**3GPP TSG-RAN2 Meeting # 110-eR2-200xxxx**

**Electronic Meeting, 1st – 12th June 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.331** | **CR** | **<CR#>** | **rev** | **-** | **Current version:** | **16.0.0** |  |
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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:*** | Correction on crossRAT signalling for NR V2X | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_V2X\_NRSL-Core | | | | |  | ***Date:*** | | | 2020-05-21 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The changes included in this CR aim to resolve the following RILs raised for NR and LTE RRC: [S003 (LTE), S005 (LTE), B002 (LTE), S046 (LTE), E055 (NR), E057 (NR)] regarding the crossRAT signalling for NR V2X. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The CR includes the following changes   * A new message is introduced for transfer of UL information using IRAT encoding but terminated at the bNB: ULInformationTransferIRAT * The message includes an octet string that contains an LTE UL DCCH message. In this release the message is used for transfer of SL related UL DCCH information as may be included in LTE RRC messages: MeasurementReport (only for what concern CBR measurements), SidelinkUEInformationEUTRA and UEAssistanceInformationEUTRA * All SL related DL DCCH information is transferred by an octet string in the NR Reconfiguration message containing the LTE RRCConnectionReconfiguration message. * Fields and IEs related to the EUTRA CBR measurements have been deleted since now they are conveyed via the RRC reconfiguration message. * In the RRCReconfiguration message the field sl-ConfigDedicatedEUTRA is changed to OCTET STRING. | | | | | | | | |
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| ***Consequences if not approved:*** | | If the CR is not approved, the cross RAT feature for NR V2X will not work properly. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3.5.9, 5.5.1, 5.5.3.1, 5.5.4.1, 5.5.5, 5.5.5.1, 5.7.4.3, 5.8.3.3, 5.7.x, 5.7.x.1, 5.7.x.2, 5.7.x.3, 6.2.1, 6.2.2, 6.3.2, 6.3.4, 6.3.5, 6.4, 7.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This CR is based on the file R2-190xxxx 38331 Rel16 ASN1 review Ph 1 v112.docx with changes accepted. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*START OF CHANGES*

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, 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;

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, 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, 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;

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, 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;

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, 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> attempt to have detailed location information available for any subsequent measurement report or any subsequent RLF report;

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 *BT-NameList*:

2> if *BT-NameList* is set to *setup*, attempt to have Bluetooth measurement results available for any subsequent measurement report or any subsequent RLF report;

1> if the received *otherConfig* includes the *WLAN-NameList*:

2> if *WLAN-NameList* is set to *setup*, attempt to have WLAN measurement results available for any subsequent measurement report or any subsequent RLF report;

NOTE 2: The UE is requested to attempt to have valid Bluetooth measurements and WLAN 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 hardware. Further details, e.g. regarding when to activate WLAN or Bluetooth, are up to UE implementation.

1> if the received *otherConfig* includes the *Sensor-NameList*:

2> if *Sensor-NameList* is set to *setup*, attempt to have Sensor measurement results available for any subsequent measurement report or any subsequent RLF report;

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

2> if *sl-AssistanceConfigNR* is set to *true*:

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

2> else:

3> consider itself not to be configured to provide configured grant assistance information for NR sidelink communication;

1> if the received *otherConfig* 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;

*END OF CHANGES*

*START OF CHANGES*

5.5.1 Introduction

The network may configure an RRC\_CONNECTED UE to perform measurements. The network may configure the UE to report them in accordance with the measurement configuration or perform conditional reconfiguration evaluation in accordance with the conditional reconfiguration. The measurement configuration is provided by means of dedicated signalling i.e. using the *RRCReconfiguration* or *RRCResume.*

The network may configure the UE to perform the following types of measurements:

- NR measurements;

- Inter-RAT measurements of E-UTRA frequencies.

- Inter-RAT measurements of UTRA-FDD frequencies.

The network may configure the UE to report the following measurement information based on SS/PBCH block(s):

- Measurement results per SS/PBCH block;

- Measurement results per cell based on SS/PBCH block(s);

- SS/PBCH block(s) indexes.

The network may configure the UE to report the following measurement information based on CSI-RS resources:

- Measurement results per CSI-RS resource;

- Measurement results per cell based on CSI-RS resource(s);

- CSI-RS resource measurement identifiers.

The network may configure the UE to perform the following types of measurements for sidelink:

- CBR measurements.

The network may configure the UE to report the following CLI measurement information based on SRS resources:

- Measurement results per SRS resource;

- SRS resource(s) indexes.

The network may configure the UE to report the following CLI measurement information based on CLI-RSSI resources:

- Measurement results per CLI-RSSI resource;

- CLI-RSSI resource(s) indexes.

The measurement configuration includes the following parameters:

**1. Measurement objects:** A list of objects on which the UE shall perform the measurements.

- For intra-frequency and inter-frequency measurements a measurement object indicates the frequency/time location and subcarrier spacing of reference signals to be measured. Associated with this measurement object, the network may configure a list of cell specific offsets, a list of 'blacklisted' cells and a list of 'whitelisted' cells. Blacklisted cells are not applicable in event evaluation or measurement reporting. Whitelisted cells are the only ones applicable in event evaluation or measurement reporting.

- The *measObjectId* of the MO which corresponds to each serving cell is indicated by *servingCellMO* within the serving cell configuration.

- For inter-RAT E-UTRA measurements a measurement object is a single E-UTRA carrier frequency. Associated with this E-UTRA carrier frequency, the network can configure a list of cell specific offsets, a list of 'blacklisted' cells and a list of 'whitelisted' cells. Blacklisted cells are not applicable in event evaluation or measurement reporting. Whitelisted cells are the only ones applicable in event evaluation or measurement reporting.

- For inter-RAT UTRA-FDD measurements a measurement object is a set of cells on a single UTRA-FDD carrier frequency.

- For CBR measurement of NR sidelink communication, a measurement object is a set of transmission resource pool(s) on a single carrier frequency for NR sidelink communication.

- For CLI measurements a measurement object indicates the frequency/time location of SRS resources and/or CLI-RSSI resources, and subcarrier spacing of SRS resources to be measured.

**2. Reporting configurations:** A list of reporting configurations where there can be one or multiple reporting configurations per measurement object. Each measurement reporting configuration consists of the following:

- Reporting criterion: The criterion that triggers the UE to send a measurement report. This can either be periodical or a single event description.

- RS type: The RS that the UE uses for beam and cell measurement results (SS/PBCH block or CSI-RS).

- Reporting format: The quantities per cell and per beam that the UE includes in the measurement report (e.g. RSRP) and other associated information such as the maximum number of cells and the maximum number beams per cell to report.

In case of conditional reconfiguration triggering configuration, each configuration consists of the following:

- Execution criteria: The criteria that triggers the UE to perform conditional reconfiguration execution.

- RS type: The RS that the UE uses for beam and cell measurement results (SS/PBCH block or CSI-RS) for conditional reconfiguration execution condition.

**3. Measurement identities:** For measurement reporting, a list of measurement identities where each measurement identity links one measurement object with one reporting configuration. By configuring multiple measurement identities, it is possible to link more than one measurement object to the same reporting configuration, as well as to link more than one reporting configuration to the same measurement object. The measurement identity is also included in the measurement report that triggered the reporting, serving as a reference to the network. For conditional reconfiguration triggering, one measurement identity links to exactly one conditional reconfiguration trigger configuration. And up to 2 measurement identities can be linked to one conditional reconfiguration execution condition.

**4. Quantity configurations:** The quantity configuration defines the measurement filtering configuration used for all event evaluation and related reporting, and for periodical reporting of that measurement. For NR measurements, the network may configure up to 2 quantity configurations with a reference in the NR measurement object to the configuration that is to be used. In each configuration, different filter coefficients can be configured for different measurement quantities, for different RS types, and for measurements per cell and per beam.

**5. Measurement gaps:** Periods that the UE may use to perform measurements.

A UE in RRC\_CONNECTED maintains a measurement object list, a reporting configuration list, and a measurement identities list according to signalling and procedures in this specification. The measurement object list possibly includes NR measurement object(s), CLI measurement object(s) and inter-RAT objects. Similarly, the reporting configuration list includes NR and inter-RAT reporting configurations. Any measurement object can be linked to any reporting configuration of the same RAT type. Some reporting configurations may not be linked to a measurement object. Likewise, some measurement objects may not be linked to a reporting configuration.

The measurement procedures distinguish the following types of cells:

1. The NR serving cell(s) – these are the SpCell and one or more SCells.

2. Listed cells – these are cells listed within the measurement object(s).

3. Detected cells – these are cells that are not listed within the measurement object(s) but are detected by the UE on the SSB frequency(ies) and subcarrier spacing(s) indicated by the measurement object(s).

For NR measurement object(s), the UE measures and reports on the serving cell(s), listed cells and/or detected cells. For inter-RAT measurements object(s) of E-UTRA, the UE measures and reports on listed cells and detected cells and, for RSSI and channel occupancy measurements, the UE measures and reports on any reception on the indicated frequency. For inter-RAT measurements object(s) of UTRA-FDD, the UE measures and reports on listed cells. For CLI measurement object(s), the UE measures and reports on configured measurement resources (i.e. SRS resources and/or CLI-RSSI resources).

Whenever the procedural specification, other than contained in sub-clause 5.5.2, refers to a field it concerns a field included in the *VarMeasConfig* unless explicitly stated otherwise i.e. only the measurement configuration procedure covers the direct UE action related to the received *measConfig*.

In NR-DC, the UE may receive two independent *measConfig*:

- a *measConfig*, associated with MCG, that is included in the *RRCReconfiguration* message received via SRB1; and

- a *measConfig*, associated with SCG, that is included in the *RRCReconfiguration* message received via SRB3, or, alternatively, included within a *RRCReconfiguration* message embedded in a *RRCReconfiguration* message received via SRB1.

The configurations related to CBR measurments are only included in the *measConfig* associated with MCG.

In this case, the UE maintains two independent *VarMeasConfig* and *VarMeasReportList*, one associated with each *measConfig*, and independently performs all the procedures in clause 5.5 for each *measConfig* and the associated *VarMeasConfig* and *VarMeasReportList*, unless explicitly stated otherwise.

*END OF CHANGES*

*START OF CHANGES*

5.5.3.1 General

An RRC\_CONNECTED UE shall derive cell measurement results by measuring one or multiple beams associated per cell as configured by the network, as described in 5.5.3.3. For all cell measurement results, except for RSSI, and CLI measurement results in RRC\_CONNECTED, the UE applies the layer 3 filtering as specified in 5.5.3.2, before using the measured results for evaluation of reporting criteria, measurement reporting or the criteria to trigger conditional reconfiguration execution. For cell measurements, the network can configure RSRP, RSRQ, SINR, RSCP or EcN0 as trigger quantity. For CLI measurements, the network can configure SRS-RSRP or CLI-RSSI as trigger quantity. For cell and beam measurements, reporting quantities can be any combination of quantities (i.e. only RSRP; only RSRQ; only SINR; RSRP and RSRQ; RSRP and SINR; RSRQ and SINR; RSRP, RSRQ and SINR; only RSCP; only EcN0; RSCP and EcN0), irrespective of the trigger quantity, and for CLI measurements, reporting quantities can be either SRS-RSRP or CLI-RSSI. For conditional reconfiguration execution, the network can configure up to 2 quantities, both using same RS type. The UE does not apply the layer 3 filtering as specified in 5.5.3.2 to derive the CBR measurements.

The network may also configure the UE to report measurement information per beam (which can either be measurement results per beam with respective beam identifier(s) or only beam identifier(s)), derived as described in 5.5.3.3a. If beam measurement information is configured to be included in measurement reports, the UE applies the layer 3 beam filtering as specified in 5.5.3.2. On the other hand, the exact L1 filtering of beam measurements used to derive cell measurement results is implementation dependent.

The UE shall:

1> whenever the UE has a *measConfig*, perform RSRP and RSRQ measurements for each serving cell for which *servingCellMO* is configured as follows:

2> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains an *rsType* set to *ssb* and *ssb-ConfigMobility* is configured in the *measObject* indicated by the *servingCellMO*:

3> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport* and contains an *rsType* set to *ssb*:

4> derive layer 3 filtered RSRP and RSRQ per beam for the serving cell based on SS/PBCH block, as described in 5.5.3.3a;

3> derive serving cell measurement results based on SS/PBCH block, as described in 5.5.3.3;

2> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains an *rsType* set to *csi-rs* and *CSI-RS-ResourceConfigMobility* is configured in the *measObject* indicated by the *servingCellMO*:

3> if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport* and contains an *rsType* set to *csi-rs*:

4> derive layer 3 filtered RSRP and RSRQ per beam for the serving cell based on CSI-RS, as described in 5.5.3.3a;

3> derive serving cell measurement results based on CSI-RS, as described in 5.5.3.3;

1> for each serving cell for which *servingCellMO* is configured, if the *reportConfig* associated with at least one *measId* included in the *measIdList* within *VarMeasConfig* contains SINR as trigger quantity and/or reporting quantity:

2> if the *reportConfig* contains *rsType* set to *ssb* and *ssb-ConfigMobility* is configured in the *servingCellMO*:

3> if the *reportConfig*contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport*:

4> derive layer 3 filtered SINR per beam for the serving cell based on SS/PBCH block, as described in 5.5.3.3a;

3> derive serving cell SINR based on SS/PBCH block, as described in 5.5.3.3;

2> if the *reportConfig* contains *rsType* set to *csi-rs* and *CSI-RS-ResourceConfigMobility* is configured in the *servingCellMO*:

3> if the *reportConfig*contains a *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport*:

4> derive layer 3 filtered SINR per beam for the serving cell based on CSI-RS, as described in 5.5.3.3a;

3> derive serving cell SINR based on CSI-RS, as described in 5.5.3.3;

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

2> if the *reportType* for the associated *reportConfig* is set to *reportCGI* and timer T321 is running:

3> if *useAutonomousGaps* is configured for the associated *reportConfig*:

4> perform the corresponding measurements on the frequency and RAT indicated in the associated *measObject* using autonomous gaps as necessary;

3> else:

4> perform the corresponding measurements on the frequency and RAT indicated in the associated *measObject* using available idle periods;

3> if the cell indicated by *reportCGI* field for the associated *measObject* is an NR cell and that indicated cell is broadcasting *SIB1* (see TS 38.213 [13], clause 13):

4> try to acquire *SIB1* in the concerned cell;

3> if the cell indicated by *reportCGI* field is an E-UTRA cell:

4> try to acquire *SystemInformationBlockType1* in the concerned cell;

2> if the *ul-DelayValueConfig* is configured for the associated *reportConfig*:

3> ignore the *measObject;*

3> for each of the configured DRBs*,* configure the PDCP layer to perform corresponding average UL PDCP packet delay measurement per DRB;

2> if the *reportType* for the associated *reportConfig* is *periodical*, *eventTriggered* or *condTriggerConfig*:

3> if a measurement gap configuration is setup, or

3> if the UE does not require measurement gaps to perform the concerned measurements:

4> if *s-MeasureConfig* is not configured, or

4> if *s-MeasureConfig* is set to *ssb-RSRP* and the NR SpCell RSRP based on SS/PBCH block, after layer 3 filtering, is lower than *ssb-RSRP,* or

4> if *s-MeasureConfig* is set to *csi-RSRP* and the NR SpCell RSRP based on CSI-RS, after layer 3 filtering, is lower than *csi-RSRP*:

5> if the *measObject* is associated to NR and the *rsType* is set to *csi-rs*:

6> if reportQuantityRS-Indexes and maxNrofRS-IndexesToReport for the associated reportConfig are configured:

7> derive layer 3 filtered beam measurements only based on CSI-RS for each measurement quantity indicated in *reportQuantityRS-Indexes*, as described in 5.5.3.3a;

6> derive cell measurement results based on CSI-RS for the trigger quantity and each measurement quantity indicated in *reportQuantityCell* using parameters from the associated *measObject*, as described in 5.5.3.3;

5> if the *measObject* is associated to NR and the *rsType* is set to *ssb*:

6> if reportQuantityRS-Indexes and maxNrofRS-IndexesToReport for the associated reportConfig are configured:

7> derive layer 3 beam measurements only based on SS/PBCH block for each measurement quantity indicated in *reportQuantityRS-Indexes*, as described in 5.5.3.3a;

6> derive cell measurement results based on SS/PBCH block for the trigger quantity and each measurement quantity indicated in *reportQuantityCell* using parameters from the associated *measObject*, as described in 5.5.3.3;

5> if the *measObject* is associated to E-UTRA:

6> perform the corresponding measurements associated to neighbouring cells on the frequencies indicated in the concerned *measObject*, as described in 5.5.3.2;

5> if the measObject is associated to UTRA-FDD:

6> perform the corresponding measurements associated to neighbouring cells on the frequencies indicated in the concerned *measObject*, as described in 5.5.3.2;

4> if the *measRSSI-ReportConfig* is configured in the associated *reportConfig*:

5> perform the RSSI and channel occupancy measurements on the frequency indicated in the associated *measObject*;

2> if the *reportType* for the associated *reportConfig* is set to *reportSFTD*:

3> if the *reportSFTD-Meas* is set to *true:*

4> if the *measObject* is associated to E-UTRA:

5> perform SFTD measurements between the PCell and the E-UTRA PSCell;

5> if the *reportRSRP* is set to *true*;

6> perform RSRP measurements for the E-UTRA PSCell;

4> else if the *measObject* is associated to NR:

5> perform SFTD measurements between the PCell and the NR PSCell;

5> if the *reportRSRP* is set to *true*;

6> perform RSRP measurements for the NR PSCell based on SSB;

3> else if the *reportSFTD-NeighMeas* is included*:*

4> if the *measObject* is associated to NR:

5> if the *drx-SFTD-NeighMeas* is included:

6> perform SFTD measurements between the PCell and the NR neighbouring cell(s) detected based on parameters in the associated *measObject* using available idle periods;

5> else:

6> perform SFTD measurements between the PCell and the NR neighbouring cell(s) detected based on parameters in the associated *measObject*;

5> if the *reportRSRP* is set to *true*:

6> perform RSRP measurements based on SSB for the NR neighbouring cell(s) detected based on parameters in the associated *measObject*;

2> if the *reportType* for the associated *reportConfig* is *cli-Periodical* or *cli-EventTriggered*:

3> perform the corresponding measurements associated to CLI measurement resources indicated in the concerned *measObjectCLI*;

2> perform the evaluation of reporting criteria as specified in 5.5.4, except if *reportConfig* is *condTriggerConfig*.

NOTE 1: The evaluation of conditional reconfiguration execution criteria is specified in 5.3.5.13.

The UE capable of CBR measurement when configured to transmit NR sidelink communication shall:

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

2> if the UE is in RRC\_IDLE or in RRC\_INACTIVE:

3> if the cell chosen for NR sidelink communication provides *SIB12* which includes *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* forthe concerned frequency:

4> perform CBR measurement on pools in *sl-TxPoolSelectedNormal* and *sl-TxPoolExceptional* for the concerned frequency in *SIB12*;

2> if the UE is in RRC\_CONNECTED:

3> if *tx-PoolMeasToAddModList* is included in *VarMeasConfig*:

4> perform CBR measurements on each transmission resource pool indicated in the *tx-PoolMeasToAddModList*;

3> if *sl-TxPoolSelectedNormal*, sl-TxPoolScheduling or sl-TxPoolExceptional is included in *sl-ConfigDedicatedNR* for the concerned frequency within RRCReconfiguration:

4> perform CBR measurement on pools in *sl-TxPoolSelectedNormal*, sl-TxPoolScheduling or sl-TxPoolException*al* if included in *sl-ConfigDedicatedNR* for the concerned frequency within RRCReconfiguration;

3> else if the cell chosen for NR sidelink communication provides *SIB12* which includes *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* forthe concerned frequency:

4> perform CBR measurement on pools in *sl-TxPoolSelectedNormal* and *sl-TxPoolExceptional* for the concerned frequency in *SIB12*;

1> else:

2> perform CBR measurement on pools in *sl-TxPoolSelectedNormal* and *sl-TxPoolExceptional* in *sl-PreconfigurationNR* for the concerned frequency.

NOTE 2: In case the configurations for NR sidelink communication and CBR measurement are acquired via the E-UTRA, configurations for NR sidelink communication in *SIB12*, *sl-ConfigDedicatedNR* within *RRCReconfiguration* used in this subclause are provided by the configurations in *SystemInformationBlockType28*, *sl-ConfigDedicatedNR* within *RRCConnectionReconfiguration* as specified in TS 36.331[10], respectively.

NOTE 3: If a UE that is configured by upper layers to transmit V2X sidelink communication is configured by NR with transmission resource pool(s) and the measurement objects concerning V2X sidelink communication (i.e. by sl-*ConfigDedicatedEUTRA*), it shall perform CBR measurement as specified in subclause 5.5.3 of TS 36.331 [10], based on the transmission resource pool(s) and the measurement object(s) concerning V2X sidelink communication configured by NR.

NOTE 4: For V2X sidelink communication, each of the CBR measurement results is associated with a resource pool, as indicated by the *poolReportId* (see TS 36.331 [10]), that refers to a pool as included in *sl-ConfigDedicatedEUTRA* or *SIB13*.

*END OF CHANGES*

*START OF CHANGES*

5.5.4.1 General

If AS security has been activated successfully, the UE shall:

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

2> if the corresponding *reportConfig* includes a *reportType* set to *eventTriggered* or *periodical*:

3> if the corresponding *measObject* concerns NR:

4> if the *eventA1* or *eventA2* is configured in the corresponding *reportConfig*:

5> consider only the serving cell to be applicable;

4> if the *eventA3* or *eventA5* is configured in the corresponding *reportConfig*:

5> if a serving cell is associated with a *measObjectNR* and neighbours are associated with another *measObjectNR*, consider any serving cell associated with the other *measObjectNR* to be a neighbouring cell as well;

4> if corresponding *reportConfig* includes *reportType* set to *periodical*; or

4> for measurement events other than *eventA1* or *eventA2*:

5> if *useWhiteCellList* is set to *true*:

6> consider any neighbouring cell detected based on parameters in the associated *measObjectNR* to be applicable when the concerned cell is included in the *whiteCellsToAddModList* defined within the *VarMeasConfig* for this *measId*;

5> else:

6> consider any neighbouring cell detected based on parameters in the associated *measObjectNR* to be applicable when the concerned cell is not included in the *blackCellsToAddModList* defined within the *VarMeasConfig* for this *measId*;

3> else if the corresponding *measObject* concerns E-UTRA:

4> if *eventB1* or *eventB2* is configured in the corresponding *reportConfig*:

5> consider a serving cell, if any, on the associated E-UTRA frequency as neighbour cell;

4> else:

5> consider any neighbouring cell detected on the associated frequency to be applicable when the concerned cell is not included in the *blackCellsToAddModListEUTRAN* defined within the *VarMeasConfig* for this *measId*;

3> else if the corresponding *measObject* concerns UTRA-FDD:

4> if *eventB1-UTRA-FDD* or *eventB2-UTRA-FDD* is configured in the corresponding *reportConfig*; or

4> if corresponding *reportConfig* includes *reportType* set to *periodical*:

