**3GPP TSG-RAN WG3 #107bis-e *R3-202571***

**Online, 20-30 April 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **38.423** | **CR** | **0151** | **rev** | **10** | **Current version:** | **16.1.0** |  |
|  |
| *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 |  | Radio Access Network | **x** | Core Network |  |

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|  |
| ***Title:***  | Support of NR V2X over Xn |
|  |  |
| ***Source to WG:*** | Ericsson, LG Electronics, CATT, Huawei |
| ***Source to TSG:*** | R3 |
|  |  |
| ***Work item code:*** | 5G\_V2X\_NRSL |  | ***Date:*** | 2020-04-03 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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:*** | Support of conveying V2X service authorization and UE SL AMBR information between NG-RANs over Xn interface |
|  |  |
| ***Summary of change:*** | Introduce the following IEs:* *LTE V2X Services Authorized,*
* *NR V2X Services Authorized,*
* *LTE UE Sidelink Aggregate Maximum Bit Rate,*
* *NR UE Sidelink Aggregate Maximum Bit Rate*
* *PC5 QoS Parameters*

in the HANDOVER REQUEST and RETRIEVE UE CONTEXT RESPONSE messages |
|  |  |
| ***Consequences if not approved:*** | The target NG-RAN node is not able to get the V2X related subcription information from source NG-RAN node. |
|  |  |
| ***Clauses affected:*** | 3.2, 8.2.1, 8.2.4, 9.1.1.1, 9.1.1.9, 9.2.3.4, 9.2.3.x1 (new), 9.2.3.x2 (new), 9.2.3.y1 (new), 9.2.3.y2 (new), 9.2.3.xx (new), 9.3.4, 9.3.5, 9.3.7 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **x** |  |  Other core specifications  | TS 38.413 CR 0168, TS 38.473 CR 0432 |
| ***affected:*** |  |  |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  |  |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Rev 1: added support of UE SL AMBR and co-signing companiesRev 2: added new TdocRev 3: Merged TP from R3-196196 and updated titleRev 4: Submission to RAN3#105bisRev 5: Merged TP from R3-197772Rev 6: Submission to RAN3#106 Rev 7: rebaseling with latest version of the spec 16.0.0Rev 8: Merged TP from R3-200304Rev 9. Checked asn.1 and rebased to the 16.1.0 version of the specRev 10: fixed editorial issues in tabular for V2X AMBR |

**START OF CHANGE**

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 38.401: "NG-RAN; Architecture Description".

[3] 3GPP TS 38.420: "NG-RAN; Xn General Aspects and Principles".

[4] 3GPP TS 38.422: "NG-RAN; Xn Signalling Transport".

[5] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP) ".

[6] 3GPP TS 25.921: "Guidelines and principles for protocol description and error handling".

[7] 3GPP TS 23.501: "System Architecture for the 5G System".

[8] 3GPP TS 37.340: "Evolved Universal Terrestrial Radio Access (E-UTRA) and NR; Multi-connectivity; Stage 2".

[9] 3GPP TS 38.300: "NR; NR and NG-RAN Overall Description; Stage 2".

[10] 3GPP TS 38.331: "NR; Radio Resource Control (RRC) Protocol specification".

[11] 3GPP TS 38.323: "NR; Packet Data Convergence Protocol (PDCP) specification".

[12] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2".

[13] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[14] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC) protocol specification".

[15] ITU-T Recommendation X.691 (2002-07): "Information technology - ASN.1 encoding rules - Specification of Packed Encoding Rules (PER) ".

[16] ITU-T Recommendation X.680 (2002-07): "Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation".

[17] ITU-T Recommendation X.681 (2002-07): "Information technology – Abstract Syntax Notation One (ASN.1): Information object specification".

[18] 3GPP TS 29.281: "General Packet Radio Service (GPRS); Tunnelling Protocol User Plane (GTPv1-U)".

[19] 3GPP TS 38.424: "NG-RAN; Xn data transport".

[20] 3GPP TS 38.414: "NG-RAN; NG data transport".

[21] 3GPP TS 38.412: "NG-RAN; NG Signalling Transport".

[22] 3GPP TS 23.003: "Numbering, Addressing and Identification".

[23] 3GPP TS 32.422: "Trace control and configuration management".

[24] 3GPP TS 38.104: "NR; Base Station (BS) radio transmission and reception".

[25] 3GPP TS 36.104: "Base Station (BS) radio transmission and reception ".

[26] 3GPP TS 36.211: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Channels and Modulation".

[27] 3GPP TS 36.101: "User Equipment (UE) radio transmission and reception".

[28] 3GPP TS 33.501: "Security architecture and procedures for 5G System".

[29] 3GPP TS 33.401: "3GPP System Architecture Evolution (SAE); Security architecture".

[30] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[31] 3GPP TS 36.413: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP)".

[32] 3GPP TS 25.413: "UTRAN Iu interface RANAP signalling".

[33] 3GPP TS 38.304: "NR; User Equipment (UE) procedures in Idle mode and RRC Inactive state".

[34] 3GPP TS 36.304: "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) procedures in idle mode".

[35] 3GPP TS 38.321: "NR; Medium Access Control (MAC) protocol specification".

[36] 3GPP TS 36.321: "Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification".

[37] IETF RFC 5905: "Network Time Protocol Version 4: Protocol and Algorithms Specification".

[xx] 3GPP TS 23.287: "Architecture enhancements for 5G System (5GS) to support Vehicle-to-Everything (V2X) services".

**NEXT CHANGE**

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5QI 5G QoS Identifier

AMF Access and Mobility Management Function

CGI Cell Global Identifier

CP Control Plane

DL Downlink

EN-DC E-UTRA-NR Dual Connectivity

E-RAB E-UTRAN Radio Access Bearer

GUAMI Globally Unique AMF Identifier

IMEISV International Mobile station Equipment Identity and Software Version number

MCG Master Cell Group

M-NG-RAN node Master NG-RAN node

NGAP NG Application Protocol

NSSAI Network Slice Selection Assistance Information

RANAC RAN Area Code

SCG Secondary Cell Group

SCTP Stream Control Transmission Protocol

S-NG-RAN node Secondary NG-RAN node

S-NSSAI Single Network Slice Selection Assistance Information

SUL Supplementary Uplink

TAC Tracking Area Code

TAI Tracking Area Identity

UL Uplink

UPF User Plane Function

V2X Vehicle-to-Everything

**NEXT CHANGE**

### 8.2.1 Handover Preparation

#### 8.2.1.1 General

This procedure is used to establish necessary resources in an NG-RAN node for an incoming handover.

The procedure uses UE-associated signalling.

#### 8.2.1.2 Successful Operation



Figure 8.2.1.2-1: Handover Preparation, successful operation

The source NG-RAN node initiates the procedure by sending the HANDOVER REQUEST message to the target NG-RAN node. When the source NG-RAN node sends the HANDOVER REQUEST message, it shall start the timer TXnRELOCprep.

For each *E-RAB ID* IE included in the *QoS Flow To Be Setup List* IE in the HANDOVER REQUEST message, the target NG-RAN node shall, if supported, store the content of the IE in the UE context and use it for subsequent inter-system handover.

If the *Masked IMEISV* IE is contained in the HANDOVER REQUEST message the target NG-RAN node shall, if supported, use it to determine the characteristics of the UE for subsequent handling.

At reception of the HANDOVER REQUEST message the target NG-RAN node shall prepare the configuration of the AS security relation between the UE and the target NG-RAN node by using the information in the *UE Security Capabilities* IE and the *AS Security Information* IE in the *UE Context Information* IE, as specified in TS 33.501 [28].

Upon reception of the *PDU Session Resource Setup List* IE, contained in the HANDOVER REQUEST message, the target NG-RAN node shall behave the same as specified in TS 38.413 [5] for the PDU Session Resource Setup procedure. The target NG-RAN node shall report in the HANDOVER REQUEST ACKNOWLEDGE message the successful establishment of the result for all the requested PDU session resources. When the target NG-RAN node reports the unsuccessful establishment of a PDU session resource, the cause value should be precise enough to enable the source NG-RAN node to know the reason for the unsuccessful establishment.

For each PDU session if the *PDU Session Aggregate Maximum Bit Rate* IE is included in the *PDU Session Resources To Be Setup List* IE contained in the HANDOVER REQUEST message, the target NG-RAN node shall store the received PDU Session Aggregate Maximum Bit Rate in the UE context and use it when enforcing traffic policing for Non-GBR QoS flows for the concerned UE as specified in TS 23.501 [7].

For each QoS flow for which the source NG-RAN node proposes to perform forwarding of downlink data, the source NG-RAN node shall include the *DL Forwarding* IE set to "DL forwarding proposed" within the *Data Forwarding and* *Offloading Info from source NG-RAN node* IE in the *PDU Session Resources To Be Setup List* IE in the HANDOVER REQUEST message. For each PDU session that the target NG-RAN node decides to admit the data forwarding for at least one QoS flow, the target NG-RAN node includes the *PDU Session level DL data forwarding GTP-U Tunnel Endpoint* IE within the *Data Forwarding Info from target NG-RAN node* IE in the *PDU Session Resource Admitted Info* IE contained in the *PDU Session Resources Admitted List* IE in the HANDOVER REQUEST ACKNOWLEDGE message.

For each QoS flow for which the source NG-RAN node has not yet received the SDAP end marker packet if QoS flow re-mapping happened before handover, the source NG-RAN node shall include the *UL Forwarding* *Proposal* IE within the *Data Forwarding and Offloading Info from source NG-RAN node* IE in the HANDOVER REQUEST message, and if the target NG-RAN node decides to admit uplink data forwarding for at least one QoS flow, the target NG-RAN node may include the *PDU Session Level UL Data Forwarding UP TNL Information* IE in the *Data Forwarding Info from target NG-RAN node* IE in the *PDU Session Resources Admitted Item* IE contained in the *PDU Session Resources Admitted List* IE in the HANDOVER REQUEST ACKNOWLEDGE message to indicate that it accepts the uplink data forwarding.

For each PDU session resource successfully setup at the target NG-RAN, the target NG-RAN node may allocate resources for additional Xn-U PDU session resource GTP-U tunnels, indicated in the *Secondary Data Forwarding Info from target NG-RAN node List* IE.

For each DRB for which the source NG-RAN node proposes to perform forwarding of downlink data, the source NG-RAN node shall include the *DRB ID* IE and the mapped *QoS Flows List* IE within the *Source DRB to QoS Flow Mapping List* IE contained in the *PDU Session Resources To Be Setup List* IE in the HANDOVER REQUEST message. The source NG-RAN node may include the *QoS Flow Mapping Indication* IE in the *Source DRB to QoS Flow Mapping List* IE to indicate that only the uplink or downlink QoS flow is mapped to the DRB. If the target NG-RAN node decides to use the same DRB configuration and to map the same QoS flows as the source NG-RAN node, the target NG-RAN node includes the *DL Forwarding GTP Tunnel Endpoint* IE within the *Data Forwarding Response DRB List* IE in the HANDOVER REQUEST ACKNOWLEDGE message to indicate that it accepts the proposed forwarding of downlink data for this DRB.

If the HANDOVER REQUEST ACKNOWLEDGE message contains the *UL Forwarding GTP Tunnel Endpoint* IE for a given DRB in the *Data Forwarding Response DRB List* IE within *Data Forwarding Info from target NG-RAN node* IE in the *PDU Session Resources Admitted List* IE and the source NG-RAN node accepts the data forwarding proposed by the target NG-RAN node, the source NG-RAN node shall perform forwarding of uplink data for the DRB.

If the HANDOVER REQUEST includes PDU session resources for PDU sessions associated to S-NSSAIs not supported by target NG-RAN, the target NG-RAN shall reject such PDU session resources. In this case, and if at least one *PDU Session Resource To Be Setup Item* IE is admitted, the target NG-RAN shall send the HANDOVER REQUEST ACKNOWLEDGE message including the *PDU Session Resources Not Admitted List* IE listing corresponding PDU sessions rejected at the target NG-RAN.

If the *Mobility Restriction List* IE is

- contained in the HANDOVER REQUEST message, the target NG-RAN node shall

- store the information received in the *Mobility Restriction List* IE in the UE context;

- use this information to determine a target for the UE during subsequent mobility action for which the NG-RAN node provides information about the target of the mobility action towards the UE, except when one of the PDU sessions has a particular ARP value (TS 23.501 [7]) in which case the information shall not apply;

- use this information to select a proper SCG during dual connectivity operation.

- use this information to select proper RNA(s) for the UE when moving the UE to RRC\_INACTIVE.

- not contained in the HANDOVER REQUEST message, the target NG-RAN node shall

- consider that no roaming and no access restriction apply to the UE.

If the *Trace Activation* IE is included in the HANDOVER REQUEST message the target NG-RAN node shall, if supported, initiate the requested trace function as specified in TS 32.422 [23].

If the *Index to RAT/Frequency Selection Priority* IE is contained in the HANDOVER REQUEST message, the target NG-RAN node shall store this information and use it as defined in TS 23.501 [7].

If the *UE Context Reference at the S-NG-RAN* IE is contained in the HANDOVER REQUEST message the target NG-RAN node may use it as specified in TS 37.340 [8]. In this case, the source NG-RAN node may expect the target NG-RAN node to include the *UE Context Kept Indicator* IE set to "True" in the HANDOVER REQUEST ACKNOWLEDGE message, which shall use this information as specified in TS 37.340 [8].

For each PDU session, if the *Network Instance* IE is included in the *PDU Session Resource To Be Setup List* IE and the *Common Network Instance* IE is not present, the target NG-RAN node shall, if supported, use it when selecting transport network resource as specified in TS 23.501 [7].

For each PDU session, if the *Common* *Network Instance* IE is included in the *PDU Session Resource To Be Setup List* IE, the target NG-RAN node shall, if supported, use it when selecting transport network resource as specified in TS 23.501 [7].

For each PDU session for which the *Security Indication* IE is included in the *PDU Session Resource To Be Setup List* IE and the *Integrity Protection Indication* IE or *Confidentiality Protection Indication* IE is set to "required", the target NG-RAN node shall perform user plane integrity protection or ciphering, respectively. If the NG-RAN node is not able to perform the user plane integrity protection or ciphering, it shall reject the setup of the PDU Session Resources with an appropriate cause value.

If the NG-RAN node is an ng-eNB, it shall reject all PDU sessions for which the *Integrity Protection Indication* IE is set to "required".

For each PDU session for which the *Security Indication* IE is included in the *PDU Session Resource To Be Setup List* IE and the *Integrity Protection Indication* IE or the *Confidentiality Protection Indication* IE is set to "preferred", the target NG-RAN node should, if supported, perform user plane integrity protection or ciphering, respectively and shall notify the SMF whether it succeeded the user plane integrity protection or ciphering or not for the concerned security policy.

For each PDU session for which the *Maximum Integrity Protected Data Rate* IE is included in the *Security Indication* IE in the *PDU Session Resources To Be Setup List* IE, the NG-RAN node shall store the respective information and, if integrity protection is to be performed for the PDU session, it shall enforce the traffic corresponding to the received *Maximum Integrity Protected Data Rate* IE, for the concerned PDU session and concerned UE, as specified in TS 23.501 [7].

For each PDU session for which the *Security Indication* IE is included in the *PDU Session Resource To Be Setup List* IE and the *Integrity Protection Indication* IE or *Confidentiality Protection Indication* IE is set to "not needed", the target NG-RAN node shall not perform user plane integrity protection or ciphering, respectively, for the concerned PDU session.

For each PDU session, if the *Additional UL NG-U UP TNL Information List* IE is included in the *PDU Session Resources To Be Setup List* IE contained in the HANDOVER REQUEST message, the target NG-RAN node may forward the UP transport layer information to the target S-NG-RAN node as the uplink termination point for the user plane data for this PDU session split in different tunnel.

If the *Location Reporting Information* IE is included in the HANDOVER REQUEST message, then the target NG-RAN node should initiate the requested location reporting functionality as defined in TS 38.413 [5].

Upon reception of *UE History Information* IE in the HANDOVER REQUEST message, the target NG-RAN node shall collect the information defined as mandatory in the *UE History Information* IE and shall, if supported, collect the information defined as optional in the *UE History Information* IE, for as long as the UE stays in one of its cells, and store the collected information to be used for future handover preparations.

For each QoS flow which has been successfully established in the target NG-RAN node, if the *QoS Monitoring Request* IE was included in the *QoS Flow Level QoS Parameters* IE contained in the HANDOVER REQUST message, the target NG-RAN node shall store this information, and, if supported, perform delay measurement and QoS monitoring, as specified in TS 23.501 [7].

If the *5GC Mobility Restriction List Container* IE is included in the HANDOVER REQUEST message, the target NG-RAN node shall, if supported, store this information in the UE context and use it as specified in TS 38.300 [9].

**Interaction with SN Status Transfer procedure:**

If the *UE Context Kept Indicator* IE set to "True" and the *DRBs transferred to MN* IE are included in the HANDOVER REQUEST ACKNOWLEDGE message, the source NG-RAN node shall, if supported, include the uplink/downlink PDCP SN and HFN status received from the S-NG-RAN node in the SN Status Transfer procedure towards the target NG-RAN node, as specified in TS 37.340 [8].

If the *NR V2X Services Authorized* IE is included in the HANDOVER REQUEST message and it contains one or more IEs set to "authorized", the target NG-RAN node shall, if supported, consider that the UE is authorized for the relevant service(s).

If the *LTE V2X Services Authorized* IE is included in the HANDOVER REQUEST message and it contains one or more IEs set to "authorized", the target NG-RAN node shall, if supported, consider that the UE is authorized for the relevant service(s).

If the *NR UE Sidelink Aggregate Maximum Bit Rate* IE is included in the HANDOVER REQUEST message, the target NG-RAN node shall, if supported, use the received value for the concerned UE’s sidelink communication in network scheduled mode for NR V2X services.

If the *LTE UE Sidelink Aggregate Maximum Bit Rate* IE is included in the HANDOVER REQUEST message, the target NG-RAN node shall, if supported, use the received value for the concerned UE’s sidelink communication in network scheduled mode for LTE V2X services.

If the *PC5 QoS Parameters* IE is included in theHANDOVER REQUEST message, the target NG-RAN node shall, if supported, use it as defined in TS 23.287 [xx].

**NEXT CHANGE**

### 8.2.4 Retrieve UE Context

#### 8.2.4.1 General

The purpose of the Retrieve UE Context procedure is to either retrieve the UE context from the old NG-RAN node and transfer it to the NG-RAN node where the UE RRC Connection has been requested to be established, or to enable the old NG-RAN node to forward an RRC message to the UE via the new NG-RAN node without context transfer.

The procedure uses UE-associated signalling.

#### 8.2.4.2 Successful Operation



Figure 8.2.4.2-1: Retrieve UE Context, successful operation

The new NG-RAN node initiates the procedure by sending the RETRIEVE UE CONTEXT REQUEST message to the old NG-RAN node.

If the old NG-RAN node is able to identify the UE context by means of the UE Context ID, and to successfully verify the UE by means of the integrity protection contained in the RETRIEVE UE CONTEXT REQUEST message, and decides to provide the UE context to the new NG-RAN node, it shall respond to the new NG-RAN node with the RETRIEVE UE CONTEXT RESPONSE message.

If the *Index to RAT/Frequency Selection Priority* IE is contained in the RETRIEVE UE CONTEXT RESPONSE message, the new NG-RAN node shall store this information and use it as defined in TS 23.501 [7].

If the *Location Reporting Information* IE is included in the RETRIEVE UE CONTEXT RESPONSE message, then the new NG-RAN node should initiate the requested location reporting functionality as defined in TS 38.413 [5].

For each QoS flow in the RETRIEVE UE CONTEXT RESPONSE message, if the *QoS Monitoring Request* IE is included in the *QoS Flow Level QoS Parameters* IE in the *PDU Session Resources To Be Setup List* IE, the new NG-RAN node shall store this information, and, if supported, perform delay measurement and QoS monitoring, as specified in TS 23.501 [7].

If the *5GC Mobility Restriction List Container* IE is included in the RETRIEVE UE CONTEXT RESPONSE message, the new NG-RAN node shall, if supported, store this information in the UE context and use it as specified in TS 38.300 [9].

If the *NR V2X Services Authorized* IE is included in the RETRIEVE UE CONTEXT RESPONSE message and it contains one or more IEs set to "authorized", the new NG-RAN node shall, if supported, consider that the UE is authorized for the relevant service(s).

If the *LTE V2X Services Authorized* IE is included in the RETRIEVE UE CONTEXT RESPONSE message and it contains one or more IEs set to "authorized", the new NG-RAN node shall, if supported, consider that the UE is authorized for the relevant service(s).

If the *NR UE Sidelink Aggregate Maximum Bit Rate* IE is included in the *UE Context Information Retrieve UE Context Response* IE in the RETRIEVE UE CONTEXT RESPONSE message, the new NG-RAN node shall, if supported, use the received value for the concerned UE’s sidelink communication in network scheduled mode for NR V2X services.

If the *LTE UE Sidelink Aggregate Maximum Bit Rate* IE is included in the *UE Context Information Retrieve UE Context Response* IE in the RETRIEVE UE CONTEXT RESPONSE message, the new NG-RAN node shall, if supported, use the received value for the concerned UE’s sidelink communication in network scheduled mode for LTE V2X services.

If the *PC5 QoS Parameters* IE is included in theRETRIEVE UE CONTEXT RESPONSE message, the target NG-RAN node shall, if supported, use it as defined in TS 23.287[xx].

**NEXT CHANGE**

9.1.1.1 HANDOVER REQUEST

This message is sent by the source NG-RAN node to the target NG-RAN node to request the preparation of resources for a handover.

Direction: source NG-RAN node → target NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| Source NG-RAN node UE XnAP ID reference | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the source NG-RAN node | YES | reject |
| Cause | M |  | 9.2.3.2 |  | YES | reject |
| Target Cell Global ID | M |  | 9.2.3.25 | Includes either an E-UTRA CGI or an NR CGI | YES | reject |
| GUAMI | M |  | 9.2.3.24 |  | YES | reject |
| **UE Context Information** |  | *1* |  |  | YES | reject |
| >NG-C UE associated Signalling reference | M |  | AMF UE NGAP ID9.2.3.26 | Allocated at the AMF on the source NG-C connection. | – |  |
| >Signalling TNL association address at source NG-C side | M |  | CP Transport Layer Information9.2.3.31 | This IE indicates the AMF’s IP address of the SCTP association used at the source NG-C interface instance.Note: If no UE TNLA binding exists at the source NG-RAN node, the source NG-RAN node indicates the TNL association address it would have selected if it would have had to create a UE TNLA binding. | – |  |
| >UE Security Capabilities | M |  | 9.2.3.49 |  | – |  |
| >AS Security Information | M |  | 9.2.3.50 |  | – |  |
| >Index to RAT/Frequency Selection Priority | O |  | 9.2.3.23 |  | – |  |
| >UE Aggregate Maximum Bit Rate | M |  | 9.2.3.17 |  | – |  |
| >PDU Session Resources To Be Setup List |  | *1* | 9.2.1.1 | Similar to NG-C signalling, containing UL tunnel information per PDU Session Resource;and in addition, the source side QoS flow ⇔ DRB mapping | – |  |
| >RRC Context | M |  | OCTET STRING | Either includes the *HandoverPreparationInformation* message as defined in subclause 10.2.2. of TS 36.331 [14], if the target NG-RAN node is an ng-eNB,or the *HandoverPreparationInformation* message as defined in subclause 11.2.2 of TS 38.331 [10], if the target NG-RAN node is a gNB. | – |  |
| >Location Reporting Information | O |  | 9.2.3.47 | Includes the necessary parameters for location reporting. | – |  |
| >Mobility Restriction List | O |  | 9.2.3.53 |  | – |  |
| >5GC Mobility Restriction List Container | O |  | 9.2.3.100 |  | YES | ignore |
| > NR UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.2.3.y1 | This IE applies only if the UE is authorized for NR V2X services. | YES | ignore |
| > LTE UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.2.3.y2 | This IE applies only if the UE is authorized for LTE V2X services. | YES | ignore |
| Trace Activation | O |  | 9.2.3.55 |  | YES | ignore |
| Masked IMEISV | O |  | 9.2.3.32 |  | YES | ignore |
| UE History Information | M |  | 9.2.3.64 |  | YES | ignore |
| **UE Context Reference at the S-NG-RAN node** | O |  |  |  | YES | ignore |
| >Global NG-RAN Node ID | M |  | 9.2.2.3 |  | – |  |
| >S-NG-RAN node UE XnAP ID | M |  | NG-RAN node UE XnAP ID9.2.3.16 |  | – |  |
| NR V2X Services Authorized | O |  | 9.2.3.x1 |  | YES | ignore |
| LTE V2X Services Authorized | O |  | 9.2.3.x2 |  | YES | ignore |
| PC5 QoS Parameters | O |  | 9.2.3.x | This IE applies only if the UE is authorized for NR V2X services. | YES | ignore |

**NEXT CHANGE**

#### 9.1.1.9 RETRIEVE UE CONTEXT RESPONSE

This message is sent by the old NG-RAN node to transfer the UE context to the new NG-RAN node.

Direction: old NG-RAN node → new NG-RAN node.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| New NG-RAN node UE XnAP ID reference | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the new NG-RAN node | YES | ignore |
| Old NG-RAN node UE XnAP ID reference | M |  | NG-RAN node UE XnAP ID9.2.3.16 | Allocated at the old NG-RAN node | YES | ignore |
| GUAMI | M |  | 9.2.3.24 |  | YES | reject |
| UE Context Information – Retrieve UE Context Response | M |  | 9.2.1.13 |  | YES | reject |
| Trace Activation | O |  | 9.2.3.55 |  | YES | ignore |
| Masked IMEISV | O |  | 9.2.3.32 |  | YES | ignore |
| Location Reporting Information | O |  | 9.2.3.47 | Includes the necessary parameters for location reporting. | YES | ignore |
| Criticality Diagnostics | O |  | 9.2.3.3 |  | YES | ignore |
| NR V2X Services Authorized | O |  | 9.2.3.x1 |  | YES | ignore |
| LTE V2X Services Authorized | O |  | 9.2.3.x2 |  | YES | ignore |
| PC5 QoS Parameters | O |  | 9.2.3.xx | This IE applies only if the UE is authorized for NR V2X services. | YES | ignore |

**NEXT CHANGE**

#### 9.2.1.13 UE Context Information – Retrieve UE Context Response

This IE contains the UE context information within the RETRIEVE UE CONTEXT RESPONSE message.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| NG-C UE associated Signalling reference | M |  | AMF UE NGAP ID9.2.3.26 | Allocated at the AMF on the old NG-C connection. | - | - |
| Signalling TNL Association Address at source NG-C side | M |  | CP Transport Layer Information9.2.3.31 | This IE indicates the AMF’s IP address of the SCTP association used at the source NG-C interface instance.Note: If no UE TNLA binding exists at the source NG-RAN node, the source NG-RAN node indicates the TNL association address it would have selected if it would have had to create a UE TNLA binding. | - | - |
| UE Security Capabilities | M |  | 9.2.3.49 |  | - | - |
| AS Security Information | M |  | 9.2.3.50 |  | - | - |
| UE Aggregate Maximum Bit Rate | M |  | 9.2.3.17 |  | - | - |
| PDU Session Resources To Be Setup List | M |  | 9.2.1.1 |  | - | - |
| RRC Context | M |  | OCTET STRING | Either includes the *HandoverPreparationInformation* message as defined in subclause 11.2.2 of TS 38.331[10], if the old and new serving NG-RAN nodes are gNBs,or the *HandoverPreparationInformation* message as defined in subclause 10.2.2 of TS 36.331 [14], if the old and new serving NG-RAN nodes are ng-eNBs. | - | - |
| Mobility Restriction List | O |  | 9.2.3.53 |  | - | - |
| Index to RAT/Frequency Selection Priority | O |  | 9.2.3.23 |  | - | - |
| 5GC Mobility Restriction List Container | O |  | 9.2.3.100 |  | YES | ignore |
| NR UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.2.3.y1 | This IE applies only if the UE is authorized for NR V2X services. | YES | ignore |
| LTE UE Sidelink Aggregate Maximum Bit Rate | O |  | 9.2.3.y2 | This IE applies only if the UE is authorized for LTE V2X services. | YES | Ignore |

**NEXT CHANGE**

Editor’s note: whether the added IEs and their content are needed or not is FFS

9.2.2.11 Served Cell Information NR

This IE contains cell configuration information of an NR cell that a neighbouring NG-RAN node may need for the Xn AP interface.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| NR-PCI | M |  | INTEGER (0..1007, …) | NR Physical Cell ID | – |  |
| NR CGI | M |  | 9.2.2.7 |  | – |  |
| TAC | M |  | 9.2.2.5 | Tracking Area Code | – |  |
| RANAC | O |  | RAN Area Code9.2.2.6 |  | – |  |
| **Broadcast PLMNs** |  | *1..<maxnoofBPLMNs>* |  | Broadcast PLMNs | – |  |
| >PLMN Identity | M |  | 9.2.2.4 |  | – |  |
| CHOICE *NR-Mode-Info* | M |  |  |  | – |  |
| >*FDD* |  |  |  |  |  |  |
| >>**FDD Info** |  | *1* |  |  | – |  |
| >>>UL NR Frequency Info | M |  | NR Frequency Info9.2.2.19 |  | – |  |
| >>>DL NR Frequency Info | M |  | NR Frequency Info9.2.2.19 |  | – |  |
| >>>UL Transmission Bandwidth | M |  | NR Transmission Bandwidth9.2.2.20 |  | – |  |
| >>>DL Transmission Bandwidth | M |  | NR Transmission Bandwidth9.2.2.20 |  | – |  |
| >*TDD* |  |  |  |  |  |  |
| >>**TDD Info** |  | *1* |  |  | – |  |
| >>>Frequency Info | M |  | NR Frequency Info9.2.2.19 |  | – |  |
| >>>Transmission Bandwidth | M |  | NR Transmission Bandwidth9.2.2.20 |  | – |  |
| Measurement Timing Configuration | M |  | OCTET STRING | Contains the *MeasurementTimingConfiguration* inter-node message for the served cell, as defined in TS 38.331 [10]. | – |  |
| Connectivity Support | M |  | 9.2.2.28 |  | – |  |
| **Broadcast PLMN Identity Info List NR** |  | *0..<maxnoofBPLMNs-1>* |  | This IE corresponds to the *PLMN-IdentityInfoList* IE in *SIB1* as specified in TS 38.331 [8]. The PLMN Identities and associated information contained in this IE are provided in the same order as broadcast in SIB1. | YES | ignore |
| **>Broadcast PLMNs** |  | *1..<maxnoofBPLMNs>* |  | Broadcast PLMNs | – |  |
| >>PLMN Identity | M |  | 9.2.2.4 |  | – |  |
| >TAC | M |  | 9.2.2.5 |  | – |  |
| >NR Cell Identity | M |  | BIT STRING (SIZE(36)) |  | – |  |
| >RANAC | O |  | RAN Area Code9.2.2.6 |  | – |  |
| **LTE V2X Sidelink Info List (FFS)** |  | *0..1* |  |  | YES | ignore |
| **>LTE V2X Sidelink Info Item** |  | *1..<maxnoofLTEV2XSidelinkCarriers>* |  |  | - |  |
| >>LTE V2X Sidelink Carrier |  |  | E-UTRA ARFCN9.2.2.21 |  | - |  |
| **NR V2X Sidelink Info List (FFS)** |  | *0..1* |  |  | YES | ignore |
| **>NR V2X Sidelink Info Item** |  | *1..<maxnoofNRV2XSidelinkCarriers>* |  |  | - |  |
| >>NR V2X Sidelink Carrier |  |  | NR Frequency Info9.2.2.19 |  | - |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofBPLMNs | Maximum no. of broadcast PLMNs by a cell. Value is 12. |
| maxnoofBPLMNs-1 | Maximum no. of PLMN Ids.broadcast a cell minus 1. Value is 11. |
| maxnoofLTEV2XSidelinkCarriers | Maximum no. of LTE V2X sidelink carriers supported by a serving cell. Value is 8 (FFS). |
| MaxnoofNRV2XSidelinkCarriers | Maximum no. of NR V2X sidelink carriers supported by a serving cell. Value is 8 (FFS). |

9.2.2.12 Served Cell Information E-UTRA

This IE contains cell configuration information of an E-UTRA cell that a neighbour NG-RAN node may need for the Xn AP interface.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| E-UTRA PCI | M |  | INTEGER (0..503, …) | E-UTRA Physical Cell ID | – |  |
| ECGI | M |  | E-UTRA CGI9.2.2.8 |  | – |  |
| TAC | M |  | 9.2.2.5 | Tracking Area Code | – |  |
| RANAC | O |  | RAN Area Code9.2.2.6 |  | – |  |
| **Broadcast PLMNs** |  | *1..<maxnoofBPLMNs>* |  | Broadcast PLMNsNOTE: In this version of the specification, it is possible to broadcast only up to 6 PLMN IDs. | – |  |
| >PLMN Identity | M |  | 9.2.2.4 |  | – |  |
| CHOICE *E-UTRA-Mode-Info* | M |  |  |  | – |  |
| *>FDD* |  |  |  |  | – |  |
| **>>FDD Info** |  | *1* |  |  | – |  |
| >>>UL EARFCN | M |  | E-UTRA ARFCN9.2.2.21 | Corresponds to NUL in TS 36.104 [25] for E-UTRA operating bands for which it is defined; ignored for E-UTRA operating bands for which NUL is not defined | – |  |
| >>>DL EARFCN | M |  | E-UTRA ARFCN9.2.2.21 | Corresponds to NDL in TS 36.104 [25] | – |  |
| >>>UL E-UTRA Transmission Bandwidth | M |  | E-UTRA Transmission Bandwidth9.2.2.22 | Same as DL Transmission Bandwidth in this release; ignored in case UL EARFCN value is ignored | – |  |
| >>>DL E-UTRA Transmission Bandwidth | M |  | E-UTRA Transmission Bandwidth9.2.2.22 |  | – |  |
| *>TDD* |  |  |  |  | – |  |
| **>>TDD Info** |  | *1* |  |  | – |  |
| >>>EARFCN | M |  | E-UTRA ARFCN9.2.2.21 | Corresponds to NDL/NUL in TS 36.104 [25] | – |  |
| >>>E-UTRA Transmission Bandwidth | M |  | 9.2.2.22 |  | – |  |
| >>>Subframe Assignment | M |  | ENUMERATED (sa0, sa1, sa2, sa3, sa4, sa5, sa6, ...) | Uplink-downlink subframe configuration information defined in TS 36.211 [26] | – |  |
| **>>>****Special Subframe Info** |  | *1* |  | Special subframe configuration information defined in TS 36.211 [26] | – |  |
| >>>>Special Subframe Patterns | M |  | ENUMERATED (ssp0, ssp1, ssp2, ssp3, ssp4, ssp5, ssp6, ssp7, ssp8, ssp9, ssp10, ...) |  | – |  |
| >>>>Cyclic Prefix DL | M |  | ENUMERATED (Normal, Extended,…) |  | – |  |
| >>>>Cyclic Prefix UL | M |  | ENUMERATED (Normal, Extended, ...) |  | – |  |
| Number of Antenna Ports E-UTRA | O |  | 9.2.2.23 |  | – |  |
| PRACH Configuration | O |  | E-UTRA PRACH Configuration9.2.2.25 |  | – |  |
| **MBSFN Subframe Info** |  | *0..<maxnoofMBSFN>* |  | MBSFN subframe defined in TS 36.331 [14] | – |  |
| >Radioframe Allocation Period | M |  | ENUMERATED (n1, n2, n4, n8, n16, n32, …) |  | – |  |
| >Radioframe Allocation Offset | M |  | INTEGER (0..7, ...) |  | – |  |
| >MBSFN Subframe Allocation E-UTRA | M |  | 9.2.2.26 |  | – |  |
| E-UTRA Multiband Info List | O |  | 9.2.2.24 |  | – |  |
| FreqBandIndicatorPriority | O |  | ENUMERATED (not-broadcast, broadcast, ...) | This IE indicates that the eNodeB supports *FreqBandIndicationPriority*, and whether*FreqBandIndicatorPriority* is broadcast in SIB 1 (see TS 36.331 [14]) | – |  |
| BandwidthReducedSI | O |  | ENUMERATED (scheduled, ...) | This IE indicates that the SystemInformationBlockType1-BR is scheduled in the cell (see TS 36.331 [14]) | – |  |
| Protected E-UTRA Resource Indication | O |  | 9.2.2.29 | This IE indicates which E-UTRA control/reference signal resources are protected and are not subject to E-UTRA - NR Cell Resource Coordination. | – |  |
| **Broadcast PLMN Identity Info List E-UTRA** |  | *0..<maxnoofEUTRABPLMNs-1>* |  | This IE corresponds to the *cellAccessRelatedInfoList-5GC* IE in *SIB1* as specified in TS 36.331 [14]. The PLMN Identities and associated information contained in this IE are provided in the same order as broadcast in SIB1. | YES | ignore |
| **>Broadcast PLMNs** |  | *1..<maxnoofEUTRABPLMNs>* |  | Broadcast PLMNs | – |  |
| >>PLMN Identity | M |  | 9.2.2.4 |  | – |  |
| >TAC | M |  | 9.2.2.5 |  | – |  |
| >E-UTRA Cell Identity | M |  | BIT STRING (SIZE(28)) |  | – |  |
| >RANAC | O |  | RAN Area Code9.2.2.6 |  | – |  |
| **LTE V2X Sidelink Info List (FFS)** |  | *0..1* |  |  | YES | ignore |
| **>LTE V2X Sidelink Info Item** |  | *1..<maxnoofLTEV2XSidelinkCarriers>* |  |  | - |  |
| >>LTE V2X Sidelink Carrier |  |  | E-UTRA ARFCN9.2.2.21 |  | - |  |
| **NR V2X Sidelink Info List (FFS)** |  | *0..1* |  |  | YES | ignore |
| **>NR V2X Sidelink Info Item** |  | *1..<maxnoofNRV2XSidelinkCarriers>* |  |  | - |  |
| >>NR V2X Sidelink Carrier |  |  | NR Frequency Info9.2.2.19 |  | - |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofBPLMNs | Maximum no. of broadcast PLMNs by a cell. The value is 12. |
| maxnoofMBSFN | Maximum no. of MBSFN frame allocation with different offset. Value is 8. |
| maxnoofBPLMNs-1 | Maximum no. of PLMN Ids.broadcast a cell minus 1. Value is 11. |
| maxnoofEUTRABPLMNs | Maximum no. of PLMN Ids.broadcast in an E-UTRA cell. Value is 6. |
| maxnoofEUTRABPLMNs-1 | Maximum no. of PLMN Ids.broadcast in an E-UTRA cell minus 1. Value is 5. |
| maxnoofLTEV2XSidelinkCarriers | Maximum no. of LTE V2X sidelink carriers supported by a serving cell. Value is 8 (FFS). |
| MaxnoofNRV2XSidelinkCarriers | Maximum no. of NR V2X sidelink carriers supported by a serving cell. Value is 8 (FFS). |

9.2.2.13 Neighbour Information NR

This IE contains cell configuration information of NR cells that a neighbour NG-RAN node may need to properly operate its own served cells.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Neighbour Information NR |  | *1 .. <maxnoofNeighbours>* |  |  |
| >NRPCI | M |  | INTEGER (0..1007) | NR Physical Cell ID |
| >NR CGI | M |  | 9.2.2.7 |  |
| >TAC | M |  | 9.2.2.5 | Tracking Area Code |
| >RANAC | O |  | RAN Area Code9.2.2.6 |  |
| >CHOICE *NR-Mode-Info* | M |  |  |  |
| *>>FDD* |  |  |  |  |
| **>>>FDD Info** |  | *1* |  |  |
| >>>>UL NR FreqInfo | M |  | NR Frequency Info9.2.2.19 |  |
| >>>>DL NR FreqInfo | M |  | NR Frequency Info9.2.2.19 |  |
| *>>TDD* |  |  |  |  |
| **>>>TDD Info** |  | *1* |  |  |
| >>>>NR FreqInfo | M |  | NR ARFCN Frequency Info9.2.2.19 |  |
| >Connectivity Support | M |  | 9.2.2.28 |  |
| >Measurement Timing Configuration | M |  | OCTET STRING | Contains the *MeasurementTimingConfiguration* inter-node message for the neighbour cell, as defined in TS 38.331 [10]. |
| **LTE V2X Sidelink Info List (FFS)** |  | *0..1* |  |  |
| **>LTE V2X Sidelink Info Item** |  | *1..<maxnoofLTEV2XSidelinkCarriers>* |  |  |
| >>LTE V2X Sidelink Carrier |  |  | E-UTRA ARFCN9.2.2.21 |  |
| **NR V2X Sidelink Info List (FFS)** |  | *0..1* |  |  |
| **>NR V2X Sidelink Info Item** |  | *1..<maxnoofNRV2XSidelinkCarriers>* |  |  |
| >>NR V2X Sidelink Carrier |  |  | NR Frequency Info9.2.2.19 |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofNeighbours | Maximum no. of neighbour cells associated to a given served cell. Value is 1024. |
| maxnoofLTEV2XSidelinkCarriers | Maximum no. of LTE V2X sidelink carriers supported by a serving cell. Value is 8 (FFS). |
| MaxnoofNRV2XSidelinkCarriers | Maximum no. of NR V2X sidelink carriers supported by a serving cell. Value is 8 (FFS). |

9.2.2.14 Neighbour Information E-UTRA

This IE contains cell configuration information of E-UTRA cells that a neighbour NG-RAN node may need to properly operate its own served cells.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| E-UTRA Neighbour Information E-UTRA |  | *1 .. <**maxnoofNeighbours>* |  |  |
| >E-UTRA PCI | M |  | INTEGER (0..503, …) | E-UTRA Physical Cell Identifier of the neighbour cell |
| >ECGI | M |  | E-UTRA CGI9.2.2.8 |  |
| >EARFCN | M |  | E-UTRA ARFCN9.2.2.21 | DL EARFCN for FDD or EARFCN for TDD |
| >TAC | M |  | 9.2.2.5 | Tracking Area Code |
| >RANAC | O |  | RAN Area Code9.2.2.6 |  |
| **LTE V2X Sidelink Info List (FFS)** |  | *0..1* |  |  |
| **>LTE V2X Sidelink Info Item** |  | *1..<maxnoofLTEV2XSidelinkCarriers>* |  |  |
| >>LTE V2X Sidelink Carrier |  |  | E-UTRA ARFCN9.2.2.21 |  |
| **NR V2X Sidelink Info List (FFS)** |  | *0..1* |  |  |
| **>NR V2X Sidelink Info Item** |  | *1..<maxnoofNRV2XSidelinkCarriers>* |  |  |
| >>NR V2X Sidelink Carrier |  |  | NR Frequency Info9.2.2.19 |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofNeighbours | Maximum no. of neighbour cells associated to a given served cell. Value is 1024. |
| maxnoofLTEV2XSidelinkCarriers | Maximum no. of LTE V2X sidelink carriers supported by a serving cell. Value is 8 (FFS). |
| MaxnoofNRV2XSidelinkCarriers | Maximum no. of NR V2X sidelink carriers supported by a serving cell. Value is 8 (FFS). |

**NEXT CHANGE**

#### 9.2.2.21 E-UTRA ARFCN

The E-UTRA Absolute Radio Frequency Channel Number defines the carrier frequency used in an E-UTRAN cell for a given direction (UL or DL) or sidelink (FFS) in FDD or for both UL and DL directions or sidelink (FFS) in TDD.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE Type and Reference | Semantics Description |
| E-UTRA ARFCN | M |  | INTEGER (0..maxEARFCN) | The relation between EARFCN and carrier frequency (in MHz) are defined in TS 36.104 [25]. |

**NEXT CHANGE**

#### 9.2.3.4 Bit Rate

This IE indicates the number of bits delivered by NG-RAN in UL or to NG-RAN in DL or by UE in sidelink within a period of time, divided by the duration of the period. It is used, for example, to indicate the maximum or guaranteed bit rate for a GBR QoS flow, or an aggregate maximum bit rate.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| Bit Rate | M |  | INTEGER (0..4,000,000,000,000,…) | The unit is: bit/s |

**NEXT CHANGE**

#### 9.2.3.x1 NR V2X Services Authorized

This IE provides information on the authorization status of the UE to use the NR sidelink for V2X services.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Vehicle UE | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Vehicle UE | - | - |
| Pedestrian UE | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Pedestrian UE | - | - |

#### 9.2.3.x2 LTE V2X Services Authorized

This IE provides information on the authorization status of the UE to use the LTE sidelink for V2X services.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| