**3GPP TSG-RAN WG2 Meeting #110 electronic *R2-200xxxx***

**1 – 12 June 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  | **36.331** | **CR** | **4335** | **rev** | **1** | **Current version:** | **16.0.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:***  | Corrections on V2X functionalities in TS 36.331 |
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| ***Source to WG:*** | Huawei, HiSilicon |
| ***Source to TSG:*** | RAN2 |
|  |  |
| ***Work item code:*** | 5G\_V2X\_NRSL |  | ***Date:*** | 2020-06-01 |
|  |  |  |  |  |
| ***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)* |
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| ***Reason for change:*** | 1. Some editorial flaws related to unclear SIB number, subclause number, etc. are existing in the specifciation.
2. Some fileds in the container of *sl-ScheduledConfig,*  which corrspond to non-suportive features for the LTE Uu controlling NR SL and thus should be ignored by the UE, are missing in the related field description, and are thus misleading that related features are still supported in this release.
3. Need codes of *sl-ConfigDedicatedNR-r16* and *sl-SSB-PriorityEUTRA-r16* are not correct as described in ASN.1 class 2 issue N004.
4. The format of criticalExtensions of *SidelinkUEInformationNR-r16* does not follow the general format as described in ASN.1 class 2 issue S041.
5. The format of lateNonCriticalExtension of *UEAssistanceInformationNR-r16-IEs* is not correct as described in ASN.1 class 2 issue S042.
6. The need codes of *tx-ResourcePoolToRemoveList-r16* and *tx-ResourcePoolToAddList-r16* are not correct as described in ASN.1 class 2 issue S045.
7. The size of SIB12 is too big to fit into a single SIB28.
8. Some paragraphs do not read very well.
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| ***Summary of change:*** | 1. Change SIBX, SIBY and SIBZ to SIB12, SIB 13 and SIB14 respectively.
2. Change the letter “x” in the related subclause numbers refering to TS 38.331 to the correct value as per the latest specification.
3. In the field description of sl-ConfigDedicatedNR, clarify that the UE shall ignore all the configurations present, except for *sl-PrioritizationThres*, included in *sl-in SL-ScheduledConfig*, if confiugred, as the ignored configurations correspond to the features not supported in the case of LTE Uu controlling NR SL.
4. Change the need codes of *sl-ConfigDedicatedNR-r16* and *sl-SSB-PriorityEUTRA-r16* to need OR.
5. Add additional entiries in criticalExtension in the CHOICE for *SidelinkUEInformationNR-r16*
6. Add lateNonCriticalExtension in the UEAssistanceInformationNR-r16-IEs correctly.
7. Change the need codes of *tx-ResourcePoolToRemoveList-r16* and *tx-ResourcePoolToAddList-r16* to need ON.
8. In clause 5.2.2.36, the reception and assemble of *SIB12-IEs* segments is added.
9. In clause 6.3.1, SIB28 structure is updated to support segmentation.
10. Update the wording of some paragraphs to make the specificaiton more readable.
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| ***Consequences if not approved:*** | 1. There are some editorial flaws in the specification
2. It is misleading that the UE applies some configurations which are not supported in the case of LTE Uu controlling NR SL.
3. *sl-ConfigDedicatedNR-r16* and *sl-SSB-PriorityEUTRA-r16* cannot be released once configured.
4. UE releases tx-ResourcePoolToRemoveList-r16 or tx-ResourcePoolToAddList-r16 if either field is absent.
5. NR V2X controlled by LTE via SIB28 is not feasible
6. Some paragrahps do not read very well.
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| ***Clauses affected:*** | 5.2.2.36, 5.3.3.1a, 5.3.5.3, 5.5.1, 5.5.3.1, 5.5.4.18, 5.5.4.19, 5.10.1a, 5.10.1b, 5.10.1c, 5.10.1d, 5.10.12, 5.10.13.1, 5.10.15, 5.10.16, 6.2.2, 6.3.1, 6.3.5 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  |  |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  |  |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  |  |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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#### 5.2.2.36 Actions upon reception of *SystemInformationBlockType28*

1> if the UE has stored at least one segment of *SIB28* and the value tag of *SIB28* has changed since a previous segment was stored:

2> discard all stored segments;

1> store the segment;

1> if all segments have been received:

2> assemble *SIB12-IEs* from the received segments;

2> perform actions as specified in 5.2.2.4.x in TS 38.331 [82]

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#### 5.3.3.1a Conditions for establishing RRC Connection for sidelink communication/ discovery/ V2X sidelink communication/ NR sidelink communication

For sidelink communication an RRC connection is initiated only in the following case:

1> if configured by upper layers to transmit non-relay related sidelink communication and related data is available for transmission:

2> if *SystemInformationBlockType18* is broadcast by the cell on which the UE camps; and if the valid version of *SystemInformationBlockType18* does not include *commTxPoolNormalCommon*;

1> if configured by upper layers to transmit relay related sidelink communication:

2> if the UE is acting as sidelink relay UE; and if *SystemInformationBlockType18* is broadcast by the cell on which the UE camps; or

2> 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 and if *SystemInformationBlockType18* is broadcast by the cell on which the UE camps; and if the valid version of *SystemInformationBlockType18* does not include *commTxPoolNormalCommon* or *commTxAllowRelayCommon*;

For V2X sidelink communication an RRC connection is initiated only in the following case:

1> if configured by upper layers to transmit non-P2X related V2X sidelink communication and related data is available for transmission:

2> if the frequency on which the UE is configured to transmit non-P2X related V2X sidelink communication concerns the camped frequency; and if *SystemInformationBlockType21* is broadcast by the cell on which the UE camps; and if the valid version of *SystemInformationBlockType21* includes *sl-V2X-ConfigCommon*; and *sl-V2X-ConfigCommon* does not include *v2x-CommTxPoolNormalCommon*; or

2> if the frequency on which the UE is configured to transmit non-P2X related V2X sidelink communication is included in *v2x-InterFreqInfoList* within *SystemInformationBlockType21* or *SystemInformationBlockType26* broadcast by the cell on which the UE camps; and if neither the valid version of *SystemInformationBlockType21* nor that of *SystemInformationBlockType26* includes *v2x-CommTxPoolNormal* for the concerned frequency;

1> if configured by upper layers to transmit P2X related V2X sidelink communication and related data is available for transmission:

2> if the frequency on which the UE is configured to transmit P2X related V2X sidelink communication concerns the camped frequency; and if *SystemInformationBlockType21* is broadcast by the cell on which the UE camps; and if the valid version of *SystemInformationBlockType21* includes *sl-V2X-ConfigCommon*; and *sl-V2X-ConfigCommon* does not include *p2x-CommTxPoolNormalCommon*; or

2> if the frequency on which the UE is configured to transmit P2X related V2X sidelink communication is included in *v2x-InterFreqInfoList* within *SystemInformationBlockType21* or *SystemInformationBlockType26* broadcast by the cell on which the UE camps; and if neither the valid version of *SystemInformationBlockType21* nor that of *SystemInformationBlockType26* includes *p2x-CommTxPoolNormal* for the concerned frequency;

For NR sidelink communication an RRC connection is initiated only when the conditions for NR sidelink communication specified in subcaluse 5.3.3.1a of TS 38.331 [82] are met;

NOTE 1: *SIB12* specified in subclause 5.3.3.1a of TS 38.331 are provided in *SystemInformationBlockType28*

<Unrelated Texts Omitted>

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#### 5.3.5.3 Reception of an *RRCConnectionReconfiguration* not including the *mobilityControlInfo* by the UE

If the *RRCConnectionReconfiguration* message does not include the *mobilityControlInfo* and theUE is able to comply with the configuration included in this message, the UE shall:

<Unrelated Texts Omitted>

1> if the *RRCConnectionReconfiguration* message includes the *sl-V2X-ConfigDedicated*:

2> perform the V2X sidelink communication dedicated configuration procedure as specified in 5.3.10.15a;

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

2> perform the NR sidelink communication dedicated configuration procedure as specified in 5.3.5.14 in TS 38.331 [82];

1> if the *RRCConnectionReconfiguration* message includes *wlan-OffloadInfo*:

2> perform the dedicated WLAN offload configuration procedure as specified in 5.6.12.2;

<Unrelated Texts Omitted>

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5.5.1 Introduction

The UE reports measurement information in accordance with the measurement configuration and performs conditional reconfiguration evaluation in accordance with conditional reconfiguration as provided by E-UTRAN. E-UTRAN provides the measurement configuration or the conditional reconfiguration 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 for V2X sidelink communication.