5> consider a neighbouring cell on the associated frequency to be applicable when the concerned cell is included in the *cellsToAddModList* defined within the *VarMeasConfig* for this *measId*;

2> else if the corresponding *reportConfig* includes a *reportType* set to *reportCGI*:

3> consider the cell detected on the associated *measObject* which has a physical cell identity matching the value of the *cellForWhichToReportCGI* included in the corresponding *reportConfig* within the *VarMeasConfig* to be applicable;

2> else if the corresponding *reportConfig* includes a *reportType* set to *reportSFTD*:

3> if the corresponding *measObject* concerns NR:

4> if the *reportSFTD-Meas* is set to *true*:

5> consider the NR PSCell to be applicable;

4> else if the *reportSFTD-NeighMeas* is included:

5> if *cellsForWhichToReportSFTD* is configured in the corresponding *reportConfig*:

6> consider any NR neighbouring cell detected on the associated *measObjectNR* which has a physical cell identity that is included in the *cellsForWhichToReportSFTD* to be applicable;

5> else:

6> consider up to 3 strongest NR neighbouring cells detected based on parameters in the associated *measObjectNR* to be applicable when the concerned cells are not included in the *blackCellsToAddModList* defined within the *VarMeasConfig* for this *measId*;

3> else if the corresponding *measObject* concerns E-UTRA:

4> if the *reportSFTD-Meas* is set to *true*:

5> consider the E-UTRA PSCell to be applicable;

2> else if the corresponding *reportConfig* includes *measRSSI-ReportConfig*:

3> consider the resource indicated by the *rmtc-Config* on the associated frequency to be applicable;

2> else if the corresponding *reportConfig* includes a *reportType* set to *cli-Periodical or cli-EventTriggered*:

3> consider all CLI measurement resources included in the corresponding *measObject* to be applicable;

2> if the corresponding *reportConfig* concerns the reporting for NR sidelink communication (i.e. *reportConfigNR-SL*):

3> consider the transmission resource pools indicated by the *tx-PoolMeasToAddModList* defined within the *VarMeasConfig* for this *measId* to be applicable;

2> if the *reportType* is set to *eventTriggered* and if the entry condition applicable for this event, i.e. the event corresponding with the *eventId* of the corresponding *reportConfig* within *VarMeasConfig*, is fulfilled for one or more applicable cells for all measurements after layer 3 filtering taken during *timeToTrigger* defined for this event within the *VarMeasConfig*, while the *VarMeasReportList* does not include a measurement reporting entry for this *measId* (a first cell triggers the event):

3> include a measurement reporting entry within the *VarMeasReportList* for this *measId*;

3> set the *numberOfReportsSent* defined within the *VarMeasReportList* for this *measId* to 0;

3> include the concerned cell(s) in the *cellsTriggeredList* defined within the *VarMeasReportList* for this *measId*;

3> if *useT312* is included in *reportConfig* for this event:

4> if T310 for the corresponding SpCell is running; and

4> if T312 is not running for corresponding SpCell:

5> start timer T312 for the corresponding SpCell with the value of T312 configured in the corresponding *measObjectNR*;

3> initiate the measurement reporting procedure, as specified in 5.5.5;

2> else if the *reportType* is set to *eventTriggered* and if the entry condition applicable for this event, i.e. the event corresponding with the *eventId* of the corresponding *reportConfig* within *VarMeasConfig*, is fulfilled for one or more applicable cells not included in the *cellsTriggeredList* for all measurements after layer 3 filtering taken during *timeToTrigger* defined for this event within the *VarMeasConfig* (a subsequent cell triggers the event):

3> set the *numberOfReportsSent* defined within the *VarMeasReportList* for this *measId* to 0;

3> include the concerned cell(s) in the *cellsTriggeredList* defined within the *VarMeasReportList* for this *measId*;

3> if *useT312* is included in *reportConfig* for this event:

4> if T310 for the corresponding SpCell is running; and

4> if T312 is not running for corresponding SpCell:

5> start timer T312 for the corresponding SpCell with the value of T312 configured in the corresponding *measObjectNR*;

3> initiate the measurement reporting procedure, as specified in 5.5.5;

2> else if the *reportType* is set to *eventTriggered* and if the leaving condition applicable for this event is fulfilled for one or more of the cells included in the *cellsTriggeredList* defined within the *VarMeasReportList* for this *measId* for all measurements after layer 3 filtering taken during *timeToTrigger* defined within the *VarMeasConfig* for this event:

3> remove the concerned cell(s) in the *cellsTriggeredList* defined within the *VarMeasReportList* for this *measId*;

3> if *reportOnLeave* is set to *true* for the corresponding reporting configuration:

4> initiate the measurement reporting procedure, as specified in 5.5.5;

3> if the *cellsTriggeredList* defined within the *VarMeasReportList* for this *measId* is empty:

4> remove the measurement reporting entry within the *VarMeasReportList* for this *measId*;

4> stop the periodical reporting timer for this *measId*, if running;

2> else if the *reportType* is set to *eventTriggered* and if the entry condition applicable for this event, i.e. the event corresponding with the *eventId* of the corresponding *reportConfig* within *VarMeasConfig*, is fulfilled for one or more applicable transmission resource pools for all measurements taken during *timeToTrigger* defined for this event within the *VarMeasConfig*, while the *VarMeasReportList* does not include an measurement reporting entry for this *measId* (a first transmission resource pool triggers the event):

3> include a measurement reporting entry within the *VarMeasReportList* for this *measId*;

3> set the *numberOfReportsSent* defined within the *VarMeasReportList* for this *measId* to 0;

3> include the concerned transmission resource pool(s) in the *poolsTriggeredList* defined within the *VarMeasReportList* for this *measId*;

3> initiate the measurement reporting procedure, as specified in 5.5.5;

2> else if the *reportType* is set to *eventTriggered* and if the entry condition applicable for this event, i.e. the event corresponding with the *eventId* of the corresponding *reportConfig* within *VarMeasConfig*, is fulfilled for one or more applicable transmission resource pools not included in the *poolsTriggeredList* for all measurements taken during *timeToTrigger* defined for this event within the *VarMeasConfig* (a subsequent transmission resource pool triggers the event):

3> set the *numberOfReportsSent* defined within the *VarMeasReportList* for this *measId* to 0;

3> include the concerned transmission resource pool(s) in the *poolsTriggeredList* defined within the *VarMeasReportList* for this *measId*;

3> initiate the measurement reporting procedure, as specified in 5.5.5;

2> else if the *reportType* is set to *eventTriggered* and if the leaving condition applicable for this event is fulfilled for one or more applicable transmission resource pools included in the *poolsTriggeredList* defined within the *VarMeasReportList* for this *measId* for all measurements taken during *timeToTrigger* defined within the *VarMeasConfig* for this event:

3> remove the concerned transmission resource pool(s) in the *poolsTriggeredList* defined within the *VarMeasReportList* for this *measId*;

3> if the *poolsTriggeredList* defined within the *VarMeasReportList* for this *measId* is empty:

4> remove the measurement reporting entry within the *VarMeasReportList* for this *measId*;

4> stop the periodical reporting timer for this *measId*, if running;

2> if *reportType* is set to *periodical* and if a (first) measurement result is available:

3> include a measurement reporting entry within the *VarMeasReportList* for this *measId*;

3> set the *numberOfReportsSent* defined within the *VarMeasReportList* for this *measId* to 0;

3> if the *reportAmount* exceeds 1:

4> initiate the measurement reporting procedure, as specified in 5.5.5, immediately after the quantity to be reported becomes available for the NR SpCell;

3> else (i.e. the *reportAmount* is equal to 1):

4> initiate the measurement reporting procedure, as specified in 5.5.5, immediately after the quantity to be reported becomes available for the NR SpCell and for the strongest cell among the applicable cells;

2> if, in case the corresponding *reportConfig* concerns the reporting for NR sidelink communication, *reportType* is set to *periodical* and if a (first) measurement result is available:

3> include a measurement reporting entry within the *VarMeasReportList* for this *measId*;

3> set the *numberOfReportsSent* defined within the *VarMeasReportList* for this *measId* to 0;

3> initiate the measurement reporting procedure, as specified in 5.5.5, immediately after the quantity to be reported becomes available for the NR SpCell and CBR measurement results become available;

2> if the *reportType* is set to *cli-EventTriggered* and if the entry condition applicable for this event, i.e. the event corresponding with the *eventId* of the corresponding *reportConfig* within *VarMeasConfig*, is fulfilled for one or more applicable CLI measurement resources for all measurements after layer 3 filtering taken during *timeToTrigger* defined for this event within the *VarMeasConfig*, while the *VarMeasReportList* does not include a measurement reporting entry for this *measId* (a first CLI measurement resource triggers the event):

3> include a measurement reporting entry within the *VarMeasReportList* for this *measId*;

3> set the *numberOfReportsSent* defined within the *VarMeasReportList* for this *measId* to 0;

3> include the concerned CLI measurement resource(s) in the *cli-TriggeredList* defined within the *VarMeasReportList* for this *measId*;

3> initiate the measurement reporting procedure, as specified in 5.5.5;

2> else if the *reportType* is set to *cli-EventTriggered* and if the entry condition applicable for this event, i.e. the event corresponding with the *eventId* of the corresponding *reportConfig* within *VarMeasConfig*, is fulfilled for one or more CLI measurement resources not included in the *cli-TriggeredList* for all measurements after layer 3 filtering taken during *timeToTrigger* defined for this event within the *VarMeasConfig* (a subsequent CLI measurement resource triggers the event):

3> set the *numberOfReportsSent* defined within the *VarMeasReportList* for this *measId* to 0;

3> include the concerned CLI measurement resource(s) in the *cli-TriggeredList* defined within the *VarMeasReportList* for this *measId*;

3> initiate the measurement reporting procedure, as specified in 5.5.5;

2> else if the *reportType* is set to *cli-EventTriggered* and if the leaving condition applicable for this event is fulfilled for one or more of the CLI measurement resources included in the *cli-TriggeredList* defined within the *VarMeasReportList* for this *measId* for all measurements after layer 3 filtering taken during *timeToTrigger* defined within the *VarMeasConfig* for this event:

3> remove the concerned CLI measurement resource(s) in the *cli-TriggeredList* defined within the *VarMeasReportList* for this *measId*;

3> if *reportOnLeave* is set to *true* for the corresponding reporting configuration:

4> initiate the measurement reporting procedure, as specified in 5.5.5;

3> if the *cli-TriggeredList* defined within the *VarMeasReportList* for this *measId* is empty:

4> remove the measurement reporting entry within the *VarMeasReportList* for this *measId*;

4> stop the periodical reporting timer for this measId, if running;

2> if *reportType* is set to *cli-Periodical* and if a (first) measurement result is available:

3> include a measurement reporting entry within the *VarMeasReportList* for this *measId*;

3> set the *numberOfReportsSent* defined within the *VarMeasReportList* for this *measId* to 0;

3> initiate the measurement reporting procedure, as specified in 5.5.5, immediately after the quantity to be reported becomes available for at least one CLI measurement resource;

2> upon expiry of the periodical reporting timer for this *measId*:

3> initiate the measurement reporting procedure, as specified in 5.5.5.

2> if the corresponding *reportConfig* includes a *reportType* is set to *reportSFTD*:

3> if the corresponding *measObject* concerns NR:

4> if the *drx-SFTD-NeighMeas* is included:

5> if the quantity to be reported becomes available for each requested pair of PCell and NR cell:

6> stop timer T322;

6> initiate the measurement reporting procedure, as specified in 5.5.5;

4> else

5> initiate the measurement reporting procedure, as specified in 5.5.5, immediately after the quantity to be reported becomes available for each requested pair of PCell and NR cell or the maximal measurement reporting delay as specified in TS 38.133 [14];

3> else if the corresponding *measObject* concerns E-UTRA:

4> initiate the measurement reporting procedure, as specified in 5.5.5, immediately after the quantity to be reported becomes available for the pair of PCell and E-UTRA PSCell or the maximal measurement reporting delay as specified in TS 38.133 [14];

2> if *reportType* is set to *reportCGI*:

3> if the UE acquired the *SIB1* or *SystemInformationBlockType1* for the requested cell; or

3> if the UE detects that the requested NR cell is not transmitting *SIB1* (see TS 38.213 [13], clause 13):

4> stop timer T321;

4> include a measurement reporting entry within the *VarMeasReportList* for this *measId*;

4> set the *numberOfReportsSent* defined within the *VarMeasReportList* for this *measId* to 0;

4> initiate the measurement reporting procedure, as specified in 5.5.5;

2> if the corresponding *reportConfig* includes the *ul-DelayValueConfig*:

3> initiate the measurement reporting procedure, as specified in 5.5.5, immediately after a first measurement result is provided by all lower layers of the associated DRB identity;

2> upon the expiry of T321 for this *measId*:

3> include a measurement reporting entry within the *VarMeasReportList* for this *measId*;

3> set the *numberOfReportsSent* defined within the *VarMeasReportList* for this *measId* to 0;

3> initiate the measurement reporting procedure, as specified in 5.5.5.

2> upon the expiry of T322 for this *measId*:

3> initiate the measurement reporting procedure, as specified in 5.5.5;

2> if the corresponding *reportConfig* includes *measRSSI-ReportConfig* and if a (first) measurement result is available:

3> include a measurement reporting entry within the *VarMeasReportList* for this *measId*;

3> set the *numberOfReportsSent* defined within the *VarMeasReportList* for this *measId* to 0;

3> initiate the measurement reporting procedure as specified in 5.5.5 immediately when RSSI sample values are reported by the physical layer after the first L1 measurement duration.

*END OF CHANGES*

*START OF CHANGES*

*END OF CHANGES*

*START OF CHANGES*

5.5.5 Measurement reporting

5.5.5.1 General

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**Figure 5.5.5.1-1: Measurement reporting**

The purpose of this procedure is to transfer measurement results from the UE to the network. The UE shall initiate this procedure only after successful AS security activation.

For the *measId* for which the measurement reporting procedure was triggered, the UE shall set the *measResults* within the *MeasurementReport* message as follows:

1> set the *measId* to the measurement identity that triggered the measurement reporting;

1> for each serving cell configured with *servingCellMO*:

2> if the *reportConfig* associated with the *measId* that triggered the measurement reporting includes *rsType*:

3> if the serving cell measurements based on the *rsType* included in the *reportConfig* that triggered the measurement report are available:

4> set the *measResultServingCell* within *measResultServingMOList* to include RSRP, RSRQ and the available SINR of the serving cell, derived based on the *rsType* included in the *reportConfig* that triggered the measurement report;

2> else:

3> if SSB based serving cell measurements are available:

4> set the *measResultServingCell* within *measResultServingMOList* to include RSRP, RSRQ and the available SINR of the serving cell, derived based on SSB;

3> else if CSI-RS based serving cell measurements are available:

4> set the *measResultServingCell* within *measResultServingMOList* to include RSRP, RSRQ and the available SINR of the serving cell, derived based on CSI-RS;

1> set the *servCellId* within *measResultServingMOList* to include each NR serving cell that is configured with *servingCellMO*, if any;

1> if the *reportConfig* associated with the *measId* that triggered the measurement reporting includes *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport*:

2> for each serving cell configured with *servingCellMO*, include beam measurement information according to the associated *reportConfig* as described in 5.5.5.2;

1> if the *reportConfig* associated with the *measId* that triggered the measurement reporting includes *reportAddNeighMeas*:

2> for each *measObjectId* referenced in the *measIdList* which is also referenced with *servingCellMO*, other than the *measObjectId* corresponding with the *measId* that triggered the measurement reporting:

3> if the *measObjectNR* indicated by the *servingCellMO* includes the RS resource configuration corresponding to the *rsType* indicated in the *reportConfig*:

4> set the *measResultBestNeighCell* within *measResultServingMOList* to include the *physCellId* and the available measurement quantities based on the *reportQuantityCell* and *rsType* indicated in *reportConfig* of the non-serving cell corresponding to the concerned *measObjectNR* with the highest measured RSRP if RSRP measurement results are available for cells corresponding to this *measObjectNR*, otherwise with the highest measured RSRQ if RSRQ measurement results are available for cells corresponding to this *measObjectNR*, otherwise with the highest measured SINR;

4> if the *reportConfig* associated with the *measId* that triggered the measurement reporting includes *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport:*

5> for each best non-serving cell included in the measurement report:

6> include beam measurement information according to the associated *reportConfig* as described in 5.5.5.2;

1> if the *reportConfig* associated with the *measId* that triggered the measurement reporting is set to *eventTriggered* and *eventID* is set to *eventA3*, or *eventA4*, or *eventA5*, or *eventB1*, or *eventB2*:

2> if the UE is in NE-DC and the measurement configuration that triggered this measurement report is associated with the MCG:

3> set the *measResultServFreqListEUTRA-SCG* to include an entry for each E-UTRA SCG serving frequency with the following:

4> include *carrierFreq* of the E-UTRA serving frequency;

4> set the *measResultServingCell* to include the available measurement quantities that the UE is configured to measure by the measurement configuration associated with the SCG;

4> if *reportConfig* associated with the *measId* that triggered the measurement reporting includes *reportAddNeighMeas*:

5> set the *measResultServFreqListEUTRA-SCG* to include within *measResultBestNeighCell* the quantities of the best non-serving cell, based on RSRP, on the concerned serving frequency;

1> if *reportConfig* associated with the *measId* that triggered the measurement reporting is set to *eventTriggered* and *eventID* is set to *eventA3*, or *eventA4*, or *eventA5*:

2> if the UE is in NR-DC and the measurement configuration that triggered this measurement report is associated with the MCG:

3> set the *measResultServFreqListNR-SCG* to include for each NR SCG serving cell that is configured with *servingCellMO*, if any, the following:

4> if the *reportConfig* associated with the *measId* that triggered the measurement reporting includes *rsType*:

5> if the serving cell measurements based on the *rsType* included in the *reportConfig* that triggered the measurement report are available according to the measurement configuration associated with the SCG:

6> set the *measResultServingCell* within *measResultServFreqListNR-SCG* to include RSRP, RSRQ and the available SINR of the serving cell, derived based on the *rsType* included in the *reportConfig* that triggered the measurement report;

4> else:

5> if SSB based serving cell measurements are available according to the measurement configuration associated with the SCG:

6> set the *measResultServingCell* within *measResultServFreqListNR-SCG* to include RSRP, RSRQ and the available SINR of the serving cell, derived based on SSB;

5> else if CSI-RS based serving cell measurements are available according to the measurement configuration associated with the SCG:

6> set the *measResultServingCell* within *measResultServFreqListNR-SCG* to include RSRP, RSRQ and the available SINR of the serving cell, derived based on CSI-RS;

4> if results for the serving cell derived based on SSB are included:

5> include the *ssbFrequency* to the value indicated by ssbFrequency as included in the *MeasObjectNR* of the serving cell;

4> if results for the serving cell derived based on CSI-RS are included:

5> include the *refFreqCSI-RS* to the value indicated by *refFreqCSI-RS* as included in the *MeasObjectNR* of the serving cell;

4> if the *reportConfig* associated with the *measId* that triggered the measurement reporting includes *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport*:

5> for each serving cell configured with *servingCellMO*, include beam measurement information according to the associated *reportConfig* as described in 5.5.5.2, where availability is considered according to the measurement configuration associated with the SCG;

4> if *reportConfig* associated with the *measId* that triggered the measurement reporting includes *reportAddNeighMeas*:

5> if the *measObjectNR* indicated by the *servingCellMO* includes the RS resource configuration corresponding to the *rsType* indicated in the *reportConfig*:

6> set the *measResultBestNeighCellListNR* within *measResultServFreqListNR-SCG* to include one entry with the *physCellId* and the available measurement quantities based on the *reportQuantityCell* and *rsType* indicated in *reportConfig* of the non-serving cell corresponding to the concerned *measObjectNR* with the highest measured RSRP if RSRP measurement results are available for cells corresponding to this *measObjectNR*, otherwise with the highest measured RSRQ if RSRQ measurement results are available for cells corresponding to this *measObjectNR*, otherwise with the highest measured SINR, where availability is considered according to the measurement configuration associated with the SCG;

7> if the *reportConfig* associated with the *measId* that triggered the measurement reporting includes *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport:*

8> for each best non-serving cell included in the measurement report:

9> include beam measurement information according to the associated *reportConfig* as described in 5.5.5.2, where availability is considered according to the measurement configuration associated with the SCG;

1> if the *measRSSI-ReportConfig* is configured within the corresponding *reportConfig* for this *measId*:

2> set the *rssi-Result* to the average of sample value(s) provided by lower layers in the *reportInterval;*

2> set the *channelOccupancy* to the rounded percentage of sample values which are beyond the *channelOccupancyThreshold* within all the sample values in the *reportInterval;*

1> if there is at least one applicable neighbouring cell to report:

2> if the *reportType* is set to *eventTriggered* or *periodical*:

3> set the *measResultNeighCells* to include the best neighbouring cells up to *maxReportCells* in accordance with the following:

4> if the *reportType* is set to *eventTriggered*:

5> include the cells included in the *cellsTriggeredList* as defined within the *VarMeasReportList* for this *measId*;

4> else:

5> include the applicable cells for which the new measurement results became available since the last periodical reporting or since the measurement was initiated or reset;

4> for each cell that is included in the *measResultNeighCells*, include the *physCellId*;

4> if the *reportType* is set to *eventTriggered* or *periodical*:

5> for each included cell, include the layer 3 filtered measured results in accordance with the *reportConfig* for this *measId*, ordered as follows:

6> if the *measObject* associated with this *measId* concerns NR:

7> if *rsType* in the associated *reportConfig* is set to *ssb*:

8> set *resultsSSB-Cell* within the *measResult* to include the SS/PBCH block based quantity(ies) indicated in the *reportQuantityCell* within the concerned *reportConfig*, in decreasing order of the sorting quantity, determined as specified in 5.5.5.3, i.e. the best cell is included first;

8> if *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport* are configured, include beam measurement information as described in 5.5.5.2;

7> else if *rsType* in the associated *reportConfig* is set to *csi-rs*:

8> set *resultsCSI-RS-Cell* within the *measResult* to include the CSI-RS based quantity(ies) indicated in the *reportQuantityCell* within the concerned *reportConfig*, in decreasing order of the sorting quantity, determined as specified in 5.5.5.3, i.e. the best cell is included first;

8> if *reportQuantityRS-Indexes* and *maxNrofRS-IndexesToReport* are configured, include beam measurement information as described in 5.5.5.2;

6> if the *measObject* associated with this *measId* concerns E-UTRA:

7> set the *measResult* to include the quantity(ies) indicated in the *reportQuantity* within the concerned *reportConfigInterRAT* in decreasing order of the sorting quantity, determined as specified in 5.5.5.3, i.e. the best cell is included first;

6> if the *measObject* associated with this *measId* concerns UTRA-FDD and if *ReportConfigInterRAT* includes the *reportQuantityUTRA-FDD*:

7> set the *measResult* to include the quantity(ies) indicated in the *reportQuantityUTRA-FDD* within the concerned *reportConfigInterRAT* in decreasing order of the sorting quantity, determined as specified in 5.5.5.3, i.e. the best cell is included first;

2> else:

3> if the cell indicated by *cellForWhichToReportCGI* is an NR cell:

