MP**.**

**UE Inactive AS Context**: UE Inactive AS Context is stored when the connection is suspended and restored when the connection is resumed. It includes information as defined in clause 5.3.8.3.

**V2X sidelink communication**: AS functionality enabling V2X Communication as defined in TS 23.285 [56], between nearby UEs, using E-UTRA technology but not traversing any network node.

NEXT CHANGE

## 4.2 Architecture

### 4.2.1 UE states and state transitions including inter RAT

A UE is either in RRC\_CONNECTED state or in RRC\_INACTIVE state when an RRC connection has been established. If this is not the case, i.e. no RRC connection is established, the UE is in RRC\_IDLE state. The RRC states can further be characterised as follows:

**- RRC\_IDLE**:

- A UE specific DRX may be configured by upper layers;

- At lower layers, the UE may be configured with a DRX for PTM transmission of MBS broadcast;

- UE controlled mobility based on network configuration;

- The UE:

- Monitors Short Messages transmitted with P-RNTI over DCI (see clause 6.5);

- Monitors a Paging channel for CN paging using 5G-S-TMSI, except if the UE is acting as a L2 U2N Remote UE;

- If configured by upper layers for MBS multicast reception, monitors a Paging channel for CN paging using TMGI;

- Performs neighbouring cell measurements and cell (re-)selection;

- Performs measurements on L2 U2N Relay UEs and relay (re-)selection;

- Acquires system information and can send SI request (if configured);

- Performs logging of available measurements together with location and time for logged measurement configured UEs;

- Performs idle/inactive measurements for idle/inactive measurement configured UEs;

- If configured by upper layers for MBS broadcast reception, acquires MCCH change notification and MBS broadcast control information and data.

**- RRC\_INACTIVE**:

- A UE specific DRX may be configured by upper layers or by RRC layer;

- At lower layers, the UE may be configured with a DRX for PTM transmission of MBS broadcast and/or a DRX for PTM transmission of MBS multicast;

- UE controlled mobility based on network configuration;

- The UE stores the UE Inactive AS context;

- A RAN-based notification area is configured by RRC layer;

- Transfer of unicast data and/or signalling to/from UE over radio bearers configured for SDT.

- The UE:

- Monitors Short Messages transmitted with P-RNTI over DCI (see clause 6.5);

- While T319a is running, monitors control channels associated with the shared data channel to determine if data is scheduled for it;

- While SDT procedure is ongoing and T319a is not running, if CG-SDT is selected and if extended CG-SDT periodicity is configured (i.e. *cg-SDT-PeriodicityExt* is configured), monitors a Paging channel for CN paging using 5G-S-TMSI and RAN paging using fullI-RNTI except if the UE is acting as a L2 U2N Remote UE;

- While SDT procedure is not ongoing, monitors a Paging channel for CN paging using 5G-S-TMSI and RAN paging using fullI-RNTI, except if the UE is acting as a L2 U2N Remote UE;

- If configured by upper layers for MBS multicast reception, while SDT procedure is not ongoing, monitors a Paging channel for paging using TMGI;

- Performs neighbouring cell measurements and cell (re-)selection;

- Performs measurements on L2 U2N Relay UEs and relay (re-)selection;

- Performs RAN-based notification area updates periodically and when moving outside the configured RAN-based notification area;

- Acquires system information and, while SDT procedure is not ongoing, can send SI request (if configured);

- While SDT procedure is not ongoing, performs logging of available measurements together with location and time for logged measurement configured UEs;

- While SDT procedure is not ongoing, performs idle/inactive measurements for idle/inactive measurement configured UEs;

- If configured by upper layers for MBS broadcast reception, acquires MCCH change notification and MBS broadcast control information and data;

- If configured for MBS multicast reception in RRC\_INACTIVE, acquires multicast MCCH change notification and MBS multicast control information and data;

- Transmits SRS for Positioning.

**- RRC\_CONNECTED:**

- The UE stores the AS context;

- Transfer of unicast data to/from UE;

- Transfer of MBS multicast data to UE;

- At lower layers, the UE may be configured with a UE specific DRX;

- At lower layers, the UE may be configured with a DRX for PTM transmission of MBS broadcast and/or a DRX for MBS multicast;

- At lower layers, the UE may be configured with a cell specific cell DTX/DRX;

- For UEs supporting CA, use of one or more SCells, aggregated with the SpCell, for increased bandwidth;

- For UEs supporting DC, use of one SCG, aggregated with the MCG, for increased bandwidth;

- Network controlled mobility within NR, to/from E-UTRA, and to UTRA-FDD;

- Network controlled mobility (path switch) between a serving cell and a L2 U2N Relay UE, or vice versa, or between a source L2 U2N Relay UE and a target L2 U2N Relay UE;

- Network controlled MP operation.

- The UE:

- Monitors Short Messages transmitted with P-RNTI over DCI (see clause 6.5), if configured;

- Monitors control channels associated with the shared data channel to determine if data is scheduled for it;

- Provides channel quality and feedback information;

- Performs neighbouring cell and/or L2 U2N relay measurements and measurement reporting;

- Acquires system information;

- Performs immediate MDT measurement together with available location reporting;

- If configured by upper layers for MBS broadcast reception, acquires MCCH change notification and MBS broadcast control information and data;

- Performs logging of measurements for network data collection, if configured.

Figure 4.2.1-1 illustrates an overview of UE RRC state machine and state transitions in NR. A UE has only one RRC state in NR at one time.



Figure 4.2.1-1: UE state machine and state transitions in NR

Figure 4.2.1-2 illustrates an overview of UE state machine and state transitions in NR as well as the mobility procedures supported between NR/5GC, E-UTRA/EPC and E-UTRA/5GC.



Figure 4.2.1-2: UE state machine and state transitions between NR/5GC, E-UTRA/EPC and E-UTRA/5GC

Figure 4.2.1-3 illustrates the mobility procedure supported between NR/5GC and UTRA-FDD.



Figure 4.2.1-3: Mobility procedure supported between NR/5GC and UTRA-FDD

### 4.2.2 Signalling radio bearers

"Signalling Radio Bearers" (SRBs) are defined as Radio Bearers (RBs) that are used only for the transmission of RRC and NAS messages. More specifically, the following SRBs are defined:

- SRB0 is for RRC messages using the CCCH logical channel (except SRB0 of L2 U2N Remote UE);

- SRB1 is for RRC messages (which may include a piggybacked NAS message) as well as for NAS messages prior to the establishment of SRB2, all using DCCH logical channel (except SRB1 of L2 U2N Remote UE);

- SRB2 is for NAS messages and for RRC messages which include logged measurement information, all using DCCH logical channel (except SRB2 of L2 U2N Remote UE). SRB2 has a lower priority than SRB1 and may be configured by the network after AS security activation;

- SRB3 is for specific RRC messages when UE is in (NG)EN-DC or NR-DC, all using DCCH logical channel;

- SRB4 is for RRC messages which include application layer measurement report information, all using DCCH logical channel. SRB4 has a lower priority than SRB1 and can only be configured by the network after AS security activation.

- SRB5 is for RRC messages which include application layer measurement report information, all using DCCH logical channel. SRB5 has a lower priority than SRB1 and SRB3 and can only be configured by the SN serving the SCG when the UE is in NR-DC, after AS security activation.

- SRBx is for RRC messages which include logged measurement information for network data collection, all using DCCH logical channel. SRBx has a lower priority than SRB1 and can only be configured by the network after AS security activation.

In downlink, piggybacking of NAS messages is used only for one dependant (i.e. with joint success/failure) procedure: bearer establishment/modification/release. In uplink piggybacking of NAS message is used only for transferring the initial NAS message during connection setup and connection resume.

NOTE 1: The NAS messages transferred via SRB2 are also contained in RRC messages, which however do not include any RRC protocol control information.

Once AS security is activated, all RRC messages on SRB1, SRB2, SRB3, SRB4, SRB5 and SRBx, including those containing NAS messages, are integrity protected and ciphered by PDCP. NAS independently applies integrity protection and ciphering to the NAS messages, see TS 24.501 [23].

Split SRB is supported for all the MR-DC options as well as MP in both SRB1 and SRB2 (split SRB is not supported for SRB0, SRB3, SRB4, SRB5 and SRBx).

For operation with shared spectrum channel access in FR1, SRB0, SRB1 and SRB3 are assigned with the highest priority Channel Access Priority Class (CAPC), (i.e. CAPC = 1) while CAPC for SRB2 is configurable.

For the NR sidelink L2 U2N relay operations not involved in MP, SRB0, SRB1, SRB2 of a L2 U2N Remote UE are not using Uu CCCH/DCCH logical channels. The SRB0, SRB1, SRB2 of a L2 U2N Remote UE are transmitted via the PC5 Relay RLC channels over PC5 and Uu Relay RLC channels over Uu.

NEXT CHANGE

## 5.3 Connection control

### 5.3.1 Introduction

<Text Omitted>

#### 5.3.1.2 AS Security

AS security comprises of the integrity protection and ciphering of RRC signalling (SRBs) and user data (DRBs).

RRC handles the configuration of the AS security parameters which are part of the AS configuration: the integrity protection algorithm, the ciphering algorithm, if integrity protection and/or ciphering is enabled for a DRB and two parameters, namely the *keySetChangeIndicator* and the *nextHopChainingCount*, which are used by the UE to determine the AS security keys upon reconfiguration with sync (with key change), connection re-establishment and/or connection resume.

The integrity protection algorithm is common for SRB1, SRB2, SRB3 (if configured), SRB4 (if configured), SRB5 (if configured), SRBx (if configured) and DRBs configured with integrity protection, with the same *keyToUse* value. The ciphering algorithm is common for SRB1, SRB2, SRB3 (if configured), SRB4 (if configured), SRB5 (if configured), SRBx (if configured) and DRBs configured with the same *keyToUse* value. Neither integrity protection nor ciphering applies for SRB0.

NOTE 0: All DRBs related to the same PDU session have the same enable/disable setting for ciphering and the same enable/disable setting for integrity protection, as specified in TS 33.501 [11].

RRC integrity protection and ciphering are always activated together, i.e. in one message/procedure. RRC integrity protection and ciphering for SRBs are never de-activated. However, it is possible to switch to a '*NULL*' ciphering algorithm (*nea0*).

The '*NULL*' integrity protection algorithm (*nia0*) is used only for SRBs and for the UE in limited service mode, see TS 33.501 [11] and when used for SRBs, integrity protection is disabled for DRBs. In case the ′*NULL*' integrity protection algorithm is used, '*NULL*' ciphering algorithm is also used.

NOTE 1: Lower layers discard RRC messages for which the integrity protection check has failed and indicate the integrity protection verification check failure to RRC.

The AS applies four different security keys: one for the integrity protection of RRC signalling (KRRCint), one for the ciphering of RRC signalling (KRRCenc), one for integrity protection of user data (KUPint) and one for the ciphering of user data (KUPenc). All four AS keys are derived from the KgNB key. The KgNB key is based on the KAMF key (as specified in TS 33.501 [11]), which is handled by upper layers.

The integrity protection and ciphering algorithms can only be changed with reconfiguration with sync. The AS keys (KgNB, KRRCint, KRRCenc, KUPint and KUPenc) change upon reconfiguration with sync (if *masterKeyUpdate* is included), and upon connection re-establishment and connection resume.

For each radio bearer an independent counter (*COUNT*, as specified in TS 38.323 [5]) is maintained for each direction. For each radio bearer, the *COUNT* is used as input for ciphering and integrity protection.

It is not allowed to use the same *COUNT* value more than once for a given security key. As specified in TS 33.501 clause 6.9.4.1 [11], the network is responsible for avoiding reuse of the *COUNT* with the same RB identity and with the same key, e.g. due to the transfer of large volumes of data, release and establishment of new RBs, and multiple termination point changes for RLC-UM bearers and multiple termination point changes for RLC-AM bearer with SN terminated PDCP re-establishment (COUNT reset) due to SN only full configuration whilst the key stream inputs (i.e. bearer ID, security key) at MN have not been updated. In order to avoid such re-use, the network may e.g. use different RB identities for RB establishments, change the AS security key, or an RRC\_CONNECTED to RRC\_IDLE/RRC\_INACTIVE and then to RRC\_CONNECTED transition.

In order to limit the signalling overhead, individual messages/ packets include a short sequence number (PDCP SN, as specified in TS 38.323 [5]). In addition, an overflow counter mechanism is used: the hyper frame number (*HFN*, as specified in TS 38.323 [5]). The HFN needs to be synchronized between the UE and the network.

For each SRB, the value provided by RRC to lower layers to derive the 5-bit BEARER parameter used as input for ciphering and for integrity protection is the value of the corresponding *srb-Identity* with the MSBs padded with zeroes.

For a UE provided with an *sk-counter*, *keyToUse* indicates whether the UE uses the master key (KgNB) or the secondary key (S-KeNB or S-KgNB) for a particular DRB. The secondary key is derived from the master key and *sk-Counter*, as defined in TS 33.501[11]. Whenever there is a need to refresh the secondary key, e.g. upon change of MN with KgNB change or to avoid COUNT reuse, the security key update is used (see 5.3.5.7). When the UE is in NR-DC, the network may provide a UE configured with an SCG with an *sk-Counter* even when no DRB is setup using the secondary key (S-KgNB) in order to allow the configuration of SRB3. The network can also provide the UE with an *sk-Counter*, even if no SCG is configured, when using SN terminated MCG bearers.

NEXT CHANGE

### 5.3.5 RRC reconfiguration

<Text Omitted>

#### 5.3.5.3 Reception of an *RRCReconfiguration* by the UE

The UE shall perform the following actions upon reception of the *RRCReconfiguration,* upon execution of the conditional reconfiguration (CHO, CPA, CPC, or subsequent CPAC), or upon execution of an LTM cell switch:

1> if the *RRCReconfiguration* is applied due to a conditional reconfiguration execution upon cell selection performed while timer T311 was running, as defined in 5.3.7.3:

2> remove all the entries in the *condReconfigList* within the MCG and the SCG *VarConditionalReconfig* except for the entries in which *subsequentCondReconfig* is present, if any;

1> if the *RRCReconfiguration* includes the *daps-SourceRelease*:

2> reset the source MAC and release the source MAC configuration;

2> for each DAPS bearer:

3> release the RLC entity or entities as specified in TS 38.322 [4], clause 5.1.3, and the associated logical channel for the source SpCell;

3> reconfigure the PDCP entity to release DAPS as specified in TS 38.323 [5];

2> for each SRB:

3> release the PDCP entity for the source SpCell;

3> release the RLC entity as specified in TS 38.322 [4], clause 5.1.3, and the associated logical channel for the source SpCell;

2> release the physical channel configuration for the source SpCell;

2> discard the keys used in the source SpCell (the KgNB key, the KRRCenc key, the KRRCint key, the KUPint key and the KUPenc key), if any;

1> if the *RRCReconfiguration* is received while the timer T348 is running:

2> if the configuration does not exceed UE temporary capability restriction indicated via *musim-CapRestriction* included in the last transmission of *UEAssistanceInformation*:

3> stop the timer T348;

1> if the *RRCReconfiguration* is received via other RAT (i.e., inter-RAT handover to NR):

2> if the *RRCReconfiguration* does not include the *fullConfig* and the UE is connected to 5GC (i.e., delta signalling during intra 5GC handover):

3> re-use the source RAT SDAP and PDCP configurations if available (i.e., current SDAP/PDCP configurations for all RBs from source E-UTRA RAT prior to the reception of the inter-RAT HO *RRCReconfiguration* message);

1> else:

2> if the RRCReconfiguration includes the fullConfig:

3> perform the full configuration procedure as specified in 5.3.5.11;

1> if the *RRCReconfiguration* includes the *masterCellGroup*:

2> perform the cell group configuration for the received *masterCellGroup* according to 5.3.5.5;

1> if the *RRCReconfiguration* includes the *masterKeyUpdate*:

2> perform AS security key update procedure as specified in 5.3.5.7;

1> if the *RRCReconfiguration* includes the *sk-Counter*:

2> perform security key update procedure as specified in 5.3.5.7;

1> if the *RRCReconfiguration* includes the *secondaryCellGroup*:

2> perform the cell group configuration for the SCG according to 5.3.5.5;

1> if the *RRCReconfiguration* includes the *mrdc-SecondaryCellGroupConfig:*

2> if the *mrdc-SecondaryCellGroupConfig* is set to *setup*:

3> if the *mrdc-SecondaryCellGroupConfig* includes *mrdc-ReleaseAndAdd*:

4> perform MR-DC release as specified in clause 5.3.5.10;

3> if the received *mrdc-SecondaryCellGroup* is set to *nr-SCG*:

4> perform the RRC reconfiguration according to 5.3.5.3 for the *RRCReconfiguration* message included in *nr-SCG*;

3> if the received *mrdc-SecondaryCellGroup* is set to *eutra-SCG*:

4> perform the RRC connection reconfiguration as specified in TS 36.331 [10], clause 5.3.5.3 for the *RRCConnectionReconfiguration* message included in *eutra-SCG*;

2> else (*mrdc-SecondaryCellGroupConfig* is set to *release*):

3> perform MR-DC release as specified in clause 5.3.5.10;

NOTE 00: If the UE receives, within an LTM candidate configuration, an *mrdc-SecondaryCellGroupConfig* set to *release* even if no SCG is currently configured at the UE, the UE does not consider this as an invalid configuration.

1> if the *RRCReconfiguration* message includes the *radioBearerConfig*:

2> perform the radio bearer configuration according to 5.3.5.6;

1> if the *RRCReconfiguration* message includes the *radioBearerConfig2*:

2> perform the radio bearer configuration according to 5.3.5.6;

1> if the *RRCReconfiguration* message includes the *measConfig*:

2> perform the measurement configuration procedure as specified in 5.5.2;

1> if the *RRCReconfiguration* message includes the *dedicatedNAS-MessageList*:

2> forward each element of the *dedicatedNAS-MessageList* to upper layers in the same order as listed;

1> if the *RRCReconfiguration* message includes the *dedicatedSIB1-Delivery*:

2> perform the action upon reception of *SIB1* as specified in 5.2.2.4.2;

NOTE 0: If this *RRCReconfiguration* is associated to the MCG and includes *reconfigurationWithSync* in *spCellConfig* and *dedicatedSIB1-Delivery*, the UE initiates (if needed) the request to acquire required SIBs, according to clause 5.2.2.3.5, only after the random access procedure or the LTM cell switch execution towards the target SpCell is completed.

1> if the *RRCReconfiguration* message includes the *dedicatedSystemInformationDelivery*:

2> perform the action upon reception of System Information as specified in 5.2.2.4;

2> if all the SIB(s) and/or posSIB(s) requested in *DedicatedSIBRequest* message have been acquired:

3> stop timer T350, if running;

1> if the *RRCReconfiguration* message includes the *dedicatedPosSysInfoDelivery*:

2> perform the action upon reception of the contained posSIB(s), as specified in clause 5.2.2.4.16;

2> if all the SIB(s) and/or posSIB(s) requested in *DedicatedSIBRequest* message have been acquired:

3> stop timer T350, if running;

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 *bap-Config*:

2> perform the BAP configuration procedure as specified in 5.3.5.12;

1> if the *RRCReconfiguration* message includes the *iab-IP-AddressConfigurationList*:

2> if *iab-IP-AddressToReleaseList* is included:

3> perform release of IP address as specified in 5.3.5.12a.1.1;

2> if *iab-IP-AddressToAddModList* is included:

3> perform IAB IP address addition/update as specified in 5.3.5.12a.1.2;

1> if the *RRCReconfiguration* message includes the *conditionalReconfiguration*:

2> perform conditional reconfiguration as specified in 5.3.5.13;

1> if the *RRCReconfiguration* message includes the *needForGapsConfigNR*:

2> if *needForGapsConfigNR* is set to *setup*:

3> consider itself to be configured to provide the measurement gap requirement information of NR target bands;

2> else:

3> consider itself not to be configured to provide the measurement gap requirement information of NR target bands;

1> if the *RRCReconfiguration* message includes the *needForGapNCSG-ConfigNR*:

2> if *needForGapNCSG-ConfigNR* is set to *setup*:

3> consider itself to be configured to provide the measurement gap and NCSG requirement information of NR target bands;

2> else:

3> consider itself not to be configured to provide the measurement gap and NCSG requirement information of NR target bands;

1> if the *RRCReconfiguration* message includes the *needForGapNCSG-ConfigEUTRA*:

2> if *needForGapNCSG-ConfigEUTRA* is set to *setup*:

3> consider itself to be configured to provide the measurement gap and NCSG requirement information of E‑UTRA target bands;

2> else:

3> consider itself not to be configured to provide the measurement gap and NCSG requirement information of E‑UTRA target bands;

1> if the *RRCReconfiguration* message includes the *onDemandSIB-Request*:

2> if *onDemandSIB-Request* is set to *setup*:

3> consider itself to be configured to request SIB(s) or posSIB(s) in RRC\_CONNECTED in accordance with clause 5.2.2.3.5;

2> else:

3> consider itself not to be configured to request SIB(s) or posSIB(s) in RRC\_CONNECTED in accordance with clause 5.2.2.3.5;

3> stop timer T350, if running;

1> if the *RRCReconfiguration* message includes the *sl-ConfigDedicatedNR*:

2> perform the sidelink dedicated configuration procedure as specified in 5.3.5.14;

NOTE 0a: If the *sl-ConfigDedicatedNR* was received embedded within an E-UTRA *RRCConnectionReconfiguration* message, the UE does not build an NR *RRCReconfigurationComplete* message for the received *sl-ConfigDedicatedNR*.

1> if the *RRCReconfiguration* message includes the *sl-L2RelayUE-Config*:

2> perform the L2 U2N or U2U Relay UE configuration procedure as specified in 5.3.5.15;

1> if the *RRCReconfiguration* message includes the *sl-L2RemoteUE-Config*:

2> perform the L2 U2N or U2U Remote UE configuration procedure as specified in 5.3.5.16;

1> if the *RRCReconfiguration* message includes the *dedicatedPagingDelivery*:

2> perform the *Paging* message reception procedure as specified in 5.3.2.3;

1> if the *RRCReconfiguration* message includes the *sl-ConfigDedicatedEUTRA-Info*:

2> perform related procedures for V2X sidelink communication in accordance with TS 36.331 [10], clause 5.3.10 and clause 5.5.2;

1> if the *RRCReconfiguration* message includes the *ul-GapFR2-Config*:

2> perform the FR2 UL gap configuration procedure as specified in 5.3.5.13c;

1> if the *RRCReconfiguration* message includes the *musim-GapConfig*:

2> perform the MUSIM gap configuration procedure as specified in 5.3.5.9a;

1> if the *RRCReconfiguration* message includes the *appLayerMeasConfig*:

2> for each application layer measurement configuration with *appLayerIdleInactiveConfig* configured:

3> if the RPLMN is not included in *plmn-IdentityList* in *VarAppLayerPLMN-ListConfig*:

4> forward the *measConfigAppLayerId* and inform upper layers about the release of the application layer measurement configuration;

4> release the application layer measurement configuration including its fields in the UE variables *VarAppLayerIdleConfig* and *VarAppLayerPLMN-ListConfig*;

4> discard any application layer measurement reports which were not yet fully submitted to lower layers for transmission;

4> consider itself not to be configured to send application layer measurement report for the *measConfigAppLayerId*;

2> if *idleInactiveReportAllowed* is included in the *RRCReconfiguration* message:

3> if the UE is configured with at least one application layer measurement configuration with *appLayerIdleInactiveConfig* configured:

4> initiate the procedure in 5.7.16.2 after the *RRCReconfigurationComplete* has been transmitted;

2> else:

3> for each application layer measurement configuration with *appLayerIdleInactiveConfig* configured:

4> forward the *measConfigAppLayerId* and inform upper layers about the release of the application layer measurement configuration;

4> release the application layer measurement configuration including its fields in the UE variables *VarAppLayerIdleConfig* and *VarAppLayerPLMN-ListConfig*;

4> discard any application layer measurement reports which were not yet fully submitted to lower layers for transmission;

4> consider itself not to be configured to send application layer measurement reports for the *measConfigAppLayerId*;

2> perform the application layer measurement configuration procedure as specified in 5.3.5.13d;

1> if the *RRCReconfiguration* message includes the *ue-TxTEG-RequestUL-TDOA-Config*:

2> if *ue-TxTEG-RequestUL-TDOA-Config* is set to *setup*:

3> perform the UE positioning assistance information procedure as specified in 5.7.14;

2> else:

3> release the configuration of UE positioning assistance information;

1> if the *RRCReconfiguration* message includes the *aerial-Config*:

2> (re)configure the aerial parameters in accordance with the included *aerial-Config*;

1> if the *RRCReconfiguration* message includes the *sl-IndirectPathAddChange*:

2> perform the SL indirect path specific configuration procedure as specified in 5.3.5.17.2.2;

1> if the *RRCReconfiguration* message includes the *n3c-IndirectPathAddChange*:

2> perform configuration procedure for the remote UE part of N3C indirect path as specified in 5.3.5.17.3.2;

1> if the *RRCReconfiguration* message includes the *n3c-IndirectPathConfigRelay*:

2> perform the configuration procedure for the relay UE part of N3C indirect path as specified in 5.3.5.17.3.3;

1> if the *RRCReconfiguration* message includes the *ltm-Config*:

2> if the *ltm-Config* is set to *setup*:

3> perform the LTM configuration procedure as specified in 5.3.5.18.1;

2> else:

3> perform the LTM configuration release procedure as specified in clause 5.3.5.18.7;

1> if the *RRCReconfiguration* message includes the *srs-PosResourceSetLinkedForAggBWList*:

2> if *srs-PosResourceSetLinkedForAggBWList* is set to *setup*:

3> perform the SRS for positioning transmission using bandwidth aggregation provided in configuration *srs-PosResourceSetLinkedForAggBW* as specified in TS 38.211 [16];

2> else:

3> release all the configuration of *srs-PosResourceSetLinkedForAggBW*;

1> set the content of the *RRCReconfigurationComplete* message as follows:

2> if the *RRCReconfiguration* includes the *masterCellGroup* containing the *reportUplinkTxDirectCurrent*:

3> include the *uplinkTxDirectCurrentList* for each MCG serving cell with UL;

3> include *uplinkDirectCurrentBWP-SUL* for each MCG serving cell configured with SUL carrier, if any, within the *uplinkTxDirectCurrentList*;

2> if the *RRCReconfiguration* includes the *masterCellGroup* containing the *reportUplinkTxDirectCurrentTwoCarrier*:

3> include in the *uplinkTxDirectCurrentTwoCarrierList* the list of uplink Tx DC locations for the configured intra-band uplink carrier aggregation in the MCG;

2> if the *RRCReconfiguration* includes the *masterCellGroup* containing the *reportUplinkTxDirectCurrentMoreCarrier*:

3> include in the *uplinkTxDirectCurrentMoreCarrierList* the list of uplink Tx DC locations for the configured intra-band uplink carrier aggregation in the MCG;

2> if the *RRCReconfiguration* includes the *secondaryCellGroup* containing the *reportUplinkTxDirectCurrent*:

3> include the *uplinkTxDirectCurrentList* for each SCG serving cell with UL;

3> include *uplinkDirectCurrentBWP-SUL* for each SCG serving cell configured with SUL carrier, if any, within the *uplinkTxDirectCurrentList*;

2> if the *RRCReconfiguration* includes the *secondaryCellGroup* containing the *reportUplinkTxDirectCurrentTwoCarrier*:

3> include in the *uplinkTxDirectCurrentTwoCarrierList* the list of uplink Tx DC locations for the configured intra-band uplink carrier aggregation in the SCG;

2> if the *RRCReconfiguration* includes the *secondaryCellGroup* containing the *reportUplinkTxDirectCurrentMoreCarrier*:

3> include in the *uplinkTxDirectCurrentMoreCarrierList* the list of uplink Tx DC locations for the configured intra-band uplink carrier aggregation in the SCG;

NOTE 0b: The UE does not expect that the *reportUplinkTxDirectCurrentTwoCarrier* or *reportUplinkTxDirectCurrentMoreCarrier* is received in both *masterCellGroup* and in *secondaryCellGroup*. Network only configures at most one of *reportUplinkTxDirectCurrent, reportUplinkTxDirectCurrentTwoCarrier* or *reportUplinkTxDirectCurrentMoreCarrier* in one RRC message*.*

2> if the *RRCReconfiguration* message includes the *mrdc-SecondaryCellGroupConfig* with *mrdc-SecondaryCellGroup* set to *eutra-SCG*:

3> include in the *eutra-SCG-Response* the E-UTRA *RRCConnectionReconfigurationComplete* message in accordance with TS 36.331 [10] clause 5.3.5.3;

2> if the *RRCReconfiguration* message includes the *mrdc-SecondaryCellGroupConfig* with *mrdc-SecondaryCellGroup* set to *nr-SCG*:

3> include in the *nr-SCG-Response* the SCG *RRCReconfigurationComplete* message;

3> if the *RRCReconfiguration* message is applied due to conditional reconfiguration execution and the *RRCReconfiguration* message does not include the *reconfigurationWithSync* in the *masterCellGroup*:

4> include in the *selectedCondRRCReconfig* the *condReconfigId* for the selected cell of conditional reconfiguration execution;

4> if a new *sk-Counter* value has been selected due to the conditional reconfiguration execution for subsequent CPAC:

5> include *selectedSK-Counter* and set its value to the selected *sk-Counter* value;

3> if the *RRCReconfiguration* message is applied due to conditional reconfiguration execution and *condExecutionCondPSCell* is configured for the selected PSCell:

4> include in the *selectedPSCellForCHO-WithSCG* and set it to the information of the selected PSCell;

2> if the *RRCReconfiguration* includes the *reconfigurationWithSync* in *spCellConfig* of an MCG:

3> if the UE has logged measurements available for NR and if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*; or

3> if the UE has logged measurements available for NR and if the current registered SNPN identity is included in *snpn-ConfigID-List* stored in the *VarLogMeasReport*:

4> include the *logMeasAvailable* in the *RRCReconfigurationComplete* message;

4> if Bluetooth measurement results are included in the logged measurements the UE has available for NR:

5> include the *logMeasAvailableBT* in the *RRCReconfigurationComplete* message;

4> if WLAN measurement results are included in the logged measurements the UE has available for NR:

5> include the *logMeasAvailableWLAN* in the *RRCReconfigurationComplete* message;

3> if the *sigLoggedMeasType* in *VarLogMeasReport* is included; or

3> if the UE supports the override protection of the signalling based logged MDT for inter-RAT (i.e. LTE to NR), and if the *sigLoggedMeasType* in *VarLogMeasReport* of TS 36.331 [10] is included:

4> if T330 timer is running (associated to the logged measurement configuration for NR or for LTE):

5> set *sigLogMeasConfigAvailable* to *true* in the *RRCReconfigurationComplete* message;

4> else:

5> if the UE has logged measurements in *VarLogMeasReport* or in *VarLogMeasReport* of TS 36.331 [10]:

6> set *sigLogMeasConfigAvailable* to *false* in the *RRCReconfigurationComplete* message;

3> if the UE has connection establishment failure or connection resume failure information available in *VarConnEstFailReport* or *VarConnEstFailReportList* and if the RPLMN is equal to *plmn-Identity* stored in *VarConnEstFailReport* orin at least one of the entries of *VarConnEstFailReportList*; or

3> if the UE has connection establishment failure information or connection resume failure information available in *VarConnEstFailReport* or *VarConnEstFailReportList* and if the registered SNPN identity is equal to *snpn-Identity* in *networkIdentity* stored in *VarConnEstFailReport* or any entry of *VarConnEstFailReportList*:

4> include *connEstFailInfoAvailable* in the *RRCReconfigurationComplete* message;

3> if the UE has radio link failure or handover failure information available in *VarRLF-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarRLF-Report*; or

3> if the UE has radio link failure or handover failure information available in *VarRLF-Report* of TS 36.331 [10] and if the UE is capable of cross-RAT RLF reporting and if the RPLMN is included in *plmn-IdentityList* stored in *VarRLF-Report* of TS 36.331 [10]; or

3> if the UE has radio link failure or handover failure information available in *VarRLF-Report* and if the current registered SNPN identity is included in *snpn-IdentityList* stored in *VarRLF-Report*:

4> include *rlf-InfoAvailable* in the *RRCReconfigurationComplete* message;

3> if the UE was configured with *successHO-Config* when connected to the source PCell:

4> if the applied *RRCReconfiguration* is not due to a conditional reconfiguration execution upon cell selection performed while timer T311 was running, as defined in 5.3.7.3; or

4> if the applied *RRCReconfiguration* is not received when T316 was running:

5> perform the actions for the successful handover report determination as specified in clause 5.7.10.6, upon successfully completing the Random Access procedure triggered for the *reconfigurationWithSync* in *spCellConfig* of the MCG;

4> if applied *RRCReconfiguration* is received when T316 was running:

5> release *successHO-Config* configured by the source PCell and *thresholdPercentageT304* if configured by the target PCell;

3> if the UE has successful handover information available in *VarSuccessHO-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarSuccessHO-Report*; or

3> if the UE has successful handover information available in *VarSuccessHO-Report* and if the current registered SNPN identity is included in *snpn-IdentityList* stored in the *VarSuccessHO-Report*:

4> include *successHO-InfoAvailable* in the *RRCReconfigurationComplete* message;

3> release *successPSCell-Config* configured by the source PCell, if available;

3> if the UE has successful PSCell change or addition information available in *VarSuccessPSCell-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarSuccessPSCell-Report*; or

3> if the UE has successful PSCell change or addition information available in *VarSuccessPSCell-Report* and if the current registered SNPN identity is included in *snpn-IdentityList* stored in the *VarSuccessPSCell-Report*:

4> include *successPSCell-InfoAvailable* in the *RRCReconfigurationComplete* message;

3> if the *RRCReconfiguration* includes *retainLoggedMeasurements*:

4> if the UE has logged measurement entries available in *VarCSI-LogMeasReport*:

5> include the *csi-LogMeasAvailable* in the *RRCReconfigurationComplete* message;

3> else:

4> discard the logged measurement entries included in *VarCSI-LogMeasReport,* if any;

2> if the *RRCReconfiguration* message was received via SRB1, but not within *mrdc-SecondaryCellGroup* or E-UTRA *RRCConnectionReconfiguration* or E-UTRA *RRCConnectionResume*:

3> if the UE is configured to provide the measurement gap requirement information of NR target bands:

4> if the *RRCReconfiguration* message includes the *needForGapsConfigNR*; or

4> if the *NeedForGapsInfoNR* information is changed compared to last time the UE reported this information; or

4> if the *RRCReconfiguration* message includes the *needForInterruptionConfigNR* and set it to *enabled*; or

4> if the *needForInterruptionConfigNR* is enabled and the *NeedForInterruptionInfoNR* information is changed compared to last time the UE reported this information:

5> include the *NeedForGapsInfoNR* and set the contents as follows:

6> include *intraFreq-needForGap* and set the gap requirement information of intra-frequency measurement for each NR serving cell;

6> if *requestedTargetBandFilterNR* is configured:

7> for each supported NR band that is also included in *requestedTargetBandFilterNR*, include an entry in *interFreq-needForGap* and set the gap requirement information for that band;

6> else:

7> include an entry in *interFreq-needForGap* and set the corresponding gap requirement information for each supported NR band;

5> if the *needForInterruptionConfigNR* is enabled:

6> include the *needForInterruptionInfoNR* and set the contents as follows:

7> include *intraFreq-needForInterruption* with the same number of entries, and listed in the same order, as in *intraFreq-needForGap*;

7> for each entry in *intraFreq-needForInterruption*:

8> include *interruptionIndication* and set the interruption requirement information if the corresponding entry in *intraFreq-needForGap* is set to *no-gap;*

7> include *interFreq-needForInterruption* with the same number of entries, and listed in the same order, as in *interFreq-needForGap*;

7> for each entry in *interFreq-needForInterruption*:

8> include *interruptionIndication* and set the interruption requirement information if the corresponding entry in *interFreq-needForGap* is set to *no-gap*;

3> if the UE is configured to provide the measurement gap and NCSG requirement information of NR target bands:

4> if the *RRCReconfiguration* message includes the *needForGapNCSG-ConfigNR*; or

4> if the *needForGapNCSG-InfoNR* information is changed compared to last time the UE reported this information:

5> include the *NeedForGapNCSG-InfoNR* and set the contents as follows:

6> include *intraFreq-needForNCSG* and set the gap and NCSG requirement information of intra-frequency measurement for each NR serving cell;

6> if *requestedTargetBandFilterNCSG-NR* is configured:

7> for each supported NR band included in *requestedTargetBandFilterNCSG-NR*, include an entry in *interFreq-needForNCSG* and set the NCSG requirement information for that band;

6> else:

7> include an entry for each supported NR band in *interFreq-needForNCSG* and set the corresponding NCSG requirement information;

3> if the UE is configured to provide the measurement gap and NCSG requirement information of E‑UTRA target bands:

4> if the *RRCReconfiguration* message includes the *needForGapNCSG-ConfigEUTRA*; or

4> if the *needForGapNCSG-InfoEUTRA* information is changed compared to last time the UE reported this information:

5> include the *NeedForGapNCSG-InfoEUTRA* and set the contents as follows:

6> if *requestedTargetBandFilterNCSG-EUTRA* is configured, for each supported E-UTRA band included in *requestedTargetBandFilterNCSG-EUTRA*, include an entry in *needForNCSG-EUTRA* and set the NCSG requirement information for that band; otherwise, include an entry for each supported E-UTRA band in *needForNCSG-EUTRA* and set the corresponding NCSG requirement information;

2> if the UE has (updated) flight path information available:

3> if the UE had not provided a flight path information since last entering RRC\_CONNECTED state; or

3> if at least one waypoint or a timestamp corresponding to a waypoint location that was not previously provided since last entering RRC\_CONNECTED state is available; or

3> if at least one upcoming waypoint or a timestamp corresponding to a waypoint location that was previously provided since last entering RRC\_CONNECTED state is to be removed; or

3> if *flightPathUpdateDistanceThr* is configured and, for at least one waypoint, the 3D distance between the previously provided location and the new location is more than the distance threshold configured by *flightPathUpdateDistanceThr*; or

3> if *flightPathUpdateTimeThr* is configured and, for at least one waypoint, the time difference between the previously provided timestamp and the new timestamp, if available, is more than the time threshold configured by *flightPathUpdateTimeThr*:

4> include *flightPathInfoAvailable*;

NOTE 0c: If neither *flightPathUpdateDistanceThr* nor *flightPathUpdateTimeThr* is configured, it is up to UE implementation whether to include *flightPathInfoAvailable* when updated flight path information is available.

2> if the UE has at least one stored application layer measurement configuration with *appLayerIdleInactiveConfig* configured which has not been successfully transmitted since entering RRC\_CONNECTED state:

3> include *measConfigReportAppLayerAvailable*;

2> if this *RRCReconfiguration* message is applied due to an LTM cell switch execution procedure according to clause 5.3.5.18.6:

3> include in the *appliedLTM-CandidateId* the *LTM-CandidateId* of the applied LTM candidate configuration;

2> if, for at least one serving cell, the *RRCReconfiguration* message includes in *csi-ReportConfigToAddModList* at least one *CSI-ReportConfig* including *csi-InferencePrediction*, or including *reportQuantity-r19* set to *p-CRI-r19* or *p-SSB-Index-r19* or *p-CRI-RSRP-r19* or *p-SSB-Index-RSRP-r19*; or

2> if the *RRCReconfiguration* message includes at least one entry in *applicabilityConfigList* within *applicabilityReportConfig*; or

2> if, for at least one serving cell, the UE is configured with at least one *reportConfigId* associated to a *CSI-ReportConfig* including *csi-InferencePrediction*, or including *reportQuantity-r19* set to *p-CRI-r19* or *p-SSB-Index-r19* or *p-CRI-RSRP-r19* or *p-SSB-Index-RSRP-r19*, for which the applicability information has changed since the last transmission of a message containing *applicabilityReportList* (either *RRCReconfigurationComplete* or *UEAssistanceInformation*); or

2> if the UE is configured with at least one entry in *applicabilitySetConfigList* for which the applicability information has changed since the last transmission of a message containing *applicabilityReportList* (either *RRCReconfigurationComplete* or *UEAssistanceInformation*):

3> for each serving cell associated with any of the configurations above, include an entry in the *applicabilityReportList* and set the content as follows:

4> set the *applicabilityCellId* to the serving cell index of the cell;

4> for each configured *reportConfigId* associated to a *CSI-ReportConfig* including *csi-InferencePrediction*, or including *reportQuantity-r19* set to *p-CRI-r19* or *p-SSB-Index-r19* or *p-CRI-RSRP-r19* or *p-SSB-Index-RSRP-r19*, that is included in the *RRCReconfiguration* message or for which the applicability information has changed since the last transmission of a message containing *applicabilityReportList* (either *RRCReconfigurationComplete* or *UEAssistanceInformation*):

5> include an entry in the *applicabilityInfoReportList* and set the content as follows:

6> set the *csi-ReportConfigId* within *applicabilityInfoReportId* to the corresponding *reportConfigId*;

6> set the *applicabilityStatus* to the applicability status of the configuration corresponding to the *applicabilityInfoReportId*;

6> if the *applicabilityStatus* is set to inapplicable:

7> if the UE prefers to release the concerned *CSI-ReportConfig* (e.g. due to model unavailability), include *releaseConfigurationPreference*;

4> for each entry within *applicabilitySetConfigList* associated with the concerned serving cell, that is included in the *RRCReconfiguration* message or for which the applicability information has changed since the last transmission of a message containing *applicabilityReportList* (either *RRCReconfigurationComplete* or *UEAssistanceInformation*):

5> include an entry in the *applicabilitInfoReportList* and set the content as follows:

6> set the *applicabilitySetId* within *applicabilityInfoReportId* to the corresponding *applicabilitySetConfigId*;

6> set the *applicabilityStatus* to the applicability status of the configuration corresponding to the *applicabilityInfoReportId*;

6> if the *applicabilityStatus* is set to inapplicable:

7> if the UE prefers to release the concerned *ApplicabilitySetConfig* (e.g. due to model unavailability), include *releaseConfigurationPreference*;

1> if the UE is configured with E-UTRA *nr-SecondaryCellGroupConfig* (UE in (NG)EN-DC):

2> if the *RRCReconfiguration* message was received via E-UTRA SRB1 as specified in TS 36.331 [10]; or

2> if the *RRCReconfiguration* message was received via E-UTRA RRC message *RRCConnectionReconfiguration* within *MobilityFromNRCommand* (handover from NR standalone to (NG)EN-DC);

3> if the *RRCReconfiguration* is applied due to a conditional reconfiguration execution for CPC which is configured via *conditionalReconfiguration* contained in *nr-SecondaryCellGroupConfig* specified in TS 36.331 [10]:

4> submit the *RRCReconfigurationComplete* message via the E-UTRA MCG embedded in E-UTRA RRC message *ULInformationTransferMRDC* as specified in TS 36.331 [10], clause 5.6.2a.

3> else if the *RRCReconfiguration* message was included in E-UTRA *RRCConnectionResume* message:

4> submit the *RRCReconfigurationComplete* message via E-UTRA embedded in E-UTRA RRC message *RRCConnectionResumeComplete* as specified in TS 36.331 [10], clause 5.3.3.4a;

3> else:

4> submit the *RRCReconfigurationComplete* via E-UTRA embedded in E-UTRA RRC message *RRCConnectionReconfigurationComplete* as specified in TS 36.331 [10], clause 5.3.5.3/5.3.5.4/5.4.2.3;

3> if the *scg-State* is not included in the E-UTRA message (*RRCConnectionReconfiguration* or *RRCConnectionResume*) containing the *RRCReconfiguration* message:

4> perform SCG activation as specified in 5.3.5.13a;

4> if *reconfigurationWithSync* was included in *spCellConfig* of an SCG:

5> initiate the Random Access procedure on the PSCell, as specified in TS 38.321 [3];

4> else if the SCG was deactivated before the reception of the E-UTRA RRC message containing the *RRCReconfiguration* message:

5> if *bfd-and-RLM* was not configured to *true* before the reception of the E-UTRA *RRCConnectionReconfiguration* or *RRCConnectionResume* message containing the *RRCReconfiguration* message or if lower layers indicate that a Random Access procedure is needed for SCG activation:

6> initiate the Random Access procedure on the SpCell, as specified in TS 38.321 [3];

5> else the procedure ends;

4> else the procedure ends;

3> else:

4> perform SCG deactivation as specified in 5.3.5.13b;

4> the procedure ends;

2> if the *RRCReconfiguration* message was received within *nr-SecondaryCellGroupConfig* in *RRCConnectionReconfiguration* message received via SRB3 within *DLInformationTransferMRDC*:

3> submit the *RRCReconfigurationComplete* via E-UTRA embedded in E-UTRA RRC message *RRCConnectionReconfigurationComplete* as specified in TS 36.331 [10], clause 5.3.5.3/5.3.5.4;

3> if the *scg-State* is not included in the *RRCConnectionReconfiguration*:

4> if *reconfigurationWithSync* was included in *spCellConfig* of an SCG:

5> initiate the Random Access procedure on the SpCell, as specified in TS 38.321 [3];

4> else the procedure ends;

3> else:

4> perform SCG deactivation as specified in 5.3.5.13b;

4> the procedure ends;

NOTE 1: The order the UE sends the *RRCConnectionReconfigurationComplete* message and performs the Random Access procedure towards the SCG is left to UE implementation.

2> else (*RRCReconfiguration* was received via SRB3) but not within *DLInformationTransferMRDC*:

3> submit the *RRCReconfigurationComplete* message via SRB3 to lower layers for transmission using the new configuration;

NOTE 2: In (NG)EN-DC and NR-DC, in the case *RRCReconfiguration* is received via SRB1 or within *DLInformationTransferMRDC* via SRB3, the random access is triggered by RRC layer itself as there is not necessarily other UL transmission. In the case *RRCReconfiguration* is received via SRB3 but not within *DLInformationTransferMRDC*, the random access is triggered by the MAC layer due to arrival of *RRCReconfigurationComplete*.

1> else if the *RRCReconfiguration* message was received via SRB1 within the *nr-SCG* within *mrdc-SecondaryCellGroup* (UE in NR-DC, *mrdc-SecondaryCellGroup* was received in *RRCReconfiguration* or *RRCResume* via SRB1):

2> if the *RRCReconfiguration* is applied due to a conditional reconfiguration execution for CPC or subsequent CPAC which is configured via *conditionalReconfiguration* contained in *nr-SCG* within *mrdc-SecondaryCellGroup*; or

2> if the *RRCReconfiguration* is applied due to an LTM cell switch execution:

3> submit the *RRCReconfigurationComplete* message via *SRB1* embedded in NR RRC message *ULInformationTransferMRDC* as specified in clause 5.7.2a.3.

2> if the *scg-State* is not included in the *RRCReconfiguration* or *RRCResume* message containing the *RRCReconfiguration* message:

3> perform SCG activation as specified in 5.3.5.13a;

3> if *reconfigurationWithSync* was included in *spCellConfig* in nr-SCG:

4> if the *RRCReconfiguration* message is not applied due to an LTM cell switch execution for which lower layer indicate to skip the Random Access procedure:

5> initiate the Random Access procedure on the PSCell, as specified in TS 38.321 [3];

4> if the UE was configured with *successPSCell-Config* when connected to the source PSCell (for PSCell change) or to the PCell (for PSCell addition or change):

5> perform the actions for the successful PSCell change or addition report determination as specified in clause 5.7.10.7, upon successfully completing the Random Access procedure triggered for the *reconfigurationWithSync* in *spCellConfig* of the SCG;

3> else if the SCG was deactivated before the reception of the NR RRC message containing the *RRCReconfiguration* message:

4> if *bfd-and-RLM* was not configured to *true* before the reception of the *RRCReconfiguration* or *RRCResume* message containing the *RRCReconfiguration* message; or

4> if lower layers indicate that a Random Access procedure is needed for SCG activation:

5> initiate the Random Access procedure on the PSCell, as specified in TS 38.321 [3];

4> else the procedure ends;

3> else the procedure ends;

2> else

3> perform SCG deactivation as specified in 5.3.5.13b;

3> the procedure ends;

NOTE 2a: The order in which the UE sends the *RRCReconfigurationComplete* message and performs the Random Access procedure towards the SCG is left to UE implementation.

1> else if the *RRCReconfiguration* message was received via SRB3 (UE in NR-DC):

2> if the *RRCReconfiguration* message was received within *DLInformationTransferMRDC*:

3> if the *RRCReconfiguration* message was received within the *nr-SCG* within *mrdc-SecondaryCellGroup* (NR SCG RRC Reconfiguration):

4> if the *scg-State* is not included in the *RRCReconfiguration* message containing the *RRCReconfiguration* message:

5> if *reconfigurationWithSync* was included in spCellConfig in nr-SCG:

6> initiate the Random Access procedure on the PSCell, as specified in TS 38.321 [3];

6> if the UE was configured with *successPSCell-Config* when connected to the source PSCell (for PSCell change) or to the PCell (for PSCell addition or change):

7> perform the actions for the successful PSCell change report determination as specified in clause 5.7.10.7, upon successfully completing the Random Access procedure triggered for the *reconfigurationWithSync* in *spCellConfig* of the SCG;

5> else:

6> the procedure ends;

4> else:

5> perform SCG deactivation as specified in 5.3.5.13b;

5> the procedure ends;

3> else:

4> if the *RRCReconfiguration* does not include the *mrdc-SecondaryCellGroupConfig*:

5> if the *RRCReconfiguration* includes the *scg-State*:

6> perform SCG deactivation as specified in 5.3.5.13b;

4> submit the *RRCReconfigurationComplete* message via SRB1 to lower layers for transmission using the new configuration;

2> else:

3> if the *RRCReconfiguration* includes the *reconfigurationWithSync* in *spCellConfig* for the SCG; and

3> if the UE was configured with *successPSCell-Config* when connected to the source PSCell (for PSCell change):

4> perform the actions for the successful PSCell change report determination as specified in clause 5.7.10.7, upon successfully completing the Random Access procedure triggered for the *reconfigurationWithSync* in *spCellConfig* of the SCG;

3> if the UE has successful PSCell change or addition information available in *VarSuccessPSCell-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarSuccessPSCell-Report*; or

3> if the UE has successful PSCell change or addition information available in *VarSuccessPSCell-Report* and if the current registered SNPN identity is included in *snpn-IdentityList* stored in the *VarSuccessPSCell-Report*:

4> include *successPSCell-InfoAvailable* in the *RRCReconfigurationComplete* message;

3> submit the *RRCReconfigurationComplete* message via SRB3 to lower layers for transmission using the new configuration;

1> else(*RRCReconfiguration* was received via SRB1):

2> if the UE is in NR-DC and;

2> if the *RRCReconfiguration* does not include the *mrdc-SecondaryCellGroupConfig*:

3> if the *RRCReconfiguration* includes the *scg-State*:

4> perform SCG deactivation as specified in 5.3.5.13b;

3> else:

4> perform SCG activation without SN message as specified in 5.3.5.13b1;

2> if the *reconfigurationWithSync* was included in *spCellConfig* of an MCG:

3> if *ta-Report* or *ta-ReportATG* is configured with value *enabled* and the UE supports TA reporting:

4> indicate TA report initiation to lower layers;

2> submit the *RRCReconfigurationComplete* message via SRB1 to lower layers for transmission using the new configuration;

2> if this is the first *RRCReconfiguration* message after successful completion of the RRC re-establishment procedure:

3> resume SRB2, SRB4, SRBx, DRBs, multicast MRB, and BH RLC channels for IAB-MT, and Uu Relay RLC channels for L2 U2N Relay UE, that are suspended;

1> if *sl-IndirectPathAddChange* was included in *RRCReconfiguration* message:

2> if SRB1 is configured as split SRB and *pdcp-Duplication* is configured:

3> when successfully sending *RRCReconfigurationComplete* message via SL indirect path (i.e., PC5 RLC acknowledgement is received from target L2 U2N Relay UE):

4> stop timer T421;

2> else (i.e. split SRB1 with duplication is not configured):

3> when receiving *RRCReconfigurationCompleteSidelink* message from target L2 U2N Relay UE:

4> stop timer T421;

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,

1> if *sl-PathSwitchConfig* was included in *reconfigurationWithSync* included in *spCellConfig* of an MCG, and when successfully sending *RRCReconfigurationComplete* message (i.e., PC5 RLC acknowledgement is received from target L2 U2N Relay UE); or,

1> if *rach-LessHO* was included in *reconfigurationWithSync* included in *spCellConfig* of an MCG, and upon indication from lower layers that the RACH-less handover has been successfully completed; or,

1> if *reconfigurationWithSync* was included in *spCellConfig* of an MCG or SCG and the *RRCReconfiguration* message is applied due to an LTM cell switch execution and upon an indication from lower layer that the LTM cell switch execution has been successfully completed:

2> stop timer T304 for that cell group if running;

2> if *rach-LessHO* was included in *reconfigurationWithSync* included in *spCellConfig* of an MCG, and upon indication from lower layers that the RACH-less handover has been successfully completed; or,

2> if *reconfigurationWithSync* was included in *spCellConfig* of an MCG or SCG and the *RRCReconfiguration* message is applied due to an LTM cell switch execution and upon an indication from lower layer that the LTM cell switch execution has been successfully completed:

3> release dedicated preambles provided in *rach-ConfigDedicated* within *reconfigurationWithSync*, if configured;

3> release dedicated msgA PUSCH resources provided in *rach-ConfigDedicated* within *reconfigurationWithSync*, if configured;

2> if *sl-PathSwitchConfig* was included in *reconfigurationWithSync*:

3> if the *sl-IndirectPathMaintain* is not included in *reconfigurationWithSync*:

4> stop timer T420;

4> release all radio resources, including release of the RLC entities and the MAC configuration at the source side;

4> reset MAC used in the source cell;

3> else (*sl-IndirectPathMaintain* is included):

4> release radio resources on the direct path, including release of the RLC entities and the MAC configuration;

4> reset MAC used in the source cell;

2> if *rach-LessHO* was included in *reconfigurationWithSync* and *cg-RRC-Configuration* was configured:

3> release the uplink grant configured for RACH-less handover;

NOTE 2b: PDCP and SDAP configured by the source prior to the path switch that are reconfigured and re-used by target when delta signalling is used, are not released as part of this procedure.

2> stop timer T310 for source SpCell if running;

2> apply the parts of the CSI reporting configuration, the scheduling request configuration and the sounding RS configuration that do not require the UE to know the SFN of the respective target SpCell, if any;

2> apply the parts of the measurement and the radio resource configuration that require the UE to know the SFN of the respective target SpCell (e.g. measurement gaps, periodic CQI reporting, scheduling request configuration, sounding RS configuration), if any, upon acquiring the SFN of that target SpCell;

2> for each DRB configured as DAPS bearer, request uplink data switching to the PDCP entity, as specified in TS 38.323 [5];

2> if the *reconfigurationWithSync* was included in *spCellConfig* of an MCG:

3> if T390 is running:

4> stop timer T390 for all access categories;

4> perform the actions as specified in 5.3.14.4.

3> if T350 is running:

4> stop timer T350;

3> if *RRCReconfiguration* does not include *dedicatedSIB1-Delivery* and

3> if the active downlink BWP, which is indicated by the *firstActiveDownlinkBWP-Id* for the target SpCell of the MCG, has a common search space configured by *searchSpaceSIB1*:

4> acquire the *SIB1*, which is scheduled as specified in TS 38.213 [13], of the target SpCell of the MCG;

4> upon acquiring *SIB1*, perform the actions specified in clause 5.2.2.4.2;

2> if the *RRCReconfiguration* message is applied due to a conditional reconfiguration execution and the *RRCReconfiguration* message is contained in an entry in MCG *VarConditionalReconfig* that includes the *subsequentCondReconfig*:

3> for each entry in the *condReconfigList* within the MCG *VarConditionalReconfig*:

4> if there is an entry in *condExecutionCondToAddModList* within the *subsequentCondReconfig* that has *subsequentCondReconfigId* matching the *condReconfigId* in the entry of the *condReconfigList*:

5> if *subsequentCondExecutionCondSCG* is included in the entry of the *condExecutionCondToAddModList*:

6> store in the *condExecutionCondSCG* in the entry of the *condReconfigList* the value of *subsequentCondExecutionCondSCG* in the entry of the *condExecutionCondToAddModList*;

2> if the *RRCReconfiguration* message is applied due to a conditional reconfiguration execution and the *RRCReconfiguration* message is contained in an entry in SCG *VarConditionalReconfig* that includes the *subsequentCondReconfig*:

3> for each entry in the *condReconfigList* within the SCG *VarConditionalReconfig*:

4> if there is an entry in *condExecutionCondToAddModList* within the *subsequentCondReconfig* that has *subsequentCondReconfigId* matching the *condReconfigId* in the entry of the *condReconfigList*:

5> if *subsequentCondExecutionCond* is included in the entry of the *condExecutionCondToAddModList*:

6> store in the *condExecutionCond* in the entry of the *condReconfigList* the value of *subsequentCondExecutionCond* in the entry of the *condExecutionCondToAddModList*;

2> if the *reconfigurationWithSync* was included in *spCellConfig* of an MCG; or

2> if the *reconfigurationWithSync* was included in *spCellConfig* of an SCG and the CPA, CPC, or subsequent CPAC was configured:

3> remove all the entries in the *condReconfigList* within the MCG and the SCG *VarConditionalReconfig* except for the entries in which *subsequentCondReconfig* is present, if any;

3> remove all the entries within *VarConditionalReconfiguration* as specified in TS 36.331 [10], clause 5.3.5.9.6, if any;

3> for each *measId* of the MCG *measConfig*, if configured, and for each *measId* of the SCG *measConfig*, if configured, if the associated *reportConfig* has a *reportType* set to *condTriggerConfig*:

4> if the *reportConfigId* is not associated with any *measId* indicated by the *condExecutionCond* or the *condExecutionCondSCG* in an entry of *condReconfigList* in *VarConditionalReconfig* in which *subsequentCondReconfig* is included:

5> remove the entry with the matching *reportConfigId* from the *reportConfigList* within the *VarMeasConfig*;

4> if the associated *measObjectId* is only associated to a *reportConfig* with *reportType* set to *condTriggerConfig*; and

4> if the *measObjectId* is not associated with any *measId* indicated by the *condExecutionCond* or the *condExecutionCondSCG* in an entry of *condReconfigList* in *VarConditionalReconfig* in which *subsequentCondReconfig* is included:

5> remove the entry with the matching *measObjectId* from the *measObjectList* within the *VarMeasConfig*;

4> remove the entry with the matching *measId* from the *measIdList* within the *VarMeasConfig*;

2> if *reconfigurationWithSync* was included in *masterCellGroup* or *secondaryCellGroup*:

3> if the UE initiated transmission of a *UEAssistanceInformation* message for the corresponding cell group during the last 1 second, and the UE is still configured to provide the concerned UE assistance information for the corresponding cell group; or

3> if the *RRCReconfiguration* message is applied due to a conditional reconfiguration execution or an LTM cell switch procedure, and the UE is configured to provide UE assistance information for the corresponding cell group, and the UE has initiated transmission of a *UEAssistanceInformation* message for the corresponding cell group since it was configured to do so in accordance with 5.7.4.2:

4> initiate transmission of a *UEAssistanceInformation* message for the corresponding cell group in accordance with clause 5.7.4.3 to provide the concerned UE assistance information;

4> start or restart the prohibit timer (if exists) associated with the concerned UE assistance information with the timer value set to the value in corresponding configuration;

4> start or restart the leave without response timer (if exists) with the timer value set to the value in the *musim-LeaveAssistanceConfig* or the wait timer (if exists) with the timer value set to the value in *musim-CapabilityRestrictionConfig*;

3> if *SIB12* is provided by the target PCell, and the UE initiated transmission of a *SidelinkUEInformationNR* message indicating a change of NR sidelink communication/discovery related parameters relevant in target PCell during the last 1 second preceding reception of the *RRCReconfiguration* message including *reconfigurationWithSync* in *spCellConfig* of an MCG; or

3> if the *RRCReconfiguration* message is applied due to a conditional reconfiguration execution and the UE is capable of NR sidelink communication/discovery and *SIB12* is provided by the target PCell, and the UE has initiated transmission of a *SidelinkUEInformationNR* message since it was configured to do so in accordance with 5.8.3.2:

4> initiate transmission of the *SidelinkUEInformationNR* message in accordance with 5.8.3.3;

3> if any application layer measurement report container has been received from upper layers for which the successful transmission of the *MeasurementReportAppLayer* message or at least one segment of the message via SRB4 (if *reconfigurationWithSync* was included in *masterCellGroup*) or SRB5 (if *reconfigurationWithSync* was included in *secondaryCellGroup*) has not been confirmed by lower layers:

4> if RRC segmentation was used for the *MeasurementReportAppLayer* message:

5> if RRC segmentation is enabled based on the field *rrc-SegAllowedSRB4* or *rrc-SegAllowedSRB5* for the *reportingSRB* (or SRB4 if *reportingSRB* is not configured):

6> re-submit all segments of the *MeasurementReportAppLayer* message to lower layers for transmission via the *reportingSRB* (or SRB4 if *reportingSRB* is not configured);

5> else:

6> discard all segments of the *MeasurementReportAppLayer* message;

4> else:

5> re-submit the *MeasurementReportAppLayer* message to lower layers for transmission via the *reportingSRB* (or SRB4 if *reportingSRB* is not configured);

2> if *reconfigurationWithSync* was included in *masterCellGroup* and SRB4 is configured in the target cell:

3> for each application layer measurement configuration in the UE:

4> if the *RRCReconfiguration* message is applied due to a conditional reconfiguration execution, if *transmissionOfSessionStartStop* is set to *true* for the application layer measurement configuration and if the session status has changed since the UE was configured with the conditional reconfiguration:

5> initiate transmission of a *MeasurementReportAppLayer* message including *appLayerSessionStatus*, via SRB4 for the application layer measurement in accordance with 5.7.16.2;

2> if *reconfigurationWithSync* was included in *masterCellGroup* and the target cell provides *SIB21* or provides *SIB1* including *nonServingCellMII*:

3> if the UE initiated transmission of an *MBSInterestIndication*message during the last 1 second preceding reception of this *RRCReconfiguration* message; or

3> if the *RRCReconfiguration* message is applied due to a conditional reconfiguration execution, and the UE has initiated transmission of an *MBSInterestIndication* message after having received this *RRCReconfiguration* message:

4> initiate transmission of an *MBSInterestIndication*message in accordance with clause 5.9.4;

2> the procedure ends.

NOTE 3: The UE is only required to acquire broadcasted *SIB1* if the UE can acquire it without disrupting unicast or MBS multicast data reception, i.e. the broadcast and unicast/MBS multicast beams are quasi co-located.

NOTE 4: The UE sets the content of *UEAssistanceInformation* according to latest configuration (i.e. the configuration after applying the *RRCReconfiguration* message) and latest UE preference. The UE may include more than the concerned UE assistance information within the *UEAssistanceInformation* according to 5.7.4.2. Therefore, the content of *UEAssistanceInformation* message might not be the same as the content of the previous *UEAssistanceInformation* message.

NEXT CHANGE

#### 5.3.5.5 Cell Group configuration

<Text Omitted>

##### 5.3.5.5.7 SpCell Configuration

The UE shall:

1> if the UE is acting as L2 U2N Remote UE and is not configured with MP:

2> if the *SpCellConfig* contains the *rlf-TimersAndConstants* which is set to *setup*:

3> use value for timers T311 as received in *rlf-TimersAndConstants*;

2> else if *rlf-TimersAndConstants* is not configured for this cell group or *SpCellConfig* contains the *rlf-TimersAndConstants* which is set to *release*:

3> use value for timers T311, as included in *ue-TimersAndConstants* received in *SIB1*;

1> else

2> if the *SpCellConfig* contains the *rlf-TimersAndConstants*:

3> configure the RLF timers and constants for this cell group as specified in 5.3.5.5.6;

2> else if *rlf-TimersAndConstants* is not configured for this cell group:

3> if any DAPS bearer is configured:

4> use values for timers T301, T310, T311 and constants N310, N311 for the target cell group, as included in *ue-TimersAndConstants* received in *SIB1*;

3> else

4> use values for timers T301, T310, T311 and constants N310, N311, as included in *ue-TimersAndConstants* received in *SIB1*;

2> if the *SpCellConfig* contains *spCellConfigDedicated*:

3> configure the SpCell in accordance with the *spCellConfigDedicated*;

3> consider the bandwidth part indicated in *firstActiveUplinkBWP-Id*, if included in the *spCellConfigDedicated,* to be the active uplink bandwidth part;

3> if the *firstActiveDownlinkBWP-Id* is included in the *spCellConfigDedicated*:

4> if the *SpCellConfig* is included in an *RRCReconfiguration* message contained in an NR or E-UTRA RRC message indicating that the SCG is deactivated:

5> consider the bandwidth part indicated in *firstActiveDownlinkBWP-Id* to be the bandwidth part for Radio Link Monitoring, Beam Failure Detection and measurements;

4> else:

5> consider the bandwith part indicated in *firstActiveDownlinkBWP-Id* to be the active downlink bandwidth part;

3> if *csi-LoggedMeasurementConfigToAddModList* is included within *csi-MeasConfig* in *spCellConfigDedicated*:

4> perform logging of measurements for network data collection as specified in 5.5x;

3> if any of the reference signal(s) that are used for radio link monitoring are reconfigured by the received *spCellConfigDedicated*:

4> stop timer T310 for the corresponding SpCell, if running;

4> stop timer T312 for the corresponding SpCell, if running;

4> reset the counters N310 and N311.

1> if the *SpCellConfig* contains the *lowMobilityEvaluationConnected*:

2> the UE may perform the evaluation of the low mobility criterion for this cell group as specified in 5.7.13.1;

1> if the *SpCellConfig* contains the *goodServingCellEvaluationRLM*:

2> the UE may perform the evaluation of the good serving cell quality criterion for this SpCell as specified in 5.7.13.2;

1> if the *SpCellConfig* contains the *goodServingCellEvaluationBFD*:

2> the UE may perform the evaluation of the good serving cell quality criterion for this serving cell as specified in 5.7.13.2;

NEXT CHANGE

##### 5.3.5.5.9 SCell Addition/Modification

The UE shall:

1> for each *sCellIndex* value included in the *sCellToAddModList* that is not part of the current UE configuration (SCell addition):

2> add the SCell, corresponding to the *sCellIndex*, in accordance with the *sCellConfigCommon* and *sCellConfigDedicated*;

2> if the *sCellState* is included:

3> configure lower layers to consider the SCell to be in activated state;

2> else:

3> configure lower layers to consider the SCell to be in deactivated state;

2> for each *measId* included in the *measIdList* within *VarMeasConfig*:

3> if SCells are not applicable for the associated measurement; and

3> if the concerned SCell is included in *cellsTriggeredList* defined within the *VarMeasReportList* for this *measId*:

4> remove the concerned SCell from *cellsTriggeredList* defined within the *VarMeasReportList* for this *measId*;

2> if the *SCellConfig* contains the *goodServingCellEvaluationBFD*:

3> the UE may perform the evaluation of the good serving cell quality criterion for this serving cell as specified in 5.7.13.2;

2> if *csi-LoggedMeasurementConfigToAddModList* is included within *csi-MeasConfig* in *sCellConfigDedicated*:

3> perform logging of measurements for network data collection as specified in 5.5x.

1> for each *sCellIndex* value included in the *sCellToAddModList* that is part of the current UE configuration (SCell modification):

2> modify the SCell configuration in accordance with the *sCellConfigDedicated*;

2> if the *sCellToAddModList* was received in an *RRCReconfiguration* message including *reconfigurationWithSync,* or received in an *RRCResume* message, or received in an *RRCReconfiguration* message including *reconfigurationWithSync* embedded in an *RRCResume* message or embedded in an *RRCReconfiguration* message or embedded in an E-UTRA *RRCConnectionReconfiguration* message or embedded in an E-UTRA *RRCConnectionResume* message, or received in an *RRCReconfiguration* message embedded in an *RRCReconfiguration* message or embedded in an E-UTRA *RRCConnectionReconfiguration* message activating deactivated SCG:

3> if the *sCellState* is included:

4> configure lower layers to consider the SCell to be in activated state;

3> else:

4> configure lower layers to consider the SCell to be in deactivated state.

2> if the *SCellConfig* contains the *goodServingCellEvaluationBFD*:

3> the UE may perform the evaluation of the good serving cell quality criterion for this serving cell as specified in 5.7.13.2;

2> if *csi-LoggedMeasurementConfigToAddModList* is included within *csi-MeasConfig* in *sCellConfigDedicated*:

3> perform logging of measurements for network data collection as specified in 5.5x.

NEXT CHANGE

#### 5.3.5.6 Radio Bearer configuration

##### 5.3.5.6.1 General

The UE shall perform the following actions based on a received *RadioBearerConfig* IE:

1> if the *RadioBearerConfig* includes the *srb3-ToRelease,* *srb4- ToRelease*, *srb5-ToRelease* or *srbx-ToRelease*:

2> perform the SRB release as specified in 5.3.5.6.2;

1> if the *RadioBearerConfig* includes the *srb-ToAddModList*, *srb4-ToAddMod*, *srb5-ToAddMod* or *srbx-ToAddMod* or ifany DAPS beareris configured:

2> perform the SRB addition or reconfiguration as specified in 5.3.5.6.3;

1> if the *RadioBearerConfig* includes the *drb-ToReleaseList*:

2> perform DRB release as specified in 5.3.5.6.4;

1> if the *RadioBearerConfig* includes the *drb-ToAddModList*:

2> perform DRB addition or reconfiguration as specified in 5.3.5.6.5;

1> if the *RadioBearerConfig* includes the *mrb-ToReleaseList*:

2> perform multicast MRB release as specified in 5.3.5.6.6;

1> if the *RadioBearerConfig* includes the *mrb-ToAddModList*:

2> perform multicast MRB addition or reconfiguration as specified in 5.3.5.6.7;

1> release all SDAP entities established for the PDU sessions, if any, that have no associated DRB as specified in TS 37.324 [24] clause 5.1.2, and indicate the release of the user plane resources for PDU Sessions associated with the released SDAP entities to upper layers;

1> release all SDAP entities established for the MBS multicast sessions, if any, that have no associated multicast MRB as specified in TS 37.324 [24] clause 5.1.2, and indicate the release of user plane resources for these MBS multicast sessions to upper layers.

##### 5.3.5.6.2 SRB release

The UE shall:

1> if *srb3-ToRelease* is included:

2> release the PDCP entity and the *srb-Identity* of the SRB3;

1> if *srb4-ToRelease* is included

2> release the PDCP entity and the *srb-Identity* of the SRB4;

1> if *srb5-ToRelease* is included:

2> release the PDCP entity and the *srb-Identity* of the SRB5;

1> if *srbx-ToRelease* is included:

2> release the PDCP entity and the *srb-Identity* of the SRBx.

##### 5.3.5.6.3 SRB addition/modification

The UE shall:

1> If any DAPS bearer is configured, for each SRB:

2> establish a PDCP entity for the target cell group as specified in TS 38.323 [5], with the same configuration as the PDCP entity for the source cell group;

2> if the *masterKeyUpdate* is received:

3> configure the PDCP entity with the security algorithms according to securityConfig and apply the keys (KRRCenc and KRRCint) associated with the master key (KgNB);

2> else:

3> configure the PDCP entity for the target cell group with state variables continuation as specified in TS 38.323 [5], and with the same security configuration as the PDCP entity for the source cell group;

1> for each *srb-Identity* value included in the *srb-ToAddModList*, *srb4-ToAddMod*, *srb5-ToAddMod* or *srbx-ToAddMod* that is not part of the current UE configuration (SRB establishment or reconfiguration from E-UTRA PDCP to NR PDCP):

2> establish a PDCP entity;

2> if AS security has been activated:

3> if target RAT of handover is E-UTRA/5GC; or

3> if the UE is connected to E-UTRA/5GC:

4> if the UE is capable of E-UTRA/5GC, but not capable of NGEN-DC:

5> configure the PDCP entity with the security algorithms and keys (KRRCenc and KRRCint) configured/derived as specified in TS 36.331 [10];

4> else (i.e., UE capable of NGEN-DC):

5> configure the PDCP entity with the security algorithms according to *securityConfig* and apply the keys (KRRCenc and KRRCint) associated with the master key (KeNB) or secondary key (S-KgNB) as indicated in *keyToUse*, if applicable;

3> else (i.e., UE connected to NR or UE connected to E-UTRA/EPC):

4> configure the PDCP entity with the security algorithms according to *securityConfig* and apply the keys (KRRCenc and KRRCint) associated with the master key (KeNB/ KgNB) or secondary key (S-KgNB) as indicated in *keyToUse*, if applicable;

2> if the current UE configuration as configured by E-UTRA in TS 36.331 [10] includes an SRB identified with the same *srb-Identity* value:

3> associate the E-UTRA RLC entity and DCCH of this SRB with the NR PDCP entity;

3> release the E-UTRA PDCP entity of this SRB;

2> if the *pdcp-Config* is included:

3> configure the PDCP entity in accordance with the received *pdcp-Config*;

2> else:

3> configure the PDCP entity in accordance with the default configuration defined in 9.2.1 for the corresponding SRB;

1> if any DAPS bearer is configured, for each *srb-Identity* value included in the *srb-ToAddModList* that is part of the current UE configuration:

2> if the *pdcp-Config* is included:

3> reconfigure the PDCP entity for the target cell group in accordance with the received *pdcp-Config*;

1> else, for each *srb-Identity* value included in the *srb-ToAddModList*, *srb4-ToAddMod*, *srb5-ToAddMod* or *srbx-ToAddMod* that is part of the current UE configuration:

2> if the *reestablishPDCP* is set:

3> if target RAT of handover is E-UTRA/5GC; or

3> if the UE is connected to E-UTRA/5GC:

4> if the UE is capable of E-UTRA/5GC, but not capable of NGEN-DC:

5> configure the PDCP entity to apply the integrity protection algorithm and KRRCint key configured/derived as specified in TS 36.331 [10], i.e. the integrity protection configuration shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

5> configure the PDCP entity to apply the ciphering algorithm and KRRCenc key configured/derived as specified in TS 36.331 [10], i.e. the ciphering configuration shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

4> else (i.e., a UE capable of NGEN-DC):

5> configure the PDCP entity to apply the integrity protection algorithm and KRRCint key associated with the master key (KeNB) or secondary key (S-KgNB), as indicated in *keyToUse*, i.e. the integrity protection configuration shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

5> configure the PDCP entity to apply the ciphering algorithm and KRRCenc key associated with the master key (KeNB) or secondary key (S-KgNB) as indicated in *keyToUse*, i.e. the ciphering configuration shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

3> else (i.e., UE connected to NR or UE in EN-DC):

4> configure the PDCP entity to apply the integrity protection algorithm and KRRCint key associated with the master key (KeNB/KgNB) or secondary key (S-KgNB), as indicated in *keyToUse* , i.e. the integrity protection configuration shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

4> configure the PDCP entity to apply the ciphering algorithm and KRRCenc key associated with the master key (KeNB/KgNB) or secondary key (S-KgNB) as indicated in *keyToUse*, i.e. the ciphering configuration shall be applied to all subsequent messages received and sent by the UE, including the message used to indicate the successful completion of the procedure;

3> re-establish the PDCP entity of this SRB as specified in TS 38.323 [5];

2> else, if the *discardOnPDCP* is set:

3> trigger the PDCP entity to perform SDU discard as specified in TS 38.323 [5];

2> if the *pdcp-Config* is included:

3> reconfigure the PDCP entity in accordance with the received *pdcp-Config*.

NEXT CHANGE

#### 5.3.5.9 Other configuration

The UE shall:

1> if the received *otherConfig* includes the *delayBudgetReportingConfig*:

2> if *delayBudgetReportingConfig* is set to *setup*:

3> consider itself to be configured to send delay budget reports in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to send delay budget reports and stop timer T342, if running.

1> if the received *otherConfig* includes the *overheatingAssistanceConfig*:

2> if *overheatingAssistanceConfig* is set to *setup*:

3> consider itself to be configured to provide overheating assistance information in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide overheating assistance information and stop timer T345, if running;

1> if the received *otherConfig* includes the *idc-AssistanceConfig*:

2> if *idc-AssistanceConfig* is set to *setup*:

3> consider itself to be configured to provide IDC assistance information in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide IDC assistance information;

1> if the received *otherConfig* includes the *drx-PreferenceConfig*:

2> if *drx-PreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on DRX parameters for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on DRX parameters for power saving for the cell group and stop timer T346a associated with the cell group, if running;

1> if the received *otherConfig* includes the *maxBW-PreferenceConfig*:

2> if *maxBW-PreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on the maximum aggregated bandwidth for power saving for the cell group in accordance with 5.7.4;

3> if *otherConfig* includes *maxBW-PreferenceConfigFR2-2*:

4> consider itself to be configured to provide its preference on the maximum aggregated bandwidth for FR2-2 for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on the maximum aggregated bandwidth for power saving for the cell group and stop timer T346b associated with the cell group, if running;

1> if the received *otherConfig* includes the *maxCC-PreferenceConfig*:

2> if *maxCC-PreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on the maximum number of secondary component carriers for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on the maximum number of secondary component carriers for power saving for the cell group and stop timer T346c associated with the cell group, if running;

1> if the received *otherConfig* includes the *maxMIMO-LayerPreferenceConfig*:

2> if *maxMIMO-LayerPreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on the maximum number of MIMO layers for power saving for the cell group in accordance with 5.7.4;

3> if *otherConfig* includes *maxMIMO-LayerPreferenceConfigFR2-2*:

4> consider itself to be configured to provide its preference on the maximum number of MIMO layers for FR2-2 for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on the maximum number of MIMO layers for power saving for the cell group and stop timer T346d associated with the cell group, if running;

1> if the received *otherConfig* includes the *minSchedulingOffsetPreferenceConfig*:

2> if *minSchedulingOffsetPreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on the minimum scheduling offset for cross-slot scheduling for power saving for the cell group in accordance with 5.7.4;

3> if *otherConfig* includes *minSchedulingOffsetPreferenceConfigExt*:

4> consider itself to be configured to provide its preference on the minimum scheduling offset for 480 kHz SCS and/or 960 kHz SCS for cross-slot scheduling for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on the minimum scheduling offset for cross-slot scheduling for power saving for the cell group and stop timer T346e associated with the cell group, if running;

1> if the received *otherConfig* includes the *releasePreferenceConfig*:

2> if *releasePreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide assistance information to transition out of RRC\_CONNECTED in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide assistance information to transition out of RRC\_CONNECTED and stop timer T346f, if running.

1> if the received *otherConfig* includes the *obtainCommonLocation*:

2> include available detailed location information for any subsequent measurement report or any subsequent RLF report, *SCGFailureInformation,* successful handover report, and successful PSCell change or addition report (if received for the associated cell group);

NOTE 1: The UE is requested to attempt to have valid detailed location information available whenever sending a measurement report for which it is configured to include available detailed location information. The UE may not succeed e.g. because the user manually disabled the GPS hardware, due to no/poor satellite coverage. Further details, e.g. regarding when to activate GNSS, are up to UE implementation.

1> if the received *otherConfig* includes the *btNameList*:

2> if *btNameList* is set to *setup*, include available Bluetooth measurement results for any subsequent measurement report or any subsequent RLF report and SCGFailureInformation;

1> if the received *otherConfig* includes the *wlanNameList*:

2> if *wlanNameList* is set to *setup*, include available WLAN measurement results for any subsequent measurement report or any subsequent RLF report and SCGFailureInformation;

1> if the received *otherConfig* includes the *sensorNameList*:

2> if *sensorNameList* is set to *setup*, include available Sensor measurement results for any subsequent measurement report or any subsequent RLF report and SCGFailureInformation;

NOTE 2: The UE is requested to attempt to have valid Bluetooth measurements, WLAN measurements and Sensor measurements whenever sending a measurement report for which it is configured to include these measurements. The UE may not succeed e.g. because the user manually disabled the WLAN or Bluetooth or Sensor hardware. Further details, e.g. regarding when to activate WLAN or Bluetooth or Sensor, are up to UE implementation.

1> if the received *otherConfig* includes the *sl-AssistanceConfigNR*:

2> consider itself to be configured to provide configured grant assistance information for NR sidelink communication in accordance with 5.7.4;

1> if the received *otherConfig* includes the *referenceTimePreferenceReporting*:

2> consider itself to be configured to provide UE reference time assistance information in accordance with 5.7.4;

1> else:

2> consider itself not to be configured to provide UE reference time assistance information;

1> if *successHO-Config* is set to *setup*:

2> consider itself to be configured to provide the successful handover information in accordance with 5.7.10.6;

1> else:

2> consider itself not to be configured to provide the successful handover information.

1> if *sn-initiatedPSCellChange* is not included in the received *otherConfig* and if the *successPSCell-Config* in the received *otherConfig* is set to *setup*:

2> consider itself to be configured by the corresponding cell group to provide the successful PSCell change or addition information in accordance with 5.7.10.7;

1> else:

2> consider itself not to be configured by the corresponding cell group to provide the successful PSCell change or addition information.

1> if *sn-initiatedPSCellChange* is included in the received *otherConfig* and if the received *otherConfig* includes *successPSCell-Config* set to *setup* and *thresholdPercentageT304-SCG* is not included; or

1> if *sn-initiatedPSCellChange* is included in received *otherConfig* and *successPSCell-Config* is already configured for the SCG:

2> consider itself to be configured by the source PSCell to provide the successful PSCell change or addition information in accordance with 5.7.10.7;

1> if *successPSCell-Config* in the received *otherConfig* is set to *setup* and *thresholdPercentageT304-SCG* is included:

2> consider itself to be configured by the target PSCell to provide the successful PSCell change or addition information in accordance with 5.7.10.7

1> if the *successPSCell-Config* received in *otherConfig* is set to *release*:

2> consider itself not to be configured by the corresponding cell group to provide the successful PSCell change or addition information.

1> if the received *otherConfig* includes the *ul-GapFR2-PreferenceConfig*:

2> consider itself to be configured to provide its preference on FR2 UL gap in accordance with 5.7.4;

1> else:

2> consider itself not to be configured to provide its preference on FR2 UL gap;

1> if the received *otherConfig* includes the *musim-GapAssistanceConfig*:

2> if *musim-GapAssistanceConfig* is set to *setup*:

3> consider itself to be configured to provide MUSIM assistance information for gap preference in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide MUSIM assistance information for gap preference and stop timer T346h, if running;

1> if the received *otherConfig* includes the *musim-LeaveAssistanceConfig:*

2> if *musim-LeaveAssistanceConfig* is set to *setup*:

3> consider itself to be configured to provide MUSIM assistance information for leaving RRC\_CONNECTED in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide MUSIM assistance information for leaving RRC\_CONNECTED and stop timer T346g, if running.

1> if the received *otherConfig* includes the *musim-GapPriorityAssistanceConfig*:

2> consider itself to be configured to provide MUSIM assistance information for gap(s) priority in accordance with 5.7.4;

1> else:

2> consider itself not to be configured to provide MUSIM assistance information for gap(s) priority;

1> if the received *otherConfig* includes the *musim-CapabilityRestrictionConfig*:

2> if *musim-CapabilityRestrictionConfig* is set to *setup*:

3> consider itself to be configured to provide MUSIM assistance information for capability restriction in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide MUSIM assistance information for capability restriction and stop timer T348 and T346n, if running;

1> if the received *otherConfig* includes the *rlm-RelaxationReportingConfig*:

2> if *rlm-RelaxationReportingConfig* is set to *setup*:

3> consider itself to be configured to report the relaxation state of RLM measurements in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to report the relaxation state of RLM measurements and stop timer T346j associated with the cell group, if running;

1> if the received *otherConfig* includes the *bfd-RelaxationReportingConfig*:

2> if *bfd-RelaxationReportingConfig* is set to *setup*:

3> consider itself to be configured to report the relaxation state of BFD measurements in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to report the relaxation state of BFD measurements and stop timer T346k associated with the cell group, if running;

1> if the received *otherConfig* includes the *scg-DeactivationPreferenceConfig*:

2> if the *scg-DeactivationPreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its SCG deactivation preference in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its SCG deactivation preference and stop timer T346i, if running.

1> if the received *otherConfig* includes the *propDelayDiffReportConfig*:

2> if the *propDelayDiffReportConfig* is set to *setup*:

3> consider itself to be configured to provide service link propagation delay difference between serving cell and neighbour cell(s) in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide service link propagation delay difference between serving cell and neighbour cell(s).

1> if the received *otherConfig* includes the *rrm-MeasRelaxationReportingConfig*:

2> if the *rrm-MeasRelaxationReportingConfig* is set to *setup*:

3> consider itself to be configured to report the fulfilment of the criterion for relaxing RRM measurements in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to report the fulfilment of the criterion for relaxing RRM measurements.

1> if the received *otherConfig* includes the *multiRx-PreferenceReportingConfigFR2*:

2> if the *multiRx-PreferenceReportingConfigFR2* is set to *setup*:

3> consider itself to be configured to provide its preference on multi-Rx operation for FR2 in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on multi-Rx operation for FR2 and stop timer T346m, if running.

1> if the received *otherConfig* includes the *aerial-FlightPathAvailabilityConfig*:

2> consider itself to be configured to indicate the availability of flight path information in accordance with 5.7.4;

1> if the received *otherConfig* includes the *ul-TrafficInfoReportingConfig*:

2> if *ul-TrafficInfoReportingConfig* is set to *setup*:

3> consider itself to be configured to provide UL traffic information in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide UL traffic information and stop all instances of timer T346l, if running;

1> if the received *otherConfig* includes *n3c-RelayUE-InfoReportConfig*:

2> consider itself to be configured to report relay UE information with non-3GPP connection(s);

1> if the received *otherConfig* includes *applicabilityReportConfig*;

2> if *applicabilityReportConfig* is set to *setup*:

3> consider itself to be configured to report applicability information of configurations subject to the applicability determination procedure in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to report applicability information of configurations subject to the applicability determination procedure;

1> if the received *otherConfig* includes *dataCollectionPreferenceConfig*;

2> if *dataCollectionPreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on being configured with radio measurement resources for UE data collection in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on being configured with radio measurement resources for UE data collection;

1> if the received *otherConfig* includes *loggedDataCollectionAssistanceConfig*:

2> if *loggedDataCollectionAssistanceConfig* is set to *setup*:

3> consider itself to be configured to report assistance information related to logging of radio measurements for network data collection in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to report assistance information related to logging of radio measurements for network data collection.

NEXT CHANGE

### 5.3.7 RRC connection re-establishment

<Text Omitted>

#### 5.3.7.2 Initiation

The UE initiates the procedure when one of the following conditions is met:

1> upon detecting radio link failure of the MCG and *t316* is not configured, in accordance with 5.3.10; or

1> upon detecting radio link failure of the MCG while SCG transmission is suspended, in accordance with 5.3.10; or

1> upon detecting radio link failure of the MCG while PSCell change or PSCell addition is ongoing, in accordance with 5.3.10; or

1> upon detecting radio link failure of the MCG while the SCG is deactivated, in accordance with 5.3.10; or

1> upon re-configuration with sync failure of the MCG, in accordance with clause 5.3.5.8.3; or

1> upon mobility from NR failure, in accordance with clause 5.4.3.5; or

1> upon integrity check failure indication from lower layers concerning SRB1 or SRB2, except if the integrity check failure is detected on the *RRCReestablishment* message; or

1> upon an RRC connection reconfiguration failure, in accordance with clause 5.3.5.8.2; or

1> upon detecting radio link failure for the SCG while MCG transmission is suspended, in accordance with clause 5.3.10.3 in NR-DC or in accordance with TS 36.331 [10] clause 5.3.11.3 in NE-DC; or

1> upon reconfiguration with sync failure of the SCG while MCG transmission is suspended in accordance with clause 5.3.5.8.3; or

1> upon SCG change failure while MCG transmission is suspended in accordance with TS 36.331 [10] clause 5.3.5.7a; or

1> upon SCG configuration failure while MCG transmission is suspended in accordance with clause 5.3.5.8.2 in NR-DC or in accordance with TS 36.331 [10] clause 5.3.5.5 in NE-DC; or

1> upon integrity check failure indication from SCG lower layers concerning SRB3 while MCG is suspended; or

1> upon T316 expiry, in accordance with clause 5.7.3b.5; or

1> upon detecting sidelink radio link failure by L2 U2N Remote UE in RRC\_CONNECTED which is not configured with MP, in accordance with clause 5.8.9.3; or

1> upon reception of *NotificationMessageSidelink* including *indicationType* by L2 U2N Remote UE in RRC\_CONNECTED which is not configured with MP, in accordance with clause 5.8.9.10; or

1> upon PC5 unicast link release for the serving L2 U2N Relay UE indicated by upper layer at L2 U2N Remote UE in RRC\_CONNECTED which is not configured with MP while T301 is not running; or

1> if MP is configured, upon detecting radio link failure of the MCG (i.e. direct path) in accordance with clause 5.3.10 while the transmission of indirect path is suspended as specified in 5.3.5.17; or

1> if MP is configured, upon detecting radio link failure of the MCG (i.e. direct path) in accordance with 5.3.10 while MP indirect path addition or change is ongoing; or

1> if MP is configured, upon detecting sidelink radio link failure of SL indirect path by L2 U2N Remote UE, in accordance with clause 5.8.9.3, while MCG transmission (i.e. direct path) is suspended as specified in clause 5.7.3b; or

1> if MP is configured, upon reception of *NotificationMessageSidelink* including *indicationType* in accordance with clause 5.8.9.10, while MCG transmission (i.e. direct path) is suspended as specified in clause 5.7.3b; or

1> if MP is configured, upon PC5 unicast link release indicated by upper layer at L2 U2N Remote UE, while MCG transmission (i.e. direct path) is suspended as specified in clause 5.7.3b; or

1> if MP is configured, upon detecting the failure of N3C indirect path by N3C remote UE in accordance with clause 5.7.3c, while MCG transmission (i.e. direct path) is suspended.

NOTE 0: It is up to UE implementation whether to initiate the procedure while T346g is running.

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> stop timer T421, if running;

1> if UE is not configured with *attemptCondReconfig*;and

1> if UE is not configured with *attemptLTM-Switch*:

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;

2> release the MCG SCell(s), if configured;

2> if MR-DC is configured:

3> perform MR-DC release, as specified in clause 5.3.5.10;

2> perform the LTM configuration release procedure for the MCG and the SCG as specified in clause 5.3.5.18.7;

2> release *delayBudgetReportingConfig*, if configured and stop timer T342, if running;

2> release *overheatingAssistanceConfig*, if configured and stop timer T345, if running;

2> release *idc-AssistanceConfig*, if configured;

2> release *btNameList*, if configured;

2> release *wlanNameList*, if configured;

2> release *sensorNameList*, if configured;

2> release *drx-PreferenceConfig* for the MCG, if configured and stop timer T346a associated with the MCG, if running;

2> release *maxBW-PreferenceConfig* for the MCG, if configured and stop timer T346b associated with the MCG, if running;

2> release *maxCC-PreferenceConfig* for the MCG, if configured and stop timer T346c associated with the MCG, if running;

2> release *maxMIMO-LayerPreferenceConfig* for the MCG, if configured and stop timer T346d associated with the MCG, if running;

2> release *minSchedulingOffsetPreferenceConfig* for the MCG, if configured stop timer T346e associated with the MCG, if running;

2> release *rlm-RelaxationReportingConfig* for the MCG, if configured and stop timer T346j associated with the MCG, if running;

2> release *bfd-RelaxationReportingConfig* for the MCG, if configured and stop timer T346k associated with the MCG, if running;

2> release *releasePreferenceConfig*, if configured stop timer T346f, if running;

2> release *onDemandSIB-Request* if configured, and stop timer T350, if running;

2> release *referenceTimePreferenceReporting*, if configured;

2> release *sl-AssistanceConfigNR*, if configured;

2> release *obtainCommonLocation*, if configured;

2> release *musim-GapAssistanceConfig*, if configured and stop timer T346h, if running;

2> release *musim-GapPriorityAssistanceConfig*, if configured;

2> release *musim-LeaveAssistanceConfig*, if configured;

2> release *musim-CapabilityRestrictionConfig*, if configured and stop timer T346n, if running;

2> release*ul-GapFR2-PreferenceConfig*, if configured;

2> release *scg-DeactivationPreferenceConfig*, if configured, and stop timer T346i, if running;

2> release *propDelayDiffReportConfig*, if configured;

2> release *rrm-MeasRelaxationReportingConfig*, if configured;

2> release *maxBW-PreferenceConfigFR2-2*, if configured;

2> release *maxMIMO-LayerPreferenceConfigFR2-2*, if configured;

2> release *minSchedulingOffsetPreferenceConfigExt*, if configured;

2> release *multiRx-PreferenceReportingConfigFR2*, if configured, and stop timer T346m, if running;

2> release *aerial-FlightPathAvailabilityConfig*, if configured;

2> release *ul-TrafficInfoReportingConfig*, if configured, and stop all instances of timer T346l, if running;

2> release *loggedDataCollectionAssistanceConfig*, if configured;

2> release *applicabilityReportConfig*, if configured;

2> release *dataCollectionPreferenceConfig*, if configured;1> release *successHO-Config*, if configured;

1> release *successPSCell-Config* configured by the PCell, if configured;

1> if any DAPS bearer is configured:

2> reset the source MAC and release the source MAC configuration;

2> for each DAPS bearer:

3> release the RLC entity or entities as specified in TS 38.322 [4], clause 5.1.3, and the associated logical channel for the source SpCell;

3> reconfigure the PDCP entity to release DAPS as specified in TS 38.323 [5];

2> for each SRB:

3> release the PDCP entity for the source SpCell;

3> release the RLC entity as specified in TS 38.322 [4], clause 5.1.3, and the associated logical channel for the source SpCell;

2> release the physical channel configuration for the source SpCell;

2> discard the keys used in the source SpCell (the KgNB key, the KRRCenc key, the KRRCint key, the KUPint key and the KUPenc key), if any;

1> release *sl-L2RelayUE-Config* for L2 U2N relay operation, if configured;

1> release *sl-L2RemoteUE-Config* for L2 U2N relay operation, if configured;

1> release the SRAP entity for L2 U2N relay operation, if configured;

1> release *ncr-FwdConfig*, if configured;

1> if the UE is NCR-MT:

2> indicate to NCR-Fwd to cease forwarding;

1> if SL indirect path is configured:

2> release cell identity and relay UE ID configured in *sl-IndirectPathAddChange*;

2> indicate upper layers to trigger PC5 unicast link release of the SL indirect path;

1> if N3C indirect path is configured:

2> release *n3c-IndirectPathAddChange*;

2> consider the non-3GPP connection is not used;

1> if the UE is acting as a N3C relay UE:

2> release *n3c-IndirectPathConfigRelay*;

2> consider the non-3GPP connection is not used;

1> if the UE is acting as L2 U2N Remote UE and MP via L2 U2N Relay UE is not configured:

2> if the PC5-RRC connection with the U2N Relay UE is determined to be released:

3> indicate upper layers to trigger PC5 unicast link release;

3> perform either cell selection in accordance with the cell selection process as specified in TS 38.304 [20], or relay selection as specified in clause 5.8.15.3, or both;

2> else (i.e., maintain the PC5 RRC connection):

3> consider the connected L2 U2N Relay UE as suitable and perform actions as specified in clause 5.3.7.3a;

NOTE 1: It is up to Remote UE implementation whether to release or keep the current PC5 unicast link.

1> else:

2> if the UE is capable of L2 U2N Remote UE:

3> perform either cell selection as specified in TS 38.304 [20], or relay selection as specified in clause 5.8.15.3, or both;

2> else:

3> perform cell selection in accordance with the cell selection process as specified in TS 38.304 [20].

NOTE 2: For L2 U2N Remote UE, if both a suitable cell and a suitable relay are available, the UE can select either one based on its implementation.

#### 5.3.7.3 Actions following cell selection while T311 is running

Upon selecting a suitable NR cell, the UE shall:

1> ensure having valid and up to date essential system information as specified in clause 5.2.2.2;

1> stop timer T311;

1> if T390 is running:

2> stop timer T390 for all access categories;

2> perform the actions as specified in 5.3.14.4;

1> stop the relay (re)selection procedure, if ongoing;

1> if the cell selection is triggered by detecting radio link failure of the MCG or re-configuration with sync failure of the MCG, except for an LTM cell switch procedure following cell selection performed while timer T311 was running, as specified in 5.3.7.3, or mobility from NR failure, and

1> if *attemptCondReconfig* is configured; and

1> if the selected cell is not configured with *CondEventT1*, or the selected cell is configured with *CondEventT1* and leaving condition has not been fulfilled; and

1> if the selected cell is one of the candidate cells for which the *reconfigurationWithSync* is included in the *masterCellGroup* in the MCG *VarConditionalReconfig* and the *condExecutionCondPSCell* is not configured for the corresponding *condReconfigId* in the MCG *VarConditionalReconfig*:

2> if the UE supports RLF-Report for conditional handover, set the *choCellId* in the *VarRLF-Report* to the global cell identity, if available, otherwise to the physical cell identity and carrier frequency of the selected cell;

2> apply the stored *condRRCReconfig* associated to the selected cell and perform actions as specified in 5.3.5.3;

NOTE 1: It is left to network implementation to how to avoid keystream reuse in case of CHO based recovery after a failed handover without key change.

1> if the cell selection is triggered by detecting radio link failure of the MCG or re-configuration with sync failure of the MCG for an LTM cell switch procedure triggered upon the indication by lower layers as specified in clause 5.3.5.18.6; and

1> if *attemptLTM-Switch* is configured; and

1> if the selected cell is one of the LTM candidate cells in the *LTM-Candidate* IE within *ltm-Config* associated with the MCG:

2> perform the LTM cell switch procedure for the selected LTM candidate cell according to the actions specified in 5.3.5.18.6;

NOTE 2: In case both *attemptCondReconfig* and *attemptLTM-Switch* are configured, it is left to the UE implementation which procedure to execute.

1> else:

2> if UE is configured with *attemptCondReconfig*;or

2> if UE is configured with *attemptLTM-Switch*:

3> reset MAC;

3> release *spCellConfig*, if configured;

3> release the MCG SCell(s), if configured;

3> release *delayBudgetReportingConfig*, if configured and stop timer T342, if running;

3> release *overheatingAssistanceConfig* , if configured and stop timer T345, if running;

3> if MR-DC is configured:

4> perform MR-DC release, as specified in clause 5.3.5.10;

3> release *idc-AssistanceConfig*, if configured;

3> release *btNameList*, if configured;

3> release *wlanNameList*, if configured;

3> release *sensorNameList*, if configured;

3> release *drx-PreferenceConfig* for the MCG, if configured and stop timer T346a associated with the MCG, if running;

3> release *maxBW-PreferenceConfig* for the MCG, if configured and stop timer T346b associated with the MCG, if running;

3> release *maxCC-PreferenceConfig* for the MCG, if configured and stop timer T346c associated with the MCG, if running;

3> release *maxMIMO-LayerPreferenceConfig* for the MCG, if configured and stop timer T346d associated with the MCG, if running;

3> release *minSchedulingOffsetPreferenceConfig* for the MCG, if configured and stop timer T346e associated with the MCG, if running;

3> release *rlm-RelaxationReportingConfig* for the MCG, if configured and stop timer T346j associated with the MCG, if running;

3> release *bfd-RelaxationReportingConfig* for the MCG, if configured and stop timer T346k associated with the MCG, if running;

3> release *releasePreferenceConfig*, if configured and stop timer T346f, if running;

3> release *onDemandSIB-Request* if configured, and stop timer T350, if running;

3> release referenceTimePreferenceReporting, if configured;

3> release *sl-AssistanceConfigNR*, if configured;

3> release *obtainCommonLocation*, if configured;

3> release *scg-DeactivationPreferenceConfig*, if configured, and stop timer T346i, if running;

3> release *musim-GapAssistanceConfig*, if configured and stop timer T346h, if running;

3> release *musim-GapPriorityAssistanceConfig*, if configured;

3> release *musim-LeaveAssistanceConfig*, if configured;

3> release *musim-CapabilityRestrictionConfig*, if configured and stop timer T346n, if running;

3> release *propDelayDiffReportConfig*, if configured;

3> release *ul-GapFR2-PreferenceConfig*, if configured;

3> release *rrm-MeasRelaxationReportingConfig*, if configured;

3> release *maxBW-PreferenceConfigFR2-2*, if configured;

3> release *maxMIMO-LayerPreferenceConfigFR2-2*, if configured;

3> release *minSchedulingOffsetPreferenceConfigExt*, if configured;

3> release *aerial-FlightPathAvailabilityConfig*, if configured;

3> release *ul-TrafficInfoReportingConfig*, if configured, and stop all instances of timer T346l, if running;

3> release *loggedDataCollectionAssistanceConfig*, if configured;

3> release *applicabilityReportConfig*, if configured;

3> release *dataCollectionPreferenceConfig*, if configured;3> suspend all RBs, and BH RLC channels for the IAB-MT, except SRB0 and broadcast MRBs;

2> remove all the entries within the MCG *VarConditionalReconfig*, if any;

2> perform the LTM configuration release procedure for the MCG and the SCG as specified in clause 5.3.5.18.7;

2> for each *measId*, if the associated *reportConfig* has a *reportType* set to *condTriggerConfig*:

3> for the associated *reportConfigId*:

4> remove the entry with the matching *reportConfigId* from the *reportConfigList* within the *VarMeasConfig*;

3> if the associated *measObjectId* is only associated to a *reportConfig* with *reportType* set to *condTriggerConfig*:

4> remove the entry with the matching *measObjectId* from the *measObjectList* within the *VarMeasConfig*;

3> remove the entry with the matching *measId* from the *measIdList* within the *VarMeasConfig*;

2> remove the *servingSecurityCellSetId* within the *VarServingSecurityCellSetID*, if any;

2> release the PC5 RLC entity for SL-RLC0, if any;

2> start timer T301;

2> apply the default L1 parameter values as specified in corresponding physical layer specifications except for the parameters for which values are provided in *SIB1*;

2> apply the default MAC Cell Group configuration as specified in 9.2.2;

2> apply the CCCH configuration as specified in 9.1.1.2;

2> apply the *timeAlignmentTimerCommon* included in *SIB1*;

2> initiate transmission of the *RRCReestablishmentRequest* message in accordance with 5.3.7.4;

NOTE 2a: This procedure applies also if the UE returns to the source PCell.

NOTE 3: A L2 U2N Relay UE may re-establish (e.g. via release and establish) the SL-RLC0 and SL-RLC1 of the connected L2 U2N Remote UE(s).

Upon selecting an inter-RAT cell, the UE shall:

1> perform the actions upon going to RRC\_IDLE as specified in 5.3.11, with release cause 'RRC connection failure'.

NEXT CHANGE

### 5.3.8 RRC connection release

<Text Omitted>

#### 5.3.8.3 Reception of the *RRCRelease* by the UE

The UE shall:

1> delay the following actions defined in this clause 60 ms from the moment the *RRCRelease* message was received or optionally when lower layers indicate that the receipt of the *RRCRelease* message has been successfully acknowledged, whichever is earlier;

NOTE 0: When the *RRCRelease* message is received on a HARQ process with disabled HARQ feedback, and when STATUS reporting, as defined in TS 38.322 [4], has not been triggered for a logical channel associated with the SRB1, the lower layers can be considered to have indicated that the receipt of the *RRCRelease* message has been successfully acknowledged.

1> stop timer T380, if running;

1> stop timer T320, if running;

1> if timer T316 is running;

2> stop timer T316;

2> if the UE supports RLF-Report for fast MCG recovery procedure as specified in 38.306 [26]:

3> set the *elapsedTimeT316* in the *VarRLF-Report* to the value of the elapsed time of the timer T316;

3> set the *pSCellId* in the *VarRLF-Report* to the global cell identity of the PSCell, if available, otherwise to the physical cell identity and carrier frequency of the PSCell;

2> else:

3> clear the information included in *VarRLF-Report,* if any;

1> stop timer T350, if running;

1> stop timer T346g, if running;

1> stop timer T348, if running;

1> if theAS security is not activated:

2> ignore any field included in *RRCRelease* message except *waitTime*;

2> perform the actions upon going to RRC\_IDLE as specified in 5.3.11 with the release cause 'other' upon which the procedure ends;

1> if the *RRCRelease* message includes *redirectedCarrierInfo* indicating redirection to *eutra*:

2> if *cnType* is included:

3> after the cell selection, indicate the available CN Type(s) and the received *cnType* to upper layers;

NOTE 1: Handling the case if the E-UTRA cell selected after the redirection does not support the core network type specified by the *cnType,* is up to UE implementation.

2> if *voiceFallbackIndication* is included:

3> consider the RRC connection release was for EPS fallback for IMS voice (see TS 23.502 [43]);

1> if the *RRCRelease* message includes the *cellReselectionPriorities*:

2> store the cell reselection priority information provided by the *cellReselectionPriorities*;

2> if the *t320* is included:

3> start timer T320, with the timer value set according to the value of *t320*;

1> else:

2> apply the cell reselection priority information broadcast in the system information;

1> if *deprioritisationReq* is included and the UE supports RRC connection release with deprioritisation:

2> start or restart timer T325 with the timer value set to the *deprioritisationTimer* signalled;

2> store the *deprioritisationReq* until T325 expiry/stop;

NOTE 1a: The UE stores the deprioritisation request irrespective of any cell reselection absolute priority assignments (by dedicated or common signalling) and regardless of RRC connections in NR or other RATs unless specified otherwise.

1> if the *RRCRelease* includes the *measIdleConfig*:

2> if T331 is running:

3> stop timer T331;

3> perform the actions as specified in 5.7.8.3;

2> if the *measIdleConfig* is set to *setup*:

3> store the received *measIdleDuration* in *VarMeasIdleConfig*;

3> start timer T331 with the value set to *measIdleDuration*;

3> if the *measIdleConfig* contains *measIdleCarrierListNR*:

4> store the received *measIdleCarrierListNR* in *VarMeasIdleConfig*;

3> if the *measIdleConfig* contains *measIdleCarrierListEUTRA*:

4> store the received *measIdleCarrierListEUTRA* in *VarMeasIdleConfig*;

3> if the *measIdleConfig* contains *validityAreaList*:

4> store the received *validityAreaList* in *VarMeasIdleConfig*;

3> if the *measIdleConfig* contains *measReselectionCarrierListNR:*

4> store the received *measReselectionCarrierListNR* in *VarMeasReselectionConfig*;

3> if the *measIdleConfig* contains *measReselectionValidityDuration:*

4> store the received *measReselectionValidityDuration* in *VarMeasReselectionConfig*;

3> if the *measIdleConfig* contains *measIdleValidityDuration:*

4> store the received *measIdleValidityDuration* in *VarEnhMeasIdleConfig*;

1> if the *RRCRelease* includes *suspendConfig*:

2> reset MAC and release the default MAC Cell Group configuration, if any;

2> apply the received *suspendConfig* except the received *nextHopChainingCount*;

2> if the *sdt-Config* is configured:

3> for each of the DRB in the *sdt-DRB-List*:

4> consider the DRB to be configured for SDT;

3> if *sdt-SRB2-Indication* is configured:

4> consider the SRB2 to be configured for SDT;

3> for each RLC bearer (except those associated with broadcast MRBs and multicast MRBs) that is not suspended:

4> re-establish the RLC entity as specified in TS 38.322 [4];

3> for SRB2 (if it is resumed) and for SRB1:

4> trigger the PDCP entity to perform SDU discard as specified in TS 38.323 [5];

3> if *sdt-MAC-PHY-CG-Config* is configured:

4> configure the PCell with the configured grant resources for SDT and instruct the MAC entity to start the *cg-SDT-TimeAlignmentTimer*;

2> if *srs-PosRRC-Inactive* is configured:

3> apply the SRS for positioning configuration in RRC\_INACTIVE and instruct MAC to start the *inactivePosSRS-TimeAlignmentTimer*;

2> if *srs-PosRRC-InactiveValidityAreaNonPreConfig* is set to *setup*:

3> apply the SRS for positioning configuration in RRC\_INACTIVE and instruct MAC to start the *inactivePosSRS-ValidityAreaTAT*;

2> else if *srs-PosRRC-InactiveValidityAreaNonPreConfig* is set to *release*:

3> release *srs-PosRRC-InactiveValidityAreaNonPreConfig*, if available;

2> if *srs-PosRRC-InactiveValidityAreaPreConfigList* is set to *setup*:

3> store *srs-PosRRC-InactiveValidityAreaPreConfigList* and perform actions as specified in clause 5.7.20;

2> else if *srs-PosRRC-InactiveValidityAreaPreConfigList* is set to *release*:

3> remove all *srs-PosRRC-InactiveValidityAreaPreConfigList*, if available;

NOTE 1b: The Network should provide full configuration to UE for SRS for Positioning in RRC\_INACTIVE.

2> perform the LTM configuration release procedure for the MCG and the SCG as specified in clause 5.3.5.18.7;

2> remove all the entries within the MCG and the SCG *VarConditionalReconfig*, if any;

2> remove the *servingSecurityCellSetId* within the *VarServingSecurityCellSetID*, if any;

2> for each *measId* of the MCG *measConfig* and for each *measId* of the SCG *measConfig*, if configured, if the associated *reportConfig* has a *reportType* set to *condTriggerConfig*:

3> for the associated *reportConfigId*:

4> remove the entry with the matching *reportConfigId* from the *reportConfigList* within the *VarMeasConfig*;

3> if the associated *measObjectId* is only associated to a *reportConfig* with *reportType* set to *condTriggerConfig*:

4> remove the entry with the matching *measObjectId* from the *measObjectList* within the *VarMeasConfig*;

3> remove the entry with the matching *measId* from the *measIdList* within the *VarMeasConfig*;

2> if the UE is NCR-MT and if *ncr-FwdConfig* is configured:

3> if the *ncr-FwdConfig* includes periodic forwarding resource configuration:

4> indicate to NCR-Fwd to continue forwarding only in accordance with the configured periodic forwarding resource set(s);

3> else:

4> indicate to NCR-Fwd to cease forwarding;

2> if the UE is acting as L2 U2N Remote UE and is not configured with MP:

3> if the PC5-RRC connection with the U2N Relay UE is determined to be released:

4> indicate upper layers to trigger PC5 unicast link release;

3> else (i.e., maintain the PC5 RRC connection):

4> establish or re-establish (e.g. via release and add) SL RLC entity for SRB1;

2> else:

3> re-establish RLC entities for SRB1;

2> for each application layer measurement configuration with *appLayerIdleInactiveConfig* configured:

3> forward the *measConfigAppLayerId* and inform upper layers about the release of the RAN visible application layer measurement configuration;

3> discard any RAN visible application layer measurement reports received from upper layers;

3> initiate the procedure in 5.5b.1.2;

2> if the *RRCRelease* message with *suspendConfig* was received in response to an *RRCResumeRequest* or an *RRCResumeRequest1*:

3> stop the timer T319 if running;

3> in the stored UE Inactive AS context:

4> replace the KgNB and KRRCint keys with the current KgNB and KRRCint keys;

4> replace the *nextHopChainingCount* with the value of *nextHopChainingCount* received in the *RRCRelease* message*;*

4> replace the *cellIdentity* with the *cellIdentity* of the cell the UE has received the *RRCRelease* message;

4> if the *suspendConfig* contains the *sl-UEIdentityRemote* (i.e. the UE is a L2 U2N Remote UE):

5> replace the C-RNTI with the value of the *sl-UEIdentityRemote*;

5> replace the physical cell identitywith the value of the *sl-PhysCellId* in *sl-ServingCellInfo* contained in the discovery message received from the connected L2 U2N Relay UE;

4> else:

5> replace the C-RNTI with the C-RNTI used in the cell (see TS 38.321 [3]) the UE has received the *RRCRelease* message;

5> replace the physical cell identitywith the physical cell identity of the cell the UE has received the *RRCRelease* message;

3> replace the *nextHopChainingCount* with the value associated with the current KgNB;

3> stop the timer T319a if running and consider SDT procedure is not ongoing;

2> else:

3> store in the UE Inactive AS Context the *nextHopChainingCount* received in the *RRCRelease* message*,* the current KgNB and KRRCint keys, the ROHC state, the EHC context(s), the UDC state, the stored QoS flow to DRB mapping rules, the application layer measurement configuration, the C-RNTI used in the source PCell, the *cellIdentity* and the physical cell identity of the source PCell, the *ncr-FwdConfig* (if configured), the *spCellConfigCommon* within *ReconfigurationWithSync* of the NR PSCell (if configured) and all other parameters configured except for:

- parameters within *ReconfigurationWithSync* of the PCell;

- parameters within *ReconfigurationWithSync* of the NR PSCell, if configured;

- parameters within *MobilityControlInfoSCG* of the E-UTRA PSCell, if configured;

- *servingCellConfigCommonSIB*;

- *sl-L2RelayUE-Config*, if configured;

- *sl-L2RemoteUE-Config*, if configured;

- *aerial-Config*, if configured;

- c*ellDTX-DRX-Config*, if configured;

NOTE 1c: *suspendConfig* is not stored as part of UE Inactive AS Context, except for the fields explicitly specified.

3> store any previously or subsequently received application layer measurement report containers for which the successful transmission of the message or at least one segment of the message has not been confirmed by lower layers;

NOTE 2: NR sidelink communication/discovery/positioning related configurations and logged measurement configuration are not stored as UE Inactive AS Context, when UE enters RRC\_INACTIVE.

2> suspend all SRB(s) and DRB(s), except SRB0 and broadcast MRBs;

2> suspend all multicast MRB(s) associated with multicast session(s) not configured for reception in RRC\_INACTIVE;

2> indicate PDCP suspend to lower layers of all DRBs and multicast MRBs associated with multicast session(s) not configured for reception in RRC\_INACTIVE;

2> release Uu Relay RLC channel(s), if configured;

2> release PC5 Relay RLC channel(s), if configured;

2> release the SRAP entity, if configured;

NOTE 2a: A L2 U2N Relay UE may re-establish the SL-RLC0, SL-RLC1 and SRAP entity after release.

2> if SL indirect path is configured:

3> release cell identity and relay UE ID configured in *sl-IndirectPathAddChange*;

3> indicate upper layers to trigger PC5 unicast link release of the SL indirect path;

2> if N3C indirect path is configured:

3> release *n3c-IndirectPathAddChange*;

3> consider the non-3GPP connection is not used;

2> if the UE is acting as a N3C relay UE:

3> release *n3c-IndirectPathConfigRelay*;

3> consider the non-3GPP connection is not used;

2> if the *t380* is included:

3> start timer T380, with the timer value set to *t380*;

2> if the *RRCRelease* message is including the *waitTime*:

3> start timer T302 with the value set to the *waitTime*;

3> inform upper layers that access barring is applicable for all access categories except categories '0' and '2';

2> if T390 is running:

3> stop timer T390 for all access categories;

3> perform the actions as specified in 5.3.14.4;

2> indicate the suspension of the RRC connection to upper layers;

2> if the UE is capable of L2 U2N Remote UE:

3> enter RRC\_INACTIVE, and perform either cell selection as specified in TS 38.304 [20], or relay selection as specified in clause 5.8.15.3, or both;

2> else:

3> enter RRC\_INACTIVE and perform cell selection as specified in TS 38.304 [20];

2> if the *suspendConfig* includes *resumeIndication*:

3> perform the actions as if the UE received *Paging* message with the *ue-Identity* included in the *PagingRecord* matching the UE's stored *fullI-RNTI*, as specified in clause 5.3.2.3;

2> if the *multicastConfigInactive* is set to *setup*:

3> if the multicast PTM configuration is provided for at least one multicast session for which the UE is not indicated to stop monitoring the G-RNTI and the UE selects the same cell as the one on which the multicast session was configured in RRC\_CONNECTED:

4> apply the multicast PTM configuration as specified in 5.10.3;

4> if multicast MCCH is present:

5> monitor the Multicast MCCH-RNTI as specified in 5.10.1.2;

2> release *CSI-LoggedMeasurementConfig*, if configured;

2> release *loggedDataCollectionAssistanceConfig*, if configured;

2> discard the logged measurement entries included in *VarCSI-LogMeasReport,* if any;

1> else:

2> perform the actions upon going to RRC\_IDLE as specified in 5.3.11, with the release cause 'other'.

NOTE 3: Whether to release the PC5 unicast link is left to L2 U2N Remote UE's implementation.

NOTE 4: It is left to UE implementation whether to stop T430, if running, when going to RRC\_INACTIVE.

NEXT CHANGE

### 5.3.10 Radio link failure related actions

<Text Omitted>

#### 5.3.10.3 Detection of radio link failure

The UE shall:

1> if any DAPS bearer is configured and T304 is running:

2> upon T310 expiry in source SpCell; or

2> upon random access problem indication from source MCG MAC; or

2> upon indication from source MCG RLC that the maximum number of retransmissions has been reached; or

2> upon consistent uplink LBT failure indication from source MCG MAC:

3> consider radio link failure to be detected for the source MCG i.e. source RLF;

3> suspend the transmission and reception of all DRBs and multicast MRBs in the source MCG;

3> reset MAC for the source MCG;

3> release the source connection.

1> else:

2> during a DAPS handover: the following only applies for the target PCell;

2> upon T310 expiry in PCell; or

2> upon T312 expiry in PCell; or

2> upon random access problem indication from MCG MAC while neither T300, T301, T304, T311 nor T319 are running and SDT procedure is not ongoing; or

2> upon indication from MCG RLC that the maximum number of retransmissions has been reached while SDT procedure is not ongoing; or

2> if connected as an IAB-node, upon BH RLF indication received on BAP entity from the MCG; or

2> upon consistent uplink LBT failure indication from MCG MAC while T304 is not running:

3> if the indication is from MCG RLC and CA duplication is configured and activated for MCG, and for the corresponding logical channel *allowedServingCells* only includes SCell(s):

4> initiate the failure information procedure as specified in 5.7.5 to report RLC failure.

3> else:

4> consider radio link failure to be detected for the MCG, i.e. MCG RLF;

4> discard any segments of segmented RRC messages stored according to 5.7.6.3;

4> release *CSI-LoggedMeasurementConfig*, if configured;

4> release *loggedDataCollectionAssistanceConfig*, if configured;

4> discard the logged measurement entries included in *VarCSI-LogMeasReport,* if any;

NOTE 1: Void.

4> if AS security has not been activated:

5> perform the actions upon going to RRC\_IDLE as specified in 5.3.11, with release cause 'other';-

4> else if AS security has been activated but SRB2 and at least one DRB or multicast MRB or, for IAB and NCR, SRB2, have not been setup:

5> store the radio link failure information in the *VarRLF-Report* as described in clause 5.3.10.5;

5> perform the actions upon going to RRC\_IDLE as specified in 5.3.11, with release cause 'RRC connection failure';

4> else:

5> store the radio link failure information in the *VarRLF-Report* as described in clause 5.3.10.5;

5> if MP is configured:

6> if T316 is configured, and MP indirect path transmission is not suspended; and

6> if neither MP indirect path change nor MP indirect path addition is ongoing:

7> initiate the MCG failure information procedure as specified in 5.7.3b to report MCG radio link failure.

6> else:

7> initiate the connection re-establishment procedure as specified in 5.3.7.

5> else:

6> if the UE supports RLF-Report for fast MCG recovery procedure and if T316 is configured:

7> if the SCG is deactivated at the moment of detecting RLF in the MCG:

8> set the *mcg-RecoveryFailureCause* in the *VarRLF-Report* to *scg-Deactivated*;

8> set the *pSCellId* in the *VarRLF-Report* to the global cell identity of the PSCell, if available, otherwise to the physical cell identity and carrier frequency of the PSCell;

7> else if SCG transmission is suspended at the moment of detecting RLF in the MCG:

8> set the *pSCellId* in the *VarRLF-Report* to the global cell identity of the PSCell, if available, otherwise to the physical cell identity and carrier frequency of the PSCell;

8> set the *scg-FailureCause* value in the *VarRLF-Report* according to 5.7.3.5;

8> set the *elapsedTimeSCG-Failure* in the *VarRLF-Report* to the time elapsed between SCG failure and the MCG failure;

6> if T316 is configured; and

6> if SCG transmission is not suspended; and

6> if the SCG is not deactivated; and

6> if neither PSCell change nor PSCell addition is ongoing (i.e. timer T304 for the NR PSCell is not running in case of NR-DC or timer T307 of the E-UTRA PSCell is not running as specified in TS 36.331 [10], clause 5.3.10.10, in NE-DC):

7> initiate the MCG failure information procedure as specified in 5.7.3b to report MCG radio link failure.

6> else:

7> initiate the connection re-establishment procedure as specified in 5.3.7.

A L2/L3 U2N Relay UE shall:

1> upon detecting radio link failure:

2> either indicate to upper layers (to trigger PC5 unicast link release) or send *NotificationMessageSidelink* to the connected L2/L3 U2N Remote UE(s) in accordance with 5.8.9.10.

A N3C Relay UE shall:

1> upon detecting radio link failure:

2> indicates to the associated N3C remote UE via the Non-3GPP Connection.

NOTE 2: How the N3C Relay UE indicates Uu RLF on the Non-3GPP Connection is left to implementation.

The UE shall:

1> upon T310 expiry in PSCell; or

1> upon T312 expiry in PSCell; or

1> upon random access problem indication from SCG MAC; or

1> upon indication from SCG RLC that the maximum number of retransmissions has been reached; or

1> if connected as an IAB-node, upon BH RLF indication received on BAP entity from the SCG; or

1> upon consistent uplink LBT failure indication from SCG MAC:

2> if the indication is from SCG RLC and CA duplication is configured and activated for SCG, and for the corresponding logical channel *allowedServingCells* only includes SCell(s):

3> initiate the failure information procedure as specified in 5.7.5 to report RLC failure.

2> else:

3> consider radio link failure to be detected for the SCG, i.e. SCG RLF;

3> if the SCG is deactivated:

4> stop radio link monitoring on the SCG;

4> indicate to lower layers to stop beam failure detection on the PSCell;

3> if MCG transmission is not suspended:

4> initiate the SCG failure information procedure as specified in 5.7.3 to report SCG radio link failure.

3> else:

4> if the UE is in NR-DC:

5> if the UE supports RLF-Report for fast MCG recovery procedure and if the UE detected SCG failure while the timer T316 was running:

6> set the *pSCellId* in the *VarRLF-Report* to the global cell identity of the PSCell, if available, otherwise to the physical cell identity and carrier frequency of the PSCell;

6> set the *scg-FailureCause* in the *VarRLF-Report* value according to 5.7.3.5;

6> set the *elapsedTimeSCG-Failure* in the *VarRLF-Report* to the time elapsed between MCG failure and the SCG failure;

6> include *scg-FailedAfterMCG*;

5> initiate the connection re-establishment procedure as specified in 5.3.7;

4> else (the UE is in (NG)EN-DC):

5> initiate the connection re-establishment procedure as specified in TS 36.331 [10], clause 5.3.7;

NEXT CHANGE

### 5.3.11 UE actions upon going to RRC\_IDLE

The UE shall:

1> reset MAC;

1> if the UE is NCR-MT:

2> indicate to NCR-Fwd to cease forwarding;

1> set the variable *pendingRNA-Update* to *false*, if that is set to *true*;

1> if going to RRC\_IDLE was triggered by reception of the *RRCRelease* message including a *waitTime*:

2> if T302 is running:

3> stop timer T302;

2> start timer T302 with the value set to the *waitTime*;

2> inform upper layers that access barring is applicable for all access categories except categories '0' and '2'.

1> else:

2> if T302 is running:

3> stop timer T302;

3> perform the actions as specified in 5.3.14.4;

1> if T390 is running:

2> stop timer T390 for all access categories;

2> perform the actions as specified in 5.3.14.4;

1> if the UE is leaving RRC\_INACTIVE:

2> if going to RRC\_IDLE was not triggered by reception of the *RRCRelease message*:

3> if stored, discard the cell reselection priority information provided by the *cellReselectionPriorities*;

3> stop the timer T320, if running;

2> if SDT procedure is ongoing:

3> stop timer T319a, if running;

3> consider SDT procedure is not ongoing;

1> stop all timers that are running except T302, T320, T325, T330, T331, T400 and T430;

1> discard the UE Inactive AS context, if any;

1> release the *suspendConfig*, if configured;

1> release the *aerial-Config*, if configured;

1> perform LTM configuration release procedure for the MCG and SCG as specified in clause 5.3.5.18.7;

1> remove all the entries within the MCG and the SCG *VarConditionalReconfig*, if any;

1> remove the *servingSecurityCellSetId* within the *VarServingSecurityCellSetID*, if any;

1> for each *measId*, if the associated *reportConfig* has a *reportType* set to *condTriggerConfig*:

2> for the associated *reportConfigId*:

3> remove the entry with the matching *reportConfigId* from the *reportConfigList* within the *VarMeasConfig*;

2> if the associated *measObjectId* is only associated to a *reportConfig* with *reportType* set to *condTriggerConfig*:

3> remove the entry with the matching *measObjectId* from the *measObjectList* within the *VarMeasConfig*;

2> remove the entry with the matching *measId* from the *measIdList* within the *VarMeasConfig*;

1> discard the KgNB key, the S-KgNB key, the S-KeNB key, the KRRCenc key, the KRRCint key, the KUPint key and the KUPenc key, if any;

1> if SL indirect path is configured:

2> release cell identity and relay UE ID configured in *sl-IndirectPathAddChange*;

2> indicate upper layers to trigger PC5 unicast link release of the SL indirect path;

1> if N3C indirect path is configured:

2> release *n3c-IndirectPathAddChange*;

2> consider the non-3GPP connection is not used;

1> if the UE is acting as a N3C relay UE:

2> release *n3c-IndirectPathConfigRelay*;

2> consider the non-3GPP connection is not used;

1> release all radio resources, including release of the RLC entity, the BAP entity, the MAC configuration and the associated PDCP entity and SDAP for all established RBs (except for broadcast MRBs), BH RLC channels, Uu Relay RLC channels, PC5 Relay RLC channels and SRAP entity;

NOTE 0: A L2 U2N Relay UE may re-establish the SL-RLC0, SL-RLC1 and SRAP entity after release.

1> indicate the release of the RRC connection to upper layers together with the release cause;

1> for each application layer measurement configuration without *appLayerIdleInactiveConfig* configured:

2> forward the *measConfigAppLayerId* and inform upper layers about the release of the application layer measurement configuration;

2> release the application layer measurement configuration;

2> discard any application layer measurement reports which were not yet fully submitted to lower layers for transmission;

2> consider itself not to be configured to send application layer measurement reports for the *measConfigAppLayerId*;

1> for each application layer measurement configuration with *appLayerIdleInactiveConfig* configured:

2> forward the *measConfigAppLayerId* and inform upper layers about the release of the RAN visible application layer measurement configuration;

2> discard any RAN visible application layer measurement reports received from upper layers;

2> initiate the procedure in 5.5b.1.2;

1> discard any segments of segmented RRC messages stored according to 5.7.6.3;

1> except if going to RRC\_IDLE was triggered by inter-RAT cell reselection while the UE is in RRC\_INACTIVE or RRC\_IDLE or when selecting an inter-RAT cell while T311 was running or when selecting an E-UTRA cell for EPS fallback for IMS voice as specified in 5.4.3.5:

2> if the UE is capable of L2 U2N Remote UE:

3> enter RRC\_IDLE, and perform either cell selection as specified in TS 38.304 [20], or relay selection as specified in clause 5.8.15.3, or both;

2> else:

3> enter RRC\_IDLE and perform cell selection as specified in TS 38.304 [20];

1> release *CSI-LoggedMeasurementConfig*, if configured;

1> release *loggedDataCollectionAssistanceConfig*, if configured;

1> discard the logged measurement entries included in *VarCSI-LogMeasReport,* if any;

NOTE 1: Whether to release the PC5 unicast link is left to L2 U2N Remote UE's implementation.

NOTE 2: It is left to UE implementation whether to stop T430, if running, when going to RRC\_IDLE.

NEXT CHANGE

### 5.3.13 RRC connection resume

<Text Omitted>

#### 5.3.13.2 Initiation

The UE initiates the procedure when upper layers or AS (when responding to RAN paging, upon triggering RNA updates while the UE is in RRC\_INACTIVE, upon requesting multicast reception as specified in clause 5.3.13.1d, for NR sidelink communication/discovery/V2X sidelink communication as specified in clause 5.3.13.1a, for requesting configuration for SRS for positioning, for activation of preconfigured Positioning SRS in RRC\_INACTIVE, for activation of non-preconfigured Positioning SRS with type semi-persistent in RRC\_INACTIVE, upon receiving *RRCRelease* message including *resumeIndication*) requests the resume of a suspended RRC connection or requests the resume for initiating SDT as specified in clause 5.3.13.1b.

The UE shall ensure having valid and up to date essential system information as specified in clause 5.2.2.2 before initiating this procedure.

Upon initiation of the procedure, the UE shall:

1> if the resumption of the RRC connection is triggered by response to NG-RAN paging; or

1> if the resumption of the RRC connection is triggered by receiving *RRCRelease* message including *resumeIndication*; or

1> if the resumption of the RRC connection is triggered for multicast reception as specified in clause 5.3.13.1d:

2> select '0' as the Access Category;

2> perform the unified access control procedure as specified in 5.3.14 using the selected Access Category and one or more Access Identities provided by upper layers;

3> if the access attempt is barred, the procedure ends;

1> else if the resumption of the RRC connection is triggered by upper layers:

2> if the upper layers provide an Access Category and one or more Access Identities:

3> perform the unified access control procedure as specified in 5.3.14 using the Access Category and Access Identities provided by upper layers;

4> if the access attempt is barred, the procedure ends;

2> if the upper layers provide NSAG information and one or more S-NSSAI(s) triggering the access attempt (TS 23.501 [32] and TS 24.501 [23]):

3> apply the NSAG with highest NSAG priority among the NSAGs that are included in *SIB1* (i.e., in *FeatureCombination* and/or in *RA-PrioritizationSliceInfo*), and that are associated with the S-NSSAI(s) triggering the access attempt, in the Random Access procedure (TS 38.321 [3], clause 5.1);

NOTE 0: If there are multiple NSAGs with the same highest NAS-provided NSAG priority identified for access attempt as above, it is left to UE implementation to select the NSAG to be applied in the Random Access procedure.

2> if the resumption occurs after release with redirect with *mpsPriorityIndication*:

3> set the *resumeCause* to *mps-PriorityAccess*;

2> else if the resumption of the RRC connection is triggered for activation of preconfigured SRS for positioning available in *srs-PosRRC-InactiveValidityAreaPreConfigList* and if the UE is camped in one of the cells indicated in one of *srs-PosConfigValidityArea*; or

2> if the resumption of the RRC connection is triggered due to the need for SRS for positioning configuration and no stored *srs-PosRRC-InactiveValidityAreaPreConfigList* for the camped cell exists; or

2> if the resumption of the RRC connection is triggered due to activation of non-preconfigured SRS for positioning with type semi-persistent available in *srs-PosRRC-InactiveValidityAreaNonPreConfig* and if the UE is camped in the cells indicated in *srs-PosConfigValidityArea*:

3> if an emergency service is ongoing:

4> select '2' as the Access Category;

4> set the *resumeCause* to *emergency*;

3> else:

4> set the *resumeCause* to *srs-PosConfigOrActivationReq*;

2> else:

3> set the *resumeCause* in accordance with the information received from upper layers;

1> else if the resumption of the RRC connection is triggered due to an RNA update as specified in 5.3.13.8:

2> if an emergency service is ongoing:

NOTE 1: How the RRC layer in the UE is aware of an ongoing emergency service is up to UE implementation.

3> select '2' as the Access Category;

3> set the *resumeCause* to *emergency*;

2> else:

3> select '8' as the Access Category;

2> perform the unified access control procedure as specified in 5.3.14 using the selected Access Category and one or more Access Identities to be applied as specified in TS 24.501 [23];

3> if the access attempt is barred:

4> set the variable *pendingRNA-Update* to *true*;

4> the procedure ends;

1> else if *srs-PosRRC-InactiveValidityAreaPreConfigList* or *srs-PosRRC-InactiveValidityAreaNonPreConfig* is configured:

2> if the resumption of the RRC connection is triggered due to cell reselection as specified in clause 5.3.13.6:

3> if an emergency service is ongoing:

4> select '2' as the Access Category;

4> set the *resumeCause* to *emergency*;

3> else:

4> select '8' as the Access Category;

4> set the *resumeCause* to *srs-PosConfigOrActivationReq*;

NOTE 2: In case the L2 U2N Relay UE initiates RRC connection resume triggered either by reception of message from a L2 U2N Remote UE via SL-RLC0 or SL-RLC1 as specified in 5.3.13.1a, or by reception of the *RemoteUEInformationSidelink* message containing the *connectionForMP* as specified in 5.3.13.1a, the L2 U2N Relay UE sets the *resumeCause* by implementation, but it can only set the *emergency*, *mps-PriorityAccess*, or *mcs-PriorityAccess* as *resumeCause*, if the same cause value in the message received from the L2 U2N Remote UE via SL-RLC0.

1> if the UE is in NE-DC or NR-DC:

2> if the UE does not support maintaining SCG configuration upon connection resumption:

3> release the MR-DC related configurations (i.e., as specified in 5.3.5.10) from the UE Inactive AS context, if stored;

1> if the UE does not support maintaining the MCG SCell configurations upon connection resumption:

2> release the MCG SCell(s) from the UE Inactive AS context, if stored;

1> if the UE is acting as L2 U2N Remote UE:

2> establish a SRAP entity as specified in TS 38.351 [66], if no SRAP entity has been established;

2> apply the default configuration of SL-RLC1 as defined in 9.2.4 for SRB1;

2> apply the default PDCP configuration as defined in 9.2.1 for SRB1;

2> apply the default configuration of SRAP as defined in 9.2.5 for SRB1;

1> else:

2> apply the default L1 parameter values as specified in corresponding physical layer specifications, except for the parameters for which values are provided in *SIB1*;

2> apply the default SRB1 configuration as specified in 9.2.1;

2> apply the default MAC Cell Group configuration as specified in 9.2.2;

1> release *delayBudgetReportingConfig* from the UE Inactive AS context, if stored;

1> stop timer T342, if running;

1> release *overheatingAssistanceConfig* from the UE Inactive AS context, if stored;

1> stop timer T345, if running;

1> release *idc-AssistanceConfig* from the UE Inactive AS context, if stored;

1> release *drx-PreferenceConfig* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346a, if running;

1> release *maxBW-PreferenceConfig* and *maxBW-PreferenceConfigFR2-2* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346b, if running;

1> release *maxCC-PreferenceConfig* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346c, if running;

1> release *maxMIMO-LayerPreferenceConfig* and *maxMIMO-LayerPreferenceConfigFR2-2* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346d, if running;

1> release *minSchedulingOffsetPreferenceConfig* and *minSchedulingOffsetPreferenceConfigExt* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346e, if running;

1> release *rlm-RelaxationReportingConfig* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346j, if running;

1> release *bfd-RelaxationReportingConfig* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346k, if running;

1> release *releasePreferenceConfig* from the UE Inactive AS context, if stored;

1> release *wlanNameList* from the UE Inactive AS context, if stored;

1> release *btNameList* from the UE Inactive AS context, if stored;

1> release *sensorNameList* from the UE Inactive AS context, if stored;

1> release *obtainCommonLocation* from the UE Inactive AS context, if stored;

1> stop timer T346f, if running;

1> stop timer T346i, if running;

1> release *referenceTimePreferenceReporting* from the UE Inactive AS context, if stored;

1> release *sl-AssistanceConfigNR* from the UE Inactive AS context, if stored;

1> release *musim-GapAssistanceConfig* from the UE Inactive AS context, if stored and stop timer T346h, if running;

1> release *musim-GapConfig* from the UE Inactive AS context, if stored;

1> release *musim-GapPriorityAssistanceConfig* from the UE Inactive AS context, if stored;

1> release *musim-LeaveAssistanceConfig* from the UE Inactive AS context, if stored;

1> release *musim-CapabilityRestrictionConfig* from the UE Inactive AS context, if stored and stop timer T346n, if running;

1> release *propDelayDiffReportConfig* from the UE Inactive AS context, if stored;

1> release *ul-GapFR2-PreferenceConfig*, if configured;

1> release *rrm-MeasRelaxationReportingConfig* from the UE Inactive AS context, if stored;

1> release *multiRx-PreferenceReportingConfigFR2* if configured, and stop timer T346m, if running;

1> release *aerial-FlightPathAvailabilityConfig* from the UE Inactive AS context, if stored;

1> release *ul-TrafficInfoReportingConfig* from the UE Inactive AS context, if stored;

1> release *applicabilityReportConfig* from the UE Inactive AS context, if stored;

1> release *dataCollectionPreferenceConfig* from the UE Inactive AS context, if stored;

1> stop all instances of timer T346l, if running;

1> if the UE is acting as L2 U2N Remote UE:

2> apply the specified configuration of SL-RLC0 used for the delivery of RRC message over SRB0 as specified in 9.1.1.4;

2> apply the SDAP configuration and PDCP configuration as specified in 9.1.1.2 for SRB0;

1> else:

2> apply the CCCH configuration as specified in 9.1.1.2;

2> apply the *timeAlignmentTimerCommon* included in *SIB1*;

1> if *sdt-MAC-PHY-CG-Config* is configured:

2> if the resume procedure is initiated in a cell that is different to the PCell in which the UE received the stored *sdt-MAC-PHY-CG-Config*:

3> release the stored *sdt-MAC-PHY-CG-Config*;

3> instruct the MAC entity to stop the *cg-SDT-TimeAlignmentTimer*, if it is running;

1> if *ncd-SSB-RedCapInitialBWP-SDT* is configured:

2> if the resume procedure is initiated in a cell that is different to the PCell in which the UE received the stored *ncd-SSB-RedCapInitialBWP-SDT*:

3> release the stored *ncd-SSB-RedCapInitialBWP-SDT;*

1> if conditions for initiating SDT in accordance with 5.3.13.1b are fulfilled:

2> consider the resume procedure is initiated for SDT;

2> start timer T319a when the lower layers first transmit the CCCH message;

2> consider SDT procedure is ongoing;

1> else:

2> start timer T319;

2> instruct the MAC entity to stop the *cg*-*SDT*-*TimeAlignmentTimer*, if it is running;

1> if *ta-Report* or *ta-ReportATG* is configured with value *enabled* and the UE supports TA reporting:

2> indicate TA report initiation to lower layers;

1> set the variable *pendingRNA-Update* to *false*;

1> release *successHO-Config* from the UE Inactive AS context, if stored;

1> release *successPSCell-Config* configured by the PCell from the UE Inactive AS context, if stored;

1> release *successPSCell-Config* configured by the PSCell from the UE Inactive AS context, if stored;

1> initiate transmission of the *RRCResumeRequest* message or *RRCResumeRequest1* in accordance with 5.3.13.3.

<Text Omitted>

#### 5.3.13.4 Reception of the *RRCResume* by the UE

The UE shall:

1> stop timer T319, if running;

1> stop timer T319a, if running and consider SDT procedure is not ongoing;

1> stop timer T380, if running;

1> if T331 is running:

2> stop timer T331;

2> perform the actions as specified in 5.7.8.3;

1> if the *RRCResume* includes the *fullConfig*:

2> perform the full configuration procedure as specified in 5.3.5.11;

1> else:

2> if the *RRCResume* does not include the *restoreMCG-SCells*:

3> release the MCG SCell(s) from the UE Inactive AS context, if stored;

2> if the *RRCResume* does not include the *restoreSCG*:

3> release the MR-DC related configurations (i.e., as specified in 5.3.5.10) from the UE Inactive AS context, if stored;

2> restore the *masterCellGroup, mrdc-SecondaryCellGroup*, if stored, and *pdcp-Config* from the UE Inactive AS context;

2> configure lower layers to consider the restored MCG and SCG SCell(s) (if any) to be in deactivated state;

1> discard the UE Inactive AS context;

1> store the used *nextHopChainingCount* value associated to the current KgNB;

1> if the UE is configured to receive MBS multicast in RRC\_INACTIVE:

2> reset MAC;

1> if *sdt-MAC-PHY-CG-Config* is configured:

2> instruct the MAC entity to stop the *cg-SDT-TimeAlignmentTimer*, if it is running;

2> instruct the MAC entity to start the *timeAlignmentTimer* associated with the PTAG indicated by *tag-Id,* if it is not running;

1> if *srs-PosRRC-Inactive* is configured:

2> instruct the MAC entity to stop *inactivePosSRS-TimeAlignmentTimer*, if it is running;

1> if *srs-PosRRC-InactiveValidityAreaNonPreConfig* is configured; or

1> if *srs-PosRRC-InactiveValidityAreaPreConfigList* is configured and if the cell is not listed in *srs-PosConfigValidityArea*:

2> instruct the MAC entity to stop *inactivePosSRS-ValidityAreaTAT*, if it is running;

1> release the *suspendConfig* except the *ran-NotificationAreaInfo*;

1> if the *RRCResume* includes the *masterCellGroup*:

2> perform the cell group configuration for the received *masterCellGroup* according to 5.3.5.5;

1> if the *RRCResume* includes the *mrdc-SecondaryCellGroup:*

2> if the received *mrdc-SecondaryCellGroup* is set to *nr-SCG*:

3> perform the RRC reconfiguration according to 5.3.5.3 for the *RRCReconfiguration* message included in *nr-SCG*;

2> if the received *mrdc-SecondaryCellGroup* is set to *eutra-SCG*:

3> perform the RRC connection reconfiguration as specified in TS 36.331 [10], clause 5.3.5.3 for the *RRCConnectionReconfiguration* message included in *eutra-SCG*;

1> if the *RRCResume* includes the *radioBearerConfig*:

2> perform the radio bearer configuration according to 5.3.5.6;

1> if the *RRCResume* message includes the *sk-Counter*:

2> perform security key update procedure as specified in 5.3.5.7;

1> if the *RRCResume* message includes the *radioBearerConfig2*:

2> perform the radio bearer configuration according to 5.3.5.6;

1> if the *RRCResume* message includes the *needForGapsConfigNR*:

2> if *needForGapsConfigNR* is set to *setup*:

3> consider itself to be configured to provide the measurement gap requirement information of NR target bands;

2> else:

3> consider itself not to be configured to provide the measurement gap requirement information of NR target bands;

1> if the *RRCResume* message includes the *needForGapNCSG-ConfigNR*:

2> if *needForGapNCSG-ConfigNR* is set to *setup*:

3> consider itself to be configured to provide the measurement gap and NCSG requirement information of NR target bands;

2> else:

3> consider itself not to be configured to provide the measurement gap and NCSG requirement information of NR target bands;

1> if the *RRCResume* message includes the *needForGapNCSG-ConfigEUTRA*:

2> if *needForGapNCSG-ConfigEUTRA* is set to *setup*:

3> consider itself to be configured to provide the measurement gap and NCSG requirement information of E‑UTRA target bands;

2> else:

3> consider itself not to be configured to provide the measurement gap and NCSG requirement information of E‑UTRA target bands;

1> for each application layer measurement configuration with *appLayerIdleInactiveConfig* configured:

2> if the RPLMN is not included in *plmn-IdentityList* in *VarAppLayerPLMN-ListConfig*:

3> forward the *measConfigAppLayerId* and inform upper layers about the release of the application layer measurement configuration;

3> release the application layer measurement configuration including its fields in the UE variables *VarAppLayerIdleConfig* and *VarAppLayerPLMN-ListConfig*;

3> discard any application layer measurement reports which were not yet fully submitted to lower layers for transmission;

3> consider itself not to be configured to send application layer measurement reports for the *measConfigAppLayerId*;

1> if the *RRCResume* message includes the *appLayerMeasConfig*:

2> if *idleInactiveReportAllowed* is included in the *RRCResume* message:

3> if the UE is configured with at least one application layer measurement configuration with *appLayerIdleInactiveConfig* configured:

4> initiate the procedure in 5.7.16.2 after the *RRCResumeComplete* has been transmitted;

2> else:

3> for each application layer measurement configuration with *appLayerIdleInactiveConfig* configured:

4> forward the *measConfigAppLayerId* and inform upper layers about the release of the application layer measurement configuration;

4> release the application layer measurement configuration including its fields in the UE variables *VarAppLayerIdleConfig* and *VarAppLayerPLMN-ListConfig*, if stored;

4> discard any application layer measurement reports which were not yet fully submitted to lower layers for transmission;

4> consider itself not to be configured to send application layer measurement reports for the *measConfigAppLayerId*;

2> perform the application layer measurement configuration procedure as specified in 5.3.5.13d;

1> if the *RRCResume* message includes the *sl-L2RemoteUE-Config* (i.e. the UE is a L2 U2N Remote UE):

2> perform the L2 U2N Remote UE configuration procedure as specified in 5.3.5.16;

1> if the *RRCResume* message includes the *sl-ConfigDedicatedNR*:

2> perform the sidelink dedicated configuration procedure as specified in 5.3.5.14;

1> resume SRB2 (if suspended), SRB3 (if configured), SRB4 (if configured), SRB5 (if configured), SRBx (if configured), all DRBs (that are suspended) and multicast MRBs (that are suspended);

NOTE 1: If the SCG is deactivated, resuming SRB3 and all DRBs does not imply that PDCP or RRC PDUs can be transmitted or received on SCG RLC bearers.

1> if stored, discard the cell reselection priority information provided by the *cellReselectionPriorities* or inherited from another RAT;

1> stop timer T320, if running;

1> if the *RRCResume* message includes the *measConfig*:

2> perform the measurement configuration procedure as specified in 5.5.2;

1> resume measurements if suspended;

1> if T390 is running:

2> stop timer T390 for all access categories;

2> perform the actions as specified in 5.3.14.4;

1> if T302 is running:

2> stop timer T302;

2> perform the actions as specified in 5.3.14.4;

1> enter RRC\_CONNECTED;

1> indicate to upper layers that the suspended RRC connection has been resumed;

1> stop the cell re-selection procedure;

1> stop relay reselection procedure if any for L2 U2N Remote UE;

1> consider the current cell to be the PCell;

1> set the content of the of *RRCResumeComplete* message as follows:

2> if the upper layer provides NAS PDU, set the *dedicatedNAS-Message* to include the information received from upper layers;

2> if upper layers provides a PLMN:

3> if the UE is either allowed or instructed to access the PLMN via a cell for which at least one CAG ID is broadcast:

4> set the *selectedPLMN-Identity* from the *npn-IdentityInfoList*;

3> else:

4> set the *selectedPLMN-Identity* to the PLMN selected by upper layers from the *plmn-IdentityInfoList*;

2> if the *masterCellGroup* contains the *reportUplinkTxDirectCurrent*:

3> include the *uplinkTxDirectCurrentList* for each MCG serving cell with UL;

3> include *uplinkDirectCurrentBWP-SUL* for each MCG serving cell configured with SUL carrier, if any, within the *uplinkTxDirectCurrentList*;

2> if the *masterCellGroup* contains the *reportUplinkTxDirectCurrentTwoCarrier*:

3> include in the *uplinkTxDirectCurrentTwoCarrierList* the list of uplink Tx DC locations for the configured uplink carrier aggregation in the MCG;

2> if the *masterCellGroup* contains the *reportUplinkTxDirectCurrentMoreCarrier*:

3> include in the *uplinkTxDirectCurrentMoreCarrierList* the list of uplink Tx DC locations for the configured uplink carrier aggregation in the MCG;

2> if the UE has idle/inactive measurement information concerning cells other than the PCell available in *VarMeasIdleReport*:

3> if the *idleModeMeasurementReq* is included in the *RRCResume* message:

4> if *validatedMeasurementsReq* is included in the *RRCResume* and *measIdleValidityDuration* is included in *VarEnhMeasIdleConfig*;

5> set the *measResultIdleEUTRA* in the *RRCResumeComplete* message to the value of *measReportIdleEUTRA* in the *VarMeasIdleReport* for any valid measurement results*,* if available, and set *validityStatus* to the value of *measIdleValidityDuration* in *VarEnhMeasIdleConfig*;

5> set the *measResultIdleNR* in the *RRCResumeComplete* message to the value of *measReportIdleNR* in the *VarMeasIdleReport* for any valid measurement results, if available, and set *validityStatus* to the value of *measIdleValidityDuration* in *VarEnhMeasIdleConfig*;

5> discard the *VarMeasIdleReport* upon successful delivery of the *RRCResumeComplete* message is confirmed by lower layers;

5> remove the *measIdleValidityDuration* in *VarEnhMeasIdleConfig*;

4> else:

5> set the *measResultIdleEUTRA* in the *RRCResumeComplete* message to the value of measReportIdleEUTRA in the *VarMeasIdleReport*, if available;

5> set the *measResultIdleNR* in the *RRCResumeComplete* message to the value of *measReportIdleNR* in the *VarMeasIdleReport*, if available;

5> discard the *VarMeasIdleReport* upon successful delivery of the *RRCResumeComplete* message is confirmed by lower layers;

5> remove the *measIdleValidityDuration* in *VarEnhMeasIdleConfig*, if stored;

3> else:

4> if the SIB1 contains *idleModeMeasurementsNR* and the UE has NR idle/inactive measurement information concerning cells other than the PCell available in *VarMeasIdleReport*; or

4> if the SIB1 contains *idleModeMeasurementsEUTRA* and the UE has E-UTRA idle/inactive measurement information available in *VarMeasIdleReport*:

5> include the *idleMeasAvailable*;

2> if the *reselectionMeasurementReq* is included in the *RRCResume* message:

3> if *validatedMeasurementsReq* is included in the *RRCResume* and *measReselectionValidityDuration* is included in *VarMeasReselectionConfig*:

4> if *measReselectionCarrierListNR* is present in *VarMeasReselectionConfig*:

5> if the UE has valid cell reselection measurements results for any frequency listed in *measReselectionCarrierListNR* in *VarMeasRelectionConfig*:

6> set the *measResultReselectionNR* in the *RRCResumeComplete* message to the valid NR measurement results, if available for any frequency listed in *measReselectionCarrierListNR* in *VarMeasReselectionConfig* and set *validityStatus* to the value of *measReselectionValidityDuration* in *VarMeasReselectionConfig*;

4> else:

5> if the UE has valid NR cell reselection measurements results:

6> set the *measResultReselectionNR* in the *RRCResumeComplete* message to any available valid NR measurement results, if available, and set *validityStatus* to the value of *measReselectionValidityDuration* in *VarMeasReselectionConfig*;

3> else:

4> if *measReselectionCarrierListNR* is present in *VarMeasReselectionConfig*:

5> if the UE has cell reselection measurements results for any frequency listed in *measReselectionCarrierListNR* in *VarMeasRelectionConfig*:

6> set the *measResultReselectionNR* in the *RRCResumeComplete* message to the NR measurement results, if available for any frequency listed in *measReselectionCarrierListNR* in *VarMeasReselectionConfig*;

4> else:

5> if the UE has NR cell reselection measurements results:

6> set the *measResultReselectionNR* in the *RRCResumeComplete* message to any available NR measurement results, if available;

2> else:

3> if the *SIB1* contains *reselectionMeasurementsNR*:

4> if *measReselectionCarrierListNR* is present in *VarMeasReselectionConfig* and the UE has NR reselection measurements available for any frequency listed in *measReselectionCarrierListNR* in *VarMeasReselectionConfig*; or

4> if *measReselectionCarrierListNR* is not present in *VarMeasReselectionConfig* and if the UE has NR reselection measurements available:

5> include the *reselectionMeasAvailable*;

2> if the *RRCResume* message includes *mrdc-SecondaryCellGroup* set to *eutra-SCG*:

3> include in the *eutra-SCG-Response* the E-UTRA *RRCConnectionReconfigurationComplete* message in accordance with TS 36.331 [10] clause 5.3.5.3;

2> if the *RRCResume* message includes *mrdc-SecondaryCellGroup* set to *nr-SCG*:

3> include in the *nr-SCG-Response* the SCG *RRCReconfigurationComplete* message;

2> if the UE has logged measurements available for NR and if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*; or

2> if the UE has logged measurements available for NR and if the current registered SNPN identity is included in *snpn-ConfigID-List* stored in *VarLogMeasReport*:

3> include the *logMeasAvailable* in the *RRCResumeComplete* message*;*

3> if Bluetooth measurement results are included in the logged measurements the UE has available for NR:

4> include the *logMeasAvailableBT* in the *RRCResumeComplete* message;

3> if WLAN measurement results are included in the logged measurements the UE has available for NR:

4> include the *logMeasAvailableWLAN* in the *RRCResumeComplete* message;

2> if the *sigLoggedMeasType* in *VarLogMeasReport* is included; or

2> if the UE supports the override protection of the signalling based logged MDT for inter-RAT (i.e. LTE to NR), and if the *sigLoggedMeasType* in *VarLogMeasReport* of TS 36.331 [10] is included:

3> if T330 timer is running (associated to the logged measurement configuration for NR or for LTE):

4> set *sigLogMeasConfigAvailable* to *true* in the *RRCResumeComplete* message;

3> else:

4> if the UE has logged measurements in *VarLogMeasReport* or in *VarLogMeasReport* of TS 36.331 [10]:

5> set *sigLogMeasConfigAvailable* to *false* in the *RRCResumeComplete* message;

2> if the UE has connection establishment failure or connection resume failure information available in *VarConnEstFailReport* or *VarConnEstFailReportList* and if the RPLMN is equal to *plmn-Identity* stored in *VarConnEstFailReport* orin at least one of the entries of *VarConnEstFailReportList*; or

2> if the UE has connection establishment failure information or connection resume failure information available in *VarConnEstFailReport* or *VarConnEstFailReportList* and if the registered SNPN identity is equal to *snpn-Identity* in *networkIdentity* stored in *VarConnEstFailReport* or any entry of *VarConnEstFailReportList*:

3> include *connEstFailInfoAvailable* in the *RRCResumeComplete* message;

2> if the UE has radio link failure or handover failure information available in *VarRLF-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarRLF-Report*; or

2> if the UE has radio link failure or handover failure information available in *VarRLF-Report* of TS 36.331 [10] and if the UE is capable of cross-RAT RLF reporting and if the RPLMN is included in *plmn-IdentityList* stored in *VarRLF-Report* of TS 36.331 [10]; or

2> if the UE has radio link failure or handover failure information available in *VarRLF-Report* and if the current registered SNPN identity are included in *snpn-IdentityList* stored in *VarRLF-Report*; or

3> include *rlf-InfoAvailable* in the *RRCResumeComplete* message;

2> if the UE has successful PSCell change or addition related information available in *VarSuccessPSCell-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarSuccessPSCell-Report*; or

2> if the UE has successful PSCell change or addition information available in *VarSuccessPSCell-Report* and if the current registered SNPN identity is included in *snpn-IdentityList* stored in the *VarSuccessPSCell-Report*:

3> include *successPSCell-InfoAvailable* in the *RRCResumeComplete* message;

2> if the UE has successful handover information available in *VarSuccessHO-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarSuccessHO-Report*; or

2> if the UE has successful handover information available in *VarSuccessHO-Report* and if the current registered SNPN identity is included in *snpn-IdentityList* stored in the *VarSuccessHO-Report*:

3> include *successHO-InfoAvailable* in the *RRCResumeComplete* message;

2> if the UE supports storage of mobility history information and the UE has mobility history information available in *VarMobilityHistoryReport*:

3> include the *mobilityHistoryAvail* in the *RRCResumeComplete* message;

2> if *speedStateReselectionPars* is configured in the *SIB2*:

3> include the *mobilityState* in the *RRCResumeComplete* message and set it to the mobility state (as specified in TS 38.304 [20]) of the UE just prior to entering RRC\_CONNECTED state;

2> if the UE has at least one stored application layer measurement configuration with *appLayerIdleInactiveConfig* configured:

3> include *measConfigReportAppLayerAvailable* in the *RRCResumeComplete* message;

2> if the UE is configured to provide the measurement gap requirement information of NR target bands:

3> include the *NeedForGapsInfoNR* and set the contents as follows:

4> include *intraFreq-needForGap* and set the gap requirement information of intra-frequency measurement for each NR serving cell;

4> if *requestedTargetBandFilterNR* is configured, for each supported NR band that is also included in *requestedTargetBandFilterNR*, include an entry in *interFreq-needForGap* and set the gap requirement information for that band; otherwise, include an entry in *interFreq-needForGap* and set the corresponding gap requirement information for each supported NR band;

3> if the *needForInterruptionConfigNR* is enabled:

4> include the *needForInterruptionInfoNR* and set the contents as follows:

5> include *intraFreq-needForInterruption* with the same number of entries, and listed in the same order, as in *intraFreq-needForGap*;

5> for each entry in *intraFreq-needForInterruption*:

6> include *interruptionIndication* and set the interruption requirement information if the corresponding entry in *intraFreq-needForGap* is set to *no-gap;*

5> include *interFreq-needForInterruption* with the same number of entries, and listed in the same order, as in *interFreq-needForGap*;

5> for each entry in *interFreq-needForInterruption*:

6> include *interruptionIndication* and set the interruption requirement information if the corresponding entry in *interFreq-needForGap* is set to *no-gap*;

2> if the UE is configured to provide the measurement gap and NCSG requirement information of NR target bands:

3> include the *NeedForGapNCSG-InfoNR* and set the contents as follows:

4> include *intraFreq-needForNCSG* and set the gap and NCSG requirement information of intra-frequency measurement for each NR serving cell;

4> if *requestedTargetBandFilterNCSG-NR* is configured:

5> for each supported NR band included in *requestedTargetBandFilterNCSG-NR*, include an entry in *interFreq-needForNCSG* and set the NCSG requirement information for that band;

4> else:

5> include an entry for each supported NR band in *interFreq-needForNCSG* and set the corresponding NCSG requirement information;

2> if the UE is configured to provide the measurement gap and NCSG requirement information of E‑UTRA target bands:

3> include the *NeedForGapNCSG-InfoEUTRA* and set the contents as follows:

4> if *requestedTargetBandFilterNCSG-EUTRA* is configured:

5> for each supported E-UTRA band included in *requestedTargetBandFilterNCSG-EUTRA*, include an entry in *needForNCSG-EUTRA* and set the NCSG requirement information for that band;

4> else:

5> include an entry for each supported E-UTRA band in *needForNCSG-EUTRA* and set the corresponding NCSG requirement information;

2> if *SIB1* contains *musim-CapRestrictionAllowed*:

3> if supported, include the *musim-CapRestrictionInd* in the *RRCResumeComplete* message upon determining it has temporary capability restriction;

2> if the UE has flight path information available:

3> include *flightPathInfoAvailable*;

2> if, for at least one serving cell, the UE is configured with at least one *reportConfigId* associated to a *CSI-ReportConfig* including *csi-InferencePrediction*, or including *reportQuantity-r19* set to *p-CRI-r19* or *p-SSB-Index-r19* or *p-CRI-RSRP-r19* or *p-SSB-Index-RSRP-r19*:

3> for each such serving cell, include an entry in the *applicabilityReportList* and set the content as follows:

4> set the *applicabilityCellId* to the serving cell index of the cell;

4> for each configured *reportConfigId* associated to a *CSI-ReportConfig* including *csi-InferencePrediction*, or including *reportQuantity-r19* set to *p-CRI-r19* or *p-SSB-Index-r19* or *p-CRI-RSRP-r19* or *p-SSB-Index-RSRP-r19*:

5> include an entry in the *applicabilityInfoReportList* and set the content as follows:

6> set the *csi-ReportConfigId* within *applicabilityInfoReportId* to the corresponding *reportConfigId*;

6> set the *applicabilityStatus* to the applicability status of the configuration corresponding to the *applicabilityInfoReportId*;

6> if the *applicabilityStatus* is set to inapplicable:

7> if the UE prefers to release the concerned *CSI-ReportConfig* (e.g. due to model unavailability), include *releaseConfigurationPreference*;

1> submit the *RRCResumeComplete* message to lower layers for transmission;

1> the procedure ends.