- CBR measurements for NR sidelink communication.

The measurement configuration includes the following parameters:

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

<Unrelated Texts Omitted>

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5.5.3 Performing measurements

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.

The UE shall:

<Unrelated Texts Omitted>

If a UE that is configured by upper layers to transmit NR sidelink communication is configured with transmission resource pool(s) in *SystemInformationBlockType28* or *sl-ConfigDedicatedNR* and the measurement objects concerning NR sidelink communication (i.e. *measObjectNR-SL*) by EUTRA, 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 measurement object(s) 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.

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#### 5.5.4.18 Event S1 (The NR sidelink channel busy ratio is above a threshold)

The UE behaviour is specified in subclause 5.5.4.11 of TS 38.331 [82].

#### 5.5.4.19 Event S2 (The NR sidelink channel busy ratio is below a threshold)

The UE behaviour is specified in subclause 5.5.4.12 of TS 38.331 [82].

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### 5.10.1a Conditions for sidelink communication operation

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

1> if the UE's serving cell is suitable (RRC\_IDLE or RRC\_CONNECTED); and if either the selected cell on the frequency used for sidelink communication operation belongs to the registered or equivalent PLMN as specified in TS 24.334 [69] or the UE is out of coverage on the frequency used for sidelink communication operation as defined in TS 36.304 [4], clause 11.4; or

1> if the UE is camped on a serving cell (RRC\_IDLE) on which it fulfils the conditions to support sidelink communication in limited service state as specified in TS 23.303 [68], clause 4.5.6; and if either the serving cell is on the frequency used for sidelink communication operation or the UE is out of coverage on the frequency used for sidelink communication operation as defined in TS 36.304 [4], clause 11.4; or

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

### 5.10.1b Conditions for PS related sidelink discovery operation

The UE shall perform PS related sidelink discovery operation only if the conditions defined in this clause are met:

1> if the UE's serving cell is suitable (RRC\_IDLE or RRC\_CONNECTED); and if either the selected cell on the frequency used for PS related sidelink discovery operation belongs to the registered or other PLMN as specified in TS 24.334 [69] or the UE is out of coverage on the frequency used for PS related sidelink discovery operation as defined in TS 36.304 [4], clause 11.4; or

1> if the UE is camped on a serving cell (RRC\_IDLE) on which it fulfils the conditions to support sidelink discovery in limited service state as specified in TS 23.303 [68], clause 4.5.6; and if either the serving cell is on the frequency used for PS related sidelink discovery operation or the UE is out of coverage on the frequency used for PS related sidelink discovery operation as defined in TS 36.304 [4], clause 11.4; or

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

### 5.10.1c Conditions for non-PS related sidelink discovery operation

The UE shall perform non-PS related sidelink discovery operation only if the conditions defined in this clause are met:

1> if the UE's serving cell (RRC\_IDLE) or PCell (RRC\_CONNECTED) is suitable; and if the selected cell on the frequency used for non-PS related sidelink discovery operation belongs to the registered or other PLMN as specified in TS 24.334 [69].

### 5.10.1d Conditions for V2X sidelink communication operation

The UE shall perform V2X sidelink communication operation only if the conditions defined in this clause are met:

1> if the UE's serving cell is suitable; and if either the selected cell on the frequency used for V2X sidelink communication operation belongs to the registered or equivalent PLMN as specified in TS 24.334 [69] or the UE is out of coverage on the frequency used for V2X sidelink communication operation as defined in TS 36.304 [4], clause 11.4 and TS 38.304 [92], subclause 8.1; or

1> if the UE's serving cell fulfils the conditions to support V2X sidelink communication in limited service state as specified in TS 23.285 [78], clause 4.4.8; and if either the serving cell is on the frequency used for V2X sidelink communication operation or the UE is out of coverage on the frequency used for V2X sidelink communication operation as defined in TS 36.304 [4], clause 11.4 and TS 38.304 [92], subclause 8.1; or

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

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5.10.12 V2X sidelink communication monitoring

