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

**Electronic, 1– xx June 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **36.331** | **CR** | **<CR#>** | **rev** | **-** | **Current version:** | **15.9.0** |  |
|  |
| *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)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network | **x** | Core Network |  |

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|  |
| ***Title:***  | V2X IRAT signalling (resolution of S003, S005, B002, S046) |
|  |  |
| ***Source to WG:*** | Samsung |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | Xxx V2X |  | ***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 canbe 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 the agreements regarding the IRAT signalling approach for NR V2X a.o: |
|  |  |
| ***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:*** | 6.3.7 |
|  |  |
|  | **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

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

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**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)

5.5.3.1 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.

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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* and the measurements concerning NR sidelink communication configured by EUTRA.

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

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.

5.5.5.1 General

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**Figure 5.5.5.1-1: Measurement reporting**

The purpose of this procedure is to transfer measurement results from the UE to 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;

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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

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**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

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– *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

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– *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.

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|  |

– *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

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– *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. |

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|  |

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– *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

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– *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. |