4> if *plmn-IdentityInfoList* of the *cgi-Info* for the concerned cell has been obtained:

5> include the *plmn-IdentityInfoList* including *plmn-IdentityList*, *trackingAreaCode* (if available), *ranac* (if available), *cellIdentity* and *cellReservedForOperatorUse* for each entry of the *plmn-IdentityInfoList*;

5> include *frequencyBandList* if available;

4> if *nr-CGI-Reporting-NPN* is supported by the UE and *npn-IdentityInfoList* of the *cgi-Info* for the concerned cell has been obtained:

5> include the *npn-IdentityInfoList* including *npn-IdentityList*, *trackingAreaCode*, *ranac* (if available), *cellIdentity* and *cellReservedForOperatorUse* for each entry of the *npn-IdentityInfoList*;

4> else if *MIB* indicates the *SIB1* is not broadcast:

5> include the *noSIB1* including the *ssb-SubcarrierOffset* and *pdcch-ConfigSIB1* obtained from *MIB* of the concerned cell;

3> if the cell indicated by *cellForWhichToReportCGI* is an E-UTRA cell:

4> if all mandatory fields of the *cgi-Info-EPC* for the concerned cell have been obtained:

5> include in the *cgi-Info-EPC* the fields broadcasted in E-UTRA *SystemInformationBlockType1* associated to EPC;

4> if the UE is E-UTRA/5GC capable and all mandatory fields of the *cgi-Info-5GC* for the concerned cell have been obtained:

5> include in the *cgi-Info-5GC* the fields broadcasted in E-UTRA *SystemInformationBlockType1* associated to 5GC;

4> if the mandatory present fields of the *cgi-Info* for the cell indicated by the *cellForWhichToReportCGI* in the associated *measObject* have been obtained:

5> include the *freqBandIndicator*;

5> if the cell broadcasts the *multiBandInfoList*, include the *multiBandInfoList*;

5> if the cell broadcasts the *freqBandIndicatorPriority*, include the *freqBandIndicatorPriority*;

1> if the corresponding *measObject* concerns NR:

2> if the *reportSFTD-Meas* is set to *true* within the corresponding *reportConfigNR* for this *measId*:

3> set the *measResultSFTD-NR* in accordance with the following:

4> set *sfn-OffsetResult* and *frameBoundaryOffsetResult* to the measurement results provided by lower layers;

4> if the *reportRSRP* is set to *true*;

5> set *rsrp-Result* to the RSRP of the NR PSCell derived based on SSB;

2> else if the *reportSFTD-NeighMeas* is included within the corresponding *reportConfigNR* for this *measId*:

3> for each applicable cell which measurement results are available, include an entry in the *measResultCellListSFTD-NR* and set the contents as follows:

4> set *physCellId* to the physical cell identity of the concered NR neighbour cell.

4> set *sfn-OffsetResult* and *frameBoundaryOffsetResult* to the measurement results provided by lower layers;

4> if the *reportRSRP* is set to *true*:

5> set *rsrp-Result* to the RSRP of the concerned cell derived based on SSB;

1> else if the corresponding *measObject* concerns E-UTRA:

2> if the *reportSFTD-Meas* is set to *true* within the corresponding *reportConfigInterRAT* for this *measId*:

3> set the *measResultSFTD-EUTRA* in accordance with the following:

4> set *sfn-OffsetResult* and *frameBoundaryOffsetResult* to the measurement results provided by lower layers;

4> if the *reportRSRP* is set to *true*;

5> set *rsrpResult-EUTRA* to the RSRP of the EUTRA PSCell;

1> if avareage uplink PDCP delay values are available:

2> set the *ul-PDCP-DelayValueResultList* to include the corresponding average uplink PDCP delay values;

1> if the *includeCommonLocationInfo* is configured in the corresponding *reportConfig* for this *measId* and detailed location information that has not been reported is available, set the content of *commonLocationInfo* of the *locationInfo* as follows:

2> include the locationTimestamp;

2> include the *locationCoordinate*, if available;

2> include the *velocityEstimate*, if available;

2> include the *locationError*, if available;

2> include the *locationSource*, if available;

2> if available, include the *gnss-TOD-msec*,

1> if the *includeWLAN-Meas* is configured in the corresponding *reportConfig* for this *measId*, set the *wlan-LocationInfo* of the *locationInfo* in the *measResults* as follows:

2> if available, include the *LogMeasResultWLAN*, in order of decreasing RSSI for WLAN APs;

1> if the *includeBT-Meas* is configured in the corresponding *reportConfig* for this *measId*, set the *BT-LocationInfo* of the *locationInfo* in the *measResults* as follows:

2> if available, include the *LogMeasResultBT*, in order of decreasing RSSI for Bluetooth beacons;

1> if the *includeSensor-Meas* is configured in the corresponding reportConfig for this *measId*, set the *sensor-LocationInfo* of the *locationInfo* in the *measResults* as follows:

2> if available, include the sensor-MeasurementInformation;

2> if available, include the *sensor-MotionInformation*;

1> if there is at least one applicable transmission resource pool for NR sidelink communication to report (for *measResultSL*):

2> set the *measResultsListSL* to include the CBR measurement results in accordance with the following:

3> if the reportType is set to eventTriggered:

4> include the transmission resource pools included in the *poolsTriggeredList* as defined within the *VarMeasReportList* for this *measId*;

3> else:

4> include the applicable transmission resource pools for which the new measurement results became available since the last periodical reporting or since the measurement was initiated or reset;

3> if the corresponding *measObject* concerns NR sidelink communication, then for each transmission resource pool to be reported:

4> set the *sl-poolReportIdentity* to the identity of this transmission resource pool;

4> set the *sl-CBR-ResultsNR* to the CBR measurement results on PSSCH and PSCCH of this transmission resource pool provided by lower layers, if available;

1> if there is at least one applicable CLI measurement resource to report:

2> if the *reportType* is set to *cli-EventTriggered* or *cli-Periodical*:

3> set the *measResultCLI* to include the most interfering SRS resources or most interfering CLI-RSSI resources up to *maxReportCLI* in accordance with the following:

4> if the *reportType* is set to *cli-EventTriggered*:

5> if trigger quantity is set to *srs-RSRP* i.e. *i1-Threshold* is set to *srs-RSRP*:

6> include the SRS resource included in the *cli-TriggeredList* as defined within the *VarMeasReportList* for this *measId*;

5> if trigger quantity is set to *cli-RSSI* i.e. *i1-Threshold* is set to *cli-RSSI*:

6> include the CLI-RSSI resource included in the *cli-TriggeredList* as defined within the *VarMeasReportList* for this *measId*;

4> else:

5> if *reportQuantityCLI* is set to *srs-rsrp*:

6> include the applicable SRS resources for which the new measurement results became available since the last periodical reporting or since the measurement was initiated or reset;

5> else:

6> include the applicable CLI-RSSI resources for which the new measurement results became available since the last periodical reporting or since the measurement was initiated or reset;

4> for each SRS resource that is included in the *measResultCLI*:

5> include the *srs-ResourceId*;

5> set *srs-RSRP-Result* to include the layer 3 filtered measured results in decreasing order, i.e. the most interfering SRS resource is included first;

4> for each CLI-RSSI resource that is included in the *measResultCLI*:

5> include the *rssi-ResourceId*;

5> set *cli-RSSI-Result* to include the layer 3 filtered measured results in decreasing order, i.e. the most interfering CLI-RSSI resource is included first;

1> increment the *numberOfReportsSent* as defined within the *VarMeasReportList* for this *measId* by 1;

1> stop the periodical reporting timer, if running;

1> if the *numberOfReportsSent* as defined within the *VarMeasReportList* for this *measId* is less than the *reportAmount* as defined within the corresponding *reportConfig* for this *measId*:

2> start the periodical reporting timer with the value of *reportInterval* as defined within the corresponding *reportConfig* for this *measId*;

1> else:

2> if the *reportType* is set to *periodical* or *cli-Periodical*:

3> remove the entry within the *VarMeasReportList* for this *measId*;

3> remove this *measId* from the *measIdList* within *VarMeasConfig*;

1> if the mesurement reporting was configured by a *sl-ConfigDedicatedEUTRA* received within the *RRCReconfiguration*:

3> submit the *MeasurementReport* message to lower layers for transmission via SRB1, embedded in LTE RRC message *ULInformationTransferIRAT* as specified TS 36.331 [10], clause 5.x.x.x;

1> if the UE is in (NG)EN-DC:

2> if SRB3 is configured:

3> submit the *MeasurementReport* message via SRB3 to lower layers for transmission, upon which the procedure ends;

2> else:

3> submit the *MeasurementReport* message via E-UTRA 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 measurement configuration that triggered this measurement report is associated with the SCG:

3> if SRB3 is configured:

4> submit the *MeasurementReport* message via SRB3 to lower layers for transmission, upon which the procedure ends;

3> else:

4> submit the *MeasurementReport* message via SRB1 embedded in NR RRC message *ULInformationTransferMRDC* as specified in5.7.2a.3;

2> else:

3> submit the *MeasurementReport* message via SRB1 to lower layers for transmission, upon which the procedure ends;

1> else:

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

*END OF CHANGES*

*START OF CHANGES*

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;

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;

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-FR1-DL to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all downlink carriers of FR1;

4> set reducedBW-FR1-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:

4> include reducedMaxBW-FR2 in the OverheatingAssistance IE;

4> set reducedBW-FR2-DL to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all downlink carriers of FR2;

4> set reducedBW-FR2-UL to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all uplink carriers of FR2;

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 and each DL BWP 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 and each DL BWP 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:

4> include reducedMaxMIMO-LayersFR2 in the OverheatingAssistance IE;

4> set reducedMIMO-LayersFR2-DL to the number of maximum MIMO layers of each serving cell and each DL BWP operating on FR2 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 and each DL BWP 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, reducedMaxMIMO-LayersFR1 and reducedMaxMIMO-LayersFR2 in OverheatingAssistance IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide IDC assistance information according to 5.7.4.2:

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 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 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 combination comprising of carrier frequencies included in *candidateServingFreqListNR*, that is affected by IDC problems;

NOTE 1: When sending an *UEAssistanceInformation* message to inform the IDC problems, the UE includes all IDC assistance information (rather than providing e.g. the changed part(s) of the IDC assistance information).

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* field).

1> if transmission of the *UEAssistanceInformation* message is initiated to provide its preference on DRX parameters of a cell group for power saving according to 5.7.4.2:

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:

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 its preference on the maximum aggregated bandwidth of a cell group for power saving according to 5.7.4.2:

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-FR1-DL* to the maximum aggregated bandwidth the UE desires to have configured across all downlink carriers of FR1;

4> set *reducedBW-FR1-UL* to the maximum aggregated bandwidth the UE desires to have configured across all uplink carriers of FR1;

3> if the UE prefers to reduce the maximum aggregated bandwidth of FR2:

4> include *reducedMaxBW-FR2* in the *MaxBW-Preference* IE;

4> set *reducedBW-FR2-DL* to the maximum aggregated bandwidth the UE desires to have configured across all downlink carriers of FR2;

4> set *reducedBW-FR2-UL* to the maximum aggregated bandwidth the UE desires to have configured across all uplink carriers of FR2;

2> else:

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 its preference on the maximum number of secondary component carriers of a cell group for power saving according to 5.7.4.2:

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 *reducedCCsDL* and *reducedCCsUL* in the *MaxCC-Preference* IE;

3> set *reducedCCsDL* to the number of maximum SCells the UE desires to have configured in downlink;

3> set *reducedCCsUL* to the number of maximum SCells the UE desires to have configured in uplink;

2> else:

3> do not include *reducedCCsDL* and *reducedCCsUL* 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 as zero for both FR1 and FR2, or by reporting the maximum number of secondary component carriers for power saving of the cell group as zero for both uplink and downlink.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide its preference on the maximum number of MIMO layers of a cell group for power saving according to 5.7.4.2:

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 number of maximum MIMO layers of each serving cell operating on FR1 the UE desires to have configured in downlink;

4> set *reducedMIMO-LayersFR1-UL* to the number of maximum MIMO layers of each serving cell operating on FR1 the UE desires to have configured in uplink;

3> if the UE prefers to reduce the number of maximum MIMO layers of each serving cell operating on FR2:

4> include *reducedMaxMIMO-LayersFR2* in the *MaxMIMO-LayerPreference* IE;

4> set *reducedMIMO-LayersFR2-DL* to the number of maximum MIMO layers of each serving cell operating on FR2 the UE desires to have configured in downlink;

4> set *reducedMIMO-LayersFR2-UL* to the number of maximum MIMO layers of each serving cell operating on FR2 the UE desires to have configured in uplink;

2> else:

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 its preference on the minimum scheduling offset for cross-slot scheduling of a cell group for power saving according to 5.7.4.2:

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:

3> do not include *preferredK0* and *preferredK2* in the *minSchedulingOffsetPreference* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide a release preference according to 5.7.4.2:

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 interest in reference time information according to 5.7.4.2:

2> if the UE has an interest in being provisioned with reference time information:

3> set *referenceTimeInfoInterest* to *true*;

2> else:

3> set *referenceTimeInfoInterest* to *false*.

The UE shall set the contents of the *UEAssistanceInformation* message for configured grant assistance information for NR sidelink communication:

1> if configured to provide configured grant assistance information for NR sidelink communication:

2> include the sl-UE-AssistanceInformationNR;

NOTE 1: It is up to UE implementation when and how to trigger configured grant assistance information for NR sidelink communication.

The UE shall:

1> if the UE is in (NG)EN-DC:

2> if SRB3 is configured:

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:

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 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 LTE RRC message *ULInformationTransferIRAT* as specified TS 36.331 [10], clause 5.x.x.x;

1> else:

2> submit the *UEAssistanceInformation* message to lower layers for transmission.

*END OF CHANGES*

*START OF CHANGES*

5.8.3.3 Actions related to transmission of *SidelinkUEInformationNR* message

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

1> if the UE initiates the procedure to indicate it is (no more) interested to receive NR sidelink communication or to request (configuration/ release) of NR sidelink communication transmission resources or to report to the network that a sidelink radio link failure or sidelink RRC reconfiguration failure has been declared (i.e. UE includes all concerned information, irrespective of what triggered the procedure):

2> if *SIB12* including *sl-ConfigCommonNR* is provided by the PCell:

3> if configured by upper layers to receive NR sidelink communication:

4> include *sl-RxInterestedFreqList* and set it to the frequency for NR sidelink communication reception;

3> if configured by upper layers to transmit NR sidelink communication:

4> include *sl-TxResourceReqList* and set its fields (if needed) as follows for each destination for which it requests network to assign NR sidelink communication resource:

5> set *sl-DestinationIdentiy* to the destination identity configured by upper layer for NR sidelink communication transmission;

5> set *sl-CastType* to the cast type of the associated destination identity configured by the upper layer for the NR sidelink communication transmission;

5> set *sl-RLC-ModeIndication* to include the RLC mode(s) and optionally QoS profile(s) of the sidelink QoS flow(s) of the associated RLC mode(s), if the associated bi-directional sidelink DRB has been established due to the configurationby *RRCReconfigurationSidelink*;

5> set *sl-QoS-InfoList* to include QoS profile(s) of the sidelink QoS flow(s) of the associated destination configured by the upper layer for the NR sidelink communication transmission;

5> set *sl-InterestedFreqList* to indicate the frequency for NR sidelink communication transmission;

5> set *sl-TypeTxSyncList* to the current synchronization reference type used on the associated *sl-InterestedFreqList* for NR sidelink communication transmission.

4> include *sl-FailureList* and set its fields as follows for each destination for which it reports the NR sidelink communication failure:

5> set *sl-DestinationIdentiy* to the destination identity configured by upper layer for NR sidelink communication transmission;

5> set *sl-Failure* as *rlf* for the associated destination for the NR sidelink communication transmission, if the sidelink RLF is detected as specified in sub-clause 5.8.9.3;

5> set *sl-Failure* as *configFailure* for the associated destination for the NR sidelink communication transmission, if *RRCReconfigurationFailureSidelink* is received;

1. if the UE initiate the procedure while connected to an E-UTRA PCell:

2> submit the *SidelinkUEInformationNR* to lower layers via SRB1, embedded in LTE RRC message *ULInformationTransferIRAT* as specified TS 36.331 [10], clause 5.x.x.x;

1> else:

2> The UE shall submit the *SidelinkUEInformationNR* message to lower layers for transmission.

*END OF CHANGES*

*START OF CHANGES*

5.7.x UL transfer of IRAT information

5.7.x.1 General

****

**Figure 5.7.x.1-1: UL transfer of IRAT information**

The purpose of this procedure is to transfer from the UE to NR MCG dedicated information terminated at the NR MCG but specified by anoher RAT e.g. the LTE RRC *MeasurementReport* message, the LTE RRC *SidelinkUEInformation* message or the LTE RRC *UEAssistanceInformation* message.

5.7.x.2 Initiation

A UE in RRC\_CONNECTED initiates the UL information transfer procedure whenever there is a need to transfer dedicated inter-RAT information as specified in TS 36.331 [10].

5.7.x.3 Actions related to transmission of *ULInformationTransferIRAT* message

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

1> if there is a need to transfer dedicated LTE information related to V2X sidelink communications:

2> set the *ul-DCCH-MessageEUTRA* to include the V2X sidelink communication information to be transferred (e.g. the E-UTRA RRC *MeasurementReport* message, the E-UTRA RRC *SidelinkUEInformation* message, or the E-UTRA RRC *UEAssistanceInformation* message);

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

*END OF CHANGES*

*START OF CHANGES*

6.2.1 General message structure

*– UL-DCCH-Message*

The *UL-DCCH-Message* class is the set of RRC messages that may be sent from the UE to the network on the uplink DCCH logical channel.

-- ASN1START

-- TAG-UL-DCCH-MESSAGE-START

UL-DCCH-Message ::= SEQUENCE {

message UL-DCCH-MessageType

}

UL-DCCH-MessageType ::= CHOICE {

c1 CHOICE {

measurementReport MeasurementReport,

rrcReconfigurationComplete RRCReconfigurationComplete,

rrcSetupComplete RRCSetupComplete,

rrcReestablishmentComplete RRCReestablishmentComplete,

rrcResumeComplete RRCResumeComplete,

securityModeComplete SecurityModeComplete,

securityModeFailure SecurityModeFailure,

ulInformationTransfer ULInformationTransfer,

locationMeasurementIndication LocationMeasurementIndication,

ueCapabilityInformation UECapabilityInformation,

counterCheckResponse CounterCheckResponse,

ueAssistanceInformation UEAssistanceInformation,

failureInformation FailureInformation,

ulInformationTransferMRDC ULInformationTransferMRDC,

scgFailureInformation SCGFailureInformation,

scgFailureInformationEUTRA SCGFailureInformationEUTRA

},

messageClassExtension CHOICE {

c2 CHOICE {

ulDedicatedMessageSegment-r16 ULDedicatedMessageSegment-r16,

dedicatedSIBRequest-r16 DedicatedSIBRequest-r16,

mcgFailureInformation-r16 MCGFailureInformation-r16,

ueInformationResponse-r16 UEInformationResponse-r16,

sidelinkUEInformationNR-r16 SidelinkUEInformationNR-r16,

ulInformationTransferIRAT-r16 ULInformationTransferIRAT-r16,

spare11 NULL, spare10 NULL, spare9 NULL, spare8 NULL, spare7 NULL, spare6 NULL,

spare5 NULL, spare4 NULL, spare3 NULL, spare2 NULL, spare1 NULL

},

messageClassExtensionFuture-r16 SEQUENCE {}

}

}

-- TAG-UL-DCCH-MESSAGE-STOP

-- ASN1STOP

*END OF CHANGES*

*START OF CHANGES*

### 6.2.2 Message definitions

– *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 OPTIONAL,

nonCriticalExtension RRCReconfiguration-v1530-IEs OPTIONAL

}

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-v16xy-IEs OPTIONAL

}

RRCReconfiguration-v16xy-IEs ::= SEQUENCE {

otherConfig-v16xy OtherConfig-v16xy OPTIONAL, -- Need M

bap-Config-r16 SetupRelease { BAP-Config-r16 } OPTIONAL, -- Need M

conditionalReconfiguration-r16 ConditionalReconfiguration-r16 OPTIONAL, -- Need M

daps-SourceRelease-r16 ENUMERATED{true} OPTIONAL, -- Need N

sl-ConfigDedicatedNR-r16 SetupRelease {SL-ConfigDedicatedNR-r16} OPTIONAL, -- Need M

sl-ConfigDedicatedEUTRA-r16 OCTET STRING OPTIONAL, -- Need M

onDemandSIB-RequestConfig-r16 SetupRelease { OnDemandSIB-Request-r16 } OPTIONAL, -- Need M

t316-r16 SetupRelease {T316-r16 } OPTIONAL, -- Cond MCG-Only

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-BAProutingID-r16 BAP-Routing-ID-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

...

}

-- FFS whether new values for the prohibit timers are needed and whether the value size can be reduced by 3 bits.

OnDemandSIB-Request-r16 ::= SEQUENCE {

onDemandSIB-Request ENUMERATED {true},

onDemandSIB-RequestProhibitTimer ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

spare4, spare3, spare2, spare1}

}

T316-r16 ::= ENUMERATED {ms50, ms100, ms200, ms300, ms400, ms500, ms600, ms1000, ms1500, ms2000}

-- TAG-RRCRECONFIGURATION-STOP

-- ASN1STOP

|  |
| --- |
| ***RRCReconfiguration-IEs* field descriptions** |
| ***bap-Config***  This field is used to configure the BAP entity for IAB-node. |
| ***bap-Address***  Indicates the BAP address of an IAB node. |
| ***conditionalReconfiguration***  Configuration of candidate target SpCell(s) and execution condition(s) for conditional handover or conditional PSCell change. For conditional PSCell change, this field may only be present in an *RRCReconfiguration* message for intra-SN PSCell change. The network does not configure a UE with both conditional PCell change and conditional PSCell change simultaneously. The field is absent if any DAPS bearers configured or if the *masterCellGroup* includes *ReconfigurationWithSync*. |
| ***daps-SourceRelease***  Indicates the UE to release the source 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. |
| ***dedicatedSIB1-Delivery***  This field is used to transfer *SIB1* to the UE. The field has the same values as the corresponding configuration in *servingCellConfigCommon*. |
| ***dedicatedSystemInformationDelivery***  This field is used to transfer *SIB6*, *SIB7*, *SIB8* to the UE with an active BWP with no common serach space configured. For UEs in RRC\_CONNECTED, this field is 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 *during IAB node bootstrapping for F1-C and non-F1 traffic*. |
| ***defaultUL-BH-RLC-Channel***  This field is used for IAB-node to configure the default uplink *bh-RLC-Channel during IAB node bootstrapping for F1-C and non-F1 traffic*. |
| ***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 the IAB-node shall provide flow control feedback per BH RLC channel, value *perRoutingID* indicates 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 bearers configured or when the *RRCReconfiguration* message is transmitted on SRB3, and in an *RRCReconfiguration* message contained in another *RRCReconfiguration* message (or *RRCConnectionReconfiguration* message, see TS 36.331 [10]) transmitted on SRB1. |
| ***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]. |
| ***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* and *measConfig*.  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*. |
| ***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]. |
| ***nextHopChainingCount***  Parameter NCC: See TS 33.501 [11] |
| ***onDemandSIB-Request***  If the field is present, the UE is allowed to request SIB(s) on-demand while in RRC\_CONNECTED. |
| ***otherConfig***  Contains configuration related to other configurations. |
| ***radioBearerConfig***  Configuration of Radio Bearers (DRBs, SRBs) including SDAP/PDCP. In EN-DC this field may only be present if the *RRCReconfiguration* is transmitted over SRB3. |
| ***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. |
| ***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*. |
| ***sl-ConfigDedicatedNR***  This field is used to provide the dedicated configurations for NR sidelink communication. |
| ***sl-ConfigDedicatedEUTRA***  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. |
| ***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. |

|  |  |
| --- | --- |
| **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. 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 reconfiguration with sync and also in first reconfiguration after reestablishment; or for intra-system handover from E-UTRA/5GC to NR. It is absent otherwise. |
| *MCG-Only* | This field is optionally present, Need M, for the NR MCG, if the UE is configured with split SRB1 or SRB3. It is absent otherwise. |
| *SCG* | 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 (or in an RRCConnectionReconfiguration message, see TS 36.331 [10]) and is contained in DLInformationTransferMRDC transmitted on SRB3 (as a response to MCGFailureInformation) * in an RRCReconfiguration message contained in an RRCResume message (or in an RRCConnectionResume message, see TS 36.331 [10]) transmitted on SRB1   Otherwise, the field is absent |







– *ULInformationTransferIRAT*

The *ULInformationTransferIRAT* message is used for the uplink transfer of information terminated at NR MCG but specified by anoher RAT. In this version of the specification, the message is used for V2X sidelink communication information specified in TS 36.331 [10].

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to NR

***ULInformationTransferIRAT message***

-- ASN1START

ULInformationTransferIRAT-r16 ::= SEQUENCE {

criticalExtensions CHOICE {

c1 CHOICE {

ulInformationTransferIRAT-r16 ULInformationTransferIRAT-r16-IEs,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

ULInformationTransferIRAT-r16-IEs ::= SEQUENCE {

ul-DCCH-MessageEUTRA-r16 OCTET STRING OPTIONAL,

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

| ***ULInformationTransferIRAT* field descriptions** |
| --- |
| ***ul-DCCH-MessageEUTRA***  Includes the *UL-DCCH-Message* as defined in TS 38.331 [82]. In this version of the specification, the field is only used to transfer the LTE RRC *MeasurementReport*, LTE RRC *SidelinkUEInformation* and the LTE RRC *UEAssistanceInformation* messages. |

*END OF CHANGES*

*START OF CHANGES*

### 6.3.2 Radio resource control information elements







– *MeasObjectToAddModList*

The IE *MeasObjectToAddModList* concerns a list of measurement objects to add or modify.

***MeasObjectToAddModList* information element**

-- ASN1START

-- TAG-MEASOBJECTTOADDMODLIST-START

MeasObjectToAddModList ::= SEQUENCE (SIZE (1..maxNrofObjectId)) OF MeasObjectToAddMod

MeasObjectToAddMod ::= SEQUENCE {

measObjectId MeasObjectId,

measObject CHOICE {

measObjectNR MeasObjectNR,

...,

measObjectEUTRA MeasObjectEUTRA,

measObjectUTRA-FDD-r16 MeasObjectUTRA-FDD-r16,

measObjectNR-SL-r16 MeasObjectNR-SL-r16,

measObjectCLI-r16 MeasObjectCLI-r16

}

}

-- TAG-MEASOBJECTTOADDMODLIST-STOP

-- ASN1STOP

– *MeasResultsSL*

The IE *MeasResultsSL* covers measured results for NR sidelink communication and V2X sidelink communication.

***MeasResultsSL* information element**

-- ASN1START

-- TAG-MEASRESULTSSL-START

MeasResultsSL-r16 ::= SEQUENCE {

measResultsListSL-r16 CHOICE {

measResultNR-SL-r16 MeasResultNR-SL-r16,

...

},

...

}

MeasResultNR-SL-r16 ::= SEQUENCE {

measResultListCBR-NR-r16 SEQUENCE (SIZE (1.. maxNrofSL-PoolToMeasureNR-r16)) OF MeasResultCBR-NR-r16,

...

}

MeasResultCBR-NR-r16 ::= SEQUENCE {

sl-poolReportIdentity-r16 SL-ResourcePoolID-r16,

sl-CBR-ResultsNR-r16 SL-CBR-r16,

...

}

-- TAG-MEASRESULTSSL-STOP

-- ASN1STOP

| ***MeasResultsSL* field descriptions** |
| --- |
| ***measResultNR-SL***  Include the measured results for NR sidelink communication. |

|  |
| --- |
| ***MeasResultNR-SL* field descriptions** |
| ***measResultListCBR-NR***  CBR measurement results for NR sidelink communication. |
| ***sl-poolReportIdentity***  The identity of the transmission resource pool which is corresponding to the *sl-poolReportID* configured in a resource pool for NR sidelink communication. |















– *ReportConfigToAddModList*

The IE *ReportConfigToAddModList* concerns a list of reporting configurations to add or modify.

**ReportConfigToAddModList information element**

-- ASN1START

-- TAG-REPORTCONFIGTOADDMODLIST-START

ReportConfigToAddModList ::= SEQUENCE (SIZE (1..maxReportConfigId)) OF ReportConfigToAddMod

ReportConfigToAddMod ::= SEQUENCE {

reportConfigId ReportConfigId,

reportConfig CHOICE {

reportConfigNR ReportConfigNR,

...,

reportConfigInterRAT ReportConfigInterRAT,

reportConfigNR-SL-r16 ReportConfigNR-SL-r16,

}

}

-- TAG-REPORTCONFIGTOADDMODLIST-STOP

-- ASN1STOP

*END OF CHANGES*

*START OF CHANGES*

### 6.3.4 Other information elements

– *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

...,

[[

idc-AssistanceConfig-r16 SetupRelease {IDC-AssistanceConfig-r16} OPTIONAL, -- Need M

btNameList-r16 SetupRelease {BT-NameList-r16} OPTIONAL, -- Need R

wlanNameList-r16 SetupRelease {WLAN-NameList-r16} OPTIONAL, -- Need R

sensorNameList-r16 SetupRelease {Sensor-NameList-r16} OPTIONAL, -- Need R

obtainCommonLocationConfig-r16 ObtainCommonLocationConfig-r16 OPTIONAL -- Need R

]]

}

IDC-AssistanceConfig-r16 ::= SEQUENCE {

candidateServingFreqListNR-r16 CandidateServingFreqListNR-r16 OPTIONAL, -- Need M

...

}

CandidateServingFreqListNR-r16 ::= SEQUENCE (SIZE (1..maxFreqIDC-r16)) OF ARFCN-ValueNR

OtherConfig-v16xy ::= SEQUENCE {

sl-AssistanceConfigNR-r16 BOOLEAN 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

referenceTimeInterestReporting-r16 ENUMERATED {true} OPTIONAL, -- Need R

needForGapsConfigNR-r16 SetupRelease {NeedForGapsConfigNR-r16} OPTIONAL -- Need M }

OverheatingAssistanceConfig ::= SEQUENCE {

overheatingIndicationProhibitTimer ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

s60, s90, s120, s300, s600, spare3, spare2, spare1}

}

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}

}

ObtainCommonLocationConfig-r16 ::= SEQUENCE {

obtainLocation-r16 ENUMERATED {setup} OPTIONAL -- Need R

}

-- TAG-OTHERCONFIG-STOP

-- ASN1STOP

| ***OtherConfig* field descriptions** |
| --- |
| ***candidateServingFreqListNR***  Indicates for each candidate NR serving cells, the center frequency around which UE is requested to report IDC issues. |
| ***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. |
| ***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. |
| ***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-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. |
| ***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. |
| ***needForGapsConfigNR***  Configuration for the UE to report measurement gap requirement information of NR target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. |
| ***obtainCommonLocation***  Requests the UE to attempt to have detailed location information available using GNSS. NR configures the field only 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. |
| ***referenceTimeInterestReporting***  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. |
| ***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. |
| ***sensorNameList***  Configuration for the UE to report measurements from specific sensors. |
| ***sl-AssistanceConfigNR***  Indicate whether UE is configured to provide configured grant assistance information for NR sidelink communication. |

*END OF CHANGES*

*START OF CHANGES*

6.3.5 Sidelink information elements



*END OF CHANGES*

*START OF CHANGES*

6.4 RRC multiplicity and type constraint values

– Multiplicity and type constraint definitions

-- ASN1START

-- TAG-MULTIPLICITY-AND-TYPE-CONSTRAINT-DEFINITIONS-START

ffsValue INTEGER ::= 65536 -- Placehold for all FFS values, to be removed

maxNrofFFS-r16 INTEGER ::= 65536 -- Maximum number of FFS

maxAI-DCI-PayloadSize-r16 INTEGER ::= 128 --Maximum size of the DCI payload scrambled with ai-RNTI

maxAI-DCI-PayloadSize-r16-1 INTEGER ::= 127 --Maximum size of the DCI payload scrambled with ai-RNTI minus 1

maxBandComb INTEGER ::= 65536 -- Maximum number of DL band combinations

maxBandsUTRA-FDD-r16 INTEGER ::= 64 -- Maximum number of bands listed in UTRA-FDD UE caps

maxBH-RLC-channelID 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

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 nuber of CBR levels

maxCBR-Level-1-r16 INTEGER ::= 15 -- Maximum number of CBR levels minus 1

maxCellBlack INTEGER ::= 16 -- Maximum number of NR blacklisted cell ranges in SIB3, SIB4

maxCellHistory-r16 INTEGER ::= 16 -- Maximum number of visited cells reported

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 ::= 6 -- Maximum number of cells per carrier for idle/inactive measurements

maxCellMeasUTRA-FDD-r16 INTEGER ::= 32 -- Maximum number of cells in FDD UTRAN

maxCellWhite INTEGER ::= 16 -- Maximum number of NR whitelisted cell ranges in SIB3, SIB4

maxEARFCN INTEGER ::= 262143 -- Maximum value of E-UTRA carrier frequency

maxEUTRA-CellBlack INTEGER ::= 16 -- Maximum number of E-UTRA blacklisted physical cell identity ranges

-- in SIB5

maxEUTRA-NS-Pmax INTEGER ::= 8 -- Maximum number of NS and P-Max values per band

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 (SpCell + SCells) per cell group

maxNrofAggregatedCellsPerCellGroup INTEGER ::= 16

maxNrofDUCells-r16 INTEGER ::= 512 -- Max number of cells configured on the collocated IAB-DU

maxNrofAvailabilityCombinationsPerSet-r16 INTEGER ::= 512 -- Max number of AvailabilityCombinationId used in the DCI format 2\_5

maxNrofAvailabilityCombinationsPerSet-r16-1 INTEGER ::= 511 -- Max number of AvailabilityCombinationId used in the DCI format 2\_5 minus 1

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

maxNrofCG-SL-r16 INTEGER ::= 8 -- Max number of configured sidelink grant

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

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

maxNrofSR-ConfigPerCellGroup INTEGER ::= 8 -- Maximum number of SR configurations per cell group

maxLCG-ID INTEGER ::= 7 -- Maximum value of LCG ID

maxLC-ID INTEGER ::= 32 -- Maximum value of Logical Channel ID

maxLC-ID-Iab-r16 INTEGER ::= 65536 -- Maximum value of BH Logical Channel ID extension

maxLTE-CRS-Patterns-r16 INTEGER ::= 3 -- Maximum number of additional LTE CRS rate matching patterns

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-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

