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

**Electronic, 1– xx June 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.331** | **CR** | **<CR#>** | **rev** | **-** | **Current version:** | **16.0.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network | **x** | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | V2X IRAT signalling (resolution of S003, S005, B002, S046) | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Samsung | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_V2X\_NRSL-Core | | | | |  | ***Date:*** | | | MAY-20 |
|  |  | | | |  | |  | | |  |
| ***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 capture an outcome of the RAN2 e-mail discussion [Post109bis-e][932][LTE/NR/ASN.1] Resolution of review issues S003, S005, B002, S046 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The CR includes the following changes   * A new message is introduced for transfer of UL information using IRAT encoding but terminated by eNB: ULInformationTransferIRAT * The message includes an octet string that contains an NR UL DCCH message. In this release the message is used for transfer of SL related UL DCCH information as may be included in NR RRC messages: MeasurementReport, SidelinkUEInformationNR and UEAssistanceInformation   + Remove SideLinkUEInformationNR message and procedure   + Remove UEAssistanceInformationNR message and procedure * All SL related DL DCCH information is transferred by an octet string in the LTE Reconfiguration message containing the NR RRCReconfiguration message. The field is a.o. used to configure grant assistance, S1 events   + Remove MeasObjectNR-SL-r16 and it usage, also in procedures   + Remove event S1, S2 within in ReportConfigEUTRA   + Remove configuredGrantAssistanceReport in otherConfig * LTE procedures are updated to cover embedded information   + Receiving LTE Reconfiguration embedded in NR message   + Sending LTE MeasurementReport message embedded in NR ULInformationTransferIRAT   + Sending LTE SidelinkUEInformation message embedded in NR ULInformationTransferIRAT   + Sending LTE UEAssistanceInformation message embedded in NR ULInformationTransferIRAT | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3.5.1, 5.5.4.18/9, 5.5.5.1, 5.6.10.3, 5.6.27, 5.6.x(new) 5.10.2.3. 5.10.15, 6.2.1, 6.2.2, 6.3.5, 6.3.6 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | CR is based on v48 from ASN.1 review | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

5.3.5.1 General

****

**Figure 5.3.5.1-1: RRC connection reconfiguration, successful**

****

**Figure 5.3.5.1-2: RRC connection reconfiguration, failure**

The purpose of this procedure is to modify an RRC connection, e.g. to establish/ modify/ release RBs, to perform handover, to setup/ modify/ release measurements, to add/ modify/ release SCells, to add/modify/release conditional reconfigurations. As part of the procedure, NAS dedicated information may be transferred from E-UTRAN to the UE.

5.3.5.2 Initiation

E-UTRAN may initiate the RRC connection reconfiguration procedure to a UE in RRC\_CONNECTED. E-UTRAN applies the procedure as follows:

- the *mobilityControlInfo* is included only when AS-security has been activated, and SRB2 with at least one DRB are setup and not suspended;

- the establishment of RBs (other than SRB1, that is established during RRC connection establishment) is included only when AS security has been activated;

- the addition of SCells is performed only when AS security has been activated;

- the addition, release or modification of conditional reconfigurations is performed only when AS security has been activated, and SRB2 with at least one DRB are setup and not suspended;

The UE also initiates the RRC connection reconfiguration procedure while in RRC\_CONNECTED when:

- receiving NR *RRCReconfiguration* message that includes an embedded *RRCConnectionReconfiguration* message;

- a conditional reconfiguration (e.g. CHO) is executed i.e. upon the fulfilment of an execution condition, an associated *RRCConnectionReconfiguration* that is stored is applied.

NOTE: Embedding in an NR Reconfiguration is used for the transfer of IRAT DL DCCH information as used for V2X sidelink communication related information specified by NR RRC e.g. to configure dedicated pool related information, CBR measurements, provision of grant assistance)

### 5.5.1 Introduction

The UE reports measurement information in accordance with the measurement configuration as provided by E-UTRAN. E-UTRAN provides the measurement configuration applicable for a UE in RRC\_CONNECTED by means of dedicated signalling, i.e. using the *RRCConnectionReconfiguration* or *RRCConnectionResume* message.

The UE can be requested to perform the following types of measurements:

- Intra-frequency measurements: measurements at the downlink carrier frequency(ies) of the serving cell(s).

- Inter-frequency measurements: measurements at frequencies that differ from any of the downlink carrier frequency(ies) of the serving cell(s).

- Inter-RAT measurements of NR frequencies.

- Inter-RAT measurements of UTRA frequencies.

- Inter-RAT measurements of GERAN frequencies.

- Inter-RAT measurements of CDMA2000 HRPD or CDMA2000 1xRTT or WLAN frequencies.

- CBR measurements for V2X sidelink communication.

- Sensing measurements.

The measurement configuration includes the following parameters:

1. **Measurement objects:** The objects on which the UE shall perform the measurements.

- For intra-frequency and inter-frequency measurements a measurement object is a single E-UTRA carrier frequency. Associated with this carrier frequency, E-UTRAN can configure a list of cell specific offsets, a list of 'blacklisted' cells and a list of 'whitelisted' cells. Blacklisted cells are not considered in event evaluation or measurement reporting.

- For inter-RAT NR measurements a measurement object is a single NR carrier frequency. Associated with this carrier frequency, E-UTRAN can configure a list of 'blacklisted' cells. Blacklisted cells are not considered in event evaluation or measurement reporting.

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

- For inter-RAT GERAN measurements a measurement object is a set of GERAN carrier frequencies.

- For inter-RAT CDMA2000 measurements a measurement object is a set of cells on a single (HRPD or 1xRTT) carrier frequency.

- For inter-RAT WLAN measurements a measurement object is a set of WLAN identifiers and optionally a set of WLAN frequencies.

- For CBR measurements and sensing measurements a measurement object is a set of transmission resource pools for V2X sidelink communication.

NOTE 1: Some measurements using the above mentioned measurement objects, only concern a single cell, e.g. measurements used to report neighbouring cell system information, PCell UE Rx-Tx time difference, or a pair of cells, e.g. SSTD measurements between the PCell and the PSCell.

2. **Reporting configurations**: A list of reporting configurations where each 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.

- Reporting format: The quantities that the UE includes in the measurement report and associated information (e.g. number of cells to report).

3. **Measurement identities**: 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 used as a reference number in the measurement report.

4. **Quantity configurations:** One quantity configuration is configured per RAT type. The quantity configuration defines the measurement quantities and associated filtering used for all event evaluation and related reporting of that measurement type. One filter can be configured per measurement quantity, except for NR where the network may configure up to 2 sets of quantity configurations each comprising per measurement quantity seperate filters for cell and RS index measurement results. The quantity configuration set that applies for a given measurement is indicated within the NR measurement object.

5. **Measurement gaps:** Periods that the UE may use to perform measurements, i.e. no (UL, DL) transmissions are scheduled.

E-UTRAN only configures a single measurement object for a given frequency (except for WLAN and except for CBR measurements), i.e. it is not possible to configure two or more measurement objects for the same frequency with different associated parameters, e.g. different offsets and/ or blacklists. E-UTRAN may configure multiple instances of the same event e.g. by configuring two reporting configurations with different thresholds.

The UE maintains a single measurement object list, a single reporting configuration list, and a single measurement identities list. The measurement object list includes measurement objects, that are specified per RAT type, possibly including intra-frequency object(s) (i.e. the object(s) corresponding to the serving frequency(ies)), inter-frequency object(s) and inter-RAT objects. Similarly, the reporting configuration list includes E-UTRA 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 serving cell(s) - these are the PCell and one or more SCells, if configured for a UE supporting CA or DC. Likewise, NR serving cell(s) are the NR PCell, NR PSCell and NR SCells, if the UE is configured with MR-DC.

2. Listed cells - these are cells listed within the measurement object(s) or, for inter-RAT WLAN, the WLANs matching the WLAN identifiers configured in the measurement object or the WLAN the UE is connected to.

3. Detected cells - these are cells that are not listed within the measurement object(s) but are detected by the UE on the carrier frequency(ies) indicated by the measurement object(s) or, for inter-RAT WLAN, the WLANs not included in the *measObjectWLAN* but meeting the triggering requirements.

For E-UTRA, the UE measures and reports on the serving cell(s), listed cells, detected cells, transmission resource pools for V2X sidelink communication, and, for RSSI and channel occupancy measurements, the UE measures and reports on any reception on the indicated frequency. For inter-RAT NR, the UE measures and reports on detected cells and, if configured with MR-DC, on NR serving cell(s). For inter-RAT UTRA, the UE measures and reports on listed cells and optionally on cells that are within a range for which reporting is allowed by E-UTRAN. For inter-RAT GERAN, the UE measures and reports on detected cells. For inter-RAT CDMA2000, the UE measures and reports on listed cells. For inter-RAT WLAN, the UE measures and reports on listed cells.

NOTE 2: For inter-RAT UTRA and CDMA2000, the UE measures and reports also on detected cells for the purpose of SON.

NOTE 3: This specification is based on the assumption that typically CSG cells of home deployment type are not indicated within the neighbour list. Furthermore, the assumption is that for non-home deployments, the physical cell identity is unique within the area of a large macro cell (i.e. as for UTRAN).

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*.

#### 5.5.2.2a Measurement identity autonomous removal

The UE shall:

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

2> if the associated *reportConfig* concerns an event involving a serving cell while the concerned serving cell is not configured; or

2> if the associated *reportConfig* concerns an event involving a WLAN mobility set while the concerned WLAN mobility set is not configured; or

2> if the associated *reportConfig* concerns an event involving a transmission resource pool for V2X sidelink communication while the concerned resource pool is not configured; or

2> if the associated *reportConfig* concerns an event involving *reportSFTD-Meas* set to *pSCell* while the *nr-Config* is not configured:

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

3> remove the measurement reporting entry for this *measId* from the *VarMeasReportList*, if included;

3> stop the periodical reporting timer if running, and reset the associated information (e.g. *timeToTrigger*) for this *measId*;

NOTE 1: The above UE autonomous removal of *measId*'s applies only for measurement events A1, A2, A6, and also applies for events A3 and A5 if configured for PSCell and W2 and W3 and V1 and V2 and event involving *reportSFTD-Meas* set to *pSCell*, if configured.

NOTE 2: When performed during re-establishment, the UE is only configured with a primary frequency (i.e. the SCell(s) and WLAN mobility set are released, if configured).

5.5.3.1 General

For all measurements, except for UE Rx–Tx time difference measurements, RSSI, UL PDCP Packet Delay per QCI measurement, channel occupancy measurements, CBR measurement, sensing measurement and except for WLAN measurements of Band, Carrier Info, Available Admission Capacity, Backhaul Bandwidth, Channel Utilization, and Station Count, the UE applies the layer 3 filtering as specified in 5.5.3.2, before using the measured results for evaluation of reporting criteria, for measurement reporting or for evaluation of fulfilment of the criteria to trigger conditional reconfiguration execution. When performing measurements on NR carriers, the UE derives the cell quality as specified in 5.5.3.3 and the beam quality as specified in 5.5.3.4.

>Cut until next modified section

If a UE that is configured by upper layers to transmit NR sidelink communication is configured by EUTRA with transmission resource pool(s) in *SystemInformationBlockType28* or by *sl-ConfigDedicatedNR* and the measurements concerning NR sidelink communication (i.e. by *sl-ConfigDedicatedNR*), it shall perform CBR measurement as specified in subclause 5.5.3 of TS 38.331 [82], based on the transmission resource pool(s) in *SystemInformationBlockType28* or *sl-ConfigDedicatedNR*.

NOTE 2a: *SIB12* specified in subclause 5.5.3 of TS 38.331 is provided in *SystemInformationBlockType28*.

NOTE 2b: For NR sidelink communication, each of the CBR measurement results is associated with a resource pool, as indicated by the *sl-poolReportIdentity* (see TS 38.331 [82]), that refers to a pool as included in *sl-ConfigDedicatedNR* or *SytemInformationBlockType28*.

NOTE 3: The *s-Measure* defines when the UE is required to perform measurements. The UE is however allowed to perform measurements also when the PCell RSRP (or PSCell RSRP, if the UE is in NE-DC) exceeds *s-Measure*, e.g., to measure cells broadcasting a CSG identity following use of the autonomous search function as defined in TS 36.304 [4].

NOTE 4: The UE may not perform the WLAN measurements it is configured with e.g. due to connection to another WLAN based on user preferences as specified in TS 23.402 [75] or due to turning off WLAN.

#### 5.5.4.1 General

If 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 purpose set to *reportStrongestCellsForSON*:

3> consider any neighbouring cell detected on the associated frequency to be applicable;

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

3> consider any neighbouring cell detected on the associated frequency/ set of frequencies (GERAN) which has a physical cell identity matching the value of the *cellForWhichToReportCGI* included in the corresponding *measObject* within the *VarMeasConfig* to be applicable;

2> else:

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

4> if the *ue-RxTxTimeDiffPeriodical* is configured in the corresponding *reportConfig*:

5> consider only the PCell to be applicable;

4> else if the *reportSSTD-Meas* is set to *true* in the corresponding *reportConfig*:

5> consider the PSCell to be applicable;

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

5> consider only the serving cell to be applicable;

4> else if *eventC1* or *eventC2* is configured in the corresponding *reportConfig*; or if *reportStrongestCSI-RSs* is included in the corresponding *reportConfig*:

5> consider a CSI-RS resource on the associated frequency to be applicable when the concerned CSI-RS resource is included in the *measCSI-RS-ToAddModList* defined within the *VarMeasConfig* for this *measId*;

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

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

4> else:

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

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

5> for events involving a serving cell on one frequency and neighbours on another frequency, consider the serving cell on the other frequency as a neighbouring cell;

4> if the corresponding *reportConfig* includes *alternativeTimeToTrigger* and if the UE supports *alternativeTimeToTrigger*:

5> use the value of *alternativeTimeToTrigger* as the time to trigger instead of the value of *timeToTrigger* in the corresponding *reportConfig* for cells included in the *altTTT-CellsToAddModList* of the corresponding *measObject*;

3> else if the corresponding *measObject* concerns UTRA or CDMA2000:

4> 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* (i.e. the cell is included in the white-list);

NOTE 0: The UE may also consider a neighbouring cell on the associated UTRA frequency to be applicable when the concerned cell is included in the *csg-allowedReportingCells* within the *VarMeasConfig* for this *measId*, if configured in the corresponding *measObjectUTRA* (i.e. the cell is included in the range of physical cell identities for which reporting is allowed).