A UE capable of V2X sidelink communication that is configured by upper layers to receive V2X sidelink communication shall:

1> if the conditions for sidelink operation as defined in 5.10.1d are met:

2> if in coverage on the frequency used for V2X sidelink communication, as defined in TS 36.304 [4], clause 11.4, or TS 38.304 [92], subclause 8.1:

3> if the frequency used to receive V2X sidelink communication is included in *v2x-InterFreqInfoList* within *RRCConnectionReconfiguration* or in *v2x-InterFreqInfoList* within *SystemInformationBlockType21* or *SystemInformationBlockType26* of the serving cell/Pcell, and *v2x-CommRxPool* is included in *SL-V2X-InterFreqUE-Config* within *v2x-UE-ConfigList* in the entry of *v2x-InterFreqInfoList* for the concerned frequency:

4> configure lower layers to monitor sidelink control information and the corresponding data using the pool of resources indicated in *v2x-CommRxPool*;

3> else:

4> if the cell chosen for V2X sidelink communication reception broadcasts *SystemInformationBlockType21* including *v2x-CommRxPool* in *sl-V2X-ConfigCommon* or,

4> if the UE is configured with *v2x-CommRxPool* included in *mobilityControlInfoV2X* in *RRCConnectionReconfiguration*:

5> configure lower layers to monitor sidelink control information and the corresponding data using the pool of resources indicated in *v2x-CommRxPool*;

2> else (i.e. out of coverage on the frequency used for V2X sidelink communication, as defined in TS 36.304 [4], clause 11.4 and TS 38.304 [92], subclause 8.1):

3> if the frequency used to receive V2X sidelink communication is included in *v2x-InterFreqInfoList* within *RRCConnectionReconfiguration* or in *v2x-InterFreqInfoList* within *SystemInformationBlockType21* or *SystemInformationBlockType26* of the serving cell/PCell, and *v2x-CommRxPool* is included in *SL-V2X-InterFreqUE-Config* within *v2x-UE-ConfigList* in the entry of *v2x-InterFreqInfoList* for the concerned frequency:

4> configure lower layers to monitor sidelink control information and the corresponding data using the pool of resources indicated in *v2x-CommRxPool*;

3> else:

4> configure lower layers to monitor sidelink control information and the corresponding data using the pool of resources that were preconfigured (i.e. *v2x-CommRxPoolList* in *SL-V2X-Preconfiguration* defined in 9.3);

NOTE: In case the configurations for V2X sidelink communication are acquired from NR, the configurations for V2X sidelink communication in *SystemInformationBlockType21,* *SystemInformationBlockType26,* *SL-V2X-ConfigDedicated* within *RRCConnectionReconfiguration* used in this subclause can be provided by *SIB13*, *SIB14,* *sl-ConfigDedicatedEUTRA* within *RRCReconfiguration* as specified in TS 38.331 [82], respectively.

5.10.13 V2X sidelink communication transmission

5.10.13.1 Transmission of V2X sidelink communication

A UE capable of V2X sidelink communication that is configured by upper layers to transmit V2X sidelink communication and has related data to be transmitted shall:

1> if the conditions for sidelink operation as defined in 5.10.1d are met:

2> if in coverage on the frequency used for V2X sidelink communication as defined in TS 36.304 [4], clause 11.4, or TS 38.304 [92], subclause 8.1; or

2> if the frequency used to transmit V2X sidelink communication is included in *v2x-InterFreqInfoList* in *RRCConnectionReconfiguration* or in *v2x-InterFreqInfoList* within *SystemInformationBlockType21* or *SystemInformationBlockType26*:

3> if the UE is in RRC\_CONNECTED and uses the PCell or the frequency included in *v2x-InterFreqInfoList* in *RRCConnectionReconfiguration* for V2X sidelink communication:

4> if the UE is configured, by the current PCell with *commTxResources* set to *scheduled*:

<Unrelated Texts Omitted>

The UE capable of non-P2X related V2X sidelink communication that is configured by upper layers to transmit V2X sidelink communication shall perform sensing on all pools of resources which may be used for transmission of the sidelink control information and the corresponding data. The pools of resources are indicated by *SL-V2X-Preconfiguration*, *v2x-CommTxPoolNormalCommon*, *v2x-CommTxPoolNormalDedicated* in *sl-V2X-ConfigDedicated*, or *v2x-CommTxPoolNormal* in *v2x-InterFreqInfoList* for the concerned frequency, as configured above.