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

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-ResourceSets INTEGER ::= 64 -- Maximum number of NZP CSI-RS resources per cell

maxNrofNZP-CSI-RS-ResourceSets-1 INTEGER ::= 63 -- Maximum number of NZP CSI-RS resources 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. See CSI-IM-ResourceMax in 38.214.

maxNrofCSI-IM-Resources-1 INTEGER ::= 31 -- Maximum number of CSI-IM resources minus 1. See CSI-IM-ResourceMax

-- in 38.214.

maxNrofCSI-IM-ResourcesPerSet INTEGER ::= 8 -- Maximum number of CSI-IM resources per set. See CSI-IM-ResourcePerSetMax

-- in 38.214

maxNrofCSI-IM-ResourceSets INTEGER ::= 64 -- Maximum number of NZP CSI-IM resources per cell

maxNrofCSI-IM-ResourceSets-1 INTEGER ::= 63 -- Maximum number of NZP CSI-IM resources 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

maxNrofFailureDetectionResources INTEGER ::= 10 -- Maximum number of failure detection resources

maxNrofFailureDetectionResources-1 INTEGER ::= 9 -- Maximum number of failure detection resources minus 1

maxNrofFreqSL-r16 INTEGER ::= 8 -- Maximum number of carrier frequncy for for NR sidelink communication

maxNrofSL-BWPs-r16 INTEGER ::= 4 -- Maximum number of BWP for for NR sidelink communication

maxFreqSL-EUTRA-r16 INTEGER ::= 8 -- Maximum number of EUTRA anchor carrier frequncy for NR sidelink

-- communication

maxNrofSL-MeasId-r16 INTEGER ::= 84 -- Maximum number of sidelink measurement identity (RSRP)

maxNrofSL-ObjectId-r16 INTEGER ::= 64 -- Maximum number of sidelink measurement objects (RSRP)

maxNrofSL-ReportConfigId-r16 INTEGER ::= 64 -- Maximum number of sidelink measurement reporting configuration(RSRP)

maxNrofSL-PoolToMeasureNR-r16 INTEGER ::= 8 -- Maximum number of resoure pool for NR sidelink measurement to measure for

-- each measurement object (for CBR)

maxFreqSL-NR-r16 INTEGER ::= 8 -- Maximum number of NR anchor carrier frequncy 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 establisghment

maxNrofCSI-RS-ResourcesRRM INTEGER ::= 96 -- Maximum number of CSI-RS resources for an RRM measurement object

maxNrofCSI-RS-ResourcesRRM-1 INTEGER ::= 95 -- Maximum number of CSI-RS resources 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

maxNrofSL-Dest-1-r16 INTEGER ::= 31 -- Highest index of destination for NR sidelink communication

maxNrofSLRB-r16 INTEGER ::= 512 -- Maximum number of radio bearer for NR sidelink communication per UE

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 poolfor NR sidelink communication

maxNrofTXPool-r16 INTEGER ::= 8 -- Maximum number of Tx resourcepoolfor NR sidelink communication

maxNrofPoolID-r16 INTEGER ::= 16 -- Maximum index of resource pool for NR sidelink communication

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-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 in an SRS resource set 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 in an SRS Positioning

-- resource set 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

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-ResourceGroups-r16 INTEGER ::= 4 -- Maximum number of PUCCH resources groups.

maxNrofPUCCH-ResourcesPerGroup-r16 INTEGER ::= 128 -- Maximum number of PUCCH resources in a PUCCH group.

maxNrofPUCCH-ResourcesPerGroup-1-r16 INTEGER ::= 127 -- Maximum number of PUCCH resources in a PUCCH group minus 1.

maxNrofP0-PUSCH-AlphaSets INTEGER ::= 30 -- Maximum number of P0-pusch-alpha-sets (see 38,213, clause 7.1)

maxNrofP0-PUSCH-AlphaSets-1 INTEGER ::= 29 -- Maximum number of P0-pusch-alpha-sets minus 1 (see 38,213, 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

-- 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.

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 that in BFR config.

maxNrofCandidateBeams-r16 INTEGER ::= 64 -- Max number of candidate beam resources in BFR config.

maxNrofCandidateBeamsExt-r16 INTEGER ::= 9999 -- FFS

maxNrofPCIsPerSMTC INTEGER ::= 64 -- Maximun number of PCIs per SMTC.

maxNrofQFIs INTEGER ::= 64

maxNrofResourceAvailabilityPerCombination-r16 INTEGER ::= 256 -- FFS

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-r16 INTEGER ::= 64

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.

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 suppoted by the UE

maxNrofCSI-RS-Resources INTEGER ::= 7 -- Maximum number of codebook resources supported by the UE

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

maxPO-perPF INTEGER ::= 4 -- Maximum number of paging occasion per paging frame

maxAccessCat-1 INTEGER ::= 63 -- Maximum number of Access Categories minus 1

maxBarringInfoSet INTEGER ::= 8 -- Maximum number of Access Categories

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 identites 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

maxHRNN-Len-r16 INTEGER ::= 48-- Maximum length of HRNNs, value is FFS

maxNPN-r16 INTEGER ::= 12 -- Maximum number of NPNs broadcast and reported by UE at establishment

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)

maxDCI-2-6-Size-r16 INTEGER ::= 140 -- Maximum size of DCI format 2-6

maxDCI-2-6-Size-1-r16 INTEGER ::= 139 -- Maximum DCI format 2-6 size minus 1

maxNrofUL-Allocations-r16 INTEGER ::= 64 -- Maximum number of PUSCH time domain resource allocations

maxNrofP0-PUSCH-Set-r16 INTEGER ::= 2 -- Maximum number of P0 PUSCH set(s)

maxOnDemandSIB INTEGER ::= 3 -- Maximum number of SIB(s) that can be requested on-demand

maxCI-DCI-PayloadSize-r16 INTEGER ::= 126 -- Maximum number of the DCI size for CI

maxCI-DCI-PayloadSize-r16-1 INTEGER ::= 125 -- Maximum number of the DCI size for CI minus 1

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-r16-1 INTEGER ::= 63 -- Maximum number of CLI-RSSI resources for UE minus 1

maxNrofSRS-ResourcesCLI-r16 INTEGER ::= 32 -- Maximum number of SRS resources for CLI measurement for UE

maxCLI-Report-r16 INTEGER ::= 8

maxNrofConfiguredGrantConfig-r16 INTEGER ::= 12 -- Maximum number of configured grant configurations per BWP

maxNrofConfiguredGrantConfig-r16-1 INTEGER ::= 11 -- Maximum number of configured grant configurations per BWP minus 1

maxNrofConfiguredGrantConfigMAC-r16 INTEGER ::= 32 -- Maximum number of configured grant configurations per MAC entity

maxNrofConfiguredGrantConfigMAC-r16-1 INTEGER ::= 31 -- Maximum number of configured grant configurations per MAC entity minus 1

maxNrofSPS-Config-r16 INTEGER ::= 8 -- Maximum number of SPS configurations per BWP

maxNrofSPS-Config-r16-1 INTEGER ::= 7 -- Maximum number of SPS configurations per BWP minus 1

maxNrofDormancyGroups INTEGER ::= 5 --

maxNrofPUCCH-ResourceGroups-1-r16 INTEGER ::= 3 --

maxNrofServingCellsTCI-r16 INTEGER ::= 32 -- Maximum number of serving cells in simultaneousTCI-UpdateList

maxNrofMultiplePUSCHs-r16 INTEGER ::= ffsValue --

-- TAG-MULTIPLICITY-AND-TYPE-CONSTRAINT-DEFINITIONS-STOP

-- ASN1STOP

*END OF CHANGES*

*START OF CHANGES*

7.4 UE variables

NOTE: To facilitate the specification of the UE behavioural requirements, UE variables are represented using ASN.1. Unless explicitly specified otherwise, it is however up to UE implementation how to store the variables. The optionality of the IEs in ASN.1 is used only to indicate that the values may not always be available.

– *NR-UE-Variables*

This ASN.1 segment is the start of the NR UE variable definitions.

-- ASN1START

-- NR-UE-VARIABLES-START

NR-UE-Variables DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

ARFCN-ValueNR,

CellIdentity,

EUTRA-PhysCellId,

MeasId,

MeasIdToAddModList,

MeasIdleCarrierEUTRA-r16,

MeasIdleCarrierNR-r16,

MeasResultIdleEUTRA-r16,

MeasResultIdleNR-r16,

MeasObjectToAddModList,

PhysCellId,

RNTI-Value,

ReportConfigToAddModList,

RSRP-Range,

SL-MeasId-r16,

SL-MeasIdList-r16,

SL-MeasObjectList-r16,

SL-ReportConfigList-r16,

SL-QuantityConfig-r16,

Tx-PoolMeasList-r16,

QuantityConfig,

maxNrofCellMeas,

maxNrofMeasId,

maxFreqIdle-r16,

PhysCellIdUTRA-FDD-r16,

ValidityAreaList-r16,

CondReconfigToAddModList-r16,

ConnEstFailReport-r16,

LoggingDuration-r16,

LoggingInterval-r16,

LogMeasInfoList-r16,

LogMeasInfo-r16,

RA-Report-r16,

RLF-Report-r16,

TraceReference-r16,

WLAN-Identifiers-r16,

WLAN-NameList-r16,

BT-NameList-r16,

PLMN-Identity,

maxPLMN,

RA-ReportList-r16,

VisitedCellInfoList-r16,

AbsoluteTimeInfo-r16,

LoggedEventTriggerConfig-r16,

LoggedPeriodicalReportConfig-r16,

Sensor-NameList-r16,

PLMN-IdentityList2-r16,

AreaConfiguration-r16,

maxNrofSL-MeasId-r16,

maxNrofFreqSL-r16,

maxNrofCLI-RSSI-Resources-r16,

maxNrofSRS-ResourcesCLI-r16,

RSSI-ResourceId-r16,

SRS-ResourceId

FROM NR-RRC-Definitions;

-- NR-UE-VARIABLES-STOP

-- ASN1STOP

– *VarMeasReportList*

The UE variable *VarMeasReportList* includes information about the measurements for which the triggering conditions have been met.

***VarMeasReportList UE variable***

-- ASN1START

-- TAG-VARMEASREPORTLIST-START

VarMeasReportList ::= SEQUENCE (SIZE (1..maxNrofMeasId)) OF VarMeasReport

VarMeasReport ::= SEQUENCE {

-- List of measurement that have been triggered

measId MeasId,

cellsTriggeredList CellsTriggeredList OPTIONAL,

numberOfReportsSent INTEGER,

cli-TriggeredList-r16 CLI-TriggeredList-r16 OPTIONAL,

poolsTriggeredList-r16 CHOICE {

tx-PoolMeasToAddModListNR-r16 Tx-PoolMeasList-r16

} OPTIONAL

}

CellsTriggeredList ::= SEQUENCE (SIZE (1..maxNrofCellMeas)) OF CHOICE {

physCellId PhysCellId,

physCellIdEUTRA EUTRA-PhysCellId,

physCellIdUTRA-FDD-r16 PhysCellIdUTRA-FDD-r16

}

CLI-TriggeredList-r16 ::= CHOICE {

srs-RSRP-TriggeredList-r16 SRS-RSRP-TriggeredList-r16,

cli-RSSI-TriggeredList-r16 CLI-RSSI-TriggeredList-r16

}

SRS-RSRP-TriggeredList-r16 ::= SEQUENCE (SIZE (1.. maxNrofSRS-ResourcesCLI-r16)) OF SRS-ResourceId

CLI-RSSI-TriggeredList-r16 ::= SEQUENCE (SIZE (1.. maxNrofCLI-RSSI-Resources-r16)) OF RSSI-ResourceId-r16

-- TAG-VARMEASREPORTLIST-STOP

-- ASN1STOP

*END OF CHANGES*