3> else if the corresponding *measObject* concerns GERAN:

4> consider a neighbouring cell on the associated set of frequencies to be applicable when the concerned cell matches the *ncc-Permitted* defined within the *VarMeasConfig* for this *measId*;

3> else if the corresponding *measObject* concerns WLAN:

4> consider a WLAN on the associated set of frequencies, as indicated by *carrierFreq* or on all WLAN frequencies when *carrierFreq* is not present, to be applicable if the WLAN matches all WLAN identifiers of at least one entry within *wlan-Id-List* for this *measId*;

3> else if the corresponding *measObject* concerns NR:

4> if the *reportSFTD-Meas* is set to *pSCell* in the corresponding *reportConfigInterRAT*:

5> consider the PSCell to be applicable;

4> else if the *reportSFTD-Meas* is set to *neighborCells* in the corresponding *reportConfigInterRAT*:

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

6> consider any neighbouring NR cell on the associated frequency that is included in *cellsForWhichToReportSFTD* to be applicable;

5> else:

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

4> else:

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

6> consider a serving cell, if any, on the associated NR frequency as neighbouring cell;

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

2> if *tx-ResourcePoolToAddList* is configured in the *measObject*, and if the corresponding *reportConfig* includes a purpose set to *sidelink* or includes *eventV1* or *eventV2*:

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

2> if the corresponding *reportConfig* includes a purpose set to *reportLocation*:

3> consider only the PCell to be applicable;

2> if the *triggerType* is set to *event,* and if the corresponding *reportConfig* does not include *numberOfTriggeringCells,* 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 the UE supports T312 and if *useT312* is included for this event and if T310 is running:

4> if T312 is not running:

5> start timer T312 with the value configured in the corresponding *measObject*;

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

2> if the *triggerType* is set to *event,* and if the corresponding *reportConfig* does not include *numberOfTriggeringCells,* 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 the UE supports T312 and if *useT312* is included for this event and if T310 is running:

4> if T312 is not running:

5> start timer T312 with the value configured in the corresponding *measObject*;

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

2> if the *triggerType* is set to *event* and if the corresponding *reportConfig* includes *numberOfTriggeringCells,* 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*:

3> If the *VarMeasReportList* does not include a measurement reporting entry for this *measId* (a first cell triggers the event):

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

3> If the number of cell(s) in the *cellsTriggeredList* is larger than or equal to *numberOfTriggeringCell*:

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

3> else:

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

4> If the number of cell(s) in the *cellsTriggeredList* is larger than or equal to *numberOfTriggeringCells*:

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

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

2> if the *triggerType* is set to *event* 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 or if *a6-ReportOnLeave* is set to *TRUE* or if *a4-a5-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> if the *triggerType* is set to *event* 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 CSI-RS resources for all measurements after layer 3 filtering taken during *timeToTrigger* defined for this event within the *VarMeasConfig*, while the *VarMeasReportList* does not include an measurement reporting entry for this *measId* (i.e. a first CSI-RS 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 CSI-RS resource(s) in the *csi-RS-TriggeredList* defined within the *VarMeasReportList* for this *measId*;

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

2> if the *triggerType* is set to *event* 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 CSI-RS resources not included in the *csi-RS-TriggeredList* for all measurements after layer 3 filtering taken during *timeToTrigger* defined for this event within the *VarMeasConfig* (i.e. a subsequent CSI-RS resource triggers the event):

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

3> include the concerned CSI-RS resource(s) in the *csi-RS-TriggeredList* defined within the *VarMeasReportList* for this *measId*;

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

2> if the *triggerType* is set to *event* and if the leaving condition applicable for this event is fulfilled for one or more of the CSI-RS resources included in the *csi-RS-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 CSI-RS resource(s) in the *csi-RS-TriggeredList* defined within the *VarMeasReportList* for this *measId*;

3> if *c1-ReportOnLeave* is set to *TRUE* for the corresponding reporting configuration or if *c2-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 *csi-RS-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 the *triggerType* is set to *event* 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> if the *triggerType* is set to *event* 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> if the *triggerType* is set to *event* 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) from 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 the *triggerType* is set to *event* and if the *eventId* is set to *eventH1* or *eventH2* and if the entering condition applicable for this event, i.e. the event corresponding with the *eventId* of the corresponding *reportConfig* within *VarMeasConfig*, is fulfilled during *timeToTrigger* defined within the *VarMeasConfig* for this 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> initiate the measurement reporting procedure, as specified in 5.5.5;

2> if *measRSSI-ReportConfig* is included 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;

2> else if the *purpose* is included and set to *reportStrongestCells,* *reportStrongestCellsForSON*, *reportLocation sidelink* or *sensing* 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 *purpose* is set to *reportStrongestCells* and *reportStrongestCSI-RSs* is not included:

4> if the *triggerType* is set to *periodical* and the corresponding *reportConfig* includes the *ul-DelayConfig*:

5> initiate the measurement reporting procedure, as specified in 5.5.5, immediately after a first measurement result is provided by lower layers;

4> else if the corresponding measurement object concerns WLAN:

5> initiate the measurement reporting procedure, as specified in 5.5.5, immediately after the quantity to be reported becomes available for the PCell and for the applicable WLAN(s);

4> else if the *reportAmount* exceeds 1:

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

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

5> initiate the measurement reporting procedure, as specified in 5.5.5, immediately after the quantity to be reported becomes available for the PCell and for the strongest cell among the applicable cells, or becomes available for the pair of PCell and the PSCell in case of SSTD measurements, or becomes available for each requested pair of PCell and NR cell or the maximal measurement reporting delay as specified in TS 36.133 [16], clause 8.17.2.3 in case of SFTD measurements;

3> if the *purpose* is set to *reportLocation*, *sidelink,* or *sensing*:

4> if the *purpose* is set to *reportLocation*:

5> initiate the measurement reporting procedure, as specified in 5.5.5, immediately after both the quantity to be reported for the PCell and the location information become available;

4> else if the *purpose* is set to *sidelink*:

5> initiate the measurement reporting procedure as specified in 5.5.5 immediately after both the quantity to be reported for the PCell and the CBR measurement result become available;

4> else if the *purpose* is set to *sensing*:

5> initiate the measurement reporting procedure as specified in 5.5.5 immediately after both the quantity to be reported for the PCell and the sensing measurement result become available;

3> else if the *purpose* is not set to *reportStrongestCells* or *reportStrongestCSI-RSs* is included:

4> initiate the measurement reporting procedure, as specified in 5.5.5, when it has determined the strongest cells on the associated frequency;

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 *purpose* is included and set to *reportCGI*:

3> if the UE acquired the information needed to set all fields of *cgi-Info* for the requested cell; or

3> if the UE detects that the requested NR cell is not transmitting *SIB1:*

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> stop timer T321;

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

2> upon expiry of the 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;

NOTE 2: The UE does not stop the periodical reporting with *triggerType* set to *event* or to *periodical* while the corresponding measurement is not performed due to the PCell RSRP (or PSCell RSRP, if the UE is in NE-DC) being equal to or better than *s-Measure* or due to the measurement gap not being setup.

NOTE 3: If the UE is configured with DRX, the UE may delay the measurement reporting for event triggered and periodical triggered measurements until the Active Time, which is defined in TS 36.321 [6].

5.5.5.1 General

****

**Figure 5.5.5.1-1: Measurement reporting**

The purpose of this procedure is to transfer measurement results from the UE to E-UTRAN. The UE shall initiate this procedure only after successful 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;

>Cut until next modified section

1> if the *triggerType* is set to *event*; and if *eventId* is set to *eventH1* or *eventH2*:

2> set the *heightUE* to include the altitude of the UE;

>Cut until next modified section

1> if the measurement that triggered the measurement reporting procedure was configured by an *RRCConnectionReconfiguration* message that was received embedded within an NR *RRCReconfiguration* message:

2> submit the *MeasurementReport* message via SRB1 embedded in NR RRC message *ULInformationTransferIRAT* as specified in TS 38.331 [82].

1> if the UE is configured with NE-DC:

2> submit the *MeasurementReport* message via SRB1 embedded in NR RRC message *ULInformationTransferMRDC* as specified in TS 38.331 [82].

1> else:

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

5.6.10.3 Actions related to transmission of *UEAssistanceInformation* message

The UE shall set the contents of the *UEAssistanceInformation* message for power preference indications:

1> if configured to provide power preference indication and if the UE prefers a configuration primarily optimised for power saving:

2> set *powerPrefIndication* to *lowPowerConsumption*;

1> else if configured to provide power preference indication:

2> set *powerPrefIndication* to *normal*;

The UE shall set the contents of the *UEAssistanceInformation* message for SPS assistance information:

1> if configured to provide SPS assistance information:

2> if there is any traffic for V2X sidelink communication which needs to report SPS assistance information:

3> include *trafficPatternInfoListSL* in the *UEAssistanceInformation* message;

2> if there is any traffic for uplink communication which needs to report SPS assistance information:

3> include *trafficPatternInfoListUL* in the *UEAssistanceInformation* message;

The UE shall set the contents of the *UEAssistanceInformation* message for bandwidth preference indications:

1> set *bw-Preference* to its preferred configuration;

The UE shall set the contents of the *UEAssistanceInformation* message for delay budget report:

1> if configured to provide delay budget report:

2> if the UE prefers an adjustment in the connected mode DRX cycle length:

3> set *delayBudgetReport* to *type1* according to a desired value;

2> else if the UE prefers coverage enhancement configuration change:

3> set *delayBudgetReport* to *type2* according to a desired value;

The UE shall set the contents of the *UEAssistanceInformation* message for the RLM report:

1> if configured to provide RLM report:

2> if T314 has expired:

3> set *rlm-event* to *earlyOutOfSync*;

2> if T315 has expired:

3> set *rlm-event* to *earlyInSync*;

3> if configured to report *rlmReportRep-MPDCCH*:

4> set *excessRep-MPDCCH* to the value indicated by lower layers;

The UE shall set the contents of the *UEAssistanceInformation* message for overheating assistance indication:

1> if configured to provide overheating assistance indication:

2> if the UE experiences internal overheating:

3> if the UE prefers to temporarily reduce its DL category and UL category:

4> include *reducedUE-Category* in the *OverheatingAssistance* IE;

4> set *reducedUE-CategoryDL* to the number to which the UE prefers to temporarily reduce its DL category;

4> set *reducedUE-CategoryUL* to the number to which the UE prefers to temporarily reduce its UL category;

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;

2> else (if the UE no longer experiences an overheating condition):

3> do not include *reducedUE-Category* and *reducedMaxCCs* in *OverheatingAssistance* IE;

1> if the procedure was triggered to provide SPS assistance information and the related configuration was provided by an *RRCConnectionReconfiguration* message that was received embedded within an NR *RRCReconfiguration* message:

2> submit the *UEAssistanceInformation* message via SRB1 embedded in NR RRC message *ULInformationTransferIRAT* as specified in TS 38.331 [82];

1> else:

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

NOTE 1: It is up to UE implementation when and how to trigger SPS assistance information.

NOTE 2: It is up to UE implementation to set the content of *trafficPatternInfoListSL* and *trafficPatternInfoListUL*.

NOTE 3: Traffic patterns for different Destination Layer 2 IDs are provided in different entries in *trafficPatternInfoListSL.*

NOTE 4: Although not recommended, UE may start or restart the following timers whenever it sends the *UEAssistanceInformation* message (i.e. even if the message was not triggered for the concerned feature): T340, T341, T342, T343, T344 and T345*.*

5.6.x UL transfer of IRAT information

5.6.x.1 General

****

**Figure 5.6.x.1-1: UL transfer of IRAT information**

The purpose of this procedure is to transfer from the UE to E-UTRAN dedicated information terminated by E-UTRAN but specified by anoher RAT e.g. the NR RRC MeasurementReport message, the NR RRC SidelinkUEInformationNR message or the NR RRC UEAssistanceInformation message.

5.6.x.2 Initiation

A UE in RRC\_CONNECTED initiates the UL information transfer procedure whenever there is a need to transfer dedicated IRAT information as specified in TS 38.331 [82].

5.6.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 NR information concerning:

2> set the *ul-DCCH-MessageNR* to include the IRAT dedicated information to be transferred;

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

#### 5.10.2.3 Actions related to transmission of *SidelinkUEInformation* message

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

1> if the UE initiates the procedure to indicate it is (no more) interested to receive sidelink communication or discovery or receive V2X sidelink communication or to request (configuration/ release) of sidelink communication or V2X sidelink communication or sidelink discovery transmission resources (i.e. UE includes all concerned information, irrespective of what triggered the procedure):

2> if *SystemInformationBlockType18* is broadcast by the PCell:

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

4> include *commRxInterestedFreq* and set it to the sidelink communication frequency;

3> if configured by upper layers to transmit non-relay related one-to-many sidelink communication:

4> include *commTxResourceReq* and set its fields as follows:

5> set *carrierFreq* to indicate the sidelink communication frequency i.e. the same value as indicated in *commRxInterestedFreq* if included;

5> set *destinationInfoList* to include the non-relay related one-to-many sidelink communication transmission destination(s) for which it requests E-UTRAN to assign dedicated resources;

3> if configured by upper layers to transmit non-relay related one-to-one sidelink communication; and

3> if *commTxResourceUC-ReqAllowed* is included in *SystemInformationBlockType18*:

4> include *commTxResourceReqUC* and set its fields as follows:

5> set *carrierFreq* to indicate the one-to-one sidelink communication frequency i.e. the same value as indicated in *commRxInterestedFreq* if included;

5> set *destinationInfoList* to include the non-relay related one-to-one sidelink communication transmission destination(s) for which it requests E-UTRAN to assign dedicated resources;

3> if configured by upper layers to transmit relay related one-to-one sidelink communication; and

3> if *SystemInformationBlockType19* is broadcast by the PCell including *discConfigRelay*; and

3> if the UE is acting as sidelink relay UE; or if the UE has a selected sidelink relay UE; and if the sidelink remote UE threshold conditions as specified in 5.10.11.5 are met:

4> include *commTxResourceReqRelayUC* and set its fields as follows:

5> set *destinationInfoList* to include the one-to-one sidelink communication transmission destination(s) for which it requests E-UTRAN to assign dedicated resources;

4> include *ue-Type* and set it to *relayUE* if the UE is acting as sidelink relay UE and to *remoteUE* otherwise;

3> if configured by upper layers to transmit relay related one-to-many sidelink communication; and

3> if *SystemInformationBlockType19* is broadcast by the PCell including *discConfigRelay*; and

3> if the UE is acting as sidelink relay UE:

4> include *commTxResourceReqRelay* and set its fields as follows:

5> set *destinationInfoList* to include the one-to-many sidelink communication transmission destination(s) for which it requests E-UTRAN to assign dedicated resources;

4> include *ue-Type* and set it to *relayUE*;

2> if *SystemInformationBlockType19* is broadcast by the PCell:

3> if configured by upper layers to receive sidelink discovery announcements on a serving frequency or one or more frequencies included in *discInterFreqList*, if included in *SystemInformationBlockType19*:

4> include *discRxInterest*;

3> if the UE is configured by upper layers to transmit non-PS related sidelink discovery announcements:

4> for each frequency on which the UE is configured to transmit non-PS related sidelink discovery announcements that concerns the primary frequency or that is included in *discInterFreqList* with *discTxResourcesInterFreq* included within *discResourcesNonPS* and not set to *noTxOnCarrier*:

5> for the first frequency, include *discTxResourceReq* and set it to indicate the number of discovery messages for sidelink discovery announcement(s) for which it requests E-UTRAN to assign dedicated resources as well as the concerned frequency, if different from the primary;

5> for any additional frequency, include *discTxResourceReqAddFreq* and set it to indicate the number of discovery messages for sidelink discovery announcement(s) for which it requests E-UTRAN to assign dedicated resources as well as the concerned frequency;

3> if configured by upper layers to transmit PS related sidelink discovery announcements; and

3> if the frequency on which the UE is configured to transmit PS related sidelink discovery announcements either concerns the primary frequency or, in case of non-relay PS related sidelink discovery announcements, is included in *discInterFreqList* with *discTxResources InterFreq* included within *discResourcesPS* and not set to *noTxOnCarrier*:

4> if configured by upper layers to transmit non-relay PS related sidelink discovery announcements and *SystemInformationBlockType19* includes *discConfigPS*; or

4> if the UE is acting as sidelink relay UE; and if *SystemInformationBlockType19* includes *discConfigRelay*; and if the sidelink relay UE threshold conditions as specified in 5.10.10.4 are met; or

4> if the UE is selecting a sidelink relay UE / has a selected sidelink relay UE; and if *SystemInformationBlockType19* includes *discConfigRelay*; and if the sidelink remote UE threshold conditions as specified in 5.10.11.5 are met:

5> include *discTxResourceReqPS* and set it to indicate the number of discovery messages for PS related sidelink discovery announcement(s) for which it requests E-UTRAN to assign dedicated resources as well as the concerned frequency, if different from the primary;

2> if *SystemInformationBlockType21* is broadcast by the PCell and *SystemInformationBlockType21* includes *sl-V2X-ConfigCommon*:

3> if configured by upper layers to receive V2X sidelink communication:

4> include *v2x-CommRxInterestedFreqList* and set it to the frequency(ies) for V2X sidelink communication reception;

3> if configured by upper layers to transmit V2X sidelink communication:

4> if configured by upper layers to transmit P2X related V2X sidelink communication:

5> include *p2x-CommTxType* set to *true*;

4> include *v2x-CommTxResourceReq* and set its fields as follows for each frequency on which the UE is configured for V2X sidelink communication transmission:

5> set *carrierFreqCommTx* to indicate the frequency for V2X sidelink communication transmission;