NOTE 2: Network only configures at most one of *reportUplinkTxDirectCurrent, reportUplinkTxDirectCurrentTwoCarrier* or *reportUplinkTxDirectCurrentMoreCarrier* in one RRC message*.*

NOTE 3: Upon reception of *musim-CapRestrictionInd* in *RRCResumeComplete*, it is up to network implementation to configure the UE with a limited configuration that is used until network sends *RRCReconfiguration* based on the actual restricted UE capabilities included in *UEAssistanceInformation*.

NEXT CHANGE

## 5.4 Inter-RAT mobility

<Text Omitted>

### 5.4.3 Mobility from NR

<Text Omitted>

#### 5.4.3.4 Successful completion of the mobility from NR

Upon successfully completing the handover, at the source side the UE shall:

1> if T316 was not running at the time of receiving *MobilityFromNRCommand* and if the UE was configured with *successHO-Config* when connected to the source PCell and the *targetRAT-Type* is set to *eutra*:

2> perform the actions for the successful handover report determination for inter-RAT handover as specified in clause 5.7.10.6.

1> reset MAC;

1> stop all timers that are running except T325, T330 and T400;

1> release *ran-NotificationAreaInfo*, if stored;

1> release the AS security context including the KRRCenc key, the KRRCint key, the KUPint key and the KUPenc key, if stored;

1> release all radio resources, including release of the RLC entity and the MAC configuration;

1> release the associated PDCP entity and SDAP entity for all established RBs;

NOTE : PDCP and SDAP configured by the source RAT prior to the handover that are reconfigured and re-used by target RAT when delta signalling (i.e., during inter-RAT intra-system handover when *fullConfig* is not present) is used, are not released as part of this procedure.

1> if the UE is configured with any application layer measurement configuration:

2> inform upper layers about the release of all application layer measurement configurations;

2> release all application layer measurement configurations including their fields in UE variables *VarAppLayerIdleConfig* and *VarAppLayerPLMN-ListConfig*;

2> discard any application layer measurement reports which were not yet fully submitted to lower layers for transmission;

2> consider itself not to be configured to send application layer measurement reports;

1> discard any logged measurement entries included in *VarCSI-LogMeasReport*;

1> if the *targetRAT-Type* is set to *eutra* and the *nas-SecurityParamFromNR* is included: or

1> if the *targetRAT-Type* is set to *utra-fdd*:

2> indicate the release of the RRC connection to upper layers together with the release cause 'other'.

NEXT CHANGE

## 5.5 Measurements

<Text Omitted>

### 5.5.4 Measurement report triggering

<Text Omitted>

#### 5.5.4.2 Event A1 (Serving becomes better than threshold)

The UE shall:

1> consider the entering condition for this event to be satisfied when condition A1-1, as specified below, is fulfilled;

1> consider the leaving condition for this event to be satisfied when condition A1-2, as specified below, is fulfilled;

1> for this measurement, consider the NR serving cell corresponding to the associated *measObjectNR* associated with this event.

Inequality A1-1 (Entering condition)

*Ms – Hys > Thresh*

Inequality A1-2 (Leaving condition)

*Ms + Hys < Thresh*

The variables in the formula are defined as follows:

***Ms*** is the measurement result of the serving cell, not taking into account any offsets.

***Hys*** is the hysteresis parameter for this event (i.e. *hysteresis* as defined within *reportConfigNR* for this event, or *hysteresis* as defined within *eventTriggedConfig* in a configuration in *csi-LoggedMeasurementConfigToAddModList* for this event).

***Thresh*** is the threshold parameter for this event (i.e. *a1-Threshold* as defined within *reportConfigNR* for this event, or *threshold* as defined within *eventTriggedConfig* in a configuration in *csi-LoggedMeasurementConfigToAddModList* for this event).

***Ms*** is expressed in dBm in case of RSRP, or in dB in case of RSRQ and RS-SINR.

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

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

#### 5.5.4.3 Event A2 (Serving becomes worse than threshold)

The UE shall:

1> consider the entering condition for this event to be satisfied when condition A2-1, as specified below, is fulfilled;

1> consider the leaving condition for this event to be satisfied when condition A2-2, as specified below, is fulfilled;

1> for this measurement, consider the serving cell indicated by the *measObjectNR* associated to this event.

NOTE: If the SCell indicated by the *measObjectNR* associated to this event is not detectable, then the UE should consider for the value of *Ms* the lowest value of the value range of the measurement quantity as the SCell measurement.

Inequality A2-1 (Entering condition)

*Ms + Hys < Thresh*

Inequality A2-2 (Leaving condition)

*Ms – Hys > Thresh*

The variables in the formula are defined as follows:

***Ms*** is the measurement result of the serving cell, not taking into account any offsets.

***Hys*** is the hysteresis parameter for this event (i.e. *hysteresis* as defined within *reportConfigNR* for this event, or *hysteresis* as defined within *eventTriggedConfig* in a configuration in *csi-LoggedMeasurementConfigToAddModList* for this event).

***Thresh*** is the threshold parameter for this event (i.e. *a2-Threshold* as defined within *reportConfigNR* for this event, or *threshold* as defined within *eventTriggedConfig* in a configuration in *csi-LoggedMeasurementConfigToAddModList* for this event).

***Ms*** is expressed in dBm in case of RSRP, or in dB in case of RSRQ and RS-SINR.

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

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

NEXT CHANGE

## 5.5x Logged Measurements for Network Data Collection

### 5.5x.1 Logged Measurement Configuration

#### 5.5x.1.1 General

The purpose of this procedure is to configure the UE to perform logging of measurement results while in RRC\_CONNECTED. The procedure applies to logged measurements for network data collection capable UEs that are in RRC\_CONNECTED.

NOTE: NG-RAN may retrieve stored logged measurement information by means of the UE information procedure.

#### 5.5x.1.2 Initiation

NG-RAN initiates the logged measurement configuration procedure to UE in RRC\_CONNECTED for a serving cell by sending *csi-LoggedMeasurementConfigToAddModList* in the *csi-MeasConfig* of a serving cell.

#### 5.5x.1.3 Reception of *CSI-LoggedMeasurementConfig* by the UE

Upon receiving *csi-LoggedMeasurementConfigToAddModList* in the *csi-MeasConfig* of a serving cell, the UE shall:

1> for each CSI logged measurement configuration included in *csi-LoggedMeasurementConfigToAddModList*:

2> if the *csi-LoggedMeasurementConfigId* associated to the CSI logged measurement configuration included in *csi-LoggedMeasurementConfigToAddModList* and the cell identity of the serving cell for which the measurements shall be logged, i.e. the serving cell associated with the serving cell configuration in which *csi-LoggedMeasurementConfigToAddModList* is received, are included in an entry in *csi-LogMeasInfoCellList* in *VarCSI-LogMeasReport*;

3> modify the CSI logged measurement configuration according to the configuration received in *csi-LoggedMeasurementConfigToAddModList*;

2> else:

3> include an entry in *csi-LogMeasInfoCellList* in *VarCSI-LogMeasReport*:

4> set *cellId* to the CGI of the serving cell associated with the serving cell configuration in which *csi-LoggedMeasurementConfigToAddModList* is received, if available. If the CGI is not available for that cell, set *cellId* to the ARFCN and PCI of the serving cell;

4> set *refCSI-LoggedMeasurementConfigId* to the *csi-LoggedMeasurementConfigId* associated to the CSI logged measurement configuration included in *csi-LoggedMeasurementConfigToAddModList*;

1> perform measurements logging as specified in 5.5x.3.2.

### 5.5x.2 Release of Logged Measurement Configuration

#### 5.5x.2.1 General

The purpose of this procedure is to release the logged measurement configuration for network data collection.

#### 5.5x.2.2 Initiation

The UE shall initiate the procedure upon receiving *csi-LoggedMeasurementConfigToReleaseList*.

The UE shall:

1> for each CSI logged measurement configuration ID included in *csi-LoggedMeasurementConfigToReleaseList* associated with a serving cell:

2> if the current UE configuration for the associated serving cell includes a CSI logged measurement configuration with the associated CSI logged measurement configuration ID included in *csi-LoggedMeasurementConfigToReleaseList*:

3> release the CSI logged measurement configuration.

### 5.5x.3 Measurements logging

#### 5.5x.3.1 General

This procedure specifies the logging of available measurements by a UE in RRC\_CONNECTED that has a logged measurement configuration for network data collection.

#### 5.5x.3.2 Initiation

The UE shall:

1> for each CSI logged measurement configurationassociated with a *refCSI-LoggedMeasurementConfigId* in *csi-LogMeasInfoList* in *VarCSI-LogMeasReport,* perform the logging of measurements for the serving cell associated with *cellId*, in accordance with the corresponding CSI logged measurement configuration within *csi-LoggedMeasurementConfigToAddModList*:

2> if the *eventTriggeredConfig* is not included:

3> perform the logging at regular time intervals, according to *loggingPeriodicity* (if present) and according to the periodicity of the resources indicated by *csi-LoggedResourceConfig* in the corresponding CSI logged measurement configuration within *csi-LoggedMeasurementConfigToAddModList*, if *loggingPeriodicity* is not present;

2> else (*eventTriggeredConfig* is included):

3> if *threshold* within *eventTriggeredConfig* is set to *aboveThreshold* and the entering condition, as specified in 5.5.4.2, is fulfilled for the serving cell associated with *cellId* for all measurements taken during *timeToTrigger*; or

3> if *threshold* within *eventTriggeredConfig* is set to *belowThreshold* and the entering condition, as specified in 5.5.4.3, is fulfilled for the serving cell associated with *cellId* for all measurements taken during *timeToTrigger*:

4> start performing the logging at regular time intervals, according to *loggingPeriodicity* (if present) and according to the periodicity of the resources indicated by *csi-LoggedResourceConfig* in the corresponding CSI logged measurement configuration within *csi-LoggedMeasurementConfigToAddModList*, if *loggingPeriodicity* is not present;

3> if *threshold* within *eventTriggeredConfig* is set to *aboveThreshold* and the leaving condition, as specified in 5.5.4.2, is fulfilled for the serving cell associated with *cellId* for all measurements taken during *timeToTrigger*; or

3> if *threshold* within *eventTriggeredConfig* is set to *belowThreshold* and the leaving condition, as specified in 5.5.4.3, is fulfilled for the serving cell associated with *cellId* for all measurements taken during *timeToTrigger*:

4> stop performing the logging for the corresponding CSI logged measurement configuration within *csi-LoggedMeasurementConfigToAddModList*;

2> when performing the logging:

3> for each CSI logged measurement configuration associated to *refCSI-LoggedMeasurementConfigId* in *csi-LogMeasInfoList* in *VarCSI-LogMeasReport*:

4> set the *csi-RS-MeasResultList* and *SSB-MeasResultList* to include the quantities the UE is logging measurements for, upon receiving the quantities from the lower layers;

4> if the time between the measurements that are logged and included in this instance of *csi-LogMeasInfoList* and the measurements for the previous instance of *csi-LogMeasInfoList* with the same *refCSI-LoggedMeasurementConfigId*, for the same serving cell, is longer than the logging periodicity:

5> set the *timeGap* to *true*;

2> when the memory reserved for the logged measurement information for data collection becomes full, stop logging.

NEXT CHANGE

## 5.7 Other

<Text Omitted>

### 5.7.4 UE Assistance Information

#### 5.7.4.1 General



Figure 5.7.4.1-1: UE Assistance Information

The purpose of this procedure is for the UE to inform the network of:

- its delay budget report carrying desired increment/decrement in the connected mode DRX cycle length; or

- its overheating assistance information; or

- its IDC assistance information; or

- its preference on DRX parameters for power saving; or

- its preference on the maximum aggregated bandwidth for power saving; or

- its preference on the maximum number of secondary component carriers for power saving; or

- its preference on the maximum number of MIMO layers for power saving; or

- its preference on the minimum scheduling offset for cross-slot scheduling for power saving; or

- its preference on the RRC state; or

- configured grant assistance information for NR sidelink communication; or

- its preference in being provisioned with reference time information; or

- its preference for FR2 UL gap; or

- its preference to transition out of RRC\_CONNECTED state for MUSIM operation; or

- its preference on the MUSIM gaps; or

- its preference on the MUSIM gap priority; or

- its preference on keeping the colliding MUSIM gaps; or

- its preference on the MUSIM temporary capability restriction; or

- its relaxation state for RLM measurements; or

- its relaxation state for BFD measurements; or

- availability of data and/or signalling mapped to radio bearers which are not configured for SDT; or

- its preference for the SCG to be deactivated; or

- availability of uplink data to transmit for a DRB for which there is no MCG RLC bearer while the SCG is deactivated; or

- change of its fulfilment status for RRM measurement relaxation criterion; or

- service link (specified in TS 38.300 [2]) propagation delay difference between serving cell and neighbour cell(s); or

- its preference on multi-Rx operation for FR2; or

- availability of flight path information for Aerial UE operation; or

- UL traffic information; or

- the information of the relay UE(s) with which it connects via a non-3GPP connection for MP; or

- configured grant assistance information for NR sidelink positioning; or

- applicability of configurations subject to the applicability determination procedure; or

- its preference to be configured with radio resources to perform UE data collection; or

- its assistance information related to logging of measurements for network data collection.

#### 5.7.4.2 Initiation

A UE capable of providing delay budget report in RRC\_CONNECTED may initiate the procedure in several cases, including upon being configured to provide delay budget report and upon change of delay budget preference.

A UE capable of providing overheating assistance information in RRC\_CONNECTED may initiate the procedure if it was configured to do so, upon detecting internal overheating, or upon detecting that it is no longer experiencing an overheating condition.

A UE capable of providing IDC assistance information in RRC\_CONNECTED may initiate the procedure if it was configured to do so, upon detecting IDC problem if the UE did not transmit an IDC assistance information since it was configured to provide IDC indications, or upon change of IDC problem information.

A UE capable of providing its preference on DRX parameters of a cell group for power saving in RRC\_CONNECTED may initiate the procedure in several cases, if it was configured to do so, including upon having a preference on DRX parameters and upon change of its preference on DRX parameters.

A UE capable of providing its preference on the maximum aggregated bandwidth of a cell group for power saving in RRC\_CONNECTED may initiate the procedure in several cases, if it was configured to do so, including upon having a maximum aggregated bandwidth preference and upon change of its maximum aggregated bandwidth preference.

A UE capable of providing its preference on the maximum number of secondary component carriers of a cell group for power saving in RRC\_CONNECTED may initiate the procedure in several cases, if it was configured to do so, including upon having a maximum number of secondary component carriers preference and upon change of its maximum number of secondary component carriers preference.

A UE capable of providing its preference on the maximum number of MIMO layers of a cell group for power saving in RRC\_CONNECTED may initiate the procedure in several cases, if it was configured to do so, including upon having a maximum number of MIMO layers preference and upon change of its maximum number of MIMO layers preference.

A UE capable of providing its preference on the minimum scheduling offset for cross-slot scheduling of a cell group for power saving in RRC\_CONNECTED may initiate the procedure in several cases, if it was configured to do so, including upon having a minimum scheduling offset preference and upon change of its minimum scheduling offset preference.

A UE capable of providing assistance information to transition out of RRC\_CONNECTED state may initiate the procedure if it was configured to do so, upon determining that it prefers to transition out of RRC\_CONNECTED state, or upon change of its preferred RRC state.

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.

A UE capable of providing an indication of its preference in being provisioned with reference time information may initiate the procedure upon being configured to provide this indication, or if it was configured to provide this indication and upon change of its preference.

A UE capable of providing an indication of its preference in FR2 UL gap may initiate the procedure if it was configured to do so, upon detecting the need of FR2 UL gap activation/deactivation.

A UE capable of providing MUSIM assistance information for gap preference may initiate the procedure if it was configured to do so, upon determining it needs the gaps, or upon change of the gap preference information.

A UE capable of providing MUSIM assistance information for gap priority preference and/or preference to keep the colliding MUSIM gaps may initiate the procedure if it was configured to do so, upon determining it has gap priority preference information and/or it has preference to keep the colliding MUSIM gaps.

A UE capable of providing MUSIM assistance information for leave indication may initiate the procedure if it was configured to do so upon determining that it needs to leave RRC\_CONNECTED state.

A UE capable of providing MUSIM assistance information for temporary capability restriction may initiate the procedure if it was configured to do so, upon determining it has temporary capability restriction or upon determining the removal of the capability restriction.

A UE capable of relaxing its RLM measurements of a cell group in RRC\_CONNECTED state shall initiate the procedure for providing an indication of its relaxation state for RLM measurements upon being configured to do so, and upon change of its relaxation state for RLM measurements in RRC\_CONNECTED state.

A UE capable of relaxing its BFD measurements in serving cells of a cell group in RRC\_CONNECTED shall initiate the procedure for providing an indication of its relaxation state for BFD measurements upon being configured to do so, and upon change of its relaxation state for BFD measurements in RRC\_CONNECTED state.

A UE capable of SDT initiates this procedure when data and/or signalling mapped to radio bearers that are not configured for SDT becomes available during SDT (i.e. while SDT procedure is ongoing).

A UE capable of providing its preference for SCG deactivation may initiate the procedure if it was configured to do so, upon determining that it prefers or does no more prefer the SCG to be deactivated.

A UE that has uplink data to transmit for a DRB for which there is no MCG RLC bearer while the SCG is deactivated shall initiate the procedure.

A UE capable of providing an indication of fulfilment of the RRM measurement relaxation criterion in connected mode may initiate the procedure if it was configured to do so, upon change of its fulfilment status for RRM measurement relaxation criterion for connected mode.

A UE capable of providing service link propagation delay difference between serving cell and neighbour cell(s) shall initiate the procedure upon being configured to do so, and upon determining that service link propagation delay difference between serving cell and a neighbour cell has changed more than *threshPropDelayDiff* compared with the last reported value.

A UE capable of providing an indication of its preference on multi-Rx operation for FR2 may initiate the procedure if it was configured to do so, upon detecting having a preference on multi-Rx operation for FR2 and upon change of its preference on multi-Rx operation for FR2.

A UE capable of indicating the availability of flight path information may initiate the procedure, if it was configured to do so, upon determining that an initial or updated flight path information is available.

A UE capable of providing UL traffic information shall initiate the procedure when this information is available upon being configured to do so, and upon change of UL traffic information.

A UE capable of N3C remote UE operation initiates the procedure upon being configured to report relay UE information on the available non-3GPP connection(s), and upon change of its available non-3GPP connection(s).

A UE capable of providing configured grant assistance information including SL-PRS transmission periodicity, priority, bandwidth and delay budget for NR sidelink positioning in RRC\_CONNECTED may initiate the procedure.

A UE capable of providing assistance information related to the applicability of configurations subject to the applicability determination procedure may initiate the procedure in several cases, including upon being configured to report assistance information about the applicability of configurations subject to the applicability determination procedure and upon change of the applicability of the configurations subject to the applicability determination procedure. A UE capable of providing assistance information related to the applicability of configurations subject to the applicability determination procedure shall initiate the procedure if it was configured to do so, upon determining that the applicability of a configuration subject to the applicability determination procedure changed from applicable to inapplicable.

A UE capable of providing its preference to be configured with radio resources to perform UE data collection may initiate the procedure if it was configured to do so, upon determining that it would like to perform UE data collection or upon determining that it no longer prefers to perform UE data collection.

A UE capable of logging measurements for network data collection may initiate the procedure if it was configured to do so, upon determining that it has entered a low power state, or upon determining that the buffer reserved for the logging of radio measurements for network data collection has become full.

A UE capable of logging measurements for network data collection and of providing a data avilability indication based on a buffer threshold may initiate the procedure if it was configured to do so, upon determining that the amount of logged data related to radio measurements for network data collection reached a configured buffer threshold.

Upon initiating the procedure, the UE shall:

1> if configured to provide delay budget report:

2> if the UE did not transmit a *UEAssistanceInformation* message with *delayBudgetReport* since it was configured to provide delay budget report; or

2> if the current delay budget is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *delayBudgetReport* and timer T342 is not running:

3> start or restart timer T342 with the timer value set to the *delayBudgetReportingProhibitTimer*;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide a delay budget report;

1> if configured to provide overheating assistance information:

2> if the overheating condition has been detected and T345 is not running; or

2> if the current overheating assistance information is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *overheatingAssistance* and timer T345 is not running:

3> start timer T345 with the timer value set to the *overheatingIndicationProhibitTimer*;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide overheating assistance information;

1> if configured to provide IDC assistance information based on *candidateServingFreqListNR* included in *idc-AssistanceConfig* of a cell group:

2> if the UE did not transmit a *UEAssistanceInformation* message with *idc-Assistance* since it was configured to provide IDC assistance information:

3> if on one or more frequencies included in *candidateServingFreqListNR*, the UE is experiencing IDC problems that it cannot solve by itself; or

3> if on one or more supported UL CA or NR-DC combination comprising of carrier frequencies included in *candidateServingFreqListNR*, the UE is experiencing IDC problems that it cannot solve by itself:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide FDM IDC assistance information including a list of affected frequencies and/or frequency combinations;

2> else if the current *idc-Assistance* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide IDC FDM assistance information including a list of affected frequencies and/or frequency combinations;

1> if configured to provide IDC assistance information based on *idc-FDM-AssistanceConfig* included in *idc-AssistanceConfig* of a cell group:

2> if the UE did not transmit a *UEAssistanceInformation* message with *idc-FDM-Assistance* since it was configured to provide IDC assistance information:

3> if on one or more frequency ranges included in *candidateServingFreqRangeListNR*, the UE is experiencing IDC problems that it cannot solve by itself; or

3> if on one or more supported UL CA or NR-DC combination comprising of frequency ranges included in *candidateServingFreqRangeListNR*, the UE is experiencing IDC problems that it cannot solve by itself:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide IDC enhanced FDM assistance information including a list of affected frequency ranges and/or frequency range combinations;

2> else if the current *idc-FDM-Assistance* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide IDC enhanced FDM assistance information including a list of affected frequency ranges and/or frequency range combinations;

1> if configured to provide IDC assistance information based on *idc-TDM-AssistanceConfig* included in *idc-AssistanceConfig* of a cell group:

2> if the UE did not transmit a *UEAssistanceInformation* message with *idc-TDM-Assistance* since it was configured to provide IDC assistance information:

3> if on one or more frequencies included in *candidateServingFreqListNR* or frequency ranges included in *candidateServingFreqRangeListNR*, the UE is experiencing IDC problems that it cannot solve by itself; or

3> if on one or more supported UL CA or NR-DC combination comprising of carrier frequencies included in *candidateServingFreqListNR* or frequency ranges included in *candidateServingFreqRangeListNR*, the UE is experiencing IDC problems that it cannot solve by itself:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide IDC TDM assistance information;

2> else if the current *idc-TDM-Assistance* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide IDC TDM assistance information;

NOTE 1: The term "IDC problems" refers to interference issues applicable across several subframes/slots where not necessarily all the subframes/slots are affected.

NOTE 2: For the frequencies or frequency range(s) on which a serving cell or serving cells is configured that is activated, IDC problems consist of interference issues that the UE cannot solve by itself, during either active data exchange or upcoming data activity which is expected in up to a few hundred milliseconds.  
For frequencies or frequency range(s) on which a SCell or SCells is configured that is deactivated, reporting IDC problems indicates an anticipation that the activation of the SCell or SCells would result in interference issues that the UE would not be able to solve by itself.  
For a non-serving frequency or frequency range(s), reporting IDC problems indicates an anticipation that if the non-serving frequency or frequencies or frequency range(s) became a serving frequency or serving frequencies or frequency range(s) then this would result in interference issues that the UE would not be able to solve by itself.

1> if configured to provide its preference on DRX parameters of a cell group for power saving:

2> if the UE has a preference on DRX parameters of the cell group and the UE did not transmit a *UEAssistanceInformation* message with *drx-Preference* for the cell group since it was configured to provide its preference on DRX parameters of the cell group for power saving; or

2> if the current *drx-Preference* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *drx-Preference* for the cell group and timer T346a associated with the cell group is not running:

3> start the timer T346a with the timer value set to the *drx-PreferenceProhibitTimer* of the cell group;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *drx-Preference*;

1> if configured to provide its preference on the maximum aggregated bandwidth of a cell group for power saving:

2> if the UE has a preference on the maximum aggregated bandwidth of the cell group and the UE did not transmit a *UEAssistanceInformation* message with *maxBW-Preference* and/or *maxBW-PreferenceFR2-2* for the cell group since it was configured to provide its preference on the maximum aggregated bandwidth of the cell group for power saving; or

2> if the current *maxBW-Preference* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *maxBW-Preference* and/or *maxBW-PreferenceFR2-2*for the cell group and timer T346b associated with the cell group is not running:

3> start the timer T346b with the timer value set to the *maxBW-PreferenceProhibitTimer* of the cell group;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *maxBW-Preference* and/or *maxBW-PreferenceFR2-2*;

1> if configured to provide its preference on the maximum number of secondary component carriers of a cell group for power saving:

2> if the UE has a preference on the maximum number of secondary component carriers of the cell group and the UE did not transmit a *UEAssistanceInformation* message with *maxCC-Preference* for the cell group since it was configured to provide its preference on the maximum number of secondary component carriers of the cell group for power saving; or

2> if the current *maxCC-Preference* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *maxCC-Preference* for the cell group and timer T346c associated with the cell group is not running:

3> start the timer T346c with the timer value set to the *maxCC-PreferenceProhibitTimer* of the cell group;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *maxCC-Preference*;

1> if configured to provide its preference on the maximum number of MIMO layers of a cell group for power saving:

2> if the UE has a preference on the maximum number of MIMO layers of the cell group and the UE did not transmit a *UEAssistanceInformation* message with *maxMIMO-LayerPreference* and/or *maxMIMO-LayerPreferenceFR2-2* for the cell group since it was configured to provide its preference on the maximum number of MIMO layers of the cell group for power saving; or

2> if the current *maxMIMO-LayerPreference* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *maxMIMO-LayerPreference* and/or *maxMIMO-LayerPreferenceFR2-2* for the cell group and timer T346d associated with the cell group is not running:

3> start the timer T346d with the timer value set to the *maxMIMO-LayerPreferenceProhibitTimer* of the cell group;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *maxMIMO-LayerPreference* and/or *maxMIMO-LayerPreferenceFR2-2*;

1> if configured to provide its preference on the minimum scheduling offset for cross-slot scheduling of a cell group for power saving:

2> if the UE has a preference on the minimum scheduling offset for cross-slot scheduling of the cell group and the UE did not transmit a *UEAssistanceInformation* message with *minSchedulingOffsetPreference* and/or *minSchedulingOffsetPreferenceExt* for the cell group since it was configured to provide its preference on the minimum scheduling offset for cross-slot scheduling of the cell group for power saving; or

2> if the current *minSchedulingOffsetPreference* and/or *minSchedulingOffsetPreferenceExt* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *minSchedulingOffsetPreference* and/or *minSchedulingOffsetPreferenceExt* for the cell group and timer T346e associated with the cell group is not running:

3> start the timer T346e with the timer value set to the *minSchedulingOffsetPreferenceProhibitTimer* of the cell group;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *minSchedulingOffsetPreference* and/or *minSchedulingOffsetPreferenceExt*;

1> if configured to provide its release preference and timer T346f is not running:

2> if the UE determines that it would prefer to transition out of RRC\_CONNECTED state; or

2> if the UE is configured with *connectedReporting* and the UE determines that it would prefer to revert an earlier indication to transition out of RRC\_CONNECTED state:

3> start timer T346f with the timer value set to the *releasePreferenceProhibitTimer*;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the release preference;

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;

1> if configured to provide preference in being provisioned with reference time information:

2> if the UE did not transmit a *UEAssistanceInformation* message with *referenceTimeInfoPreference* since it was configured to provide preference; or

2> if the UE's preference changed from the last time UE initiated transmission of the *UEAssistanceInformation* message including *referenceTimeInfoPreference*:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide preference in being provisioned with reference time information.

1> if configured to provide its preference on FR2 UL gap:

2> if the UE did not transmit a *UEAssistanceInformation* message with *ul-GapFR2-Preference* since it was configured to provide its preference on FR2 UL gap information:

3> if the UE has a preference on FR2 UL gap activation/deactivation:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide FR2 UL gap preference;

2> else if the current FR2 UL gap preference is different from the one indicated in the last transmission of the *UEAssistanceInformation* message:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide FR2 UL gap preference.

1> if configured to provide MUSIM assistance information for leaving RRC\_CONNECTED:

2> if the UE needs to leave RRC\_CONNECTED state and the timer T346g is not running:

3> initiate transmission of the UEAssistanceInformation message in accordance with 5.7.4.3 to provide MUSIM assistance information for leaving RRC\_CONNECTED;

3> start the timer T346g with the timer value set to the *musim-LeaveWithoutResponseTimer*;

1> if configured to provide MUSIM assistance information for gap preference:

2> if configured to provide MUSIM assistance information for gap priority preference:

3> if the UE has a preference on the MUSIM gap(s) and the UE did not transmit a *UEAssistanceInformation* message with *musim-GapPreferenceList* and/or *musim-GapPriorityPreferenceList* and/or *musim-GapKeepPreference* since it was configured to provide MUSIM assistance information for gap preference and gap priority preference and the timer T346h is not running; or

3> if the current *musim-GapPreferenceList* and/or *musim-GapPriorityPreferenceList* and/or *musim-GapKeepPreference* is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *musim-GapPreferenceList* and/or *musim-GapPriorityPreferenceList* and/or *musim-GapKeepPreference* and the timer T346h is not running:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *musim-GapPreferenceList* and/or *musim-GapPriorityPreferenceList* and/or *musim-GapKeepPreference*;

4> start the timer T346h with the timer value set to the *musim-GapProhibitTimer*.

2> else:

3> if the UE has a preference on the MUSIM gap(s) and the UE did not transmit a *UEAssistanceInformation* message with *musim-GapPreferenceList* since it was configured to provide MUSIM assistance information for gap preference; or

3> if the current *musim-GapPreferenceList* is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *musim-GapPreferenceList* and the timer T346h is not running:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *musim-GapPreferenceList*;

4> start the timer T346h with the timer value set to the *musim-GapProhibitTimer*.

NOTE 3: The UE does not need to initiate transmission of the *UEAssistanceInformation* message if the difference between the current *musim-GapPreferenceList* and the last transmission of the *UEAssistanceInformation* message including *musim-GapPreferenceList* is only due to removal of an ended aperiodic gap.

1> if configured to provide MUSIM assistance information for temporary capability restriction:

2> if the UE has temporary capability restriction on the current configuration and timer T348 is not running:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *musim-Cell-SCG-ToRelease and/or musim-CellToAffectList*;

3> start the timer T348 with the timer value set to the *musim-WaitTimer*.

2> if the UE has temporary capability restriction on the combination(s) of bands comprising of band(s) included in *musim-CandidateBandList* or if the UE has temporary capability restriction on the maximum CC number, and the UE did not transmit a *UEAssistanceInformation* message with *musim-AffectedBandsList* and/or *musim-AvoidedBandsList* and/or *musim-MaxCC* since it was configured to provide MUSIM assistance information for temporary capability restriction and timer T346n is not running; or

2> if the current *musim-AffectedBandsList* and/or *musim-AvoidedBandsList* and/or *musim-MaxCC* is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *musim-CapRestriction* and timer T346n is not running:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *musim-AffectedBandsList* and/or *musim-AvoidedBandsList* and/or *musim-MaxCC*;

3> start the timer T346n with the timer value set to the *musim-ProhibitTimer*.

2> if the UE is configured to provide the measurement gap requirement information of NR target bands and if the current measurement gap requirement information is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *musim-NeedForGapsInfoNR* or *RRCReconfigurationComplete* message or *RRCResumeComplete* message including *needForGapsInfoNR*:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *musim-NeedForGapsInfoNR*;

2> if the UE has included *musim-CapRestrictionInd* in the *RRCSetupComplete* message or *RRCResumeComplete* or *RRCReestablishmentComplete* message and the temporary capability restriction is not applicable when the UE is configured to provide MUSIM assistance information for temporary capability restriction:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to indicate that there is no temporary capability restriction;

1> if configured to provide the relaxation state of RLM measurements of a cell group and RLM measurement of the cell group is not stopped:

2> if the UE did not transmit a *UEAssistanceInformation* message with *rlm-MeasRelaxationState* since it was configured to provide the relaxation state of RLM measurements for the cell group; or

2> if the relaxation state of RLM measurements for the cell group is currently different from the relaxation state reported in the last transmission of the *UEAssistanceInformation* message including *rlm-MeasRelaxationState* of the cell group and timer T346j associated with the cell group is not running:

3> start timer T346j with the timer value set to the *rlm-RelaxtionReportingProhibitTimer*;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the relaxation state of RLM measurements of the cell group;

1> if configured to provide the relaxation state of BFD measurements of serving cells of a cell group and BFD measurement of the cell group is not stopped:

2> if the UE did not transmit a *UEAssistanceInformation* message with *bfd-MeasRelaxationState* since it was configured to provide the relaxation state of BFD measurements for the cell group; or

2> if the relaxation state of BFD measurements in any serving cell of the cell group is currently different from the relaxation state reported in the last transmission of the *UEAssistanceInformation* message including *bfd-MeasRelaxationState* of the cell group and timer T346k associated with the cell group is not running:

3> start timer T346k with the timer value set to the *bfd-RelaxtionReportingProhibitTimer*;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the relaxation state of BFD measurements of serving cells of the cell group.

1> if data and/or signalling mapped to radio bearers not configured for SDT becomes available during SDT (i.e. while SDT procedure is ongoing):

2> if the UE did not transmit a *UEAssistanceInformation* message with *nonSDT-DataIndication* since the initiation of the current resume procedure for SDT:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide *nonSDT-DataIndication*.

1> if configured to provide its preference for SCG deactivation and timer T346i is not running;

2> if the UE prefers the SCG to be deactivated and did not transmit a *UEAssistanceInformation* message with *scg-DeactivationPreference* since it was configured to provide its SCG deactivation preference; or

2> if the UE preference for SCG deactivation is different from the last indicated *scg-DeactivationPreference*:

3> start timer T346i with the timer value set to the *scg-DeactivationPreferenceProhibitTimer*;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the UE preference for SCG deactivation;

1> if the SCG is deactivated, and,

1> the UE has uplink data to send for an SCG RLC entity while the UE previously did not have any uplink data to send for any SCG RLC entity:

2> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to indicate that the UE has uplink data to send for a DRB whose *DRB-Identity* is not included in any *RLC-BearerConfig* in the *CellGroupConfig* associated with the MCG.

1> if configured to send indications of RRM measurement relaxation criterion fulfilment:

2> if the criterion in 5.7.4.4 is met for a period of TSearchDeltaP-StationaryConnected:

3> if the UE did not transmit a *UEAssistanceInformation* message with *rrm-MeasRelaxationFulfilment* as *true* since it was configured to provide indications of RRM measurement relaxation criterion fulfilment; or

3> the last *UEAssistanceInformation* message indicated the criterion in 5.7.4.4 is not fulfilled with *rrm-MeasRelaxationFulfilment* as *false*:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to indicate that the criterion for RRM measurement relaxation for connected mode is fulfilled;

2> else:

3> if the last *UEAssistanceInformation* message indicated fulfilment of the criterion in 5.7.4.4 with *rrm-MeasRelaxationFulfilment* as *true*:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to indicate that the criterion for RRM measurement relaxation for connected mode is not fulfilled.

1> if configured to provide service link propagation delay difference between serving cell and neighbour cell(s);

2> if the UE did not transmit a *UEAssistanceInformation* message with *propagationDelayDifference* since it was configured to provide service link propagation delay difference between serving cell and neighbour cell(s); or

2> for any neighbour cell in *neighCellInfoList*, if the service link propagation delay difference between serving cell and the neighbour cell has changed more than *threshPropDelayDiff* since the last transmission of the *UEAssistanceInformation* message including *propagationDelayDifference*:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide service link propagation delay difference between serving cell and each neighbour cell included in the *neighCellInfoList*;

1> if configured to provide its preference for multi-Rx operation and timer T346m is not running;

2> if the UE has a preference on multi-Rx operation for FR2 and did not transmit a *UEAssistanceInformation* message with *multiRx-PreferenceFR2* since it was configured to provide its preference on multi-Rx operation; or

2> if the UE has a different preference on multi-Rx operation for FR2 from the last indicated *multiRx-PreferenceFR2*:

3> start timer T346m with the timer value set to the *multiRx-PreferenceReportingConfigFR2ProhibitTimer*;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the UE preference for multi-Rx operation for FR2.

1> if configured to indicate the availability of flight path information and the UE has (updated) flight path information available:

2> if the UE had neither provided a flight path information nor indicated the availability of flight path information since last entering RRC\_CONNECTED state; or

2> if at least one waypoint or a timestamp corresponding to a waypoint location that was not previously provided since last entering RRC\_CONNECTED state is available; or

2> if at least one upcoming waypoint or a timestamp corresponding to a waypoint location that was previously provided since last entering RRC\_CONNECTED state is to be removed; or

2> if *flightPathUpdateDistanceThr* is configured and, for at least one waypoint, the 3D distance between the previously provided location and the new location is more than the distance threshold configured by *flightPathUpdateDistanceThr*; or

2> if *flightPathUpdateTimeThr* is configured and, for at least one waypoint, the time difference between the previously provided timestamp and the new timestamp, if available, is more than the time threshold configured by *flightPathUpdateTimeThr*:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to indicate the availability of flight path information;

NOTE 4: If neither *flightPathUpdateDistanceThr* nor *flightPathUpdateTimeThr* is configured, it is up to UE implementation whether to initiate transmission of the *UEAssistanceInformation* message when updated flight path information is available.

1> if configured to provide UL traffic information:

2> if the UE did not transmit a *UEAssistanceInformation* message with *ul-TrafficInfo* since it was configured to provide UL traffic information; or

2> if UL traffic information included in the previous *UEAssistanceInformation* has changed since the last transmission of the *UEAssistanceInformation* message containing *ul-TrafficInfo* for at least one QoS flow for which timer T346l is not running:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide UL traffic information.

NOTE 5: The UE only considers *burstArrivalTime* to have changed when it changes relative to the periodicity of the Data Burst arrival.

1> if configured to report relay UE information with non-3GPP connection(s):

2> if the UE did not transmit a *UEAssistanceInformation* message with *n3c-relayUE-InfoList* since it was configured to report available relay UE information with non-3GPP connection(s); or

2> if the UE has new available non-3GPP connection(s); or

2> if the non-3GPP connection(s) with the reported relay UE(s) is not available:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to report relay UE information with non-3GPP connection(s) included in the *n3c-relayUE-InfoList*;

1> if configured to provide configured grant assistance information for NR sidelink positioning:

2> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide configured grant assistance information for NR sidelink positioning;

1> if configured to report assistance information about the applicability of configurations subject to the applicability determination procedure:

2> if the applicability of configurations subject to the applicability determination procedure has changed since the last transmission of a message containing *applicabilityReportList* (either *RRCReconfigurationComplete* or *UEAssistanceInformation*):

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to report assistance information about the applicability of configurations subject to the applicability determination procedure;

1> if configured to provide its preference to be configured with radio measurement resources for UE data collection:

2> if the UE has a preference to be configured with radio measurement resources to perform UE data collection and did not transmit a *UEAssistanceInformation* messagewith *dataCollectionPreference* since it was configured to provide its preference to be configured with radio measurement resources to perform UE data collection; or

2> if the current preference to be configured with radio measurement resources to perform UE data collection is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *dataCollectionPreference*:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to report the UE preference to be configured with radio measurement resources for UE data collection;

1> if configured to provide assistance information related to logging of measurements for network data collection based on *loggedDataCollectionAssistanceConfig*:

2> if the buffer reserved for the logging of radio measurements for network data collection has become full; or

2> if the UE determines that it has entered a low power state; or

2> if configured to provide assistance information related to logging of measurements for network data collection based on *loggedDataCollectionBufferThreshold* included in *loggedDataCollectionAssistanceConfig* and the amount of logged data related to radio measurements for network data collection has become equal to or above the *loggedDataCollectionBufferThreshold*:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide assistance information related to logging of measurements for network data collection.

NOTE: It is up to UE implementation how to determine a low power state and whether the buffer threshold is reached or if the buffer is full.

#### 5.7.4.3 Actions related to transmission of *UEAssistanceInformation* message

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

1> if transmission of the *UEAssistanceInformation* message is initiated to provide a delay budget report according to 5.7.4.2 or 5.3.5.3;

2> set *delayBudgetReport* to *type1* according to a desired value;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide overheating assistance information according to 5.7.4.2 or 5.3.5.3;

2> if the UE experiences internal overheating:

3> if the UE prefers to temporarily reduce the number of maximum secondary component carriers:

4> include *reducedMaxCCs* in the *OverheatingAssistance* IE;

4> set *reducedCCsDL* to the number of maximum SCells the UE prefers to be temporarily configured in downlink;

4> set *reducedCCsUL* to the number of maximum SCells the UE prefers to be temporarily configured in uplink;

3> if the UE prefers to temporarily reduce maximum aggregated bandwidth of FR1:

4> include *reducedMaxBW-FR1* in the *OverheatingAssistance* IE;

4> set *reducedBW-DL* to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all downlink carriers of FR1;

4> set *reducedBW-UL* to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all uplink carriers of FR1;

3> if the UE prefers to temporarily reduce maximum aggregated bandwidth of FR2-1:

4> include *reducedMaxBW-FR2* in the *OverheatingAssistance* IE;

4> set *reducedBW-DL* to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all downlink carriers of FR2-1;

4> set *reducedBW-UL* to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all uplink carriers of FR2-1;

3> if the UE prefers to temporarily reduce maximum aggregated bandwidth of FR2-2:

4> include *reducedMaxBW-FR2-2* in the *OverheatingAssistance IE*;

4> set *reducedBW-FR2-2-DL* to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all downlink carriers of FR2-2;

4> set *reducedBW-FR2-2-UL* to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all uplink carriers of FR2-2;

3> if the UE prefers to temporarily reduce the number of maximum MIMO layers of each serving cell operating on FR1:

4> include *reducedMaxMIMO-LayersFR1* in the *OverheatingAssistance* IE;

4> set *reducedMIMO-LayersFR1-DL* to the number of maximum MIMO layers of each serving cell operating on FR1 the UE prefers to be temporarily configured in downlink;

4> set *reducedMIMO-LayersFR1-UL* to the number of maximum MIMO layers of each serving cell operating on FR1 the UE prefers to be temporarily configured in uplink;

3> if the UE prefers to temporarily reduce the number of maximum MIMO layers of each serving cell operating on FR2-1:

4> include *reducedMaxMIMO-LayersFR2* in the *OverheatingAssistance* IE;

4> set *reducedMIMO-LayersFR2-DL* to the number of maximum MIMO layers of each serving cell operating on FR2-1 the UE prefers to be temporarily configured in downlink;

4> set *reducedMIMO-LayersFR2-UL* to the number of maximum MIMO layers of each serving cell operating on FR2-1 the UE prefers to be temporarily configured in uplink;

3> if the UE prefers to temporarily reduce the number of maximum MIMO layers of each serving cell operating on FR2-2:

4> include *reducedMaxMIMO-LayersFR2-2* in the *OverheatingAssistance IE*;

4> set *reducedMIMO-LayersFR2-2-DL* to the number of maximum MIMO layers of each serving cell operating on FR2 the UE prefers to be temporarily configured in downlink;

4> set *reducedMIMO-LayersFR2-2-UL* to the number of maximum MIMO layers of each serving cell operating on FR2 the UE prefers to be temporarily configured in uplink;

2> else (if the UE no longer experiences an overheating condition):

3> do not include *reducedMaxCCs*, *reducedMaxBW-FR1*, *reducedMaxBW-FR2*, *reducedMaxBW-FR2-2*, *reducedMaxMIMO-LayersFR1,* *reducedMaxMIMO-LayersFR2* or *reducedMaxMIMO-LayersFR2-2* in *OverheatingAssistance* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide IDC FDM assistance information according to 5.7.4.2 or 5.3.5.3:

2> if there is at least one carrier frequency included in *candidateServingFreqListNR*, the UE is experiencing IDC problems that it cannot solve by itself:

3> include the field *affectedCarrierFreqList* with an entry for each affected carrier frequency included in *candidateServingFreqListNR*;

3> for each carrier frequency included in the field *affectedCarrierFreqList*, include *interferenceDirection* and set it accordingly;

2> if there is at least one supported UL CA or NR-DC combination comprising of carrier frequencies included in *candidateServingFreqListNR*, the UE is experiencing IDC problems that it cannot solve by itself:

3> include *victimSystemType* for each UL CA or NR-DC combination included in *affectedCarrierFreqCombList*;

3> if the UE sets *victimSystemType* to *wlan* or *bluetooth*:

4> include *affectedCarrierFreqCombList* with an entry for each supported UL CA combination comprising of carrier frequencies included in *candidateServingFreqListNR*, that is affected by IDC problems;

3> else:

4> optionally include *affectedCarrierFreqCombList* with an entry for each supported UL CA or NR-DC combination comprising of carrier frequencies included in *candidateServingFreqListNR*, that is affected by IDC problems;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide IDC enhanced FDM assistance information according to 5.7.4.2 or 5.3.5.3:

2> if there is at least one affected frequency range overlapping with one candidate frequency range included in *candidateServingFreqRangeListNR*, and the center frequency of the affected frequency range is within the candidate frequency range included in *candidateServingFreqRangeListNR*, the UE is experiencing IDC problems that it cannot solve by itself:

3> include the field *affectedCarrierFreqRangeList* with an entry for each affected frequency range;

3> for each affected frequency range included in the field *affectedCarrierFreqRangeList*, include *centerFreq* and *affectedBandwidth*;

3> for each affected frequency range included in the field *affectedCarrierFreqRangeList*, include *interferenceDirection* and optionally *victimSystemType*, and set it accordingly;

2> if there is at least one supported UL CA or NR-DC combinations comprising of candidate frequency ranges included in *candidateServingFreqRangeListNR*, and each affected frequency range in the UL CA or NR-DC combination overlapping with one candidate frequency range included in *candidateServingFreqRangeListNR*, and the center frequency of the affected frequency range is within the candidate frequency range included in *candidateServingFreqRangeListNR*, the UE is experiencing IDC problems that it cannot solve by itself:

3> include the field *affectedCarrierFreqRangeCombList* with an entry for each supported UL CA or NR-DC combination comprising of frequency ranges that is affected by IDC problems;

3> for each affected frequency range included in the field *affectedCarrierFreqRangeCombList*, include *centerFreq* and *affectedBandwidth*;

3> for each UL CA or NR-DC combination included in the field *affectedCarrierFreqRangeCombList*, include *interferenceDirection* and optionally *victimSystemType*, and set it accordingly;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide IDC TDM assistance information according to 5.7.4.2 or 5.3.5.3:

2> if there is at least one candidate carrier frequency included in *candidateServingFreqListNR* or candidate frequency range included in *candidateServingFreqRangeListNR* or one supported UL CA or NR-DC combination comprising of candidate carrier frequencies included in *candidateServingFreqListNR* or candidate frequency ranges included in *candidateServingFreqRangeListNR*, the UE is experiencing IDC problems that it cannot solve by itself, and *affectedCarrierFreqList* or *affectedCarrierFreqCombList* or *affectedCarrierFreqRangeList* or *affectedCarrierFreqRangeCombList* is included, and *idc-TDM-AssistanceConfig* is set to *setup*:

3> include Time Domain Multiplexing (TDM) based assistance information as indicated by *idc-TDM-Assistance* that could be used to resolve the IDC problems;

NOTE 1: When sending an *UEAssistanceInformation* message to inform the IDC problems, the UE includes all IDC assistance information in the *idc-Assistance* (IDC FDM assistance information) or *idc-FDM-Assistance* (IDC enhanced FDM assistance information) or *idc-TDM-Assistance* (IDC TDM assistance information) fields respectively (rather than providing e.g. the changed part(s) of the IDC assistance information in respective fields).

NOTE 2: Upon not anymore experiencing a particular IDC problem that the UE previously reported, the UE provides an IDC indication with the modified contents of the *UEAssistanceInformation* message (e.g. by not including the IDC assistance information in the *idc-Assistance* or *idc-FDM-Assistance* or *idc-TDM-Assistance* fields).

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *drx-Preference* of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *drx-Preference* in the *UEAssistanceInformation* message;

2> if the UE has a preference on DRX parameters for the cell group:

3> if the UE has a preference for the long DRX cycle:

4> include *preferredDRX-LongCycle* in the *DRX-Preference* IE andset it to the preferred value;

3> if the UE has a preference for the DRX inactivity timer:

4> include *preferredDRX-InactivityTimer* in the *DRX-Preference* IE and set it to the preferred value;

3> if the UE has a preference for the short DRX cycle:

4> include *preferredDRX-ShortCycle* in the *DRX-Preference* IE and set it to the preferred value;

3> if the UE has a preference for the short DRX timer:

4> include *preferredDRX-ShortCycleTimer* in the *DRX-Preference* IE and set it to the preferred value;

2> else (if the UE has no preference on DRX parameters for the cell group):

3> do not include *preferredDRX-LongCycle, preferredDRX-InactivityTimer, preferredDRX-ShortCycle* and *preferredDRX-ShortCycleTimer* in the *DRX-Preference* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *maxBW-Preference* of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *maxBW-Preference* in the *UEAssistanceInformation* message;

2> if the UE has a preference on the maximum aggregated bandwidth for the cell group:

3> if the UE prefers to reduce the maximum aggregated bandwidth of FR1:

4> include *reducedMaxBW-FR1* in the *MaxBW-Preference* IE;

4> set *reducedBW-DL* to the maximum aggregated bandwidth the UE desires to have configured across all downlink carriers of FR1in the cell group;

4> set *reducedBW-UL* to the maximum aggregated bandwidth the UE desires to have configured across all uplink carriers of FR1in the cell group;

3> if the UE prefers to reduce the maximum aggregated bandwidth of FR2-1:

4> include *reducedMaxBW-FR2* in the *MaxBW-Preference* IE;

4> set *reducedBW-DL* to the maximum aggregated bandwidth the UE desires to have configured across all downlink carriers of FR2-1in the cell group;

4> set *reducedBW-UL* to the maximum aggregated bandwidth the UE desires to have configured across all uplink carriers of FR2-1in the cell group;

2> else (if the UE has no preference on the maximum aggregated bandwidth for the cell group):

3> do not include *reducedMaxBW-FR1* and *reducedMaxBW-FR2* in the *MaxBW-Preference* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *maxBW-PreferenceFR2-2* of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *maxBW-PreferenceFR2-2* in the *UEAssistanceInformation* message;

3> if the UE prefers to reduce the maximum aggregated bandwidth of FR2-2:

4> include *reducedMaxBW-FR2-2* in the M*axBW-PreferenceFR2-2* IE;

4> set *reducedBW-FR2-2-DL* to the maximum aggregated bandwidth the UE desires to have configured across all downlink carriers of FR2-2 in the cell group;

4> set *reducedBW-FR2-2-UL* to the maximum aggregated bandwidth the UE desires to have configured across all uplink carriers of FR2-2 in the cell group;

2> else (if the UE has no preference on the maximum aggregated bandwidth for the cell group):

3> do not include *reducedMaxBW-FR2-2* in the *MaxBW-PreferenceFR2-2* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *maxCC-Preference* of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *maxCC-Preference* in the *UEAssistanceInformation* message;

2> if the UE has a preference on the maximum number of secondary component carriers for the cell group:

3> include *reducedMaxCCs* in the *MaxCC-Preference* IE;

3> set *reducedCCsDL* to the number of maximum SCells the UE desires to have configured in downlinkin the cell group;

3> set *reducedCCsUL* to the number of maximum SCells the UE desires to have configured in uplinkin the cell group;

2> else (if the UE has no preference on the maximum number of secondary component carriers for the cell group):

3> do not include *reducedMaxCCs* in the *MaxCC-Preference* IE;

NOTE 3: The UE can implicitly indicate a preference for NR SCG release by reporting the maximum aggregated bandwidth preference for power saving of the cell group, if configured, as zero for both FR1 and FR2, and by reporting the maximum number of secondary component carriers for power saving of the cell group, if configured, as zero for both uplink and downlink.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *maxMIMO-LayerPreference* of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *maxMIMO-LayerPreference* in the *UEAssistanceInformation* message;

2> if the UE has a preference on the maximum number of MIMO layers for the cell group:

3> if the UE prefers to reduce the number of maximum MIMO layers of each serving cell operating on FR1:

4> include *reducedMaxMIMO-LayersFR1* in the *MaxMIMO-LayerPreference* IE;

4> set *reducedMIMO-LayersFR1-DL* to the preferred maximum number of downlink MIMO layers of each BWP of each FR1 serving cell that the UE operates on in the cell group;

4> set *reducedMIMO-LayersFR1-UL* to the preferred maximum number of uplink MIMO layers of each FR1 serving cell that the UE operates on in the cell group;

3> if the UE prefers to reduce the number of maximum MIMO layers of each serving cell operating on FR2-1:

4> include *reducedMaxMIMO-LayersFR2* in the *MaxMIMO-LayerPreference* IE;

4> set *reducedMIMO-LayersFR2-DL* to the preferred maximum number of downlink MIMO layers of each BWP of each FR2-1 serving cell that the UE operates on in the cell group;

4> set *reducedMIMO-LayersFR2-UL* to the preferred maximum number of uplink MIMO layers of each FR2-1 serving cell that the UE operates on in the cell group;

2> else (if the UE has no preference on the maximum number of MIMO layers for the cell group):

3> do not include *reducedMaxMIMO-LayersFR1* and *reducedMaxMIMO-LayersFR2* in the *MaxMIMO-LayerPreference* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *maxMIMO LayerPreferenceFR2* 2 of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *maxMIMO-LayerPreferenceFR2-2* in the *UEAssistanceInformation* message;

2> if the UE has a preference on the maximum number of MIMO layers for the cell group for FR2-2:

3> if the UE prefers to reduce the number of maximum MIMO layers of each serving cell operating on FR2 2:

4> include *reducedMaxMIMO-LayersFR2-2* in the *MaxMIMO-LayerPreferenceFR2 2* IE;

4> set *reducedMIMO-LayersFR2-2-DL* to the preferred maximum number of downlink MIMO layers of each BWP of each FR2-2 serving cell that the UE operates on in the cell group;

4> set *reducedMIMO-LayersFR2-2-UL* to the preferred maximum number of uplink MIMO layers of each FR2-2 serving cell that the UE operates on in the cell group;

2> else (if the UE has no preference on the maximum number of MIMO layers for the cell group):

3> do not include reducedMaxMIMO-LayersFR2-2 in the *MaxMIMO-LayerPreferenceFR2-*2 IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *minSchedulingOffsetPreference* of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *minSchedulingOffsetPreference* in the *UEAssistanceInformation* message;

2> if the UE has a preference on the minimum scheduling offset for cross-slot scheduling for the cell group:

3> if the UE has a preference for the value of K0 (TS 38.214 [19], clause 5.1.2.1) for cross-slot scheduling with 15 kHz SCS:

4> include *preferredK0-SCS-15kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*0;

3> if the UE has a preference for the value of K0 for cross-slot scheduling with 30 kHz SCS:

4> include *preferredK0-SCS-30kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*0;

3> if the UE has a preference for the value of K0 for cross-slot scheduling with 60 kHz SCS:

4> include *preferredK0-SCS-60kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*0;

3> if the UE has a preference for the value of K0 for cross-slot scheduling with 120 kHz SCS:

4> include *preferredK0-SCS-120kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*0;

3> if the UE has a preference for the value of K2 (TS 38.214 [19], clause 6.1.2.1) for cross-slot scheduling with 15 kHz SCS:

4> include *preferredK2-SCS-15kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*2;

3> if the UE has a preference for the value of K2 for cross-slot scheduling with 30 kHz SCS:

4> include *preferredK2-SCS-30kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*2;

3> if the UE has a preference for the value of K2 for cross-slot scheduling with 60 kHz SCS:

4> include *preferredK2-SCS-60kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*2;

3> if the UE has a preference for the value of K2 for cross-slot scheduling with 120 kHz SCS:

4> include *preferredK2-SCS-120kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*2;

2> else (if the UE has no preference on the minimum scheduling offset for cross-slot scheduling for the cell group):

3> do not include *preferredK0* and *preferredK2* in the *MinSchedulingOffsetPreference* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *minSchedulingOffsetPreferenceExt* of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *minSchedulingOffsetPreferenceExt* in the *UEAssistanceInformation* message;

2> if the UE has a preference on the minimum scheduling offset for cross-slot scheduling for the cell group for FR2-2:

3> include *minSchedulingOffsetPreferenceExt* in the *UEAssistanceInformation* message;

4> if the UE has a preference for the value of K0 (TS 38.214 [19], clause 5.1.2.1) for cross-slot scheduling with 480 kHz SCS:

5> include *preferredK0-SCS-480kHz* in the *minSchedulingOffsetPreferenceExt* IE and set it to the desired value of K0;

4> if the UE has a preference for the value of K0 for cross-slot scheduling with 960 kHz SCS:

5> include *preferredK0-SCS-960kHz* in the *minSchedulingOffsetPreferenceExt* IE and set it to the desired value of K0;

4> if the UE has a preference for the value of K2 for cross-slot scheduling with 480 kHz SCS:

5> include *preferredK2-SCS-480kHz* in the *minSchedulingOffsetPreferenceExt* IE and set it to the desired value of K2;

4> if the UE has a preference for the value of K2 for cross-slot scheduling with 960 kHz SCS:

5> include *preferredK2-SCS-960kHz* in the *minSchedulingOffsetPreferenceExt* IE and set it to the desired value of K2;

3> else (if the UE has no preference on the minimum scheduling offset for cross-slot scheduling for the cell group):

4> do not include *preferredK0* and *preferredK2* in the *minSchedulingOffsetPreferenceExt* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide a release preference according to 5.7.4.2 or 5.3.5.3:

2> include *releasePreference* in the *UEAssistanceInformation* message;

2> set *preferredRRC-State* to the desired RRC state on transmission of the *UEAssistanceInformation* message;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide an indication of preference in being provisioned with reference time information according to 5.7.4.2 or 5.3.5.3:

2> if the UE has a preference in being provisioned with reference time information:

3> set *referenceTimeInfoPreference* to *true*;

2> else:

3> set *referenceTimeInfoPreference* to *false*.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide preference on FR2 UL gap according to 5.7.4.2 or 5.3.5.3:

2> if the UE has a preference for FR2 UL gap configuration:

3> set *ul-GapFR2-PatternPreference* to the preferred FR2 UL gap pattern;

2> else (if the UE has no preference for the FR2 UL gap configuration):

3> do not include *ul-GapFR2-PatternPreference* in the *UL-GapFR2-Preference* IE.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *musim-GapPreferenceList* and/or *musim-GapPriorityPreferenceList* and/or *musim-GapKeepPreference*, or provide MUSIM assistance information for leaving RRC\_CONNECTED according to 5.7.4.2 or 5.3.5.3:

2> if the UE has a preference for MUSIM periodic gap(s):

3> include *musim-GapPreferenceList* with an entry for each periodic gap the UE prefers to be configured;

4> set *musim-GapLength* and *musim-GapRepetitionAndOffset* in the *musim-GapInfo* IEto the values of the length and the repetition/offset of the gap(s), respectively, the UE prefers to be configured with;

4> if UE has a preference for MUSIM gap priority;

5> include the *musim-GapPriorityPreferenceList* the UE prefers to be configured;

2> if the UE has a preference for MUSIM aperiodic gap:

3> include the field *musim-GapPreferenceList*, with one entry for the aperiodic gap the UE prefers to be configured;

4> include *musim-GapLength* in the *musim-GapInfo* IEand set it to the values of the length of the gap the UE prefers to be configured with;

4> optionally include *musim-Starting-SFN-AndSubframe* in the *musim-GapInfo* IE and set it to the starting SFN/subframe of the gap the UE prefers to be configured with;

2> if the UE has a preference to keep all colliding MUSIM gaps:

3> include the *musim-GapKeepPreference*;

2> if the UE has no longer preference for the periodic/aperiodic gaps:

3> do not include *musim-GapPreferenceList*, *musim-GapPriorityPreferenceList* and *musim-GapKeepPreference* in the *musim-Assistance* IE;

2> if UE has a preference to leave RRC\_CONNECTED state:

3> set *musim-PreferredRRC-State* to the preferred RRC state.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *musim-CapRestriction* according to 5.7.4.2 or 5.3.5.3:

2> if UE has a preference for temporary capability restriction:

3> if UE has a preference for serving cell(s), except PCell, and/or SCG to be released:

4> include the *musim-Cell-SCG-ToRelease*;

5> set *musim-CellToRelease* to include the serving cell(s) the UE prefers to be released;

5> set scg-ReleasePreference to *scgReleasePreferred* if the UE prefers the SCG to be released;

3> if UE has a preference to indicate the serving cells with restricted capabilities:

4> include the *musim-CellToAffectList* the UE prefers to be configured;

5> include the *musim-ServCellIndex* and the *musim-MIMO-Layers-DL*/ *musim-MIMO-Layers-UL/ musim-SupportedBandwidth-DL/ musim-SupportedBandwidth-UL for* the corresponding serving cell;

3> if UE has a preference to indicate the maximum number of CCs:

4> include the *musim-CapRestriction* for the *musim-MaxCC* the UE prefers to be configured;

5> include the *musim-MaxCC-TotalDL/ musim-MaxCC-TotalUL/ musim-MaxCC-FR1-DL/ musim-MaxCC-FR1-UL/ musim-MaxCC-FR2-1-DL/ musim-MaxCC-FR2-2-UL/ musim-MaxCC-FR2-2-DL/ musim-MaxCC-FR2-2-UL* for the corresponding maximum number of CCs;

3> if UE has a preference to indicate band(s) and/or combination(s) of bands with capabilities restricted which comprise of the band(s) that is/are indicated in *musim-CandidateBandList*:

4> include the *musim-AffectededBandsList* the UE prefer to be configured with capabilities restricted;

5> include the *musim-bandEntryIndex* for each band or each band of the combination(s) for which capabilities are restricted;

5> include the *musim-CapabilityRestricted* for the corresponding band;

3> if UE has a preference to indicate band(s) and/or combination(s) of bands to be avoided which comprise of band(s) that is indicated in *musim-CandidateBandList*:

4> include the *musim-AvoidedBandsList* the UE prefers not to be configured;

5> include the *musim-bandEntryIndex* for each band or each band of the combination(s) to be avoided;

2> if UE has no longer preference for temporary capability restriction indicated by *musim-Cell-SCG-ToRelease*, *musim-CellToAffectList*, *musim-MaxCC*, *musim-AffectededBandsList* and/or *musim-AvoidedBandsList*:

3> do not include the corresponding temporary capability restriction preference in the *musim-CapRestriction*;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *musim-NeedForGapsInfoNR* according to 5.7.4.2 or 5.3.5.3:

2> include *intraFreq-needForGap* and set the gap requirement information of intra-frequency measurement for each supported NR serving cell;

2> if the *requestedTargetBandFilterNR-r16* of *NeedForGapsConfigNR* is configured:

3> for each supported NR band included in *requestedTargetBandFilterNR-r16*, include an entry in *interFreq-needForGap* and set the measurement gap requirement information for that band;

2> else:

3> include an entry in *interFreq-needForGap* and set the measurement gap requirement information for each supported NR band;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide the relaxation state of RLM measurements of a cell group according to 5.7.4.2:

2> if the UE performs RLM measurement relaxation on the cell group according to TS 38.133 [14]:

3> set the *rlm-MeasRelaxationState* to *true*;

2> else:

3> set the *rlm-MeasRelaxationState* to *false*;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide the relaxation state of BFD measurements of a cell group:

2> for each serving cell of the cell group:

3> if the UE performs BFD measurement relaxation on this serving cell according to TS 38.133 [14]:

4> set the n-th bit of *bfd-MeasRelaxationState* to '1', where n is equal to the *servCellIndex* value + 1 of the serving cell;

3> else:

4> set the n-th bit of *bfd-MeasRelaxationState* to '0', where n is equal to the *servCellIndex* value + 1 of the serving cell.

1> if transmission of the *UEAssistanceInformation* message is initiated to indicate availability of data mapped to radio bearers not configured for SDT according to 5.7.4.2:

2> include the *nonSDT-DataIndication* in the *UEAssistanceInformation* message;

2> include and set the *resumeCause* according to the information received from the upper layers, if provided.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide an indication of preference for SCG deactivation according to 5.7.4.2:

2> include *scg-DeactivationPreference* in the *UEAssistanceInformation* message;

2> set the *scg-DeactivationPreference* to *scg-DeactivationPreferred* if the UE prefers the SCG to be deactivated, otherwise set it to *noPreference*;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide an indication that the UE has uplink data related to a deactivated SCG according to 5.7.4.2:

2> include *uplinkData* in the *UEAssistanceInformation* message.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide an indication about whether the criterion for RRM relaxation for connected mode is fulfilled or not fulfilled:

2> if the criterion for RRM measurement relaxation for connected mode is fulfilled:

3> set the *rrm-MeasRelaxationFulfilment* to *true*;

2> else:

3> set the *rrm-MeasRelaxationFulfilment* to *false*.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide the service link propagation delay difference between serving cell and neighbour cell(s) according to 5.7.4.2;

2> include the *propagationDelayDifference* for each neighbour cell in the *neighCellInfoList*;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide preference on multi-Rx operation for FR2 according to 5.7.4.2:

2> if the UE has a preference for not operating on multi-Rx (i.e. not supporting simultaneous reception with different QCL-typeD) for FR2:

3> set *multiRx-PreferenceFR2* to *single*;

2> else (if the UE has the preference for operating on multi-Rx for FR2):

3> set *multiRx-PreferenceFR2* to *multiple*.

1> if transmission of the *UEAssistanceInformation* message is initiated to indicate the availability of flight path information according to 5.7.4.2 or 5.3.5.3;

2> include the *flightPathInfoAvailable*;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide UL traffic information according to 5.7.4.2 or 5.3.5.3:

2> for each PDU session for which the UE intends to provide UL traffic information in this *UEAssistanceInformation* message:

3> set *pdu-SessionID* to the value of the concerned PDU session ID;

3> if transmission of the *UEAssistanceInformation* message is initiated to provide UL traffic information according to 5.3.5.3:

4> stop timer T346l for each QoS flow of this PDU session for which the UE intends to provide UL traffic information in this *UEAssistanceInformation* message;

3> for each QoS flow of this PDU session for which timer T346l is not running and for which the UE intends to provide UL traffic information in this *UEAssistanceInformation* message:

4> start timer T346l associated to this QoS flow with the timer value set to the value of *ul-TrafficInfoProhibitTimer*;

4> set *qfi* to the value of the concerned QFI;

4> if the jitter range measurement is available; and

4> if the UE did not provide jitter range since it was configured to provide UL traffic information, or if the measured jitter range has changed since the last transmission of the *UEAssistanceInformation* message containing *jitterRange*:

5> set *jitterRange* to the latest measured value of the jitter range;

4> if the burst arrival time measurement is available; and

4> if the UE did not provide burst arrival time since it was configured to provide UL traffic information, or if the measured burst arrival time has changed since the last transmission of the *UEAssistanceInformation* message containing *burstArrivalTime*:

5> set *burstArrivalTime* to the latest measured value of the burst arrival time;

4> if the traffic periodicity measurement is available; and

4> if the UE did not provide traffic periodicity since it was configured to provide UL traffic information, or if the measured traffic periodicity has changed since the last transmission of the *UEAssistanceInformation* message containing *trafficPeriodicity*:

5> set *trafficPeriodicity* to the latest measured value of the traffic periodicity;

4> if the UE did not provide *pdu-SetIdentification* since it was configured to provide UL traffic information, or if the information previously provided in *pdu-SetIdentification* has changed since the last transmission of the *UEAssistanceInformation* message containing *pdu-SetIdentification*:

5> if the UE is able to identify PDU Set(s) for the QoS flow:

6> set *pdu-SetIdentification* to *true*;

5> else:

6> set *pdu-SetIdentification* to *false*.

4> if the UE did not provide *psi-Identification* since it was configured to provide UL traffic information, or if the information previously provided in *psi-Identification* has changed since the last transmission of the *UEAssistanceInformation* message containing *psi-Identification*:

5> if the UE is able to identify PSI(s) for the QoS flow:

6> set *psi-Identification* to true;

5> else:

6> set *psi-Identification* to *false*.

1> if transmission of the *UEAssistanceInformation* message is initiated to report relay UE information with non-3GPP connection(s) according to 5.7.4.2:

2> include *n3c-relayUE-InfoList* in the *UEAssistanceInformation* message;

1> if transmission of the *UEAssistanceInformation* message is initiated to report assistance information about the applicability of configurations subject to applicability determination procedure according to 5.7.4.2:

2> include *applicabilityReportList* in this *UEAssistanceInformation* message;

2> for each serving cell:

3> if the cell is configured with at least one *reportConfigId* associated to a *CSI-ReportConfig* including *csi-InferencePrediction* , or including *reportQuantity-r19* set to *p-CRI-r19* or *p-SSB-Index-r19* or *p-CRI-RSRP-r19* or *p-SSB-Index-RSRP-r19*,for which the applicability information has changed; or

3> if the associated serving cell index was included in an entry in *applicabilityConfigList* within *applicabilityReportConfig* and the applicability information for at least one of the associated entries in *applicabilitySetConfigList* has changed:

4> include an entry in *applicabilityReportList* in the *UEAssistanceInformation* message, and set the content as follows:

5> set the *applicabilityCellId* to the serving cell index of the cell;

5> for each configured *reportConfigId* associated to a *CSI-ReportConfig* including *csi-InferencePrediction*, or including *reportQuantity-r19* set to *p-CRI-r19* or *p-SSB-Index-r19* or *p-CRI-RSRP-r19* or *p-SSB-Index-RSRP-r19*, for which the applicability status has changed:

6> include an entry in the *applicabilityReportConfigIdList* and set the content as follows:

7> set the *csi-ReportConfigId* within *applicabilityReportConfigId* to the corresponding *reportConfigId*;

7> set the *applicabilityStatus* to the applicability status of the configuration corresponding to the *applicabilityReportConfigId*;

7> if the *applicabilityStatus* is set to *inapplicable*:

8> if the UE prefers to release the concerned *CSI-ReportConfig*, include *releaseConfigurationPreference*;

5> for each entry within *applicabilitySetConfigList* that changed applicability status, associated with the concerned serving cell:

6> include an entry in the *applicabilityReportConfigIdList* and set the content as follows:

7> set the *applicabilitySetId* within *applicabilityReportConfigId* to the corresponding *applicabilitySetConfigId*;

7> set the *applicabilityStatus* to the applicability status of the configuration corresponding to the *applicabilityReportConfigId*;

7> if the *applicabilityStatus* is set to inapplicable:

8> if the UE prefers to release the concerned *ApplicabilitySetConfig* (e.g. due to model unavailability), include *releaseConfigurationPreference*;

1> if transmission of the *UEAssistanceInformation* message is initiated to report the UE preference to be configured with radio resources to perform UE data collection according to 5.7.4.2:

2> include *dataCollectionPreference* in this *UEAssistanceInformation* message;

2> if the UE prefers to be configured with radio resources to perform data collection:

3> set *dataCollectionStart* to *start*;

3> for each serving cell configured with candidate UE data collection configuration(s) in *dataCollectionCandidateConfigList* and for which the UE has one or more preferred radio resource configuration(s):

4> include an entry in *dataCollectionPreferredConfigurationList* and set the content as follows:

5> set the *dataCollectionServCellIndex* to the serving cell index of the cell;

5> include in *dataCollectionCandidateIdList* the *dataCollectionCandidateConfigId* associated with preferred configuration(s) from *dataCollectionCandidateConfigParameterList;*

2> if the UE no longer prefers to be configured with radio resources to perform data collection:

3> for each serving cell configured with one or more UE data collection configuration(s) corresponding to a *CSI-ReportConfig* and for which the UE preferrs to stop UE data collection:

4> include an entry in *dataCollectionStopConfigurationList* and set the content as follows:

5> set the *dataCollectionStopServCellIndex* to the serving cell index of the cell;

5> include in *dataCollectionIdList* the *reportConfigId* associated with the *CSI-ReportConfig* including the UE data collection configuration(s) that the UE prefers to stop;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide assistance information related to logging of measurements for network data collection according to 5.7.4.2:

2> if the UE determines that it has entered a low power state:

3> set *lowPowerState* to *true*;

2> if the buffer reserved for the logging of radio measurements for network data collection has become full:

3> set *bufferStatus* to *full*;

2> else if the amount of logged data related to radio measurements for network data collection has become equal to or above the *loggedDataCollectionBufferThreshold*:

3> set *bufferStatus* to *aboveThreshold*;

The UE shall set the contents of the *UEAssistanceInformation* message for configured grant assistance information for NR sidelink communication or NR sidelink positioning:

1> if configured to provide configured grant assistance information for NR sidelink:

2> include the *sl-UE-AssistanceInformationNR*;

1> if configured to provide configured grant assistance information for NR sidelink positioning:

2> include the *sl-PRS-UE-AssistanceInformationNR*;

NOTE 4: It is up to UE implementation when and how to trigger configured grant assistance information for NR sidelink communication or NR sidelink positioning.

The UE shall:

1> if the procedure was triggered to provide configured grant assistance information for NR sidelink communication by an NR *RRCReconfiguration* message that was embedded within an E-UTRA *RRCConnectionReconfiguration*:

2> submit the *UEAssistanceInformation* to lower layers via SRB1, embedded in E-UTRA RRC message *ULInformationTransferIRAT* as specified in TS 36.331 [10], clause 5.6.28;

1> else if the procedure was triggered to provide UE preference for SCG deactivation or to indicate that the UE with a deactivate SCG has uplink data to send on a DRB for which there is no MCG RLC bearer:

2> submit the *UEAssistanceInformation* via SRB1 to lower layers for transmission;

1> else if the UE is in (NG)EN-DC:

2> if SRB3 is configured and the SCG is not deactivated:

3> submit the *UEAssistanceInformation* message via SRB3 to lower layers for transmission;

2> else:

3> submit the *UEAssistanceInformation* message via the E-UTRA MCG embedded in E-UTRA RRC message *ULInformationTransferMRDC* as specified in TS 36.331 [10].

1> else if the UE is in NR-DC:

2> if the UE assistance configuration that triggered this UE assistance information is associated with the SCG:

3> if SRB3 is configured and the SCG is not deactivated:

4> submit the *UEAssistanceInformation* message via SRB3 to lower layers for transmission;

3> else:

4> submit the *UEAssistanceInformation* message via the NR MCG embedded in NR RRC message *ULInformationTransferMRDC* as specified in5.7.2a.3;

2> else:

3> submit the *UEAssistanceInformation* message via SRB1 to lower layers for transmission;

1> else:

2> submit the *UEAssistanceInformation* message to lower layers for transmission.

NEXT CHANGE

### 5.7.10 UE Information

<Text Omitted>

#### 5.7.10.3 Reception of the *UEInformationRequest* message

Upon receiving the *UEInformationRequest* message, the UE shall, only after successful security activation:

1> if the *idleModeMeasurementReq* is included in the *UEInformationRequest* and the UE has stored *VarMeasIdleReport* that contains measurement information concerning cells other than the PCell:

2> if *validatedMeasurementsReq* is included in the *UEInformationRequest* and *measIdleValidityDuration* is included in *VarEnhMeasIdleConfig*;

3> set the *measResultIdleEUTRA* in the *UEInformationResponse* message to the value of *measReportIdleEUTRA* in the *VarMeasIdleReport* for any valid measurement results, if available, and set *validityStatus* to the value of *measIdleValidityDuration* in *VarEnhMeasIdleConfig* for each reported measurement;

3> set the *measResultIdleNR* in the UEInformationResponse message to the value of *measReportIdleNR* in the *VarMeasIdleReport* for any valid measurement results, if available, and set *validityStatus* to the value of *measIdleValidityDuration* in *VarEnhMeasIdleConfig* for each reported measurement;

3> discard the *VarMeasIdleReport* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

3> remove the *measIdleValidityDuration* in *VarEnhMeasIdleConfig*;

2> else:

3> set the *measResultIdleEUTRA* in the *UEInformationResponse* message to the value of *measReportIdleEUTRA* in the *VarMeasIdleReport*, if available;

3> set the *measResultIdleNR* in the *UEInformationResponse* message to the value of *measReportIdleNR* in the *VarMeasIdleReport*, if available;

3> discard the *VarMeasIdleReport* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

3> remove the *measIdleValidityDuration* in *VarEnhMeasIdleConfig*, if stored;

1> if the *reselectionMeasurementReq* is included in the *UEInformationRequest*:

2> if *validatedMeasurementsReq* is included in the *UEInformationRequest* and *measReselectionValidityDuration* is included in *VarMeasReselectionConfig*;

3> if *measReselectionCarrierListNR* is present in *VarMeasReselectionConfig*:

4> set the *measResultReselectionNR* in the *UEInformationResponse* message the valid NR measurement results, if available for any frequency listed in *measReselectionCarrierListNR* in *VarMeasReselectionConfig* and set *validityStatus* to the value of *measIdleValidityDuration* in *VarMeasReselectionConfig* for each reported measurement;

3> else:

4> set the *measResultReselectionNR* in the *UEInformationResponse* message to any valid NR measurement results, if available, and set validityStatus to the value of *measIdleValidityDuration* in *VarMeasReselectionConfig*;

2> else:

3> if *measReselectionCarrierListNR* is present in *VarMeasReselectionConfig*:

4> set the *measResultReselectionNR* in the *UEInformationResponse* message the NR measurement results, if available for any frequency listed in *measReselectionCarrierListNR* in *VarMeasReselectionConfig*;

3> else:

4> set the *measResultReselectionNR* in the *UEInformationResponse* message to any NR measurement results, if available;

1> if the *logMeasReportReq* is present and if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*, or if the current registered SNPN identity is included in *snpn-ConfigID-List* stored in *VarLogMeasReport*:

2> if *VarLogMeasReport* includes one or more logged measurement entries, set the contents of the *logMeasReport* in the *UEInformationResponse* message as follows:

3> include the *absoluteTimeStamp* and set it to the value of *absoluteTimeInfo* in the *VarLogMeasReport*;

3> include the *traceReference* and set it to the value of *traceReference* in the *VarLogMeasReport*;

3> include the *traceRecordingSessionRef* and set it to the value of *traceRecordingSessionRef* in the *VarLogMeasReport;*

3> include the *tce-Id* and set it to the value of *tce-Id* in the *VarLogMeasReport*;

3> include the *logMeasInfoList* and set it to include one or more entries from the *VarLogMeasReport* starting from the entries logged first, and for each entry of the *logMeasInfoList* that is included, include all information stored in the corresponding *logMeasInfoList* entry in *VarLogMeasReport*;

3> if the *VarLogMeasReport* includes one or more additional logged measurement entries that are not included in the *logMeasInfoList* within the *UEInformationResponse* message:

4> include the *logMeasAvailable*;

4> if *bt-LocationInfo* is included in *locationInfo* of one or more of the additional logged measurement entries in *VarLogMeasReport* that are not included in the *logMeasInfoList* within the *UEInformationResponse* message:

5> include the *logMeasAvailableBT*;

4> if *wlan-LocationInfo* is included in *locationInfo* of one or more of the additional logged measurement entries in *VarLogMeasReport* that are not included in the *logMeasInfoList* within the *UEInformationResponse* message:

5> include the *logMeasAvailableWLAN*;

1> if *ra-ReportReq* is set to *true* and the UE has random access related information available in *VarRA-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarRA-Report*; or

1> if *ra-ReportReq* is set to *true* and the UE has random access related information available in *VarRA-Report* and if the registered SNPN identity is included in *snpn-IdentityList* stored in *VarRA-Report*:

2> set the *ra-ReportList* in the *UEInformationResponse* message to the value of *ra-ReportList* in *VarRA-Report*;

2> discard the *ra-ReportList* from *VarRA-Report* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> if *rlf-ReportReq* is set to *true*:

2> if the UE has radio link failure information or handover failure information available in *VarRLF-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarRLF-Report*; or

2> if the UE has radio link failure information or handover failure information available in *VarRLF-Report* and if the current registered SNPN identity is included in *snpn-IdentityList* stored in *VarRLF-Report*:

3> set *timeSinceFailure* in *VarRLF-Report* to the time that elapsed since the last radio link failure or handover failure in NR;

3> set the *rlf-Report* in the *UEInformationResponse* message to the value of *rlf-Report* in *VarRLF-Report*;

3> discard the *rlf-Report* from *VarRLF-Report* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

2> else if the UE is capable of cross-RAT RLF reporting as defined in TS 38.306 [26] and has radio link failure information or handover failure information available in *VarRLF-Report* of TS 36.331 [10] and if the RPLMN is included in *plmn-IdentityList* stored in *VarRLF-Report* of TS 36.331 [10]:

3> set *timeSinceFailure* in *VarRLF-Report* of TS 36.331 [10] to the time that elapsed since the last radio link failure or handover failure in EUTRA;

3> set failedPCellId-EUTRA in the *rlf-Report* in the *UEInformationResponse* message to indicate the PCell in which RLF was detected or the source PCell of the failed handover in the *VarRLF-Report* of TS 36.331 [10];

3> set the *measResult-RLF-Report-EUTRA* in the *rlf-Report* in the *UEInformationResponse* message to the value of *rlf-Report* in *VarRLF-Report* of TS 36.331 [10];

3> discard the *rlf-Report* from *VarRLF-Report* of TS 36.331 [10] upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> if *connEstFailReportReq* is set to *true* and the UE has connection establishment failure or connection resume failure information in *VarConnEstFailReport* or *VarConnEstFailReportList* and if the RPLMN is equal to *plmn-Identity* stored in *VarConnEstFailReport* orin at least one of the entries of *VarConnEstFailReportList*:

1> if *connEstFailReportReq* is set to *true* and if the UE has connection establishment failure information or connection resume failure information available in *VarConnEstFailReport* or *VarConnEstFailReportList* and if the registered SNPN identity is equal to *snpn-Identity* in *networkIdentity* stored in *VarConnEstFailReport* or any entry of *VarConnEstFailReportList*:

2> set *timeSinceFailure* in *VarConnEstFailReport* to the time that elapsed since the last connection establishment failure or connection resume failure in NR;

2> set the *connEstFailReport* in the *UEInformationResponse* message to the value of *connEstFailReport* in *VarConnEstFailReport*;

2> if the UE supports multiple CEF report:

3> for each *connEstFailReport* in the *connEstFailReportList* in *VarConnEstFailReportList*:

4> set *timeSinceFailure* to the time that elapsed since the associated connection establishment failure or connection resume failure in NR;

2> for each *connEstFailReport* in the *connEstFailReportList* in the *UEInformationResponse* message, set the value to the value of *connEstFailReport* in *VarConnEstFailReport* in *VarConnEstFailReportList*;

2> discard the *connEstFailReport* from *VarConnEstFailReport* and *VarConnEstFailReportList* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> if the *mobilityHistoryReportReq* is set to *true*:

2> include the *mobilityHistoryReport* and set it to include *visitedCellInfoList* from *VarMobilityHistoryReport*;

2> include in the *mobilityHistoryReport* an entry for the current PCell, possibly after removing the oldest entry if required, and set its fields as follows:

3> set *visitedCellId* to the global cell identity or the physical cell identity and carrier frequency of the current PCell:

3> set field *timeSpent* to the time spent in the current PCell;

3> if the UE supports PSCell mobility history information and if *visitedPSCellInfoList* is present in *VarMobilityHistoryReport*:

4> for the newest entry of the PCell in the *mobilityHistoryReport*, include *visitedPSCellInfoList* from *VarMobilityHistoryReport*;

4> if the UE is configured with a PSCell:

5> for the newest entry of the PCell in the *mobilityHistoryReport*, include the current PSCell information in the *visitedPSCellInfoListReport,* possibly after removing the oldest PSCell entry of a PCell in the *mobilityHistoryReport*, if required, and set its fields as follows:

6> set *visitedCellId* to the global cell identity or the physical cell identity and carrier frequency of the current PSCell:

6> set field *timeSpent* to the time spent in the current PSCell while being connected to the current PCell;

4> else:

5> for the newest entry of the PCell in the *mobilityHistoryReport*, include a new entry in the *visitedPSCellInfoListReport,* possibly after removing the oldest PSCell entry of a PCell in the *mobilityHistoryReport*, if required, and set its fields as follows:

6> set field *timeSpent* to the time spent without PSCell in the current PCell since last PSCell release since connected to the current PCell in RRC\_CONNECTED;

3> else if the UE supports PSCell mobility history information:

4> if the UE is configured with a PSCell:

5> for the newest entry of the PCell in the *mobilityHistoryReport*, include the current PSCell information in the *visitedPSCellInfoListReport,* possibly after removing the oldest PSCell entry of a PCell in the *mobilityHistoryReport*, if required, and set its fields as follows:

6> set *visitedCellId* to the global cell identity or the physical cell identity and carrier frequency of the current PSCell:

6> set field *timeSpent* to the time spent in the current PSCell while being connected to the current PCell;

4> else:

5> for the newest entry of the PCell in the *mobilityHistoryReport*, include a new entry in the *visitedPSCellInfoListReport,* possibly after removing the oldest PSCell entry of a PCell in the *mobilityHistoryReport*, if required, and set its fields as follows:

6> set field *timeSpent* to the time spent without PSCell in the current PCell since connected to the current PCell in RRC\_CONNECTED;

1> if the *successHO-ReportReq* is set to *true* and if the UE has successful handover related information available in *VarSuccessHO-Report* and if the RPLMN is included in the *plmn-IdentityList* stored in *VarSuccessHO-Report*; or

1> if the *successHO-ReportReq* is set to *true* and if the UE has successful handover related information available in *VarSuccessHO-Report* and if the current registered SNPN identity is included in *snpn-IdentityList* if stored in the *VarSuccessHO-Report*:

2> if the *successHO-Report* in the *VarSuccessHO-Report* concerns a DAPS handover and if a PDCP PDU has been received from the source cell of the concerned HO and a non-duplicated PDCP PDU has been received from the target cell of the concerned HO:

3> set *upInterruptionTimeAtHO* in *VarSuccessHO-Report* to include the time elapsed between the time of arrival of the last PDCP PDU received from the source cell of the concerned handover and the time of arrival of the first non-duplicate PDCP PDU received from the target cell of the concerned handover, as measured at the time of arrival of the first non-duplicate PDCP PDU received from the target cell;

2> if the *successHO-Report* in the *VarSuccessHO-Report* concerns a *mobilityFromNRCommand*:

3> set *timeSinceSHR* in *VarSuccessHO-Report* to the time that elapsed since the execution of the *MobilityFromNRCommand* associated to the successful handover report in the *VarSuccessHO-Report*;

2> set the *successHO-Report* in the *UEInformationResponse* message to the value of *successHO-Report* in the *VarSuccessHO-Report*, if available;

2> discard the *VarSuccessHO-Report* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> if the *successPSCell-ReportReq* is set to *true* and if the UE has successful PSCell change or addition information available in *VarSuccessPSCell-Report* and if the RPLMN is included in *plmn-IdentityList* stored in *VarSuccessPSCell-Report*; or

1> if the *successPSCell-ReportReq* is set to *true* and if the UE has successful PSCell change or addition information available in *VarSuccessPSCell-Report* and if the current registered SNPN identity is included in *snpn-IdentityList* if stored in the *VarSuccessPSCell-Report*:

2> set the *successPSCell-Report* in the *UEInformationResponse* message to the value of *successPSCell-Report* in the *VarSuccessPSCell-Report*;

2> discard the *VarSuccessPSCell-Report* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> if the *coarseLocationRequest* is set to *true*:

2> include *coarseLocationInfo,* if available;

1> if the *flightPathInfoReq* is included in the *UEInformationRequest* and the UE has (updated) flight path information available, set the *flightPathInfoReport* in the *UEInformationResponse* message as follows:

2> include the list of up to *maxWayPointNumber* waypoints, if any, along the flight path;

2> if the *includeTimeStamp* is set to *true*, for each included waypoint:

3> if available, set the field *timestamp* to the time when UE intends to arrive at the waypoint;

1> if the *csi-LogMeasReportReq* is present:

2> if *VarCSI-LogMeasReport* includes one or more logged measurement entries, set the contents of the *csi-LogMeasReport* in the *UEInformationResponse* message as follows:

3> include the *csi-LogMeasInfoCellList* and set it to include one or more entries from the *VarCSI-LogMeasReport* starting from the entries logged first;

3> if the *VarCSI-LogMeasReport* includes one or more additional logged measurement entries that are not included within the *UEInformationResponse* message:

4> include the *csi-MoreLogMeasAvailable*;

1> if the *logMeasReport* is included in the *UEInformationResponse*:

2> submit the *UEInformationResponse* message to lower layers for transmission via SRB2;

2> discard the logged measurement entries included in the *logMeasInfoList* from *VarLogMeasReport* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> else if *csi-LogMeasReport* is included in the *UEInformationResponse*:

2> submit the *UEInformationResponse* message to lower layers for transmission via SRBX;

2> discard the logged measurement entries included in the *csi-LogMeasInfoList* from *VarCSI-LogMeasReport* upon successful delivery of the *UEInformationResponse* message confirmed by lower layers;

1> else:

2> submit the *UEInformationResponse* message to lower layers for transmission via SRB1.

NEXT CHANGE

## 6.2 RRC messages

<Text Omitted>

### 6.2.2 Message definitions

<Text Omitted>

#### – *RRCReconfiguration*

The *RRCReconfiguration* message is the command to modify an RRC connection. It may convey information for measurement configuration, mobility control, radio resource configuration (including RBs, MAC main configuration and physical channel configuration) and AS security configuration.

Signalling radio bearer: SRB1 or SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*RRCReconfiguration message*

-- ASN1START

-- TAG-RRCRECONFIGURATION-START

RRCReconfiguration ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

rrcReconfiguration RRCReconfiguration-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

RRCReconfiguration-IEs ::= SEQUENCE {

radioBearerConfig RadioBearerConfig OPTIONAL, -- Need M

secondaryCellGroup OCTET STRING (CONTAINING CellGroupConfig) OPTIONAL, -- Cond SCG

measConfig MeasConfig OPTIONAL, -- Need M

lateNonCriticalExtension OCTET STRING (CONTAINING RRCReconfiguration-v15t0-IEs) OPTIONAL,

nonCriticalExtension RRCReconfiguration-v1530-IEs OPTIONAL

}

-- Regular non-critical extensions:

RRCReconfiguration-v1530-IEs ::= SEQUENCE {

masterCellGroup OCTET STRING (CONTAINING CellGroupConfig) OPTIONAL, -- Need M

fullConfig ENUMERATED {true} OPTIONAL, -- Cond FullConfig

dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message OPTIONAL, -- Cond nonHO

masterKeyUpdate MasterKeyUpdate OPTIONAL, -- Cond MasterKeyChange

dedicatedSIB1-Delivery OCTET STRING (CONTAINING SIB1) OPTIONAL, -- Need N

dedicatedSystemInformationDelivery OCTET STRING (CONTAINING SystemInformation) OPTIONAL, -- Need N

otherConfig OtherConfig OPTIONAL, -- Need M

nonCriticalExtension RRCReconfiguration-v1540-IEs OPTIONAL

}

RRCReconfiguration-v1540-IEs ::= SEQUENCE {

otherConfig-v1540 OtherConfig-v1540 OPTIONAL, -- Need M

nonCriticalExtension RRCReconfiguration-v1560-IEs OPTIONAL

}

RRCReconfiguration-v1560-IEs ::= SEQUENCE {

mrdc-SecondaryCellGroupConfig SetupRelease { MRDC-SecondaryCellGroupConfig } OPTIONAL, -- Need M

radioBearerConfig2 OCTET STRING (CONTAINING RadioBearerConfig) OPTIONAL, -- Need M

sk-Counter SK-Counter OPTIONAL, -- Need N

nonCriticalExtension RRCReconfiguration-v1610-IEs OPTIONAL

}

RRCReconfiguration-v1610-IEs ::= SEQUENCE {

otherConfig-v1610 OtherConfig-v1610 OPTIONAL, -- Need M

bap-Config-r16 SetupRelease { BAP-Config-r16 } OPTIONAL, -- Need M

iab-IP-AddressConfigurationList-r16 IAB-IP-AddressConfigurationList-r16 OPTIONAL, -- Need M

conditionalReconfiguration-r16 ConditionalReconfiguration-r16 OPTIONAL, -- Need M

daps-SourceRelease-r16 ENUMERATED{true} OPTIONAL, -- Need N

t316-r16 SetupRelease {T316-r16} OPTIONAL, -- Need M

needForGapsConfigNR-r16 SetupRelease {NeedForGapsConfigNR-r16} OPTIONAL, -- Need M

onDemandSIB-Request-r16 SetupRelease { OnDemandSIB-Request-r16 } OPTIONAL, -- Need M

dedicatedPosSysInfoDelivery-r16 OCTET STRING (CONTAINING PosSystemInformation-r16-IEs) OPTIONAL, -- Need N

sl-ConfigDedicatedNR-r16 SetupRelease {SL-ConfigDedicatedNR-r16} OPTIONAL, -- Need M

sl-ConfigDedicatedEUTRA-Info-r16 SetupRelease {SL-ConfigDedicatedEUTRA-Info-r16} OPTIONAL, -- Need M

targetCellSMTC-SCG-r16 SSB-MTC OPTIONAL, -- Need S

nonCriticalExtension RRCReconfiguration-v1700-IEs OPTIONAL

}

RRCReconfiguration-v1700-IEs ::= SEQUENCE {

otherConfig-v1700 OtherConfig-v1700 OPTIONAL, -- Need M

sl-L2RelayUE-Config-r17 SetupRelease { SL-L2RelayUE-Config-r17 } OPTIONAL, -- Need M

sl-L2RemoteUE-Config-r17 SetupRelease { SL-L2RemoteUE-Config-r17 } OPTIONAL, -- Need M

dedicatedPagingDelivery-r17 OCTET STRING (CONTAINING Paging) OPTIONAL, -- Cond PagingRelay

needForGapNCSG-ConfigNR-r17 SetupRelease {NeedForGapNCSG-ConfigNR-r17} OPTIONAL, -- Need M

needForGapNCSG-ConfigEUTRA-r17 SetupRelease {NeedForGapNCSG-ConfigEUTRA-r17} OPTIONAL, -- Need M

musim-GapConfig-r17 SetupRelease {MUSIM-GapConfig-r17} OPTIONAL, -- Need M

ul-GapFR2-Config-r17 SetupRelease { UL-GapFR2-Config-r17 } OPTIONAL, -- Need M

scg-State-r17 ENUMERATED { deactivated } OPTIONAL, -- Need S

appLayerMeasConfig-r17 AppLayerMeasConfig-r17 OPTIONAL, -- Need M

ue-TxTEG-RequestUL-TDOA-Config-r17 SetupRelease {UE-TxTEG-RequestUL-TDOA-Config-r17} OPTIONAL, -- Need M

nonCriticalExtension RRCReconfiguration-v1800-IEs OPTIONAL

}

RRCReconfiguration-v1800-IEs ::= SEQUENCE {

needForInterruptionConfigNR-r18 ENUMERATED { disabled, enabled } OPTIONAL, -- Need M

aerial-Config-r18 SetupRelease { Aerial-Config-r18 } OPTIONAL, -- Need M

sl-IndirectPathAddChange-r18 SetupRelease { SL-IndirectPathAddChange-r18 } OPTIONAL, -- Need M

n3c-IndirectPathAddChange-r18 SetupRelease { N3C-IndirectPathAddChange-r18 } OPTIONAL, -- Need M

n3c-IndirectPathConfigRelay-r18 SetupRelease { N3C-IndirectPathConfigRelay-r18 } OPTIONAL, -- Need M

otherConfig-v1800 OtherConfig-v1800 OPTIONAL, -- Need M

srs-PosResourceSetAggBW-CombinationList-r18 SetupRelease { SRS-PosResourceSetAggBW-CombinationList-r18 } OPTIONAL, -- Need M

ltm-Config-r18 SetupRelease {LTM-Config-r18} OPTIONAL, -- Need M

nonCriticalExtension RRCReconfiguration-v1830-IEs OPTIONAL

}

RRCReconfiguration-v1830-IEs ::= SEQUENCE {

otherConfig-v1830 OtherConfig-v1830 OPTIONAL, -- Need M

nonCriticalExtension RRCReconfiguration-v19xy-IEs OPTIONAL

}

RRCReconfiguration-v19xy-IEs ::= SEQUENCE {

otherConfig-v19xy OtherConfig-v19xy OPTIONAL, -- Need M

retainLoggedMeasurements-r19 ENUMERATED {true} OPTIONAL, -- Need N

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Late non-critical Rel-15 extensions:

RRCReconfiguration-v15t0-IEs ::= SEQUENCE {

-- Following field is only to be used for late REL-15 extensions

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCReconfiguration-v16k0-IEs OPTIONAL

}

RRCReconfiguration-v16k0-IEs ::= SEQUENCE {

sl-ConfigDedicatedNR-v16k0 SetupRelease {SL-ConfigDedicatedNR-v16k0} OPTIONAL, -- Need M

nonCriticalExtension SEQUENCE{} OPTIONAL

}

MRDC-SecondaryCellGroupConfig ::= SEQUENCE {

mrdc-ReleaseAndAdd ENUMERATED {true} OPTIONAL, -- Need N

mrdc-SecondaryCellGroup CHOICE {

nr-SCG OCTET STRING (CONTAINING RRCReconfiguration),

eutra-SCG OCTET STRING

}

}

BAP-Config-r16 ::= SEQUENCE {

bap-Address-r16 BIT STRING (SIZE (10)) OPTIONAL, -- Need M

defaultUL-BAP-RoutingID-r16 BAP-RoutingID-r16 OPTIONAL, -- Need M

defaultUL-BH-RLC-Channel-r16 BH-RLC-ChannelID-r16 OPTIONAL, -- Need M

flowControlFeedbackType-r16 ENUMERATED {perBH-RLC-Channel, perRoutingID, both} OPTIONAL, -- Need R

...

}

MasterKeyUpdate ::= SEQUENCE {

keySetChangeIndicator BOOLEAN,

nextHopChainingCount NextHopChainingCount,

nas-Container OCTET STRING OPTIONAL, -- Cond securityNASC

...

}

OnDemandSIB-Request-r16 ::= SEQUENCE {

onDemandSIB-RequestProhibitTimer-r16 ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30}

}

T316-r16 ::= ENUMERATED {ms50, ms100, ms200, ms300, ms400, ms500, ms600, ms1000, ms1500, ms2000}

IAB-IP-AddressConfigurationList-r16 ::= SEQUENCE {

iab-IP-AddressToAddModList-r16 SEQUENCE (SIZE(1..maxIAB-IP-Address-r16)) OF IAB-IP-AddressConfiguration-r16 OPTIONAL, -- Need N

iab-IP-AddressToReleaseList-r16 SEQUENCE (SIZE(1..maxIAB-IP-Address-r16)) OF IAB-IP-AddressIndex-r16 OPTIONAL, -- Need N

...

}

IAB-IP-AddressConfiguration-r16 ::= SEQUENCE {

iab-IP-AddressIndex-r16 IAB-IP-AddressIndex-r16,

iab-IP-Address-r16 IAB-IP-Address-r16 OPTIONAL, -- Need M

iab-IP-Usage-r16 IAB-IP-Usage-r16 OPTIONAL, -- Need M

iab-donor-DU-BAP-Address-r16 BIT STRING (SIZE(10)) OPTIONAL, -- Need M

...

}

SL-ConfigDedicatedEUTRA-Info-r16 ::= SEQUENCE {

sl-ConfigDedicatedEUTRA-r16 OCTET STRING OPTIONAL, -- Need M

sl-TimeOffsetEUTRA-List-r16 SEQUENCE (SIZE (8)) OF SL-TimeOffsetEUTRA-r16 OPTIONAL -- Need M

}

SL-TimeOffsetEUTRA-r16 ::= ENUMERATED {ms0, ms0dot25, ms0dot5, ms0dot625, ms0dot75, ms1, ms1dot25, ms1dot5, ms1dot75,

ms2, ms2dot5, ms3, ms4, ms5, ms6, ms8, ms10, ms20}

UE-TxTEG-RequestUL-TDOA-Config-r17 ::= CHOICE {

oneShot-r17 NULL,

periodicReporting-r17 ENUMERATED { ms160, ms320, ms1280, ms2560, ms61440, ms81920, ms368640, ms737280 }

}

SRS-PosResourceSetAggBW-CombinationList-r18 ::= SEQUENCE (SIZE(1.. maxNrOfLinkedSRS-PosResSetComb-r18)) OF SRS-PosResourceSetLinkedForAggBW-List-r18

SRS-PosResourceSetLinkedForAggBW-List-r18 ::= SEQUENCE (SIZE(2..maxNrOfLinkedSRS-PosResourceSet-r18)) OF SRS-PosResourceSetLinkedForAggBW-r18

-- TAG-RRCRECONFIGURATION-STOP

-- ASN1STOP

|  |
| --- |
| *RRCReconfiguration-IEs* field descriptions |
| ***appLayerMeasConfig***  This field is used to configure application layer measurements. This field is absent when the UE is configured to operate with shared spectrum channel access or if *sl-L2RemoteUE-Config-r17* is configured or not released. |
| ***bap-Config***  This field is used to configure the BAP entity for IAB nodes. |
| ***bap-Address***  Indicates the BAP address of an IAB-node. The BAP address of an IAB-node cannot be changed once configured for the cell group to the BAP entity. |
| ***conditionalReconfiguration***  Configuration of candidate target SpCell(s) and execution condition(s) for conditional handover, conditional PSCell addition or conditional PSCell change. The field is absent if any DAPS bearer is configured, if the *sl-L2RemoteUE-Config* or *sl-L2RelayUE-Config* is configured, or if the *RRCReconfiguration* message is contained within *condRRCReconfig*. When the *masterCellGroup* and/or *secondaryCellGroup* includes *ReconfigurationWithSync*, if this field is present, it only includes configurations/fields specific to subsequent CPAC. The *RRCReconfiguration* message contained in *DLInformationTransferMRDC* cannot contain the field *conditionalReconfiguration* for conditional PSCell change or for conditional PSCell addition. The network does not include this field in an *RRCReconfiguration* message contained within a *LTM-Config* IE*.* |
| ***daps-SourceRelease***  Indicates to UE that the source cell part of DAPS operation is to be stopped and the source cell part of DAPS configuration is to be released. |
| ***dedicatedNAS-MessageList***  This field is used to transfer UE specific NAS layer information between the network and the UE. The RRC layer is transparent for each PDU in the list. |
| ***dedicatedPagingDelivery***  This field is used to transfer *Paging* message for the associated L2 U2N Remote UE to the L2 U2N Relay UE in RRC\_CONNECTED. |
| ***dedicatedPosSysInfoDelivery***  This field is used to transfer *SIBPos* to the UE in RRC\_CONNECTED. |
| ***dedicatedSIB1-Delivery***  This field is used to transfer *SIB1* to the UE (including L2 U2N Remote UE). The field has the same values as the corresponding configuration in *servingCellConfigCommon*. |
| ***dedicatedSystemInformationDelivery***  This field is used to transfer *SIB6*, *SIB7*, *SIB8, SIB19, SIB20, SIB21, SIB25* to the UE with an active BWP with no common search space configured or the L2 U2N Remote UE in RRC\_CONNECTED. For UEs in RRC\_CONNECTED (including L2 U2N Remote UE), this field is also used to transfer the SIBs requested on-demand. |
| ***defaultUL-BAP-RoutingID***  This field is used for IAB-node to configure the default uplink Routing ID, which is used by IAB-node during IAB-node bootstrapping*,* migration, IAB-MT RRC resume and IAB-MT RRC re-establishment for *F1-C* and *non-F1* traffic. The *defaultUL-BAP-RoutingID* can be (re-)configured when IAB-node IP address for *F1-C* related traffic changes. This field is mandatory only for IAB-node bootstrapping. |
| ***defaultUL-BH-RLC-Channel***  This field is used for IAB-nodes to configure the default uplink BH RLC channel*,* which is used by IAB-nodeduring IAB-node bootstrapping*,* migration, IAB-MT RRC resume and IAB-MT RRC re-establishment *for F1-C and non-F1 traffic*. The *defaultUL-BH-RLC-Channel* can be (re-)configured when IAB-node IP address for *F1-C* related traffic changes, and the new IP address is anchored at a different IAB-donor-DU. This field is mandatory for IAB-node bootstrapping. If the IAB-MT is operating in EN-DC, the default uplink BH RLC channel is referring to an RLC channel on the SCG; Otherwise, it is referring to an RLC channel either on the MCG or on the SCG depending on whether the MN or the SN configures this field. |
| ***flowControlFeedbackType***  This field is only used for IAB-node that support hop-by-hop flow control to configure the type of flow control feedback. Value *perBH-RLC-Channel* indicates that the IAB-node shall provide flow control feedback per BH RLC channel, value *perRoutingID* indicates that the IAB-node shall provide flow control feedback per routing ID, and value *both* indicates that the IAB-node shall provide flow control feedback both per BH RLC channel and per routing ID. |
| ***fullConfig***  Indicates that the full configuration option is applicable for the *RRCReconfiguration* message for intra-system intra-RAT HO. For inter-RAT HO from E-UTRA to NR, *fullConfig* indicates whether or not delta signalling of SDAP/PDCP from source RAT is applicable. This field is absent if any DAPS bearer is configured or when the *RRCReconfiguration* message is transmitted on SRB3, and in an *RRCReconfiguration* message for SCG contained in another *RRCReconfiguration* message (or *RRCConnectionReconfiguration* message, see TS 36.331 [10]) transmitted on SRB1. |
| ***iab-IP-Address***  This field is used to provide the IP address information for IAB-node. |
| ***iab-IP-AddressIndex***  This field is used to identify a configuration of an IP address. |
| ***iab-IP-AddressToAddModList***  List of IP addresses allocated for IAB-node to be added and modified. |
| ***iab-IP-AddressToReleaseList***  List of IP address allocated for IAB-node to be released. |
| ***iab-IP-Usage***  This field is used to indicate the usage of the assigned IP address. If this field is not configured, the assigned IP address is used for all traffic. |
| ***iab-donor-DU-BAP-Address***  This field is used to indicate the BAP address of the IAB-donor-DU where the IP address is anchored. |
| ***keySetChangeIndicator***  Indicates whether UE shall derive a new KgNB. If *reconfigurationWithSync* is included, value *true* indicates that a KgNB key is derived from a KAMF key taken into use through the latest successful NAS SMC procedure, or N2 handover procedure with KAMF change, as described in TS 33.501 [11] for KgNB re-keying. Value *false* indicates that the new KgNB key is obtained from the current KgNB key or from the NH as described in TS 33.501 [11]. |
| ***ltm-Config***  The network does not configure this field in an *RRCReconfiguration* message within an *LTM-Config* IE and *ConditionalReconfiguration* IE. |
| ***masterCellGroup***  Configuration of master cell group. |
| ***mrdc-ReleaseAndAdd***  This field indicates that the current SCG configuration is released and a new SCG is added at the same time. |
| ***mrdc-SecondaryCellGroup***  Includes an RRC message for SCG configuration in NR-DC or NE-DC. For NR-DC (nr-SCG), *mrdc-SecondaryCellGroup* contains the *RRCReconfiguration* message as generated (entirely) by SN gNB. In this version of the specification, the RRC message can only include fields *secondaryCellGroup, otherConfig, conditionalReconfiguration,* *ltm-Config,* *measConfig,* *bap-Config,* *IAB-IP-AddressConfigurationList* and *appLayerMeasConfig*.  For NE-DC (eutra-SCG), *mrdc-SecondaryCellGroup* includes the E-UTRA *RRCConnectionReconfiguration* message as specified in TS 36.331 [10]. In this version of the specification, the E-UTRA RRC message can only include the field *scg-Configuration*. |
| ***mrdc-SecondaryCellGroupConfig***  This field is used to configure and release an SCG in NR-DC and NE-DC. In an *RRCReconfiguration* message within an *LTM-Config* IE associated with the MCG, if this field is present its value can only be set to *release*. |
| ***musim-GapConfig***  Indicates the MUSIM gap configuration and controls setup/release of MUSIM gaps. In this version of the specification, the network does not configure MUSIM gap together preconfigured measurement gap for positioning. For the UE supporting *musim-GapPriorityPreference*, the network can configure MUSIM gap together with concurrent measurement gap. Otherwise, the network does not configure MUSIM gap together with concurrent measurement gap. |
| ***nas-Container***  This field is used to transfer UE specific NAS layer information between the network and the UE. The RRC layer is transparent for this field, although it affects activation of AS security after inter-system handover to NR. The content is defined in TS 24.501 [23]. |
| ***needForGapsConfigNR***  Configuration for the UE to report measurement gap requirement information of NR target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. |
| ***needForGapNCSG-ConfigEUTRA***  Configuration for the UE to report measurement gap and NCSG requirement information of E‑UTRA target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. |
| ***needForGapNCSG-ConfigNR***  Configuration for the UE to report measurement gap and NCSG requirement information of NR target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. |
| ***needForInterruptionConfigNR***  Indicates whether the UE shall report interruption requirement information of NR target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. The network sets this field to *enabled* only if the *needForGapsConfigNR* is configured. The network sets this field to *disabled* if the *needForGapsConfigNR* is released. |
| ***nextHopChainingCount***  Parameter NCC: See TS 33.501 [11] |
| ***onDemandSIB-Request***  Indicates that the UE is allowed to request SIB(s) on-demand while in RRC\_CONNECTED according to clause 5.2.2.3.5. |
| ***onDemandSIB-RequestProhibitTimer***  Prohibit timer for requesting SIB(s) on-demand while in RRC\_CONNECTED according to clause 5.2.2.3.5. Value in seconds. Value s0 means prohibit timer is set to 0 seconds, value s0dot5 means prohibit timer is set to 0.5 seconds, value s1 means prohibit timer is set to 1 second and so on. |
| ***otherConfig***  Contains configuration related to other configurations. When configured for the SCG, only fields *drx-PreferenceConfig, maxBW-PreferenceConfig, maxBW-PreferenceConfigFR2-2, maxCC-PreferenceConfig, maxMIMO-LayerPreferenceConfig*, *maxMIMO-LayerPreferenceConfigFR2-2*, *minSchedulingOffsetPreferenceConfig, minSchedulingOffsetPreferenceConfigExt, rlm-RelaxationReportingConfig, bfd-RelaxationReportingConfig, btNameList, wlanNameList, sensorNameList*, *obtainCommonLocation*, *idc-AssistanceConfig*, *multiRx-PreferenceReportingConfigFR2*, *ul-TrafficInfoReportingConfig*, *n3c-RelayUE-InfoReportConfig, successPSCell-Config* and *sn-InitiatedPSCellChange* can be included. |
| ***radioBearerConfig***  Configuration of Radio Bearers (DRBs, SRBs, multicast MRBs) including SDAP/PDCP. In (NG)EN-DC this field may only be present if the *RRCReconfiguration* is transmitted over SRB3. SRB4 should not be configured if *sl-L2RemoteUE-Config-r17* is configured or not released. |
| ***radioBearerConfig2***  Configuration of Radio Bearers (DRBs, SRBs) including SDAP/PDCP. This field can only be used if the UE supports NR-DC or NE-DC. |
| ***retainLoggedMeasurements***  If present, it indicates that the UE shall retain the logged measurements available in *VarCSI-LogMeasReport* upon execution of this *RRCReconfiguration* message including the *reconfigurationWithSync*. |
| ***scg-State***  Indicates that the SCG is in deactivated state.  This field is not used  - in an *RRCReconfiguration* message received:  - within *mrdc-SecondaryCellGroup*, or  - in an E-UTRA *RRCConnectionReconfiguration* message, or  - in an E-UTRA *RRCConnectionResume* message or  - in an *RRCReconfiguration* message received via SRB3, except if the *RRCReconfiguration* message is included in *DLInformationTransferMRDC*.  The field is absent if CPA, CPC, or subsequent CPAC is configured for the UE, or if the *RRCReconfiguration* message is contained in *CondRRCReconfig,* or PSCell is configured with *tag2*, or if the *RRCReconfiguration* message is included within an *LTM-Config* IE. |
| ***sl-L2RelayUE-Config***  Contains L2 U2N relay operation related configurations used by a UE acting as or to be acting as a L2 U2N Relay UE or L2 U2U relay operation related configuration used by a UE acting as a L2 U2U Relay UE. In case of L2 U2N relay operation, the field is absent if *conditionalReconfiguration* is configured for CHO. |
| ***sl-L2RemoteUE-Config***  Contains L2 U2N relay operation related configurations used by a UE acting as or to be acting as a L2 U2N Remote UE or L2 U2U relay operation related configuration used by a UE acting as a L2 U2U Remote UE. In case of L2 U2N relay operation, the field is absent if *conditionalReconfiguration* is configured for CHO, or if *appLayerMeasConfig* or SRB4 is configured/not released. |
| ***secondaryCellGroup***  Configuration of secondary cell group ((NG)EN-DC or NR-DC). |
| ***sk-Counter***  A counter used upon initial configuration of S-KgNB or S-KeNB, as well as upon refresh of S-KgNB or S-KeNB. This field is always included either upon initial configuration of an NR SCG or upon configuration of the first RB with *keyToUse* set to *secondary*, whichever happens first. This field is absent if there is neither any NR SCG nor any RB with *keyToUse* set to *secondary*, or if the *RRCReconfiguration* message is contained in *condRRCReconfig* for subsequent CPAC. |
| ***sl-ConfigDedicatedNR***  This field is used to provide the dedicated configurations for NR sidelink communication/discovery/positioning. |
| ***sl-ConfigDedicatedEUTRA-Info***  This field includes the E-UTRA *RRCConnectionReconfiguration* as specified in TS 36.331 [10]. In this version of the specification, the E-UTRA *RRCConnectionReconfiguration* can only includes sidelink related fields for V2X sidelink communication, i.e. *sl-V2X-ConfigDedicated*, *sl-V2X-SPS-Config*, *measConfig* and/or *otherConfig*. |
| ***srs-PosResourceSetLinkedForAggBWList***  This field indicates the SRS resource sets across two or three carriers which are linked for SRS bandwidth aggregation in RRC\_CONNECTED state as defined in clause 6.2.1.4 of TS 38.214 [19]. |
| ***sl-TimeOffsetEUTRA***  This field indicates the possible time offset to (de)activation of V2X sidelink transmission after receiving DCI format 3\_1 used for scheduling V2X sidelink communication. Value *ms0dpt75* corresponds to 0.75ms, *ms1* corresponds to 1ms and so on. The network includes this field only when *sl-ConfigDedicatedEUTRA* is configured. |
| ***targetCellSMTC-SCG***  The SSB periodicity/offset/duration configuration of target cell for NR PSCell addition and SN change. When UE receives this field, UE applies the configuration based on the timing reference of NR PCell for PSCell addition and PSCell change for the case of no reconfiguration with sync of MCG, and UE applies the configuration based on the timing reference of target NR PCell for the case of reconfiguration with sync of MCG. If both this field and the *smtc* in *secondaryCellGroup* -> *SpCellConfig* -> *reconfigurationWithSync* are absent, the UE uses the SMTC in the *measObjectNR* having the same SSB frequency and subcarrier spacing, as configured before the reception of the RRC message. |
| ***t316***  Indicates the value for timer T316 as described in clause 7.1. Value *ms50* corresponds to 50 ms, value *ms100* corresponds to 100 ms and so on. This field can be configured only if the UE is configured with split SRB1 or SRB3. |
| ***ue-TxTEG-RequestUL-TDOA-Config***  Configures the periodicity of UE reporting for the association between Tx TEG and SRS Positioning resources. When configured with *oneShot* UE reports the association only one time. When configured with *periodicReporting* UE reports the association periodically and the *periodicReporting* indicates the periodicity. Value *ms160* corresponds to 160ms, value *ms320* corresponds to 320ms and so on. |
| ***ul-GapFR2-Config***  Indicates the FR2 UL gap configuration to UE. In EN-DC and NGEN-DC, the SN decides and configures the FR2 UL gap pattern. In NE-DC, the MN decides and configures the FR2 UL gap pattern. In NR-DC without FR2-FR2 band combination, the network entity which is configured with FR2 serving cell(s) decides and configures the FR2 UL gap pattern. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *nonHO* | The field is absent in case of reconfiguration with sync within NR or to NR; otherwise it is optionally present, need N. |
| *securityNASC* | This field is mandatory present in case of inter system handover. Otherwise the field is optionally present, need N. |
| *MasterKeyChange* | This field is mandatory present in case *masterCellGroup* includes *ReconfigurationWithSync* and *RadioBearerConfig* includes *SecurityConfig* with *SecurityAlgorithmConfig*, indicating a change of the AS security algorithms associated to the master key. If *ReconfigurationWithSync* is included for other cases, this field is optionally present, need N. If *ReconfigurationWithSync* is part of an *RRCReconfiguration* message within an *LTM-Config* IE associated with the MCG, the field is absent. Otherwise the field is absent. |
| *FullConfig* | The field is mandatory present in case of inter-system handover from E-UTRA/EPC to NR. It is optionally present, Need N, during a reconfiguration with sync which is not related to an LTM cell switch or subsequent CPAC, and also in first reconfiguration after reestablishment; or for intra-system handover from E-UTRA/5GC to NR. It is absent otherwise. |
| *SCG* | The field is mandatory present in:  - an *RRCReconfiguration* message contained in an *RRCResume* message (or in an *RRCConnectionResume* message, see TS 36.331 [10]),  - an *RRCReconfiguration* message contained in an *RRCConnectionReconfiguration* message, see TS 36.331 [10], which is contained in *DLInformationTransferMRDC* transmitted on SRB3 (as a response to *ULInformationTransferMRDC* including an *MCGFailureInformation*).  The field is optional present, Need M, in:  - an *RRCReconfiguration* message transmitted on SRB3,  - an *RRCReconfiguration* message contained in another *RRCReconfiguration* message (or in an *RRCConnectionReconfiguration* message, see TS 36.331 [10]) transmitted on SRB1  - an *RRCReconfiguration* message contained in another *RRCReconfiguration* message which is contained in *DLInformationTransferMRDC* transmitted on SRB3 (as a response to *ULInformationTransferMRDC* including an *MCGFailureInformation*).  Otherwise, the field is absent. |
| *PagingRelay* | For L2 U2N Relay UE, the field is optionally present, Need N. Otherwise, it is absent. |

#### *– RRCReconfigurationComplete*

The *RRCReconfigurationComplete* message is used to confirm the successful completion of an RRC connection reconfiguration.

Signalling radio bearer: SRB1 or SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*RRCReconfigurationComplete message*

-- ASN1START

-- TAG-RRCRECONFIGURATIONCOMPLETE-START

RRCReconfigurationComplete ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

rrcReconfigurationComplete RRCReconfigurationComplete-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

RRCReconfigurationComplete-IEs ::= SEQUENCE {

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCReconfigurationComplete-v1530-IEs OPTIONAL

}

RRCReconfigurationComplete-v1530-IEs ::= SEQUENCE {

uplinkTxDirectCurrentList UplinkTxDirectCurrentList OPTIONAL,

nonCriticalExtension RRCReconfigurationComplete-v1560-IEs OPTIONAL

}

RRCReconfigurationComplete-v1560-IEs ::= SEQUENCE {

scg-Response CHOICE {

nr-SCG-Response OCTET STRING (CONTAINING RRCReconfigurationComplete),

eutra-SCG-Response OCTET STRING

} OPTIONAL,

nonCriticalExtension RRCReconfigurationComplete-v1610-IEs OPTIONAL

}

RRCReconfigurationComplete-v1610-IEs ::= SEQUENCE {

ue-MeasurementsAvailable-r16 UE-MeasurementsAvailable-r16 OPTIONAL,

needForGapsInfoNR-r16 NeedForGapsInfoNR-r16 OPTIONAL,

nonCriticalExtension RRCReconfigurationComplete-v1640-IEs OPTIONAL

}

RRCReconfigurationComplete-v1640-IEs ::= SEQUENCE {

uplinkTxDirectCurrentTwoCarrierList-r16 UplinkTxDirectCurrentTwoCarrierList-r16 OPTIONAL,

nonCriticalExtension RRCReconfigurationComplete-v1700-IEs OPTIONAL

}

RRCReconfigurationComplete-v1700-IEs ::= SEQUENCE {

needForGapNCSG-InfoNR-r17 NeedForGapNCSG-InfoNR-r17 OPTIONAL,

needForGapNCSG-InfoEUTRA-r17 NeedForGapNCSG-InfoEUTRA-r17 OPTIONAL,

selectedCondRRCReconfig-r17 CondReconfigId-r16 OPTIONAL,

nonCriticalExtension RRCReconfigurationComplete-v1720-IEs OPTIONAL

}

RRCReconfigurationComplete-v1720-IEs ::= SEQUENCE {

uplinkTxDirectCurrentMoreCarrierList-r17 UplinkTxDirectCurrentMoreCarrierList-r17 OPTIONAL,

nonCriticalExtension RRCReconfigurationComplete-v1800-IEs OPTIONAL

}

RRCReconfigurationComplete-v1800-IEs ::= SEQUENCE {

needForInterruptionInfoNR-r18 NeedForInterruptionInfoNR-r18 OPTIONAL,

flightPathInfoAvailable-r18 ENUMERATED {true} OPTIONAL,

selectedPSCellForCHO-WithSCG-r18 SelectedPSCellForCHO-WithSCG-r18 OPTIONAL,

selectedSK-Counter-r18 SK-Counter OPTIONAL,

measConfigReportAppLayerAvailable-r18 ENUMERATED {true} OPTIONAL,

appliedLTM-CandidateId-r18 LTM-CandidateId-r18 OPTIONAL,

nonCriticalExtension RRCReconfigurationComplete-v19xy-IEs OPTIONAL

}

RRCReconfigurationComplete-v19xy-IEs ::= SEQUENCE {

applicabilityReportList-r19 ApplicabilityReportList-r19 OPTIONAL,

csi-LogMeasAvailable-r19 ENUMERATED {true} OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-RRCRECONFIGURATIONCOMPLETE-STOP

-- ASN1STOP

|  |
| --- |
| *RRCReconfigurationComplete-IEs* field descriptions |
| ***applicabilityReportList***  The applicability reports related to prediction configurations and sets of parameters for prediction configurations. |
| ***csi-LogMeasAvailable***  Indicates that the UE has logged L1 radio measurements for network data collection to be reported to the network. |
| ***measConfigReportAppLayerAvailable***  Indication that the UE has at least one application layer measurement configuration with *appLayerIdleInactiveConfig* configured. |
| ***needForGapsInfoNR***  This field is used to indicate the measurement gap requirement information of the UE for NR target bands. |
| ***needForGapNCSG-InfoEUTRA***  This field is used to indicate the measurement gap and NCSG requirement information of the UE for E‑UTRA target bands. |
| ***needForGapNCSG-InfoNR***  This field is used to indicate the measurement gap and NCSG requirement information of the UE for NR target bands. |
| ***needForInterruptionInfoNR***  This field indicates whether interruption is needed while performing measurement on NR target bands without measurement gap. |
| ***scg-Response***  In case of NR-DC (*nr-SCG-Response*), this field includes the *RRCReconfigurationComplete* message. In case of NE-DC (*eutra-SCG-Response*), this field includes the E-UTRA *RRCConnectionReconfigurationComplete* message as specified in TS 36.331 [10]*.* |
| ***selectedCondRRCReconfig***  This field indicates the ID of the selected conditional reconfiguration the UE applied upon the execution of CPA or inter-SN CPC or subsequent CPAC. |
| ***selectedPSCellForCHO-WithSCG***  This field indicates the information of the selected target PSCell to target MN at execution of a conditional reconfiguration for CHO with candidate SCG(s). |
| ***selectedSK-Counter***  This field includes the selected *sk-counter* value for security key update upon the execution of subsequent CPAC. |
| ***uplinkTxDirectCurrentList***  The Tx Direct Current locations for the configured serving cells and BWPs if requested by the NW (see *reportUplinkTxDirectCurrent* in *CellGroupConfig*). |
| ***uplinkTxDirectCurrentMoreCarrierList***  The Tx Direct Current locations for the configured intra-band CA requested by *reportUplinkTxDirectCurrentMoreCarrier-r17*. |
| ***uplinkTxDirectCurrentTwoCarrierList***  The Tx Direct Current locations for the configured uplink intra-band CA with two carriers if requested by the NW (see *reportUplinkTxDirectCurrentTwoCarrier-r16* in *CellGroupConfig*). |

<Text Omitted>

#### – *RRCResumeComplete*

The *RRCResumeComplete* message is used to confirm the successful completion of an RRC connection resumption.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*RRCResumeComplete* message

-- ASN1START

-- TAG-RRCRESUMECOMPLETE-START

RRCResumeComplete ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

rrcResumeComplete RRCResumeComplete-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

RRCResumeComplete-IEs ::= SEQUENCE {

dedicatedNAS-Message DedicatedNAS-Message OPTIONAL,

selectedPLMN-Identity INTEGER (1..maxPLMN) OPTIONAL,

uplinkTxDirectCurrentList UplinkTxDirectCurrentList OPTIONAL,

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCResumeComplete-v1610-IEs OPTIONAL

}

RRCResumeComplete-v1610-IEs ::= SEQUENCE {

idleMeasAvailable-r16 ENUMERATED {true} OPTIONAL,

measResultIdleEUTRA-r16 MeasResultIdleEUTRA-r16 OPTIONAL,

measResultIdleNR-r16 MeasResultIdleNR-r16 OPTIONAL,

scg-Response-r16 CHOICE {

nr-SCG-Response OCTET STRING (CONTAINING RRCReconfigurationComplete),

eutra-SCG-Response OCTET STRING

} OPTIONAL,

ue-MeasurementsAvailable-r16 UE-MeasurementsAvailable-r16 OPTIONAL,

mobilityHistoryAvail-r16 ENUMERATED {true} OPTIONAL,

mobilityState-r16 ENUMERATED {normal, medium, high, spare} OPTIONAL,

needForGapsInfoNR-r16 NeedForGapsInfoNR-r16 OPTIONAL,

nonCriticalExtension RRCResumeComplete-v1640-IEs OPTIONAL

}

RRCResumeComplete-v1640-IEs ::= SEQUENCE {

uplinkTxDirectCurrentTwoCarrierList-r16 UplinkTxDirectCurrentTwoCarrierList-r16 OPTIONAL,

nonCriticalExtension RRCResumeComplete-v1700-IEs OPTIONAL

}

RRCResumeComplete-v1700-IEs ::= SEQUENCE {

needForGapNCSG-InfoNR-r17 NeedForGapNCSG-InfoNR-r17 OPTIONAL,

needForGapNCSG-InfoEUTRA-r17 NeedForGapNCSG-InfoEUTRA-r17 OPTIONAL,

nonCriticalExtension RRCResumeComplete-v1720-IEs OPTIONAL

}

RRCResumeComplete-v1720-IEs ::= SEQUENCE {

uplinkTxDirectCurrentMoreCarrierList-r17 UplinkTxDirectCurrentMoreCarrierList-r17 OPTIONAL,

nonCriticalExtension RRCResumeComplete-v1800-IEs OPTIONAL

}

RRCResumeComplete-v1800-IEs ::= SEQUENCE {

needForInterruptionInfoNR-r18 NeedForInterruptionInfoNR-r18 OPTIONAL,

musim-CapRestrictionInd-r18 ENUMERATED {true} OPTIONAL,

flightPathInfoAvailable-r18 ENUMERATED {true} OPTIONAL,

measConfigReportAppLayerAvailable-r18 ENUMERATED {true} OPTIONAL,

measResultReselectionNR-r18 MeasResultIdleNR-r16 OPTIONAL,

reselectionMeasAvailable-r18 ENUMERATED {true} OPTIONAL,

nonCriticalExtension RRCResumeComplete-v19xy-IEs OPTIONAL

}

RRCResumeComplete-v19xy-IEs ::= SEQUENCE {

applicabilityReportList-r19 ApplicabilityReportList-r19 OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-RRCRESUMECOMPLETE-STOP

-- ASN1STOP

|  |
| --- |
| *RRCResumeComplete-IEs* field descriptions |
| ***applicabilityReportList***  The applicability reports related to prediction configurations. |
| ***idleMeasAvailable***  Indication that the UE has idle/inactive measurement report available. |
| ***measConfigReportAppLayerAvailable***  Indication that the UE has at least one application layer measurement configuration with *appLayerIdleInactiveConfig* configured. |
| ***measResultIdleEUTRA***  EUTRA measurement results performed during RRC\_INACTIVE. |
| ***measResultIdleNR***  NR measurement results performed during RRC\_INACTIVE. |
| ***musim-CapRestrictionInd***  This field indicates the UE temporary capability restriction due to MUSIM operation. |
| ***needForGapsInfoNR***  This field is used to indicate the measurement gap requirement information of the UE for NR target bands. |
| ***needForGapNCSG-InfoEUTRA***  This field is used to indicate the measurement gap and NCSG requirement information of the UE for E‑UTRA target bands |
| ***needForGapNCSG-InfoNR***  This field is used to indicate the measurement gap and NCSG requirement information of the UE for NR target bands |
| ***needForInterruptionInfoNR***  This field indicates whether interruption is needed while performing measurement on NR target bands without measurement gap. |
| ***reselectionMeasAvailable***  Indication that the UE has reselection measurement report available. |
| ***selectedPLMN-Identity***  Index of the PLMN selected by the UE from the *plmn-IdentityInfoList* or *npn-IdentityInfoList* fields included in *SIB1*. |
| ***uplinkTxDirectCurrentList***  The Tx Direct Current locations for the configured serving cells and BWPs if requested by the NW (see *reportUplinkTxDirectCurrent* in *CellGroupConfig*). |
| ***uplinkTxDirectCurrentMoreCarrierList***  The Tx Direct Current locations for the configured intra-band CA requested by *reportUplinkTxDirectCurrentMoreCarrier-r17*. |
| ***uplinkTxDirectCurrentTwoCarrierList***  The Tx Direct Current locations for the configured uplink intra-band CA with two carriers if requested by the NW (see *reportUplinkTxDirectCurrentTwoCarrier-r16* in *CellGroupConfig*). |

<Text Omitted>

#### – *UEAssistanceInformation*

The *UEAssistanceInformation* message is used for the indication of UE assistance information to the network.

Signalling radio bearer: SRB1, SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*UEAssistanceInformation message*

-- ASN1START

-- TAG-UEASSISTANCEINFORMATION-START

UEAssistanceInformation ::= SEQUENCE {

criticalExtensions CHOICE {

ueAssistanceInformation UEAssistanceInformation-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

UEAssistanceInformation-IEs ::= SEQUENCE {

delayBudgetReport DelayBudgetReport OPTIONAL,

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension UEAssistanceInformation-v1540-IEs OPTIONAL

}

DelayBudgetReport::= CHOICE {

type1 ENUMERATED {

msMinus1280, msMinus640, msMinus320, msMinus160,msMinus80, msMinus60, msMinus40,

msMinus20, ms0, ms20,ms40, ms60, ms80, ms160, ms320, ms640, ms1280},

...

}

UEAssistanceInformation-v1540-IEs ::= SEQUENCE {

overheatingAssistance OverheatingAssistance OPTIONAL,

nonCriticalExtension UEAssistanceInformation-v1610-IEs OPTIONAL

}

OverheatingAssistance ::= SEQUENCE {

reducedMaxCCs ReducedMaxCCs-r16 OPTIONAL,

reducedMaxBW-FR1 ReducedMaxBW-FRx-r16 OPTIONAL,

reducedMaxBW-FR2 ReducedMaxBW-FRx-r16 OPTIONAL,

reducedMaxMIMO-LayersFR1 SEQUENCE {

reducedMIMO-LayersFR1-DL MIMO-LayersDL,

reducedMIMO-LayersFR1-UL MIMO-LayersUL

} OPTIONAL,

reducedMaxMIMO-LayersFR2 SEQUENCE {

reducedMIMO-LayersFR2-DL MIMO-LayersDL,

reducedMIMO-LayersFR2-UL MIMO-LayersUL

} OPTIONAL

}

OverheatingAssistance-r17 ::= SEQUENCE {

reducedMaxBW-FR2-2-r17 SEQUENCE {

reducedBW-FR2-2-DL-r17 ReducedAggregatedBandwidth-r17,

reducedBW-FR2-2-UL-r17 ReducedAggregatedBandwidth-r17

} OPTIONAL,

reducedMaxMIMO-LayersFR2-2 SEQUENCE {

reducedMIMO-LayersFR2-2-DL MIMO-LayersDL,

reducedMIMO-LayersFR2-2-UL MIMO-LayersUL

} OPTIONAL

}

ReducedAggregatedBandwidth ::= ENUMERATED {mhz0, mhz10, mhz20, mhz30, mhz40, mhz50, mhz60, mhz80, mhz100, mhz200, mhz300, mhz400}

ReducedAggregatedBandwidth-r17 ::= ENUMERATED {mhz0, mhz100, mhz200, mhz400, mhz800, mhz1200, mhz1600, mhz2000}

UEAssistanceInformation-v1610-IEs ::= SEQUENCE {

idc-Assistance-r16 IDC-Assistance-r16 OPTIONAL,

drx-Preference-r16 DRX-Preference-r16 OPTIONAL,

maxBW-Preference-r16 MaxBW-Preference-r16 OPTIONAL,

maxCC-Preference-r16 MaxCC-Preference-r16 OPTIONAL,

maxMIMO-LayerPreference-r16 MaxMIMO-LayerPreference-r16 OPTIONAL,

minSchedulingOffsetPreference-r16 MinSchedulingOffsetPreference-r16 OPTIONAL,

releasePreference-r16 ReleasePreference-r16 OPTIONAL,

sl-UE-AssistanceInformationNR-r16 SL-UE-AssistanceInformationNR-r16 OPTIONAL,

referenceTimeInfoPreference-r16 BOOLEAN OPTIONAL,

nonCriticalExtension UEAssistanceInformation-v1700-IEs OPTIONAL

}

UEAssistanceInformation-v1700-IEs ::= SEQUENCE {

ul-GapFR2-Preference-r17 UL-GapFR2-Preference-r17 OPTIONAL,

musim-Assistance-r17 MUSIM-Assistance-r17 OPTIONAL,

overheatingAssistance-r17 OverheatingAssistance-r17 OPTIONAL,

maxBW-PreferenceFR2-2-r17 MaxBW-PreferenceFR2-2-r17 OPTIONAL,

maxMIMO-LayerPreferenceFR2-2-r17 MaxMIMO-LayerPreferenceFR2-2-r17 OPTIONAL,

minSchedulingOffsetPreferenceExt-r17 MinSchedulingOffsetPreferenceExt-r17 OPTIONAL,

rlm-MeasRelaxationState-r17 BOOLEAN OPTIONAL,

bfd-MeasRelaxationState-r17 BIT STRING (SIZE (1..maxNrofServingCells)) OPTIONAL,

nonSDT-DataIndication-r17 SEQUENCE {

resumeCause-r17 ResumeCause OPTIONAL

} OPTIONAL,

scg-DeactivationPreference-r17 ENUMERATED { scg-DeactivationPreferred, noPreference } OPTIONAL,

uplinkData-r17 ENUMERATED { true } OPTIONAL,

rrm-MeasRelaxationFulfilment-r17 BOOLEAN OPTIONAL,

propagationDelayDifference-r17 PropagationDelayDifference-r17 OPTIONAL,

nonCriticalExtension UEAssistanceInformation-v1800-IEs OPTIONAL

}

UEAssistanceInformation-v1800-IEs ::= SEQUENCE {

idc-FDM-Assistance-r18 IDC-FDM-Assistance-r18 OPTIONAL,

idc-TDM-Assistance-r18 IDC-TDM-Assistance-r18 OPTIONAL,

multiRx-PreferenceFR2-r18 ENUMERATED {single, multiple } OPTIONAL,

musim-Assistance-v1800 MUSIM-Assistance-v1800 OPTIONAL,

flightPathInfoAvailable-r18 ENUMERATED {true} OPTIONAL,

ul-TrafficInfo-r18 UL-TrafficInfo-r18 OPTIONAL,

n3c-RelayUE-InfoList-r18 SEQUENCE (SIZE (0..8)) OF N3C-RelayUE-Info-r18 OPTIONAL,

sl-PRS-UE-AssistanceInformationNR-r18 SL-PRS-UE-AssistanceInformationNR-r18 OPTIONAL,

nonCriticalExtension UEAssistanceInformation-v19xy-IEs OPTIONAL

}

UEAssistanceInformation-v19xy-IEs ::= SEQUENCE {

applicabilityReportList-r19 ApplicabilityReportList-r19 OPTIONAL,

dataCollectionPreference-r19 DataCollectionPreference-r19 OPTIONAL,

loggedDataCollectionAssistance-r19 LoggedDataCollectionAssistance-r19 OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

IDC-Assistance-r16 ::= SEQUENCE {

affectedCarrierFreqList-r16 AffectedCarrierFreqList-r16 OPTIONAL,

affectedCarrierFreqCombList-r16 AffectedCarrierFreqCombList-r16 OPTIONAL,

...

}

AffectedCarrierFreqList-r16 ::= SEQUENCE (SIZE (1.. maxFreqIDC-r16)) OF AffectedCarrierFreq-r16

AffectedCarrierFreq-r16 ::= SEQUENCE {

carrierFreq-r16 ARFCN-ValueNR,

interferenceDirection-r16 ENUMERATED {nr, other, both, spare}

}

AffectedCarrierFreqCombList-r16 ::= SEQUENCE (SIZE (1..maxCombIDC-r16)) OF AffectedCarrierFreqComb-r16

AffectedCarrierFreqComb-r16 ::= SEQUENCE {

affectedCarrierFreqComb-r16 SEQUENCE (SIZE (2..maxNrofServingCells)) OF ARFCN-ValueNR OPTIONAL,

victimSystemType-r16 VictimSystemType-r16

}

VictimSystemType-r16 ::= SEQUENCE {

gps-r16 ENUMERATED {true} OPTIONAL,

glonass-r16 ENUMERATED {true} OPTIONAL,

bds-r16 ENUMERATED {true} OPTIONAL,

galileo-r16 ENUMERATED {true} OPTIONAL,

navIC-r16 ENUMERATED {true} OPTIONAL,

wlan-r16 ENUMERATED {true} OPTIONAL,

bluetooth-r16 ENUMERATED {true} OPTIONAL,

...,

[[

uwb-r18 ENUMERATED {true} OPTIONAL

]]

}

DRX-Preference-r16 ::= SEQUENCE {

preferredDRX-InactivityTimer-r16 ENUMERATED {

ms0, ms1, ms2, ms3, ms4, ms5, ms6, ms8, ms10, ms20, ms30, ms40, ms50, ms60, ms80,

ms100, ms200, ms300, ms500, ms750, ms1280, ms1920, ms2560, spare9, spare8,

spare7, spare6, spare5, spare4, spare3, spare2, spare1} OPTIONAL,

preferredDRX-LongCycle-r16 ENUMERATED {

ms10, ms20, ms32, ms40, ms60, ms64, ms70, ms80, ms128, ms160, ms256, ms320, ms512,

ms640, ms1024, ms1280, ms2048, ms2560, ms5120, ms10240, spare12, spare11, spare10,

spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1 } OPTIONAL,

preferredDRX-ShortCycle-r16 ENUMERATED {

ms2, ms3, ms4, ms5, ms6, ms7, ms8, ms10, ms14, ms16, ms20, ms30, ms32,

ms35, ms40, ms64, ms80, ms128, ms160, ms256, ms320, ms512, ms640, spare9,

spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1 } OPTIONAL,

preferredDRX-ShortCycleTimer-r16 INTEGER (1..16) OPTIONAL

}

MaxBW-Preference-r16 ::= SEQUENCE {

reducedMaxBW-FR1-r16 ReducedMaxBW-FRx-r16 OPTIONAL,

reducedMaxBW-FR2-r16 ReducedMaxBW-FRx-r16 OPTIONAL

}

MaxBW-PreferenceFR2-2-r17 ::= SEQUENCE {

reducedMaxBW-FR2-2-r17 SEQUENCE {

reducedBW-FR2-2-DL-r17 ReducedAggregatedBandwidth-r17 OPTIONAL,

reducedBW-FR2-2-UL-r17 ReducedAggregatedBandwidth-r17 OPTIONAL

} OPTIONAL

}

MaxCC-Preference-r16 ::= SEQUENCE {

reducedMaxCCs-r16 ReducedMaxCCs-r16 OPTIONAL

}

MaxMIMO-LayerPreference-r16 ::= SEQUENCE {

reducedMaxMIMO-LayersFR1-r16 SEQUENCE {

reducedMIMO-LayersFR1-DL-r16 INTEGER (1..8),

reducedMIMO-LayersFR1-UL-r16 INTEGER (1..4)

} OPTIONAL,

reducedMaxMIMO-LayersFR2-r16 SEQUENCE {

reducedMIMO-LayersFR2-DL-r16 INTEGER (1..8),

reducedMIMO-LayersFR2-UL-r16 INTEGER (1..4)

} OPTIONAL

}

MaxMIMO-LayerPreferenceFR2-2-r17 ::= SEQUENCE {

reducedMaxMIMO-LayersFR2-2-r17 SEQUENCE {

reducedMIMO-LayersFR2-2-DL-r17 INTEGER (1..8),

reducedMIMO-LayersFR2-2-UL-r17 INTEGER (1..4)

} OPTIONAL

}

MinSchedulingOffsetPreference-r16 ::= SEQUENCE {

preferredK0-r16 SEQUENCE {

preferredK0-SCS-15kHz-r16 ENUMERATED {sl1, sl2, sl4, sl6} OPTIONAL,

preferredK0-SCS-30kHz-r16 ENUMERATED {sl1, sl2, sl4, sl6} OPTIONAL,

preferredK0-SCS-60kHz-r16 ENUMERATED {sl2, sl4, sl8, sl12} OPTIONAL,

preferredK0-SCS-120kHz-r16 ENUMERATED {sl2, sl4, sl8, sl12} OPTIONAL

} OPTIONAL,

preferredK2-r16 SEQUENCE {

preferredK2-SCS-15kHz-r16 ENUMERATED {sl1, sl2, sl4, sl6} OPTIONAL,

preferredK2-SCS-30kHz-r16 ENUMERATED {sl1, sl2, sl4, sl6} OPTIONAL,

preferredK2-SCS-60kHz-r16 ENUMERATED {sl2, sl4, sl8, sl12} OPTIONAL,

preferredK2-SCS-120kHz-r16 ENUMERATED {sl2, sl4, sl8, sl12} OPTIONAL

} OPTIONAL

}

MinSchedulingOffsetPreferenceExt-r17 ::= SEQUENCE {

preferredK0-r17 SEQUENCE {

preferredK0-SCS-480kHz-r17 ENUMERATED {sl8, sl16, sl32, sl48} OPTIONAL,

preferredK0-SCS-960kHz-r17 ENUMERATED {sl8, sl16, sl32, sl48} OPTIONAL

} OPTIONAL,

preferredK2-r17 SEQUENCE {

preferredK2-SCS-480kHz-r17 ENUMERATED {sl8, sl16, sl32, sl48} OPTIONAL,

preferredK2-SCS-960kHz-r17 ENUMERATED {sl8, sl16, sl32, sl48} OPTIONAL

} OPTIONAL

}

MUSIM-Assistance-r17 ::= SEQUENCE {

musim-PreferredRRC-State-r17 ENUMERATED {idle, inactive, outOfConnected} OPTIONAL,

musim-GapPreferenceList-r17 MUSIM-GapPreferenceList-r17 OPTIONAL

}

MUSIM-GapPreferenceList-r17 ::= SEQUENCE (SIZE (1..4)) OF MUSIM-GapInfo-r17

MUSIM-Assistance-v1800 ::= SEQUENCE {

musim-GapPriorityPreferenceList-r18 MUSIM-GapPriorityPreferenceList-r18 OPTIONAL,

musim-GapKeepPreference-r18 ENUMERATED {true} OPTIONAL,

musim-CapRestriction-r18 MUSIM-CapRestriction-r18 OPTIONAL,

musim-NeedForGapsInfoNR-r18 NeedForGapsInfoNR-r16 OPTIONAL,

...

}

MUSIM-GapPriorityPreferenceList-r18 ::= SEQUENCE (SIZE (1..3)) OF GapPriority-r17

MUSIM-CapRestriction-r18 ::= SEQUENCE {

musim-Cell-SCG-ToRelease-r18 MUSIM-Cell-SCG-ToRelease-r18 OPTIONAL,

musim-CellToAffectList-r18 MUSIM-CellToAffectList-r18 OPTIONAL,

musim-AffectedBandsList-r18 MUSIM-AffectedBandsList-r18 OPTIONAL,

musim-AvoidedBandsList-r18 MUSIM-AvoidedBandsList-r18 OPTIONAL,

musim-MaxCC-r18 MUSIM-MaxCC-r18 OPTIONAL

}

MUSIM-Cell-SCG-ToRelease-r18 ::= SEQUENCE {

musim-CellToRelease-r18 MUSIM-CellToRelease-r18 OPTIONAL,

scg-ReleasePreference-r18 ENUMERATED {true} OPTIONAL

}

MUSIM-CellToRelease-r18 ::= SEQUENCE (SIZE (1..maxNrofServingCells)) OF ServCellIndex

MUSIM-CellToAffectList-r18::= SEQUENCE (SIZE (1..maxNrofServingCells)) OF MUSIM-CellToAffect-r18

MUSIM-CellToAffect-r18 ::= SEQUENCE {

musim-ServCellIndex-r18 ServCellIndex,

musim-MIMO-Layers-DL-r18 INTEGER (1..8) OPTIONAL,

musim-MIMO-Layers-UL-r18 INTEGER (1..4) OPTIONAL,

musim-SupportedBandwidth-DL-r18 SupportedBandwidth-v1700 OPTIONAL,

musim-SupportedBandwidth-UL-r18 SupportedBandwidth-v1700 OPTIONAL

}

MUSIM-AffectedBandsList-r18 ::= SEQUENCE (SIZE (1..maxBandComb-MUSIM-r18)) OF MUSIM-AffectedBands-r18

MUSIM-AffectedBands-r18 ::= SEQUENCE (SIZE (1..maxCandidateBandIndex-r18)) OF MUSIM-CapabilityRestrictedBandParameters-r18

MUSIM-CapabilityRestrictedBandParameters-r18 ::= SEQUENCE {

musim-bandEntryIndex-r18 MUSIM-BandEntryIndex-r18,

musim-CapabilityRestricted-r18 SEQUENCE {

musim-MIMO-Layers-DL-r18 INTEGER (1..8) OPTIONAL,

musim-MIMO-Layers-UL-r18 INTEGER (1..4) OPTIONAL,

musim-SupportedBandwidth-DL-r18 SupportedBandwidth-v1700 OPTIONAL,

musim-SupportedBandwidth-UL-r18 SupportedBandwidth-v1700 OPTIONAL

}

}

MUSIM-AvoidedBandsList-r18 ::= SEQUENCE (SIZE (1..maxBandComb-MUSIM-r18)) OF MUSIM-AvoidedBands-r18

MUSIM-AvoidedBands-r18 ::= SEQUENCE (SIZE (1..maxCandidateBandIndex-r18)) OF MUSIM-BandEntryIndex-r18

MUSIM-BandEntryIndex-r18 ::= INTEGER(1.. maxCandidateBandIndex-r18)

MUSIM-MaxCC-r18 ::= SEQUENCE {

musim-MaxCC-TotalDL-r18 INTEGER (1..32) OPTIONAL,

musim-MaxCC-TotalUL-r18 INTEGER (1..32) OPTIONAL,

musim-MaxCC-FR1-DL-r18 INTEGER (1..32) OPTIONAL,

musim-MaxCC-FR1-UL-r18 INTEGER (1..32) OPTIONAL,

musim-MaxCC-FR2-1-DL-r18 INTEGER (1..32) OPTIONAL,

musim-MaxCC-FR2-1-UL-r18 INTEGER (1..32) OPTIONAL,

musim-MaxCC-FR2-2-DL-r18 INTEGER (1..32) OPTIONAL,

musim-MaxCC-FR2-2-UL-r18 INTEGER (1..32) OPTIONAL

}

ReleasePreference-r16 ::= SEQUENCE {

preferredRRC-State-r16 ENUMERATED {idle, inactive, connected, outOfConnected}

}

ReducedMaxBW-FRx-r16 ::= SEQUENCE {

reducedBW-DL-r16 ReducedAggregatedBandwidth,

reducedBW-UL-r16 ReducedAggregatedBandwidth

}

ReducedMaxCCs-r16 ::= SEQUENCE {

reducedCCsDL-r16 INTEGER (0..31),

reducedCCsUL-r16 INTEGER (0..31)

}

SL-UE-AssistanceInformationNR-r16 ::= SEQUENCE (SIZE (1..maxNrofTrafficPattern-r16)) OF SL-TrafficPatternInfo-r16

SL-TrafficPatternInfo-r16::= SEQUENCE {

trafficPeriodicity-r16 ENUMERATED {ms20, ms50, ms100, ms200, ms300, ms400, ms500, ms600, ms700, ms800, ms900, ms1000},

timingOffset-r16 INTEGER (0..10239),

messageSize-r16 BIT STRING (SIZE (8)),

sl-QoS-FlowIdentity-r16 SL-QoS-FlowIdentity-r16

}

UL-GapFR2-Preference-r17::= SEQUENCE {

ul-GapFR2-PatternPreference-r17 INTEGER (0..3) OPTIONAL

}

PropagationDelayDifference-r17 ::= SEQUENCE (SIZE (1..4)) OF INTEGER (-270..270)

IDC-FDM-Assistance-r18 ::= SEQUENCE {

affectedCarrierFreqRangeList-r18 AffectedCarrierFreqRangeList-r18 OPTIONAL,

affectedCarrierFreqRangeCombList-r18 AffectedCarrierFreqRangeCombList-r18 OPTIONAL,

...

}

IDC-TDM-Assistance-r18 ::= SEQUENCE {

cycleLength-r18 ENUMERATED {ms2, ms3, ms4, ms5, ms6, ms7, ms8, ms10, ms14, ms16, ms20, ms30,

ms32, ms35, ms40, ms60, ms64, ms70, ms80, ms96, ms100, ms128, ms160,

ms256, ms320, ms512, ms640, ms1024, ms1280, ms2048, ms2560, ms5120, ms10240},

startOffset-r18 INTEGER (0..10239),

slotOffset-r18 INTEGER (0..31),

activeDuration-r18 CHOICE {

subMilliSeconds-r18 INTEGER (1..31),

milliSeconds-r18 ENUMERATED {

ms1, ms2, ms3, ms4, ms5, ms6, ms8, ms10, ms20, ms30, ms40, ms50, ms60,

ms80, ms100, ms200, ms300, ms400, ms500, ms600, ms800, ms1000, ms1200,

ms1600, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1 }

},

...

}

AffectedCarrierFreqRangeList-r18 ::= SEQUENCE (SIZE (1..maxFreqIDC-r16)) OF AffectedCarrierFreqRange-r18

AffectedCarrierFreqRange-r18 ::= SEQUENCE {

affectedFreqRange-r18 AffectedFreqRange-r18,

interferenceDirection-r18 ENUMERATED {nr, other, both, spare},

victimSystemType-r18 VictimSystemType-r16 OPTIONAL

}

AffectedCarrierFreqRangeCombList-r18 ::= SEQUENCE (SIZE (1..maxCombIDC-r16)) OF AffectedCarrierFreqRangeComb-r18

AffectedCarrierFreqRangeComb-r18 ::= SEQUENCE {

affectedCarrierFreqRangeComb-r18 SEQUENCE (SIZE (2..maxNrofServingCells)) OF AffectedFreqRange-r18,

interferenceDirection-r18 ENUMERATED {nr, other, both, spare},

victimSystemType-r18 VictimSystemType-r16 OPTIONAL

}

AffectedFreqRange-r18 ::= SEQUENCE {

centerFreq-r18 ARFCN-ValueNR,

affectedBandwidth-r18 ENUMERATED {khz200, khz400, khz600, khz800, mhz1, mhz2, mhz3, mhz4, mhz5, mhz6,

mhz8, mhz10, mhz20, mhz30, mhz40, mhz50, mhz60, mhz80, mhz100, mhz200,

mhz300, mhz400, spare10, spare9, spare8, spare7, spare6, spare5, spare4,

spare3, spare2, spare1}

}

UL-TrafficInfo-r18 ::= SEQUENCE (SIZE (1..maxNrofPDU-Sessions-r17)) OF PDU-SessionUL-TrafficInfo-r18

PDU-SessionUL-TrafficInfo-r18 ::= SEQUENCE {

pdu-SessionID-r18 PDU-SessionID,

qos-FlowUL-TrafficInfoList-r18 SEQUENCE (SIZE (1..maxNrofQFIs)) OF QOS-FlowUL-TrafficInfo-r18

}

QOS-FlowUL-TrafficInfo-r18 ::= SEQUENCE {

qfi-r18 QFI,

jitterRange-r18 SEQUENCE {

lowerBound-r18 JitterBound-r18,

upperBound-r18 JitterBound-r18

} OPTIONAL,

burstArrivalTime-r18 CHOICE {

referenceTime ReferenceTime-r16,

referenceSFN-AndSlot ReferenceSFN-AndSlot-r18

} OPTIONAL,

trafficPeriodicity-r18 INTEGER (1..640000) OPTIONAL,

pdu-SetIdentification-r18 BOOLEAN OPTIONAL,

psi-Identification-r18 BOOLEAN OPTIONAL,

...

}

ReferenceSFN-AndSlot-r18 ::= SEQUENCE {

referenceSFN-r18 INTEGER (0..1023),

referenceSlot-r18 INTEGER (0..639)

}

JitterBound-r18 ::= ENUMERATED {ms0, ms0dot5, ms1, ms1dot5, ms2, ms2dot5, ms3, ms3dot5, ms4, ms4dot5, ms5, ms5dot5, ms6, ms6dot5, ms7, beyondMs7}

SL-PRS-UE-AssistanceInformationNR-r18 ::= SEQUENCE (SIZE (1..maxNrofSL-PRS-TxConfig-r18)) OF SL-PRS-TxInfo-r18

SL-PRS-TxInfo-r18 ::= SEQUENCE {

sl-PRS-Periodicity-r18 ENUMERATED {ms100, ms200, ms300, ms400, ms500, ms600, ms700, ms800, ms900, ms1000, spare6,

spare5, spare4, spare3, spare2, spare1},

sl-PRS-Priority-r18 INTEGER (1..8) OPTIONAL,

sl-PRS-DelayBudget-r18 INTEGER (0..1023) OPTIONAL,

sl-PRS-Bandwidth-r18 ENUMERATED {mhz5, mhz10, mhz15, mhz20, mhz25, mhz30, mhz35, mhz40,

mhz45, mhz50, mhz60, mhz70, mhz80, mhz90, mhz100, mhz200, mhz400,

spare15, spare14, spare13, spare12, spare11, spare10, spare9, spare8,

spare7, spare6, spare5, spare4, spare3, spare2, spare1} OPTIONAL,

...

}

DataCollectionPreference-r19 ::= SEQUENCE {

dataCollectionStart-r19 ENUMERATED {start} OPTIONAL,

dataCollectionPreferredConfigurationList-r19 SEQUENCE (SIZE (1..maxNrofServingCells)) OF DataCollectionCandidateList-r19 OPTIONAL,

dataCollectionStopConfigurationList-r19 SEQUENCE (SIZE (1..maxNrofServingCells)) OF DataCollectionList-r19 OPTIONAL,

...

}

DataCollectionCandidateList-r19 :: = SEQUENCE {

dataCollectionServCellIndex-r19 ServCellIndex,

dataCollectionCandidateIdList-r19 SEQUENCE (SIZE (1..maxCandidateConfig-r19)) OF DataCollectionCandidateConfigId-r19 OPTIONAL,

}

DataCollectionList-r19 :: = SEQUENCE {

dataCollectionStopServCellIndex-r19 ServCellIndex,

dataCollectionIdList-r19 SEQUENCE (SIZE (1..maxNrofCSI-ReportConfigurations)) OF CSI-ReportConfigId OPTIONAL,

}

LoggedDataCollectionAssistance-r19 ::= SEQUENCE {

lowPowerState-r19 ENUMERATED {true} OPTIONAL,

bufferStatus-r19 ENUMERATED {full, aboveThreshold} OPTIONAL,

...

}

-- TAG-UEASSISTANCEINFORMATION-STOP

-- ASN1STOP

|  |
| --- |
| *UEAssistanceInformation* field descriptions |
| ***activeDuration***  Indicates the UE's preferred active duration to resolve the IDC problem. Value in multiples of 1/32 ms (subMilliSeconds) or in ms (milliSecond). For the latter, value ms1 corresponds to 1 ms, value ms2 corresponds to 2 ms, and so on. |
| ***affectedBandwidth***  Indicates the bandwidth around the center frequency of the carrier frequency range which is affected by the IDC problem. Value mhz5 corresponds to 5 MHz, value mhz10 corresponds to 10 MHz and so on. If *candidateBandwidth* is not configured, the UE is allowed to report the frequency range for any bandwidth as indicated by *affectedBandwidth*, within the frequency band limitation as defined in TS 38.101-1 [15], TS 38.101-2 [39], TS 38.101-3 [34] and TS 38.101-5 [75]. |
| ***affectedCarrierFreqList***  Indicates a list of NR carrier frequencies that are affected by IDC problem. |
| ***affectedCarrierFreqRangeList***  Indicates a list of NR carrier frequency ranges that are affected by IDC problem. |
| ***affectedCarrierFreqCombList***  Indicates a list of NR carrier frequency combinations that are affected by IDC problems due to Inter-Modulation Distortion and harmonics from NR when configured with UL CA or NR-DC. |
| ***affectedCarrierFreqRangeCombList***  Indicates a list of NR carrier frequency range combinations that are affected by IDC problems due to Inter-Modulation Distortion and harmonics from NR when configured with UL CA or NR-DC |
| ***bfd-MeasRelaxationState***  Indicates the relaxation state of BFD measurements. Each bit corresponds to a serving cell of the cell group. A serving cell is mapped to the (*servCellIndex*+1)-th bit, starting from MSB. A bit that is set to 1 indicates that the UE is performing BFD measurements relaxation on the serving cell mapped on the bit. A bit that is set to 0 indicates that the UE is not performing BFD measurements relaxation on the serving cell mapped on the bit. If a serving cell is not configured to the UE, the corresponding bit is set to 0. |
| ***centerFreq***  Indicates the center frequency of the carrier frequency range which is affected by the IDC problem. |
| ***cycleLength***  Indicates the UE's preferred cycle length to resolve the IDC problem. Value in ms. Value *ms2* corresponds to 2 ms, value *ms3* corresponds to 3 ms, and so on. |
| ***dataCollectionCandidateIdList***  Indicates one or more IDs of candidate configurations preferred by the UE for UE data collection. |
| ***dataCollectionIdList***  Indicates one or more IDs of UE data collection configurations that the UE prefers to stop. |
| ***dataCollectionServCellIndex***  Index of the serving cell that the *dataCollectionCandidateIdList* refers to. |
| ***dataCollectionStopServCellIndex***  Index of the serving cell that the *dataCollectionIdList* refers to. |
| ***dataCollectionStart***  It indicates the UE's preference to be configured with radio resources for UE data collection. |
| ***dataCollectionStopConfigurationList***  Indicates the radio resource configurations for UE data collection that the UE prefers to stop. |
| ***dataCollectionPreferredConfigurationList***  Indicates the UE's preferred radio resource configurations for UE data collection. |
| ***delayBudgetReport***  Indicates the UE-preferred adjustment to connected mode DRX. |
| ***interferenceDirection***  Indicates the direction of IDC interference. Value *nr* indicates that only NR is victim of IDC interference, value *other* indicates that only another radio is victim of IDC interference and value *both* indicates that both NR and another radio are victims of IDC interference. The other radio refers to either the ISM radio or GNSS (see TR 36.816 [44]). |
| ***loggedDataCollectionAssistance***  Indicates assistance information related to the logging of measurements for network data collection performed in accordance with *CSI-LoggedMeasurementConfig.* |
| ***lowPowerState***  It is set to 'true' if the UE determines to be in low power state. |
| ***bufferStatus***  Indicates the status of the buffer reserved for the logging of radio measurements for network data collection. |
| ***minSchedulingOffsetPreference***  Indicates the UE's preferences on *minimumSchedulingOffset* of cross-slot scheduling for power saving. |
| ***minSchedulingOffsetPreferenceExt***  Indicates the UE's preferences on *minimumSchedulingOffset* of cross-slot scheduling for power saving for SCS 480 kHz and/or 960 kHz. |
| ***multiRx-PreferenceFR2***  Indicates the UE's preference on single FR2 Rx operation to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cells operating on FR2. |
| ***musim-AffectedBandsList***  Indicates the UE's preference on the band(s) and/or combination(s) of bands with restricted capability for MUSIM operation. If the *MUSIM-CapabilityRestrictedBandParameters-r18* with same *musim-bandEntryIndex* appears more than once in the list of bands in a *MUSIM-AffectedBands* entry, the UE supports intra-band non-contiguous CA with restricted capability for MUSIM operation for this band. UE explicitly indicates each band and each combination of bands that are affected. The Network should respect these capability restrictions when configuring the UE with bands or band combinations that contain these bands and/or combination of bands. Fields *musim-MIMO-Layers-DL/UL* and *musim-SupportedBandwidth-DL/UL* indicate the max number of MIMO layers and max bandwidth on each CC of the band, respectively. The band(s) and/or combination(s) of bands are supported in UE capability, and the *musim-MIMO-Layers-DL/UL* and *musim-SupportedBandwidth-DL/UL* range up to the concerned capability of band(s) and/or combination(s) of bands in UE capability. |
| ***musim-AvoidedBandsList***  Indicates the UE's preference on band(s) and/or combination(s) of bands to be avoided for MUSIM purpose. UE explicitly indicates each band and each combination of bands to be avoided. The list may include the band of the PCell. The Network should respect these capability restrictions for the band combinations that contain these bands and/or combination of bands. The band(s) and/or combination(s) of bands is a subset of the band combination(s) in UE capability. |
| ***musim-bandEntryIndex***  Indicates an NR band by referring to the position of a band entry in *musim-CandidateBandList* IE. Value 1 identifies the first band in the *musim-CandidateBandList* IE, value 2 identifies the second band in the *musim-CandidateBandList* IE, and so on. |
| ***musim-CapabilityRestricted***  Indicates the UE's preference on the temporary capability restriction on the band for MUSIM operation. |
| ***musim-CapRestriction***  Indicates the UE's preference on SCell(s) or PSCell to be released, serving cell(s) with restricted capability, band(s) or combination(s) of bands with restricted capability, or band(s) or band combination(s) to be avoided for UE temporary capabilities restriction. |
| ***musim-Cell-SCG-ToRelease***  Indicates the UE's preference on any serving cell(s), except for Pcell, and/or SCG to be releasedfor MUSIM operation. |
| ***musim-CellToAffectList***  Indicates the UE's preference on the temporary capability restriction on the serving cell(s) for MUSIM operation. |
| ***musim-CellToRelease***  Indicates the UE's preference on the temporary capability restriction on the serving cell(s) to release, except PCell, for MUSIM operation. |
| ***musim-GapKeepPreference***  Indicates the UE's preference to keep all colliding gaps for requested MUSIM gap(s). If the field is absent, the colliding MUSIM gaps with lower priority shall be dropped as specified in TS 38.133 [14]. |
| ***musim-GapPreferenceList***  Indicates the UE's MUSIM gap preference and related MUSIM gap configuration, as defined in TS 38.133 [14] clause 9.1.10. |
| ***musim-GapPriorityPreferenceList***  Indicates the UE's MUSIM gap priority preference for periodic MUSIM gaps as specified in TS 38.133[14].  If the UE includes *musim-GapPriorityPreferenceList-r18*, it includes the same number of entries, and listed in the same order for periodic gaps, as in *musim-GapPreferenceList-r17*. |
| ***musim-MaxCC***  Indicates the UE's preference on the temporary capability restriction on maximum number of CCs per DL/UL in total, and per FR1/FR2-1/F2-2. |
| ***musim-NeedForGapsInfoNR***  This field is used to indicate the measurement gap requirement information of the UE for NR target bands when in MUSIM operation while NR-DC or NE-DC is not configured. |
| ***musim-PreferredRRC-State***  Indicates the UE's preferred RRC state when leaving RRC\_CONNECTED. |
| ***n3c-RelayUE-InfoList***  Information of available N3C relay UE(s). |
| ***nonSDT-DataIndication***  Informs the network about the arrival of data and/or signaling mapped to radio bearers not configured for SDT while SDT procedure is ongoing. |
| ***preferredDRX-InactivityTimer***  Indicates the UE's preferred DRX inactivity timer length for power saving. Value in ms (milliSecond). *ms0* corresponds to 0, *ms1* corresponds to 1 ms, *ms2* corresponds to 2 ms, and so on. If the field is absent from the *DRX-Preference* IE, it is interpreted as the UE having no preference for the DRX inactivity timer. If secondary DRX group is configured, the *preferredDRX-InactivityTimer* only applies to the default DRX group. |
| ***preferredDRX-LongCycle***  Indicates the UE's preferred long DRX cycle length for power saving. Value in ms. *ms10* corresponds to 10ms, *ms20* corresponds to 20 ms, *ms32* corresponds to 32 ms, and so on. If *preferredDRX-ShortCycle* is provided, the value of *preferredDRX-LongCycle* shall be a multiple of the *preferredDRX-ShortCycle* value. If the field is absent from the *DRX-Preference* IE, it is interpreted as the UE having no preference for the long DRX cycle. |
| ***preferredDRX-ShortCycle***  Indicates the UE's preferred short DRX cycle length for power saving. Value in ms. *ms2* corresponds to 2ms, *ms3* corresponds to 3 ms, *ms4* corresponds to 4 ms, and so on. If the field is absent from the *DRX-Preference* IE, it is interpreted as the UE having no preference for the short DRX cycle. |
| ***preferredDRX-ShortCycleTimer***  Indicates the UE's preferred short DRX cycle timer for power saving. Value in multiples of *preferredDRX-ShortCycle*. A value of 1 corresponds to *preferredDRX-ShortCycle*, a value of 2 corresponds to 2 \* *preferredDRX-ShortCycle* and so on. If the field is absent from the *DRX-Preference* IE, it is interpreted as the UE having no preference for the short DRX cycle timer. A preference for the short DRX cycle is indicated when a preference for the short DRX cycle timer is indicated. |
| ***preferredK0***  Indicates the UE's preferred value of *k0* (slot offset between DCI and its scheduled PDSCH - see TS 38.214 [19], clause 5.1.2.1) for cross-slot scheduling for power saving. Value is defined for each subcarrier spacing (numerology) in units of slots. *sl1* corresponds to 1 slot, *sl2* corresponds to 2 slots, *sl4* corresponds to 4 slots, and so on. If a value for a subcarrier spacing is absent, it is interpreted as the UE having no preference on *k0* for cross-slot scheduling for that subcarrier spacing. If the field is absent from the *MinSchedulingOffsetPreference* IE, it is interpreted as the UE having no preference on *k0* for cross-slot scheduling. |
| ***preferredK2***  Indicates the UE's preferred value of *k2* (slot offset between DCI and its scheduled PUSCH - see TS 38.214 [19], clause 6.1.2.1) for cross-slot scheduling for power saving. Value is defined for each subcarrier spacing (numerology) in units of slots. *sl1* corresponds to 1 slot, *sl2* corresponds to 2 slots, *sl4* corresponds to 4 slots, and so on. If a value for a subcarrier spacing is absent, it is interpreted as the UE having no preference on *k2* for cross-slot scheduling for that subcarrier spacing. If the field is absent from the *MinSchedulingOffsetPreference* IE, it is interpreted as the UE having no preference on *k2* for cross-slot scheduling. |
| ***preferredRRC-State***  Indicates the UE's preferred RRC state. The value *idle* is indicated if the UE prefers to be released from RRC\_CONNECTED and transition to RRC\_IDLE. The value *inactive* is indicated if the UE prefers to be released from RRC\_CONNECTED and transition to RRC\_INACTIVE. The value *connected* is indicated if the UE prefers to revert an earlier indication to leave RRC\_CONNECTED state. The value *outOfConnected* is indicated if the UE prefers to be released from RRC\_CONNECTED and has no preferred RRC state to transition to. The value *connected* can only be indicated if the UE is configured with *connectedReporting*. |
| ***propagationDelayDifference***  Indicates the one-way service link propagation delay difference between serving cell and each neighbour cell included in *neighCellInfoList,* defined as neighbour cell's service link propagation delay minus serving cell's service link propagation delay, in number of ms. First entry in *propagationDelayDifference* corresponds to first entry in *neighCellInfoList*, second entry in *propagationDelayDifference* corresponds to second entry in *neighCellInfoList*, and so on. |
| ***reducedCCsDL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of downlink SCells indicated by the field, to address overheating or power saving.  When indicated to address overheating, this maximum number includes SCells of the NR MCG, PSCell and SCells of the SCG. This maximum number only includes PSCell and SCells of the SCG in (NG)EN-DC.  When indicated to address power saving, this maximum number includes PSCell and SCells of the cell group that this UE assistance information is associated with. The maximum number of downlink SCells can only range up to the current active configuration when indicated to address power savings. |
| ***reducedCCsUL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of uplink SCells indicated by the field, to address overheating or power saving.  When indicated to address overheating, this maximum number includes SCells of the NR MCG, PSCell and SCells of the SCG. This maximum number only includes PSCell and SCells of the SCG in (NG)EN-DC.  When indicated to address power saving, this maximum number includes PSCell and SCells of the cell group that this UE assistance information is associated with. The maximum number of uplink SCells can only range up to the current active configuration when indicated to address power savings. |
| ***reducedMaxBW-FR1***  Indicates the UE's preference on reduced configuration corresponding to the maximum aggregated bandwidth across all downlink carrier(s) and across all uplink carrier(s) of FR1, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cell(s) operating on FR1. The aggregated bandwidth across all downlink carrier(s) of FR1 is the sum of bandwidth of active downlink BWP(s) across all activated downlink carrier(s) of FR1. The aggregated bandwidth across all uplink carrier(s) of FR1 is the sum of bandwidth of active uplink BWP(s) across all activated uplink carrier(s) of FR1. If the field is absent from the *MaxBW-Preference* IE or the *OverheatingAssistance* IE, it is interpreted as the UE having no preference on the maximum aggregated bandwidth of FR1.  When indicated to address overheating, this maximum aggregated bandwidth includes carrier(s) of FR1 of both the NR MCG and the SCG. This maximum aggregated bandwidth only includes carriers of FR1 of the SCG in (NG)EN-DC. Value *mhz0* is not used when indicated to address overheating.  When indicated to address power saving, this maximum aggregated bandwidth includes carrier(s) of FR1 of the cell group that this UE assistance information is associated with. The aggregated bandwidth can only range up to the current active configuration when indicated to address power savings. |
| ***reducedMaxBW-FR2***  Indicates the UE's preference on reduced configuration corresponding to the maximum aggregated bandwidth across all downlink carrier(s) and across all uplink carrier(s) of FR2-1, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cell(s) operating on FR2-1. The aggregated bandwidth across all downlink carrier(s) of FR2-1 is the sum of bandwidth of active downlink BWP(s) across all activated downlink carrier(s) of FR2-1. The aggregated bandwidth across all uplink carrier(s) of FR2-1 is the sum of bandwidth of active uplink BWP(s) across all activated uplink carrier(s) of FR2-1. If the field is absent from the *MaxBW-Preference* IE or the *OverheatingAssistance* IE, it is interpreted as the UE having no preference on the maximum aggregated bandwidth of FR2-1.  When indicated to address overheating, this maximum aggregated bandwidth includes carrier(s) of FR2-1 of both the NR MCG and the NR SCG. This maximum aggregated bandwidth only includes carriers of FR2-1 of the SCG in (NG)EN-DC.  When indicated to address power saving, this maximum aggregated bandwidth includes carrier(s) of FR2-1 of the cell group that this UE assistance information is associated with. The aggregated bandwidth can only range up to the current active configuration when indicated to address power savings. |
| ***reducedMaxBW-FR2-2***  Indicates the UE's preference on reduced configuration corresponding to the maximum aggregated bandwidth across all downlink carrier(s) and across all uplink carrier(s) of FR2-2, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cell(s) operating on FR2-2. The aggregated bandwidth across all downlink carrier(s) of FR2-2 is the sum of bandwidth of active downlink BWP(s) across all activated downlink carrier(s) of FR2-2. The aggregated bandwidth across all uplink carrier(s) of FR2-2 is the sum of bandwidth of active uplink BWP(s) across all activated uplink carrier(s) of FR2-2. If the field is absent from the *MaxBW-PreferenceFR2-2* IE or the *OverheatingAssistance* IE, it is interpreted as the UE having no preference on the maximum aggregated bandwidth of FR2-2.  When indicated to address overheating, this maximum aggregated bandwidth includes carrier(s) of FR2-2 of both the NR MCG and the NR SCG. This maximum aggregated bandwidth only includes carriers of FR2-2 of the SCG in (NG)EN-DC.  When indicated to address power saving, this maximum aggregated bandwidth includes carrier(s) of FR2-2 of the cell group that this UE assistance information is associated with. The aggregated bandwidth can only range up to the current active configuration when indicated to address power savings. |
| ***reducedMIMO-LayersFR1-DL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of downlink MIMO layers of each serving cell operating on FR1 indicated by the field, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cells operating on FR1. The maximum number of downlink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated downlink carrier(s) of FR1 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR1-UL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of uplink MIMO layers of each serving cell operating on FR1 indicated by the field, to address overheating or power saving (see NOTE 1). This field is allowed to be reported only when UE is configured with serving cells operating on FR1. The maximum number of uplink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated uplink carrier(s) of FR1 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR2-DL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of downlink MIMO layers of each serving cell operating on FR2-1 indicated by the field, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cells operating on FR2-1. The maximum number of downlink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated downlink carrier(s) of FR2-1 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR2-UL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of uplink MIMO layers of each serving cell operating on FR2-1 indicated by the field, to address overheating or power saving (see NOTE 1). This field is allowed to be reported only when UE is configured with serving cells operating on FR2-1. The maximum number of uplink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated uplink carrier(s) of FR2-1 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR2-2-DL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of downlink MIMO layers of each serving cell operating on FR2-2 indicated by the field, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cells operating on FR2-2. The maximum number of downlink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated downlink carrier(s) of FR2-2 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR2-2-UL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of uplink MIMO layers of each serving cell operating on FR2-2 indicated by the field, to address overheating or power saving (see NOTE 1). This field is allowed to be reported only when UE is configured with serving cells operating on FR2-2. The maximum number of uplink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated uplink carrier(s) of FR2-2 in the cell group when indicated to address power savings. |
| ***referenceTimeInfoPreference***  Indicates whether the UE prefers being provisioned with the timing information specified in the IE *ReferenceTimeInfo*. |
| ***resumeCause***  Provides the resume cause based on the information received from the upper layers. |
| ***rlm-MeasRelaxationState***  Indicates the relaxation state of RLM measurements. Value *true* indicates that the UE is performing relaxation of RLM measurements, and value *false* indicates that the UE is not performing relaxation of RLM measurements. |
| ***rrm-MeasRelaxationFulfilment***  Indicates whether the UE fulfils the relaxed measurement criterion for stationary UE in 5.7.4.4. Value true indicates that the UE fulfils the criterion, and value false indicates that the UE does not fulfil the criterion. |
| ***sl-QoS-FlowIdentity***  This identity uniquely identifies one sidelink QoS flow between the UE and the network in the scope of UE, which is unique for different destination and cast type. |
| ***sl-PRS-Bandwidth***  Indicates the desired bandwidth of the requested SL-PRS resources provided by upper layers (see TS 38.355 [77]) in the unit of MHz. |
| ***sl-PRS-DelayBudget***  Indicates the SL-PRS delay budget provided by upper layers (see TS 38.355 [77]). |
| ***sl-PRS-Periodicity***  Indicates the periodicity of SL-PRS transmission. |
| ***sl-PRS-Priority***  Indicates the priority of SL-PRS provided by upper layers (see TS 38.355 [77]). Value 1 is the highest priority whereas value 8 is the lowest priority. |
| ***sl-UE-AssistanceInformationNR***  Indicates the traffic characteristic of sidelink logical channel(s), specified in the IE *SL-TrafficPatternInfo,* that are setup for NR sidelink communication. |
| ***slotOffset***  Indicates the UE's preferred slot offset to resolve the IDC problem, in multiples of 1/32 ms. |
| ***startOffset***  Indicates the UE's preferred start offset to resolve the IDC problem, in multiples of 1 ms. |
| ***type1***  Indicates the preferred amount of increment/decrement to the long DRX cycle length with respect to the current configuration. Value in number of milliseconds. Value *ms40* corresponds to 40 milliseconds, *msMinus40* corresponds to -40 milliseconds and so on. |
| ***ul-GapFR2-PatternPreference***  Indicates the UE's preference on FR2 UL gap pattern as defined in TS 38.133 [14]. |
| ***victimSystemType***  Indicate the list of victim system types to which IDC interference is caused from NR. Value *gps*, *glonass*, *bds*, *galileo* and *navIC* indicates the type of GNSS. Value *wlan* indicates WLAN and value *bluetooth* indicates Bluetooth. Value *uwb* indicates Ultra Wide Band. |

NOTE 1: The field may also indicate the UE's preference on reduced configuration corresponding to the maximum number of SRS ports (i.e. *nrofSRS-Ports*) of each serving cell operating on the associated frequency range.

|  |
| --- |
| *SL-TrafficPatternInfo field descriptions* |
| ***messageSize***  Indicates the maximum TB size based on the observed traffic pattern. The value refers to the index of TS 38.321 [3], table 6.1.3.1-2. |
| ***timingOffset***  This field indicates the estimated timing for a packet arrival in a sidelink logical channel. Specifically, the value indicates the timing offset with respect to subframe#0 of SFN#0 in milliseconds. |
| ***trafficPeriodicity***  This field indicates the estimated data arrival periodicity in a sidelink logical channel. Value ms20 corresponds to 20 ms, ms50 corresponds to 50 ms and so on. |

|  |
| --- |
| *UL-TrafficInfo field descriptions* |
| ***burstArrivalTime***  Indicates the expected arrival time of the first packet of the Data Burst for the concerned QoS flow. If the UE provides both *burstArrivalTime* and *jitterRange, burstArrivalTime* is used as a reference time for the indicated jitter range.  If *burstArrivalTime* is indicated as *referenceTime*, the indicated time in 10ns unit from the origin is *refDays*\*86400\*1000\*100000 + *refSeconds*\*1000\*100000 + *refMilliSeconds*\*100000 + *refTenNanoSeconds*. The *refDays* field specifies the sequential number of days (with day count starting at 0) from 00:00:00 on Gregorian calendar date 6 January, 1980 (start of GPS time).  If *burstArrivalTime* is indicated as *referenceSFN-AndSlot*, it refers to the UL timing of the closest SFN and slot of the PCell with the indicated number. |
| ***jitterRange***  Indicates the maximum deviation of the arrival time of the first packet of a Data Burst compared to the time indicated with *burstArrivalTime* and the periodicity of the Data Bursts. *lowerBound* indicates the negative deviation while *upperBound* indicates the positive deviation. This field shall only be reported together with the *burstArrivalTime* or after the *burstArrivalTime* has been already reported. Value ms0 corresponds to 0 ms, value 0dot5 to 0.5 ms, value ms1 to 1 ms and so on. Value *beyondMs7* indicates the jitter bound is higher than 7 ms. Value 0 ms means there is no Data Burst arrival time deviation from the indicated *burstArrivalTime*. |
| ***pdu-SetIdentification***  Indicates whether the UE is able to identify PDU Set(s) for the QoS flow. If set to *true*, the UE is able to identify PDU Set(s) for the associated QoS flow, otherwise, the UE is not able to do so. Before receiving this indication, the network assumes the value is set to *false*. |
| ***psi-Identification***  Indicates whether the UE is able to identify PSI(s) for the QoS flow. This field shall only be set to *true* if *pdu-SetIdentification* is also set to *true* (or was set to *true* previously for the same QoS flow). If set to *true*, the UE is able to identify PSI(s) for the associated QoS flow, otherwise, the UE is not able to do so. Before receiving this indication, the network assumes the value is set to *false*. |
| ***qfi***  Identity of the QoS flow to which this UL traffic information refers. |
| ***trafficPeriodicity***  Indicates the average time period between the start times of two data bursts, expressed in the number of microseconds. |

<Text Omitted>

#### – *UEInformationRequest*

The *UEInformationRequest* message is used by the network to retrieve information from the UE.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*UEInformationRequest* message

-- ASN1START

-- TAG-UEINFORMATIONREQUEST-START

UEInformationRequest-r16 ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

ueInformationRequest-r16 UEInformationRequest-r16-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

UEInformationRequest-r16-IEs ::= SEQUENCE {

idleModeMeasurementReq-r16 ENUMERATED{true} OPTIONAL, -- Need N

logMeasReportReq-r16 ENUMERATED {true} OPTIONAL, -- Need N

connEstFailReportReq-r16 ENUMERATED {true} OPTIONAL, -- Need N

ra-ReportReq-r16 ENUMERATED {true} OPTIONAL, -- Need N

rlf-ReportReq-r16 ENUMERATED {true} OPTIONAL, -- Need N

mobilityHistoryReportReq-r16 ENUMERATED {true} OPTIONAL, -- Need N

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension UEInformationRequest-v1700-IEs OPTIONAL

}

UEInformationRequest-v1700-IEs ::= SEQUENCE {

successHO-ReportReq-r17 ENUMERATED {true} OPTIONAL, -- Need N

coarseLocationRequest-r17 ENUMERATED {true} OPTIONAL, -- Need N

nonCriticalExtension UEInformationRequest-v1800-IEs OPTIONAL

}

UEInformationRequest-v1800-IEs ::= SEQUENCE {

flightPathInfoReq-r18 FlightPathInfoReportConfig-r18 OPTIONAL, -- Need N

successPSCell-ReportReq-r18 ENUMERATED {true} OPTIONAL, -- Need N

reselectionMeasurementReq-r18 ENUMERATED {true} OPTIONAL, -- Need N

validatedMeasurementsReq-r18 ENUMERATED {true} OPTIONAL, -- Need N

nonCriticalExtension UEInformationRequest-v19xy-IEs OPTIONAL

}

UEInformationRequest-v19xy-IEs ::= SEQUENCE {

csi-LogMeasReportReq-r19 ENUMERATED {true} OPTIONAL, -- Need N

nonCriticalExtension SEQUENCE {} OPTIONAL

}

FlightPathInfoReportConfig-r18 ::= SEQUENCE {

maxWayPointNumber-r18 INTEGER (1..maxWayPoint-r18),

includeTimeStamp-r18 ENUMERATED {true} OPTIONAL -- Need N

}

-- TAG-UEINFORMATIONREQUEST-STOP

-- ASN1STOP

|  |
| --- |
| *UEInformationRequest-IEs* field descriptions |
| ***coarseLocationRequest***  This field is used to request UE to report coarse location information. |
| ***connEstFailReportReq***  This field is used to indicate whether the UE shall report information about the connection failure. |
| ***csi-LogMeasReportReq***  This field is used to indicate whether the UE shall report information about CSI radio measurements logged in RRC connected state for network data collection. |
| ***flightPathInfoReq***  This field is used to indicate whether the UE shall report the flight path information, if available, and to specify the flight path information report configuration. |
| ***idleModeMeasurementReq***  This field indicates that the UE shall report the idle/inactive measurement information, if available, to the network in the *UEInformationResponse* message. |
| ***logMeasReportReq***  This field is used to indicate whether the UE shall report information about logged measurements. |
| ***mobilityHistoryReportReq***  This field is used to indicate whether the UE shall report information about mobility history information. |
| ***ra-ReportReq***  This field is used to indicate whether the UE shall report information about the random access procedure. |
| ***reselectionMeasurementReq***  This field indicates that the UE shall report the reselection measurement information, if available, to the network in the *UEInformationResponse* message. |
| ***rlf-ReportReq***  This field is used to indicate whether the UE shall report information about the radio link failure. |
| ***successHO-ReportReq***  This field is used to indicate whether the UE shall report information about the successful handover report. |
| ***successPSCell-ReportReq***  This field is used to indicate whether the UE shall report information about the successful PSCell change or addition report. |

| *FlightPathInfoReportConfig* field descriptions |
| --- |
| ***includeTimeStamp***  Indicates whether time stamp of each way point can be reported in the flight path information report if time stamp information is available at the UE. |
| ***maxWayPointNumber***  Indicates the maximum number of way points UE can include in the flight path information report if this information is available at the UE. |

#### – *UEInformationResponse*

The *UEInformationResponse* message is used by the UE to transfer information requested by the network.

Signalling radio bearer: SRB1 or SRB2 (when logged measurement information is included) or SRBx (when logged measurement information for network data collection is included)

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to network

*UEInformationResponse message*

-- ASN1START

-- TAG-UEINFORMATIONRESPONSE-START

UEInformationResponse-r16 ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

ueInformationResponse-r16 UEInformationResponse-r16-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

UEInformationResponse-r16-IEs ::= SEQUENCE {

measResultIdleEUTRA-r16 MeasResultIdleEUTRA-r16 OPTIONAL,

measResultIdleNR-r16 MeasResultIdleNR-r16 OPTIONAL,

logMeasReport-r16 LogMeasReport-r16 OPTIONAL,

connEstFailReport-r16 ConnEstFailReport-r16 OPTIONAL,

ra-ReportList-r16 RA-ReportList-r16 OPTIONAL,

rlf-Report-r16 RLF-Report-r16 OPTIONAL,

mobilityHistoryReport-r16 MobilityHistoryReport-r16 OPTIONAL,

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension UEInformationResponse-v1700-IEs OPTIONAL

}

UEInformationResponse-v1700-IEs ::= SEQUENCE {

successHO-Report-r17 SuccessHO-Report-r17 OPTIONAL,

connEstFailReportList-r17 ConnEstFailReportList-r17 OPTIONAL,

coarseLocationInfo-r17 OCTET STRING OPTIONAL,

nonCriticalExtension UEInformationResponse-v1800-IEs OPTIONAL

}

UEInformationResponse-v1800-IEs ::= SEQUENCE {

flightPathInfoReport-r18 FlightPathInfoReport-r18 OPTIONAL,

successPSCell-Report-r18 SuccessPSCell-Report-r18 OPTIONAL,

measResultReselectionNR-r18 MeasResultIdleNR-r16 OPTIONAL,

nonCriticalExtension UEInformationResponse-v19xy-IEs OPTIONAL

}

UEInformationResponse-v19xy-IEs ::= SEQUENCE {

csi-LogMeasReport-r19 CSI-LogMeasReport-r19 OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

FlightPathInfoReport-r18 ::= SEQUENCE (SIZE (0..maxWayPoint-r18)) OF WayPoint-r18

WayPoint-r18 ::= SEQUENCE {

wayPointLocation-r18 OCTET STRING,

timeStamp-r18 AbsoluteTimeInfo-r16 OPTIONAL

}

LogMeasReport-r16 ::= SEQUENCE {

absoluteTimeStamp-r16 AbsoluteTimeInfo-r16,

traceReference-r16 TraceReference-r16,

traceRecordingSessionRef-r16 OCTET STRING (SIZE (2)),

tce-Id-r16 OCTET STRING (SIZE (1)),

logMeasInfoList-r16 LogMeasInfoList-r16,

logMeasAvailable-r16 ENUMERATED {true} OPTIONAL,

logMeasAvailableBT-r16 ENUMERATED {true} OPTIONAL,

logMeasAvailableWLAN-r16 ENUMERATED {true} OPTIONAL,

...

}

LogMeasInfoList-r16 ::= SEQUENCE (SIZE (1..maxLogMeasReport-r16)) OF LogMeasInfo-r16

LogMeasInfo-r16 ::= SEQUENCE {

locationInfo-r16 LocationInfo-r16 OPTIONAL,

relativeTimeStamp-r16 INTEGER (0..7200),

servCellIdentity-r16 CGI-Info-Logging-r16 OPTIONAL,

measResultServingCell-r16 MeasResultServingCell-r16 OPTIONAL,

measResultNeighCells-r16 SEQUENCE {

measResultNeighCellListNR MeasResultListLogging2NR-r16 OPTIONAL,

measResultNeighCellListEUTRA MeasResultList2EUTRA-r16 OPTIONAL

},

anyCellSelectionDetected-r16 ENUMERATED {true} OPTIONAL,

...,

[[

inDeviceCoexDetected-r17 ENUMERATED {true} OPTIONAL

]]

}

ConnEstFailReport-r16 ::= SEQUENCE {

measResultFailedCell-r16 MeasResultFailedCell-r16,

locationInfo-r16 LocationInfo-r16 OPTIONAL,

measResultNeighCells-r16 SEQUENCE {

measResultNeighCellListNR MeasResultList2NR-r16 OPTIONAL,

measResultNeighCellListEUTRA MeasResultList2EUTRA-r16 OPTIONAL

},

numberOfConnFail-r16 INTEGER (1..8),

perRAInfoList-r16 PerRAInfoList-r16,

timeSinceFailure-r16 TimeSinceFailure-r16,

...

}

ConnEstFailReportList-r17 ::= SEQUENCE (SIZE (1..maxCEFReport-r17)) OF ConnEstFailReport-r16

MeasResultServingCell-r16 ::= SEQUENCE {

resultsSSB-Cell MeasQuantityResults,

resultsSSB SEQUENCE{

best-ssb-Index SSB-Index,

best-ssb-Results MeasQuantityResults,

numberOfGoodSSB INTEGER (1..maxNrofSSBs-r16)

} OPTIONAL

}

MeasResultFailedCell-r16 ::= SEQUENCE {

cgi-Info CGI-Info-Logging-r16,

measResult-r16 SEQUENCE {

cellResults-r16 SEQUENCE{

resultsSSB-Cell-r16 MeasQuantityResults

},

rsIndexResults-r16 SEQUENCE{

resultsSSB-Indexes-r16 ResultsPerSSB-IndexList

}

}

}

RA-ReportList-r16 ::= SEQUENCE (SIZE (1..maxRAReport-r16)) OF RA-Report-r16

RA-Report-r16 ::= SEQUENCE {

cellId-r16 CHOICE {

cellGlobalId-r16 CGI-Info-Logging-r16,

pci-arfcn-r16 PCI-ARFCN-NR-r16

},

ra-InformationCommon-r16 RA-InformationCommon-r16 OPTIONAL,

raPurpose-r16 ENUMERATED {accessRelated, beamFailureRecovery, reconfigurationWithSync, ulUnSynchronized,

schedulingRequestFailure, noPUCCHResourceAvailable, requestForOtherSI,

msg3RequestForOtherSI-r17, lbt-Failure-r18, spare7, spare6, spare5, spare4, spare3,

spare2, spare1},

...,

[[

spCellID-r17 CGI-Info-Logging-r16 OPTIONAL

]],

[[

sdt-Failed-r18 ENUMERATED {true} OPTIONAL

]]

}

RA-InformationCommon-r16 ::= SEQUENCE {

absoluteFrequencyPointA-r16 ARFCN-ValueNR,

locationAndBandwidth-r16 INTEGER (0..37949),

subcarrierSpacing-r16 SubcarrierSpacing,

msg1-FrequencyStart-r16 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

msg1-FrequencyStartCFRA-r16 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

msg1-SubcarrierSpacing-r16 SubcarrierSpacing OPTIONAL,

msg1-SubcarrierSpacingCFRA-r16 SubcarrierSpacing OPTIONAL,

msg1-FDM-r16 ENUMERATED {one, two, four, eight} OPTIONAL,

msg1-FDMCFRA-r16 ENUMERATED {one, two, four, eight} OPTIONAL,

perRAInfoList-r16 PerRAInfoList-r16,

...,

[[

perRAInfoList-v1660 PerRAInfoList-v1660 OPTIONAL

]],

[[

msg1-SCS-From-prach-ConfigurationIndex-r16 ENUMERATED {kHz1dot25, kHz5, spare2, spare1} OPTIONAL

]],

[[

msg1-SCS-From-prach-ConfigurationIndexCFRA-r16 ENUMERATED {kHz1dot25, kHz5, spare2, spare1} OPTIONAL

]],

[[

msgA-RO-FrequencyStart-r17 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

msgA-RO-FrequencyStartCFRA-r17 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

msgA-SubcarrierSpacing-r17 SubcarrierSpacing OPTIONAL,

msgA-RO-FDM-r17 ENUMERATED {one, two, four, eight} OPTIONAL,

msgA-RO-FDMCFRA-r17 ENUMERATED {one, two, four, eight} OPTIONAL,

msgA-SCS-From-prach-ConfigurationIndex-r17 ENUMERATED {kHz1dot25, kHz5, spare2, spare1} OPTIONAL,

msgA-TransMax-r17 ENUMERATED {n1, n2, n4, n6, n8, n10, n20, n50, n100, n200} OPTIONAL,

msgA-MCS-r17 INTEGER (0..15) OPTIONAL,

nrofPRBs-PerMsgA-PO-r17 INTEGER (1..32) OPTIONAL,

msgA-PUSCH-TimeDomainAllocation-r17 INTEGER (1..maxNrofUL-Allocations) OPTIONAL,

frequencyStartMsgA-PUSCH-r17 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

nrofMsgA-PO-FDM-r17 ENUMERATED {one, two, four, eight} OPTIONAL,

dlPathlossRSRP-r17 RSRP-Range OPTIONAL,

intendedSIBs-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-Type-r17 OPTIONAL,

ssbsForSI-Acquisition-r17 SEQUENCE (SIZE (1..maxNrofSSBs-r16)) OF SSB-Index OPTIONAL,

msgA-PUSCH-PayloadSize-r17 BIT STRING (SIZE (5)) OPTIONAL,

onDemandSISuccess-r17 ENUMERATED {true} OPTIONAL

]],

[[

usedFeatureCombination-r18 ReportedFeatureCombination-r18 OPTIONAL,

triggeredFeatureCombination-r18 ReportedFeatureCombination-r18 OPTIONAL,

startPreambleForThisPartition-r18 INTEGER (0..63) OPTIONAL,

numberOfPreamblesPerSSB-ForThisPartition-r18 INTEGER (1..64) OPTIONAL,

attemptedBWP-InfoList-r18 SEQUENCE (SIZE (1..maxNrofBWPs)) OF AttemptedBWP-Info-r18 OPTIONAL,

numberOfLBT-Failures-r18 INTEGER (1..128) OPTIONAL,

perRAInfoList-v1800 PerRAInfoList-v1800 OPTIONAL,

intendedSIBs-r18 SEQUENCE (SIZE (1..maxSIB)) OF SIB-Type-r18 OPTIONAL

]]

}

AttemptedBWP-Info-r18 ::= SEQUENCE {

locationAndBandwidth-r18 INTEGER (0..37949),

subcarrierSpacing-r18 SubcarrierSpacing

}

ReportedFeatureCombination-r18 ::= SEQUENCE {

redCap-r18 ENUMERATED {true} OPTIONAL,

smallData-r18 ENUMERATED {true} OPTIONAL,

nsag-r18 NSAG-List-r17 OPTIONAL,

msg3-Repetitions-r18 ENUMERATED {true} OPTIONAL,

msg1-Repetitions-r18 ENUMERATED {true} OPTIONAL,

eRedCap-r18 ENUMERATED {true} OPTIONAL,

triggered-S-NSSAI-List-r18 SEQUENCE (SIZE (1..maxNrofS-NSSAI)) OF S-NSSAI OPTIONAL

}

PerRAInfoList-r16 ::= SEQUENCE (SIZE (1..200)) OF PerRAInfo-r16

PerRAInfoList-v1660 ::= SEQUENCE (SIZE (1..200)) OF PerRACSI-RSInfo-v1660

PerRAInfo-r16 ::= CHOICE {

perRASSBInfoList-r16 PerRASSBInfo-r16,

perRACSI-RSInfoList-r16 PerRACSI-RSInfo-r16

}

PerRAInfoList-v1800 ::= SEQUENCE (SIZE (1..200)) OF PerRAInfo-v1800

PerRAInfo-v1800 ::= CHOICE {

perRASSBInfoList-v1800 PerRASSBInfo-v1800,

perRACSI-RSInfoList-v1800 PerRACSI-RSInfo-v1800

}

PerRASSBInfo-r16 ::= SEQUENCE {

ssb-Index-r16 SSB-Index,

numberOfPreamblesSentOnSSB-r16 INTEGER (1..200),

perRAAttemptInfoList-r16 PerRAAttemptInfoList-r16

}

PerRASSBInfo-v1800 ::= SEQUENCE {

allPreamblesBlocked ENUMERATED {true} OPTIONAL,

lbt-Detected-r18 ENUMERATED {true} OPTIONAL,

...

}

PerRACSI-RSInfo-r16 ::= SEQUENCE {

csi-RS-Index-r16 CSI-RS-Index,

numberOfPreamblesSentOnCSI-RS-r16 INTEGER (1..200)

}

PerRACSI-RSInfo-v1660 ::= SEQUENCE {

csi-RS-Index-v1660 INTEGER (1..96) OPTIONAL

}

PerRACSI-RSInfo-v1800 ::= SEQUENCE {

allPreamblesBlocked ENUMERATED {true} OPTIONAL,

lbt-Detected-r18 ENUMERATED {true} OPTIONAL,

...

}

PerRAAttemptInfoList-r16 ::= SEQUENCE (SIZE (1..200)) OF PerRAAttemptInfo-r16

PerRAAttemptInfo-r16 ::= SEQUENCE {

contentionDetected-r16 BOOLEAN OPTIONAL,

dlRSRPAboveThreshold-r16 BOOLEAN OPTIONAL,

...,

[[

fallbackToFourStepRA-r17 ENUMERATED {true} OPTIONAL

]]

}

SIB-Type-r17 ::= ENUMERATED {sibType2, sibType3, sibType4, sibType5, sibType9, sibType10, sibType11, sibType12,

sibType13, sibType14, posSIB-v1810, spare5, spare4, spare3, spare2, spare1}

SIB-Type-r18 ::= ENUMERATED {sibType15, sibType16, sibType17, sibType18, sibType19, sibType20,

sibType21, sibType22, sibType23, sibType24, sibType25, spare5, spare4,

spare3, spare2, spare1}

RLF-Report-r16 ::= CHOICE {

nr-RLF-Report-r16 SEQUENCE {

measResultLastServCell-r16 MeasResultRLFNR-r16,

measResultNeighCells-r16 SEQUENCE {

measResultListNR-r16 MeasResultList2NR-r16 OPTIONAL,

measResultListEUTRA-r16 MeasResultList2EUTRA-r16 OPTIONAL

} OPTIONAL,

c-RNTI-r16 RNTI-Value,

previousPCellId-r16 CHOICE {

nrPreviousCell-r16 CGI-Info-Logging-r16,

eutraPreviousCell-r16 CGI-InfoEUTRALogging

} OPTIONAL,

failedPCellId-r16 CHOICE {

nrFailedPCellId-r16 CHOICE {

cellGlobalId-r16 CGI-Info-Logging-r16,

pci-arfcn-r16 PCI-ARFCN-NR-r16

},

eutraFailedPCellId-r16 CHOICE {

cellGlobalId-r16 CGI-InfoEUTRALogging,

pci-arfcn-r16 PCI-ARFCN-EUTRA-r16

}

},

reconnectCellId-r16 CHOICE {

nrReconnectCellId-r16 CGI-Info-Logging-r16,

eutraReconnectCellId-r16 CGI-InfoEUTRALogging

} OPTIONAL,

timeUntilReconnection-r16 TimeUntilReconnection-r16 OPTIONAL,

reestablishmentCellId-r16 CGI-Info-Logging-r16 OPTIONAL,

timeConnFailure-r16 INTEGER (0..1023) OPTIONAL,

timeSinceFailure-r16 TimeSinceFailure-r16,

connectionFailureType-r16 ENUMERATED {rlf, hof},

rlf-Cause-r16 ENUMERATED {t310-Expiry, randomAccessProblem, rlc-MaxNumRetx,

beamFailureRecoveryFailure, lbtFailure-r16,

bh-rlfRecoveryFailure, t312-expiry-r17, spare1},

locationInfo-r16 LocationInfo-r16 OPTIONAL,

noSuitableCellFound-r16 ENUMERATED {true} OPTIONAL,

ra-InformationCommon-r16 RA-InformationCommon-r16 OPTIONAL,

...,

[[

csi-rsRLMConfigBitmap-v1650 BIT STRING (SIZE (96)) OPTIONAL

]],

[[

lastHO-Type-r17 ENUMERATED {cho, daps, spare2, spare1} OPTIONAL,

timeConnSourceDAPS-Failure-r17 TimeConnSourceDAPS-Failure-r17 OPTIONAL,

timeSinceCHO-Reconfig-r17 TimeSinceCHO-Reconfig-r17 OPTIONAL,

choCellId-r17 CHOICE {

cellGlobalId-r17 CGI-Info-Logging-r16,

pci-arfcn-r17 PCI-ARFCN-NR-r16

} OPTIONAL,

choCandidateCellList-r17 ChoCandidateCellList-r17 OPTIONAL

]],

[[

pSCellId-r18 CHOICE {

cellGlobalId-r18 CGI-Info-Logging-r16,

pci-arfcn-r18 PCI-ARFCN-NR-r16

} OPTIONAL,

mcg-RecoveryFailureCause-r18 ENUMERATED {t316-Expiry, scg-Deactivated, spare2, spare1} OPTIONAL,

scg-FailureCause-r18 ENUMERATED {t310-Expiry, randomAccessProblem, rlc-MaxNumRetx,

synchReconfigFailureSCG, scg-ReconfigFailure,

srb3-IntegrityFailure, scg-lbtFailure, beamFailureRecoveryFailure,

t312-Expiry, bh-RLF, beamFailure, spare5, spare4, spare3, spare2, spare1 }

OPTIONAL,

elapsedTimeSCG-Failure-r18 ElapsedTimeSCG-Failure-r18 OPTIONAL,

voiceFallbackHO-r18 ENUMERATED {true} OPTIONAL,

measResultLastServCellRSSI-r18 RSSI-Range-r16 OPTIONAL,

measResultNeighFreqListRSSI-r18 MeasResultNeighFreqListRSSI-r18 OPTIONAL,

bwp-Info-r18 AttemptedBWP-Info-r18 OPTIONAL,

elapsedTimeT316-r18 ElapsedTimeT316-r18 OPTIONAL,

scg-FailedAfterMCG-r18 ENUMERATED {true} OPTIONAL  
 ]]

},

eutra-RLF-Report-r16 SEQUENCE {

failedPCellId-EUTRA CGI-InfoEUTRALogging,

measResult-RLF-Report-EUTRA-r16 OCTET STRING,

...,

[[

measResult-RLF-Report-EUTRA-v1690 OCTET STRING OPTIONAL

]]

}

}

SuccessHO-Report-r17 ::= SEQUENCE {

sourceCellInfo-r17 SEQUENCE {

sourcePCellId-r17 CGI-Info-Logging-r16,

sourceCellMeas-r17 MeasResultSuccessHONR-r17 OPTIONAL,

rlf-InSourceDAPS-r17 ENUMERATED {true} OPTIONAL

},

targetCellInfo-r17 SEQUENCE {

targetPCellId-r17 CGI-Info-Logging-r16,

targetCellMeas-r17 MeasResultSuccessHONR-r17 OPTIONAL

},

measResultNeighCells-r17 SEQUENCE {

measResultListNR-r17 MeasResultList2NR-r16 OPTIONAL,

measResultListEUTRA-r17 MeasResultList2EUTRA-r16 OPTIONAL

} OPTIONAL,

locationInfo-r17 LocationInfo-r16 OPTIONAL,

timeSinceCHO-Reconfig-r17 TimeSinceCHO-Reconfig-r17 OPTIONAL,

shr-Cause-r17 SHR-Cause-r17 OPTIONAL,

ra-InformationCommon-r17 RA-InformationCommon-r16 OPTIONAL,

upInterruptionTimeAtHO-r17 UPInterruptionTimeAtHO-r17 OPTIONAL,

c-RNTI-r17 RNTI-Value OPTIONAL,

...,

[[

targetCell-PCI-ARFCN-r17 PCI-ARFCN-NR-r16 OPTIONAL

]],

[[

eutra-TargetCellInfo-r18 SEQUENCE {

targetPCellId-r18 CHOICE {

cellGlobalId-r18 CGI-Info-Logging-r16,

pci-arfcn-r18 PCI-ARFCN-EUTRA-r16

},

targetCellMeas-r18 MeasQuantityResultsEUTRA OPTIONAL

} OPTIONAL,

measResultServCellRSSI-r18 RSSI-Range-r16 OPTIONAL,

measResultNeighFreqListRSSI-r18 MeasResultNeighFreqListRSSI-r18 OPTIONAL,

eutra-C-RNTI-r18 EUTRA-C-RNTI OPTIONAL,

timeSinceSHR-r18 TimeSinceSHR-r18 OPTIONAL

]]

}

SuccessPSCell-Report-r18 ::= SEQUENCE {

pCellId-r18 CGI-Info-Logging-r16,

sourcePSCellInfo-r18 SEQUENCE {

sourcePSCellId-r18 CHOICE {

cellGlobalId-r18 CGI-Info-Logging-r16,

pci-arfcn-r18 PCI-ARFCN-EUTRA-r16

},

sourcePSCellMeas-r18 MeasResultSuccessHONR-r17 OPTIONAL

} OPTIONAL,

targetPSCellInfo-r18 SEQUENCE {

targetPSCellId-r18 CHOICE {

cellGlobalId-r18 CGI-Info-Logging-r16,

pci-arfcn-r18 PCI-ARFCN-NR-r16

},

targetPSCellMeas-r18 MeasResultSuccessHONR-r17 OPTIONAL

},

measResultNeighCells-r18 SEQUENCE {

measResultListNR-r18 MeasResultList2NR-r16 OPTIONAL,

measResultListEUTRA-r18 MeasResultList2EUTRA-r16 OPTIONAL

} OPTIONAL,

spr-Cause-r18 SPR-Cause-r18 OPTIONAL,

timeSinceCPAC-Reconfig-r18 TimeSinceCPAC-Reconfig-r18 OPTIONAL,

locationInfo-r18 LocationInfo-r16 OPTIONAL,

ra-InformationCommon-r18 RA-InformationCommon-r16 OPTIONAL,

sn-InitiatedPSCellChange-r18 ENUMERATED {true} OPTIONAL,

...

}

MeasResultNeighFreqListRSSI-r18 ::= SEQUENCE(SIZE (1..maxFreq)) OF MeasResultNeighFreqRSSI-r18

MeasResultNeighFreqRSSI-r18 ::= SEQUENCE {

ssbFrequency-r18 ARFCN-ValueNR OPTIONAL,

ssbSubcarrierSpacing-r18 SubcarrierSpacing OPTIONAL,

refFreqCSI-RS-r18 ARFCN-ValueNR OPTIONAL,

measResult-RSSI-r18 RSSI-Range-r16 OPTIONAL

}

MeasResultList2NR-r16 ::= SEQUENCE(SIZE (1..maxFreq)) OF MeasResult2NR-r16

MeasResultList2EUTRA-r16 ::= SEQUENCE(SIZE (1..maxFreq)) OF MeasResult2EUTRA-r16

MeasResult2NR-r16 ::= SEQUENCE {

ssbFrequency-r16 ARFCN-ValueNR OPTIONAL,

refFreqCSI-RS-r16 ARFCN-ValueNR OPTIONAL,

measResultList-r16 MeasResultListNR

}

MeasResultListLogging2NR-r16 ::= SEQUENCE(SIZE (1..maxFreq)) OF MeasResultLogging2NR-r16

MeasResultLogging2NR-r16 ::= SEQUENCE {

carrierFreq-r16 ARFCN-ValueNR,

measResultListLoggingNR-r16 MeasResultListLoggingNR-r16

}

MeasResultListLoggingNR-r16 ::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultLoggingNR-r16

MeasResultLoggingNR-r16 ::= SEQUENCE {

physCellId-r16 PhysCellId,

resultsSSB-Cell-r16 MeasQuantityResults,

numberOfGoodSSB-r16 INTEGER (1..maxNrofSSBs-r16) OPTIONAL

}

MeasResult2EUTRA-r16 ::= SEQUENCE {

carrierFreq-r16 ARFCN-ValueEUTRA,

measResultList-r16 MeasResultListEUTRA

}

MeasResultRLFNR-r16 ::= SEQUENCE {

measResult-r16 SEQUENCE {

cellResults-r16 SEQUENCE{

resultsSSB-Cell-r16 MeasQuantityResults OPTIONAL,

resultsCSI-RS-Cell-r16 MeasQuantityResults OPTIONAL

},

rsIndexResults-r16 SEQUENCE{

resultsSSB-Indexes-r16 ResultsPerSSB-IndexList OPTIONAL,

ssbRLMConfigBitmap-r16 BIT STRING (SIZE (64)) OPTIONAL,

resultsCSI-RS-Indexes-r16 ResultsPerCSI-RS-IndexList OPTIONAL,

csi-rsRLMConfigBitmap-r16 BIT STRING (SIZE (96)) OPTIONAL

} OPTIONAL

}

}

MeasResultSuccessHONR-r17::= SEQUENCE {

measResult-r17 SEQUENCE {

cellResults-r17 SEQUENCE{

resultsSSB-Cell-r17 MeasQuantityResults OPTIONAL,

resultsCSI-RS-Cell-r17 MeasQuantityResults OPTIONAL

},

rsIndexResults-r17 SEQUENCE{

resultsSSB-Indexes-r17 ResultsPerSSB-IndexList OPTIONAL,

resultsCSI-RS-Indexes-r17 ResultsPerCSI-RS-IndexList OPTIONAL

}

}

}

ChoCandidateCellList-r17 ::= SEQUENCE(SIZE (1..maxNrofCondCells-r16)) OF ChoCandidateCell-r17

ChoCandidateCell-r17 ::= CHOICE {

cellGlobalId-r17 CGI-Info-Logging-r16,

pci-arfcn-r17 PCI-ARFCN-NR-r16

}

SHR-Cause-r17 ::= SEQUENCE {

t304-cause-r17 ENUMERATED {true} OPTIONAL,

t310-cause-r17 ENUMERATED {true} OPTIONAL,

t312-cause-r17 ENUMERATED {true} OPTIONAL,

sourceDAPS-Failure-r17 ENUMERATED {true} OPTIONAL,

...

}

SPR-Cause-r18 ::= SEQUENCE {

t304-cause-r18 ENUMERATED {true} OPTIONAL,

t310-cause-r18 ENUMERATED {true} OPTIONAL,

t312-cause-r18 ENUMERATED {true} OPTIONAL,

...

}

CSI-LogMeasReport-r19 ::= SEQUENCE {

csi-LogMeasInfoCellList-r19 CSI-LogMeasInfoCellList-r19,

csi-MoreLogMeasAvailable-r19 ENUMERATED {true} OPTIONAL,

...

}

CSI-LogMeasInfoCellList-r19 ::= SEQUENCE (SIZE (1..maxNrofServingCells)) OF CSI-LogMeasInfoCell-r19

CSI-LogMeasInfoCell-r19 ::= SEQUENCE {

cellId-r19 CHOICE {

cellGlobalId-r19 CGI-Info-Logging-r16,

pci-arfcn-r19 PCI-ARFCN-NR-r16

},

csi-LogMeasInfoList-r19 SEQUENCE (SIZE (1..maxLogCSI-MeasReport-r19)) OF CSI-LogMeasInfo-r19,

...

}

CSI-LogMeasInfo-r19 ::= SEQUENCE {

refCSI-LoggedMeasurementConfigId-r19 CSI-LoggedMeasurementConfigId-r19,

csi-RS-MeasResultList-r19 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-Resources)) OF CSI-RS-MeasResult-r19 OPTIONAL,

ssb-MeasResultList-r19 SEQUENCE (SIZE (1..maxNrofSSBs)) OF SSB-MeasResult-r19 OPTIONAL,

timeGap-r19 ENUMERATED {true} OPTIONAL, ...

}

CSI-RS-MeasResult-r19 ::= SEQUENCE {

resourceId-r19 NZP-CSI-RS-ResourceId,

l1-RSRP-r19 RSRP-Range

}

SSB-MeasResult-r19 ::= SEQUENCE {

ssb-Id-r19 SSB-Index,

l1-RSRP-r19 RSRP-Range

}

TimeSinceFailure-r16 ::= INTEGER (0..172800)

MobilityHistoryReport-r16 ::= VisitedCellInfoList-r16

TimeUntilReconnection-r16 ::= INTEGER (0..172800)

TimeSinceCHO-Reconfig-r17 ::= INTEGER (0..1023)

TimeSinceCPAC-Reconfig-r18 ::= INTEGER (0.. 1023)

TimeConnSourceDAPS-Failure-r17 ::= INTEGER (0..1023)

UPInterruptionTimeAtHO-r17 ::= INTEGER (0..1023)

ElapsedTimeT316-r18 ::= INTEGER (0..2000)

ElapsedTimeSCG-Failure-r18 ::= INTEGER (0..1023)

TimeSinceSHR-r18 ::= INTEGER (0..172800)

-- TAG-UEINFORMATIONRESPONSE-STOP

-- ASN1STOP

|  |
| --- |
| *UEInformationResponse-IEs* field descriptions |
| ***coarseLocationInfo***  Parameter type Ellipsoid-Point defined in TS 37.355 [49]. The first/leftmost bit of the first octet contains the most significant bit. The least significant bits of *degreesLatitude* and *degreesLongitude* are set to 0 to meet the accuracy requirement corresponds to a granularity of approximately 2 km.  It is up to UE implementation how many LSBs are set to 0 to meet the accuracy requirement. |
| ***connEstFailReport***  This field is used to provide connection establishment failure or connection resume failure information*.* |
| ***connEstFailReportList***  This field is used to provide the list of *connEstFailReport* that are stored by the UE for the past up to *maxCEFReport-r17.* |
| ***csi-LogMeasReport***  This field is used to provide the logged measurement results for network data collection, stored by the UE in accordance with the *CSI-LoggedMeasurementConfig.* |
| ***flightPathInfoReport***  This field is used to provide the flight path information as list of waypoints and, if available, corresponding timestamps. List of size zero indicates the previously provided flight path information is no longer valid. |
| ***logMeasReport***  This field is used to provide the measurement results stored by the UE associated to logged MDT. |
| ***measResultIdleEUTRA***  EUTRA measurement results performed during RRC\_INACTIVE or RRC\_IDLE. |
| ***measResultIdleNR***  NR measurement results performed during RRC\_INACTIVE or RRC\_IDLE. |
| ***ra-ReportList***  This field is used to provide the list of RA reports that is stored by the UE for up to *maxRAReport-r16* number of random access procedures. If the UE is an eRedCap UE, this field is used to provide the list of RA reports that is stored by the UE for up to 2 number of random access procedures. |
| ***rlf-Report***  This field is used to indicate the RLF report related contents. |
| ***successHO-Report***  This field is used to provide the successful handover report if triggered based on the successful handover configuration. |
| ***successPSCell-Report***  This field is used to provide the successful PSCell change or addition report if triggered based on the successful PSCell change or addition report configuration. |

|  |
| --- |
| *LogMeasReport* field descriptions |
| ***absoluteTimeStamp***  Indicates the absolute time when the logged measurement configuration logging is provided, as indicated by NR within *absoluteTimeInfo*. |
| ***anyCellSelectionDetected***  This field is used to indicate the detection of *any cell selection* state, as defined in TS 38.304 [20]. The UE sets this field when performing the logging of measurement results in RRC\_IDLE or RRC\_INACTIVE and there is no suitable cell or no acceptable cell. |
| ***inDeviceCoexDetected***  Indicates that measurement logging is suspended due to IDC problem detection. |
| ***measResultServingCell***  This field refers to the log measurement results taken in the Serving cell. |
| ***numberOfGoodSSB***  Indicates the number of good beams (beams that are above *absThreshSS-BlocksConsolidation,* if configured by the network) associated to the cells within the R value range (which is configured by network for cell reselection) of the highest ranked cell as part of the beam level measurements. If the UE has no SSB of a neighbour cell whose measurement quantity is above the *absThreshSS-BlocksConsolidation* or if the network has not configured the *absThreshSS-BlocksConsolidation*, then the UE does not include *numberOfGoodSSB* for the corresponding neighbour cell. If the UE has no SSB of the serving cell whose measurement quantity is above the *absThreshSS-BlocksConsolidation* or if the network has not configured the *absThreshSS-BlocksConsolidation*, then the UE shall set the *numberOfGoodSSB* for the serving cell to one. |
| ***relativeTimeStamp***  Indicates the time of logging measurement results, measured relative to the *absoluteTimeStamp*. Value in seconds. |
| ***tce-Id***  Parameter Trace Collection Entity Id: See TS 32.422 [52]. |
| ***traceRecordingSessionRef***  Parameter Trace Recording Session Reference: See TS 32.422 [52]. |

|  |
| --- |
| *ConnEstFailReport* field descriptions |
| ***measResultFailedCell***  This field refers to the last measurement results taken in the cell, where connection establishment failure or connection resume failure happened. |
| ***measResultNeighCells***  This field refers to the neighbour cell measurements when connection establishment failure or connection resume failure happened. |
| ***numberOfConnFail***  This field is used to indicate the latest number of consecutive failed RRCSetup or RRCResume procedures in the same cell independent of RRC state transition. |
| ***timeSinceFailure***  This field is used to indicate the time that elapsed since the connection (establishment or resume) failure. Value in seconds. The maximum value 172800 means 172800s or longer. |

|  |
| --- |
| *RA-InformationCommon* field descriptions |
| ***absoluteFrequencyPointA***  This field indicates the absolute frequency position of the reference resource block (Common RB 0). |
| ***allPreamblesBlocked***  This field is included when the all the preamble transmission attempts in the corresponding beam (SSB or CSI-RS) are blocked by failed LBT. |
| ***attemptedBWP-InfoList***  This field indicates *locationAndBandwidth* and *subcarrierSpacing* of all the bandwidth parts in which the consistent LBT failures are triggered at the moment of successful RA completion. |
| ***locationAndBandwidth***  Frequency domain location and bandwidth of the bandwidth part associated to the random-access resources used by the UE or of the bandwidth part in which the consistent LBT failures is triggered and not cancelled prior to successful completion of random access procedure (if this field is included in *attemptedBWP-InfoList*) or prior to RLF/HOF (if this field is included in *attemptedBWP-InfoList* or *bwp-Info*). |
| ***numberOfLBT-Failures***  This field is used to indicate the total number of preamble transmission attempts for which LBT failure indication is received in the RA procedure. If the number of LBT failure indications received from lower layers during the RA procedure exceeds or equals to 128, UE sets the field to 128.This field is optional present when there is at least one preamble transmission attempt for which LBT failure indication is received during the RA procedure, otherwise it is absent. |
| ***numberOfPreamblesPerSSB-ForThisPartition***  This field determines how many consecutive preambles are associated to the used feature or combination of features starting from the starting preamble(s) per SSB. |
| ***perRAInfoList, perRAInfoList-v1660***  This field provides detailed information about each of the random access attempts in the chronological order of the random access attempts. If perRAInfoList-v1660 is present, it shall contain the same number of entries, listed in the same order as in perRAInfoList-r16. |
| ***startPreambleForThisPartition***  This field indicates the first preamble associated with the used feature or combination of features. |
| ***subcarrierSpacing***  Subcarrier spacing used in the bandwidth part associated to the random-access resources used by the UE or of the bandwidth part in which the consistent LBT failures is triggered and not cancelled prior to successful completion of random access procedure (if this field is included in *attemptedBWP-InfoList*) or prior to RLF/HOF (if this field is included in *attemptedBWP-InfoList* or *bwp-Info*). |
| ***triggeredFeatureCombination***  One or more features (e.g., *RedCap*, *Slicing*, *SDT* and *MSG3 repetition)* that triggers the random-access procedure. When triggered feature is *Slicing*, UE includes all the S-NSSAIs associated to the slices triggering the access attempt in the random-access procedure. |
| ***usedFeatureCombination***  The feature or combination of features (e.g., *redCap*, *smallData*, *nsag* and *msg3-Repetitions*) associated to the used random-access resources as specified in TS 38.321[3]. |

|  |
| --- |
| *RA-Report* field descriptions |
| ***cellID***  This field indicates the CGI of the cell in which the associated random access procedure was performed. |
| ***contentionDetected***  This field is used to indicate that contention was detected for the transmitted preamble in the given random access attempt or not. This field is not included when the UE performs random access attempt is using contention free random-access resources or when the *raPurpose* is set to *requestForOtherSI* or when the RA attempt is a 2-step RA attempt and fallback to 4-step RA did not occur (i.e. *fallbackToFourStepRA* is not included). |
| ***csi-RS-Index, csi-RS-Index-v1660***  This field is used to indicate the CSI-RS index corresponding to the random access attempt.  If the random access procedure is for beam failure recovery, the field indicates the NZP-CSI-RS-ResourceId. For CSI-RS index larger than maxNrofCSI-RS-ResourcesRRM-1, the index value is the sum of csi-RS-Index (without suffix) and csi-RS-Index-v1660. |
| ***dlPathlossRSRP***  Measeured RSRP of the DL pathloss reference obtained at the time of *RA\_Type* selection stage of the RA procedure as captured in TS 38.321 [3]. |
| ***dlRSRPAboveThreshold***  In 4 step random access procedure, this field is used to indicate whether the DL beam (SSB) quality associated to the random access attempt was above or below the threshold *rsrp-ThresholdSSB* in *beamFailureRecoveryConfig* in UL BWP configuration of UL BWP selected for random access procedure initiated for beam failure recovery; Otherwise, if the UE has received *rsrp-ThresholdSSB* in *FeatureCombinationPreambles* used for the feature specific random access, the field is used to indicate whether DL beam (SSB) quality associated to the random access attempt was above or below this *rsrp-ThresholdSSB-r17*, else *rsrp-ThresholdSSB* in *rach-ConfigCommon* in UL BWP configuration of UL BWP selected for random access procedure.  In 2 step random access procedure, if the UE has received *msgA-RSRP-ThresholdSSB* in *FeatureCombinationPreambles* used for the feature specific random access, the field is used to indicate whetherDL beam (SSB) quality associated to the random access attempt was above or below this *rsrp-ThresholdSSB-r17*, else this field is used to indicate whether the DL beam (SSB) quality associated to the random access attempt was above or below the threshold *msgA-RSRP-ThresholdSSB* in *rach-ConfigCommonTwoStepRA* in UL BWP configuration of UL BWP selected for random access procedure. |
| ***fallbackToFourStepRA***  This field indicates if a fallback indication in MsgB is received (according to TS 38.321 [3]) for the 2-step random access attempt. |
| ***intendedSIBs***  This field indicates the SIB(s) the UE wanted to receive as a result of the on demand SI request (when the RA procedure is a used as a SI request) initiated by the UE. That is, it indicates the one(s) of the SIB(s) in the SI message(s) requested to be broadcast that the UE was interested in. Value *posSIB* indicates that the UE wanted to receive one or more positioning SIB(s). |
| ***lbt-Detected***  This field is included when there is at least one LBT failure indication received prior to change of beam for preamble transmission during RA procedure, otherwise this field is absent. |
| ***msg1-SCS-From-prach-ConfigurationIndex***  This field is set by the UE with the corresponding SCS for CBRA as derived from the *prach-ConfigurationIndex* in *RACH-ConfigGeneric* when the *msg1-SubcarrierSpacing* is absent; otherwise, this field is absent. |
| ***msg1-SCS-From-prach-ConfigurationIndexCFRA***  This field is set by the UE with the corresponding SCS for CFRA as derived from the *prach-ConfigurationIndex* in *RACH-ConfigGeneric* when the *msg1-SubcarrierSpacing* is absent; otherwise, this field is absent. |
| ***msgA-PUSCH-PayloadSize***  This field indicates the size of the overall payload available in the UE buffer at the time of initiating the 2 step RA procedure. The value refers to the index of TS 38.321 [3], table 6.1.3.1-1, corresponding to the UE buffer size. |
| ***msgA-RO-FDM***  This field indicates the number of msgA PRACH transmission occasions Frequency-Division Multiplexed in one time instance for the PRACH resources configured for 2-step CBRA.. |
| ***msgA-RO-FDMCFRA***  This field indicates the number of msgA PRACH transmission occasions Frequency-Division Multiplexed in one time instance for the PRACH resources configured for 2-step CFRA. |
| ***msgA-RO-FrequencyStart***  This field indicates the lowest resource block of the contention based random-access resources for 2-step CBRA in the random-access procedure. The indication has the form of the offset of the lowest PRACH transmissions occasion with respect to PRB 0 in the frequency domain. |
| ***msgA-RO-FrequencyStartCFRA***  This field indicates the lowest resource block of the contention free random-access resources for the 2-step CFRA in the random-access procedure. The indication has the form of the offset of the lowest PRACH transmissions occasion with respect to PRB 0 in the frequency domain. |
| ***msgA-SCS-From-prach-ConfigurationIndex***  This field is set by the UE with the corresponding SCS as derived from the *msgA-PRACH-ConfigurationIndex* in *RACH-ConfigGenericTwoStepRA* (see tables Table 6.3.3.1-1, Table 6.3.3.1-2, Table 6.3.3.2-2 and Table 6.3.3.2-3, TS 38.211 [16]) when the *msgA-SubcarrierSpacing* is absent and when only 2-step random-access resources are available in the UL BWP used in the random-access procedure; otherwise, this field is absent. |
| ***numberOfPreamblesSentOnCSI-RS***  This field is used to indicate the total number of successive RA preambles that were transmitted on the corresponding CSI-RS. |
| ***numberOfPreamblesSentOnSSB***  This field is used to indicate the total number of successive RA preambles that were transmitted on the corresponding SS/PBCH block. |
| ***onDemandSISuccess***  This field is set to *true* when the RA report entry is included because of either msg1 based on demand SI request or msg3 based on demand SI request and if the on-demand SI request is successful. Otherwise, the field is absent. |
| ***perRAAttemptInfoList***  This field provides detailed information about a random access attempt. |
| ***perRACSI-RSInfoList***  This field provides detailed information about the successive random access attempts associated to the same CSI-RS. |
| ***perRASSBInfoList***  This field provides detailed information about the successive random access attempts associated to the same SS/PBCH block. |
| ***ra-InformationCommon***  This field is used to provide information on random access attempts. This field is mandatory present. |
| ***raPurpose***  This field is used to indicate the RA scenario for which the RA report entry is triggered. The RA accesses associated to Initial access from RRC\_IDLE, RRC re-establishment procedure, transition from RRC-INACTIVE. The indicator *beamFailureRecovery* is used in case of successful beam failure recovery related RA procedure in the SpCell [3]. The indicator *reconfigurationWithSync* is used if the UE executes a reconfiguration with sync. The indicator *ulUnSynchronized* is used if the random access procedure is initiated in a SpCell by DL or UL data arrival during RRC\_CONNECTED when the timeAlignmentTimer is not running in the PTAG or if the RA procedure is initiated in a serving cell by a PDCCH order [3]. The indicator *schedulingRequestFailure* is used in case of SR failures [3]. The indicator *noPUCCHResourceAvailable* is used when the UE has no valid SR PUCCH resources configured [3]. The indicator *requestForOtherSI* is used for MSG1 based on demand SI request. The indicator *msg3RequestForOtherSI* is used in case of MSG3 based SI request. The indication *lbtFailure* is used when the UE initiates RACH in SpCell due to consistent uplink LBT failures [3]. The field can also be used for the SCG-related RA-Report when the *raPurpose* is set to *beamFailureRecovery*, *reconfigurationWithSync*, *ulUnSynchronized*, *schedulingRequestFailure*, *noPUCCHResourceAvailable* and *lbtFailure*. |
| ***sdt-Failed***  This field is included when the RA report entry is included because of SDT and if the SDT transmission failed. Otherwise, the field is absent. |
| ***spCellID***  This field is used to indicate the CGI of the SpCell of the cell group associated to the SCell in which the associated random access procedure was performed. If the UE performs RA procedure on a SCell associated to the MCG, then this field is set to the CGI of the PCell and if the UE performs RA procedure on a SCell associated to the SCG, then this field is set to the CGI of the PSCell. If the CGI of the PSCell is not available at the UE for the RA procedure performed on a SCell associated to the SCG or for the RA procedure on the PSCell, this field is set to the CGI of the PCell. Otherwise, the field is absent. |
| ***ssb-Index***  This field is used to indicate the SS/PBCH index of the SS/PBCH block corresponding to the random access attempt. |
| ***ssbsForSI-Acquisition***  This field indicates the SSB(s) (in the form of SSB index(es)) that the UE used to receive the requested SI message(s). The field is present if the purpose of the random access procedure was to request on-demand SI (i.e. if the *raPurpose* is set to *requestForOtherSI* or *msg3RequestForOtherSI*). Otherwise, the field is absent. |

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| *RLF-Report* field descriptions |
| ***bwp-Info***  This field is used to indicate the BWP information in which the UE detected consistent uplink LBT failure. This field is set only when the detected consistent uplink LBT failure did not trigger the random access procedure. |
| ***choCandidateCellList***  This field is used to indicate the list of candidate target cells for conditional handover included in *condRRCReconfig* at the time of connection failure. The field does not include the candidate target cells included in *measResultNeighCells*. |
| ***choCellId***  This field is used to indicate the candidate target cell for conditional handover included in *condRRCReconfig* that the UE selected for CHO based recovery while T311 is running. |
| ***connectionFailureType***  This field is used to indicate whether the connection failure is due to radio link failure or handover failure. |
| ***csi-rsRLMConfigBitmap,csi-rsRLMConfigBitmap-v1650***  These fields are used to indicate the CSI-RS indexes configured in the RLM configurations for the active BWP when the UE declares RLF or HOF. The UE first fills in the *csi-rsRLMConfigBitmap-r16* to indicate the first 96 CSI-RS indexes and then *csi-rsRLMConfigBitmap-v1650* to indicate the latter 96 CSI-RS indexes. The first/leftmost bit in *csi-rsRLMConfigBitmap-r16* corresponds to CSI-RS index 0, the second bit corresponds to CSI-RS index 1. The first/leftmost bit in *csi-rsRLMConfigBitmap-v1650* corresponds to CSI-RS index 96, the second bit corresponds to CSI-RS index 97. These fields are included only if the *RadioLinkMonitoringConfig* for the respective BWP is configured. |
| ***c-RNTI***  This field indicates the C-RNTI used in the PCell upon detecting radio link failure or the C-RNTI used in the source PCell upon handover failure. |
| ***elapsedTimeSCG-Failure***  This field is used to indicate the time elapsed between the SCG failure and the MCG failure. The maximum value *1023* means 1023ms or longer. |
| ***elapsedTimeT316***  This field is used to indicate the value of the elapsed time of the timer T316. Value in milliseconds. |
| ***failedPCellId***  This field is used to indicate the PCell in which RLF is detected or the target PCell of the failed handover. For intra-NR handover *nrFailedPCellId* is included and for the handover from NR to EUTRA *eutraFailedPCellId* is included. The UE sets the ARFCN according to the frequency band used for transmission/ reception when the failure occurred. |
| ***failedPCellId-EUTRA***  This field is used to indicate the PCell in which RLF is detected or the source PCell of the failed handover in an E-UTRA RLF report. |
| ***lastHO-Type***  This field is used to indicate the type of the last executed handover before the last detected connection failure. The field is set to *cho* if the last executed handover was initiated by a conditional reconfiguration execution. The field is set to *daps* if the last executed handover was a DAPS handover. |
| ***mcg-RecoveryFailureCause***  This field is used to indicate the cause of the fast MCG recovery failure. |
| ***measResultListEUTRA***  This field refers to the last measurement results taken in the neighboring EUTRA Cells, when the radio link failure or handover failure happened. |
| ***measResultListNR***  This field refers to the last measurement results taken in the neighboring NR Cells, when the radio link failure or handover failure happened. |
| ***measResultLastServCell***  This field refers to the log measurement results taken in the PCell upon detecting radio link failure or the source PCell upon handover failure. |
| ***measResultLastServCellRSSI***  This field refers to the log RSSI measurement results in dBm (see TS 38.215 [9]) taken for the frequency of the PCell upon detecting radio link failure or source PCell upon detecting handover failure. |
| ***measResultNeighFreqListRSSI***  This field is used to log the RSSI measurement results in dBm (see TS 38.215 [9]) taken for the neighbouring frequencies upon detecting radio link failure or handover failure, when UE operates in shared spectrum. |
| ***measResult-RLF-Report-EUTRA***  Includes the E-UTRA *RLF-Report-r9* IE as specified in TS 36.331 [10]. |
| ***measResult-RLF-Report-EUTRA-v1690***  Includes the E-UTRA *RLF-Report-v9e0* IE as specified in TS 36.331 [10]. |
| ***noSuitableCellFound***  This field is set by the UE when the T311 expires. |
| ***previousPCellId***  This field is used to indicate the source PCell of the last handover (source PCell when the last executed *RRCReconfiguration* message including *reconfigurationWithSync* was received). For intra-NR handover *nrPreviousCell* is included and for the handover from EUTRA to NR *eutraPreviousCell* is included. |
| ***pSCellId***  This field is used to indicate the PSCell in which the UE failed to perform fast MCG recovery procedure or the UE successfully performed fast MCG recovery procedure. |
| ***ra-InformationCommon***  This field is optionally included when c*onnectionFailureType* is set to 'hof' and a random access procedure is triggered for the failed reconfiguration with sync, or when *connectionFailureType* is set to 'rlf' and the *rlf-Cause* equals to 'randomAccessProblem' or 'beamRecoveryFailure'; otherwise this field is absent. |
| ***reconnectCellId***  This field is used to indicate the cell in which the UE comes back to connected after connection failure and after failing to perform reestablishment, or to indicate the suitable cell in which the UE reconnects after failure in performing *MobilityFromNRCommand* for voice fallback (without initiating re-establishment procedure). If the UE comes back to RRC CONNECTED in an NR cell then *nrReconnectCellID* is included and if the UE comes back to RRC CONNECTED in an LTE cell then *eutraReconnectCellID* is included. |
| ***reestablishmentCellId***  If the UE was not configured with *conditionalReconfiguration* at the time of re-establishment attempt, or if the cell selected for the re-establishment attempt is not a candidate target cell for conditional reconfiguration, this field is used to indicate the cell in which the re-establishment attempt was made after connection failure. |
| ***rlf-Cause***  This field is used to indicate the cause of the last radio link failure that was detected. In case of handover failure information reporting (i.e., the *connectionFailureType* is set to '*hof*'), the UE is allowed to set this field to any value, except for the case in which a radio link failure was detected in the source PCell while performing a DAPS handover. |
| ***scg-FailedAfterMCG***  This field is set if for the SCG failure is detected after MCG failure while T316 is running. |
| ***ssbRLMConfigBitmap***  This field is used to indicate the SS/PBCH block indexes configured in the RLM configurations for the active BWP when the UE declares RLF or HOF.The first/leftmost bit corresponds to SSB index 0, the second bit corresponds to SSB index 1. This field is included only if the *RadioLinkMonitoringConfig* for the respective BWP is configured. |
| ***timeConnFailure***  This field is used to indicate the time elapsed since the last HO execution until connection failure. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |
| ***timeConnSourceDAPS-Failure***  This field is used to indicate the time that elapsed between the last DAPS handover execution and the radio link failure detected in the source cell while T304 is running. Value in milliseconds. The maximum value 1023 means 1023ms or longer. |
| ***timeSinceFailure***  This field is used to indicate the time that elapsed since the connection (radio link or handover) failure. Value in seconds. The maximum value 172800 means 172800s or longer. In the case of failure(s) (either at source or at target or at both) associated to DAPS handover, this field indicates the time elapsed since the latest connection (radio link or handover) failure. |
| *timeSinceCHO-Reconfig*  In case of handover failure, this field is used to indicate the time elapsed between the initiation of the last handover execution towards the target cell and the reception of the latest conditional reconfiguration. In case of radio link failure, this field is used to indicate the time elapsed between the radio link failure and the reception of the latest conditional reconfiguration while connected to the source PCell. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |
| ***timeUntilReconnection***  This field is used to indicate the time that elapsed between the connection (radio link or handover) failure and the next time the UE comes to RRC CONNECTED in an NR or EUTRA cell, after failing to perform reestablishment. Value in seconds. The maximum value 172800 means 172800s or longer. |
| ***voiceFallbackHO***  This field is set if for the failed mobility from NR, the *voiceFallbackIndication* was included in the *MobilityFromNRCommand* message. |

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| *SuccessHO-Report* field descriptions |
| ***c-RNTI***  This field indicates the C-RNTI assigned by the target PCell of the handover for which the successful HO report was generated. |
| ***eutra-TargetCellInfo***  This field is used to indicate the target EUTRA PCell and the last measurement results of the target PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***eutra-C-RNTI***  This field indicates the C-RNTI assigned by the E-UTRA target PCell of the mobility from NR command for which the successful HO report was generated. |
| ***measResultListNR***  This field refers to the last measurement results taken in the neighboring NR Cells when a successful handover is executed. |
| ***measResultNeighFreqListRSSI***  This field is used to log the RSSI measurement results in dBm (see TS 38.215 [9]) taken for the neighbouring frequencies upon successful handover execution. |
| ***measResultServCellRSSI***  This field refers to the log RSSI measurement results in dBm (see TS 38.215 [9]) taken for the frequency of the source PCell upon successful handover execution. |
| *rlf-InSourceDAPS*  This field indicates whether a radio link failure occurred at the source cell while T304 was running. |
| ***shr-Cause***  This field is used to indicate the cause of the successful HO report. |
| ***sourceCellMeas***  This field refers to the last measurement results taken in the source PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***sourcePCellId***  This field is used to indicate the source PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***targetPCellId***  This field is used to indicate the target PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***targetCellMeas***  This field refers to the last measurement results taken in the target PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***timeSinceCHO-Reconfig***  This field is used to indicate the time elapsed between the initiation of the last conditional reconfiguration execution towards the target cell and the reception of the latest conditional reconfiguration for this target cell. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |
| ***timeSinceSHR***  This field is used to indicate the time elapsed since the execution of the last MobilityFromNRCommand towards the target EUTRA cell. Value in seconds. The maximum value 172800 means 172800s or longer. |
| ***upInterruptionTimeAtHO***  This field is used to indicate the time elapsed between the time of arrival of the last PDCP PDU received from the source cell for any data radio bearer and the time of arrival of the first non-duplicate PDCP PDU received from the target cell for any data radio bearer, and it is measured at the time of arrival of the first non-duplicate PDCP PDU received from the target cell for any data radio bearer. The field is set only in case of DAPS handover. Value in milliseconds. The maximum value 1023 means 1023ms or longer. |

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| *FlightPathInfoReport* field descriptions |
| ***timeStamp***  Time stamp that describes estimated time of arrival, if available, of the UE at the corresponding *wayPointLocation*. |
| ***wayPointLocation***  Location coordinates of the planned waypoint. Parameter type *LocationCoordinates* defined in TS 37.355 [49]. The first/leftmost bit of the first octet contains the most significant bit. |

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| *SuccessPSCell-Report* field descriptions |
| ***measResultListNR***  This field refers to the last measurement results according to the initiating node configuration taken in the neighboring NR Cells when a successful PSCell change/addition is executed. |
| ***pCellId***  This field is used to indicate the PCell to which the UE was connected when the successful PSCell change or addition triggers the *SuccessPSCell-Report*. |
| ***sn-InitiatedPSCellChange***  This field indicates whether the PSCell change procedure for which the successful PSCell change report is logged is SN initiated or not. |
| ***spr-Cause***  This field is used to indicate the cause of the successful PSCell change or addition report. |
| ***sourcePSCellId***  This field is used to indicate the source PSCell of a PSCell change in which the successful PSCell change triggers the *SuccessPSCell-Report*. |
| ***sourcePSCellMeas***  This field refers to the last measurement results taken in the source PSCell of a PSCell change in which the successful PSCell change triggers the *SuccessPSCell-Report*. |
| ***targetPSCellId***  This field is used to indicate the target PSCell of a PSCell change/addition in which the successful PSCell change or addition triggers the *SuccessPSCell-Report*. |
| ***targetPSCellMeas***  This field refers to the last measurement results taken in the target PSCell of a PSCell change/addition in which the successful PSCell change or addition triggers the *SuccessPSCell-Report*. |
| ***timeSinceCPAC-Reconfig***  This field is used to indicate the time elapsed between the initiation of the last conditional reconfiguration execution towards the target PSCell and the reception of the latest conditional reconfiguration for this target PSCell. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |

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| *CSI-LogMeasReport* field descriptions |
| ***cellId***  This field indicates the CGI of the cell in which the logging of the measurements included within *csi-LogMeasInfoList* was performed. If the CGI is not available, this field indicates the PCI-ARFCN-NR. |
| ***csi-MoreLogMeasAvailable***  This field is included if the UE has additional logged L1 radio measurements available for transmission. |
| ***csi-RS-MeasResultList***  List of logged L1 radio measurement results associated to CSI-RS resources. |
| ***l1-RSRP***  Indicates the measured L1 RSRP associated to the *resourceId*, if included within *CSI-RS-MeasResult*. Indicates the measured L1 RSRP associated to the *ssb-Id*, if included within *SSB-MeasResult*. |
| ***refCSI-LoggedMeasurementConfigId***  Reference to the instance of *CSI-LoggedMeasurementConfig* associated to the L1 radio measurement results reported in *csi-RS-MeasResultList* or *ssb-MeasResultList*. |
| ***resourceId***  Indicates the *NZP-CSI-RS-ResourceId* associated to which the UE has logged L1 radio measurement results. |
| ***ssb-Id***  Indicates the *SSB-Index* associated to which the UE has logged L1 radio measurement results. |
| ***ssb-MeasResultList***  List of logged L1 radio measurement results associated to SSBs. |
| ***timeGap***  Indicates that there was a time gap, longer than the logging periodicity, between the reported measurement results in this instance of *CSI-LogMeasInfoList* and the previous instance of *CSI-LogMeasInfoList* with the same *refCSI-LoggedMeasurementConfigId* for the same serving cell. |

NEXT CHANGE

## 6.3 RRC information elements

<Text Omitted>

### 6.3.2 Radio resource control information elements

<Text Omitted>

#### – *ApplicabilitySetConfigId*

The IE *ApplicabilitySetConfigId* is used to identify an *ApplicabilitySetConfig*.

*ApplicabilitySetConfigId* information element

-- ASN1START

-- TAG-APPLICABILITYSETCONFIGID-START

ApplicabilitySetConfigId-r19 ::= INTEGER (0..maxNrofApplicabilitySets-1-r19)

-- TAG-APPLICABILITYSETCONFIGID-STOP

-- ASN1STOP

<Text Omitted>

#### – *ApplicabilityReportList*

The IE *ApplicabilityReportList* comprises information that the UE reports to gNB related to the applicability of configurations subject to the applicability determination procedure.

*ApplicabilityReportList* information element

-- ASN1START

-- TAG-APPLICABILITYREPORTLIST-START

ApplicabilityReportList-r19 ::= SEQUENCE (SIZE (1..maxNrofServingCells) OF ApplicabilityReport-r19

ApplicabilityReport-r19 ::= SEQUENCE {

applicabilityCellId-r19 ServCellIndex,

applicabilityInfoReportList-r19 SEQUENCE (SIZE (1..maxNrofApplicabilityReports)) OF ApplicabilityInfoReport-r19 OPTIONAL,

...

}

ApplicabilityInfoReport-r19 ::= SEQUENCE {

applicabilityInfoReportId-r19 CHOICE {

csi-ReportConfigId CSI-ReportConfigId,

applicabilitySetId ApplicabilitySetConfigId,

spare2 NULL,

spare1 NULL

}

applicabilityStatus-r19 ENUMERATED {applicable, inapplicable},

releaseConfigurationPreference-r19 ENUMERATED {true} OPTIONAL,

...

}

-- TAG-APPLICABILITYREPORTLIST-STOP

-- ASN1STOP

|  |
| --- |
| ***ApplicabilityReportList field descriptions*** |
| ***applicabilityCellId***  Index of the serving cell that the *ApplicabilityReport* refers to. |
| ***applicabilityInfoReportList***  Indicates the list of applicability reports, each associatied with a configuration ID for a configuration subject to the applicability determination procedure. |
| ***applicabilityInfoReportId***  Indicates the ID of a configuration subject to the applicability determination procedure. |
| ***applicabilityStatus***  Indicates whether the configuration associated to *applicabilityInfoReportId* is applicable or inapplicable. |
| ***releaseConfigurationPreference***  Indicates the UE's preference to release the configuration associated to *applicabilityReportConfigId* (e.g. due to model unavailability), if the *applicabilityStatus* is set to 'inapplicable'. |

<Text Omitted>

#### – *AssociatedId*

The IE *AssociatedId* indicates that the UE may assume similar properties of a DL Tx beam or beam set/list associated with the same value. The *AssociatedID* value is unique within a PLMN, i.e. it can only be associated with one same/similar beam deployment within the same PLMN.

*AssociatedId* information element

-- ASN1START

-- TAG-ASSOCIATEDID-START

AssociatedId-r19 ::= BIT STRING (SIZE (24))

-- TAG-ASSOCIATEDID-STOP

-- ASN1STOP

<Text Omitted>

#### – *CSI-LoggedMeasurementConfig*

The IE *CSI-LoggedMeasurementConfig* is used to configure a CSI logged measurement configuration. It defines a group of one or more CSI resources for which the UE logs the associated L1 radio measurements.

*CSI-LoggedMeasurementConfig* information element

-- ASN1START

-- TAG-CSI-LOGGEDMEASUREMENTCONFIG-START

CSI-LoggedMeasurementConfig-r19 ::= SEQUENCE {

csi-LoggedMeasurementConfigId-r19 CSI-LoggedMeasurementConfigId-r19,

csi-LoggedResourceConfig-r19 CSI-ResourceConfigId,

loggingPeriodicity-r19 ENUMERATED {2, 3, 4, 5, spare4, spare3, spare2, spare1} OPTIONAL, -- Need M

eventTriggeredConfig-r19 EventTriggeredConfig-r19 OPTIONAL, -- Need R

...

}

EventTriggeredConfig-r19 ::= SEQUENCE {

threshold-r19 CHOICE {

aboveThreshold-r19 MeasTriggerQuantity,

belowThreshold-r19 MeasTriggerQuantity

}

hysteresis Hysteresis,

timeToTrigger TimeToTrigger,

...

}

-- TAG-CSI-LOGGEDMEASUREMENTCONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *CSI-LoggedMeasurementConfig* field descriptions |
| ***csi-LoggedMeasurementConfigId***  This field indicates the instance of *CSI-LoggedMeasurementConfig*. |
| ***csi-LoggedResourceConfig***  Resources in which the UE performs channel measurement whose associated measurement results are logged by the UE. The *csi-LoggedResourceConfig* indicated here contains only NZP-CSI-RS resources and/or SSB resources. |
| ***eventTriggeredConfig***This field is used to configure the UE with event-triggered measurement logging. If this field is included and *threshold* is set to *aboveThreshold*, the UE starts performing logging of measurements when the entering condition as specified in 5.5.4.2 is met and stops logging when the corresponding leaving condition as specified in 5.5.4.2 is met. If this field is included and *threshold* is set to *belowThreshold*, the UE starts performing logging of measurements when the entering condition as specified in 5.5.4.3 is met and stops logging when the corresponding leaving condition as specified in 5.5.4.3 is met. If this field is not included, the UE starts the measurement logging according to *csi-LoggedResourceConfig* upon reception. |
| ***loggingPeriodicity***  The periodicity that the UE shall use for the logging of the CSI measurements. The *loggingPeriodicity* is given as a multiple of the periodicity of the resources indicated by *csi-LoggedResourceConfig*. If *loggingPeriodicity* is included and set to '2', the UE performs the logging of CSI measurements for every 2nd occasion of the resources, if it is set to '3', the UE performs logging of CSI measurements for every 3rd occasion of the resources, and so on. If *loggingPeriodicity* is not included, the UE performs the logging of CSI measurements according to the periodicity of the resources indicated by *csi-LoggedResourceConfig*, i.e. for every occasion of the resources. |

#### – *CSI-LoggedMeasurementConfigId*

The IE *CSI-LoggedMeasurementConfigId* is used to identify a *CSI-LoggedMeasurementConfig*.

*CSI-LoggedMeasurementConfigId* information element

-- ASN1START

-- TAG-CSI-LOGGEDMEASUREMENTCONFIGID-START

CSI-LoggedMeasurementConfigId-r19 ::= INTEGER (0..maxNrofLoggedMeasurementConfigurations-1-r19)

-- TAG-CSI-LOGGEDMEASUREMENTCONFIGID-STOP

-- ASN1STOP

#### – *CSI-MeasConfig*

The IE *CSI-MeasConfig* is used to configure CSI-RS (reference signals) belonging to the serving cell in which *CSI-MeasConfig* is included, channel state information reports to be transmitted on PUCCH on the serving cell in which *CSI-MeasConfig* is included and channel state information reports on PUSCH triggered by DCI received on the serving cell in which *CSI-MeasConfig* is included. See also TS 38.214 [19], clause 5.2.

*CSI-MeasConfig* information element

-- ASN1START

-- TAG-CSI-MEASCONFIG-START

CSI-MeasConfig ::= SEQUENCE {

nzp-CSI-RS-ResourceToAddModList SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-Resources)) OF NZP-CSI-RS-Resource OPTIONAL, -- Need N

nzp-CSI-RS-ResourceToReleaseList SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-Resources)) OF NZP-CSI-RS-ResourceId OPTIONAL, -- Need N

nzp-CSI-RS-ResourceSetToAddModList SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourceSets)) OF NZP-CSI-RS-ResourceSet

OPTIONAL, -- Need N

nzp-CSI-RS-ResourceSetToReleaseList SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourceSets)) OF NZP-CSI-RS-ResourceSetId

OPTIONAL, -- Need N

csi-IM-ResourceToAddModList SEQUENCE (SIZE (1..maxNrofCSI-IM-Resources)) OF CSI-IM-Resource OPTIONAL, -- Need N

csi-IM-ResourceToReleaseList SEQUENCE (SIZE (1..maxNrofCSI-IM-Resources)) OF CSI-IM-ResourceId OPTIONAL, -- Need N

csi-IM-ResourceSetToAddModList SEQUENCE (SIZE (1..maxNrofCSI-IM-ResourceSets)) OF CSI-IM-ResourceSet OPTIONAL, -- Need N

csi-IM-ResourceSetToReleaseList SEQUENCE (SIZE (1..maxNrofCSI-IM-ResourceSets)) OF CSI-IM-ResourceSetId OPTIONAL, -- Need N

csi-SSB-ResourceSetToAddModList SEQUENCE (SIZE (1..maxNrofCSI-SSB-ResourceSets)) OF CSI-SSB-ResourceSet OPTIONAL, -- Need N

csi-SSB-ResourceSetToReleaseList SEQUENCE (SIZE (1..maxNrofCSI-SSB-ResourceSets)) OF CSI-SSB-ResourceSetId OPTIONAL, -- Need N

csi-ResourceConfigToAddModList SEQUENCE (SIZE (1..maxNrofCSI-ResourceConfigurations)) OF CSI-ResourceConfig

OPTIONAL, -- Need N

csi-ResourceConfigToReleaseList SEQUENCE (SIZE (1..maxNrofCSI-ResourceConfigurations)) OF CSI-ResourceConfigId

OPTIONAL, -- Need N

csi-ReportConfigToAddModList SEQUENCE (SIZE (1..maxNrofCSI-ReportConfigurations)) OF CSI-ReportConfig OPTIONAL, -- Need N

csi-ReportConfigToReleaseList SEQUENCE (SIZE (1..maxNrofCSI-ReportConfigurations)) OF CSI-ReportConfigId

OPTIONAL, -- Need N

reportTriggerSize INTEGER (0..6) OPTIONAL, -- Need M

aperiodicTriggerStateList SetupRelease { CSI-AperiodicTriggerStateList } OPTIONAL, -- Need M

semiPersistentOnPUSCH-TriggerStateList SetupRelease { CSI-SemiPersistentOnPUSCH-TriggerStateList } OPTIONAL, -- Need M

...,

[[

reportTriggerSizeDCI-0-2-r16 INTEGER (0..6) OPTIONAL -- Need R

]],

[[

sCellActivationRS-ConfigToAddModList-r17 SEQUENCE (SIZE (1..maxNrofSCellActRS-r17)) OF SCellActivationRS-Config-r17 OPTIONAL, -- Need N

sCellActivationRS-ConfigToReleaseList-r17 SEQUENCE (SIZE (1..maxNrofSCellActRS-r17)) OF SCellActivationRS-ConfigId-r17 OPTIONAL -- Need N

]],

[[

ltm-CSI-ReportConfigToAddModList-r18 SEQUENCE (SIZE (1..maxNrofLTM-CSI-ReportConfigurations-r18)) OF LTM-CSI-ReportConfig-r18

OPTIONAL, -- Need N

ltm-CSI-ReportConfigToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofLTM-CSI-ReportConfigurations-r18)) OF LTM-CSI-ReportConfigId-r18

OPTIONAL -- Need N

]],

[[

csi-LoggedMeasurementConfigToAddModList-r19 SEQUENCE (SIZE (1..maxNrofLoggedMeasurementConfigurations-r19)) OF CSI-LoggedMeasurementConfig-r19

OPTIONAL, -- Need N

csi-LoggedMeasurementConfigToReleaseList-r19 SEQUENCE (SIZE (1..maxNrofLoggedMeasurementConfigurations-r19)) OF CSI-LoggedMeasurementConfigId-r19 OPTIONAL -- Need N

]]

}

-- TAG-CSI-MEASCONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *CSI-MeasConfig* field descriptions |
| ***aperiodicTriggerStateList***  Contains trigger states for dynamically selecting one or more aperiodic and semi-persistent reporting configurations and/or triggering one or more aperiodic CSI-RS resource sets for channel and/or interference measurement (see TS 38.214 [19], clause 5.2.1). |
| ***csi-IM-ResourceSetToAddModList***  Pool of *CSI-IM-ResourceSet* which can be referred to from *CSI-ResourceConfig* or from MAC CEs. |
| ***csi-IM-ResourceToAddModList***  Pool of *CSI-IM-Resource* which can be referred to from *CSI-IM-ResourceSet*. |
| ***csi-LoggedMeasurementConfigToAddModList***  Configured CSI logged measurements for network data collection. |
| ***csi-ReportConfigToAddModList***  Configured CSI report settings as specified in TS 38.214 [19] clause 5.2.1.1. |
| ***csi-ResourceConfigToAddModList***  Configured CSI resource settings as specified in TS 38.214 [19] clause 5.2.1.2. |
| ***csi-SSB-ResourceSetToAddModList***  Pool of CSI-SSB-ResourceSet which can be referred to from *CSI-ResourceConfig*. |
| ***ltm-CSI-ReportConfigToAddModList***  Configured CSI report settings for LTM as specified in TS 38.214 [19]. |
| ***nzp-CSI-RS-ResourceSetToAddModList***  Pool of *NZP-CSI-RS-ResourceSet* which can be referred to from *CSI-ResourceConfig* or from MAC CEs. |
| ***nzp-CSI-RS-ResourceToAddModList***  Pool of *NZP-CSI-RS-Resource* which can be referred to from *NZP-CSI-RS-ResourceSet*. |
| ***reportTriggerSize, reportTriggerSizeDCI-0-2***  Size of CSI request field in DCI (bits) (see TS 38.214 [19], clause 5.2.1.5.1). The field *reportTriggerSize* applies to DCI format 0\_1 and the field *reportTriggerSizeDCI-0-2* applies to DCI format 0\_2 (see TS 38.214 [19], clause 5.2.1.5.1). |
| ***scellActivationRS-ConfigToAddModList***  Configured RS for fast SCell activation as specified in TS 38.214 [19] clause 5.2.1.5.3. |

#### – *CSI-ReportConfig*

The IE *CSI-ReportConfig* is used to configure a periodic or semi-persistent report sent on PUCCH on the cell in which the *CSI-ReportConfig* is included, or to configure a semi-persistent or aperiodic report sent on PUSCH triggered by DCI received on the cell in which the *CSI-ReportConfig* is included (in this case, the cell on which the report is sent is determined by the received DCI). See TS 38.214 [19], clause 5.2.1.

*CSI-ReportConfig* information element

-- ASN1START

-- TAG-CSI-REPORTCONFIG-START

CSI-ReportConfig ::= SEQUENCE {

reportConfigId CSI-ReportConfigId,

carrier ServCellIndex OPTIONAL, -- Need S

resourcesForChannelMeasurement CSI-ResourceConfigId,

csi-IM-ResourcesForInterference CSI-ResourceConfigId OPTIONAL, -- Need R

nzp-CSI-RS-ResourcesForInterference CSI-ResourceConfigId OPTIONAL, -- Need R

reportConfigType CHOICE {

periodic SEQUENCE {

reportSlotConfig CSI-ReportPeriodicityAndOffset,

pucch-CSI-ResourceList SEQUENCE (SIZE (1..maxNrofBWPs)) OF PUCCH-CSI-Resource

},

semiPersistentOnPUCCH SEQUENCE {

reportSlotConfig CSI-ReportPeriodicityAndOffset,

pucch-CSI-ResourceList SEQUENCE (SIZE (1..maxNrofBWPs)) OF PUCCH-CSI-Resource

},

semiPersistentOnPUSCH SEQUENCE {

reportSlotConfig ENUMERATED {sl5, sl10, sl20, sl40, sl80, sl160, sl320},

reportSlotOffsetList SEQUENCE (SIZE (1.. maxNrofUL-Allocations)) OF INTEGER(0..32),

p0alpha P0-PUSCH-AlphaSetId

},

aperiodic SEQUENCE {

reportSlotOffsetList SEQUENCE (SIZE (1..maxNrofUL-Allocations)) OF INTEGER(0..32)

}

},

reportQuantity CHOICE {

none NULL,

cri-RI-PMI-CQI NULL,

cri-RI-i1 NULL,

cri-RI-i1-CQI SEQUENCE {

pdsch-BundleSizeForCSI ENUMERATED {n2, n4} OPTIONAL -- Need S

},

cri-RI-CQI NULL,

cri-RSRP NULL,

ssb-Index-RSRP NULL,

cri-RI-LI-PMI-CQI NULL

},

reportFreqConfiguration SEQUENCE {

cqi-FormatIndicator ENUMERATED { widebandCQI, subbandCQI } OPTIONAL, -- Need R

pmi-FormatIndicator ENUMERATED { widebandPMI, subbandPMI } OPTIONAL, -- Need R

csi-ReportingBand CHOICE {

subbands3 BIT STRING(SIZE(3)),

subbands4 BIT STRING(SIZE(4)),

subbands5 BIT STRING(SIZE(5)),

subbands6 BIT STRING(SIZE(6)),

subbands7 BIT STRING(SIZE(7)),

subbands8 BIT STRING(SIZE(8)),

subbands9 BIT STRING(SIZE(9)),

subbands10 BIT STRING(SIZE(10)),

subbands11 BIT STRING(SIZE(11)),

subbands12 BIT STRING(SIZE(12)),

subbands13 BIT STRING(SIZE(13)),

subbands14 BIT STRING(SIZE(14)),

subbands15 BIT STRING(SIZE(15)),

subbands16 BIT STRING(SIZE(16)),

subbands17 BIT STRING(SIZE(17)),

subbands18 BIT STRING(SIZE(18)),

...,

subbands19-v1530 BIT STRING(SIZE(19))

} OPTIONAL -- Need S

} OPTIONAL, -- Need R

timeRestrictionForChannelMeasurements ENUMERATED {configured, notConfigured},

timeRestrictionForInterferenceMeasurements ENUMERATED {configured, notConfigured},

codebookConfig CodebookConfig OPTIONAL, -- Need R

dummy ENUMERATED {n1, n2} OPTIONAL, -- Need R

groupBasedBeamReporting CHOICE {

enabled NULL,

disabled SEQUENCE {

nrofReportedRS ENUMERATED {n1, n2, n3, n4} OPTIONAL -- Need S

}

},

cqi-Table ENUMERATED {table1, table2, table3, table4-r17} OPTIONAL, -- Need R

subbandSize ENUMERATED {value1, value2},

non-PMI-PortIndication SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourcesPerConfig)) OF PortIndexFor8Ranks OPTIONAL, -- Need R

...,

[[

semiPersistentOnPUSCH-v1530 SEQUENCE {

reportSlotConfig-v1530 ENUMERATED {sl4, sl8, sl16}

} OPTIONAL -- Need R

]],

[[

semiPersistentOnPUSCH-v1610 SEQUENCE {

reportSlotOffsetListDCI-0-2-r16 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..32) OPTIONAL, -- Need R

reportSlotOffsetListDCI-0-1-r16 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..32) OPTIONAL -- Need R

} OPTIONAL, -- Need R

aperiodic-v1610 SEQUENCE {

reportSlotOffsetListDCI-0-2-r16 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..32) OPTIONAL, -- Need R

reportSlotOffsetListDCI-0-1-r16 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..32) OPTIONAL -- Need R

} OPTIONAL, -- Need R

reportQuantity-r16 CHOICE {

cri-SINR-r16 NULL,

ssb-Index-SINR-r16 NULL

} OPTIONAL, -- Need R

codebookConfig-r16 CodebookConfig-r16 OPTIONAL -- Need R

]],

[[

cqi-BitsPerSubband-r17 ENUMERATED {bits4} OPTIONAL, -- Need R

groupBasedBeamReporting-v1710 SEQUENCE {

nrofReportedGroups-r17 ENUMERATED {n1, n2, n3, n4}

} OPTIONAL, -- Need R

codebookConfig-r17 CodebookConfig-r17 OPTIONAL, -- Need R

sharedCMR-r17 ENUMERATED {enable} OPTIONAL, -- Need R

csi-ReportMode-r17 ENUMERATED {mode1, mode2} OPTIONAL, -- Need R

numberOfSingleTRP-CSI-Mode1-r17 ENUMERATED {n0, n1, n2} OPTIONAL, -- Need R

reportQuantity-r17 CHOICE {

cri-RSRP-Index-r17 NULL,

ssb-Index-RSRP-Index-r17 NULL,

cri-SINR-Index-r17 NULL,

ssb-Index-SINR-Index-r17 NULL

} OPTIONAL -- Need R

]],

[[

semiPersistentOnPUSCH-v1720 SEQUENCE {

reportSlotOffsetList-r17 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..128) OPTIONAL, -- Need R

reportSlotOffsetListDCI-0-2-r17 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..128) OPTIONAL, -- Need R

reportSlotOffsetListDCI-0-1-r17 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..128) OPTIONAL -- Need R

} OPTIONAL, -- Need R

aperiodic-v1720 SEQUENCE {

reportSlotOffsetList-r17 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..128) OPTIONAL, -- Need R

reportSlotOffsetListDCI-0-2-r17 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..128) OPTIONAL, -- Need R

reportSlotOffsetListDCI-0-1-r17 SEQUENCE (SIZE (1.. maxNrofUL-Allocations-r16)) OF INTEGER(0..128) OPTIONAL -- Need R

} OPTIONAL -- Need R

]],

[[

codebookConfig-v1730 CodebookConfig-v1730 OPTIONAL -- Need R

]],

[[

groupBasedBeamReporting-v1800 SEQUENCE {

reportingMode-r18 ENUMERATED {jointULDL, onlyUL}

} OPTIONAL, -- Need R

reportQuantity-r18 TDCP-r18 OPTIONAL, -- Need R

codebookConfig-r18 CodebookConfig-r18 OPTIONAL, -- Need R

csi-ReportSubConfigToAddModList-r18 SEQUENCE (SIZE (1..maxNrofCSI-ReportSubconfigPerCSI-ReportConfig-r18)) OF CSI-ReportSubConfig-r18

OPTIONAL, -- Need N

csi-ReportSubConfigToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofCSI-ReportSubconfigPerCSI-ReportConfig-r18)) OF CSI-ReportSubConfigId-r18

OPTIONAL -- Need N

]],

[[

nrofReportedRS-v19xy ENUMERATED {n6, n8} OPTIONAL, -- Need R

reportQuantity-r19 ReportQuantity-r19 OPTIONAL, -- Need R

predictionConfiguration-r19 CHOICE {

csi-InferencePrediction-r19 ENUMERATED {true} OPTIONAL, -- Need R

configurationForChannelPrediction-r19 SEQUENCE {

resourcesForChannelPrediction-r19 CSI-ResourceConfigId OPTIONAL, -- Need R

associatedIdForChannelPrediction-r19 AssociatedId-r19 OPTIONAL, -- Need R

associatedIdForChannelMeasurement-r19 AssociatedId-r19 OPTIONAL, -- Need R

nrofReportedPredicted-RS-r19 ENUMERATED {n1, n2, n3, n4} OPTIONAL, -- Need R

nrofTimeInstance-r19 ENUMERATED {n1, n2, n4, n8} OPTIONAL, -- Need R

timeGap-r19 ENUMERATED {ms10, ms20, ms40, ms80, ms160, spare3, spare2, spare1} OPTIONAL, -- Need R

...

}

configurationForChannelMonitoring-r19 SEQUENCE {

refToPredictionConfig-r19 CSI-ReportConfigId,

nrofBestBeamForMonitoring-r19 ENUMERATED {n1, n2} OPTIONAL, -- Need R

nrofTransmissionOccasion-r19 ENUMERATED {n1, n3, n7, n15} OPTIONAL, -- Need R

timeInstanceFor-RS-PAI-r19 ENUMERATED {n1, n2, n8, spare1} OPTIONAL, -- Need R

mappingToResourcesForChannelPrediction-r19 BIT STRING (SIZE (1..maxNrofNZP-CSI-RS-ResourcesPerSet)) OPTIONAL, -- Need R

timeInstanceFor-SGCS-r19 ENUMERATED {n1, spare3, spare2, spare1} OPTIONAL, -- Need R

...

}

} OPTIONAL -- Need R

]]

}

PortIndexFor8Ranks ::= CHOICE {

portIndex8 SEQUENCE{

rank1-8 PortIndex8 OPTIONAL, -- Need R

rank2-8 SEQUENCE(SIZE(2)) OF PortIndex8 OPTIONAL, -- Need R

rank3-8 SEQUENCE(SIZE(3)) OF PortIndex8 OPTIONAL, -- Need R

rank4-8 SEQUENCE(SIZE(4)) OF PortIndex8 OPTIONAL, -- Need R

rank5-8 SEQUENCE(SIZE(5)) OF PortIndex8 OPTIONAL, -- Need R

rank6-8 SEQUENCE(SIZE(6)) OF PortIndex8 OPTIONAL, -- Need R

rank7-8 SEQUENCE(SIZE(7)) OF PortIndex8 OPTIONAL, -- Need R

rank8-8 SEQUENCE(SIZE(8)) OF PortIndex8 OPTIONAL -- Need R

},

portIndex4 SEQUENCE{

rank1-4 PortIndex4 OPTIONAL, -- Need R

rank2-4 SEQUENCE(SIZE(2)) OF PortIndex4 OPTIONAL, -- Need R

rank3-4 SEQUENCE(SIZE(3)) OF PortIndex4 OPTIONAL, -- Need R

rank4-4 SEQUENCE(SIZE(4)) OF PortIndex4 OPTIONAL -- Need R

},

portIndex2 SEQUENCE{

rank1-2 PortIndex2 OPTIONAL, -- Need R

rank2-2 SEQUENCE(SIZE(2)) OF PortIndex2 OPTIONAL -- Need R

},

portIndex1 NULL

}

PortIndex8::= INTEGER (0..7)

PortIndex4::= INTEGER (0..3)

PortIndex2::= INTEGER (0..1)

TDCP-r18 ::= SEQUENCE {

delayDSetofLengthY-r18 SEQUENCE (SIZE (1.. maxNrofdelayD-r18)) OF DelayD,

phaseReporting-r18 ENUMERATED {enable} OPTIONAL -- Need R

}

DelayD ::= ENUMERATED { symb4, slot1, slot2, slot3, slot4, slot5, slot6, slot10 }

CSI-ReportSubConfig-r18 ::= SEQUENCE {

reportSubConfigId-r18 CSI-ReportSubConfigId-r18,

reportSubConfigParams-r18 CHOICE {

a1-parameters SEQUENCE {

codebookSubConfig-r18 CodebookConfig OPTIONAL, -- Need R

portSubsetIndicator-r18 CHOICE {

p2 BIT STRING (SIZE (2)),

p4 BIT STRING (SIZE (4)),

p8 BIT STRING (SIZE (8)),

p12 BIT STRING (SIZE (12)),

p16 BIT STRING (SIZE (16)),

p24 BIT STRING (SIZE (24)),

p32 BIT STRING (SIZE (32))

} OPTIONAL, -- Need R

non-PMI-PortIndication-r18 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourcesPerConfig)) OF PortIndexFor8Ranks

OPTIONAL -- Need R

},

a2-parameters SEQUENCE {

nzp-CSI-RS-ResourceList-r18 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourcesPerSet)) OF NZP-CSI-RS-ResourceIndex-r18

}

} OPTIONAL, -- Need R

powerOffset-r18 INTEGER(0..23) OPTIONAL -- Need R

}

NZP-CSI-RS-ResourceIndex-r18 ::= INTEGER (0..maxNrofNZP-CSI-RS-ResourcesPerSet-1-r18)

ReportQuantity-r19 ::= CHOICE {

none-BM-r19 NULL,

none-CSI-r19 NULL,

p-CRI-r19 NULL,

p-SSB-Index-r19 NULL,

p-CRI-RSRP-r19 NULL,

p-SSB-Index-RSRP-r19 NULL,

rs-PAI-r19 NULL,

sgcs-r19 NULL

}

-- TAG-CSI-REPORTCONFIG-STOP

-- ASN1STOP

Editor's Note: FFS the value range of the fields *nrofTimeInstance-r19, timeGap-r19, timeInstanceFor-RS-PAI-r19,* and *timeInstanceFor-SGCS-r19*, based on RAN1 progress.

|  |
| --- |
| *CSI-ReportConfig* field descriptions |
| *associatedIdForChannelMeasurement*  Indicates that the UE may assume the similar properties of a DL Tx beam or beam set/list associated with the same *associatedIdForChannelMeasurement* or with the same *associatedIdForChannelPrediction*. This field is absent if *resourcesForChannelPrediction* is not configured or if *resourcesForChannelMeasurement* is equal to or a subset of *resourcesForChannelPrediction*. |
| *associatedIdForChannelPrediction*  Indicates that the UE may assume the similar properties of a DL Tx beam or beam set/list associated with the same *associatedIdForChannelMeasurement* or with the same *associatedIdForChannelPrediction*. This field is absent if *resourcesForChannelPrediction* is not configured. |
| ***carrier***  Indicates in which serving cell the *CSI-ResourceConfig* indicated below are to be found. If the field is absent, the resources are on the same serving cell as this report configuration. |
| ***codebookConfig***  Codebook configuration for Type-1 or Type-2 including codebook subset restriction. Network can only configure one of *codebookConfig*, *codebookConfig-r16* or *codebookConfig-r17* or *codebookConfig-r18* in a *CSI-ReportConfig*. The network includes *codebookConfig-v1730* only if *codebookConfig-r17* is configured. |
| ***cqi-BitsPerSubband***  This field can only be present if *cqi-FormatIndicator* is set to *subbandCQI*. If the field is configured with *bits4*, the UE uses 4-bit sub-band CQI. If the field is not present and *cqi-FormatIndicator* is set to *subbandCQI*, the UE uses 2-bit sub-band differential CQI. |
| ***cqi-FormatIndicator***  Indicates whether the UE shall report a single (wideband) or multiple (subband) CQI (see TS 38.214 [19], clause 5.2.1.4). |
| ***cqi-Table***  Which CQI table to use for CQI calculation (see TS 38.214 [19], clause 5.2.2.1). For an (e)RedCap UE, CQI table 2 is only supported if the UE indicates support of 256QAM for PDSCH. |
| ***csi-IM-ResourcesForInterference***  CSI IM resources for interference measurement. *csi-ResourceConfigId* of a *CSI-ResourceConfig* included in the configuration of the serving cell indicated with the field "carrier" above. The *CSI-ResourceConfig* indicated here contains only CSI-IM resources. The *bwp-Id* in that *CSI-ResourceConfig* is the same value as the *bwp-Id* in the *CSI-ResourceConfig* indicated by *resourcesForChannelMeasurement*. |
| ***csi-InferencePrediction***  Indicates whether the UE reports predicted CSI based on inference. |
| ***csi-ReportingBand***  Indicates a contiguous or non-contiguous subset of subbands in the bandwidth part which CSI shall be reported for. Each bit in the bit-string represents one subband in order of frequency position in the BWP. The right-most bit in the bit string represents the lowest subband with the lowest frequency position in the BWP. The choice determines the number of subbands (subbands3 for 3 subbands, subbands4 for 4 subbands, and so on) (see TS 38.214 [19], clause 5.2.1.4). This field is absent if there are less than 24 PRBs (no sub band) and present otherwise (see TS 38.214 [19], clause 5.2.1.4).  NOTE: In TS 38.212 [17] clause 6.3.1.1.2 and TS 38.214 [19] clause 5.2.1.4, only subbands to be reported are numbered, e.g. subband #0 is the subband corresponding to the right-most bit set to 1. |
| ***csi-ReportMode***  Configures the CSI report modes Mode1 or Mode 2 (see TS 38.214 [19], clause 5.2.1.4.2) |
| ***csi-ReportSubConfigToAddModList***  List of CSI-ReportSubConfiguration(s) in a CSI report configuration to add or modify. No simultaneous configuration of *portSubsetIndicator* and a list of *nzp-CSI-RS-resources* in a same CSI report sub-configuration. The number of elements in a list is at least 2. |
| ***csi-ReportSubConfigToReleaseList***  List of CSI-ReportSubConfiguration(s) in a CSI report configuration to release. |
| ***dummy***  This field is not used in the specification. If received it shall be ignored by the UE. |
| ***groupBasedBeamReporting***  Turning on/off group beam based reporting (see TS 38.214 [19], clause 5.2.1.4). If *groupBasedBeamReporting* (without suffix) is set to disabled, *groupBasedBeamReporting-v1710* and *groupBasedBeamReporting-v1800* is absent. |
| ***mappingToResourcesForChannelPrediction***  If configured, this field indicates the resources included in *resourcesForChannelMeasurement* to be used for monitoring the channel predictions in the resources *resourcesForChannelPrediction* included within the linked prediction report configuration indicated by *refToPredictionConfig.* This field indicates Y non-zero bits, where Y is the size of the resource set for monitoring in *resourcesForChannelMeasurement*. The x-th MSB of the bitmap corresponds to x-th resource in *resourcesForChannelPrediction* in the linked prediction report configuration indicated by *refToPredictionConfig*. The y-th nonzero bit of the bitmap corresponds to the y-th entry of associated nzp-CSI-RS-Resources or *csi-SSB-ResourceList* in the *resourcesForChannelMeasurement* set for monitoring, 1≤y≤Y. This field is mandatory present only if the size of *resourcesForChannelMeasurement* is smaller than the size of *resourcesForChannelPrediction* in the linked prediction report configuration indicated by *refToPredictionConfig*. |
| ***non-PMI-PortIndication***  Port indication for RI/CQI calculation. For each CSI-RS resource in the linked ResourceConfig for channel measurement, a port indication for each rank R, indicating which R ports to use. Applicable only for non-PMI feedback (see TS 38.214 [19], clause 5.2.1.4.2).  The first entry in *non-PMI-PortIndication* corresponds to the NZP-CSI-RS-Resource indicated by the first entry in *nzp-CSI-RS-Resources* in the *NZP-CSI-RS-ResourceSet* indicated in the first entry of *nzp-CSI-RS-ResourceSetList* of the *CSI-ResourceConfig* whose *CSI-ResourceConfigId* is indicated in a CSI-MeasId together with the above *CSI-ReportConfigId*; the second entry in *non-PMI-PortIndication* corresponds to the NZP-CSI-RS-Resource indicated by the second entry in *nzp-CSI-RS-Resources* in the *NZP-CSI-RS-ResourceSet* indicated in the first entry of *nzp-CSI-RS-ResourceSetList* of the same *CSI-ResourceConfig*, and so on until the NZP-CSI-RS-Resource indicated by the last entry in *nzp-CSI-RS-Resources* in the in the *NZP-CSI-RS-ResourceSet* indicated in the first entry of *nzp-CSI-RS-ResourceSetList* of the same *CSI-ResourceConfig*. Then the next entry corresponds to the NZP-CSI-RS-Resource indicated by the first entry in *nzp-CSI-RS-Resources* in the *NZP-CSI-RS-ResourceSet* indicated in the second entry of *nzp-CSI-RS-ResourceSetList* of the same *CSI-ResourceConfig* and so on. |
| ***nrofBestBeamForMonitoring***  Indicates the number of best M beam(s) based on L1-RSRP measurements of the resource set(s) for monitoring for performance metric calculation. This field is present only if the field *reportQuantity-r19* is set to'rs-PAI-r19'. |
| ***nrofReportedGroups***  Number of reported resource groups per CSI-report. Value *n1* means one resource group, *n2* means 2 resource groups, and so on. If *nrofReportedGroups* is configured, the UE ignores groupBasedBeamReporting (without suffix). |
| ***nrofReportedPredictedRS***  Indicates the number (K) of predicted RS resources to be reported per report setting, if *nrofTimeInstance* is not configured. Indicates the number (K) of predicted RS resources per time instance to be reported per report setting, if *nrofTimeInstance* is configured. This field is present only if *reportQuantity-r19* is set to'p-CRI-r19', 'p-SSB-Index’-r19, 'p-CRI-RSRP-r19' or 'p-SSB-Index-RSRP-r19'*.* |
| ***nrofReportedRS***  The number (N) of measured RS resources to be reported per report setting in a non-group-based report. N <= N\_max, where N\_max is either 2 or 4 depending on UE capability.  (see TS 38.214 [19], clause 5.2.1.4) When the field is absent the UE applies the value 1. Network does not configure *nrofReportedRS-v19xy* at the same time as *nrofReportedRS* (without suffix). |
| ***nrofTimeInstance***  Indicates the number of future time instance(s) N for prediction to be reported per report setting. This field is present only if *reportQuantity-r19* is set to'p-CRI-r19', 'p-SSB-Index’-r19, 'p-CRI-RSRP-r19' or 'p-SSB-Index-RSRP-r19'and if *timeGap* is configured. |
| ***nrofTransmissionOccasion***  Indicates the number of (N) latest transmission occasion(s) of monitoring resources for performance metric calculation. This field is present only if the field *reportQuantity-r19* is set to'rs-PAI-r19'. |
| ***numberOfSingleTRP-CSI-Mode1***  Configures the number of reported X CSIs when *csi-ReportMode* is set to 'Mode 1' as described in TS 38.214 [19], clause 5.2.1.4.2. The field is present only if csi-ReportMode configures Mode 1. |
| ***nzp-CSI-RS-ResourcesForInterference***  NZP CSI RS resources for interference measurement. *csi-ResourceConfigId* of a *CSI-ResourceConfig* included in the configuration of the serving cell indicated with the field "carrier" above. The *CSI-ResourceConfig* indicated here contains only NZP-CSI-RS resources. The *bwp-Id* in that *CSI-ResourceConfig* is the same value as the *bwp-Id* in the *CSI-ResourceConfig* indicated by *resourcesForChannelMeasurement*. |
| ***p0alpha***  Index of the p0-alpha set determining the power control for this CSI report transmission (see TS 38.214 [19], clause 6.2.1.2). |
| ***pdsch-BundleSizeForCSI***  PRB bundling size to assume for CQI calculation when *reportQuantity* is CRI/RI/i1/CQI. If the field is absent, the UE assumes that no PRB bundling is applied (see TS 38.214 [19], clause 5.2.1.4.2). |
| ***pmi-FormatIndicator***  Indicates whether the UE shall report a single (wideband) or multiple (subband) PMI. (see TS 38.214 [19], clause 5.2.1.4). |
| ***pucch-CSI-ResourceList***  Indicates which PUCCH resource to use for reporting on PUCCH. |
| ***refToPredictionConfig***  Indicates the linked prediction report configuration. |
| ***reportConfigType***  Time domain behavior of reporting configuration. |
| ***reportFreqConfiguration***  Reporting configuration in the frequency domain. (see TS 38.214 [19], clause 5.2.1.4). |
| ***reportQuantity***  The CSI related quantities to report. see TS 38.214 [19], clause 5.2.1. If the field *reportQuantity-r16,* *reportQuantity-r17, reportQuantity-r18* or *reportQuantity-r19* is present, UE shall ignore *reportQuantity* (without suffix). Network does not configure *reportQuantity-r17* or *reportQuantity-r18* together with *reportQuantity-r16.* Network does not configure *reportQuantity-r19* together with *reportQuantity-r16, reportQuantity-r17* or *reportQuantity-r18.* |
| ***reportingMode***  Configures the UE with reporting mode for group based reporting.(see TS 38.214 [19] clause 5.2.1.4). |
| ***reportSlotConfig***  Periodicity and slot offset (see TS 38.214 [19], clause 5.2.1.4). If the field *reportSlotConfig-v1530* is present, the UE shall ignore the value provided in *reportSlotConfig* (without suffix). |
| ***reportSlotOffsetList, reportSlotOffsetListDCI-0-1***, ***reportSlotOffsetListDCI-0-2***  Timing offset Y for semi persistent reporting using PUSCH. This field lists the allowed offset values. This list must have the same number of entries as the *pusch-TimeDomainAllocationList* in *PUSCH-Config*. A particular value is indicated in DCI. The network indicates in the DCI field of the UL grant, which of the configured report slot offsets the UE shall apply. The DCI value 0 corresponds to the first report slot offset in this list, the DCI value 1 corresponds to the second report slot offset in this list, and so on. The first report is transmitted in slot n+Y, second report in n+Y+P, where P is the configured periodicity.  Timing offset Y for aperiodic reporting using PUSCH. This field lists the allowed offset values. This list must have the same number of entries as the *pusch-TimeDomainAllocationList* in *PUSCH-Config*. A particular value is indicated in DCI. The network indicates in the DCI field of the UL grant, which of the configured report slot offsets the UE shall apply. The DCI value 0 corresponds to the first report slot offset in this list, the DCI value 1 corresponds to the second report slot offset in this list, and so on (see TS 38.214 [19], clause 6.1.2.1).  The field *reportSlotOffsetListDCI-0-1* applies to DCI format 0\_1 and the field *reportSlotOffsetListDCI-0-2* applies to DCI format 0\_2 (see TS 38.214 [19], clause 6.1.2.1).  The fields *reportSlotOffsetList-r17*, *reportSlotOffsetListDCI-0-1-r17* and *reportSlotOffsetListDCI-0-2-r17* are only applicable for SCS 480 kHz and 960 kHz and if they are configured, the UE shall ignore the fields *reportSlotOffsetList* (without suffix), *reportSlotOffsetListDCI-0-1* (without suffix) and *reportSlotOffsetListDCI-0-2* (without suffix) for SCS 480 kHz and 960 kHz. |
| ***resourcesForChannelMeasurement***  Resources for channel measurement. *csi-ResourceConfigId* of a *CSI-ResourceConfig* included in the configuration of the serving cell indicated with the field "carrier" above. The *CSI-ResourceConfig* indicated here contains only NZP-CSI-RS resources and/or SSB resources. This *CSI-ReportConfig* is associated with the DL BWP indicated by *bwp-Id* in that *CSI-ResourceConfig*. |
| ***resourcesForChannelPrediction***  Indicates resources to be predicted based on measurements performed on *resourcesForChannelMeasurement*. The UE is not expected to measure the resources to be predicted, unless the *reportQuantity-r19* is set to 'none-BM-r19'. This field is present only if *reportQuantity-r19* is set to'p-CRI-r19', 'p-SSB-Index’-r19, 'p-CRI-RSRP-r19', 'p-SSB-Index-RSRP-r19' or 'none-BM-r19'. |
| ***sharedCMR***  Enables sharing of channel measurement resources between different CSI measurement hypotheses when (1) *csi-ReportMode* is set to 'Mode1' and *numberOfSingleTRP-CSI-Mode1* is set to 1 or 2; or (2) *csi-ReportMode* is set to 'Mode2' (see TS 38.214 [19], clause 5.2.1.4.2). |
| ***subbandSize***  Indicates one out of two possible BWP-dependent values for the subband size as indicated in TS 38.214 [19], table 5.2.1.4-2 . If *csi-ReportingBand* is absent, the UE shall ignore this field. |
| ***timeGap***  Indicates the time gap between the reference time and the first future time instance for prediction, if *nrofTimeInstance-r19* is set to 1. Indicates the time gap between two consecutive future time instances for prediction, if *nrofTimeInstance-r19* is set to >1. This field is present only if *resourcesForChannelPrediction-r19* and *nrofTimeInstance-r19* are configured. |
| ***timeInstanceFor-RS-PAI***  Indicates the f-th time instance is used for the performance metric calculation. This field is present only if *reportQuantity-r19* is set to'rs-PAI-r19'. |
| ***timeInstanceFor-SGCS***  Indicates the f-th doppler domain unit is used for the performance metric calculation for N4>1. This field is present only if *reportQuantity-r19* is set to'sgcs-r19'. |
| ***timeRestrictionForChannelMeasurements***  Time domain measurement restriction for the channel (signal) measurements (see TS 38.214 [19], clause 5.2.1.1). |
| ***timeRestrictionForInterferenceMeasurements***  Time domain measurement restriction for interference measurements (see TS 38.214 [19], clause 5.2.1.1). |

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| --- |
| *CSI-ReportSubConfig* field descriptions |
| ***codebookSubConfig***  Applicable codebook parameters for the ports indicated by *portSubsetIndicator*. Applicable value ranges for codebook subset restriction, rank restriction, N1, N2, and Ng and twoTX-CodebookSubsetRestriction follow existing specification according to the *codebookConfig* configured within the *CSI-ReportConfig*, and apply for the number of ports determined by *portSubsetIndicator* (see TS 38.214 [19], clause 5.2.1.4.2). In this field, the network always sets the *codebookType* to *type1*. When *reportQuantity* is set to *'cri-RI-i1-CQI'*, the parameter *typeISinglePanel-codebookSubsetRestriction-i2* is mandatory to be configured in the *codebookSubConfig* for each sub-configuration that includes *portSubsetIndicator*. |
| ***non-PMI-PortIndication***  Port indication for RI/CQI calculation applicable only for non-PMI feedback. The field shall be configured only if the *portSubsetIndicator-r18* is configured.  For each CSI-RS resource in the linked *CSI-ResourceConfig* for channel measurement, a port indication for each rank R, indicating which R ports out of P ports to use within the sub-configuration. P corresponds to the number of bits with value 1 in the bitmap *portSubsetIndicator-r18.* |
| ***nzp-CSI-RS-ResourceList***  List of NZP CSI RS resources for the sub-configuration that is a (sub)set of NZP CSI-RS resource(s) of the CSI-RS resource set for channel measurement associated with the sub-configuration in the CSI report configuration. Value 0 refers to the first NZP CSI RS resource of the CSI-RS resource set, value 1 refers to the second NZP CSI RS resource of the CSI-RS resource set, and so on. |
| ***portSubsetIndicator***  Indicates the (sub)set of CSI-RS antenna ports used for CSI calculation of the sub-configuration. In the bit string, each bit corresponds to an antenna port. When a bit is set to 1, the corresponding port is enabled for CSI calculation corresponding to the sub-configuration. When the bit is set to zero, the corresponding port is not enabled for CSI calculation corresponding to the sub-configuration. The size of the bit string equals P bits, where P=2/4/8/12/16/24/32 represents the number of ports of the NZP CSI-RS resource(s) in the resource set for channel measurement associated with the *CSI-ReportConfig*. |
| ***powerOffset***  When *powerControlOffset* is configured in NZP CSI-RS resources in the resource set for channel measurement associated with the *CSI-ReportConfig*, the power offset of PDSCH EPRE to NZP CSI-RS EPRE is equal to *powerControlOffset* - *powerOffset*. |
| ***reportSubConfigParams***  Indicates the parameters to be used for the CSI report sub-configuration, which includes either *a1-parameters* that contain the antenna port subset and the associated parameters relevant to the sub-configuration or *a2-parameters* that contain the list of NZP CSI-RS resources for the sub-configuration (see TS 38.214 [19], clause 5.2.1.4.2). |

|  |
| --- |
| *PortIndexFor8Ranks* field descriptions |
| ***portIndex8***  Port-Index configuration for up to rank 8. If present, the network configures port indexes for at least one of the ranks. |
| ***portIndex4***  Port-Index configuration for up to rank 4. If present, the network configures port indexes for at least one of the ranks. |
| ***portIndex2***  Port-Index configuration for up to rank 2. If present, the network configures port indexes for at least one of the ranks. |
| ***portIndex1***  Port-Index configuration for rank 1. |

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| --- |
| *TDCP* field descriptions |
| ***delayDSetofLengthY***  Configures a set of Y delay values for TDCP reporting, see reference TS 38.214 clause 5.2.1.4. The *symb4* denotes 4 symbols, the *slot1* denotes 1 slot, the *slot2* denotes 2 slots and so on. The value *slot10* is applicable only to SCS >=30kHz. The parameter Y, see reference TS38.214 clause 5.2.1.4, is given by the length of the set of D values. |
| ***phaseReporting***  Configures the UE for phase reporting for TDCP reporting see reference TS 38.214 clause 5.2.1.4 |

<Text Omitted>

#### – *CSI-ResourceConfig*

The IE *CSI-ResourceConfig* defines a group of one or more *NZP-CSI-RS-ResourceSet*, *CSI-IM-ResourceSet* and/or *CSI-SSB-ResourceSet*.

*CSI-ResourceConfig* information element

-- ASN1START

-- TAG-CSI-RESOURCECONFIG-START

CSI-ResourceConfig ::= SEQUENCE {

csi-ResourceConfigId CSI-ResourceConfigId,

csi-RS-ResourceSetList CHOICE {

nzp-CSI-RS-SSB SEQUENCE {

nzp-CSI-RS-ResourceSetList SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourceSetsPerConfig)) OF NZP-CSI-RS-ResourceSetId

OPTIONAL, -- Need R

csi-SSB-ResourceSetList SEQUENCE (SIZE (1..maxNrofCSI-SSB-ResourceSetsPerConfig)) OF CSI-SSB-ResourceSetId OPTIONAL -- Need R

},

csi-IM-ResourceSetList SEQUENCE (SIZE (1..maxNrofCSI-IM-ResourceSetsPerConfig)) OF CSI-IM-ResourceSetId

},

bwp-Id BWP-Id,

resourceType ENUMERATED { aperiodic, semiPersistent, periodic },

...,

[[

csi-SSB-ResourceSetListExt-r17 CSI-SSB-ResourceSetId OPTIONAL -- Need R

]]

}

-- TAG-CSI-RESOURCECONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *CSI-ResourceConfig* field descriptions |
| ***bwp-Id***  The DL BWP which the CSI-RS associated with this *CSI-ResourceConfig* are located in (see TS 38.214 [19], clause 5.2.1.2. |
| ***csi-IM-ResourceSetList***  List of references to CSI-IM resources used for CSI measurement and reporting in a CSI-RS resource set. Contains up to *maxNrofCSI-IM-ResourceSetsPerConfig* resource sets if *resourceType* is 'aperiodic' and 1 otherwise (see TS 38.214 [19], clause 5.2.1.2). |
| ***csi-ResourceConfigId***  Used in *CSI-ReportConfig* to refer to an instance of *CSI-ResourceConfig.* |
| ***csi-SSB-ResourceSetList, csi-SSB-ResourceSetListExt***  List of references to SSB resources used for CSI measurement and reporting in a CSI-RS resource set (see TS 38.214 [19], clause 5.2.1.2). The *csi-SSB-ResourceSetListExt* provides additional references and can only be configured if *csi-SSB-ResourceSetList* is configured and *groupBasedBeamReporting-v1710* is configured in the *CSI-ReportConfig* that indicates this *CSI-ResourceConfig* as *resourcesForChannelMeasurement*. If *groupBasedBeamReporting-v1710* is configured in the IE *CSI-ReportConfig* that indicates this *CSI-ResourceConfig* as *resourcesForChannelMeasurement*, the network configures 2 resource sets, which may be two CSI SSB resource sets (see TS 38.214 [19], clause 5.2.1.2 and 5.2.1.4.2). In this case, in TS 38.212 [17] Table 6.3.1.1.2-8B, the first resource set is indicated by a resource set indicator set to 0 and the second resource set by a resource set indicator set to 1. |
| ***nzp-CSI-RS-ResourceSetList***  List of references to NZP CSI-RS resources used for beam measurement and reporting in a CSI-RS resource set.  If *resourceType* is set to 'aperiodic', the network configures up to *maxNrofNZP-CSI-RS-ResourceSetsPerConfig* resource sets. If *resourceType* is is set to 'periodic' or 'semiPersistent' and *groupBasedBeamReporting-v1710* is not configured in IE *CSI-ReportConfig*, the network configures 1 resource set. If *resourceType* is set to 'periodic' or 'semiPersistent' and *groupBasedBeamReporting-v1710* is configured, the network configures 2 resource sets, which may be two NZP CSI-RS resource sets (see TS 38.214 [19], clause 5.2.1.2 and 5.2.1.4.2). In this case, in TS 38.212 [17] Table 6.3.1.1.2-8B, the first resource set is indicated by a resource set indicator set to 0 and the second resource set by a resource set indicator set to 1. If *resourceType* is set to 'periodic' and *reportQuantity* is set to 'TDCP', the network configures up to 3 resource sets, see TS 38.214 [19] clause 5.2.1.2. |
| ***resourceType***  Time domain behavior of resource configuration (see TS 38.214 [19], clause 5.2.1.2). It does not apply to resources provided in the *csi-SSB-ResourceSetList*. If the associated *csi-ResourceConfigId* is included in *CSI-LoggedMeasurementConfig*, it is set to 'periodic'. |

<Text Omitted>

#### – *DataCollectionCandidateConfigId*

The IE *DataCollectionCandidateConfigId* is used to identify a *DataCollectionCandidateConfigParameters*.

*DataCollectionCandidateConfigId* information element

-- ASN1START

-- TAG-DATACOLLECTIONCANDIDATECONFIGID-START

DataCollectionCandidateConfigId-r19 ::= INTEGER (0..maxCandidateConfig-1-r19)

-- TAG-DATACOLLECTIONCANDIDATECONFIGID-STOP

-- ASN1STOP

<Text Omitted>

#### – *RadioBearerConfig*

The IE *RadioBearerConfig* is used to add, modify and release signalling, multicast MRBs and/or data radio bearers. Specifically, this IE carries the parameters for PDCP and, if applicable, SDAP entities for the radio bearers.

*RadioBearerConfig* information element

-- ASN1START

-- TAG-RADIOBEARERCONFIG-START

RadioBearerConfig ::= SEQUENCE {

srb-ToAddModList SRB-ToAddModList OPTIONAL, -- Cond HO-Conn

srb3-ToRelease ENUMERATED{true} OPTIONAL, -- Need N

drb-ToAddModList DRB-ToAddModList OPTIONAL, -- Cond HO-toNR

drb-ToReleaseList DRB-ToReleaseList OPTIONAL, -- Need N

securityConfig SecurityConfig OPTIONAL, -- Need M

...,

[[

mrb-ToAddModList-r17 MRB-ToAddModList-r17 OPTIONAL, -- Need N

mrb-ToReleaseList-r17 MRB-ToReleaseList-r17 OPTIONAL, -- Need N

srb4-ToAddMod-r17 SRB-ToAddMod OPTIONAL, -- Need N

srb4-ToRelease-r17 ENUMERATED{true} OPTIONAL -- Need N

]],

[[

srb5-ToAddMod-r18 SRB-ToAddMod OPTIONAL, -- Need N

srb5-ToRelease-r18 ENUMERATED{true} OPTIONAL -- Need N

]],

[[

srbx-ToAddMod-r19 SRB-ToAddMod OPTIONAL, -- Need N

srbx-ToRelease-r19 ENUMERATED{true} OPTIONAL -- Need N

]]

}

SRB-ToAddModList ::= SEQUENCE (SIZE (1..2)) OF SRB-ToAddMod

SRB-ToAddMod ::= SEQUENCE {

srb-Identity SRB-Identity,

reestablishPDCP ENUMERATED{true} OPTIONAL, -- Need N

discardOnPDCP ENUMERATED{true} OPTIONAL, -- Need N

pdcp-Config PDCP-Config OPTIONAL, -- Cond PDCP

...,

[[

srb-Identity-v1700 SRB-Identity-v1700 OPTIONAL -- Need M

]],

[[

srb-Identity-v1800 SRB-Identity-v1800 OPTIONAL, -- Need M

n3c-BearerAssociated-r18 ENUMERATED{true} OPTIONAL -- Cond N3C MP

]],

[[

srb-Identity-v19xy SRB-Identity-v19xy OPTIONAL -- Need M

]]

}

DRB-ToAddModList ::= SEQUENCE (SIZE (1..maxDRB)) OF DRB-ToAddMod

DRB-ToAddMod ::= SEQUENCE {

cnAssociation CHOICE {

eps-BearerIdentity INTEGER (0..15),

sdap-Config SDAP-Config

} OPTIONAL, -- Cond DRBSetup

drb-Identity DRB-Identity,

reestablishPDCP ENUMERATED{true} OPTIONAL, -- Need N

recoverPDCP ENUMERATED{true} OPTIONAL, -- Need N

pdcp-Config PDCP-Config OPTIONAL, -- Cond PDCP

...,

[[

daps-Config-r16 ENUMERATED{true} OPTIONAL -- Cond DAPS

]],

[[

n3c-BearerAssociated-r18 ENUMERATED{true} OPTIONAL -- Cond N3C MP

]]

}

DRB-ToReleaseList ::= SEQUENCE (SIZE (1..maxDRB)) OF DRB-Identity

SecurityConfig ::= SEQUENCE {

securityAlgorithmConfig SecurityAlgorithmConfig OPTIONAL, -- Cond RBTermChange1

keyToUse ENUMERATED{master, secondary} OPTIONAL, -- Cond RBTermChange

...

}

MRB-ToAddModList-r17 ::= SEQUENCE (SIZE (1..maxMRB-r17)) OF MRB-ToAddMod-r17

MRB-ToAddMod-r17 ::= SEQUENCE {

mbs-SessionId-r17 TMGI-r17 OPTIONAL, -- Cond MRBSetup

mrb-Identity-r17 MRB-Identity-r17,

mrb-IdentityNew-r17 MRB-Identity-r17 OPTIONAL, -- Need N

reestablishPDCP-r17 ENUMERATED{true} OPTIONAL, -- Need N

recoverPDCP-r17 ENUMERATED{true} OPTIONAL, -- Need N

pdcp-Config-r17 PDCP-Config OPTIONAL, -- Cond PDCP

...

}

MRB-ToReleaseList-r17 ::= SEQUENCE (SIZE (1..maxMRB-r17)) OF MRB-Identity-r17

-- TAG-RADIOBEARERCONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *DRB-ToAddMod* and *MRB-ToAddMod* field descriptions |
| ***cnAssociation***  Indicates if the bearer is associated with the *eps-bearerIdentity* (when connected to EPC) or *sdap-Config* (when connected to 5GC). |
| ***daps-Config***  Indicates that the bearer is configured as DAPS bearer. The network does not include this field in an *RRCReconfiguration* message contained within a *LTM-Config* IE*.* |
| ***drb-Identity***  In case of DC, the DRB identity is unique within the scope of the UE, i.e. an MCG DRB cannot use the same value as a split DRB. For a split DRB the same identity is used for the MCG and SCG parts/indirect path of the configuration. |
| ***eps-BearerIdentity***  The EPS bearer ID determines the EPS bearer. |
| ***mbs-SessionId***  Indicates which multicast MBS session the bearer is associated with. |
| ***mrb-Identity***  Identification of the multicast MRB. |
| ***mrb-IdentityNew***  New identity of the multicast MRB when *mrb-Identity* needs to be changed, e.g. as a result of a handover. |
| ***n3c-BearerAssociated***  Indicates that the radio bearer is associated with the N3C indirect path. |
| ***reestablishPDCP***  Indicates that PDCP should be re-established. Network sets this to *true* whenever the security key used for this radio bearer changes. Key change could for example be due to termination point change for the bearer, reconfiguration with sync, resuming an RRC connection, or the first reconfiguration after reestablishment. It is also applicable for LTE procedures when NR PDCP is configured. Network doesn't include this field for DRB if the bearer is configured as DAPS bearer, if the *RadioBearerConfig* IE is part of an *RRCReconfiguration* message within the *LTM-Config* IE, or if the *RadioBearerConfig* IE is part of an *RRCReconfiguration* message associated with subsequent CPAC within the *ConditionalReconfiguration* IE |
| ***recoverPDCP***  Indicates that PDCP should perform recovery according to TS 38.323 [5]. Network doesn't include this field if the bearer is configured as DAPS bearer, if the *RadioBearerConfig* IE is part of an *RRCReconfiguration* message within the *LTM-Config* IE, or if the *RadioBearerConfig* IE is part of an *RRCReconfiguration* message associated with subsequent CPAC within the *ConditionalReconfiguration* IE. |
| ***sdap-Config***  The SDAP configuration determines how to map QoS flows to DRBs when NR or E-UTRA connects to the 5GC and presence/absence of UL/DL SDAP headers. |

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| *RadioBearerConfig* field descriptions |
| ***securityConfig***  Indicates the security algorithm and key to use for the signalling and data radio bearers configured with the list in this IE *RadioBearerConfig*. When the field is not included after AS security has been activated, the UE shall continue to use the currently configured *keyToUse* and security algorithm for the radio bearers reconfigured with the lists in this IE *RadioBearerConfig*. The field is not included when configuring SRB1 before AS security is activated. |
| ***srb3-ToRelease***  Release SRB3. SRB3 release can only be done over SRB1 and only at SCG release and reconfiguration with sync. |

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| --- |
| *SecurityConfig* field descriptions |
| ***keyToUse***  Indicates if the bearers configured with the list in this IE *RadioBearerConfig* are using the master key or the secondary key for deriving ciphering and/or integrity protection keys. For MR-DC, network should not configure SRB1 and SRB2 with secondary key and SRB3 with the master key. When the field is not included, the UE shall continue to use the currently configured *keyToUse* for the radio bearers reconfigured with the lists in this IE *RadioBearerConfig*. |
| ***securityAlgorithmConfig***  Indicates the security algorithm for the signalling and data radio bearers configured with the list in this IE *RadioBearerConfig*. When the field is not included, the UE shall continue to use the currently configured security algorithm for the radio bearers reconfigured with the lists in this IE *RadioBearerConfig*. |

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| *SRB-ToAddMod* field descriptions |
| ***discardOnPDCP***  Indicates that PDCP should discard stored SDU and PDU according to TS 38.323 [5]. Network doesn't include this field if the *RadioBearerConfig* IE is part of an *RRCReconfiguration* message associated with subsequent CPAC within the *ConditionalReconfiguration* IE which is received within a MCG *RRCReconfiguration* message via SRB1. |
| ***reestablishPDCP***  Indicates that PDCP should be re-established. Network sets this to *true* whenever the security key used for this radio bearer changes. Key change could for example be due to reconfiguration with sync, for SRB2 when resuming an RRC connection, or at the first reconfiguration after RRC connection reestablishment in NR. For SRB1, when resuming an RRC connection, or at the first reconfiguration after RRC connection reestablishment in NR, the network does not set this field to *true*. For LTE SRBs using NR PDCP, it could be for handover, RRC connection reestablishment or resume. Network doesn't include this field if any DAPS bearer is configured or if the *RadioBearerConfig* IE is part of an *RRCReconfiguration* message within the *LTM-Config* IE. For SRB3, network doesn't include this field if the *RadioBearerConfig* IE is part of an *RRCReconfiguration* message associated with subsequent CPAC within the *ConditionalReconfiguration* IE. |
| ***srb-Identity, srb-Identity-v1700, srb-Identity-v1800***  Value 1 is applicable for SRB1 only. Value 2 is applicable for SRB2 only. Value 3 is applicable for SRB3 only. Value 4 is applicable for SRB4 only. Value 5 is applicable for SRB5 only. Value x is applicable for SRBx only. If *srb-Identity-v1700*, *srb-Identity-v1800* or *srb-Identity-v19xy* is received for an SRB, the UE shall ignore *srb-Identity* (i.e. without suffix) for this SRB. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *RBTermChange* | The field is mandatory present in case of:  - set up of signalling and data radio bearer,  - change of termination point for the radio bearer between MN and SN.  It is optionally present otherwise, Need S. |
| *RBTermChange1* | The field is mandatory present in case of:  - set up of signalling and data radio bearer,  - change of termination point for the radio bearer between MN and SN,  - handover from E-UTRA/EPC or E-UTRA/5GC to NR,  - handover from NR or E-UTRA/EPC to E-UTRA/5GC if the UE supports NGEN-DC.  It is optionally present otherwise, Need S. |
| *PDCP* | The field is mandatory present if the corresponding DRB/multicast MRB is being setup or corresponding DRB/multicast MRB is reconfigured with NR PDCP or corresponding SRB associated with two RLC entities is being setup or if the number of RLC bearers associated with the DRB/multicast MRB or SRB is changed. The field is optionally present, Need S, if the corresponding SRB associated with one RLC entity is being setup or corresponding SRB is reconfigured with NR PDCP; otherwise the field is optionally present, need M. |
| *DRBSetup* | The field is mandatory present if the corresponding DRB is being setup; otherwise the field is optionally present, need M. |
| *HO-Conn* | The field is mandatory present  - in case of inter-system handover from E-UTRA/EPC to E-UTRA/5GC or NR,  - or when the *fullConfig* is included in the *RRCReconfiguration* message and NE-DC/NR-DC is not configured,  - or in case of *RRCSetup*.  Otherwise the field is optionally present, need N.  Upon *RRCSetup*, only SRB1 can be present. |
| *HO-toNR* | If *mrb-ToAddModList* is not included, the field is mandatory present for UEs other than NCR-MT  - in case of inter-system handover from E-UTRA/EPC to E-UTRA/5GC or NR,  - or when the *fullConfig* is included in the *RRCReconfiguration* message and NE-DC/NR-DC is not configured.  In case of *RRCSetup*, the field is absent; otherwise the field is optionally present, need N. |
| *DAPS* | The field is optionally present, need N, in case masterCellGroup includes ReconfigurationWithSync, SCell(s) and SCG are not configured, multi-DCI/single-DCI based multi-TRP are not configured in any DL BWP, *supplementaryUplink* is not configured, ethernetHeaderCompression is not configured for the DRB, *conditionalReconfiguration* is not configured, and NR sidelink and V2X sidelink are not configured. Otherwise the field is absent. |
| *MRBSetup* | The field is mandatory present if the corresponding multicast MRB is being setup; otherwise the field is optionally present, need M. |
| *N3C MP* | The field is optionally present if the corresponding radio bearer is being setup for MP with N3C indirect path, need R. It is absent otherwise. |

<Text Omitted>

#### – *RLC-BearerConfig*

The IE *RLC-BearerConfig* is used to configure an RLC entity, a corresponding logical channel in MAC and the linking to a PDCP entity (served radio bearer).

*RLC-BearerConfig* information element

-- ASN1START

-- TAG-RLC-BEARERCONFIG-START

RLC-BearerConfig ::= SEQUENCE {

logicalChannelIdentity LogicalChannelIdentity,

servedRadioBearer CHOICE {

srb-Identity SRB-Identity,

drb-Identity DRB-Identity

} OPTIONAL, -- Cond LCH-SetupOnly

reestablishRLC ENUMERATED {true} OPTIONAL, -- Need N

rlc-Config RLC-Config OPTIONAL, -- Cond LCH-Setup

mac-LogicalChannelConfig LogicalChannelConfig OPTIONAL, -- Cond LCH-Setup

...,

[[

rlc-Config-v1610 RLC-Config-v1610 OPTIONAL -- Need R

]],

[[

rlc-Config-v1700 RLC-Config-v1700 OPTIONAL, -- Need R

logicalChannelIdentityExt-r17 LogicalChannelIdentityExt-r17 OPTIONAL, -- Cond LCH-SetupModMRB

multicastRLC-BearerConfig-r17 MulticastRLC-BearerConfig-r17 OPTIONAL, -- Cond LCH-SetupOnlyMRB

servedRadioBearerSRB4-r17 SRB-Identity-v1700 OPTIONAL -- Cond LCH-SetupOnlySRB4

]],

[[

servedRadioBearerSRB5-r18 SRB-Identity-v1800 OPTIONAL -- Cond LCH-SetupOnlySRB5

]],

[[

servedRadioBearerSRBx-r19 SRB-Identity-v19xy OPTIONAL -- Cond LCH-SetupOnlySRBx

]]

}

MulticastRLC-BearerConfig-r17 ::= SEQUENCE {

servedMBS-RadioBearer-r17 MRB-Identity-r17,

isPTM-Entity-r17 ENUMERATED {true} OPTIONAL -- Need S

}

LogicalChannelIdentityExt-r17 ::= INTEGER (320..65855)

-- TAG-RLC-BEARERCONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *RLC-BearerConfig* field descriptions |
| ***isPTM-Entity***  If configured, indicates that the RLC entity is used for PTM reception. When the field is absent the RLC entity is used for PTP transmission/reception. |
| ***logicalChannelIdentity***  ID used commonly for the MAC logical channel and for the RLC bearer. |
| ***logicalChannelIdentityExt***  Extended logical channel ID used commonly for the MAC logical channel and for the RLC bearer for PTM reception. If this field is configured, the UE shall ignore *logicalChannelIdentity*. |
| ***reestablishRLC***  Indicates that RLC should be re-established. Network sets this to *true* at least whenever the security key used for the radio bearer associated with this RLC entity changes. For SRB2, multicast MRBs and DRBs, unless full configuration is used, it is also set to *true* during the resumption of the RRC connection or the first reconfiguration after reestablishment. For SRB1, when resuming an RRC connection, or at the first reconfiguration after RRC connection reestablishment, the network does not set this field to *true.* The network does not include this field if *servedRadioBearer* is set to *drb-Identity* and the *RLC-BearerConfig* IE is part of an *RRCReconfiguration* message within the *LTM-Config* IE. For DRBs, network doesn't include this field if the *RLC-BearerConfig* IE is part of an *RRCReconfiguration* message associated with subsequent CPAC within the *ConditionalReconfiguration* IE. Network doesn't include this field if the *RadioBearerConfig* IE is part of an *RRCReconfiguration* message associated with subsequent CPAC within the *ConditionalReconfiguration* IE which is received within a MCG *RRCReconfiguration* message via SRB1. |
| ***rlc-Config***  Determines the RLC mode (UM, AM) and provides corresponding parameters. RLC mode reconfiguration can only be performed by DRB/multicast MRB release/addition or full configuration. The network may configure *rlc-Config-v1610* only when *rlc-Config* (without suffix) is set to *am*. |
| ***servedMBS-RadioBearer***  Associates the RLC Bearer with a multicast MRB. The UE shall deliver DL RLC SDUs received via the RLC entity of this RLC bearer to the PDCP entity of the *servedMBS-RadioBearer*. |
| ***servedRadioBearer, servedRadioBearerSRB4, servedRadioBearerSRB5, servedRadioBearerSRBx***  Associates the RLC Bearer with an SRB or a DRB. The UE shall deliver DL RLC SDUs received via the RLC entity of this RLC bearer to the PDCP entity of the *servedRadioBearer*. Furthermore, the UE shall advertise and deliver uplink PDCP PDUs of the uplink PDCP entity of the *servedRadioBearer* to the uplink RLC entity of this RLC bearer unless the uplink scheduling restrictions (*moreThanOneRLC* in *PDCP-Config* and the restrictions in *LogicalChannelConfig*) forbid it to do so. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *LCH-Setup* | This field is mandatory present upon creation of a new logical channel for a DRB or a multicast MRB or SRB4 or SRB5. This field is optionally present, Need S, upon creation of a new logical channel for an SRB except SRB4 and SRB5. It is optionally present, Need M, otherwise. |
| *LCH-SetupModMRB* | This field is optionally present upon creation of a new logical channel for PTM reception for a multicast MRB. If this field is included upon creation of a new logical channel for PTM reception for a multicast MRB, it shall be present when modifying this logical channel. The field is absent for logical channels configured for an SRB and a DRB. |
| *LCH-SetupOnly* | This field is mandatory present upon creation of a new logical channel for a DRB or an SRB (*servedRadioBearer*). It is absent, Need M otherwise. |
| *LCH-SetupOnlyMRB* | This field is mandatory present upon creation of a new logical channel for a multicast MRB and upon modification of *MRB-Identity* of the served MRB. It is absent, Need M otherwise. |
| *LCH-SetupOnlySRB4* | This field is mandatory present upon creation of a new logical channel for SRB4 (*servedRadioBearerSRB4*). It is absent, Need M otherwise. |
| *LCH-SetupOnlySRB5* | This field is mandatory present upon creation of a new logical channel for SRB5 (*servedRadioBearerSRB5*). It is absent, Need M otherwise. |
| *LCH-SetupOnlySRBx* | This field is mandatory present upon creation of a new logical channel for SRBx (servedRadioBearerSRBx). It is absent, Need M otherwise. |

<Text Omitted>

#### – *SRB-Identity*

The IE SRB-Identity is used to identify a Signalling Radio Bearer (SRB) used by a UE.

*SRB-Identity* information element

-- ASN1START

-- TAG-SRB-IDENTITY-START

SRB-Identity ::= INTEGER (1..3)

SRB-Identity-v1700 ::= INTEGER (4)

SRB-Identity-v1800 ::= INTEGER (5)

SRB-Identity-v19xy ::= INTEGER (x)

-- TAG-SRB-IDENTITY-STOP

-- ASN1STOP

Editor's Note: FFS the new SRB number.

<Text Omitted>

#### – *TimeToTrigger*

The IE *TimeToTrigger* specifies the value range used for time to trigger parameter, which concerns the time during which specific criteria for the event needs to be met in order to trigger a measurement report or start logging of measurements for network data collection. Value *ms0* corresponds to 0 ms and behaviour as specified in 7.1.2 applies, value *ms40* corresponds to 40 ms, and so on.

*TimeToTrigger* information element

-- ASN1START

-- TAG-TIMETOTRIGGER-START

TimeToTrigger ::= ENUMERATED {

ms0, ms40, ms64, ms80, ms100, ms128, ms160, ms256,

ms320, ms480, ms512, ms640, ms1024, ms1280, ms2560,

ms5120}

-- TAG-TIMETOTRIGGER-STOP

-- ASN1STOP

<Text Omitted>

### 6.3.4 Other information elements

<Text Omitted>

#### – *OtherConfig*

The IE *OtherConfig* contains configuration related to miscellaneous other configurations.

*OtherConfig* information element

-- ASN1START

-- TAG-OTHERCONFIG-START

OtherConfig ::= SEQUENCE {

delayBudgetReportingConfig CHOICE{

release NULL,

setup SEQUENCE{

delayBudgetReportingProhibitTimer ENUMERATED {s0, s0dot4, s0dot8, s1dot6, s3, s6, s12, s30}

}

} OPTIONAL -- Need M

}

OtherConfig-v1540 ::= SEQUENCE {

overheatingAssistanceConfig SetupRelease {OverheatingAssistanceConfig} OPTIONAL, -- Need M

...

}

OtherConfig-v1610 ::= SEQUENCE {

idc-AssistanceConfig-r16 SetupRelease {IDC-AssistanceConfig-r16} OPTIONAL, -- Need M

drx-PreferenceConfig-r16 SetupRelease {DRX-PreferenceConfig-r16} OPTIONAL, -- Need M

maxBW-PreferenceConfig-r16 SetupRelease {MaxBW-PreferenceConfig-r16} OPTIONAL, -- Need M

maxCC-PreferenceConfig-r16 SetupRelease {MaxCC-PreferenceConfig-r16} OPTIONAL, -- Need M

maxMIMO-LayerPreferenceConfig-r16 SetupRelease {MaxMIMO-LayerPreferenceConfig-r16} OPTIONAL, -- Need M

minSchedulingOffsetPreferenceConfig-r16 SetupRelease {MinSchedulingOffsetPreferenceConfig-r16} OPTIONAL, -- Need M

releasePreferenceConfig-r16 SetupRelease {ReleasePreferenceConfig-r16} OPTIONAL, -- Need M

referenceTimePreferenceReporting-r16 ENUMERATED {true} OPTIONAL, -- Need R

btNameList-r16 SetupRelease {BT-NameList-r16} OPTIONAL, -- Need M

wlanNameList-r16 SetupRelease {WLAN-NameList-r16} OPTIONAL, -- Need M

sensorNameList-r16 SetupRelease {Sensor-NameList-r16} OPTIONAL, -- Need M

obtainCommonLocation-r16 ENUMERATED {true} OPTIONAL, -- Need R

sl-AssistanceConfigNR-r16 ENUMERATED{true} OPTIONAL -- Need R

}

OtherConfig-v1700 ::= SEQUENCE {

ul-GapFR2-PreferenceConfig-r17 ENUMERATED {true} OPTIONAL, -- Need R

musim-GapAssistanceConfig-r17 SetupRelease {MUSIM-GapAssistanceConfig-r17} OPTIONAL, -- Need M

musim-LeaveAssistanceConfig-r17 SetupRelease {MUSIM-LeaveAssistanceConfig-r17} OPTIONAL, -- Need M

successHO-Config-r17 SetupRelease {SuccessHO-Config-r17} OPTIONAL, -- Need M

maxBW-PreferenceConfigFR2-2-r17 ENUMERATED {true} OPTIONAL, -- Cond maxBW

maxMIMO-LayerPreferenceConfigFR2-2-r17 ENUMERATED {true} OPTIONAL, -- Cond maxMIMO

minSchedulingOffsetPreferenceConfigExt-r17 ENUMERATED {true} OPTIONAL, -- Cond minOffset

rlm-RelaxationReportingConfig-r17 SetupRelease {RLM-RelaxationReportingConfig-r17} OPTIONAL, -- Need M

bfd-RelaxationReportingConfig-r17 SetupRelease {BFD-RelaxationReportingConfig-r17} OPTIONAL, -- Need M

scg-DeactivationPreferenceConfig-r17 SetupRelease {SCG-DeactivationPreferenceConfig-r17} OPTIONAL, -- Cond SCG

rrm-MeasRelaxationReportingConfig-r17 SetupRelease {RRM-MeasRelaxationReportingConfig-r17} OPTIONAL, -- Need M

propDelayDiffReportConfig-r17 SetupRelease {PropDelayDiffReportConfig-r17} OPTIONAL -- Need M

}

OtherConfig-v1800 ::= SEQUENCE {

idc-AssistanceConfig-v1800 SetupRelease {IDC-AssistanceConfig-v1800} OPTIONAL, -- Need M

multiRx-PreferenceReportingConfigFR2-r18 SetupRelease {MultiRx-PreferenceReportingConfigFR2-r18} OPTIONAL, -- Need M

aerial-FlightPathAvailabilityConfig-r18 ENUMERATED {true} OPTIONAL, -- Need R

ul-TrafficInfoReportingConfig-r18 SetupRelease {UL-TrafficInfoReportingConfig-r18} OPTIONAL, -- Need M

n3c-RelayUE-InfoReportConfig-r18 ENUMERATED {true} OPTIONAL, -- Need R

successPSCell-Config-r18 SetupRelease {SuccessPSCell-Config-r18} OPTIONAL, -- Need M

sn-InitiatedPSCellChange-r18 ENUMERATED {true} OPTIONAL, -- Need R

musim-GapPriorityAssistanceConfig-r18 ENUMERATED {true} OPTIONAL, -- Cond musimGapConfig

musim-CapabilityRestrictionConfig-r18 SetupRelease {MUSIM-CapabilityRestrictionConfig-r18} OPTIONAL -- Need M

}

OtherConfig-v1830 ::= SEQUENCE {

sl-PRS-AssistanceConfigNR-r18 ENUMERATED{true} OPTIONAL -- Need R

}

OtherConfig-v19xy ::= SEQUENCE {

applicabilityReportConfig-r19 SetupRelease {ApplicabilityReportConfig-r19} OPTIONAL, -- Need M

dataCollectionPreferenceConfig-r19 SetupRelease {DataCollectionPreferenceConfig-r19} OPTIONAL, -- Need M

loggedDataCollectionAssistanceConfig-r19 SetupRelease {LoggedDataCollectionAssistanceConfig-r19} OPTIONAL -- Need M

}

IDC-AssistanceConfig-v1800 ::= SEQUENCE {

idc-FDM-AssistanceConfig-r18 SetupRelease {IDC-FDM-AssistanceConfig-r18} OPTIONAL, -- Need M

idc-TDM-AssistanceConfig-r18 ENUMERATED {setup} OPTIONAL -- Cond FDM

}

MultiRx-PreferenceReportingConfigFR2-r18 ::= SEQUENCE {

multiRx-PreferenceReportingConfigFR2ProhibitTimer-r18 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

CandidateServingFreqListNR-r16 ::= SEQUENCE (SIZE (1..maxFreqIDC-r16)) OF ARFCN-ValueNR

MUSIM-GapAssistanceConfig-r17 ::= SEQUENCE {

musim-GapProhibitTimer-r17 ENUMERATED {s0, s0dot1, s0dot2, s0dot3, s0dot4, s0dot5, s1, s2, s3, s4, s5, s6, s7, s8, s9, s10}

}

MUSIM-LeaveAssistanceConfig-r17 ::= SEQUENCE {

musim-LeaveWithoutResponseTimer-r17 ENUMERATED {ms10, ms20, ms40, ms60, ms80, ms100, spare2, spare1}

}

MUSIM-CapabilityRestrictionConfig-r18 ::= SEQUENCE {

musim-CandidateBandList-r18 MUSIM-CandidateBandList-r18 OPTIONAL, -- Need R

musim-WaitTimer-r18 ENUMERATED {ms10, ms20, ms40, ms60, ms80, ms100, spare2, spare1},

musim-ProhibitTimer-r18 ENUMERATED {s0, s0dot1, s0dot2, s0dot3, s0dot4, s0dot5, s1, s2, s3, s4, s5, s6, s7, s8,

s9, s10}

}

MUSIM-CandidateBandList-r18::= SEQUENCE (SIZE (1..maxCandidateBandIndex-r18)) OF FreqBandIndicatorNR

SuccessHO-Config-r17 ::= SEQUENCE {

thresholdPercentageT304-r17 ENUMERATED {p40, p60, p80, spare5, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

thresholdPercentageT310-r17 ENUMERATED {p40, p60, p80, spare5, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

thresholdPercentageT312-r17 ENUMERATED {p20, p40, p60, p80, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

sourceDAPS-FailureReporting-r17 ENUMERATED {true} OPTIONAL, --Need R

...

}

SuccessPSCell-Config-r18 ::= SEQUENCE {

thresholdPercentageT304-SCG-r18 ENUMERATED {p40, p60, p80, spare5, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

thresholdPercentageT310-SCG-r18 ENUMERATED {p40, p60, p80, spare5, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

thresholdPercentageT312-SCG-r18 ENUMERATED {p20, p40, p60, p80, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

...

}

OverheatingAssistanceConfig ::= SEQUENCE {

overheatingIndicationProhibitTimer ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

s60, s90, s120, s300, s600, spare3, spare2, spare1}

}

IDC-AssistanceConfig-r16 ::= SEQUENCE {

candidateServingFreqListNR-r16 CandidateServingFreqListNR-r16 OPTIONAL, -- Need R

...

}

DRX-PreferenceConfig-r16 ::= SEQUENCE {

drx-PreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

MaxBW-PreferenceConfig-r16 ::= SEQUENCE {

maxBW-PreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

MaxCC-PreferenceConfig-r16 ::= SEQUENCE {

maxCC-PreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

MaxMIMO-LayerPreferenceConfig-r16 ::= SEQUENCE {

maxMIMO-LayerPreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

MinSchedulingOffsetPreferenceConfig-r16 ::= SEQUENCE {

minSchedulingOffsetPreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

ReleasePreferenceConfig-r16 ::= SEQUENCE {

releasePreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, infinity, spare1},

connectedReporting ENUMERATED {true} OPTIONAL -- Need R

}

RLM-RelaxationReportingConfig-r17 ::= SEQUENCE {

rlm-RelaxtionReportingProhibitTimer ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

s60, s90, s120, s300, s600, infinity, spare2, spare1}

}

BFD-RelaxationReportingConfig-r17 ::= SEQUENCE {

bfd-RelaxtionReportingProhibitTimer ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

s60, s90, s120, s300, s600, infinity, spare2, spare1}

}

SCG-DeactivationPreferenceConfig-r17 ::= SEQUENCE {

scg-DeactivationPreferenceProhibitTimer-r17 ENUMERATED {

s0, s1, s2, s4, s8, s10, s15, s30,

s60, s120, s180, s240, s300, s600, s900, s1800}

}

RRM-MeasRelaxationReportingConfig-r17 ::= SEQUENCE {

s-SearchDeltaP-Stationary-r17 ENUMERATED {dB2, dB3, dB6, dB9, dB12, dB15, spare2, spare1},

t-SearchDeltaP-Stationary-r17 ENUMERATED {s5, s10, s20, s30, s60, s120, s180, s240, s300, spare7, spare6, spare5,

spare4, spare3, spare2, spare1}

}

PropDelayDiffReportConfig-r17 ::= SEQUENCE {

threshPropDelayDiff-r17 ENUMERATED {ms0dot5, ms1, ms2, ms3, ms4, ms5, ms6 ,ms7, ms8, ms9, ms10, spare5,

spare4, spare3, spare2, spare1} OPTIONAL, -- Need M

neighCellInfoList-r17 SEQUENCE (SIZE (1..maxCellNTN-r17)) OF NeighbourCellInfo-r17 OPTIONAL -- Need M

}

NeighbourCellInfo-r17 ::= SEQUENCE {

epochTime-r17 EpochTime-r17,

ephemerisInfo-r17 EphemerisInfo-r17

}

IDC-FDM-AssistanceConfig-r18 ::= SEQUENCE {

candidateServingFreqRangeListNR-r18 CandidateServingFreqRangeListNR-r18 OPTIONAL, -- Need R

...

}

CandidateServingFreqRangeListNR-r18 ::= SEQUENCE (SIZE (1..maxFreqIDC-r16)) OF CandidateServingFreqRangeNR-r18

CandidateServingFreqRangeNR-r18 ::= SEQUENCE {

candidateCenterFreq-r18 ARFCN-ValueNR,

candidateBandwidth-r18 ENUMERATED {khz200, khz400, khz600, khz800, mhz1, mhz2, mhz3, mhz4, mhz5,

mhz6, mhz8, mhz10, mhz20, mhz30, mhz40, mhz50, mhz60, mhz80, mhz100,

mhz200, mhz300, mhz400} OPTIONAL -- Need R

}

UL-TrafficInfoReportingConfig-r18 ::= SEQUENCE {

pdu-SessionsToReportUL-TrafficInfoList-r18 SEQUENCE (SIZE (1.. maxNrofPDU-Sessions-r17)) OF PDU-SessionToReportUL-TrafficInfo-r18,

ul-TrafficInfoProhibitTimer-r18 ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

s60, s90, s120, s300, s600, spare3, spare2, spare1}

}

PDU-SessionToReportUL-TrafficInfo-r18 ::= SEQUENCE {

pdu-SessionID-r18 PDU-SessionID,

qfi-ToReportUL-TrafficInfoList-r18 SEQUENCE (SIZE (1..maxNrofQFIs)) OF QFI

}

ApplicabilityReportConfig-r19 ::= SEQUENCE {

reportApplicabilityUAI-r19 ENUMERATED {true} OPTIONAL, -- Need R

applicabilityConfigList-r19 SEQUENCE (SIZE (1..maxNrofServingCells)) OF ApplicabilityConfig-r19 OPTIONAL, -- Need R

...

}

ApplicabilityConfig-r19 ::= SEQUENCE {

applicabilityConfigCellId-r19 ServCellIndex OPTIONAL, -- Need R

applicabilitySetConfigList-r19 SEQUENCE (SIZE (1..maxNrofApplicabilitySets-r19)) OF ApplicabilitySetConfig-r19 OPTIONAL, -- Need R

...

}

ApplicabilitySetConfig-r19 :: = SEQUENCE {

applicabilitySetConfigId-r19 ApplicabilitySetConfigId-r19 OPTIONAL, -- Need R

resourcesForChannelMeasurement CSI-ResourceConfigId OPTIONAL, -- Need R

resourcesForChannelPrediction-r19 CSI-ResourceConfigId OPTIONAL, -- Need R

associatedIdForChannelMeasurement-r19 AssociatedId-r19 OPTIONAL, -- Need R

associatedIdForChannelPrediction-r19 AssociatedId-r19 OPTIONAL, -- Need R

reportQuantity-r19 ReportQuantity-r19 OPTIONAL, -- Need R

reportConfigType CHOICE {

periodic SEQUENCE {

reportSlotConfig CSI-ReportPeriodicityAndOffset,

pucch-CSI-ResourceList SEQUENCE (SIZE (1..maxNrofBWPs)) OF PUCCH-CSI-Resource

},

semiPersistentOnPUCCH SEQUENCE {

reportSlotConfig CSI-ReportPeriodicityAndOffset,

pucch-CSI-ResourceList SEQUENCE (SIZE (1..maxNrofBWPs)) OF PUCCH-CSI-Resource

},

semiPersistentOnPUSCH SEQUENCE {

reportSlotConfig ENUMERATED {sl5, sl10, sl20, sl40, sl80, sl160, sl320},

reportSlotOffsetList SEQUENCE (SIZE (1.. maxNrofUL-Allocations)) OF INTEGER(0..32),

p0alpha P0-PUSCH-AlphaSetId

},

aperiodic SEQUENCE {

reportSlotOffsetList SEQUENCE (SIZE (1..maxNrofUL-Allocations)) OF INTEGER(0..32)

}

} OPTIONAL, -- Need R

nrofReportedPredictedRS-r19 ENUMERATED {n1, n2, n3, n4} OPTIONAL, -- Need R

nrofTimeInstance-r19 ENUMERATED {FFS} OPTIONAL, -- Need R

timeGap-r19 ENUMERATED {FFS} OPTIONAL, -- Need R

...

}

DataCollectionPreferenceConfig-r19 :: = SEQUENCE {

dataCollectionCandidateConfigList-r19 SEQUENCE (SIZE (1..maxNrofServingCells)) OF DataCollectionCandidateConfig-r19 OPTIONAL, -- Need R

...

}

DataCollectionCandidateConfig-r19 ::= SEQUENCE {

dataCollectionServCellIndex-r19 ServCellIndex,

dataCollectionCandidateConfigParameterList-r19 SEQUENCE (SIZE (1..maxCandidateConfig-r19)) OF DataCollectionCandidateConfigParameters-r19 OPTIONAL, -- Need R

...

}

DataCollectionCandidateConfigParameters-r19 ::= SEQUENCE {

dataCollectionCandidateConfigId-r19 DataCollectionCandidateConfigId-r19,

resourcesForChannelMeasurement CSI-ResourceConfigId OPTIONAL, -- Need R

resourcesForChannelPrediction-r19 CSI-ResourceConfigId OPTIONAL, -- Need R

associatedIdForChannelMeasurement-r19 AssociatedId-r19 OPTIONAL, -- Need R

associatedIdForChannelPrediction-r19 AssociatedId-r19 OPTIONAL, -- Need R

...

}

LoggedDataCollectionAssistanceConfig-r19 ::= SEQUENCE {

loggedDataCollectionBufferThreshold-r19 ENUMERATED {kB16, kB32, kB48, spare1} OPTIONAL, -- Need R

...

}

-- TAG-OTHERCONFIG-STOP

-- ASN1STOP

Editor’s Note: FFS if any higher values for *loggedDataCollectionBufferThreshold* are needed depending on UE capability discussion

| *OtherConfig* field descriptions |
| --- |
| ***aerial-FlightPathAvailabilityConfig***  Configuration for the UE to indicate the availability of flight path information for Aerial UE operation. |
| ***applicabilityConfigCellId***  Indicates the serving cell that the *applicabilitySetConfigList* refers to. |
| ***applicabilityReportConfig***  Configuration for the UE to indicate the applicability of configurations subject to the applicability determination procedure. |
| ***applicabilitySetConfigId***  Indicates the ID of a set of prediction related parameters. |
| ***applicabilitySetConfigList***  Indicates for each serving cell the list of sets of prediction related parameters configured for UE applicability reporting. |
| ***bfd-RelaxationReportingConfig***  Configuration for the UE to report the relaxation state of BFD measurements. |
| ***btNameList***  Configuration for the UE to report measurements from specific Bluetooth beacons. NG-RAN configures the field if *includeBT-Meas* is configured for one or more measurements. |
| ***candidateBandwidth***  Indicates the bandwidth of the candidate frequency range around the center frequency. |
| ***candidateCenterFreq***  Indicates the center frequency of the candidate frequency range. |
| ***candidateServingFreqListNR***  Indicates for each candidate NR serving cells, the center frequency around which UE is requested to report IDC issues. |
| ***candidateServingFreqRangeListNR***  Indicates the candidate frequency range with the combination of the center frequency and the candidate bandwidth, around which the UE is requested to report IDC issues. |
| ***connectedReporting***  Indicates that the UE can report a preference to remain in RRC\_CONNECTED state following a report to leave RRC\_CONNECTED state. If absent, the UE cannot report a preference to stay in RRC\_CONNECTED state. |
| ***dataCollectionCandidateConfigId***  Indicates the ID of a candidate configuration for UE data collection. |
| ***dataCollectionCandidateConfigList***  Indicates for each serving cell the list of candidate radio resources configured for UE data collection. The UE is not expected to perform measurements solely based on the configurations provided by this IE. |
| ***dataCollectionPreferenceConfig***  Configuration for the UE to report its preference to be configured with radio resources for UE data collection. |
| ***dataCollectionServCellIndex***  Index of the serving cell that the *dataCollectionCandidateConfigParameterList* refers to. |
| ***delayBudgetReportingProhibitTimer***  Prohibit timer for delay budget reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot4* means prohibit timer is set to 0.4 seconds, and so on. |
| ***drx-PreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's DRX preferences for power saving. |
| ***drx-PreferenceProhibitTimer***  Prohibit timer for DRX preferences assistance information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***idc-AssistanceConfig***  Configuration for the UE to report assistance information to inform the gNB about UE detected IDC problem. |
| ***loggedDataCollectionAssistanceConfig***  Configuration for the UE to report assistance information related to logging of radio measurements for network data collection. When configured with *loggedDataCollectionAssistanceConfig* the UE reports availability of logged radio measurements for network data collection when the buffer reserved for logging of radio measurements for network data collection has become full and it reports when it determines that it has entered a low power state. |
| ***loggedDataCollectionBufferThreshold***  Buffer threshold for the UE to report availability of logged radio measurements data for network data collection. If the amount of data in the buffer reserved for logging of radio measurements for network data collection has become equal to or above the threshold configured in *loggedDataCollectionBufferThreshold*, the UE reports availability of logged radio measurements for network data collection. Value *kB16* means the threshold is set to 16 kB and so on. |
| ***maxBW-PreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred bandwidth for power saving. |
| ***maxBW-PreferenceProhibitTimer***  Prohibit timer for preferred bandwidth assistance information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***maxCC-PreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred number of carriers for power saving. |
| ***maxBW-PreferenceConfigFR2-2***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred bandwidth for power saving for FR2-2. |
| ***maxCC-PreferenceProhibitTimer***  Prohibit timer for preferred number of carriers assistance information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***maxMIMO-LayerPreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred number of MIMO layers for power saving. |
| ***maxMIMO-LayerPreferenceConfigFR2-2***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred number of MIMO layers for power saving for FR2-2. |
| ***maxMIMO-LayerPreferenceProhibitTimer***  Prohibit timer for preferred number of number of MIMO layers assistance information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***minSchedulingOffsetPreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred *minimumSchedulingOffset* value for cross-slot scheduling for power saving. |
| ***minSchedulingOffsetPreferenceConfigExt***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred *minimumSchedulingOffset* value for cross-slot scheduling for power saving for SCS 480 kHz and/or 960 kHz. |
| ***minSchedulingOffsetPreferenceProhibitTimer***  Prohibit timer for preferred *minimumSchedulingOffset* assistance information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***multiRx-PreferenceReportingConfigFR2***  Configuration for the UE to report assistance information to inform gNB about the UE's preference on multi-Rx operation for FR2. |
| ***multiRx-PreferenceReportingConfigFR2ProhibitTimer***  Prohibit timer for multi-Rx operation preference reporting for FR2. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***musim-CandidateBandList***  A list of candidate bands that the network intends to use, e.g., for serving cells and for which the UE is requested to provide information on temporary restricted capabilities for MUSIM operation as specified in clause 5.7.4.3. |
| ***musim-GapAssistanceConfig***  Configuration for the UE to report assistance information for gap preference. |
| ***musim-GapPriorityAssistanceConfig***  Indicates the UE is allowed to provide MUSIM assistance information for gap(s) priority and/or MUSIM gaps keep preference. |
| ***musim-GapProhibitTimer***  Prohibit timer for MUSIM assistance information reporting for gap preference. |
| ***musim-LeaveAssistanceConfig***  Configuration for the UE to report assistance information for leaving RRC\_CONNECTED for MUSIM purpose. |
| ***musim-LeaveWithoutResponseTimer***  Indicates the timer for the UE to enter RRC\_IDLE for MUSIM purpose as defined in clause 5.3.8.6. |
| ***musim-ProhibitTimer***  Indicates the prohibit timer for UE temporary restricted capabilities for MUSIM operation. Value in milliseconds. Value *ms0* means prohibit timer is set to 0 milliseconds, value *ms10* means prohibit timer is set to 10 milliseconds and so on. |
| ***musim-WaitTimer***  Indicates the wait timer for UE temporary restricted capabilities for MUSIM operation. Value in milliseconds. Value *ms10* means wait timer is set to 10 milliseconds, value *ms20* means wait timer is set to 20 milliseconds and so on. |
| ***obtainCommonLocation***  Requests the UE to attempt to have detailed location information available using GNSS. NR configures the field if *includeCommonLocationInfo* is configured for one or more measurements. |
| ***overheatingAssistanceConfig***  Configuration for the UE to report assistance information to inform the gNB about UE detected internal overheating. |
| ***overheatingIndicationProhibitTimer***  Prohibit timer for overheating assistance information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***pdu-SessionsToReportUL-TrafficInfoList***  A list of PDU sessions for which the UE shall report UL traffic information. |
| ***propDelayDiffReportConfig***  Configuration for the UE to report service link propagation delay difference between serving cell and neighbour cell(s). |
| ***qfi-ToReportUL-TrafficInfoList***  A list of QFIs of a PDU session for which the UE shall report UL traffic information. |
| ***referenceTimePreferenceReporting***  If present, the field indicates the UE is configured to provide reference time assistance information. |
| ***releasePreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preference to leave RRC\_CONNECTED state. |
| ***rlm-RelaxationReportingConfig***  Configuration for the UE to report the relaxation state of RLM measurements. |
| ***releasePreferenceProhibitTimer***  Prohibit timer for release preference assistance information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. Value *infinity* means that once a UE has reported a release preference, the UE cannot report a release preference again during the RRC connection. |
| ***reportApplicabilityUAI***  If present, the field indicates the UE shall report applicability in *UEAssistanceInformation* message. |
| ***s-SearchDeltaP-Stationary***  Parameter "SSearchDeltaP-StationaryConnected" in 5.7.4.4. Value dB2 corresponds to 2 dB, dB3 corresponds to 3 dB and so on. |
| ***scg-DeactivationPreferenceConfig***  Configuration of the UE to indicate its preference for SCG deactivation. |
| ***scg -StatePreferenceProhibitTimer***  Prohibit timer for UE indication of its preference for SCG deactivation. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***sensorNameList***  Configuration for the UE to report measurements from specific sensors. NG-RAN configures the field if *includeSensor-Meas* is configured for one or more measurements. |
| ***sl-AssistanceConfigNR***  Indicate whether UE is configured to provide configured grant assistance information for NR sidelink communication. |
| ***sl-PRS-AssistanceConfigNR***  Indicate whether UE is configured to provide configured grant assistance information for NR sidelink positioning. |
| ***sn-InitiatedPSCellChange***  This field indicates whether the PSCell change procedure or the CPC included in the *RRCReconfiguration* message is SN initiated or not. In case of SN initiated inter-SN PSCell change procedure or SN configured inter-SN CPC, MN includes this field in the MCG RRC Reconfiguration message. In case of intra-SN PSCell change, or intra-SN CPC, source SN includes the field in the SCG RRC Reconfiguration. |
| ***sourceDAPS-FailureReporting***  This field indicates whether the UE shall generate the SHR upon successfully completing the DAPS handover to the target cell and if a radio link failure was experienced in the source PCell while executing the DAPS handover. This field is set in the *otherConfig* configured by the source cell of the DAPS handover. |
| ***successHO-Config***  Configuration for the UE to report the successful handover information to the network. |
| ***successPSCell-Config***  Configuration for the UE to report the successful PSCell change or addition information to the network. When this field is configured in CG-Config, the *thresholdPercentageT304-SCG* is absent. |
| ***t-SearchDeltaP-Stationary***  Parameter "TSearchDeltaP-StationaryConnected" in 5.7.4.4. Value in seconds. Value s5 means 5 seconds, value s10 means 10 seconds and so on. |
| ***thresholdPercentageT304***  This field indicates the threshold for the ratio in percentage between the elapsed T304 timer and the configured value of the T304 timer. Value *p40* corresponds to 40%, value *p60* corresponds to 60% and so on. This field is set in the *otherConfig* configured by the target cell of the handover. |
| ***thresholdPercentageT310***  This field indicates the threshold for the ratio in percentage between the elapsed T310 timer and the configured value of the T310 timer. Value *p40* corresponds to 40%, value *p60* corresponds to 60% and so on. This field is set in the *otherConfig* configured by the source cell of the handover. |
| ***thresholdPercentageT312***  This field indicates the threshold for the ratio in percentage between the elapsed T312 timer and the configured value(s) of the T312 timer. Value *p20* corresponds to 20%, value *p40* corresponds to 40% and so on. This field is set in the *otherConfig* configured by the source cell of the handover. |
| ***thresholdPercentageT304-SCG***  This field indicates the threshold for the ratio in percentage between the elapsed T304 timer associated to the target PSCell and the configured value of the T304 timer. Value *p40* corresponds to 40%, value *p60* corresponds to 60% and so on. This field is set in the *otherConfig* configured by the target PSCell of the PSCell change or addition. |
| ***thresholdPercentageT310-SCG***  This field indicates the threshold for the ratio in percentage between the elapsed T310 timer associated to the source PSCell and the configured value of the T310 timer. Value *p40* corresponds to 40%, value *p60* corresponds to 60% and so on. This field is set in the *otherConfig* configured by the source PSCell of the PSCell change or CPC, or in the *otherConfig* configured by the PCell for the PSCell change or CPC. This field is not configured at the time of PSCell change via SRB3. |
| ***thresholdPercentageT312-SCG***  This field indicates the threshold for the ratio in percentage between the elapsed T312 timer associated to the measurement identity of the target PSCell and the configured value of the T312 timer. Value *p20* corresponds to 20%, value *p40* corresponds to 40% and so on. This field is set in the *otherConfig* configured by the source PSCell of the PSCell change or CPC, or in the *otherConfig* configured by the PCell for the PSCell change or CPC. This field is not configured at the time of PSCell change via SRB3. |
| ***threshPropDelayDiff***  Threshold for one-way service link propagation delay difference report as specified in 5.7.4.2. |
| ***ul-GapFR2-PreferenceConfig***  Indicates whether UE is configured to request for FR2 UL gap activation/deactivation and preferred FR2 UL gap pattern. |
| ***wlanNameList***  Configuration for the UE to report measurements from specific WLAN APs. NG-RAN configures the field if *includeWLAN-Meas* is configured for one or more measurements. |
| ***ul-TrafficInfoProhibitTimer***  Prohibit timer for UL traffic information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***ul-TrafficInfoReportingConfig***  Configuration for the UE to report UL traffic information. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *FDM* | This field is optionally present, need R, if *idc-AssistanceConfig-r16* or *idc-FDM-AssistanceConfig* is setup. Otherwise, it is absent, need R. |
| *maxBW* | This field is optionally present, need R, if *maxBW-PreferenceConfig-r16* is setup; otherwise it is absent, need R. |
| *maxMIMO* | This field is optionally present, need R, if *maxMIMO-LayerPreferenceConfig-r16* is setup; otherwise it is absent, need R. |
| *minOffset* | This field is optionally present, need R, if *minSchedulingOffsetPreferenceConfig-r16* is setup; otherwise it is absent, need R. |
| *musimGapConfig* | This field is optionally present, need R, if *musim-GapAssistanceConfig-r17* is setup; otherwise it is absent, need R. |
| *SCG* | This field is optionally present, need M, in an *RRCReconfiguration* message not within *mrdc-SecondaryCellGroup* and received, either via SRB3 within *DLInformationTransferMRDC* or via SRB1. Otherwise, it is absent. |

NEXT CHANGE

## 6.4 RRC multiplicity and type constraint values

### – Multiplicity and type constraint definitions

-- ASN1START

-- TAG-MULTIPLICITY-AND-TYPE-CONSTRAINT-DEFINITIONS-START

maxAdditionalRACH-r17 INTEGER ::= 256 -- Maximum number of additional RACH configurations.

maxAI-DCI-PayloadSize-r16 INTEGER ::= 128 --Maximum size of the DCI payload scrambled with ai-RNTI

maxAI-DCI-PayloadSize-1-r16 INTEGER ::= 127 --Maximum size of the DCI payload scrambled with ai-RNTI minus 1

maxBandComb INTEGER ::= 65536 -- Maximum number of DL band combinations

maxBandComb-MUSIM-r18 INTEGER ::= 64 -- Maximum number of MUSIM bands and/or band combinations

maxBandsUTRA-FDD-r16 INTEGER ::= 64 -- Maximum number of bands listed in UTRA-FDD UE caps

maxCandidateBandIndex-r18 INTEGER ::= 8 -- Maximum number of band entry index for MUSIM capability

maxBH-RLC-ChannelID-r16 INTEGER ::= 65536 -- Maximum value of BH RLC Channel ID

maxBT-IdReport-r16 INTEGER ::= 32 -- Maximum number of Bluetooth IDs to report

maxBT-Name-r16 INTEGER ::= 4 -- Maximum number of Bluetooth name

maxCAG-Cell-r16 INTEGER ::= 16 -- Maximum number of NR CAG cell ranges in SIB3, SIB4

maxTwoPUCCH-Grp-ConfigList-r16 INTEGER ::= 32 -- Maximum number of supported configuration(s) of {primary PUCCH group

-- config, secondary PUCCH group config}

maxTwoPUCCH-Grp-ConfigList-r17 INTEGER ::= 16 -- Maximum number of supported configuration(s) of {primary PUCCH group

-- config, secondary PUCCH group config} for PUCCH cell switching

maxCBR-Config-r16 INTEGER ::= 8 -- Maximum number of CBR range configurations for sidelink communication

-- congestion control

maxCBR-Config-1-r16 INTEGER ::= 7 -- Maximum number of CBR range configurations for sidelink communication

-- congestion control minus 1

maxCBR-Level-r16 INTEGER ::= 16 -- Maximum number of CBR levels

maxCBR-Level-1-r16 INTEGER ::= 15 -- Maximum number of CBR levels minus 1

maxCellATG-r18 INTEGER ::= 8 -- Maximum number of ATG neighbour cells for which assistance information is

-- provided

maxCellExcluded INTEGER ::= 16 -- Maximum number of NR exclude-listed cell ranges in SIB3, SIB4

maxCellGroupings-r16 INTEGER ::= 32 -- Maximum number of cell groupings for NR-DC

maxCellHistory-r16 INTEGER ::= 16 -- Maximum number of visited PCells reported

maxPSCellHistory-r17 INTEGER ::= 16 -- Maximum number of visited PSCells across all reported PCells

maxCellInter INTEGER ::= 16 -- Maximum number of inter-Freq cells listed in SIB4

maxCellIntra INTEGER ::= 16 -- Maximum number of intra-Freq cells listed in SIB3

maxCellMeasEUTRA INTEGER ::= 32 -- Maximum number of cells in E-UTRAN

maxCellMeasIdle-r16 INTEGER ::= 8 -- Maximum number of cells per carrier for idle/inactive measurements

maxCellMeasUTRA-FDD-r16 INTEGER ::= 32 -- Maximum number of cells in FDD UTRAN

maxCellNTN-r17 INTEGER ::= 4 -- Maximum number of NTN neighbour cells for which assistance information is

-- provided

maxCarrierTypePairList-r16 INTEGER ::= 16 -- Maximum number of supported carrier type pair of (carrier type on which

-- CSI measurement is performed, carrier type on which CSI reporting is

-- performed) for CSI reporting cross PUCCH group

maxCellAllowed INTEGER ::= 16 -- Maximum number of NR allow-listed cell ranges in SIB3, SIB4

maxEARFCN INTEGER ::= 262143 -- Maximum value of E-UTRA carrier frequency

maxEUTRA-CellExcluded INTEGER ::= 16 -- Maximum number of E-UTRA exclude-listed physical cell identity ranges

-- in SIB5

maxEUTRA-NS-Pmax INTEGER ::= 8 -- Maximum number of NS and P-Max values per band

maxFeatureCombPreamblesPerRACHResource-r17 INTEGER ::= 256 -- Maximum number of feature combination preambles.

maxLogMeasReport-r16 INTEGER ::= 520 -- Maximum number of entries for logged measurements

maxMultiBands INTEGER ::= 8 -- Maximum number of additional frequency bands that a cell belongs to

maxNARFCN INTEGER ::= 3279165 -- Maximum value of NR carrier frequency

maxNR-NS-Pmax INTEGER ::= 8 -- Maximum number of NS and P-Max values per band

maxFreqIdle-r16 INTEGER ::= 8 -- Maximum number of carrier frequencies for idle/inactive measurements

maxNrofServingCells INTEGER ::= 32 -- Max number of serving cells (SpCells + SCells)

maxNrofServingCells-1 INTEGER ::= 31 -- Max number of serving cells (SpCells + SCells) minus 1

maxNrofAggregatedCellsPerCellGroup INTEGER ::= 16

maxNrofAggregatedCellsPerCellGroupMinus4-r16 INTEGER ::= 12

maxNrofAperiodicFwdTimeResource-r18 INTEGER ::= 112 -- Max number of aperiodic fowarding time resources for NCR

maxNrofAperiodicFwdTimeResource-1-r18 INTEGER ::= 111 -- Max number of aperiodic fowarding time resources for NCR minus 1

maxNrofDUCells-r16 INTEGER ::= 512 -- Max number of cells configured on the collocated IAB-DU

maxNrofAppLayerMeas-r17 INTEGER ::= 16 -- Max number of simultaneous application layer measurements

maxNrofAppLayerMeas-1-r17 INTEGER ::= 15 -- Max number of simultaneous application layer measurements minus 1

maxNrofAppLayerReports-r18 INTEGER ::= 16 -- Max number of application layer measurement reports with the same

-- measConfigAppLayerId included in the same

-- MeasurementReportAppLayerMessage

maxNrofAvailabilityCombinationsPerSet-r16 INTEGER ::= 512 -- Max number of AvailabilityCombinationId used in the DCI format 2\_5

maxNrofAvailabilityCombinationsPerSet-1-r16 INTEGER ::= 511 -- Max number of AvailabilityCombinationId used in the DCI format 2\_5 minus 1

maxNrofIABResourceConfig-r17 INTEGER ::= 65536 -- Max number of IAB-ResourceConfigID used in MAC CE

maxNrofIABResourceConfig-1-r17 INTEGER ::= 65535 -- Max number of IAB-ResourceConfigID used in MAC CE minus 1

maxNrofPeriodicFwdResourceSet-r18 INTEGER ::= 32 -- Max number of periodic fowarding resource sets for NCR

maxNrofPeriodicFwdResourceSet-1-r18 INTEGER ::= 31 -- Max number of periodic fowarding resource sets for NCR minus 1

maxNrofPeriodicFwdResource-r18 INTEGER ::= 1024 -- Max number of periodic fowarding resources for NCR

maxNrofPeriodicFwdResource-1-r18 INTEGER ::= 1023 -- Max number of periodic fowarding resources for NCR minus 1

maxNrofSemiPersistentFwdResourceSet-r18 INTEGER ::= 32 -- Max number of semi-persistent fowarding resource sets for NCR

maxNrofSemiPersistentFwdResourceSet-1-r18 INTEGER ::= 31 -- Max number of semi-persistent fowarding resource sets for NCR minus 1

maxNrofSemiPersistentFwdResource-r18 INTEGER ::= 128 -- Max number of semi-persistent fowarding resources for NCR

maxNrofSemiPersistentFwdResource-1-r18 INTEGER ::= 127 -- Max number of semi-persistent fowarding resources for NCR minus 1

maxNrofSCellActRS-r17 INTEGER ::= 255 -- Max number of RS configurations per SCell for SCell activation

maxNrofSCells INTEGER ::= 31 -- Max number of secondary serving cells per cell group

maxNrofCellMeas INTEGER ::= 32 -- Maximum number of entries in each of the cell lists in a measurement object

maxNrofCRS-IM-InterfCell-r17 INTEGER ::= 8 -- Maximum number of LTE interference cells for CRS-IM per UE

maxNrofRelayMeas-r17 INTEGER ::= 32 -- Maximum number of L2 U2N Relay UEs to measure for each measurement object

-- on sidelink frequency

maxNrofCG-SL-r16 INTEGER ::= 8 -- Max number of sidelink configured grant

maxNrofCG-SL-1-r16 INTEGER ::= 7 -- Max number of sidelink configured grant minus 1

maxSL-GC-BC-DRX-QoS-r17 INTEGER ::= 16 -- Max number of sidelink DRX configurations for NR

-- sidelink groupcast/broadcast communication

maxNrofSL-RxInfoSet-r17 INTEGER ::= 4 -- Max number of sidelink DRX configuration sets in sidelink DRX assistant

-- information

maxNrofSS-BlocksToAverage INTEGER ::= 16 -- Max number for the (max) number of SS blocks to average to determine cell measurement

maxNrofCondCells-r16 INTEGER ::= 8 -- Max number of conditional candidate SpCells

maxNrofCondCells-1-r17 INTEGER ::= 7 -- Max number of conditional candidate SpCells minus 1

maxNrofCSI-RS-ResourcesToAverage INTEGER ::= 16 -- Max number for the (max) number of CSI-RS to average to determine cell measurement

maxNrofDL-Allocations INTEGER ::= 16 -- Maximum number of PDSCH time domain resource allocations

maxNrofDL-AllocationsExt-r17 INTEGER ::= 64 -- Maximum number of PDSCH time domain resource allocations for multi-PDSCH

-- scheduling

maxNrofDL-Allocations-1-r18 INTEGER ::= 15 -- Maximum number of PDSCH time domain resource allocations minus 1

maxNrofPDU-Sessions-r17 INTEGER ::= 256 -- Maximum number of PDU Sessions

maxNrofSR-ConfigPerCellGroup INTEGER ::= 8 -- Maximum number of SR configurations per cell group

maxNrofLCGs-r18 INTEGER ::= 8 -- Maximum number of LCGs

maxLCG-ID INTEGER ::= 7 -- Maximum value of LCG ID

maxLCG-ID-IAB-r17 INTEGER ::= 255 -- Maximum value of LCG ID for IAB-MT

maxLC-ID INTEGER ::= 32 -- Maximum value of Logical Channel ID

maxLC-ID-Iab-r16 INTEGER ::= 65855 -- Maximum value of BH Logical Channel ID extension

maxLTE-CRS-Patterns-r16 INTEGER ::= 3 -- Maximum number of additional LTE CRS rate matching patterns

maxNrOfLinkedSRS-CarriersInactive-1-r18 INTEGER ::= 2 -- Maximum number of carriers for positioning SRS CA in RRC\_INACTIVE minus 1

maxNrofTAGs INTEGER ::= 4 -- Maximum number of Timing Advance Groups

maxNrofTAGs-1 INTEGER ::= 3 -- Maximum number of Timing Advance Groups minus 1

maxNrofBWPs INTEGER ::= 4 -- Maximum number of BWPs per serving cell

maxNrofCombIDC INTEGER ::= 128 -- Maximum number of reported MR-DC combinations for IDC

maxNrofSymbols-1 INTEGER ::= 13 -- Maximum index identifying a symbol within a slot (14 symbols, indexed from 0..13)

maxNrofSlots INTEGER ::= 320 -- Maximum number of slots in a 10 ms period

maxNrofSlots-1 INTEGER ::= 319 -- Maximum number of slots in a 10 ms period minus 1

maxNrofPhysicalResourceBlocks INTEGER ::= 275 -- Maximum number of PRBs

maxNrofPhysicalResourceBlocks-1 INTEGER ::= 274 -- Maximum number of PRBs minus 1

maxNrofPhysicalResourceBlocksPlus1 INTEGER ::= 276 -- Maximum number of PRBs plus 1

maxNrofControlResourceSets INTEGER ::= 12 -- Max number of CoReSets configurable on a serving cell

maxNrofControlResourceSets-1 INTEGER ::= 11 -- Max number of CoReSets configurable on a serving cell minus 1

maxNrofControlResourceSets-1-r16 INTEGER ::= 15 -- Max number of CoReSets configurable on a serving cell extended in minus 1

maxNrofCoresetPools-r16 INTEGER ::= 2 -- Maximum number of CORESET pools

maxCoReSetDuration INTEGER ::= 3 -- Max number of OFDM symbols in a control resource set

maxNrofSearchSpaces-1 INTEGER ::= 39 -- Max number of Search Spaces minus 1

maxNrofSearchSpacesLinks-1-r17 INTEGER ::= 39 -- Max number of Search Space links minus 1

maxNrofBFDResourcePerSet-r17 INTEGER ::= 64 -- Max number of reference signal in one BFD set

maxSFI-DCI-PayloadSize INTEGER ::= 128 -- Max number payload of a DCI scrambled with SFI-RNTI

maxSFI-DCI-PayloadSize-1 INTEGER ::= 127 -- Max number payload of a DCI scrambled with SFI-RNTI minus 1

maxIAB-IP-Address-r16 INTEGER ::= 32 -- Max number of assigned IP addresses

maxINT-DCI-PayloadSize INTEGER ::= 126 -- Max number payload of a DCI scrambled with INT-RNTI

maxINT-DCI-PayloadSize-1 INTEGER ::= 125 -- Max number payload of a DCI scrambled with INT-RNTI minus 1

maxNrofRateMatchPatterns INTEGER ::= 4 -- Max number of rate matching patterns that may be configured

maxNrofRateMatchPatterns-1 INTEGER ::= 3 -- Max number of rate matching patterns that may be configured minus 1

maxNrofRateMatchPatternsPerGroup INTEGER ::= 8 -- Max number of rate matching patterns that may be configured in one group

maxNrofCSI-ReportConfigurations INTEGER ::= 48 -- Maximum number of report configurations

maxNrofCSI-ReportConfigurations-1 INTEGER ::= 47 -- Maximum number of report configurations minus 1

maxNrofCSI-ResourceConfigurations INTEGER ::= 112 -- Maximum number of resource configurations

maxNrofCSI-ResourceConfigurations-1 INTEGER ::= 111 -- Maximum number of resource configurations minus 1

maxNrofAP-CSI-RS-ResourcesPerSet INTEGER ::= 16

maxNrOfCSI-AperiodicTriggers INTEGER ::= 128 -- Maximum number of triggers for aperiodic CSI reporting

maxNrofReportConfigPerAperiodicTrigger INTEGER ::= 16 -- Maximum number of report configurations per trigger state for aperiodic reporting

maxNrofNZP-CSI-RS-Resources INTEGER ::= 192 -- Maximum number of Non-Zero-Power (NZP) CSI-RS resources

maxNrofNZP-CSI-RS-Resources-1 INTEGER ::= 191 -- Maximum number of Non-Zero-Power (NZP) CSI-RS resources minus 1

maxNrofNZP-CSI-RS-ResourcesPerSet INTEGER ::= 64 -- Maximum number of NZP CSI-RS resources per resource set

maxNrofNZP-CSI-RS-ResourcesPerSet-1-r18 INTEGER ::= 63 -- Maximum number of NZP CSI-RS resources per resource set minus 1

maxNrofNZP-CSI-RS-ResourceSets INTEGER ::= 64 -- Maximum number of NZP CSI-RS resource sets per cell

maxNrofNZP-CSI-RS-ResourceSets-1 INTEGER ::= 63 -- Maximum number of NZP CSI-RS resource sets per cell minus 1

maxNrofNZP-CSI-RS-ResourceSetsPerConfig INTEGER ::= 16 -- Maximum number of resource sets per resource configuration

maxNrofNZP-CSI-RS-ResourcesPerConfig INTEGER ::= 128 -- Maximum number of resources per resource configuration

maxNrofZP-CSI-RS-Resources INTEGER ::= 32 -- Maximum number of Zero-Power (ZP) CSI-RS resources

maxNrofZP-CSI-RS-Resources-1 INTEGER ::= 31 -- Maximum number of Zero-Power (ZP) CSI-RS resources minus 1

maxNrofZP-CSI-RS-ResourceSets-1 INTEGER ::= 15

maxNrofZP-CSI-RS-ResourcesPerSet INTEGER ::= 16

maxNrofZP-CSI-RS-ResourceSets INTEGER ::= 16

maxNrofCSI-IM-Resources INTEGER ::= 32 -- Maximum number of CSI-IM resources

maxNrofCSI-IM-Resources-1 INTEGER ::= 31 -- Maximum number of CSI-IM resources minus 1

maxNrofCSI-IM-ResourcesPerSet INTEGER ::= 8 -- Maximum number of CSI-IM resources per set

maxNrofCSI-IM-ResourceSets INTEGER ::= 64 -- Maximum number of NZP CSI-IM resource sets per cell

maxNrofCSI-IM-ResourceSets-1 INTEGER ::= 63 -- Maximum number of NZP CSI-IM resource sets per cell minus 1

maxNrofCSI-IM-ResourceSetsPerConfig INTEGER ::= 16 -- Maximum number of CSI IM resource sets per resource configuration

maxNrofCSI-SSB-ResourcePerSet INTEGER ::= 64 -- Maximum number of SSB resources in a resource set

maxNrofCSI-SSB-ResourceSets INTEGER ::= 64 -- Maximum number of CSI SSB resource sets per cell

maxNrofCSI-SSB-ResourceSets-1 INTEGER ::= 63 -- Maximum number of CSI SSB resource sets per cell minus 1

maxNrofCSI-SSB-ResourceSetsPerConfig INTEGER ::= 1 -- Maximum number of CSI SSB resource sets per resource configuration

maxNrofCSI-SSB-ResourceSetsPerConfigExt INTEGER ::= 2 -- Maximum number of CSI SSB resource sets per resource configuration

-- extended

maxNrofFailureDetectionResources INTEGER ::= 10 -- Maximum number of failure detection resources

maxNrofFailureDetectionResources-1 INTEGER ::= 9 -- Maximum number of failure detection resources minus 1

maxNrofFailureDetectionResources-1-r17 INTEGER ::= 63 -- Maximum number of the enhanced failure detection resources minus 1

maxNrofFreqSL-r16 INTEGER ::= 8 -- Maximum number of carrier frequency for NR sidelink communication

maxNrofFreqSL-1-r18 INTEGER ::= 7 -- Maximum number of carrier frequency for NR sidelink communication minus 1

maxNrofSL-BWPs-r16 INTEGER ::= 4 -- Maximum number of BWP for NR sidelink communication

maxNrofSL-CarrierSetConfig-r18 INTEGER ::= 96 -- Maximum number of SCCH carrier set configuration for NR sidelink

-- communication

maxFreqSL-EUTRA-r16 INTEGER ::= 8 -- Maximum number of EUTRA anchor carrier frequency for NR sidelink

-- communication

maxNrofSL-MeasId-r16 INTEGER ::= 64 -- Maximum number of sidelink measurement identity (RSRP) per destination

maxNrofSL-ObjectId-r16 INTEGER ::= 64 -- Maximum number of sidelink measurement objects (RSRP) per destination

maxNrofSL-ReportConfigId-r16 INTEGER ::= 64 -- Maximum number of sidelink measurement reporting configuration(RSRP) per destination

maxNrofSL-PoolToMeasureNR-r16 INTEGER ::= 8 -- Maximum number of resource pool for NR sidelink measurement to measure

-- for each measurement object (for CBR)

maxNrofDedicatedSL-PRS-PoolToMeas-r18 INTEGER ::= 8 -- Maximum number of SL-PRS dedicated resource pool for positioning

-- measurement to measure for each measurement object (for SL-PRS CBR)

maxFreqSL-NR-r16 INTEGER ::= 8 -- Maximum number of NR anchor carrier frequency for NR sidelink communication

maxNrofSL-QFIs-r16 INTEGER ::= 2048 -- Maximum number of QoS flow for NR sidelink communication per UE

maxNrofSL-QFIsPerDest-r16 INTEGER ::= 64 -- Maximum number of QoS flow per destination for NR sidelink communication

maxNrofObjectId INTEGER ::= 64 -- Maximum number of measurement objects

maxNrofPageRec INTEGER ::= 32 -- Maximum number of page records

maxNrofPCI-Ranges INTEGER ::= 8 -- Maximum number of PCI ranges

maxPLMN INTEGER ::= 12 -- Maximum number of PLMNs broadcast and reported by UE at establishment

maxTAC-r17 INTEGER ::= 12 -- Maximum number of Tracking Area Codes to which a cell belongs to

maxNrofCSI-RS-ResourcesRRM INTEGER ::= 96 -- Maximum number of CSI-RS resources per cell for an RRM measurement object

maxNrofCSI-RS-ResourcesRRM-1 INTEGER ::= 95 -- Maximum number of CSI-RS resources per cell for an RRM measurement object

-- minus 1.

maxNrofMeasId INTEGER ::= 64 -- Maximum number of configured measurements

maxNrofQuantityConfig INTEGER ::= 2 -- Maximum number of quantity configurations

maxNrofCSI-RS-CellsRRM INTEGER ::= 96 -- Maximum number of cells with CSI-RS resources for an RRM measurement object

maxNrofSL-Dest-r16 INTEGER ::= 32 -- Maximum number of destination for NR sidelink communication and discovery

maxNrofSL-Dest-1-r16 INTEGER ::= 31 -- Highest index of destination for NR sidelink communication and discovery

maxNrofSL-PRS-PerDest-r18 INTEGER ::= 8 -- Max number of SL-PRS transmission supported per destination UE

maxNrofSLRB-r16 INTEGER ::= 512 -- Maximum number of radio bearer for NR sidelink communication per UE without duplication

maxSL-LCID-Plus1-r18 INTEGER ::= 513 -- Maximum number of RLC bearer for NR sidelink communication per UE without duplication plus 1

maxSL-LCID-r18 INTEGER ::= 1024 -- Maximum number of RLC bearer for NR sidelink communication per UE with duplication

maxSL-NonAnchorRBsets INTEGER ::= 4 -- Maximum number of non-anchor RB sets

maxSL-LCID-r16 INTEGER ::= 512 -- Maximum number of RLC bearer for NR sidelink communication per UE

maxSL-SyncConfig-r16 INTEGER ::= 16 -- Maximum number of sidelink Sync configurations

maxNrofRXPool-r16 INTEGER ::= 16 -- Maximum number of Rx resource pool for NR sidelink communication and

-- discovery

maxNrofTXPool-r16 INTEGER ::= 8 -- Maximum number of Tx resource pool for NR sidelink communication and

-- discovery

maxNrofPoolID-r16 INTEGER ::= 16 -- Maximum index of resource pool for NR sidelink communication and

-- discovery

maxNrofSRS-PathlossReferenceRS-r16 INTEGER ::= 64 -- Maximum number of RSs used as pathloss reference for SRS power control.

maxNrofSRS-PathlossReferenceRS-1-r16 INTEGER ::= 63 -- Maximum number of RSs used as pathloss reference for SRS power control

-- minus 1.

maxNrofSRS-ResourceSets INTEGER ::= 16 -- Maximum number of SRS resource sets in a BWP.

maxNrofSRS-ResourceSets-1 INTEGER ::= 15 -- Maximum number of SRS resource sets in a BWP minus 1.

maxNrofSRS-PosResourceSets-r16 INTEGER ::= 16 -- Maximum number of SRS Positioning resource sets in a BWP.

maxNrofSRS-PosResourceSets-1-r16 INTEGER ::= 15 -- Maximum number of SRS Positioning resource sets in a BWP minus 1.

maxNrofSRS-Resources INTEGER ::= 64 -- Maximum number of SRS resources.

maxNrofSRS-Resources-1 INTEGER ::= 63 -- Maximum number of SRS resources minus 1.

maxNrofSRS-PosResources-r16 INTEGER ::= 64 -- Maximum number of SRS Positioning resources.

maxNrofSRS-PosResources-1-r16 INTEGER ::= 63 -- Maximum number of SRS Positioning resources minus 1.

maxNrofSRS-ResourcesPerSet INTEGER ::= 16 -- Maximum number of SRS resources in an SRS resource set

maxNrofSRS-TriggerStates-1 INTEGER ::= 3 -- Maximum number of SRS trigger states minus 1, i.e., the largest code point.

maxNrofSRS-TriggerStates-2 INTEGER ::= 2 -- Maximum number of SRS trigger states minus 2.

maxRAT-CapabilityContainers INTEGER ::= 8 -- Maximum number of interworking RAT containers (incl NR and MRDC)

maxSimultaneousBands INTEGER ::= 32 -- Maximum number of simultaneously aggregated bands

maxSimultaneousBands-2-r18 INTEGER ::= 30 -- Maximum number of simultaneously aggregated bands minus 2.

maxULTxSwitchingBandPairs INTEGER ::= 32 -- Maximum number of band pairs supporting dynamic UL Tx switching in a band

-- combination.

maxULTxSwitchingBetweenBandPairs-r18 INTEGER ::= 32 -- Maximum number of combinations of a band pair and another band pair/band

-- between which dynamic UL Tx switching requires additional switching

-- period.

maxSchedulingBandCombination-r18 INTEGER ::= 32 -- Maximum number of combinations of scheduling cell and co-scheduled cells

-- have same or different carrier type.

maxNrofSlotFormatCombinationsPerSet INTEGER ::= 512 -- Maximum number of Slot Format Combinations in a SF-Set.

maxNrofSlotFormatCombinationsPerSet-1 INTEGER ::= 511 -- Maximum number of Slot Format Combinations in a SF-Set minus 1.

maxNrofTrafficPattern-r16 INTEGER ::= 8 -- Maximum number of Traffic Pattern for NR sidelink communication.

maxNrofPUCCH-Resources INTEGER ::= 128

maxNrofPUCCH-Resources-1 INTEGER ::= 127

maxNrofPUCCH-ResourceSets INTEGER ::= 4 -- Maximum number of PUCCH Resource Sets

maxNrofPUCCH-ResourceSets-1 INTEGER ::= 3 -- Maximum number of PUCCH Resource Sets minus 1.

maxNrofPUCCH-ResourcesPerSet INTEGER ::= 32 -- Maximum number of PUCCH Resources per PUCCH-ResourceSet

maxNrofPUCCH-P0-PerSet INTEGER ::= 8 -- Maximum number of P0-pucch present in a p0-pucch set

maxNrofPUCCH-PathlossReferenceRSs INTEGER ::= 4 -- Maximum number of RSs used as pathloss reference for PUCCH power control.

maxNrofPUCCH-PathlossReferenceRSs-1 INTEGER ::= 3 -- Maximum number of RSs used as pathloss reference for PUCCH power control

-- minus 1.

maxNrofPUCCH-PathlossReferenceRSs-r16 INTEGER ::= 64 -- Maximum number of RSs used as pathloss reference for PUCCH power control

-- extended.

maxNrofPUCCH-PathlossReferenceRSs-1-r16 INTEGER ::= 63 -- Maximum number of RSs used as pathloss reference for PUCCH power control

-- minus 1 extended.

maxNrofPUCCH-PathlossReferenceRSs-1-r17 INTEGER ::= 7 -- Maximum number of RSs used as pathloss reference for PUCCH power control

-- minus 1.

maxNrofPUCCH-PathlossReferenceRSsDiff-r16 INTEGER ::= 60 -- Difference between the extended maximum and the non-extended maximum

maxNrofPUCCH-ResourceGroups-r16 INTEGER ::= 4 -- Maximum number of PUCCH resources groups.

maxNrofPUCCH-ResourcesPerGroup-r16 INTEGER ::= 128 -- Maximum number of PUCCH resources in a PUCCH group.

maxNrofPowerControlSetInfos-r17 INTEGER ::= 8 -- Maximum number of PUCCH power control set infos

maxNrofMultiplePUSCHs-r16 INTEGER ::= 8 -- Maximum number of multiple PUSCHs in PUSCH TDRA list

maxNrofP0-PUSCH-AlphaSets INTEGER ::= 30 -- Maximum number of P0-pusch-alpha-sets (see TS 38.213 [13], clause 7.1)

maxNrofP0-PUSCH-AlphaSets-1 INTEGER ::= 29 -- Maximum number of P0-pusch-alpha-sets minus 1 (see TS 38.213 [13], clause 7.1)

maxNrofPUSCH-PathlossReferenceRSs INTEGER ::= 4 -- Maximum number of RSs used as pathloss reference for PUSCH power control.

maxNrofPUSCH-PathlossReferenceRSs-1 INTEGER ::= 3 -- Maximum number of RSs used as pathloss reference for PUSCH power control

-- minus 1.

maxNrofPUSCH-PathlossReferenceRSs-r16 INTEGER ::= 64 -- Maximum number of RSs used as pathloss reference for PUSCH power control

-- extended

maxNrofPUSCH-PathlossReferenceRSs-1-r16 INTEGER ::= 63 -- Maximum number of RSs used as pathloss reference for PUSCH power control

-- extended minus 1

maxNrofPUSCH-PathlossReferenceRSsDiff-r16 INTEGER ::= 60 -- Difference between maxNrofPUSCH-PathlossReferenceRSs-r16 and

-- maxNrofPUSCH-PathlossReferenceRSs

maxNrofPathlossReferenceRSs-r17 INTEGER ::= 64 -- Maximum number of RSs used as pathloss reference for PUSCH, PUCCH, SRS

-- power control for unified TCI state operation

maxNrofPathlossReferenceRSs-1-r17 INTEGER ::= 63 -- Maximum number of RSs used as pathloss reference for PUSCH, PUCCH, SRS

-- power control for unified TCI state operation minus 1

maxNrofNAICS-Entries INTEGER ::= 8 -- Maximum number of supported NAICS capability set

maxBands INTEGER ::= 1024 -- Maximum number of supported bands in UE capability.

maxBandsMRDC INTEGER ::= 1280

maxBandsEUTRA INTEGER ::= 256

maxCellReport INTEGER ::= 8

maxDRB INTEGER ::= 29 -- Maximum number of DRBs (that can be added in DRB-ToAddModList).

maxFreq INTEGER ::= 8 -- Max number of frequencies.

maxFreqLayers INTEGER ::= 4 -- Max number of frequency layers.

maxFreqPlus1 INTEGER ::= 9 -- Max number of frequencies for Slicing.

maxFreqIDC-r16 INTEGER ::= 128 -- Max number of frequencies for IDC indication.

maxCombIDC-r16 INTEGER ::= 128 -- Max number of reported UL CA for IDC indication.

maxFreqIDC-MRDC INTEGER ::= 32 -- Maximum number of candidate NR frequencies for MR-DC IDC indication

maxNrofCandidateBeams INTEGER ::= 16 -- Max number of PRACH-ResourceDedicatedBFR in BFR config.

maxNrofCandidateBeams-r16 INTEGER ::= 64 -- Max number of candidate beam resources in BFR config.

maxNrofCandidateBeamsExt-r16 INTEGER ::= 48 -- Max number of PRACH-ResourceDedicatedBFR in the CandidateBeamRSListExt

maxNrofPCIsPerSMTC INTEGER ::= 64 -- Maximum number of PCIs per SMTC.

maxNrofQFIs INTEGER ::= 64

maxNrofResourceAvailabilityPerCombination-r16 INTEGER ::= 256

maxNrOfSemiPersistentPUSCH-Triggers INTEGER ::= 64 -- Maximum number of triggers for semi persistent reporting on PUSCH

maxNrofSR-Resources INTEGER ::= 8 -- Maximum number of SR resources per BWP in a cell.

maxNrofSlotFormatsPerCombination INTEGER ::= 256

maxNrofSpatialRelationInfos INTEGER ::= 8

maxNrofSpatialRelationInfos-plus-1 INTEGER ::= 9

maxNrofSpatialRelationInfos-r16 INTEGER ::= 64

maxNrofSpatialRelationInfosDiff-r16 INTEGER ::= 56 -- Difference between maxNrofSpatialRelationInfos-r16 and maxNrofSpatialRelationInfos

maxNrofIndexesToReport INTEGER ::= 32

maxNrofIndexesToReport2 INTEGER ::= 64

maxNrofSSBs-r16 INTEGER ::= 64 -- Maximum number of SSB resources in a resource set.

maxNrofSSBs-1 INTEGER ::= 63 -- Maximum number of SSB resources in a resource set minus 1.

maxNrofS-NSSAI INTEGER ::= 8 -- Maximum number of S-NSSAI.

maxNrofTCI-StatesPDCCH INTEGER ::= 64

maxNrofTCI-States INTEGER ::= 128 -- Maximum number of TCI states.

maxNrofTCI-States-1 INTEGER ::= 127 -- Maximum number of TCI states minus 1.

maxUL-TCI-r17 INTEGER ::= 64 -- Maximum number of TCI states.

maxUL-TCI-1-r17 INTEGER ::= 63 -- Maximum number of TCI states minus 1.

maxNrofAdditionalPCI-r17 INTEGER ::= 7 -- Maximum number of additional PCI

maxNrofAdditionalPRACHConfigs-r18 INTEGER ::= 7 -- Maximum number of additional PRACH configurations for 2TA

maxNrofdelayD-r18 INTEGER ::= 4 -- Maximum number of delayD values.

maxMPE-Resources-r17 INTEGER ::= 64 -- Maximum number of pooled MPE resources

maxNrofUL-Allocations INTEGER ::= 16 -- Maximum number of PUSCH time domain resource allocations.

maxQFI INTEGER ::= 63

maxRA-CSIRS-Resources INTEGER ::= 96

maxRA-OccasionsPerCSIRS INTEGER ::= 64 -- Maximum number of RA occasions for one CSI-RS

maxRA-Occasions-1 INTEGER ::= 511 -- Maximum number of RA occasions in the system

maxRA-SSB-Resources INTEGER ::= 64

maxSCSs INTEGER ::= 5

maxSecondaryCellGroups INTEGER ::= 3

maxNrofServingCellsEUTRA INTEGER ::= 32

maxMBSFN-Allocations INTEGER ::= 8

maxNrofMultiBands INTEGER ::= 8

maxCellSFTD INTEGER ::= 3 -- Maximum number of cells for SFTD reporting

maxReportConfigId INTEGER ::= 64

maxNrofCodebooks INTEGER ::= 16 -- Maximum number of codebooks supported by the UE

maxNrofCSI-RS-ResourcesExt-r16 INTEGER ::= 16 -- Maximum number of codebook resources supported by the UE for eType2/Codebook combo

maxNrofCSI-RS-ResourcesExt-r17 INTEGER ::= 8 -- Maximum number of codebook resources for fetype2R1 and fetype2R2

maxNrofCSI-RS-Resources INTEGER ::= 7 -- Maximum number of codebook resources supported by the UE

maxNrofCSI-RS-ResourcesAlt-r16 INTEGER ::= 512 -- Maximum number of alternative codebook resources supported by the UE

maxNrofCSI-RS-ResourcesAlt-1-r16 INTEGER ::= 511 -- Maximum number of alternative codebook resources supported by the UE minus 1

maxNrofSRI-PUSCH-Mappings INTEGER ::= 16

maxNrofSRI-PUSCH-Mappings-1 INTEGER ::= 15

maxSIB INTEGER::= 32 -- Maximum number of SIBs

maxSI-Message INTEGER::= 32 -- Maximum number of SI messages

maxSIB-MessagePlus1-r17 INTEGER::= 33 -- Maximum number of SIB messages plus 1

maxPO-perPF INTEGER ::= 4 -- Maximum number of paging occasion per paging frame

maxPEI-perPF-r17 INTEGER ::= 4 -- Maximum number of PEI occasion per paging frame

maxAccessCat-1 INTEGER ::= 63 -- Maximum number of Access Categories minus 1

maxBarringInfoSet INTEGER ::= 8 -- Maximum number of access control parameter sets

maxCellEUTRA INTEGER ::= 8 -- Maximum number of E-UTRA cells in SIB list

maxEUTRA-Carrier INTEGER ::= 8 -- Maximum number of E-UTRA carriers in SIB list

maxPLMNIdentities INTEGER ::= 8 -- Maximum number of PLMN identities in RAN area configurations

maxDownlinkFeatureSets INTEGER ::= 1024 -- (for NR DL) Total number of FeatureSets (size of the pool)

maxUplinkFeatureSets INTEGER ::= 1024 -- (for NR UL) Total number of FeatureSets (size of the pool)

maxEUTRA-DL-FeatureSets INTEGER ::= 256 -- (for E-UTRA) Total number of FeatureSets (size of the pool)

maxEUTRA-UL-FeatureSets INTEGER ::= 256 -- (for E-UTRA) Total number of FeatureSets (size of the pool)

maxFeatureSetsPerBand INTEGER ::= 128 -- (for NR) The number of feature sets associated with one band.

maxPerCC-FeatureSets INTEGER ::= 1024 -- (for NR) Total number of CC-specific FeatureSets (size of the pool)

maxFeatureSetCombinations INTEGER ::= 1024 -- (for MR-DC/NR)Total number of Feature set combinations (size of the pool)

maxInterRAT-RSTD-Freq INTEGER ::= 3

maxGIN-r17 INTEGER ::= 24 -- Maximum number of broadcast GINs

maxHRNN-Len-r16 INTEGER ::= 48 -- Maximum length of HRNNs

maxNPN-r16 INTEGER ::= 12 -- Maximum number of NPNs broadcast and reported by UE at establishment

maxSNPN-ConfigCellId-r18 INTEGER ::= 32 -- Maximum number of Cell ID subject for SNPNS for MDT scope

maxSNPN-ConfigID-r18 INTEGER ::= 16 -- Maximum number of SNPNs subject for MDT scope

maxSNPN-ConfigTAI-r18 INTEGER ::= 8 -- Maximum number of TA subject for MDT scope

maxNrOfMinSchedulingOffsetValues-r16 INTEGER ::= 2 -- Maximum number of min. scheduling offset (K0/K2) configurations

maxK0-SchedulingOffset-r16 INTEGER ::= 16 -- Maximum number of slots configured as min. scheduling offset (K0)

maxK2-SchedulingOffset-r16 INTEGER ::= 16 -- Maximum number of slots configured as min. scheduling offset (K2)

maxK0-SchedulingOffset-r17 INTEGER ::= 64 -- Maximum number of slots configured as min. scheduling offset (K0)

maxK2-SchedulingOffset-r17 INTEGER ::= 64 -- Maximum number of slots configured as min. scheduling offset (K2)

maxDCI-2-6-Size-r16 INTEGER ::= 140 -- Maximum size of DCI format 2-6

maxDCI-2-7-Size-r17 INTEGER ::= 43 -- Maximum size of DCI format 2-7

maxDCI-2-6-Size-1-r16 INTEGER ::= 139 -- Maximum DCI format 2-6 size minus 1

maxDCI-2-9-Size-r18 INTEGER ::= 140 -- Maximum DCI format 2-9 size

maxDCI-2-9-Size-1-r18 INTEGER ::= 139 -- Maximum DCI format 2-9 size minus 1

maxNrofUL-Allocations-r16 INTEGER ::= 64 -- Maximum number of PUSCH time domain resource allocations

maxNrofUL-Allocations-1-r18 INTEGER ::= 63 -- Maximum number of PUSCH time domain resource allocations minus 1

maxNrofP0-PUSCH-Set-r16 INTEGER ::= 2 -- Maximum number of P0 PUSCH set(s)

maxOnDemandSIB-r16 INTEGER ::= 8 -- Maximum number of SIB(s) that can be requested on-demand

maxOnDemandPosSIB-r16 INTEGER ::= 32 -- Maximum number of posSIB(s) that can be requested on-demand

maxCI-DCI-PayloadSize-r16 INTEGER ::= 126 -- Maximum number of the DCI size for CI

maxCI-DCI-PayloadSize-1-r16 INTEGER ::= 125 -- Maximum number of the DCI size for CI minus 1

maxUu-RelayRLC-ChannelID-r17 INTEGER ::= 32 -- Maximum value of Uu Relay RLC channel ID

maxWLAN-Id-Report-r16 INTEGER ::= 32 -- Maximum number of WLAN IDs to report

maxWLAN-Name-r16 INTEGER ::= 4 -- Maximum number of WLAN name

maxRAReport-r16 INTEGER ::= 8 -- Maximum number of RA procedures information to be included in the RA report

maxTxConfig-r16 INTEGER ::= 64 -- Maximum number of sidelink transmission parameters configurations

maxTxConfig-1-r16 INTEGER ::= 63 -- Maximum number of sidelink transmission parameters configurations minus 1

maxPSSCH-TxConfig-r16 INTEGER ::= 16 -- Maximum number of PSSCH TX configurations

maxNrofCLI-RSSI-Resources-r16 INTEGER ::= 64 -- Maximum number of CLI-RSSI resources for UE

maxNrofCLI-RSSI-Resources-1-r16 INTEGER ::= 63 -- Maximum number of CLI-RSSI resources for UE minus 1

maxNrofCLI-SRS-Resources-r16 INTEGER ::= 32 -- Maximum number of SRS resources for CLI measurement for UE

maxCLI-Report-r16 INTEGER ::= 8

maxNrofCC-Group-r17 INTEGER ::= 16 -- Maximum number of CC groups for DC location report

maxNrofConfiguredGrantConfig-r16 INTEGER ::= 12 -- Maximum number of configured grant configurations per BWP

maxNrofConfiguredGrantConfig-1-r16 INTEGER ::= 11 -- Maximum number of configured grant configurations per BWP minus 1

maxNrofCG-Type2DeactivationState INTEGER ::= 16 -- Maximum number of deactivation state for type 2 configured grants per BWP

maxNrofConfiguredGrantConfigMAC-1-r16 INTEGER ::= 31 -- Maximum number of configured grant configurations per MAC entity minus 1

maxNrofCSI-ReportSubconfigPerCSI-ReportConfig-r18 INTEGER ::= 8 -- Maximum number of CSI report subconfigurations per CSI report

-- configuration

maxNrofCSI-ReportSubconfigPerCSI-ReportConfig-1-r18 INTEGER ::= 7 -- Maximum number of CSI report subconfigurations per CSI report

-- configuration minus 1

maxNrofSPS-Config-r16 INTEGER ::= 8 -- Maximum number of SPS configurations per BWP

maxNrofSPS-Config-1-r16 INTEGER ::= 7 -- Maximum number of SPS configurations per BWP minus 1

maxNrofSPS-DeactivationState INTEGER ::= 16 -- Maximum number of deactivation state for SPS per BWP

maxNrofPPW-Config-r17 INTEGER ::= 4 -- Maximum number of Preconfigured PRS processing windows per DL BWP

maxNrofPPW-ID-1-r17 INTEGER ::= 15 -- Maximum number of Preconfigured PRS processing windows minus 1

maxNrOfTxTEGReport-r17 INTEGER ::= 256 -- Maximum number of UE Tx Timing Error Group Report

maxNrOfTxTEG-ID-1-r17 INTEGER ::= 7 -- Maximum number of UE Tx Timing Error Group ID minus 1

maxNrofPagingSubgroups-r17 INTEGER ::= 8 -- Maximum number of paging subgroups per paging occasion

maxNrofPUCCH-ResourceGroups-1-r16 INTEGER ::= 3

maxNrofReqComDC-Location-r17 INTEGER ::= 128 -- Maximum number of requested carriers/BWPs combinations for DC location

-- report

maxNrofServingCellsTCI-r16 INTEGER ::= 32 -- Maximum number of serving cells in simultaneousTCI-UpdateList

maxNrofTxDC-TwoCarrier-r16 INTEGER ::= 64 -- Maximum number of UL Tx DC locations reported by the UE for 2CC uplink CA

maxNrofRB-SetGroups-r17 INTEGER ::= 8 -- Maximum number of RB set groups

maxNrofRB-Sets-r17 INTEGER ::= 8 -- Maximum number of RB sets

maxNrofEnhType3HARQ-ACK-r17 INTEGER ::= 8 -- Maximum number of enhanced type 3 HARQ-ACK codebook

maxNrofEnhType3HARQ-ACK-1-r17 INTEGER ::= 7 -- Maximum number of enhanced type 3 HARQ-ACK codebook minus 1

maxNrofPRS-ResourcesPerSet-r17 INTEGER ::= 64 -- Maximum number of PRS resources for one set

maxNrofPRS-ResourcesPerSet-1-r17 INTEGER ::= 63 -- Maximum number of PRS resources for one set minus 1

maxNrofPRS-ResourceOffsetValue-1-r17 INTEGER ::= 511

maxNrofGapId-r17 INTEGER ::= 8 -- Maximum number of measurement gap ID

maxNrofPreConfigPosGapId-r17 INTEGER ::= 16 -- Maximum number of preconfigured positioning measurement gap

maxNrOfGapPri-r17 INTEGER ::= 16 -- Maximum number of gap priority level

maxCEFReport-r17 INTEGER ::= 4 -- Maximum number of CEF reports by the UE

maxNrofMultiplePDSCHs-r17 INTEGER ::= 8 -- Maximum number of PDSCHs in PDSCH TDRA list

maxSliceInfo-r17 INTEGER ::= 8 -- Maximum number of NSAGs

maxCellSlice-r17 INTEGER ::= 16 -- Maximum number of cells supporting the NSAG

maxNrofTRS-ResourceSets-r17 INTEGER ::= 64 -- Maximum number of TRS resource sets

maxNrofSearchSpaceGroups-1-r17 INTEGER ::= 2 -- Maximum number of search space groups minus 1

maxNrofRemoteUE-r17 INTEGER ::= 32 -- Maximum number of connected L2 U2N Remote UEs

maxDCI-4-2-Size-r17 INTEGER ::= 140 -- Maximum size of DCI format 4-2

maxFreqMBS-r17 INTEGER ::= 16 -- Maximum number of MBS frequencies reported in MBSInterestIndication

maxNrofDRX-ConfigPTM-r17 INTEGER ::= 64 -- Max number of DRX configuration for PTM provided in MBS broadcast in a

-- cell

maxNrofDRX-ConfigPTM-1-r17 INTEGER ::= 63 -- Max number of DRX configuration for PTM provided in MBS broadcast in a

-- cell minus 1

maxNrofMBS-ServiceListPerUE-r17 INTEGER ::= 16 -- Maximum number of services which the UE can include in the MBS interest

-- indication

maxNrofMBS-Session-r17 INTEGER ::= 1024 -- Maximum number of MBS sessions provided in MBS broadcast or multicast in

-- a cell

maxNrofMTCH-SSB-MappingWindow-r17 INTEGER ::= 16 -- Maximum number of MTCH to SSB beam mapping pattern

maxNrofMTCH-SSB-MappingWindow-1-r17 INTEGER ::= 15 -- Maximum number of MTCH to SSB beam mapping pattern minus 1

maxNrofMRB-Broadcast-r17 INTEGER ::= 4 -- Maximum number of broadcast MRBs configured for one MBS broadcast service

maxNrofPageGroup-r17 INTEGER ::= 32 -- Maximum number of paging groups in a paging message

maxNrofPDSCH-ConfigPTM-r17 INTEGER ::= 16 -- Maximum number of PDSCH configuration groups for PTM

maxNrofPDSCH-ConfigPTM-1-r17 INTEGER ::= 15 -- Maximum number of PDSCH configuration groups for PTM minus 1

maxG-RNTI-r17 INTEGER ::= 16 -- Maximum number of G-RNTI that can be configured for a UE.

maxG-RNTI-1-r17 INTEGER ::= 15 -- Maximum number of G-RNTI that can be configured for a UE minus 1.

maxG-CS-RNTI-r17 INTEGER ::= 8 -- Maximum number of G-CS-RNTI that can be configured for a UE.

maxG-CS-RNTI-1-r17 INTEGER ::= 7 -- Maximum number of G-CS-RNTI that can be configured for a UE minus 1.

maxMRB-r17 INTEGER ::= 32 -- Maximum number of multicast MRBs (that can be added in MRB-ToAddModLIst)

maxFSAI-MBS-r17 INTEGER ::= 64 -- Maximum number of MBS frequency selection area identities

maxNeighCellMBS-r17 INTEGER ::= 8 -- Maximum number of MBS broadcast neighbour cells

maxNrofPdcch-BlindDetectionMixed-1-r16 INTEGER ::= 7 -- Maximum number of combinations of mixed Rel-16 and Rel-15 PDCCH

-- monitoring capabilities minus 1

maxNrofPdcch-BlindDetection-r17 INTEGER ::= 16 -- Maximum number of combinations of PDCCH blind detection monitoring

-- capabilities

maxNrofAltitudeRanges-r18 INTEGER ::= 8 -- Maximum number of altitude ranges for altitude-based measurement configurations

maxWayPoint-r18 INTEGER ::= 20 -- Maximum number of flight path information waypoints

maxAltitude-r18 INTEGER ::= 10000 -- Maximum altitude in meters

minAltitude-r18 INTEGER ::= -420 -- Minimum altitude in meters

maxMeasSequence-r18 INTEGER ::= 64 -- Maximum number of configured sequence for measurement

maxNrofHops-1-r18 INTEGER ::= 5 -- Maximum number of Hops that can be configured for Positioning SRS Transmission

maxNrOfCellsInVA-r18 INTEGER ::= 16 -- Maximum number of cells in validity area for Positioning SRS

maxNrOfCellsInVA-Ext-r18 INTEGER ::= 16 -- Maximum number of additional cells in validity area for Positioning SRS

maxNrOfLinkedSRS-PosResourceSet-r18 INTEGER ::= 3 -- Maximum number of linked SRSPosResourceSets that can be aggregated across

-- CCs

maxNrOfLinkedSRS-PosResSetComb-r18 INTEGER ::= 32 -- Maximum number of combinations of linked SRSPosResourceSets that can be

-- aggregated in RRC\_CONNECTED state

maxNrOfLinkedSRS-PosResSetCombInactive-r18 INTEGER ::= 16 -- Maximum number of combinations of linked SRSPosResourceSets that can be

-- aggregated in RRC\_INACTIVE state

maxCBR-ConfigDedSL-PRS-1-r18 INTEGER ::= 7 -- Maximum number of CBR ranges for dedicated SL PRS resource pool

maxCBR-LevelDedSL-PRS-1-r18 INTEGER ::= 15 -- Maximum number of CBR levels for dedicated SL PRS resource pool

maxNrofSL-PRS-TxPool-r18 INTEGER ::= 8 -- Maximum number of Tx dedicated SL-PRS resource pool for NR sidelink positioning

maxNrofSL-PRS-TxConfig-r18 INTEGER ::= 64 -- Maximum number of SL PRS transmission parameter configurations

maxNrOfVA-r18 INTEGER ::= 16 -- Maximum number of validity area

maxNrofLTM-Configs-r18 INTEGER ::= 8 -- Maximum number of LTM candidate cells

maxNrofLTM-Configs-plus1-r18 INTEGER ::= 9 -- Maximum number of LTM candidate cells plus 1

maxNrofLTM-CSI-ReportConfigurations-r18 INTEGER ::= 48 -- Maximum number of LTM CSI reporting configurations

maxNrofLTM-CSI-ReportConfigurations-1-r18 INTEGER ::= 47 -- Maximum number of LTM CSI reporting configurations minus 1

maxNrofLTM-CSI-SSB-ResourcesPerSet-r18 INTEGER ::= 512 -- Maximum number of LTM CSI SSB resource per set

maxNrofLTM-CSI-ResourceConfigurations-r18 INTEGER ::= 112 -- Maximum number of LTM CSI resource configurations

maxNrofLTM-CSI-ResourceConfigurations-1-r18 INTEGER ::= 111 -- Maximum number of LTM CSI resource configurations minus 1

maxNrofCandidateTCI-State-r18 INTEGER ::= 128 -- Maximum number of LTM TCI states

maxNrofCandidateUL-TCI-r18 INTEGER ::= 64 -- Maximum number of LTM UL TCI states

maxSecurityCellSet-r18 INTEGER ::= 9 -- Maximum number of cell sets for subsequent CPAC.

maxSK-Counter-r18 INTEGER ::= 8 -- Maximum number of SK-counters configured for a cell set for subsequent CPAC.

maxNrofThresholdMBS-r18 INTEGER ::= 8 -- Max number of thresholds of MBS sessions for RRC connection resume for a

-- UE receiving multicast in RRC\_INACTIVE

maxNrofThresholdMBS-1-r18 INTEGER ::= 7 -- Max number of thresholds of MBS sessions for RRC connection resume for a

-- UE receiving multicast in RRC\_INACTIVE minus 1

maxTN-AreaInfo-r18 INTEGER ::= 32 -- Maximum number of TN coverage areas for which assistance info is

-- provided in an NTN cell

maxNrofSetsOfCells-r18 INTEGER ::= 4 -- Maximum number of sets of cells for multi-cell PDSCH/PUSCH scheduling

maxNrofSetsOfCells-1-r18 INTEGER ::= 3 -- Maximum number of sets of cells for multi-cell PDSCH/PUSCH scheduling

-- minus 1

maxNrofCellsInSet-r18 INTEGER ::= 4 -- Maximum number of cells configured in a set of cells for multi-cell

-- PDSCH/PUSCH scheduling

maxNrofCellsInSet-1-r18 INTEGER ::= 3 -- Maximum number of cells configured in a set of cells for multi-cell

-- PDSCH/PUSCH scheduling minus 1

maxNrofCellCombos-r18 INTEGER ::= 16 -- Maximum number of combinations of co-scheduled cells for multi-cell

-- PDSCH/PUSCH scheduling

maxNrofBWPsInSetOfCells-r18 INTEGER ::= 16 -- Maximum number of BWPs configured in a set of cells for multi-cell

-- PDSCH/PUSCH scheduling

maxLowerMSD-r18 INTEGER ::= 256 -- Maximum number of lower MSD capability sets for a victim band

maxLowerMSDInfo-r18 INTEGER ::= 64 -- Maximum number of lower MSD capability sets for a band combination

maxNrofIntraEndc-Components-r17 INTEGER ::= 4 -- Maximum number of intra-band (NG)EN-DC band components in an inter-band

-- (NG)EN-DC band combination

maxLogCSI-MeasReport-r19 INTEGER ::= FFS -- Maximum number of entries for logged CSI measurements for network data collection

maxNrofApplicabilityConfigList-r19 INTEGER ::= FFS -- Maximum number of applicability configuration lists

maxNrofApplicabilityReports-r19 INTEGER ::= FFS -- Maximum number of applicability reports

maxNrofApplicabilitySets-r19 INTEGER ::= FFS -- Maximum number of parameter sets for applicability reporting

maxNrofApplicabilitySets-1-r19 INTEGER ::= FFS-1 -- Maximum number of parameter sets for applicability reporting minus one

maxNrofLoggedMeasurementConfigurations-r19 INTEGER ::= FFS -- Maximum number of logged measurement configurations

maxNrofLoggedMeasurementConfigurations-1-r19 INTEGER ::= FFS-1 -- Maximum number of logged measurement configurations minus one

maxCandidateConfig-r19 INTEGER ::= FFS -- Maximum number of candidate UE data collection configurations

maxCandidateConfig-1-r19 INTEGER ::= FFS-1 -- Maximum number of candidate UE data collection configurations minus one

-- TAG-MULTIPLICITY-AND-TYPE-CONSTRAINT-DEFINITIONS-STOP

-- ASN1STOP

NEXT CHANGE

## 7.4 UE variables

<Text Omitted>

#### – *VarCSI-LogMeasReport*

The UE variable *VarCSI-LogMeasReport* includes the logged CSI measurements information for network data collection in accordance with *CSI-LoggedMeasurementConfig*.

*VarCSI-LogMeasReport* UE variable

-- ASN1START

-- TAG-VARCSI-LOGMEASREPORT-START

VarCSI-LogMeasReport-r19 ::= SEQUENCE {

csi-LogMeasInfoCellList CSI-LogMeasInfoCellList-r19

}

-- TAG-VARCSI-LOGMEASREPORT-STOP

-- ASN1STOP

NEXT CHANGE

## 11.2 Inter-node RRC messages

<Text Omitted>

### 11.2.2 Message definitions

<Text Omitted>

#### – *HandoverPreparationInformation*

This message is used to transfer the NR RRC information used by the target gNB during handover preparation or UE context retrieval, e.g. in case of resume or re-establishment, including UE capability information. This message is also used for transferring the information between the CU and DU.

Direction: source gNB/source RAN to target gNB or CU to DU.

*HandoverPreparationInformation* message

-- ASN1START

-- TAG-HANDOVER-PREPARATION-INFORMATION-START

HandoverPreparationInformation ::= SEQUENCE {

criticalExtensions CHOICE {

c1 CHOICE{

handoverPreparationInformation HandoverPreparationInformation-IEs,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

HandoverPreparationInformation-IEs ::= SEQUENCE {

ue-CapabilityRAT-List UE-CapabilityRAT-ContainerList,

sourceConfig AS-Config OPTIONAL, -- Cond HO

rrm-Config RRM-Config OPTIONAL,

as-Context AS-Context OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

AS-Config ::= SEQUENCE {

rrcReconfiguration OCTET STRING (CONTAINING RRCReconfiguration),

...,

[[

sourceRB-SN-Config OCTET STRING (CONTAINING RadioBearerConfig) OPTIONAL,

sourceSCG-NR-Config OCTET STRING (CONTAINING RRCReconfiguration) OPTIONAL,

sourceSCG-EUTRA-Config OCTET STRING OPTIONAL

]],

[[

sourceSCG-Configured ENUMERATED {true} OPTIONAL

]],

[[

sdt-Config-r17 SDT-Config-r17 OPTIONAL

]],

[[

srs-PosRRC-InactiveValidityAreaPreConfigList-r18 SRS-PosRRC-InactiveValidityAreaPreConfigList-r18 OPTIONAL

]]

}

AS-Context ::= SEQUENCE {

reestablishmentInfo ReestablishmentInfo OPTIONAL,

configRestrictInfo ConfigRestrictInfoSCG OPTIONAL,

...,

[[ ran-NotificationAreaInfo RAN-NotificationAreaInfo OPTIONAL

]],

[[ ueAssistanceInformation OCTET STRING (CONTAINING UEAssistanceInformation) OPTIONAL -- Cond HO2

]],

[[

selectedBandCombinationSN BandCombinationInfoSN OPTIONAL

]],

[[

configRestrictInfoDAPS-r16 ConfigRestrictInfoDAPS-r16 OPTIONAL,

sidelinkUEInformationNR-r16 OCTET STRING OPTIONAL,

sidelinkUEInformationEUTRA-r16 OCTET STRING OPTIONAL,

ueAssistanceInformationEUTRA-r16 OCTET STRING OPTIONAL,

ueAssistanceInformationSCG-r16 OCTET STRING (CONTAINING UEAssistanceInformation) OPTIONAL, -- Cond HO2

needForGapsInfoNR-r16 NeedForGapsInfoNR-r16 OPTIONAL

]],

[[

configRestrictInfoDAPS-v1640 ConfigRestrictInfoDAPS-v1640 OPTIONAL

]],

[[

needForGapNCSG-InfoNR-r17 NeedForGapNCSG-InfoNR-r17 OPTIONAL,

needForGapNCSG-InfoEUTRA-r17 NeedForGapNCSG-InfoEUTRA-r17 OPTIONAL,

mbsInterestIndication-r17 OCTET STRING (CONTAINING MBSInterestIndication-r17) OPTIONAL

]],

[[

needForInterruptionInfoNR-r18 NeedForInterruptionInfoNR-r18 OPTIONAL,

flightPathInfoReport-r18 FlightPathInfoReport-r18 OPTIONAL

]],

[[

retainLoggedMeasurements-r19 ENUMERATED {true} OPTIONAL

]]

}

ConfigRestrictInfoDAPS-r16 ::= SEQUENCE {

powerCoordination-r16 SEQUENCE {

p-DAPS-Source-r16 P-Max,

p-DAPS-Target-r16 P-Max,

uplinkPowerSharingDAPS-Mode-r16 ENUMERATED {semi-static-mode1, semi-static-mode2, dynamic }

} OPTIONAL

}

ConfigRestrictInfoDAPS-v1640 ::= SEQUENCE {

sourceFeatureSetPerDownlinkCC-r16 FeatureSetDownlinkPerCC-Id,

sourceFeatureSetPerUplinkCC-r16 FeatureSetUplinkPerCC-Id

}

ReestablishmentInfo ::= SEQUENCE {

sourcePhysCellId PhysCellId,

targetCellShortMAC-I ShortMAC-I,

additionalReestabInfoList ReestabNCellInfoList OPTIONAL

}

ReestabNCellInfoList ::= SEQUENCE ( SIZE (1..maxCellPrep) ) OF ReestabNCellInfo

ReestabNCellInfo::= SEQUENCE{

cellIdentity CellIdentity,

key-gNodeB-Star BIT STRING (SIZE (256)),

shortMAC-I ShortMAC-I

}

RRM-Config ::= SEQUENCE {

ue-InactiveTime ENUMERATED {

s1, s2, s3, s5, s7, s10, s15, s20,

s25, s30, s40, s50, min1, min1s20, min1s40,

min2, min2s30, min3, min3s30, min4, min5, min6,

min7, min8, min9, min10, min12, min14, min17, min20,

min24, min28, min33, min38, min44, min50, hr1,

hr1min30, hr2, hr2min30, hr3, hr3min30, hr4, hr5, hr6,

hr8, hr10, hr13, hr16, hr20, day1, day1hr12, day2,

day2hr12, day3, day4, day5, day7, day10, day14, day19,

day24, day30, dayMoreThan30} OPTIONAL,

candidateCellInfoList MeasResultList2NR OPTIONAL,

...,

[[

candidateCellInfoListSN-EUTRA MeasResultServFreqListEUTRA-SCG OPTIONAL

]]

}

-- TAG-HANDOVER-PREPARATION-INFORMATION-STOP

-- ASN1STOP

|  |
| --- |
| *HandoverPreparationInformation* field descriptions |
| ***as-Context***  Local RAN context required by the target gNB or DU. |
| ***rrm-Config***  Local RAN context used mainly for RRM purposes. |
| ***sourceConfig***  The radio resource configuration as used in the source cell. |
| ***ue-CapabilityRAT-List***  The UE radio access related capabilities concerning RATs supported by the UE. A gNB that retrieves MRDC related capability containers ensures that the set of included MRDC containers is consistent w.r.t. the feature set related information. |
| ***ue-InactiveTime***  Duration while UE has not received or transmitted any user data. Thus the timer is still running in case e.g., UE measures the neighbour cells for the HO purpose. Value *s1* corresponds to 1 second, *s2* corresponds to 2 seconds and so on. Value *min1* corresponds to 1 minute, value *min1s20* corresponds to 1 minute and 20 seconds, value *min1s40* corresponds to 1 minute and 40 seconds and so on. Value *hr1* corresponds to 1 hour, *hr1min30* corresponds to 1 hour and 30 minutes and so on. |

|  |
| --- |
| *AS-Config* field descriptions |
| ***rrcReconfiguration***  Contains the *RRCReconfiguration* configuration as generated entirely by the MN. If the *TMGI-r17* is included in the *MRB-ToAddMod-r17* in the *RadioBearerConfig*, the *plmn-Index* is replaced by the PLMN ID, if needed. |
| ***sdt-Config***  Contains the IE *SDT-Config* as generated entirely by the last serving gNB. This field is only used during the SDT procedure and the RNA update procedure with UE context relocation as defined in TS 38.300 [2], clause 18.2 and 9.2.2.5 respectively. |
| ***sourceRB-SN-Config***  Contains the IE *RadioBearerConfig* as generated entirely by the SN. This field is only used when the UE is configured with SN terminated RB(s). |
| ***sourceSCG-Configured***  Value *true* indicates that the UE is configured with NR or EUTRA SCG in source configuration. The field is only used in NR-DC and NE-DC and is included only if the fields *sourceSCG-NR-Config* and *sourceSCG-EUTRA-Config* are absent. |
| ***sourceSCG-EUTRA-Config***  Contains the current dedicated SCG configuration in *RRCConnectionReconfiguration* message as specified in TS 36.331 [10] and generated entirely by the SN. In this version of the specification, the E-UTRA *RRCConnectionReconfiguration* message can only include the field *scg-Configuration* . This field is only used in NE-DC. |
| ***sourceSCG-NR-Config***  Contains the current dedicated SCG configuration in *RRCReconfiguration* message as generated entirely by the SN. In this version of the specification, the *RRCReconfiguration* message can only include fields *secondaryCellGroup,* *measConfig*, and *conditionalReconfiguration*. This field is only used in NR-DC. |
| ***srs-PosRRC-InactiveValidityAreaPreConfigList***  Contains the IE *SRS-PosRRC-InactiveValidityAreaPreConfigList* as generated entirely by the last serving gNB. This field is only used UE is preconfigured with SRS for positioning with validity area and during the RNA update procedure with UE context relocation as defined in TS 38.300 [2], clause 18.2 and 9.2.2.5 respectively. |

|  |
| --- |
| *AS-Context* field descriptions |
| ***configRestrictInfoDAPS***  Includes fields for which source cell explicitly indicates the restriction to be observed by target cell during DAPS handover. |
| ***mbsInterestIndication***  Includes the information last reported by the UE in the NR *MBSInterestIndication* message, where the *plmn-Index* (if included by the UE in *tmgi*) is replaced by the PLMN ID, if needed. A TMGI for which the *plmn-Index* points to a non-serving SNPN is removed from the NR *MBSInterestIndication* message. |
| ***needForGapsInfoNR***  Includes measurement gap requirement information of the UE for NR target bands. The field includes *needForGapsInfoNR* in *RRCReconfigurationComplete* message, *needForGapsInfoNR* in *RRCResumeComplete* message or *musim-needForGapsInfoNR* in *UEAssistanceInformation* message that is last reported by the UE, if any. |
| ***retainLoggedMeasurements***  Indication to the target gNB that the UE shall retain logged measurements available in *VarCSI-LogMeasReport* at execution of the handover. If included, the target gNB is allowed to include the corresponding indication to the UE within the *HandoverCommand* message. |
| ***selectedBandCombinationSN***  Indicates the band combination selected by SN in (NG)EN-DC, NE-DC, and NR-DC. |
| ***sidelinkUEInformationEUTRA***  This field includes *SidelinkUEInformation* IE as specified in TS 36.331 [10]. |
| ***sidelinkUEInformationNR***  This field includes *SidelinkUEInformationNR* IE. |
| ***ueAssistanceInformation***  Includes for each UE assistance feature the information last reported by the UE, if any. |
| ***ueAssistanceInformationSCG***  Includes for each UE assistance feature associated with the SCG, the information last reported by the UE in the NR *UEAssistanceInformation* message for the SCG, if any. |

|  |
| --- |
| *ConfigRestrictInfoDAPS* field descriptions |
| ***sourceFeatureSetPerUplinkCC/sourceFeatureSetPerDownlinkCC***  Indicates an index referring to the position of the *FeatureSetUplinkPerCC*/*FeatureSetDownlinkPerCC* selected by source in the *featureSetsUplinkPerCC*/*featureSetsDownlinkPerCC*. |

|  |
| --- |
| *RRM-Config* field descriptions |
| ***candidateCellInfoList***  A list of the best cells on each frequency for which measurement information was available |
| ***candidateCellInfoListSN-EUTRA***  A list of EUTRA cells including serving cells and best neighbour cells on each serving frequency, for which measurement results were available. This field is only used in NE-DC. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *HO* | The field is mandatory present in case of handover within NR or UE context retrieval, e.g. in case of resume or re-establishment. The field is optionally present in case of handover from E-UTRA/5GC. Otherwise the field is absent. |
| *HO2* | The field is optionally present in case of handover within NR; otherwise the field is absent. |

NOTE 1: The following table indicates per source RAT whether RAT capabilities are included or not.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Source RAT | NR capabilities | E-UTRA capabilities | MR-DC capabilities | UTRA capabilities |
| NR | May be included if UE Radio Capability ID as specified in 23.502 [43] is used for the UE. Included otherwise. | May be included | May be included | May be included, ignored by gNB if received |
| E-UTRAN | May be included if UE Radio Capability ID as specified in 23.502 [43] is used for the UE. Included otherwise. | May be included | May be included | May be included, ignored by gNB if received |

NOTE 2: The following table indicates, in case of inter-RAT handover from E-UTRA, which additional IEs are included or not:

|  |  |  |  |
| --- | --- | --- | --- |
| Source system | sourceConfig | rrm-Config | as-Context |
| E-UTRA/EPC | Not included | May be included | Not included |
| E-UTRA/5GC | May be included, but only *radioBearerConfig* is included in the *RRCReconfiguration*. | May be included | Not included |

NEXT CHANGE

# 12 Processing delay requirements for RRC procedures

The UE performance requirements for RRC procedures are specified in the following tables. The performance requirement is expressed as the time in [ms] from the end of reception of the network -> UE message on the UE physical layer up to when the UE shall be ready for the reception of uplink grant for the UE -> network response message with no access delay other than the TTI-alignment (e.g. excluding delays caused by scheduling, the random access procedure or physical layer synchronisation). In case the RRC procedure triggers BWP switching, the RRC procedure delay is the value defined in the following table plus the BWP switching delay defined in TS 38.133 [14], clause 8.6.3.



Figure 12.1-1: Illustration of RRC procedure delay

Table 12.1-1: UE performance requirements for RRC procedures for UEs

| Procedure title: | Network -> UE | UE -> Network | Value [ms] | Notes |
| --- | --- | --- | --- | --- |
| **RRC Connection Control Procedures** | | | | |
| RRC reconfiguration | *RRCReconfiguration* | *RRCReconfigurationComplete* | 10 |  |
| RRC reconfiguration (scell addition/release) | *RRCReconfiguration* | *RRCReconfigurationComplete* | 16 |  |
| RRC reconfiguration (LTE/NR SCG establishment/ modification/ release) | *RRCReconfiguration* | *RRCReconfigurationComplete* | 16 |  |
| RRC reconfiguration (Intra-NR mobility with LTE/NR SCG establishment/ modification/ release) | *RRCReconfiguration* | *RRCReconfigurationComplete* | 16 |  |
| RRC reconfiguration | *DLDedicatedMessageSegment* | *RRCReconfigurationComplete* | 16+( Nseg  -1)\*10 | Nseg  is number of RRC segments |
| RRC reconfiguration (configurations subject to applicability determination procedure) | *RRCReconfiguration* | *RRCReconfigurationComplete* | 16 |  |
| RRC setup | *RRCSetup* | *RRCSetupComplete* | 10 |  |
| RRC Release | *RRCRelease* |  | NA |  |
| RRC re-establishment | *RRCReestablishment* | *RRCReestablishmentComplete* | 10 |  |
| RRC resume | *RRCResume* | *RRCResumeComplete* | 6 or 10 | Value=6 applies for a UE supporting reduced CP latency for the case of RRCResume message only including MAC and PHY configuration, reestablishPDCP and reestablishRLC for SRB2, multicast MRB(s) and DRB(s), and no DRX, SPS, configured grant, CA or MIMO re-configuration will be triggered by this message. Further, the UL grant for transmission of *RRCResumeComplete* and the data is transmitted over common search space with DCI format 0\_0.  In this scenario, the RRC procedure delay [ms] can extend beyond the reception of the UL grant, up to 7 ms.  For other cases, Value = 10 applies. |
| RRC resume (MCG SCell addition/restoration/release) | *RRCResume* | *RRCResumeComplete* | 16 |  |
| RRC resume (SCG establishment/ restoration/release) | *RRCResume* | *RRCResumeComplete* | 16 |  |
| RRC resume | *DLDedicatedMessageSegment* | *RRCResumeComplete* | 16+( Nseg  -1)\*10 | Nseg  is number of RRC segments |
| Initial AS security activation | *SecurityModeCommand* | *SecurityModeComplete/SecurityModeFailure* | 5 |  |
| **Inter RAT mobility** | | | | |
| Handover to NR | *RRCReconfiguration (sent by other RAT)* | *RRCReconfigurationComplete* | NA | The performance of this procedure is specified in TS 36.133 [40] clauses 5.3.4.2, 5.3.4A.2 and 5.3.5.2 in case of handover from E-UTRA to NR. |
| Handover from NR | *MobilityFromNRCommand* |  | NA | The performance of this procedure is specified in TS 38.133 [14], clauses 6.1.2.1.2 and 6.1.2.2.2. |
| **Other procedures** | | | | |
| UE assistance information |  | *UEAssistanceInformation* | NA |  |
| UE capability transfer | *UECapabilityEnquiry* | *UECapabilityInformation* | 80 |  |
| UE capability transfer | *UECapabilityEnquiry* | *ULDedicatedMessageSegment* | 80 | Applicable when UL RRC segmentation is enabled by the field *rrc-SegAllowed*. |
| UE capability transfer | *UECapabilityEnquiry* | *ULDedicatedMessageSegment* | 560+max (0, Nseg-7)\*80 | Applicable when UL RRC segmentation is enabled by the field *rrc-MaxCapaSegAllowed*.  Nseg is the value indicated by *rrc-MaxCapaSegAllowed*. |
| Counter check | *CounterCheck* | *CounterCheckResponse* | 5 |  |
| UE information | *UEInformationRequest* | *UEInformationResponse* | 15 |  |
| DL Information transfer MR-DC | *DLInformationTransferMRDC* |  | NA | The UE shall apply the performance requirements of the RRC message included within the DLInformationTransferMRDC message. |
| IAB other information |  | *IABOtherInformation* | NA |  |
| Sidelink UE information |  | *SidelinkUEInformationNR* | NA |  |
| UE Positioning assistance information |  | *UEPositioningAssistanceInfo* | NA |  |

END OF CHANGES

# RAN2 Agreements

The RAN2 agreements are listed below. The following colors are used for the agreements that were implemented in the current version of the running CR:

* Implemented agreements for LCM
* Implemented agreements for NW side data collection

## RAN2#125bis

### 8.1.2 Functionality based LCM

#### 8.1.2.1 LCM for NW-sided model

##### ***General:***

**Agreements**

1 RAN2 confirms that UE will not be informed about any gNB/LMF-sided model/functionality management decision (e.g., selection, (de)activation, switching, fallback, etc.)

2 RAN2 confirms that UE will not be involved in any gNB/LMF-sided model/functionality management decision making (e.g., selection, (de)activation, switching, fallback, etc.), except being configured to provide the required measurement/data.

3 RAN2 focuses on the data collection procedure from UE to NW (e.g., gNB, LMF, or OAM) for the sake of NW-sided model LCM (including training, inference, management).

##### ***Beam management & Positioning:***

**Agreements:**

1. RAN2 to consider an RRC configuration to configure radio measurements and the related reporting to enable data collection for NW-side training
2. For AI/ML based beam management, RAN2 assumes the L1 measurement framework shall be used for configuring the input data of the NW side AI/ML model inference. FFS if further enhancements are needed
3. There is no specification impact associated to gNB-side model inference, depending on further RAN1 input.
4. FFS whether rhere is specification impact associated to gNB-side model monitoring.
5. For POS, RAN2 assumes gNB or LMF could perform performance monitoring for case 3a and LMF is responsible for the performance monitoring for case 3b and wait for any further inputs from other WGs
6. For POS, RAN2 assumes that NRPPa is used for the signalling between gNB and LMF for case 3a and 3b and the detailed signalling design is up to RAN3.

#### 8.1.2.2 LCM for UE-sided model

##### ***Functionality granularity and capability:***

Agreements

1. Which AI/ML-enabled Features/FGs and functionalities are supported should be standardized. The details wait for RAN1’s progress. “supported” means that the UE is capable of supporting the functionality and doesn’t mean neccesarily that the UE has the model available. FFS what functionality refers to.

2. Supported AI/ML-enabled Features/FGs and supported functionalities are included in UE capability.

##### ***Applicability/additional conditions:***

**Agreements for positioning and beam management**

1. Support proactive reporting of UE-sided applicable functionality, e.g., the UE reports its applicable AI/ML functionalities via UAI message/LPP message.
2. Support reactive reporting of UE-sided applicable functionality. The NW configures AI/ML functionalities via RRC/LPP message. FFS what the configuration contains. FFS how to report applicable functionality and what is applicable functionality
3. FFS how the two approaches will be specified and whether we can combine them into one procedure. FFS how to report applicable functionality, what is applicable functionality, how the UE determines which function is applicable or not (if it is needed)

##### ***Common LCM framework/signalling:***

**Agreements:**

1 For UE-sided model, for the functionality management, the “network decision, network-initiated” AI/ML management is supported as a baseline. The following can be considered further “UE autonomous, decision reported to the network”, “Network decision, UE-initiated” (i.e. proactive approach).

2 “UE-autonomous, UE’s decision is not reported to the network” is not considered for Rel-19

### 8.1.3 NW side data collection

##### ***Beam management:***

**Agreements**

1 For the NW-side data collection related to beam management use cases, RAN2 to consider gNB-centric and OAM-centric approaches

2 We aim that the same measurement framework is applied to both gNB-centric data collection and OAM-centric data collection for NW-side data collection.

3 RAN2 supports enhancements to MDT for data collection framework for training. FSS Whether to enhance logged or immediate MDT

## RAN2#126

8.1.2 Functionality based LCM

8.1.2.1 LCM for NW-sided model for Beam Management use case

**Agreements for NW-sided model for Beam Management**

1 For the network-side model, required network side additional condition is left up to the network implementation

2 RAN2 will wait for RAN1 for any required UE side additional conditions.

3 For network-sided model for BM use case, RAN2 confirms that UE inputs for inference at network-sided model will rely on L1 signaling, RAN2 will not further spend time on this aspect.

4 The gNB is responsible for monitoring its own performance. RAN2 will work on RAN2 specifications enhancements associated to gNB-side model monitoring, only based on RAN1 inputs, if any

8.1.2.2 LCM for UE-sided model for Beam Management use case

**Agreements**

1 RAN2 will support functionality activation/deactivation after inference configuration. FFS initial state of configuration and how activation/deactivation is achieved. FFS what Deactivation refers to: examples discussed: 1) fallback to legacy 2) switching, etc.

2 We will work offline on the definitions for functionality types and define what is availability.

3 The UE will indicate the gNB/LMF whether the AI/ML functionality is available/applicable. For a functionality to be applicable at least there should at least one model available within it. FFS other details on what is applicability/non-applicability.

4 For NW-side additional conditions, RAN2 assumes that RRC signaling from gNB to UE can be designed for consistency between inference and training. RAN2 will wait for RAN1 input for further details. FFS if the same applies to positioning

5 For BM use case, As a baseline the UE determines whether a functionality is applicable. Existing UAI framework is used at least for proactive reporting of applicable functionality. FFS reactive

8.1.2.3 LCM for Positioning use case

**Agreements for NWside model**

1 RAN2 to await RAN1 progress to determine need for any specification work on AI/ML positioning Case 3a and Case 3b.

**Agreements**

1. The LPP Capability Transfer procedures (RequestCapabilities/ProvideCapabilities messages) are used to indicate supported AI/ML positioning capabilities. FFS how to handle dynamic capabilities, depending on further RAN1 progress and understanding of the functionality.
2. wait for RAN1 for associate ID discussion
3. At least for Case 1, existing LPP procedures related to Location Information Transfer (RequestLocationInformation/ ProvideLocationInformation messages) are used for providing the results of the UE sided model inference operation. FFS further details on signaling enhancements

8.1.3 NW side data collection

**Agreements for beam management**

1. For gNB centric and OAM centric (for RRC signaling between UE and gNB), reporting multiple instances of logged L1 measurement result from UE to gNB via a RRC message as configured by gNB is an optional feature. FFS how to handle case when single RRC message is not sufficient. FFS if there will be any further enhancement needed pending RAN1 agreement.

2. Immediate MDT is the baseline framework for OAM-centric data collection for the training of a network-sided model

3. Enhance the immediate MDT framework to support periodical reporting. FFS whether and what event-based reporting is supported and FFS on network request reporting

## RAN2#127

8.1.2 Functionality based LCM

8.1.2.1 LCM for NW-sided model for Beam Management use case

8.1.2.2 LCM for UE-sided model for Beam Management use case

**Agreements on definitions**

1. Supported functionalities refer to functionalities that UE can indicate by using UE capability information (via RRC/LPP signalling)
2. Applicable functionalities refers to functionalities that the UE is ready to apply for inference
3. Activated functionalities refers to functionalities already enabled for performing inference

|  |
| --- |
| **Agreements on procedures**  - Step 1: Network sends UECapabilityEnqiry message to initiate the procedure to a UE reporting its AI/ML supported functionalities.  - Step 2: UE sends UECapablityInformation message to network, containing supported functionalities at the UE side.  - “Step 3”: Following configurations are provided from NW to UE:  1) UE is allowed to do UAI reporting via OtherConfig.  2) Network may provide NW-side additional condition. FFS on the RRC signalling and whether it is mandatory or optional.  3) FFS on configuration (e.g. inference configuration) of supported functionalities. FFS on the content of configuration.  - UE decides the applicable functionalities based on NW-side additional conditions (if provided), UE-side additional conditions (internally known by UE) and model availability in device. FFS whether other configuration can considered by UE (e.g. inference configuration). FFS how the applicable functionality is decided if NW-side additional condition is not provided in step 3.  - “Step 4”: UE reports applicable functionality in the following scenarios:  1) Upon being configured to provide applicable functionality and upon change of applicable functionality via UAI  2) As response to NW-side additional condition requesting applicable functionality reporting in step 3, FFS other network configuration (e.g. inference configuration), FFS via UAI or RRCReconfigurationComplete, etc  - Step 5:  1) Network configures inference configuration to UE after applicable functionality reporting, if inference configuration based on supported functionality is not provided in Step 3 (i.e. inference configuration is provided in Step 5).  2) If inference configuration based on supported functionality is provided in Step 3, it is up to network implementation whether to provide an updated configuration or not.  - The applicable functionality may be activated by receiving its inference configuration when it is provided in Step 5. FFS the initial activation state. FFS on initial state of applicable functionality if inference configuration of supported functionality is provided in Step 3. FFS on additional L1/L2 signaling for activation/deactivation. FFS if multiple applicable functionalities can be activated at the same time. FFS what is the granularity of functionality  - We will write an LS to RAN1 to provide our agreements and ask specific questions that RAN2 needs to enable progress. |

8.1.2.3 LCM for Positioning use case

8.1.3 NW side data collection

**Agreements**

1. As the baseline approach, the UE receives the measurement configuration for AI/ML-enabled features/FGs for data collection and logging of measurements. The network can explicitly configure the UE whether the corresponding data collection and logging (if supported) should be immediately started. FFS if multiple configurations can be provided to the UE. FFS if dynamic activation/deactivation is support.
2. UE stores the logged training data at AS layer with a minimum AS layer memory size supported by the UE. FFS on the memory size. This is across all use cases
3. When UE reaches its buffer limitation the UE stops measurement for data collection purposes and logging.
4. Measurements for data collection purposes and logging based can be controlled based on power state of the UE. It is up to UE implementation how the UE determines power state. FFS whether the UE stops autonomously or if it reports to the network .
5. FFS whether AS buffer event based reporting is supported. FFS if we send availability indication or full report if it is supported
6. FFS on event based data collection/logging
7. On-demand request from the network is supported. FFS details on signalling

**Agreements**

1. *The UE implementation can determine how many entries to include in the list radio measurements information, such that the maximum PDCP SDU size is not exceeded. No standardized RRC segmentation procedure is needed (as for the logged MDT measurements)*
2. Data collection report will not be transmitted over SRB1. FFS which SRB is used.

## RAN2#127bis

### 8.1.2 Functionality based LCM

#### 8.1.2.1 LCM for NW-sided model for Beam Management use case

#### 8.1.2.2 LCM for UE-sided model for Beam Management use case

**Agreements for BM**

1. UAI is supported and RRCReconfigurationComplete message can be used to report applicable functionality. We should aim to align the design on how the applicable functionality are signaled. FFS on the applicability reporting content.
2. FFS if inference configuration can be signalled in step3.
3. UE can report to the network when an applicable AI functionality becomes non-applicable. FFS how this is signaled (e.g. explicitly/implicitly). Consider different scenarios, whether it is regarding an active functionality)
4. Data collection initiation and configuration for data collection is under network control. FFS how the NW determines whether data collection should be initiated (e.g. via UE requests (UE directly or UE server)
5. For the purpose of discussion of AI/ML BM LCM operations, existing procedures and terminologies from the CSI Framework should be used, including those defined for aperiodic, semipersistent on PUCCH, semipersistent on PUSCH, and periodic reporting configurations (as/if defined in RAN1 pending response LS from RAN1).
6. For now, RAN2 will not define terminology specific to the activation or deactivation for AI/ML models. Can come back to this discussion later.

#### 8.1.2.3 LCM for Positioning use case

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| **Agreements:**  1: The following procedures for LCM for UE sided model for AI positioning case 1 is the baseline:  Step 1: LMF may request the UE to report the supported functionalities at the UE side by *LPP request capabilities* message.  Step 2: UE sends *LPP provide capabilities* message to LMF with the supported functionalities at the UE side.  Step 3: LMF sends the *LPP provide assistance data* message (which may contain network side additional condition).  Step 4: UE reports the applicable functionality to the LMF by the *LPP provide capabilities* message.  Step 5: The LMF requests the inferred location information using the *LPP request location information* message.  Step 6: UE reports the inferred location using *LPP provide location information* message.  2: Whether the inference configuration is provided in step 3 or/and step 5 is FFS (to be revised based on RAN1 progress).  3: Whether network side additional condition is needed and what it contains is FFS (to be revised based on RAN1 progress).  4: FFS whether LMF controls the UE sending unsolicited LPP provide capabilities (i.e. whether step4 is sent reactively or proactively). FFS the signalling details.  5: RAN2 will decide whether AI positioning will be a new method after further details from RAN1 are received. |

### 8.1.3 NW side data collection

**Agreements on NW side data collection**

1. Periodic logging is supported for training data collection procedure in R19
2. Event-triggered data logging will be supported. At least radio condition based event triggered logging will be supported. FFS the details of radio condition based event. FFS if other events are supported.
3. Periodic reporting of logged data is not supported.
4. On-demand reporting of the logged measurements will be specified
5. UEInformationRequest/UEInformationResponse is used for on-demand reporting of AI/ML training data collection. FFS of details of the message
6. The UE can indicates the availability of logged data to the network to assist network to trigger UEInformationRequest. FFS trigger/definition of availability indication. and FFS how data availability indication is sent to the network.
7. Low priority SRB will be used. FFS new SRB or use of SRB4
8. For data collection for both NW-sided/UE sided BM model training, at least L1-RSRPs and/or beam-IDs needs to be collected by UE. FFS if other data needs to be collected based on RAN1 progress.

## RAN2#128

### 8.1.2 Functionality based LCM

#### 8.1.2.1 LCM for NW-sided model for Beam Management use case

#### 8.1.2.2 LCM for UE-sided model for Beam Management use case

**Agreements**

1. When a functionality configured by the network to be reported via UAI, becomes from non-applicable to applicable, the UE can reports it to the network. FFS detailed design

2. When a functionality becomes non-applicable the UE doesn’t autonomously deactivate. NW is expected to deactivate active functionality when it receives report from UE that it is non-applicable.

3. FFS whether the UE reports explicitly “non-applicable” functionality when there is a change of applicability. Verify this aligns with RAN1 configuration design

4. Applicable functionality reporting at handover is supported with the same RRC procedure that will be specified within a cell, as a baseline, i.e. the NW-side additional conditions and/or the inference configuration related to the target gNB are transmitted by the target gNB as part of the HO command, and the UE in response transmits the applicability report (either in RRCReconfigurationComplete or in UAI) to the target gNB after completing the handover.

5. Source cell UAI (as is) can be sent from source cell to target cell using existing signaling. No further optimizations will be considered in RAN2 related to UAI.

6. For BM use case for UE-side model, data collection related configuration(s) (e.g., measurement resources configuration) and associated ID(s) can be included in training data collection configuration.

7. For data collection configuration UE-side model training, the UE can send a request for data collection. FFS what the request contains.

8. The network can provide the data collection configuration (at any point in time), with or without UE request.

9. The following methods for network control of the initiation and configuration for data collection:

- The network can decide when to start/stop the data collection and send configuration.

- The network can configure whether UE is allowed to initiate request for data collection.

10. FFS whether an indication from UE to network is needed when UE can’t perform data collection based on received configuration

#### 8.1.2.3 LCM for Positioning use case

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| **Agreements**  1 For POS Case 1, RAN2 confirm that the existing unsolicited UE capability report mechanism in LPP can support UE to report the applicable functionality in both “proactive” and “reactive” as a baseline.  - Proactive case: When the applicability change, UE can send an unsolicited LPP ProvideCapabilities message to LMF .  - Reactive case: If the applicability changes based on the configuration in LPP ProvideAssistanceData message in step 3, UE can send an unsolicited LPP ProvideCapabilities message to LMF. Configuration details are FFS  2 As a baseline, If the AIML based positioning method becomes non-applicable when LMF requests UE location estimation, UE cannot perform the AIML based positioning, and reply with LPP Providelocationinformation message with error cause. FFS if other fallback options are considered |

### 8.1.3 NW side data collection

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| **Agreements on NW side data collection**   1. Focus on the following three radio condition event based logging    * + L3 serving cell measurement based (e.g. X1/X2 similar to A1/A2)      + Beam based events (e.g. beam becomes top-1 beam and number of measurements is less than configured value)      + L1 beam level measurement 2. Measurements on aperiodic CSI resources are not reported for NW sided data collection. 3. Data collection is controlled by the network. The UE will not autonomously stop when low power state is detected. 4. The UE reports to the network when the power state is low. We will not specify how the UE determines low power state. The network should de-configure the data collection (this can be captured in stage 2). 5. The UE reports to the network when buffer is or may become full. FFS when it reports (before and/or after). 6. The UE can report the reason for triggering of indication for the status (e.g. low power state, low memory). FFS how this is signalled and if the reporting can be part of availability indication. |

## RAN2#129

### 8.1.2 Functionality based LCM

#### 8.1.2.1 LCM for NW-sided model for Beam Management use case

#### 8.1.2.2 LCM for UE-sided model for Beam Management use case

**Agreements**

1. Inference configuration/parameters can be signalled in step 3 and/or Inference configuration can be signalled in step 5 (i.e. option a and option b from RAN1).
2. The full inference configuration is sent in CSI-ReportConfig.
3. Upon receiving a full inference configuration, the UE sends the initial applicability report in RRCReconfigurationComplete. UAI can be sent to update applicability.
4. FFS signaling details for option B (e.g. whether it is signaling in CSI-Report Config or otherconfig)

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| Agreements applicability reporting and management   * Support the explicit reporting of applicability/inapplicability in initial report and subsequent reporting it reports only applicability it changed. FFS if we report explicit cause * If option A is configured in Step 3, for periodic CSI reporting, the UE autonomously activate the applicable functionalities upon reporting applicable functionalities via RRCReconfigurationComplete in step 4 (i.e. without need to wait RRCReconfiguration in Step 5). * The provided periodic CSI configuration should be consistent with reported UE capabilities * FFS option B * Semi-persistent and aperiodic CSI reporting of applicable functionality is activated following legacy CSI framework:   Semi-persistent reporting, activated by MAC CE/DCI  Aperiodic CSI reporting, activated by DCI |

#### 8.1.2.3 LCM for Positioning use case

**Agreements**

1: Introduce AI/ML positioning Case 1 as a new positioning method.

2: Existing LPP procedures related to Location Information Transfer (RequestLocationInformation/ ProvideLocationInformation messages) are used for providing and requesting the results of the UE sided model inference operation. The detail stage 3 message extention can be disucssed while drafting the stage 3 CR.

3: FFS UE autonomous switching between AI/ML and non-AI/ML methods is not allowed. FFS if this is unconditional or linked to condition of multiple positioning method are not configured in RequestLocationInformation,

4: The content of error cause is discussed while drafting stage3 CRs.

5: As a baseline, UE receives the needed assistance data for calculating UE location for AI/ML in step3 (ProvideAssistanceData) and UE receives the instruction to perform the inference in step 5 (RequestLocationInformation). The content of Assistance Data and the content of request location information is based upon RAN1 parameter list.

6: UE reports the applicable functionality to the LMF by the LPP provide capabilities message if there is a change of applicable functionality. FFS if any additional LMF control is needed.

### 8.1.3 NW side data collection

**All agreements for NW side data collection**

1. Support the use of L3 measurement event triggered (i.e. L3 serving cell measurements becoming worse/better than a threshold for TTT) to determine whether the UE performs logging or not. L1 measurement event triggered will not be supported. FFS what to log
2. Low power bit indication is supported
3. Data availability indication is supported. FFS when this would be triggered
4. As baseline, the UEInformationResponse contains one or more logged measurement entries in chronological order (i.e. starting from the oldest measurement entries stored in the UE memory), and an availability indication if there are further data available for transmission. Same principles as for logged MDT.
5. UE retains logged data during handover (HO). FFS if there is scenarios where the UE needs to release the data and how does the UE know and if control from network is needed
6. UE indicates availability of logged data during handover (i.e., within the RRCReconfigurationComplete message) (if data is retained in the UE).
7. FFS how to handle idle/inactive and RLF cases and whether we have a unified.

### 8.1.4 UE side data collection

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| Agreements  Extend the following agreements on data collection configuration in AI/ML based beam management to general UE-side data collection configuration:   1. Data collection related configuration(s) and associated ID(s)(if needed) can be included in training data collection configuration. 2. For data collection configuration UE-side model training, the UE can send a request for data collection (e.g. start/stop). FFS whether a suggested data collection configuration/associated IDs (if specified)/parameters can be provided to the network. 3. The network can provide or release the data collection configuration (at any point in time), with or without UE request. 4. The following methods for network control of the initiation and configuration for data collection:    1. The network can decide when to start/stop the data collection and send configuration.    2. The network can configure whether UE is allowed to initiate request for data collection (e.g. start/stop indication). |

## RAN2#129bis

### 8.1.2 Functionality based LCM

#### 8.1.2.1 LCM for NW-sided model for Beam Management use case

#### 8.1.2.2 LCM for UE-sided model for Beam Management use case

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| **Agreements on option B**  1 RAN2 assumes UE receives RRCReconfiguration message including one set or multiple sets of inference related parameters via OtherConfig for option B. This assumption can be confirmed (i.e., whether to reconsider CSI-ReportConfig) after receiving Option B inference related parameters (e.g., in RAN1 RRC parameters list).  Potential aspects to consider if RAN2 revisit:  - To reconsider CSI-ReportConfig for option B, for example, if the list of inference related parameters is fully contained within existing CSI-ReportConfig.  - to take into accounts UE behaviour when confirming the assumption e.g., whether option A and option B result in different UE behavior |

**Agreements on applicability reporting**

1. Together with inapplicability reporting, UE further indicates a simple cause value of inapplicability FFS how to define this simple cause related to model availability and how we capture it in the spec
2. Upon receiving one or more full inference configuration(s) via RRCReconfiguration message, UE shall maintain all the full inference configuration(s) no matter the full inference configuration is applicable or inapplicable until the network releases it explicitly.
3. No prohibit timer is introduced

**Agreements on data collection configuration**

The UE can request measurement configuration for data collection of AI/ML based beam management. The request can contain one or more of the following:

• An indication on start/stop of data collection

• Preferred configuration from a list of candidate configurations provided by NW. Details of signaling are FFS. It is up to network what it configures at the end.

Introduce UAI message for UE request of data collection measurement configuration. And it is up to UE implementation when to send the request.

#### 8.1.2.3 LCM for Positioning use case

**Agreements for positioning case 1**

1. LMF is responsible for functionality management
2. UE reports the applicable functionality to the LMF by the LPP provide capabilities message without any additional LMF control.
3. Switching/fallback to non-AI/ML positioning can be supported by including multiple positioning methods in a LPP Request Location Information message. No additional specification work is foreseen specifically for supporting "switching/fallback operation".
4. An AIML positioning functionality is considered “activated” once UE receives an LPP RequestLocationInformation from the LMF requesting inferred location information.
5. For triggered and periodical reporting, we rely on existing positioning framework mechanisms to deactivate AI/ML positioning (no spec impact is foreseen)

### 8.1.3 NW side data collection

**Agreements on Idle/inactive and HO**

* Introduce 1-bit indication on whether to release or retain un-retrieved data in RRCReconfiguration during/before HO. Source gNB decides whether the data should be kept. The indication is provided in RRCReconfiguration (i.e. not in RRC Reconfiguration from target cell). FFS signaling details.
* Upon going to RRC\_IDLE, RLF, or RRC\_INACTIVE, UE discards any logged data

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| **Agreements on availability indication**   * Availability indication can be triggered due to:   + Full buffer being reached (if configured)   + Buffer threshold being reached (if configured).   + Low power (if configured) * The UE send a UAI that indicates:   + Data is available   + Reason for trigger (full buffer, threshold)   + Low power indication * The encoding of the data is available/UAI and the cause value is FFS   NOTE: it is up to UE Implementation how buffer threshold reached and low power is determined |

**Agreements on data collection configuration**

1. The measurement configuration of AI/ML data collection can configure measurements for multiple sets of resources and use cases (e.g. BM, Mobility, etc)

**Agreements**

1. For temporal domain, the network is made aware whether there is a gap between two consecutive samples. FFS amount of gap and whether this is implicit or explicit
2. New SRB can be configured for NW-side data collection (with lower priority)

## RAN2#130

### 8.1.2 Functionality based LCM

#### 8.1.2.1 LCM for NW-sided model for Beam Management use case

#### 8.1.2.2 LCM for UE-sided model for Beam Management use case

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| **Agreements**   1. Introduce “release configuration” flag instead of inapplicability cause to indicate UEs preference to release a configuration (e.g. due to model in availability in the local device FFS reason to be specified) 2. Introduce a flag in OtherConfig indicating whether applicability reporting via UAI is enabled or disabled. Assume this applies to Option A and B, FFS if anything different needs to be done for option B (if specified) 3. The UE doesn’t need to measure the *candidate data collection configuration(s). This will be specified in RAN2 specs.*   *4* For beam management, candidate data collection configuration includes at least:  - CSI-ResourceConfigId of Set A  - CSI-ResourceConfigId of Set B  - One/two associated IDs (up to whether Set B is equal/subset of Set A or not) according to RAN1 agreements  FFS the details of how this is signalled (e.g. CSIReport config or simplified signaling) |

**Agreements**

1. When UE indicates that a periodic CSI-ReportConfig is not applicable, the gNB is expected to release the configuration (i.e., UE autonomous release is not supported).
2. The UE continues to perform the inference and reporting until the configuration is released. It is up to network implementation what to do with UE reported beam predicted reporting after UE indicates that a CSI-ReportConfig is not applicable.
3. The UE shall report when CSI-ReportConfig becomes not applicable

**Agreements**

1. (RRC 7) RAN2 assumes applicability report for Option B (sets of inference related parameters) can be included in both RRCReconfigurationComplete and UAI (i.e., same as Option A). This can be revisited based on RAN1 conclusions/final signaling design.
2. (RRC6) On how to handle RRC configuration in IDLE/INACTIVE/RLF, follow the legacy UE behaviour in TS 38.331 on whether to release or keep the RRC configuration in CSI-MeasConfig (for inference configuration) and OtherConfig (for applicability reporting and UE data collection preference configurations). FFS Whether applicability reporting via RRCReestablishmentComplete and RRCResumeComplete is supported (if it comes for free).
3. (RRC8) RAN2 confirm that option A and option B can be configured in the same RRCReconfiguration message with the unified applicability report procedure.

#### 8.1.2.3 LCM for Positioning use case

**Agreements**

1 The field dl-PRS-ResourcePrioritySubset in IE NR-DL-PRS-Info should be ignored for NR AI/ML positioning. Remove corresponding 'Editor's Note' from the running CR.

2 Regarding the applicability of IE NR-DL-PRS-ProcessingCapability to NR AI/ML positioning Case 1, wait for further RAN1 input and keep the current "Editor's Note" in the running CR for now.

3 Regarding the applicability of IE NR-DL-PRS-QCL-ProcessingCapability to NR AI/ML positioning Case 1, wait for further RAN1 input and keep the current "Editor's Note" in the running CR for now.

4 Regarding the applicability of IE NR-DL-PRS-ResourcesCapability to NR AI/ML positioning Case 1, wait for further RAN1 input and keep the current "Editor's Note" in the running CR for now.

5 The IE NR-On-Demand-DL-PRS-Configurations-Selected-IndexList is also applicable to NR AI/ML positioning Case 1. The corresponding Editor's Notes in clause 6.4.3, 6.5.10.1, and 6.5.11.1 can be removed.

6 The IE NR-AI-ML-PositioningProvideAssistanceData contains (at least) all assistance data elements from UE-based DL-TDOA as starting point. This will be revised when additional RAN1 input is available. The current Editor's Note is kept for now.

7 The IE NR-AI-ML-PositioningRequestAssistanceData contains (at least) all assistance data elements from UE-based DL-TDOA as starting point. This will be revised when additional RAN1 input is available. The current Editor's Note is kept for now.

8 The IE NR-AI-ML-PositioningProvideLocationInformation contains (at least) the time stamp for the location coordinates (which are reported in CommonIEsProvideLocationInformation). This will be revised when additional RAN1 input is available. The current Editor's Note is kept for now.

9 The IE NR-AI-ML-PositioningRequestLocationInformation contains (at least) the AssistanceAvailability flag. Additional details/information can be discussed via company contributions.

10 The IE NR-AI-ML-PositioningProvideCapabilities contains (at least) all capabilities from UE-based DL-TDOA as starting point, except the capability related to DL-PRS processing (see #LPP-2/3/4). This will be revised when additional RAN1 input is available. The current Editor's Note is kept for now.

11 (LPP-17): A target UE can obtain the "ground-truth label" information via existing MO-LR procedures. No additional RAN2 specification impacts are foreseen

12 Reuse the existing NR-DL-TDOA-LocationServerErrorCauses structure for AI/ML positioning Case 1, and do not introduce additional error causes in NR-DL-AI-ML-LocationServerErrorCauses.

13 Introduce ‘DL AIML positioning not available’ as new target device error cause for AI/ML positioning case 1, to indicate UE cannot perform positioning method (e.g. model not available and performance monitoring outcome not available).

14 (LPP-15) positioning Integrity is supported for AI/ML positioning Case 1

15 No new LPP message is introduced for performance monitoring purposes

16 [LPP-6] The IE NR-PRU-DL-Info is also applicable to NR AI/ML positioning Case 1. The corresponding Editor's Notes in clause 6.4.3 can be removed. FFS if more PRUs are needed to be included for training purposes

17 NR-SelectedDL-PRS-IndexList is applicable to AI/ML positioning Case 1.

18 To ensure the consistency between training and inference, the UE should be able to request assistance data associated with a specific group of TRPs. FFS the request associated information in on demand prs request.

### 8.1.3 NW side data collection

* As a starting point, the data logging is captured in RRC specs.

**Agreements**

1. (RRC-18) 1-bit indication on whether to release or retain un-retrieved data in RRCReconfiguration **with synch** is introduced. In case of HO, the source sends the 1-bit indication to target cell in HO preparation message. This 1-bit indication is included in HO command by target cell (if the target cell wants to keep the data). We should have single UE behaviour, when it receives the indication it keeps it, otherwise it removes it. Notify RAN3
2. Buffer threshold to trigger data availability indication should be set based on specific size, e.g., KB instead of percentage
3. UAI related to buffer status or low power state is triggered only once when specific conditions are met (e.g., buffer full/threshold, and low power state). A prohibit timer is not necessary for UAI related to buffer status or low power state
4. No additional signaling from the UE is required when the low power issue is resolved
5. No additional signaling from the UE is required when the buffer full issue is resolved

**Agreements**

1 Data is collected on per data logging configuration basis and UE indicates data logging configuration ID. An indication of the “gap” is needed. “Gap” is time interval larger than the configured logging periodicity. FFS if timestamp and relative time stamp for each group is needed per “group”.

**Agreement**

* The UE should report the CGI of the serving cell whenever feasible. If CGI is unavailable, the UE shall log PCI-ARFCN as a fallback.

## RAN2#131

### 8.1.1 Organizational

**Agreements**

1. RRC processing delay shouldn’t be impacted by the model loading delay
2. If the UE is ready for inference by end of RRC processing delay, it reports model applicable. If not, it reports model inapplicable and doesn’t set the release flag. The network is not expected to release inference configuration (this will not be added to stage 3 specifcation).
3. Once the model is applicable, UE reports applicability to network via UAI (applicable to all CSI reporting).
4. Respond to RAN4
5. On the time duration for an AI functionality to become available for inference, RAN2 conclude that it is up to UE implementation from RAN2 point of view and no further RAN2 work.
6. RRCReconfigurationComplete containing applicability reports has a processing latency requirement of 16 ms with respect to the reception of RRCReconfiguration, from RAN2 point of view.
7. LS to RAN1 - RAN2 has identified a problem. From RAN2 point of view this can be solved by option 2, but needs to check with RAN1. RAN2 also discussed option 1 and couldn’t conclude as it is outside scope of RAN2. Would like too ask RAN1 which one is best.
8. Current RAN2 specifications will not be updated to cover this problem for now
9. In RAN4 LS, RAN2 will not mention interpretation but just provide agreement 1 - 6

#### UE Capabilities

**Agreements**

1. If UE supports NW side data collection, it is mandatory for UE to support the minimum AS layer memory size of 64kB for UE supporting AI/ML based beam management, which is shared across all use cases with NW-sided model. The assumption is that this will be shared across all use cases (i.e. Rel-20 as well)
2. FFS on whether UE can support other memory sizes and indicate to network via optional capability signaling.
3. Include RAN2 feature ‘UE can provide update of applicability reporting via UAI’ as part of RAN1 FGs (e.g., 58-0-1 and/or FG 58-1-2/3/4/5, the details of those feature group depend on RAN1 progress) once implemented.
4. Introduce two conditional mandatory capabilities (with signaling) for AI/ML based BM Option A and Option B, if UE supports FG58-0-1 and/or FG58-1-2/3/4/5 (the details of those feature group depend on RAN1 progress).
5. Include RAN2 feature ‘providing UE preferred configuration for UE-side data collection’ as part of RAN1 FG58-1-7/FG58-3-4 (once implemented).
6. UAI is mandatory for both Option A and B
7. Introduce an optional per UE capability ‘loggedDataCollection-r19’ to indicate supporting logged measurements of data collection for NW-side model, which includes the following components:
8. the minimum 64kB AS layer memory size
9. periodic logging
10. Provide full buffer indication, low power indication
11. Event-based logging is an optional per UE capability separate from ‘loggedDataCollection-r19’. UE supporting this feature shall also indicate the support of ‘loggedDataCollection-r19’. If UE supports event-based logging it shall support data threshold-based data availability indication.
12. RAN2 will not introduce separate CSI resource capability for logged NW-side data collection. Legacy capability will be used for logged NW-side data collection. Check with RAN1 on whether this assumption is ok.
13. Data threshold-based data availability indication is an optional per UE capability with signaling. A UE supporting this feature shall also indicate support of the basic logged NW-side data collection.

### 8.1.2 Functionality based LCM

#### 8.1.2.1 LCM for NW-sided model for Beam Management use case

#### 8.1.2.2 LCM for UE-sided model for Beam Management use case

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| **Agreements on UE candidate data collection**  1 **Multiple preferred configurations within the list of candidate configurations provided by NW can be indicated by the UE via UAI.**  2 No prohibit timer is needed for UE indicating its preferred data collection configuration.  3 On stop/start indication   1. The UE can send start indication (without a preferred list) to indicate preference to start data collection 2. The UE can send preferred list implying that it would like to start data collection on those configuration 3. The UE can send stop indication for all or a given actual CSI report config ID. 4. Rapporteur will determine best way of signaling. This doesn’t preclude merging 1 and 2. 5. Adopt below text in the field description of dataCollectionCandidateConfig:   *The UE is not expected to perform measurements solely based on the configurations provided by this IE.*   1. Adopt the following solution: OtherConfig contains a list of candidate configurations as a list of a new IE, where each candidate configuration contains at least an identifier of the candidate configuration, CSI-ResourceConfigId for Set A, CSI-ResourceConfigId for Set B, and related associated IDs, as agreed in RAN2#130. Each candidate configuration is associated with a cell ID. We will also include individual IEs for CSI prediction case. 2. Ask RAN1 what IEs are needed for CSI prediction and inform them of our agreements on BM and confirm if anything else is needed. |

* Update the definition of ‘applicable AI/ML functionality’ in RRC clause 3.1 as: “Applicable AIconfiguration: Configuration according to which an AI/ML functionality is determined to be applicable by the UE, as defined in TS 38.300 [2].”

**Agreements**

1. The procedures for UE data collection request for the CSI prediction use case are the same as for the beam management use case.
2. The applicability reporting procedures for CSI prediction are the same as for beam management. RAN2 confirms that option B is not supported for CSI prediction, given no parameters were provided by RAN1.
3. RAN2 understand that when network releases inference configurations of poor-performed applicable functionalities, network may also provide either non-AI/ML configuration in CSI-ReportConfig or may provide full inference configuration of other applicable functionalities, if previously not configured to UE. There is no spec impact and feedback from the NW to the UE to adjust the applicability determination procedure is not supported in Rel-19.
4. No enhancements are pursued for reporting applicability in RRCReestablishmentComplete.
5. The UE can report applicability via RRCResumeComplete for SCG inference configurations received in RRCResume, without specification impact beyond already agreed applicability reporting procedure.
6. Applicability reporting is added in RRCResumeComplete for inference configurations that exist at the UE based on legacy procedures (restored or received in RRCResume).
7. RAN2 assumes for no NR DC enhancements are considered and will not ask RAN3 work in Rel-19.

**Agreements on associated ID**

1. Both single cell and multi-cell associated ID can be supported based on NW implementation (i.e., the network may allocate an Associated ID to a single cell and/or to multiple cells).
2. Associated IDs shall be unique within a PLMN in that they can only be associated with one same/similar beam deployment. FFS is we should have signalling indicating multi-cell.
3. We will not define areas. The Associated ID is 24 bits.

**4** If the network does not provide the associated ID, it is up to UE implementation how to determine the applicability.

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| **Agreements Other Config for option B**   1. RAN2 confirms that UE receives RRCReconfiguration message including one set or multiple sets of inference related parameters via OtherConfig for option B. 2. For Option B for BM Case 1/2, one set or multiple sets of inference related parameters can be configured in OtherConfig, where each set in OtherConfig contains the following parameters according to RAN1#121 agreement:   associatedIDforSetA-r19, resourcesForSetA-r19, resourcesForChannelMeasurement, associatedIDforSetB-r19, reportQuantity-r19, reportConfigType, nrofreportedpredictedrs-r19, TimeGap-r19, nroftimeinstance-r19, applicabilityConfigId-r19.   1. For Option B for BM Case 1/2, inference related parameter set is configured per serving cell. |

**Agreements on applicability/inapplicability**

1 RRCReconfigurationComplete shall include applicability/inapplicability status for:

a) All inference configurations included in the immediately preceding RRCReconfiguration message, and

b) Any previously configured inference configurations for which applicability/inapplicability has already been reported and whose applicability status has changed since the last report. [CB on how the UE handles previously configured periodic CSI config that becomes applicable]

2 Do not introduce a link, explicit or implicit, between a full inference configuration and a set of inference-related parameters. If the applicability of a full inference configuration changes and there is a corresponding set of inference-related parameters whose applicability changes at the same time, the UE shall report the applicability of both

[R2-2505345](file:///C:/Users/panidx/OneDrive%20-%20InterDigital%20Communications,%20Inc/Documents/3GPP%20RAN/TSGR2_131/Docs/R2-2505345.zip) Remaining issues in LCM for BM and CSI prediction Samsung discussion Rel-19 NR\_AIML\_air-Core

Proposal 6: (RRC-47) a separate structure should be defined for BM and CSI prediction.

Proposal 7: (RRC-47) csi-InferencePrediction-r19 is defined out of configurationForChannelPrediction-r19.

* Noted
* Continue this on CR review phase

#### 8.1.2.3 LCM for Positioning use case

**Agreements on positioning**

1. Do not introduce a request for additional PRUs (e.g., a number of PRUs) in the Request Assistance Data message
2. "Batch reporting", i.e., reporting of up to 32 location results in a single report as supported for the current NR positioning methods, is also applicable to "NR AI/ML Positioning Case 1".
3. Keep NR-DL-AIML-RequestLocationInformation, excluding UE-assisted measurement parameters, and retain only UE-based and common parameters (e.g., nr-AssistanceAvailability).
4. For AI/ML positioning Case 1, the LocationInformationType field in CommonIEsRequestLocationInformation shall be set to locationEstimateRequired. Other values, including locationMeasurementsRequired, locationEstimatePreferred, locationMeasurementsPreferred, and locationEstimateAndMeasurementsRequired, are not applicable and shall not be used. No specification impact.
5. We do not introduce new error cause for the target device error causes.
6. Case 3a and Case 3b can be supported without new impact to LPP
7. Introduce list of global cell information (i.e., NCGIs, or PCIs with ARFCN) and TRP ID, as the request associated information to ensure consistency between training and inference.
8. The UE asks specific TRPs for PRS transmission with on-demand PRS configuration, i.e., within NR-On-Demand-DL-PRS-Request
9. Similar to BM, UE decides the applicable functionalities based on NW-side additional conditions (if provided), UE-side additional conditions (internally known by UE) and model availability in device. If nw side additional conditions are not provided then we follow BM conclusion. No stage 3 impacts.
10. Similar to AI PHY, when applicability changes the UE should report this to the LMF and only what changed. For now capture this at least in stage 2. Check offline if and how this would be implemented in stage 3.
11. Wait for RAN1 for LPP-21. Take what RAN1 gives us and we implemented. Can compile an LS for next meeting if we have questions.

### 8.1.3 NW side data collection

(RRC-43) RAN2 to discuss the value range for the buffer threshold based on the outcome of the UE capability discussion. Possible values to consider are, e.g. 1 KB, 2 KB, 4 KB, 8 KB, 16 KB, 32 KB, 45 KB, 48 KB, 52 KB, 58 KB, 60 KB, 62KB, 64 KB, 128 KB, 256 KB, etc.

* 16KB, 32KB and 48KB. FFS during CR phase in any higher value is needed depending on UE capability discussion.

**Agreements on NW side data collection**

1 RAN2 confirms that the network data logging is captured in a new clause (e.g. 5.5x) in the RRC specification.

2 A hysteresis should be configured and used (alongside threshold and timeToTrigger) for event-triggered logging for NW-side data collection.

3 The resource configuration does not have separate resources for Set A and Set B.

4 RAN2 to send an LS to RAN1 to inform about the RAN2 agreements on solution for network data logging, including L1 related content for NW-side data collection.

5 RAN2 to send an LS to RAN3 to inform about the RAN2 agreements on solution for network data logging

1. keep event-triggered logging
2. logging configuration is introduced as a new list of configurations under CSI-MeasConfig, based on TP1 in [R2-2505860](file:///C:/Users/panidx/OneDrive%20-%20InterDigital%20Communications,%20Inc/Documents/3GPP%20RAN/TSGR2_131/Docs/R2-2505860.zip),
3. Event evaluation for the event-triggered logging will be capturing within the existing A1/A2 events (in sub-clauses 5.5.4.2 and 5.5.4.3)
4. For L1-related content for NW-side data collection, it is sufficient to collect the L1-RSRP and/or beam ID as agreed by RAN2

**Agreements**

1. Multiplexing of legacy SON/MDT report and AIML logged data is not supported in the same UE information response message. Up to the network to ensure that data is not requested at the same time
2. The logging periodicity of a NW-side data collection configuration is configurable.
3. No further indication/condition is specified (beyond already agreed ones) for the UE to inform source gNB about data availability before HO in Rel-19.
4. The UE stores logged data for BM in a variable specific to L1 CSI related measurements.
5. Only periodic CSI resources are used for NW sided data collection. No need for new dynamic MAC CE mechanisms.

**Agreements:**

1 If LoggedDataCollectionAssistanceConfig is configured, then full buffer and low power indications are configured by default (i.e., no additional fields/bits required to configure them). Data threshold is (optionally) configured by including the threshold in the loggedDataCollectionAssistanceConfig.

2 Both the data collection configuration and the UAI configuration related to data collection are released when the UE transitions to IDLE/INACTIVE or initiates re-establishment (including RLF).

3 If the buffer is not full or the data threshold is configured and the amount of data is below the threshold, UE does not send data availability indication when it sends low power indication.

4 No additional handling of logged data to be specified (apart from the already agreed release during state transition and RLF, and release upon successful delivery).

5 No further discussion is needed on RRC issue 34 in re-19 as we have only one use case.

6 The UE will indicate the presence of a gap (i.e. there will be no indication on the length of gap or time instance, etc). Rapporteur will suggest a way to implemented as part of the RRC review.

**Agreements**

1. To define field names and IE based on the content of the logged data rather than the specific use case
2. Data forwarding to OAM or source gNB after HO is not in RAN2 scope and understands that other groups don’t have time to work on it.
3. UE discards the logged data upon inter-RAT handover.
4. RAN2 confirm that the solution agreed in RAN2#130 is applicable to regular HO and CHO (i.e. 1-bit indication corresponding to each candidate cell configuration in RRCReconfiguration is provided).
5. Do not introduce an indication from the UE to NW about unsuitable data collection configurations in Rel-19