NOTE: In case the configurations for V2X sidelink communication are acquired from NR, the configurations for V2X sidelink communication in *SystemInformationBlockType21,* *SystemInformationBlockType26, SL-V2X-ConfigDedicated* within *RRCConnectionReconfiguration* used in this subclause can be provided by *SIB13*, *SIB14,* *sl-ConfigDedicatedEUTRA* within *RRCReconfiguration* as specified in TS 38.331 [82], respectively.

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### 5.10.15 Sidelink UE information for NR sidelink communication



Figure 5.10.15-1: Sidelink UE information for NR sidelink communication

The purpose of this procedure is to inform the network that the UE is interested or no longer interested to receive NR sidelink communication, as well as to request assignment or release of transmission resource for NR sidelink communication and to report parameters related to NR sidelink communication.

The initiation and the procedure for the transmission of *SidelinkUEInformationNR* follow the procedures specified for NR sidelink communication in subclause 5.8.3 of TS 38.331 [82].

NOTE: When applying the procedure in this subclause, *SystemInformationBlockType28* in Figure 5.10.15-1 corresponds to *SIB12* specified in TS 38.331 [82].

### 5.10.16 Sidelink synchronisation information transmission for NR sidelink communication



Figure 5.10.16-1: Synchronisation information transmission for NR sidelink communication, in (partial) coverage



Figure 5.10.16-2: Synchronisation information transmission for NR sidelink communication, out of coverage

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

The initiation and the procedure for the transmission of sidelink SSB follow the procedure specified for NR sidelink communication in subclause 5.8.5 of TS 38.331 [82].

NOTE: When applying the procedure in this subclause, *SystemInformationBlockType28* in Figure 5.10.16-1 correspond to *SIB12* specified in TS 38.331 [82].

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### 6.2.2 Message definitions

<Unrelated Texts Removed>

– *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-r16 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

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

 ]]

}

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)

 }

}

TDM-PatternConfig-r16 ::= CHOICE {

 release NULL,

 setup SEQUENCE {

 subframeAssignment-r16 SubframeAssignment-r15,

 harq-Offset-r16 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. |
| ***daps-SourceRelease***Indicates that the UE shall release the resources associated with source PCell at a DAPS HO, including reconfiguration of the DAPS PDCP entity to normal PDCP. |
| ***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]. |
| ***harq-Offset-r16***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* 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 *SL-ConfigDedicatedNR* IE as specified in TS 38.331 [82]. If the UE is configured, by the current Pcell with *sl-ScheduledConfig* set to setup, ignore all the parameters included, except for the *sl-PrioritizationThres*; the *SL-ConfiguredGrantConfig* in *SL-ConfigDedicatedNR* only includes 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. |
| *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.

|  |
| --- |
| NEXT CHANGE |

#### – *SidelinkUEInformationNR*

The *SidelinkUEInformationNR* message is used for the indication of NR sidelink information to the eNB.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to E‑UTRAN

*SidelinkUEInformationNR message*

-- ASN1START

SidelinkUEInformationNR-r16 ::= SEQUENCE {

 criticalExtensions CHOICE {

 c1 CHOICE {

 sidelinkUEInformationNR-r16 SidelinkUEInformationNR-r16-IEs,

 spare3 NULL, spare2 NULL, spare1 NULL

 },

 criticalExtensionsFuture SEQUENCE {}

 }

}

SidelinkUEInformationNR-r16-IEs::= SEQUENCE {

 sidelinkUEInformationNR-r16 OCTET STRING,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

| *SidelinkUEInformationNR* field descriptions |
| --- |
| ***sidelinkUEInformationNR***Container for the indication of NR sidelink information, this field includes the *SidelinkUEInformationNR* IE as specified in TS 38.331 [82]. |

|  |
| --- |
| NEXT CHANGE |

#### – *UEAssistanceInformationNR*

The *UEAssistanceInformationNR* message is used for the indication of UE assistance information to the eNB.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to E‑UTRAN

*UEAssistanceInformationNR* message

-- ASN1START

UEAssistanceInformationNR-r16 ::= SEQUENCE {

 criticalExtensions CHOICE {

 c1 CHOICE {

 ueAssistanceInformationNR-r16 UEAssistanceInformationNR-r16-IEs,

 spare3 NULL, spare2 NULL, spare1 NULL

 },

 criticalExtensionsFuture SEQUENCE {}

 }

}

UEAssistanceInformationNR-r16-IEs ::= SEQUENCE {

 configuredGrantAssistanceInfo-r16 OCTET STRING OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL, nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

| *UEAssistanceInformationNR* field descriptions |
| --- |
| ***configuredGrantAssitanceInfo***Container for the indication of traffic characteristic of sidelink logical channel(s) that are setup for NR sidelink communication. The content is *SL-UE-AssistanceInformationNR* IE as specified in TS 38.331 [82]. |

|  |
| --- |
| NEXT CHANGE |

### 6.3.1 System information blocks

<Unrelated Texts Removed>

#### – *SystemInformationBlockType28*

The IE *SystemInformationBlockType28* contains NR sidelink communication configuration.

*SystemInformationBlockType28* information element

-- ASN1START

SystemInformationBlockType28-r16 ::= SEQUENCE {

 segmentNumber-r16 INTEGER (0..63),

 segmentType-r16 ENUMERATED {notLastSegment,lastSegment},

 segmentContainer-r16                OCTET STRING,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 ...

}

-- ASN1STOP

| *SystemInformationBlockType28* field descriptions |
| --- |
| ***segmentContainer***Container for the configuration for NR sidelink communication, this fieild includes a segment of *SIB12-IEs* as specified in TS 38.331 [82]. The size of the included segment in this container should be less than maximum size of a LTE SI i.e. 2216 bits. |
| ***segmentNumber***This field identifies the sequence number of a segment of *SIB12-IEs* IE as specified in TS 38.331 [82]. A segment number of zero corresponds to the first segment, a segment number of one corresponds to the second segment, and so on. |
| ***segmentType*** This field indicates whether the included segment is the last segment or not. |

|  |
| --- |
| NEXT CHANGE |

### 6.3.5 Measurement information elements

<Unrelated Texts Removed>

#### – *MeasObjectNR-SL*

The IE *MeasObjectNR-SL* specifies information applicable for the CBR measurement for NR sidelink communication as specified in TS 38.331 [82].

*MeasObjectNR-SL* information element

-- ASN1START

MeasObjectNR-SL-r16 ::= SEQUENCE {

 carrierFreq-r15 ARFCN-ValueNR-r15,

 tx-ResourcePoolToRemoveList-r16 Tx-PoolMeasToRemoveListNR-r16 OPTIONAL, -- Need ON

 tx-ResourcePoolToAddList-r16 Tx-PoolMeasToAddModListNR-r16 OPTIONAL, -- Need ON

 ...

}

Tx-PoolMeasToAddModListNR-r16 ::= SEQUENCE (SIZE (1.. maxSL-PoolToMeasureNR-r16)) OF SL-PoolReportNR-r16

Tx-PoolMeasToRemoveListNR-r16 ::= SEQUENCE (SIZE (1.. maxSL-PoolToMeasureNR-r16)) OF SL-ResourcePoolID-NR-r16

SL-PoolReportNR-r16 ::= SEQUENCE {

 sl-ResourcePoolReportNR-r16 OCTET STRING,

 sl-ResourcePoolID-NR-r16 SL-ResourcePoolID-NR-r16

}

SL-ResourcePoolID-NR-r16 ::= SEQUENCE {

 sl-TxPoolReportID-r16 INTEGER (1.. maxSL-PoolToMeasureNR-r16)

}

-- ASN1STOP

| *MeasObjectNR-SL* field descriptions |
| --- |
| ***carrierFreq***Indicates the carrier frequency of pools configured for CBR measurement and reporting for NR sidelink communication. |
| ***sl-ResourcePoolReportNR***Container for the identity of the resource pool on which the CBR is performed for NR sidelink communication, this fieild includes the *SL-ResourcePoolID* IE as specified in TS 38.331 [82]. |

|  |
| --- |
| CHANGE END |