5> set *v2x-TypeTxSync* to the current synchronization reference type used on the associated *carrierFreqCommTx* for V2X sidelink communication transmission;

5> set *v2x-DestinationInfoList* to include the V2X sidelink communication transmission destination(s) for which it requests E-UTRAN to assign dedicated resources;

1> else if the UE initiates the procedure to request sidelink discovery transmission and/ or reception gaps:

2> if the UE is configured with *gapRequestsAllowedDedicated* set to *true*; or

2> if the UE is not configured with *gapRequestsAllowedDedicated* and *gapRequestsAllowedCommon* is included in *SystemInformationBlockType19*:

3> if the UE requires sidelink discovery gaps to monitor the sidelink discovery announcements the UE is configured to monitor by upper layers:

4> include *discRxGapReq* and set it to indicate, for each frequency that either concerns the primary frequency or is included in *discInterFreqList* on which the UE is configured to monitor sidelink discovery announcements and for which it requires sidelink discovery gaps to do so, the gap pattern(s) as well as the concerned frequency, if different from the primary;

3> if the UE requires sidelink discovery gaps to transmit the sidelink discovery announcements the UE is configured to transmit by upper layers:

4> include *discTxGapReq* and set it to indicate, for each frequency that either concerns the primary or is included in *discInterFreqList* on which the UE is configured to transmit sidelink discovery announcements and for which it requires sidelink discovery gaps to do so, the gap pattern(s) as well as the concerned frequency, if different from the primary;

1> else if the UE initiates the procedure to report the system information parameters related to sidelink discovery of carriers other than the primary:

2> include *discSysInfoReportFreqList* and set it to report the system information parameter acquired from the cells on those carriers;

1> if the UE initiates the sidelink UE information procedure while connected to an NR PCell:

2> submit the *SidelinkUEInformation* message via SRB1 embedded in NR RRC message *ULInformationTransferIRAT* as specified in TS 38.331 [82];

1> else:

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

6.2.1 General message structure

>Cut until next modified section

– *UL-DCCH-Message*

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

-- ASN1START

UL-DCCH-Message ::= SEQUENCE {

message UL-DCCH-MessageType

}

UL-DCCH-MessageType ::= CHOICE {

c1 CHOICE {

csfbParametersRequestCDMA2000 CSFBParametersRequestCDMA2000,

measurementReport MeasurementReport,

rrcConnectionReconfigurationComplete RRCConnectionReconfigurationComplete,

rrcConnectionReestablishmentComplete RRCConnectionReestablishmentComplete,

rrcConnectionSetupComplete RRCConnectionSetupComplete,

securityModeComplete SecurityModeComplete,

securityModeFailure SecurityModeFailure,

ueCapabilityInformation UECapabilityInformation,

ulHandoverPreparationTransfer ULHandoverPreparationTransfer,

ulInformationTransfer ULInformationTransfer,

counterCheckResponse CounterCheckResponse,

ueInformationResponse-r9 UEInformationResponse-r9,

proximityIndication-r9 ProximityIndication-r9,

rnReconfigurationComplete-r10 RNReconfigurationComplete-r10,

mbmsCountingResponse-r10 MBMSCountingResponse-r10,

interFreqRSTDMeasurementIndication-r10 InterFreqRSTDMeasurementIndication-r10

},

messageClassExtension CHOICE {

c2 CHOICE {

ueAssistanceInformation-r11 UEAssistanceInformation-r11,

inDeviceCoexIndication-r11 InDeviceCoexIndication-r11,

mbmsInterestIndication-r11 MBMSInterestIndication-r11,

scgFailureInformation-r12 SCGFailureInformation-r12,

sidelinkUEInformation-r12 SidelinkUEInformation-r12,

wlanConnectionStatusReport-r13 WLANConnectionStatusReport-r13,

rrcConnectionResumeComplete-r13 RRCConnectionResumeComplete-r13,

ulInformationTransferMRDC-r15 ULInformationTransferMRDC-r15,

scgFailureInformationNR-r15 SCGFailureInformationNR-r15,

measReportAppLayer-r15 MeasReportAppLayer-r15,

failureInformation-r15 FailureInformation-r15,

ulDedicatedMessageSegment-r16 ULDedicatedMessageSegment-r16,

purConfigurationRequest-r16 PURConfigurationRequest-r16,

failureInformation2-r16 FailureInformation2-r16,

mcgFailureInformation-r16 MCGFailureInformation-r16,

ulInformationTransferIRAT-r16 ULInformationTransferIRAT-r16,

},

messageClassExtension SEQUENCE {}

}

}

-- ASN1STOP

6.2.2 Message definitions

>Cut until next modified section

– *RRCConnectionReconfiguration*

The *RRCConnectionReconfiguration* message is the command to modify an RRC connection. It may convey information for measurement configuration, mobility control, conditional reconfigurations (conditional handover), radio resource configuration (including RBs, MAC main configuration and physical channel configuration) including any associated dedicated NAS information and security configuration.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: E‑UTRAN to UE

***RRCConnectionReconfiguration message***

-- ASN1START

RRCConnectionReconfiguration ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

c1 CHOICE{

rrcConnectionReconfiguration-r8 RRCConnectionReconfiguration-r8-IEs,

spare7 NULL,

spare6 NULL, spare5 NULL, spare4 NULL,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

RRCConnectionReconfiguration-r8-IEs ::= SEQUENCE {

measConfig MeasConfig OPTIONAL, -- Need ON

mobilityControlInfo MobilityControlInfo OPTIONAL, -- Cond HO

dedicatedInfoNASList SEQUENCE (SIZE(1..maxDRB)) OF

DedicatedInfoNAS OPTIONAL, -- Cond nonHO

radioResourceConfigDedicated RadioResourceConfigDedicated OPTIONAL, -- Cond HO-toEUTRA

securityConfigHO SecurityConfigHO OPTIONAL, -- Cond HO-toEPC

nonCriticalExtension RRCConnectionReconfiguration-v890-IEs OPTIONAL

}

RRCConnectionReconfiguration-v890-IEs ::= SEQUENCE {

lateNonCriticalExtension OCTET STRING (CONTAINING RRCConnectionReconfiguration-v8m0-IEs) OPTIONAL,

nonCriticalExtension RRCConnectionReconfiguration-v920-IEs OPTIONAL

}

-- Late non-critical extensions:

RRCConnectionReconfiguration-v8m0-IEs ::= SEQUENCE {

-- Following field is only for pre REL-10 late non-critical extensions

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCConnectionReconfiguration-v10i0-IEs OPTIONAL

}

RRCConnectionReconfiguration-v10i0-IEs ::= SEQUENCE {

antennaInfoDedicatedPCell-v10i0 AntennaInfoDedicated-v10i0 OPTIONAL, -- Need ON

nonCriticalExtension RRCConnectionReconfiguration-v10l0-IEs OPTIONAL

}

RRCConnectionReconfiguration-v10l0-IEs ::= SEQUENCE {

mobilityControlInfo-v10l0 MobilityControlInfo-v10l0 OPTIONAL,

sCellToAddModList-v10l0 SCellToAddModList-v10l0 OPTIONAL, -- Need ON

-- Following field is only for late non-critical extensions from REL-10 to REL-11

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCConnectionReconfiguration-v12f0-IEs OPTIONAL

}

RRCConnectionReconfiguration-v12f0-IEs ::= SEQUENCE {

scg-Configuration-v12f0 SCG-Configuration-v12f0 OPTIONAL, -- Cond nonFullConfig

-- Following field is only for late non-critical extensions from REL-12

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCConnectionReconfiguration-v1370-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1370-IEs ::= SEQUENCE {

radioResourceConfigDedicated-v1370 RadioResourceConfigDedicated-v1370 OPTIONAL, -- Need ON

sCellToAddModListExt-v1370 SCellToAddModListExt-v1370 OPTIONAL, -- Need ON

nonCriticalExtension RRCConnectionReconfiguration-v13c0-IEs OPTIONAL

}

RRCConnectionReconfiguration-v13c0-IEs ::= SEQUENCE {

radioResourceConfigDedicated-v13c0 RadioResourceConfigDedicated-v13c0 OPTIONAL, -- Need ON

sCellToAddModList-v13c0 SCellToAddModList-v13c0 OPTIONAL, -- Need ON

sCellToAddModListExt-v13c0 SCellToAddModListExt-v13c0 OPTIONAL, -- Need ON

scg-Configuration-v13c0 SCG-Configuration-v13c0 OPTIONAL, -- Need ON

-- Following field is only for late non-critical extensions from REL-13 onwards

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Regular non-critical extensions:

RRCConnectionReconfiguration-v920-IEs ::= SEQUENCE {

otherConfig-r9 OtherConfig-r9 OPTIONAL, -- Need ON

fullConfig-r9 ENUMERATED {true} OPTIONAL, -- Cond HO-Reestab

nonCriticalExtension RRCConnectionReconfiguration-v1020-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1020-IEs ::= SEQUENCE {

sCellToReleaseList-r10 SCellToReleaseList-r10 OPTIONAL, -- Need ON

sCellToAddModList-r10 SCellToAddModList-r10 OPTIONAL, -- Need ON

nonCriticalExtension RRCConnectionReconfiguration-v1130-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1130-IEs ::= SEQUENCE {

systemInformationBlockType1Dedicated-r11 OCTET STRING (CONTAINING SystemInformationBlockType1) OPTIONAL, -- Need ON

nonCriticalExtension RRCConnectionReconfiguration-v1250-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1250-IEs ::= SEQUENCE {

wlan-OffloadInfo-r12 CHOICE {

release NULL,

setup SEQUENCE {

wlan-OffloadConfigDedicated-r12 WLAN-OffloadConfig-r12,

t350-r12 ENUMERATED {min5, min10, min20, min30, min60,

min120, min180, spare1} OPTIONAL -- Need OR

}

} OPTIONAL, -- Need ON

scg-Configuration-r12 SCG-Configuration-r12 OPTIONAL, -- Cond nonFullConfig

sl-SyncTxControl-r12 SL-SyncTxControl-r12 OPTIONAL, -- Need ON

sl-DiscConfig-r12 SL-DiscConfig-r12 OPTIONAL, -- Need ON

sl-CommConfig-r12 SL-CommConfig-r12 OPTIONAL, -- Need ON

nonCriticalExtension RRCConnectionReconfiguration-v1310-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1310-IEs ::= SEQUENCE {

sCellToReleaseListExt-r13 SCellToReleaseListExt-r13 OPTIONAL, -- Need ON

sCellToAddModListExt-r13 SCellToAddModListExt-r13 OPTIONAL, -- Need ON

lwa-Configuration-r13 LWA-Configuration-r13 OPTIONAL, -- Need ON

lwip-Configuration-r13 LWIP-Configuration-r13 OPTIONAL, -- Need ON

rclwi-Configuration-r13 RCLWI-Configuration-r13 OPTIONAL, -- Need ON

nonCriticalExtension RRCConnectionReconfiguration-v1430-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1430-IEs ::= SEQUENCE {

sl-V2X-ConfigDedicated-r14 SL-V2X-ConfigDedicated-r14 OPTIONAL, -- Need ON

sCellToAddModListExt-v1430 SCellToAddModListExt-v1430 OPTIONAL, -- Need ON

perCC-GapIndicationRequest-r14 ENUMERATED{true} OPTIONAL, -- Need ON

systemInformationBlockType2Dedicated-r14 OCTET STRING (CONTAINING SystemInformationBlockType2) OPTIONAL, -- Cond nonHO

nonCriticalExtension RRCConnectionReconfiguration-v1510-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1510-IEs ::= SEQUENCE {

nr-Config-r15 CHOICE {

release NULL,

setup SEQUENCE {

endc-ReleaseAndAdd-r15 BOOLEAN,

nr-SecondaryCellGroupConfig-r15 OCTET STRING OPTIONAL, -- Need ON

p-MaxEUTRA-r15 P-Max OPTIONAL -- Need ON

}

} OPTIONAL, -- Need ON

sk-Counter-r15 INTEGER (0.. 65535) OPTIONAL, -- Need ON

nr-RadioBearerConfig1-r15 OCTET STRING OPTIONAL, -- Need ON

nr-RadioBearerConfig2-r15 OCTET STRING OPTIONAL, -- Need ON

tdm-PatternConfig-r15 TDM-PatternConfig-r15 OPTIONAL, -- Cond FDD-PCell

nonCriticalExtension RRCConnectionReconfiguration-v1530-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1530-IEs ::= SEQUENCE {

securityConfigHO-v1530 SecurityConfigHO-v1530 OPTIONAL, -- Cond HO-5GC

sCellGroupToReleaseList-r15 SCellGroupToReleaseList-r15 OPTIONAL, -- Need ON

sCellGroupToAddModList-r15 SCellGroupToAddModList-r15 OPTIONAL, -- Need ON

dedicatedInfoNASList-r15 SEQUENCE (SIZE(1..maxDRB-r15)) OF

DedicatedInfoNAS OPTIONAL, -- Cond nonHO

p-MaxUE-FR1-r15 P-Max OPTIONAL, -- Need OR

smtc-r15 MTC-SSB-NR-r15 OPTIONAL, -- Need OP

nonCriticalExtension RRCConnectionReconfiguration-v16xy-IEs OPTIONAL

}

RRCConnectionReconfiguration-v16xy-IEs ::= SEQUENCE {

conditionalReconfiguration-r16 ConditionalReconfiguration-r16 OPTIONAL, -- Need ON

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

tdm-PatternConfig-r16 TDM-PatternConfig-r15 OPTIONAL, -- Need ON

sl-ConfigDedicatedNR-r16 OCTET STRING OPTIONAL, -- Need OR

sl-SSB-PriorityEUTRA-r16 INTEGER (1..8) OPTIONAL, -- Need OR

nonCriticalExtension SEQUENCE {} OPTIONAL

}

SL-SyncTxControl-r12 ::= SEQUENCE {

networkControlledSyncTx-r12 ENUMERATED {on, off} OPTIONAL -- Need OP

}

PSCellToAddMod-r12 ::= SEQUENCE {

sCellIndex-r12 SCellIndex-r10,

cellIdentification-r12 SEQUENCE {

physCellId-r12 PhysCellId,

dl-CarrierFreq-r12 ARFCN-ValueEUTRA-r9

} OPTIONAL, -- Cond SCellAdd

radioResourceConfigCommonPSCell-r12 RadioResourceConfigCommonPSCell-r12 OPTIONAL, -- Cond SCellAdd

radioResourceConfigDedicatedPSCell-r12 RadioResourceConfigDedicatedPSCell-r12 OPTIONAL, -- Cond SCellAdd2

...,

[[ antennaInfoDedicatedPSCell-v1280 AntennaInfoDedicated-v10i0 OPTIONAL -- Need ON

]],

[[ sCellIndex-r13 SCellIndex-r13 OPTIONAL -- Need ON

]],

[[ radioResourceConfigDedicatedPSCell-v1370 RadioResourceConfigDedicatedPSCell-v1370 OPTIONAL -- Need ON

]],

[[ radioResourceConfigDedicatedPSCell-v13c0 RadioResourceConfigDedicatedPSCell-v13c0 OPTIONAL -- Need ON

]]

}

PSCellToAddMod-v12f0 ::= SEQUENCE {

radioResourceConfigCommonPSCell-r12 RadioResourceConfigCommonPSCell-v12f0 OPTIONAL

}

PSCellToAddMod-v1440 ::= SEQUENCE {

radioResourceConfigCommonPSCell-r14 RadioResourceConfigCommonPSCell-v1440 OPTIONAL

}

PowerCoordinationInfo-r12 ::= SEQUENCE {

p-MeNB-r12 INTEGER (1..16),

p-SeNB-r12 INTEGER (1..16),

powerControlMode-r12 INTEGER (1..2)

}

SCellToAddModList-r10 ::= SEQUENCE (SIZE (1..maxSCell-r10)) OF SCellToAddMod-r10

SCellToAddModList-v10l0 ::= SEQUENCE (SIZE (1..maxSCell-r10)) OF SCellToAddMod-v10l0

SCellToAddModList-v13c0 ::= SEQUENCE (SIZE (1..maxSCell-r10)) OF SCellToAddMod-v13c0

SCellToAddModListExt-r13 ::= SEQUENCE (SIZE (1..maxSCell-r13)) OF SCellToAddModExt-r13

SCellToAddModListExt-v1370 ::= SEQUENCE (SIZE (1..maxSCell-r13)) OF SCellToAddModExt-v1370

SCellToAddModListExt-v13c0 ::= SEQUENCE (SIZE (1..maxSCell-r13)) OF SCellToAddMod-v13c0

SCellToAddModListExt-v1430 ::= SEQUENCE (SIZE (1..maxSCell-r13)) OF SCellToAddModExt-v1430

SCellGroupToAddModList-r15 ::= SEQUENCE (SIZE (1..maxSCellGroups-r15)) OF SCellGroupToAddMod-r15

SCellToAddModList-r16 ::= SEQUENCE (SIZE (1..maxSCell-r13)) OF SCellToAddMod-r16

SCellToAddMod-r10 ::= SEQUENCE {

sCellIndex-r10 SCellIndex-r10,

cellIdentification-r10 SEQUENCE {

physCellId-r10 PhysCellId,

dl-CarrierFreq-r10 ARFCN-ValueEUTRA

} OPTIONAL, -- Cond SCellAdd

radioResourceConfigCommonSCell-r10 RadioResourceConfigCommonSCell-r10 OPTIONAL, -- Cond SCellAdd

radioResourceConfigDedicatedSCell-r10 RadioResourceConfigDedicatedSCell-r10 OPTIONAL, -- Cond SCellAdd2

...,

[[ dl-CarrierFreq-v1090 ARFCN-ValueEUTRA-v9e0 OPTIONAL -- Cond EARFCN-max

]],

[[ antennaInfoDedicatedSCell-v10i0 AntennaInfoDedicated-v10i0 OPTIONAL -- Need ON

]],

[[ srs-SwitchFromServCellIndex-r14 INTEGER (0.. 31) OPTIONAL -- Need ON

]],

[[ sCellState-r15 ENUMERATED {activated, dormant} OPTIONAL -- Need ON

]]

}

SCellToAddMod-v10l0 ::= SEQUENCE {

radioResourceConfigCommonSCell-v10l0 RadioResourceConfigCommonSCell-v10l0 OPTIONAL

}

SCellToAddMod-v13c0 ::= SEQUENCE {

radioResourceConfigDedicatedSCell-v13c0 RadioResourceConfigDedicatedSCell-v13c0 OPTIONAL

}

SCellToAddModExt-r13 ::= SEQUENCE {

sCellIndex-r13 SCellIndex-r13,

cellIdentification-r13 SEQUENCE {

physCellId-r13 PhysCellId,

dl-CarrierFreq-r13 ARFCN-ValueEUTRA-r9

} OPTIONAL, -- Cond SCellAdd

radioResourceConfigCommonSCell-r13 RadioResourceConfigCommonSCell-r10 OPTIONAL, -- Cond SCellAdd

radioResourceConfigDedicatedSCell-r13 RadioResourceConfigDedicatedSCell-r10 OPTIONAL, -- Cond SCellAdd2

antennaInfoDedicatedSCell-r13 AntennaInfoDedicated-v10i0 OPTIONAL -- Need ON

}

SCellToAddModExt-v1370 ::= SEQUENCE {

radioResourceConfigCommonSCell-v1370 RadioResourceConfigCommonSCell-v10l0 OPTIONAL

}

SCellToAddModExt-v1430 ::= SEQUENCE {

srs-SwitchFromServCellIndex-r14 INTEGER (0.. 31) OPTIONAL, -- Need ON

...,

[[ sCellState-r15 ENUMERATED {activated, dormant} OPTIONAL -- Need ON

]]

}

SCellToAddMod-r16 ::= SEQUENCE {

sCellIndex-r16 SCellIndex-r13,

cellIdentification-r16 SEQUENCE {

physCellId-r16 PhysCellId,

dl-CarrierFreq-r16 ARFCN-ValueEUTRA-r9

} OPTIONAL, -- Cond SCellAdd

radioResourceConfigCommonSCell-r16 RadioResourceConfigCommonSCell-r10 OPTIONAL, -- Cond SCellAdd

radioResourceConfigDedicatedSCell-r16 RadioResourceConfigDedicatedSCell-r10 OPTIONAL, -- Cond SCellAdd2

antennaInfoDedicatedSCell-r16 AntennaInfoDedicated-v10i0 OPTIONAL, -- Need ON

srs-SwitchFromServCellIndex-r16 INTEGER (0.. 31) OPTIONAL, -- Need ON

sCellState-r16 ENUMERATED {activated, dormant} OPTIONAL, -- Need ON

...

}

SCellGroupToAddMod-r15 ::= SEQUENCE {

sCellGroupIndex-r15 SCellGroupIndex-r15,

sCellConfigCommon-r15 SCellConfigCommon-r15 OPTIONAL, -- Need ON

sCellToReleaseList-r15 SCellToReleaseListExt-r13 OPTIONAL, -- Need ON

sCellToAddModList-r15 SCellToAddModListExt-r13 OPTIONAL -- Need ON

}

SCellToReleaseList-r10 ::= SEQUENCE (SIZE (1..maxSCell-r10)) OF SCellIndex-r10

SCellToReleaseListExt-r13 ::= SEQUENCE (SIZE (1..maxSCell-r13)) OF SCellIndex-r13

SCellGroupToReleaseList-r15 ::= SEQUENCE (SIZE (1..maxSCellGroups-r15)) OF SCellGroupIndex-r15

SCellGroupIndex-r15 ::= INTEGER (1..maxSCellGroups-r15)

SCellConfigCommon-r15 ::= SEQUENCE {

radioResourceConfigCommonSCell-r15 RadioResourceConfigCommonSCell-r10 OPTIONAL, -- Need ON

radioResourceConfigDedicatedSCell-r15 RadioResourceConfigDedicatedSCell-r10 OPTIONAL,-- Need ON

antennaInfoDedicatedSCell-r15 AntennaInfoDedicated-v10i0 OPTIONAL -- Need ON

}

SCG-Configuration-r12 ::= CHOICE {

release NULL,

setup SEQUENCE {

scg-ConfigPartMCG-r12 SEQUENCE {

scg-Counter-r12 INTEGER (0.. 65535) OPTIONAL, -- Need ON

powerCoordinationInfo-r12 PowerCoordinationInfo-r12 OPTIONAL, -- Need ON

...

} OPTIONAL, -- Need ON

scg-ConfigPartSCG-r12 SCG-ConfigPartSCG-r12 OPTIONAL -- Need ON

}

}

SCG-Configuration-v12f0 ::= CHOICE {

release NULL,

setup SEQUENCE {

scg-ConfigPartSCG-v12f0 SCG-ConfigPartSCG-v12f0 OPTIONAL -- Need ON

}

}

SCG-Configuration-v13c0 ::= CHOICE {

release NULL,

setup SEQUENCE {

scg-ConfigPartSCG-v13c0 SCG-ConfigPartSCG-v13c0 OPTIONAL -- Need ON

}

}

SCG-ConfigPartSCG-r12 ::= SEQUENCE {

radioResourceConfigDedicatedSCG-r12 RadioResourceConfigDedicatedSCG-r12 OPTIONAL, -- Need ON

sCellToReleaseListSCG-r12 SCellToReleaseList-r10 OPTIONAL, -- Need ON

pSCellToAddMod-r12 PSCellToAddMod-r12 OPTIONAL, -- Need ON

sCellToAddModListSCG-r12 SCellToAddModList-r10 OPTIONAL, -- Need ON

mobilityControlInfoSCG-r12 MobilityControlInfoSCG-r12 OPTIONAL, -- Need ON

...,

[[

sCellToReleaseListSCG-Ext-r13 SCellToReleaseListExt-r13 OPTIONAL, -- Need ON

sCellToAddModListSCG-Ext-r13 SCellToAddModListExt-r13 OPTIONAL -- Need ON

]],

[[

sCellToAddModListSCG-Ext-v1370 SCellToAddModListExt-v1370 OPTIONAL -- Need ON

]],

[[

pSCellToAddMod-v1440 PSCellToAddMod-v1440 OPTIONAL -- Need ON

]],

[[ sCellGroupToReleaseListSCG-r15 SCellGroupToReleaseList-r15 OPTIONAL, -- Need ON

sCellGroupToAddModListSCG-r15 SCellGroupToAddModList-r15 OPTIONAL -- Need ON

]],

[[ -- NE-DC addition for setup/ modification and release SN configured measurements

measConfigSN-r15 MeasConfig OPTIONAL, -- Need ON

-- NE-DC additions concerning DRBs/ SRBs are within RadioResourceConfigDedicatedSCG

tdm-PatternConfigNE-DC-r15 TDM-PatternConfig-r15 OPTIONAL -- Cond FDD-PSCell

]],

[[ p-MaxEUTRA-r15 P-Max OPTIONAL -- Need ON

]]

}

SCG-ConfigPartSCG-v12f0 ::= SEQUENCE {

pSCellToAddMod-v12f0 PSCellToAddMod-v12f0 OPTIONAL, -- Need ON

sCellToAddModListSCG-v12f0 SCellToAddModList-v10l0 OPTIONAL -- Need ON

}

SCG-ConfigPartSCG-v13c0 ::= SEQUENCE {

sCellToAddModListSCG-v13c0 SCellToAddModList-v13c0 OPTIONAL, -- Need ON

sCellToAddModListSCG-Ext-v13c0 SCellToAddModListExt-v13c0 OPTIONAL -- Need ON

}

SecurityConfigHO ::= SEQUENCE {

handoverType CHOICE {

intraLTE SEQUENCE {

securityAlgorithmConfig SecurityAlgorithmConfig OPTIONAL, -- Cond fullConfig

keyChangeIndicator BOOLEAN,

nextHopChainingCount NextHopChainingCount

},

interRAT SEQUENCE {

securityAlgorithmConfig SecurityAlgorithmConfig,

nas-SecurityParamToEUTRA OCTET STRING (SIZE(6))

}

},

...

}

SecurityConfigHO-v1530 ::= SEQUENCE {

handoverType-v1530 CHOICE {

intra5GC-r15 SEQUENCE {

securityAlgorithmConfig-r15 SecurityAlgorithmConfig OPTIONAL, -- Cond HO-toEUTRA

keyChangeIndicator-r15 BOOLEAN,

nextHopChainingCount-r15 NextHopChainingCount,

nas-Container-r15 OCTET STRING OPTIONAL -- Need ON

},

fivegc-ToEPC-r15 SEQUENCE {

securityAlgorithmConfig-r15 SecurityAlgorithmConfig,

nextHopChainingCount-r15 NextHopChainingCount

},

epc-To5GC-r15 SEQUENCE {

securityAlgorithmConfig-r15 SecurityAlgorithmConfig,

nas-Container-r15 OCTET STRING

}

},

...

}

TDM-PatternConfig-r15 ::= CHOICE {

release NULL,

setup SEQUENCE {

subframeAssignment-r15 SubframeAssignment-r15,

harq-Offset-r15 INTEGER (0.. 9)

}

}

-- ASN1STOP

| ***RRCConnectionReconfiguration* field descriptions** |
| --- |
| ***conditionalReconfiguration***  This field is used to configure the UE with a conditional reconfiguration. The reconfiguration is only applied when the execution condition(s) is fulfilled. The field is absent if *daps-HO* is configured for any DRB or if *MobilityControlInfo* is included in the *RRCConnectionReconfiguration* message. The *conditionalReconfiguration* is not configured in the *RRCConnectionReconfiguration* message included in a *conditionalReconfiguration.* |
| ***daps-SourceRelease***  A one-shot field that indicates that the UE shall release the resources associated with source PCell at a DAPS HO, including reconfiguration of the PDCP entity to release DAPS. |
| ***dedicatedInfoNASList***  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. If *dedicatedInfoNASList-r15* is present, UE shall ignore the *dedicatedInfoNASList* (without suffix). |
| ***endc-ReleaseAndAdd***  A one-shot field indicating whether the UE simultaneously releases and adds all the NR SCG related configuration within *nr-Config*, i.e. the configuration set by the NR *RRCReconfiguration* message (e.g. *secondaryCellGroup, SRB3* and *measConfig)*. |
| ***fullConfig***  Indicates the full configuration option is applicable for the RRC Connection Reconfiguration message for intra-system intra-RAT handover. For inter-RAT handover from NR to E-UTRA, *fullConfig* indicates whether or not delta signalling of SDAP/PDCP from source RAT is applicable. This field is absent when the *RRCConnectionReconfiguration* message is generated by the E-UTRA SCG. |
| ***harq-Offset-r15***  Indicates a HARQ subframe offset that is applied to the subframes designated as UL in the associated subrame assignment, see TS 36.213 [23]. When configured in EN-DC with LTE TDD PCell*,* the network ensures it does not violate the TDD configuration in SIB1, and the value range of this field is {0,1,2,5,6}. |
| ***keyChangeIndicator***  If UE is connected to EPC, true is used only in an intra-cell handover when a KeNB key is derived from a KASME key taken into use through the latest successful NAS SMC procedure, as described in TS 33.401 [32] for KeNB re-keying. false is used in an intra-LTE handover when the new KeNB key is obtained from the current KeNB key or from the NH as described in TS 33.401 [32].  If UE is connected to 5GC, with keyChangeIndicator-r15, true is used in an intra-cell handover when a KeNB key is derived from a KAMF key taken into use through the latest successful NAS SMC procedure, as described in TS 33.501 [86] for KeNB re-keying.  False is used for intra-system handover when the new KeNB key is obtained from the current KeNB key or from the NH as described in TS 33.501 [86]. True is also used in NG based handover procedure with KAMF change, when a KeNB key is derived from the new KAMF key as described in TS 33.501 [86]. |
| ***lwa-Configuration***  This field is used to provide parameters for LWA configuration. E-UTRAN does not simultaneously configure LWA with DC, LWIP or RCLWI for a UE. |
| ***lwip-Configuration***  This field is used to provide parameters for LWIP configuration. E-UTRAN does not simultaneously configure LWIP with DC, LWA or RCLWI for a UE. |
| ***measConfig***  Measurements that E-UTRAN may configure when the UE is not configured with NE-DC. |
| ***measConfigSN***  Measurements that E-UTRAN may configure when the UE is configured with NE-DC and for which reports are carried within an NR RRC message. |
| ***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, if included, it affects activation of AS- security after handover within E-UTRA/5GC. The content is defined in TS 24.501 [95]. In case of NG based handover, the content of nas-Container is. the Intra N1 mode NAS transparent container IE. In case of inter-system handover to from 5GS to EPS, the content of NAS-Container is. the S1 mode to N1 mode NAS transparent container IE. |
| ***nas-securityParamToEUTRA***  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, if included, it affects activation of AS- security after inter-RAT handover to E-UTRA/EPC or inter-system handover to E-UTRA/EPC. The content is defined in TS 24.301 [35]. This field is not used for handover from 5GC. |
| ***networkControlledSyncTx***  This field indicates whether the UE shall transmit synchronisation information (i.e. become synchronisation source). Value *On* indicates the UE to transmit synchronisation information while value *Off* indicates the UE to not transmit such information. |
| ***nextHopChainingCount***  Parameter NCC: See TS 33.401 [32] if UE is connected to EPC, else see 33.501 [86] if UE is connected to 5GC. |
| ***nr-Config***  Includes the NR related configurations. This field is used to configure (NG)EN-DC configuration, possibly in conjunction with fields *sk-Counter* and *nr-RadioBearerConfig1/ 2*. NOTE 1. |
| ***nr-RadioBearerConfig1, nr-RadioBearerConfig2***  Includes the NR *RadioBearerConfig* IE as specified in TS 38.331 [82]. The field includes the configuration of RBs configured with NR PDCP. |
| ***nr-SecondaryCellGroupConfig***  Includes the NR *RRCReconfiguration* message as specified in TS 38.331 [82]. In this version of the specification, the NR RRC message only includes fields *iab-F1AP-TransferOverSRB-r16*, *secondaryCellGroup, conditionalReconfiguration, otherConfig* and/ or *measConfig*. If *nr-SecondaryCellGroupConfig* is configured, the network always includes this field upon MN handover to initiate an NR SCG reconfiguration with sync and key change. |
| ***perCC-GapIndicationRequest***  Indicates that UE shall include *perCC-GapIndicationList* and *numFreqEffective* in the *RRCConnectionReconfigurationComplete* message. *numFreqEffectiveReduced* may also be included if frequencies are configured for reduced measurement performance. |
| ***p-MaxEUTRA***  Indicates the maximum power available for LTE. |
| ***p-MaxUE-FR1***  The maximum total transmit power to be used by the UE across all serving cells in frequency range 1 (FR1) across all cell groups. The maximum transmit power that the UE may use may be additionally limited on cell- or cell-group level. The field is optionally present, if (NG)EN-DC (nr-Config-r15) has been configured. It is absent otherwise. |
| ***p-MeNB***  Indicates the guaranteed power for the MeNB, as specified in TS 36.213 [23]. The value N corresponds to N-1 in TS 36.213 [23]. |
| ***powerControlMode***  Indicates the power control mode used in DC. Value 1 corresponds to DC power control mode 1 and value 2 indicates DC power control mode 2, as specified in TS 36.213 [23]. |
| ***p-SeNB***  Indicates the guaranteed power for the SeNB as specified in TS 36.213 [23], Table 5.1.4.2-1. The value N corresponds to N-1 in TS 36.213 [23]. |
| ***rclwi-Configuration***  WLAN traffic steering command as specified in 5.6.16.2. E-UTRAN does not simultaneously configure RCLWI with DC, LWA or LWIP for a UE. |
| ***sCellConfigCommon***  Indicates the common configuration for the SCell group. |
| ***sCellGroupIndex***  Indicates the identity of SCell groups for which a common configuration is provided. |
| ***sCellIndex***  The *sCellIndex* is unique within the scope of the UE. In case of DC, an SCG cell can not use the same value as used for an MCG cell. For *pSCellToAddMod*, if *sCellIndex-r13* is present the UE shall ignore *sCellIndex-r12.* |
| ***sCellGroupToAddModList, sCellGroupToAddModListSCG***  Indicates the SCell group to be added or modified. E-UTRAN only configures at most 4 SCell groups per UE over all cell groups. SCell groups can only be configured for LTE SCells, and all SCells in an SCell group must belong to the same cell group. |
| ***sCellGroupToReleaseList***  Indicates the SCell group to be released. |
| ***sCellState***  A one-shot field that indicates whether the SCell shall be considered to be in activated or dormant state upon SCell configuration. |
| ***sCellToAddModList, sCellToAddModListExt***  Indicates the SCell to be added or modified. E-UTRAN uses field *sCellToAddModList-r10* to add or modify SCells (with *sCellIndex-r10*) for a UE that does not support carrier aggregation with more than 5 component carriers. If E-UTRAN includes *sCellToAddModListExt-v1430* it includes the same number of entries, and listed in the same order, as in *sCellToAddModListExt-r13*. If E-UTRAN includes *sCellToAddModList-v10l0* it includes the same number of entries, and listed in the same order, as in *sCellToAddModList-r10*. If E-UTRAN includes *sCellToAddModListExt-v1370* it includes the same number of entries, and listed in the same order, as in *sCellToAddModListExt-r13*. If E-UTRAN includes *sCellToAddModListExt-v13c0* it includes the same number of entries, and listed in the same order, as in *sCellToAddModListExt-r13.* |
| ***sCellToAddModListSCG, sCellToAddModListSCG-Ext***  Indicates the SCG cell to be added or modified. The field is used for SCG cells other than the PSCell (which is added/ modified by field *pSCellToAddMod*). E-UTRAN uses field *sCellToAddModListSCG-r12* to add or modify SCells (with *sCellIndex-r10*) for a UE that does not support carrier aggregation with more than 5 component carriers. If E-UTRAN includes *sCellToAddModListSCG-v10l0* it includes the same number of entries, and listed in the same order, as in *sCellToAddModListSCG-r12*. If E-UTRAN includes *sCellToAddModListSCG-Ext-v1370* it includes the same number of entries, and listed in the same order, as in *sCellToAddModListSCG-Ext-r13*. If E-UTRAN includes *sCellToAddModListSCG-Ext-v13c0* it includes the same number of entries, and listed in the same order, as in *sCellToAddModListSCG-Ext-r13.* |
| ***sCellToReleaseList, sCellToReleaseListExt***  Indicates the SCell to be released. E-UTRAN uses field *sCellToReleaseList-r10* to release SCells for a UE that does not support carrier aggregation with more than 5 component carriers. |
| ***sCellToReleaseListSCG, sCellToReleaseListSCG-Ext***  Indicates the SCG cell to be released. The field is also used to release the PSCell e.g. upon change of PSCell, upon system information change for the PSCell. E-UTRAN uses field *sCellToReleaseListSCG-r12* to release SCells for a UE that does not support carrier aggregation with more than 5 component carriers. |
| ***scg-Configuration***  Covers the SCG configuration as used in case of DC and NE-DC. When the UE is configured with NE-DC, E-UTRAN neither applies value release nor configures *scg-ConfigPartMCG*. |
| ***scg-Counter***  A counter used upon initial configuration of SCG security as well as upon refresh of S-KeNB. E-UTRAN includes the field upon SCG change when one or more SCG DRBs are configured. Otherwise E-UTRAN does not include the field. |
| ***securityConfigHO***  This field contains the parameters required to update the security keys at handover. If E-UTRAN includes the *securityConfigHO* (i.e., without suffix), the choice *intraLTE* is used for handover within E-UTRA/EPC while the choice *interRAT* is used for handover from GERAN or UTRAN to E-UTRA/EPC. If E-UTRAN includes the *securityConfigHO-v1530* (i.e., with suffix), the choice *intra5GC* is used for handover from NR or E-UTRA/5GC to E-UTRA/5GC while the choice *fivegc-ToEPC* is used for inter-system handover from NR or E-UTRA/5GC to E-UTRA/EPC and the choice *epc-To5GC* is used for inter-system handover from E-UTRA/EPC to E-UTRA/5GC. |
| ***sk-Counter***  A one-shot counter used upon initial configuration of S-KgNB as well as upon refresh of S-KgNB. E-UTRAN always provides this field either upon initial configuration of an NR SCG, or upon configuration of the first (SN terminated) RB using S-KgNB, whichever happens first. |
| ***sl-ConfigDedicatedNR***  Container for providing the dedicated configurations for NR sidelink communication, the octet string contains the NR RRCReconfiguration message IE as specified in TS 38.331 [82]. Within the NR RRCReconfiguration message the network only includes the sidelink related fields. If the UE is configured, by the current Pcell with *sl-ScheduledConfig* set to setup, the network only includes *sl-PrioritizationThres* and *sl-ConfiguredGrantConfig* but only including the configurations of configured sidelink grant Type 1. |
| ***sl-SSB-PriorityEUTRA***  Indicates the priority of LTE PSSS/SSSS/PSBCH transmission and reception. |
| ***sl-V2X-ConfigDedicated***  Indicates sidelink configuration for non-P2X related V2X sidelink communication as well as P2X related V2X sidelink communication. |
| ***smtc***  The SSB periodicity/offset/duration configuration of target cell for NR PSCell addition and SN change. It is based on timing reference of EUTRA PCell. NOTE 2.  If the field is absent, the UE uses the SMTC in the *measObjectNR* having the same SSB frequency and subcarrier spacing, as configured before the reception of the RRC message. |
| ***srs-SwitchFromServCellIndex***  Indicates the serving cell whose UL transmission may be interrupted during SRS transmission on a PUSCH-less cell. During SRS transmission on a PUSCH-less cell, the UE may temporarily suspend the UL transmission on a serving cell with PUSCH in the same CG to allow the PUSCH-less cell to transmit SRS. The PUSCH-less cell is always a TDD cell but the serving cell with PUSCH may be either a FDD or TDD cell. |
| ***subframeAssignment-r15***  Indicates DL/UL subframe configuration where sa0 points to Configuration 0, sa1 to Configuration 1 etc. as specified in TS 36.211 [21], table 4.2-2. |
| ***subframeAssignment-r16***  Indicates DL/UL subframe configuration where sa0 points to Configuration 0, sa1 to Configuration 1 etc. as specified in TS 36.211 [21], table 4.2-2. When configured in EN-DC with LTE TDD PCell, the value range of this field is {sa2, sa4, sa5}. |
| ***systemInformationBlockType1Dedicated***  This field is used to transfer *SystemInformationBlockType1* or *SystemInformationBlockType1-BR* to the UE. |
| ***systemInformationBlockType2Dedicated***  This field is used to transfer BR version of *SystemInformationBlockType2* to BL UEs or UEs in CE or *SystemInformationBlockType2* to non-BL UEs. |
| ***t350***  Timer T350 as described in clause 7.3. Value *minN* corresponds to N minutes. |
| ***tdm-PatternConfig-r15***  UL/DL reference configuration indicating the time during which a UE configured with (NG)EN-DC is allowed to transmit. This field is used when power control or IMD issues require single UL transmission as specified in TS 38.101-3 [101] and TS 38.213 [88]. |
| ***tdm-PatternConfig-r16***  UL/DL reference configuration indicating the time during which a UE configured with (NG)EN-DC is allowed to transmit certain LTE uplink signals as further specified in TS 36.213 [23]. This field is used for dual UL transmission in EN-DC with LTE FDD PCell and for single UL transmission in EN-DC with LTE FDD/TDD PCell, as specified in TS 38.101-3 [101] and TS 38.213 [88].  The network sets at most one of *tdm-PatternConfig-r15* and *tdm-PatternConfig-r16* to setup.  When this field is configured in EN-DC with LTE TDD PCell, it is not applicable if TDD configuration is sa0 or sa6 in SIB1. |
| ***tdm-PatternConfigNE-DC***  UL/DL reference configuration indicating the time during which a UE configured with NE-DC is allowed to transmit. This field is used when power control or IMD issues require single UL transmission as specified in TS 38.101-3 [101] and TS 38.213 [88]. |

| **Conditional presence** | **Explanation** |
| --- | --- |
| *EARFCN-max* | The field is mandatory present if *dl-CarrierFreq-r10* is included and set to *maxEARFCN*. Otherwise the field is not present. |
| *FDD-PCell* | This field is optionally present, need ON, for a FDD PCell if there is no SCell with configured uplink. Otherwise, the field is not present. |
| *FDD-PSCell* | This field is optionally present, need ON, for a FDD PSCell if there is no SCell with configured uplink. Otherwise, the field is not present. |
| *fullConfig* | This field is mandatory present for handover within E-UTRA when the *fullConfig* is included; otherwise it is optionally present, Need OP. |
| *HO* | The field is mandatory present in case of handover within E-UTRA or to E-UTRA; otherwise the field is not present. The field is not present if source PCell resources after a DAPS handover have not been released. |
| *HO-Reestab* | The field is mandatory present in case of inter-system handover within E-UTRA or handover from NR to E-UTRA/EPC; it is optionally present, need ON, in case of intra-system handover within E-UTRA or upon the first reconfiguration after RRC connection re-establishment; or for intra-system handover from NR to E-UTRA, otherwise the field is not present. |
| *HO-5GC* | The field is mandatory present in case of handover within E-UTRA/5GC, handover to E-UTRA/5GC, handover from NR to E-UTRA/EPC, or handover from E-UTRA/5GC to E-UTRA/EPC, otherwise the field is not present. |
| *HO-toEPC* | The field is mandatory present in case of handover within E-UTRA/EPC or to E-UTRA/EPC, except handover from NR or E-UTRA/5GC, otherwise the field is not present. |
| *HO-toEUTRA* | The field is mandatory present in case of handover to E-UTRA or for reconfigurations when *fullConfig* is included; otherwise the field is optionally present, need ON. |
| *nonFullConfig* | The field is not present when the *fullConfig* is included or in case of handover to E-UTRA; otherwise it is optional present, need ON. |
| *nonHO* | The field is not present in case of handover within E-UTRA or to E-UTRA; otherwise it is optional present, need ON. |
| *SCellAdd* | The field is mandatory present upon SCell addition; otherwise it is not present. |
| *SCellAdd2* | The field is mandatory present upon SCell addition; otherwise it is optionally present, need ON. |

NOTE 1: Fields *sk-Counter* and *nr-RadioBearerConfig1/ 2* are placed outside *nr-Config*, as these may be configured while the UE is not configured with (NG)EN-DC.

NOTE 2: It is not specified whether the timing reference for the SMTC configuration is the source EUTRA PCell or the target EUTRA PCell in case the NR PSCell addition or SN change takes place simultaneously with handover. As a consequence, explicit SMTC configuration is only supported when the source EUTRA PCell and the target EUTRA PCell of the handover are SFN/subframe-synchronized.

>Cut until next modified section



>Cut until next modified section



– *ULInformationTransferIRAT*

The *ULInformationTransferIRAT* message is used for the uplink transfer of information terminated by E-UTRAN but specified by anoher RAT. In this release of the specification, the message is used for sidelink information specified by TS 38.331.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to E‑UTRAN

***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-MessageNR-r15 OCTET STRING OPTIONAL,

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

| ***ULInformationTransferMRDC* field descriptions** |
| --- |
| ***ul-DCCH-MessageNR***  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 NR RRC MeasurementReport, NR RRC SidelinkUEInformationNR and the NR RRC UEAssistanceInformation messages. |

eNote Further detailed restrictions regarding the message contents may be specified in NR RRC

6.3.5 Measurement information elements

>Cut until next modified section

– *MeasObjectToAddModList*

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

***MeasObjectToAddModList* information element**

-- ASN1START

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

MeasObjectToAddModListExt-r13 ::= SEQUENCE (SIZE (1..maxObjectId)) OF MeasObjectToAddModExt-r13

MeasObjectToAddModList-v9e0 ::= SEQUENCE (SIZE (1..maxObjectId)) OF MeasObjectToAddMod-v9e0

MeasObjectToAddMod ::= SEQUENCE {

measObjectId MeasObjectId,

measObject CHOICE {

measObjectEUTRA MeasObjectEUTRA,

measObjectUTRA MeasObjectUTRA,

measObjectGERAN MeasObjectGERAN,

measObjectCDMA2000 MeasObjectCDMA2000,

...,

measObjectWLAN-r13 MeasObjectWLAN-r13,

measObjectNR-r15 MeasObjectNR-r15

}

}

MeasObjectToAddModExt-r13 ::= SEQUENCE {

measObjectId-r13 MeasObjectId-v1310,

measObject-r13 CHOICE {

measObjectEUTRA-r13 MeasObjectEUTRA,

measObjectUTRA-r13 MeasObjectUTRA,

measObjectGERAN-r13 MeasObjectGERAN,

measObjectCDMA2000-r13 MeasObjectCDMA2000,

...,

measObjectWLAN-v1320 MeasObjectWLAN-r13,

measObjectNR-r15 MeasObjectNR-r15

}

}

MeasObjectToAddMod-v9e0 ::= SEQUENCE {

measObjectEUTRA-v9e0 MeasObjectEUTRA-v9e0 OPTIONAL -- Cond eutra

}

-- ASN1STOP

| **Conditional presence** | **Explanation** |
| --- | --- |
| *eutra* | The field is optional present, need OR, if for the corresponding entry in *MeasObjectToAddModList* or *MeasObjectToAddModListExt-r13* field *measObject* is set to *measObjectEUTRA* andits sub-field *carrierFreq* is set to *maxEARFCN*. Otherwise the field is not present and the UE shall delete any existing value for this field. |

>Cut until next modified section



>Cut until next modified section

– *ReportConfigEUTRA*

The IE *ReportConfigEUTRA* specifies criteria for triggering of an E‑UTRA measurement reporting or conditional reconfiguration (i.e. conditional handover) event. The E‑UTRA measurement reporting events concerning CRS are labelled A*N* with *N* equal to 1, 2 and so on.

Event A1: Serving becomes better than absolute threshold;

Event A2: Serving becomes worse than absolute threshold;

Event A3: Neighbour becomes amount of offset better than PCell/ PSCell;

Event A4: Neighbour becomes better than absolute threshold;

Event A5: PCell/ PSCell becomes worse than absolute threshold1 AND Neighbour becomes better than another absolute threshold2;

Event A6: Neighbour becomes amount of offset better than SCell.

The E‑UTRA measurement reporting events concerning CRS for conditional reconfigurations are labelled A*N* with *N* equal to 3 or 5.

CondEvent A3: Conditional reconfiguration candidate becomes amount of offset better than PCell/PSCell;

CondEvent A5: PCell/PSCell becomes worse than absolute threshold1 AND conditional reconfiguration candidate becomes better than another absolute threshold2;

The E‑UTRA measurement reporting events concerning CSI-RS are labelled C*N* with *N* equal to 1 and 2.

Event C1: CSI-RS resource becomes better than absolute threshold;

Event C2: CSI-RS resource becomes amount of offset better than reference CSI-RS resource.

The E-UTRA measurement reporting events concerning CBR are labelled VN with N equal to 1 and 2.

Event V1: CBR becomes larger than absolute threshold;

Event V2: CBR becomes smaller than absolute threshold.

The E-UTRA reporting events concerning Aerial UE height are labelled H*N* with *N* equal to 1 and 2.

Event H1: Aerial UE height becomes higher than absolute threshold;

Event H2: Aerial UE height becomes lower than absolute threshold.

***ReportConfigEUTRA* information element**

-- ASN1START

ReportConfigEUTRA ::= SEQUENCE {

triggerType CHOICE {

event SEQUENCE {

eventId CHOICE {

eventA1 SEQUENCE {

a1-Threshold ThresholdEUTRA

},

eventA2 SEQUENCE {

a2-Threshold ThresholdEUTRA

},

eventA3 SEQUENCE {

a3-Offset INTEGER (-30..30),

reportOnLeave BOOLEAN

},

eventA4 SEQUENCE {

a4-Threshold ThresholdEUTRA

},

eventA5 SEQUENCE {

a5-Threshold1 ThresholdEUTRA,

a5-Threshold2 ThresholdEUTRA

},

...,

eventA6-r10 SEQUENCE {

a6-Offset-r10 INTEGER (-30..30),

a6-ReportOnLeave-r10 BOOLEAN

},

eventC1-r12 SEQUENCE {

c1-Threshold-r12 ThresholdEUTRA-v1250,

c1-ReportOnLeave-r12 BOOLEAN

},

eventC2-r12 SEQUENCE {

c2-RefCSI-RS-r12 MeasCSI-RS-Id-r12,

c2-Offset-r12 INTEGER (-30..30),

c2-ReportOnLeave-r12 BOOLEAN

},

eventV1-r14 SEQUENCE {

v1-Threshold-r14 SL-CBR-r14

},

eventV2-r14 SEQUENCE {

v2-Threshold-r14 SL-CBR-r14

},

eventH1-r15 SEQUENCE {

h1-ThresholdOffset-r15 INTEGER (0..300),

h1-Hysteresis-15 INTEGER (1..16)

},

eventH2-r15 SEQUENCE {

h2-ThresholdOffset-r15 INTEGER (0..300),

h2-Hysteresis-15 INTEGER (1..16)

}

},

hysteresis Hysteresis,

timeToTrigger TimeToTrigger

},

periodical SEQUENCE {

purpose ENUMERATED {

reportStrongestCells, reportCGI}

}

},

triggerQuantity ENUMERATED {rsrp, rsrq},

reportQuantity ENUMERATED {sameAsTriggerQuantity, both},

maxReportCells INTEGER (1..maxCellReport),

reportInterval ReportInterval,

reportAmount ENUMERATED {r1, r2, r4, r8, r16, r32, r64, infinity},

...,

[[ si-RequestForHO-r9 ENUMERATED {setup} OPTIONAL, -- Cond reportCGI

ue-RxTxTimeDiffPeriodical-r9 ENUMERATED {setup} OPTIONAL -- Need OR

]],

[[ includeLocationInfo-r10 ENUMERATED {true} OPTIONAL, -- Need OR

reportAddNeighMeas-r10 ENUMERATED {setup} OPTIONAL -- Need OR

]],

[[ alternativeTimeToTrigger-r12 CHOICE {

release NULL,

setup TimeToTrigger

} OPTIONAL, -- Need ON

useT312-r12 BOOLEAN OPTIONAL, -- Need ON

usePSCell-r12 BOOLEAN OPTIONAL, -- Need ON

aN-Threshold1-v1250 RSRQ-RangeConfig-r12 OPTIONAL, -- Need ON

a5-Threshold2-v1250 RSRQ-RangeConfig-r12 OPTIONAL, -- Need ON

reportStrongestCSI-RSs-r12 BOOLEAN OPTIONAL, -- Need ON

reportCRS-Meas-r12 BOOLEAN OPTIONAL, -- Need ON

triggerQuantityCSI-RS-r12 BOOLEAN OPTIONAL -- Need ON

]],

[[ reportSSTD-Meas-r13 BOOLEAN OPTIONAL, -- Need ON

rs-sinr-Config-r13 CHOICE {

release NULL,

setup SEQUENCE {

triggerQuantity-v1310 ENUMERATED {sinr} OPTIONAL, -- Need ON

aN-Threshold1-r13 RS-SINR-Range-r13 OPTIONAL, -- Need ON

a5-Threshold2-r13 RS-SINR-Range-r13 OPTIONAL, -- Need ON

reportQuantity-v1310 ENUMERATED {rsrpANDsinr, rsrqANDsinr, all}

}

} OPTIONAL, -- Need ON

useWhiteCellList-r13 BOOLEAN OPTIONAL, -- Need ON

measRSSI-ReportConfig-r13 MeasRSSI-ReportConfig-r13 OPTIONAL, -- Need ON

includeMultiBandInfo-r13 ENUMERATED {true} OPTIONAL, -- Cond reportCGI

ul-DelayConfig-r13 UL-DelayConfig-r13 OPTIONAL -- Need ON

]],

[[ ue-RxTxTimeDiffPeriodicalTDD-r13 BOOLEAN OPTIONAL -- Need ON

]],

[[

purpose-v1430 ENUMERATED {reportLocation, sidelink, spare2, spare1}

OPTIONAL -- Need ON

]],

[[

maxReportRS-Index-r15 INTEGER (0..maxRS-IndexReport-r15) OPTIONAL -- Need ON

]],

[[ includeBT-Meas-r15 BT-NameListConfig-r15 OPTIONAL, -- Need ON

includeWLAN-Meas-r15 WLAN-NameListConfig-r15 OPTIONAL, -- Need ON

purpose-r15 ENUMERATED {sensing} OPTIONAL, -- Need ON

numberOfTriggeringCells-r15 INTEGER (2..maxCellReport) OPTIONAL, -- Cond a3a4a5

a4-a5-ReportOnLeave-r15 BOOLEAN OPTIONAL -- Cond a4a5

]],

[[ condReconfigurationTriggerEUTRA-r16 CondReconfigurationTriggerEUTRA-r16 OPTIONAL,

-- Need ON

ul-DelayValueConfig-r16 UL-DelayValueConfig-r16 OPTIONAL -- Need ON

]]

}

CondReconfigurationTriggerEUTRA-r16 ::= SEQUENCE {

condEventId-r16 CHOICE {

condEventA3-r16 SEQUENCE {

a3-Offset-r16 INTEGER (-30..30),

hysteresis-r16 Hysteresis,

timeToTrigger-r16 TimeToTrigger

},

condEventA5-r16 SEQUENCE {

a5-Threshold1-r16 ThresholdEUTRA,

a5-Threshold2-r16 ThresholdEUTRA,

hysteresis-r16 Hysteresis,

timeToTrigger-r16 TimeToTrigger

},

...

}

}

RSRQ-RangeConfig-r12 ::= CHOICE {

release NULL,

setup RSRQ-Range-v1250

}

ThresholdEUTRA ::= CHOICE{

threshold-RSRP RSRP-Range,

threshold-RSRQ RSRQ-Range

}

ThresholdEUTRA-v1250 ::= CSI-RSRP-Range-r12

MeasRSSI-ReportConfig-r13 ::= SEQUENCE {

channelOccupancyThreshold-r13 RSSI-Range-r13 OPTIONAL -- Need OR

}

-- ASN1STOP

| ***ReportConfigEUTRA* field descriptions** |
| --- |
| ***a3-Offset/ a6-Offset/ c2-Offset***  Offset value to be used in EUTRA measurement report triggering condition for event a3/ a6/ c2. The actual value is field value \* 0.5 dB. |
| ***alternativeTimeToTrigger***  Indicates the time to trigger applicable for cells specified in *altTTT-CellsToAddModList* of the associated measurement object, if configured |
| ***aN-ThresholdM/ cN-ThresholdM***  Threshold to be used in EUTRA measurement report triggering condition for event number aN/ cN. If multiple thresholds are defined for event number aN/ cN, the thresholds are differentiated by M. E-UTRAN configures *aN-Threshold1* only for events A1, A2, A4, A5 and *a5-Threshold2* only for event A5. |
| ***c1-ReportOnLeave/ c2-ReportOnLeave***  Indicates whether or not the UE shall initiate the measurement reporting procedure when the leaving condition is met for a CSI-RS resource in *csi-RS-TriggeredList*, as specified in 5.5.4.1. |
| ***c2-RefCSI-RS***  Identity of the CSI-RS resource from the *measCSI-RS-ToAddModList* of the associated *measObject*, to be used as the reference CSI-RS resource in EUTRA measurement report triggering condition for event c2. |
| ***channelOccupancyThreshold***  RSSI threshold which is used for channel occupancy evaluation. |
| ***eventId***  Choice of E‑UTRA event triggered reporting criteria. EUTRAN may set this field to *eventC1* or *eventC2* only if *measDS-Config* is configured in the associated *measObject* with one or more CSI-RS resources. The *eventC1* and *eventC2* are not applicable for the *eventId* if RS-SINR is configured as *triggerQuantity* or *reportQuantity*. |
| ***h1-Hysteresis, h2-Hysteresis***  This parameter is used within the entry and leave condition of an event triggered reporting condition for event H1 and event H2. The actual value is field value. If this field is configured UE shall ignore parameter *hysteresis.* |
| ***h1-ThresholdOffset, h2-ThresholdOffset***  An offset value to *heightThreshRef* to obtain the threshold to be used in EUTRA height report triggering condition for event H1 and event H2. The value for h1-ThresholdOffset and h2-ThresholdOffset is expressed in meters such that granularity is 2meters. Value 0 corresponds to offset value 0m, value 1 corresponds to offset value 2m, value 2 correspond to offset value 4m, and so on. |
| ***includeMultiBandInfo***  If this field is present, the UE shall acquire and include multi band information in the measurement report. | |
| ***maxReportCells***  Max number of cells, excluding the serving cell, to include in the measurement report concerning CRS, and max number of CSI-RS resources to include in the measurement report concerning CSI-RS. |
| ***measRSSI-ReportConfig***  If this field is present, the UE shall perform measurement reporting for RSSI and channel occupancy and ignore the *triggerQuantity*, *reportQuantity* and *maxReportCells* fields. E-UTRAN sets this field to *true* only when setting *triggerType* to *periodical* and *purpose* to *reportStrongestCells*. |
| ***numberOfTriggeringCells***  Indicates the number of cells detected that are required to fulfill an event for a measurement report to be triggered. This field is set only for the events concerning neighbor cells, i.e. *eventA3*, *eventA4, eventA5*. |
| ***reportAmount***  Number of measurement reports applicable for *triggerType* *event* as well as for *triggerType* *periodical*. In case *purpose* is set to *reportCGI* or *reportSSTD-Meas* is set to *true*, only value 1 applies. |
| ***reportCRS-Meas***  If this field is set to *TRUE* the UE shall include rsrp, rsrq together with csi-rsrp in the measurement report, if possible. |
| ***reportOnLeave/ a6-ReportOnLeave/ a4-a5-ReportOnLeave***  Indicates whether or not the UE shall initiate the measurement reporting procedure when the leaving condition is met for a cell in *cellsTriggeredList*, as specified in 5.5.4.1. |
| ***reportQuantity***  The quantities to be included in the measurement report***.*** The value both means that both the rsrp and rsrq quantities are to be included in the measurement report. The value *rsrpANDsinr* and *rsrqANDsinr* mean that both *rsrp* and *rs-sinr* quantities, and both *rsrq* and *rs-sinr* quantities are to be included respectively in the measurement report. The value *all* means that *rsrp*, *rsrq* and *rs-sinr* are to be included in the measurement report. In case *triggerQuantityCSI-RS* is set to *TRUE*, only value *sameAsTriggerQuantity* applies. If *reportQuantity*-v*1310* is configured, the UE only considers this extension (and ignores *reportQuantity* i.e. without suffix). |
| ***reportSSTD-Meas***  If this field is set to *true*, the UE shall measure SSTD between the PCell and the PSCell as specified in TS 36.214 [48] and ignore the *triggerQuantity*, *reportQuantity* and *maxReportCells* fields. E-UTRAN sets this field to *true* only when setting *triggerType* to *periodical* and *purpose* to *reportStrongestCells*. |
| ***reportStrongestCSI-RSs***  Indicates that periodical CSI-RS measurement report is performed. EUTRAN configures value *TRUE* only if *measDS-Config* is configured in the associated *measObject* with one or more CSI-RS resources. |
| ***si-RequestForHO***  The field applies to the *reportCGI* functionality, and when the field is included, the UE is allowed to use autonomous gaps in acquiring system information from the neighbour cell, applies a different value for T321, and includes different fields in the measurement report. |
| ***ThresholdEUTRA***  For RSRP: RSRP based threshold for event evaluation. The actual value is field value – 140 dBm.  For RSRQ: RSRQ based threshold for event evaluation. The actual value is (field value – 40)/2 dB.  For RS-SINR: RS-SINR based threshold for event evaluation. The actual value is (field value -46)/2 dB.  For CSI-RSRP: CSI-RSRP based threshold for event evaluation. The actual value is field value – 140 dBm.  EUTRAN configures the same threshold quantity for all the thresholds of an event. |
| ***timeToTrigger***  Time during which specific criteria for the event needs to be met in order to trigger a measurement report. |
| ***triggerQuantity***  The quantity used to evaluate the triggering condition for the event concerning CRS***.*** EUTRAN sets the value according to the quantity of the *ThresholdEUTRA* for this event. The values rsrp, rsrq and *sinr* correspond to Reference Signal Received Power (RSRP), Reference Signal Received Quality (RSRQ) and Reference Signal Signal to Noise and Interference Ratio (RS-SINR), see TS 36.214 [48]. If *triggerQuantity-v1310* is configured, the UE only considers this extension (and ignores *triggerQuantity* i.e. without suffix). |
| ***triggerQuantityCSI-RS***  The quantity used to evaluate the triggering condition for the event concerning CSI-RS***.*** The value *TRUE* corresponds to CSI Reference Signal Received Power (CSI-RSRP), see TS 36.214 [48]. E-UTRAN configures value *TRUE* if and only if the measurement reporting event concerns CSI-RS. |
| ***ue-RxTxTimeDiffPeriodical***  If this field is present, the UE shall perform UE Rx-Tx time difference measurement reporting and ignore the fields *triggerQuantity*, *reportQuantity* and *maxReportCells*. If the field is present, the only applicable values for the corresponding *triggerType* and *purpose* are periodical and reportStrongestCells respectively. |
| ***ue-RxTxTimeDiffPeriodicalTDD***  If this field is set to *TRUE*, the UE shall performUE Rx-Tx time difference measurement reporting according to EUTRAN TDD UE Rx-Tx time difference report mapping in TS 36.133 [16]. If the field is configured, the *ue-RxTxTimeDiffPeriodical* shall be configured. The field is applicable for TDD only. |
| ***usePSCell***  If this field is set to *TRUE* the UE shall use the PSCell instead of the PCell. E-UTRAN configures value *TRUE* only for events A3 and A5, see 5.5.4.4 and 5.5.4.6. |
| ***useT312***  If value *TRUE* is configured, the UE shall use the timer T312 with the value *t312* as specified in the corresponding *measObject*. If the corresponding *measObject* does not include the timer T312 then the timer T312 is considered as not configured. E-UTRAN configures value *TRUE* only if *triggerType* is set to *event*. |
| ***useWhiteCellList***  Indicates whether only the cells included in the white-list of the associated *measObject* are applicable as specified in 5.5.4.1. E-UTRAN does not configure the field for events A1, A2, C1 and C2. |
| ***ul-DelayConfig***  If the field is present, E-UTRAN configures UL PDCP Packet Delay per QCI measurement and the UE shall ignore the fields *triggerQuantity* and *maxReportCells*. The applicable values for the corresponding *triggerType* and *reportInterval* are *periodical* and (one of the) ms1024, ms2048, ms5120 or ms10240respectively.The *reportInterval* indicates the periodicity for performing and reporting of UL PDCP Delay per QCI measurement as specified in TS 36.314 [71]. |
| ***ul-DelayValueConfig***  If the field is present, the UE shall perform the UL PDCP Packet Delay measurement per DRB as specified in TS 38.314 [103] and the UE shall ignore the fields *reportQuantityCell* and *maxReportCells*. The applicable values for the corresponding *reportInterval* are (one of the) { ms120, ms240, ms480, ms640, ms1024, ms2048, ms5120, ms10240,  min1, min6, min12, min30, min60}. The *reportInterval* indicates the periodicity for performing and reporting of UL PDCP Packet Delay per DRB measurement as specified in TS 38.314 [103]. | |

| **Conditional presence** | **Explanation** |
| --- | --- |
| *reportCGI* | The field is optional, need OR, in case *purpose* is included and set to *reportCGI*; otherwise the field is not present and the UE shall delete any existing value for this field. |
| *a3a4a5* | This field is optional, need OR, in case eventId is set to eventA3 or eventA4 or eventA5; otherwise, this field is not present and the UE shall delete any existing value of this field. |
| *a4a5* | This field is optional, need OR, in case eventId is set to eventA4 or eventA5; otherwise, this field is not present and the UE shall delete any existing value of this field. |

6.3.6 Other information elements

>Cut until next modified section

– *OtherConfig*

The IE *OtherConfig* contains configuration related to other configuration.

***OtherConfig* information element**

-- ASN1START

OtherConfig-r9 ::= SEQUENCE {

reportProximityConfig-r9 ReportProximityConfig-r9 OPTIONAL, -- Need ON

...,

[[ idc-Config-r11 IDC-Config-r11 OPTIONAL, -- Need ON

powerPrefIndicationConfig-r11 PowerPrefIndicationConfig-r11 OPTIONAL, -- Need ON

obtainLocationConfig-r11 ObtainLocationConfig-r11 OPTIONAL -- Need ON

]],

[[ bw-PreferenceIndicationTimer-r14 ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20,

s30, s60, s90, s120, s300, s600, spare3,

spare2, spare1} OPTIONAL, -- Need OR

sps-AssistanceInfoReport-r14 BOOLEAN OPTIONAL, -- Need ON

delayBudgetReportingConfig-r14 CHOICE{

release NULL,

setup SEQUENCE{

delayBudgetReportingProhibitTimer-r14 ENUMERATED {

s0, s0dot4, s0dot8,

s1dot6, s3, s6, s12, s30}

}

} OPTIONAL, -- Need ON

rlm-ReportConfig-r14 CHOICE {

release NULL,

setup SEQUENCE{

rlmReportTimer-r14 ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

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

rlmReportRep-MPDCCH-r14 ENUMERATED {setup} OPTIONAL -- Need OR

}

} OPTIONAL -- Need ON

]],

[[ overheatingAssistanceConfig-r14 CHOICE{

release NULL,

setup SEQUENCE{

overheatingIndicationProhibitTimer-r14 ENUMERATED {s0, s0dot5, s1, s2, s5, s10,

s20, s30, s60, s90, s120, s300, s600,

spare3, spare2, spare1}

}

} OPTIONAL -- Need ON

]],

[[ measConfigAppLayer-r15 CHOICE{

release NULL,

setup SEQUENCE{

measConfigAppLayerContainer-r15 OCTET STRING (SIZE(1..1000)),

serviceType-r15 ENUMERATED {qoe, qoemtsi, spare6, spare5, spare4, spare3, spare2, spare1}

}

} OPTIONAL, -- Need ON

ailc-BitConfig-r15 BOOLEAN OPTIONAL, -- Need ON

bt-NameListConfig-r15 BT-NameListConfig-r15 OPTIONAL, --Need ON

wlan-NameListConfig-r15 WLAN-NameListConfig-r15 OPTIONAL --Need ON

]]

}

IDC-Config-r11 ::= SEQUENCE {

idc-Indication-r11 ENUMERATED {setup} OPTIONAL, -- Need OR

autonomousDenialParameters-r11 SEQUENCE {

autonomousDenialSubframes-r11 ENUMERATED {n2, n5, n10, n15,

n20, n30, spare2, spare1},

autonomousDenialValidity-r11 ENUMERATED {

sf200, sf500, sf1000, sf2000,

spare4, spare3, spare2, spare1}

} OPTIONAL, -- Need OR

...,

[[ idc-Indication-UL-CA-r11 ENUMERATED {setup} OPTIONAL -- Cond idc-Ind

]],

[[ idc-HardwareSharingIndication-r13 ENUMERATED {setup} OPTIONAL -- Need OR

]],

[[ idc-Indication-MRDC-r15 CHOICE{

release NULL,

setup CandidateServingFreqListNR-r15

} OPTIONAL -- Cond idc-Ind

]]

}

ObtainLocationConfig-r11 ::= SEQUENCE {

obtainLocation-r11 ENUMERATED {setup} OPTIONAL -- Need OR

}

PowerPrefIndicationConfig-r11 ::= CHOICE{

release NULL,

setup SEQUENCE{

powerPrefIndicationTimer-r11 ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20,

s30, s60, s90, s120, s300, s600, spare3,

spare2, spare1}

}

}

ReportProximityConfig-r9 ::= SEQUENCE {

proximityIndicationEUTRA-r9 ENUMERATED {enabled} OPTIONAL, -- Need OR

proximityIndicationUTRA-r9 ENUMERATED {enabled} OPTIONAL -- Need OR

}

CandidateServingFreqListNR-r15 ::= SEQUENCE (SIZE (1..maxFreqIDC-r11)) OF ARFCN-ValueNR-r15

-- ASN1STOP

| ***OtherConfig* field descriptions** |
| --- |
| ***ailc-BitConfig***  Indicates whether the UE is allowed to provide assistance information bit for local cache. If configured, the UE shall only apply to a DRB configured with 12-bit PDCP SN format as specified in TS 36.323 [8]. |
| ***autonomousDenialSubframes***  Indicates the maximum number of the UL subframes for which the UE is allowed to deny any UL transmission. Value n2 corresponds to 2 subframes, n5 to 5 subframes and so on. E-UTRAN does not configure autonomous denial for frequencies on which SCG cells are configured. |
| ***autonomousDenialValidity***  Indicates the validity period over which the UL autonomous denial subframes shall be counted. Value sf200 corresponds to 200 subframes, sf500 corresponds to 500 subframes and so on. |
| ***bw-PreferenceIndicationTimer***  Prohibit timer for bandwidth preference indication reporting. Value in seconds. Value s0 means prohibit timer is set to 0 second, value s0dot5 means prohibit timer is set to 0.5 second, value s1 means prohibit timer is set to 1 second and so on. |
| ***CandidateServingFreqListNR***  Indicates for each candidate NR serving cells, the center frequency around which UE is requested to report IDC issues for MR-DC. |
| ***delayBudgetReportingProhibitTimer***  Prohibit timer for delay budget reporting. Value in seconds. Value s0 means prohibit timer is set to 0 second, value s0dot4 means prohibit timer is set to 0.4 second, and so on. |
| ***idc-HardwareSharingIndication***  The field is used to indicate whether the UE is allowed indicate in *InDeviceCoexIndication* that the cause of the problems are due to hardware sharing, and whether the UE is allowed to omit the TDM assistance information. |
| ***idc-Indication***  The field is used to indicate whether the UE is configured to initiate transmission of the *InDeviceCoexIndication* message to the network. |
| ***idc-Indication-MRDC***  The field is used to indicate whether the UE is configured to provide IDC indications for MR-DC using the InDeviceCoexIndication message. |
| ***idc-Indication-UL-CA***  The field is used to indicate whether the UE is configured to provide IDC indications for UL CA using the *InDeviceCoexIndication* message. |
| ***measConfigAppLayerContainer***  The field contains configuration of application layer measurements, see Annex L (normative) in TS 26.247 [90] and clause 16.5 in TS 26.114 [99]. |
| ***serviceType***  Indicates the type of application layer measurement. Value qoe indicates Quality of Experience Measurement Collection for streaming services, value qoemtsi indicates Enhanced Quality of Experience Measurement Collection for MTSI. |
| ***obtainLocation***  Requests the UE to attempt to have detailed location information available using GNSS. E-UTRAN configures the field only if *includeLocationInfo* is configured for one or more measurements. |
| ***overheatingAssistanceConfig***  Configuration for the UE to report assistance information to inform the eNB 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 second, value s1 means prohibit timer is set to 1 second and so on. |
| ***powerPrefIndicationTimer***  Prohibit timer for Power Preference Indication reporting. Value in seconds. Value s0 means prohibit timer is set to 0 second, value s0dot5 means prohibit timer is set to 0.5 second, value s1 means prohibit timer is set to 1 second and so on. |
| ***reportProximityConfig***  Indicates, for each of the applicable RATs (EUTRA, UTRA), whether or not proximity indication is enabled for CSG member cell(s) of the concerned RAT. Note. |
| ***rlmReportTimer***  Prohibit timer for RLM event reporting, i.e. "early-out-of-sync" and "early-in-sync" event reporting, as specified in clause 5.6.10. Value in seconds. Value s0 means prohibit timer is set to 0 second, value s0dot5 means prohibit timer is set to 0.5 second, value s1 means prohibit timer is set to 1 second and so on. |
| ***rlmReportRep-MPDCCH***  The field is used to indicate whether the UE is configured to report excess repetitions on MPDCCH. |
| ***sps-AssistanceInfoReport***  Value TRUE indicates that the UE is allowed to report SPS-AssistanceInformation. |

NOTE: Enabling/ disabling of proximity indication includes enabling/ disabling of the related functionality e.g. autonomous search in connected mode.

| **Conditional presence** | **Explanation** |
| --- | --- |
| *idc-Ind* | The field is optionally present if *idc-Indication* is present, need OR. Otherwise the field is not present. |

– Multiplicity and type constraint definitions

-- ASN1START

maxAccessCat-1-r15 INTEGER ::= 63 -- Maximum number of Access Categories - 1

maxACDC-Cat-r13 INTEGER ::= 16 -- Maximum number of ACDC categories (per PLMN)

maxAvailNarrowBands-r13 INTEGER ::= 16 -- Maximum number of narrowbands

maxBandComb-r10 INTEGER ::= 128 -- Maximum number of band combinations.

maxBandComb-r11 INTEGER ::= 256 -- Maximum number of additional band combinations.

maxBandComb-r13 INTEGER ::= 384 -- Maximum number of band combinations in Rel-13

maxBands INTEGER ::= 64 -- Maximum number of bands listed in EUTRA UE caps

maxBandsNR-r15 INTEGER ::= 1024 -- Maximum number of NR bands listed in EUTRA UE caps

maxBandwidthClass-r10 INTEGER ::= 16 -- Maximum number of supported CA BW classes per band

maxBandwidthCombSet-r10 INTEGER ::= 32 -- Maximum number of bandwidth combination sets per

-- supported band combination

maxBarringInfoSet-r15 INTEGER ::= 8 -- Maximum number of UAC barring information sets

maxBT-IdReport-r15 INTEGER ::= 32 -- Maximum number of Bluetooth IDs to report

maxBT-Name-r15 INTEGER ::= 4 -- Maximum number of Bluetooth name

maxCBR-Level-r14 INTEGER ::= 16 -- Maximum number of CBR levels

maxCBR-Level-1-r14 INTEGER ::= 15

maxCBR-Report-r14 INTEGER ::= 72 -- Maximum number of CBR results in a report

maxCDMA-BandClass INTEGER ::= 32 -- Maximum value of the CDMA band classes

maxCE-Level-r13 INTEGER ::= 4 -- Maximum number of CE levels

maxCellBlack INTEGER ::= 16 -- Maximum number of blacklisted physical cell identity

-- ranges listed in SIB type 4 and 5

maxCellHistory-r12 INTEGER ::= 16 -- Maximum number of visited EUTRA cells reported

maxCellInfoGERAN-r9 INTEGER ::= 32 -- Maximum number of GERAN cells for which system in-

-- formation can be provided as redirection assistance

maxCellInfoUTRA-r9 INTEGER ::= 16 -- Maximum number of UTRA cells for which system

-- information can be provided as redirection

-- assistance

maxCellMeasIdle-r15 INTEGER ::= 8 -- Maximum number of neighbouring inter-frequency

-- cells per carrier measured in IDLE mode

maxCombIDC-r11 INTEGER ::= 128 -- Maximum number of reported UL CA or

-- MR-DC combinations

maxCSI-IM-r11 INTEGER ::= 3 -- Maximum number of CSI-IM configurations

-- (per carrier frequency)

maxCSI-IM-r12 INTEGER ::= 4 -- Maximum number of CSI-IM configurations

-- (per carrier frequency)

minCSI-IM-r13 INTEGER ::= 5 -- Minimum number of CSI IM configurations from which

-- REL-13 extension is used

maxCSI-IM-r13 INTEGER ::= 24 -- Maximum number of CSI-IM configurations

-- (per carrier frequency)

maxCSI-IM-v1310 INTEGER ::= 20 -- Maximum number of additional CSI-IM configurations

-- (per carrier frequency)

maxCSI-Proc-r11 INTEGER ::= 4 -- Maximum number of CSI processes (per carrier

-- frequency)

maxCSI-RS-NZP-r11 INTEGER ::= 3 -- Maximum number of CSI RS resource

-- configurations using non-zero Tx power

-- (per carrier frequency)

minCSI-RS-NZP-r13 INTEGER ::= 4 -- Minimum number of CSI RS resource from which

-- REL-13 extension is used

maxCSI-RS-NZP-r13 INTEGER ::= 24 -- Maximum number of CSI RS resource

-- configurations using non-zero Tx power

-- (per carrier frequency)

maxCSI-RS-NZP-v1310 INTEGER ::= 21 -- Maximum number of additional CSI RS resource

-- configurations using non-zero Tx power

-- (per carrier frequency)

maxCSI-RS-ZP-r11 INTEGER ::= 4 -- Maximum number of CSI RS resource

-- configurations using zero Tx power(per carrier

-- frequency)

maxCQI-ProcExt-r11 INTEGER ::= 3 -- Maximum number of additional periodic CQI

-- configurations (per carrier frequency)

maxFreqUTRA-TDD-r10 INTEGER ::= 6 -- Maximum number of UTRA TDD carrier frequencies for

-- which system information can be provided as

-- redirection assistance

maxCellInter INTEGER ::= 16 -- Maximum number of neighbouring inter-frequency

-- cells listed in SIB type 5

maxCellIntra INTEGER ::= 16 -- Maximum number of neighbouring intra-frequency

-- cells listed in SIB type 4

maxCellListGERAN INTEGER ::= 3 -- Maximum number of lists of GERAN cells

maxCellMeas INTEGER ::= 32 -- Maximum number of entries in each of the

-- cell lists in a measurement object

maxCellReport INTEGER ::= 8 -- Maximum number of reported cells/CSI-RS resources

maxCellSFTD INTEGER ::= 3 -- Maximum number of cells for SFTD reporting

maxConfigSPS-r14 INTEGER ::= 8 -- Maximum number of simultaneous SPS configurations

maxConfigSPS-r15 INTEGER ::= 6 -- Maximum number of simultaneous SPS configurations

-- configured with SPS C-RNTI

maxCSI-RS-Meas-r12 INTEGER ::= 96 -- Maximum number of entries in the CSI-RS list

-- in a measurement object

maxDRB INTEGER ::= 11 -- Maximum number of Data Radio Bearers

maxDRBExt-r15 INTEGER ::= 4 -- Maximum number of additional DRBs

maxDRB-r15 INTEGER ::= 15 -- Highest value of extended maximum number of DRBs

maxDS-Duration-r12 INTEGER ::= 5 -- Maximum number of subframes in a discovery signals

-- occasion

maxDS-ZTP-CSI-RS-r12 INTEGER ::= 5 -- Maximum number of zero transmission power CSI-RS for

-- a serving cell concerning discovery signals

maxEARFCN INTEGER ::= 65535 -- Maximum value of EUTRA carrier frequency

maxEARFCN-Plus1 INTEGER ::= 65536 -- Lowest value extended EARFCN range

maxEARFCN2 INTEGER ::= 262143 -- Highest value extended EARFCN range

maxEPDCCH-Set-r11 INTEGER ::= 2 -- Maximum number of EPDCCH sets

maxFBI INTEGER ::= 64 -- Maximum value of fequency band indicator

maxFBI-NR-r15 INTEGER ::= 1024 -- Highest value FBI range for NR.

maxFBI-Plus1 INTEGER ::= 65 -- Lowest value extended FBI range

maxFBI2 INTEGER ::= 256 -- Highest value extended FBI range

maxFeatureSets-r15 INTEGER ::= 256 -- Total number of feature sets (size of pool)

maxPerCC-FeatureSets-r15 INTEGER ::= 32 -- Total number of CC-specific feature sets

-- (size of the pool)

maxFreq INTEGER ::= 8 -- Maximum number of carrier frequencies

maxFreqIDC-r11 INTEGER ::= 32 -- Maximum number of carrier frequencies that are

-- affected by the IDC problems

maxFreqIdle-r15 INTEGER ::= 8 -- Maximum number of carrier frequencies for

-- IDLE mode measurements configured by eNB

maxFreqMBMS-r11 INTEGER ::= 5 -- Maximum number of carrier frequencies for which an

-- MBMS capable UE may indicate an interest

maxFreqNR-r15 INTEGER ::= 5 -- Maximum number of NR carrier frequencies for

-- which a UE may provide measurement results upon

-- NR SCG failure

maxFreqSL-NR-r16 INTEGER ::= 8 -- Maximum number of NR anchor carrier frequencies on

-- which configurations for V2X sidelink communication

-- are provided

maxFreqV2X-r14 INTEGER ::= 8 -- Maximum number of carrier frequencies for which V2X

-- sidelink communication can be configured

maxFreqV2X-1-r14 INTEGER ::= 7 -- Highest index of frequencies

maxGERAN-SI INTEGER ::= 10 -- Maximum number of GERAN SI blocks that can be

-- provided as part of NACC information

maxGNFG INTEGER ::= 16 -- Maximum number of GERAN neighbour freq groups

maxIdleMeasCarriers-r15 INTEGER ::= 3 -- Maximum number of neighbouring inter-

-- frequency carriers measured in IDLE mode

maxLCG-r13 INTEGER ::= 4 -- Maximum number of logical channel groups

maxLogMeasReport-r10 INTEGER ::= 520 -- Maximum number of logged measurement entries

-- that can be reported by the UE in one message

maxMBSFN-Allocations INTEGER ::= 8 -- Maximum number of MBSFN frame allocations with

-- different offset

maxMBSFN-Area INTEGER ::= 8

maxMBSFN-Area-1 INTEGER ::= 7

maxMBMS-ServiceListPerUE-r13 INTEGER ::= 15 -- Maximum number of services which the UE can

-- include in the MBMS interest indication

maxMeasId INTEGER ::= 32

maxMeasId-Plus1 INTEGER ::= 33

maxMeasId-r12 INTEGER ::= 64

maxMultiBands INTEGER ::= 8 -- Maximum number of additional frequency bands

-- that a cell belongs to

maxMultiBandsNR-r15 INTEGER ::= 32 -- Maximum number of additional NR frequency bands

-- that a cell belongs to

maxMultiBandsNR-1-r15 INTEGER ::= 31

maxNS-Pmax-r10 INTEGER ::= 8 -- Maximum number of NS and P-Max values per band

maxNAICS-Entries-r12 INTEGER ::= 8 -- Maximum number of supported NAICS combination(s)

maxNeighCell-r12 INTEGER ::= 8 -- Maximum number of neighbouring cells in NAICS

-- configuration (per carrier frequency)

maxNeighCell-SCPTM-r13 INTEGER ::= 8 -- Maximum number of SCPTM neighbour cells

maxNrofS-NSSAI-r15 INTEGER ::= 8 -- Maximum number of S-NSSAI

maxObjectId INTEGER ::= 32

maxObjectId-Plus1-r13 INTEGER ::= 33

maxObjectId-r13 INTEGER ::= 64

maxP-a-PerNeighCell-r12 INTEGER ::= 3 -- Maximum number of power offsets for a neighbour cell

-- in NAICS configuration

maxPageRec INTEGER ::= 16 --

maxPhysCellIdRange-r9 INTEGER ::= 4 -- Maximum number of physical cell identity ranges

maxPLMN-r11 INTEGER ::= 6 -- Maximum number of PLMNs

maxPLMN-1-r14 INTEGER ::= 5 -- Maximum number of PLMNs minus one

maxPLMN-r15 INTEGER ::= 8 -- Maximum number of PLMNs for RNA configuration

maxPLMN-NR-r15 INTEGER ::= 12 -- Maximum number of NR PLMNs

maxPNOffset INTEGER ::= 511 -- Maximum number of CDMA2000 PNOffsets

maxPMCH-PerMBSFN INTEGER ::= 15

maxPSSCH-TxConfig-r14 INTEGER ::= 16 -- Maximum number of PSSCH TX configurations

maxQuantSetsNR-r15 INTEGER ::= 2 -- Maximum number of NR quantity configuration sets

maxQCI-r13 INTEGER ::= 6 -- Maximum number of QCIs

maxRAT-Capabilities INTEGER ::= 8 -- Maximum number of interworking RATs (incl EUTRA)

maxRE-MapQCL-r11 INTEGER ::= 4 -- Maximum number of PDSCH RE Mapping configurations

-- (per carrier frequency)

maxReportConfigId INTEGER ::= 32

maxReservationPeriod-r14 INTEGER ::= 16 -- Maximum number of resource reservation periodicities

-- for sidelink V2X communication

maxRS-Index-r15 INTEGER ::= 64 -- Maximum number of RS indices

maxRS-Index-1-r15 INTEGER ::= 63 -- Highest value of RS index as used to identify

-- RS index in RRM reports.

maxRS-IndexCellQual-r15 INTEGER ::= 16 -- Maximum number of RS indices averaged to derive

-- cell quality for RRM.

maxRS-IndexReport-r15 INTEGER ::= 32 -- Maximum number of RS indices for RRM.

maxRSTD-Freq-r10 INTEGER ::= 3 -- Maximum number of frequency layers for RSTD

-- measurement

maxSAI-MBMS-r11 INTEGER ::= 64 -- Maximum number of MBMS service area identities

-- broadcast per carrier frequency

maxSCell-r10 INTEGER ::= 4 -- Maximum number of SCells

maxSCell-r13 INTEGER ::= 31 -- Highest value of extended number range of SCells

maxSCellGroups-r15 INTEGER ::= 4 -- Maximum number of SCell common parameter groups

maxSC-MTCH-r13 INTEGER ::= 1023 -- Maximum number of SC-MTCHs in one cell

maxSC-MTCH-BR-r14 INTEGER ::= 128 -- Maximum number of SC-MTCHs in one cell for feMTC

maxSL-CommRxPoolNFreq-r13 INTEGER ::= 32 -- Maximum number of individual sidelink communication

-- Rx resource pools on neighbouring freq

maxSL-CommRxPoolPreconf-v1310 INTEGER ::= 12 -- Maximum number of additional preconfigured

-- sidelink communication Rx resource pool entries

maxSL-TxPool-r12Plus1-r13 INTEGER ::= 5 -- First additional individual sidelink

-- Tx resource pool

maxSL-TxPool-v1310 INTEGER ::= 4 -- Maximum number of additional sidelink

-- Tx resource pool entries

maxSL-TxPool-r13 INTEGER ::= 8 -- Maximum number of individual sidelink

-- Tx resource pools

maxSL-CommTxPoolPreconf-v1310 INTEGER ::= 7 -- Maximum number of additional preconfigured

-- sidelink Tx resource pool entries

maxSL-Dest-r12 INTEGER ::= 16 -- Maximum number of sidelink destinations

maxSL-DiscCells-r13 INTEGER ::= 16 -- Maximum number of cells with similar sidelink

-- configurations

maxSL-DiscPowerClass-r12 INTEGER ::= 3 -- Maximum number of sidelink power classes

maxSL-DiscRxPoolPreconf-r13 INTEGER ::= 16 -- Maximum number of preconfigured sidelink

-- discovery Rx resource pool entries

maxSL-DiscSysInfoReportFreq-r13 INTEGER ::= 8 -- Maximum number of frequencies to include in a

-- SidelinkUEInformation for SI reporting

maxSL-DiscTxPoolPreconf-r13 INTEGER ::= 4 -- Maximum number of preconfigured sidelink

-- discovery Tx resource pool entries

maxSL-GP-r13 INTEGER ::= 8 -- Maximum number of gap patterns that can be requested

-- for a frequency or assigned

maxSL-PoolToMeasure-r14 INTEGER ::= 72 -- Maximum number of TX resource pools for CBR

-- measurement and report

maxSL-Prio-r13 INTEGER ::= 8 -- Maximum number of entries in sidelink priority list

maxSL-RxPool-r12 INTEGER ::= 16 -- Maximum number of individual sidelink Rx resource pools

maxSL-Reliability-r15 INTEGER ::= 8 -- Maximum number of entries in sidelink reliability list

maxSL-SyncConfig-r12 INTEGER ::= 16 -- Maximum number of sidelink Sync configurations

maxSL-TF-IndexPair-r12 INTEGER ::= 64 -- Maximum number of sidelink Time Freq resource index

-- pairs

maxSL-TxPool-r12 INTEGER ::= 4 -- Maximum number of individual sidelink Tx resource pools

maxSL-V2X-RxPool-r14 INTEGER ::= 16 -- Maximum number of RX resource pools for

-- V2X sidelink communication

maxSL-V2X-RxPoolPreconf-r14 INTEGER ::= 16 -- Maximum number of RX resource pools for

-- V2X sidelink communication

maxSL-V2X-TxPool-r14 INTEGER ::= 8 -- Maximum number of TX resource pools for

-- V2X sidelink communication

maxSL-V2X-TxPoolPreconf-r14 INTEGER ::= 8 -- Maximum number of TX resource pools for

-- V2X sidelink communication

maxSL-V2X-SyncConfig-r14 INTEGER ::= 16 -- Maximum number of sidelink Sync configurations

-- for V2X sidelink communication

maxSL-V2X-CBRConfig-r14 INTEGER ::= 4 -- Maximum number of CBR range configurations

-- for V2X sidelink communication congestion

-- control

maxSL-V2X-CBRConfig-1-r14 INTEGER ::= 3

maxSL-V2X-TxConfig-r14 INTEGER ::= 64 -- Maximum number of TX parameter configurations

-- for V2X sidelink communication congestion

-- control

maxSL-V2X-TxConfig-1-r14 INTEGER ::= 63

maxSL-V2X-CBRConfig2-r14 INTEGER ::= 8 -- Maximum number of CBR range configurations in

-- pre-configuration for V2X sidelink

-- communication congestion control

maxSL-V2X-CBRConfig2-1-r14 INTEGER ::= 7

maxSL-V2X-TxConfig2-r14 INTEGER ::= 128 -- Maximum number of TX parameter

-- configurations in pre-configuration for V2X

-- sidelink communication congestion control

maxSL-V2X-TxConfig2-1-r14 INTEGER ::= 127

maxSTAG-r11 INTEGER ::= 3 -- Maximum number of STAGs

maxServCell-r10 INTEGER ::= 5 -- Maximum number of Serving cells

maxServCell-r13 INTEGER ::= 32 -- Highest value of extended number range of Serving cells

maxServCellNR-r15 INTEGER ::= 16 -- Maximum number of NR serving cells

maxServiceCount INTEGER ::= 16 -- Maximum number of MBMS services that can be included

-- in an MBMS counting request and response

maxServiceCount-1 INTEGER ::= 15

maxSessionPerPMCH INTEGER ::= 29

maxSessionPerPMCH-1 INTEGER ::= 28

maxSIB INTEGER ::= 32 -- Maximum number of SIBs

maxSIB-1 INTEGER ::= 31

maxSI-Message INTEGER ::= 32 -- Maximum number of SI messages

maxSimultaneousBands-r10 INTEGER ::= 64 -- Maximum number of simultaneously aggregated bands

maxSubframePatternIDC-r11 INTEGER ::= 8 -- Maximum number of subframe reservation patterns

-- that the UE can simultaneously recommend to the

-- E-UTRAN for use.

maxTrafficPattern-r14 INTEGER ::= 8 -- Maximum number of periodical traffic patterns

-- that the UE can simultaneously report to the

-- E-UTRAN.

maxUTRA-FDD-Carrier INTEGER ::= 16 -- Maximum number of UTRA FDD carrier frequencies

maxUTRA-TDD-Carrier INTEGER ::= 16 -- Maximum number of UTRA TDD carrier frequencies

maxWayPoint-r15 INTEGER ::= 20 -- Maximum number of flight path information waypoints

maxWLAN-Id-r12 INTEGER ::= 16 -- Maximum number of WLAN identifiers

maxWLAN-Bands-r13 INTEGER ::= 8 -- Maximum number of WLAN bands

maxWLAN-Id-r13 INTEGER ::= 32 -- Maximum number of WLAN identifiers

maxWLAN-Channels-r13 INTEGER ::= 16 -- maximum number of WLAN channels used in

-- WLAN-CarrierInfo

maxWLAN-CarrierInfo-r13 INTEGER ::= 8 -- Maximum number of WLAN Carrier Information

maxWLAN-Id-Report-r14 INTEGER ::= 32 -- Maximum number of WLAN IDs to report

maxWLAN-Name-r15 INTEGER ::= 4 -- Maximum number of WLAN name

-- ASN1STOP

NOTE: The value of maxDRB aligns with SA2.

– *VarMeasReportList*

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

***VarMeasReportList* UE variable**

-- ASN1START

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

VarMeasReportList-r12 ::= SEQUENCE (SIZE (1..maxMeasId-r12)) OF VarMeasReport

VarMeasReport ::= SEQUENCE {

-- List of measurement that have been triggered

measId MeasId,

measId-v1250 MeasId-v1250 OPTIONAL,

cellsTriggeredList CellsTriggeredList OPTIONAL,

csi-RS-TriggeredList-r12 CSI-RS-TriggeredList-r12 OPTIONAL,

poolsTriggeredList-r14 Tx-ResourcePoolMeasList-r14 OPTIONAL,

numberOfReportsSent INTEGER

}

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

physCellIdEUTRA PhysCellId,

physCellIdUTRA CHOICE {

fdd PhysCellIdUTRA-FDD,

tdd PhysCellIdUTRA-TDD

},

physCellIdGERAN SEQUENCE {

carrierFreq CarrierFreqGERAN,

physCellId PhysCellIdGERAN

},

physCellIdCDMA2000 PhysCellIdCDMA2000,

wlan-Identifiers-r13 WLAN-Identifiers-r12,

physCellIdNR-r15 SEQUENCE {

carrierFreq ARFCN-ValueNR-r15,

physCellId PhysCellIdNR-r15,

rs-IndexList-r15 SSB-IndexList-r15 OPTIONAL

}

}

CSI-RS-TriggeredList-r12 ::= SEQUENCE (SIZE (1..maxCSI-RS-Meas-r12)) OF MeasCSI-RS-Id-r12

SSB-IndexList-r15::= SEQUENCE (SIZE (1..maxRS-Index-r15)) OF RS-IndexNR-r15

-- ASN1STOP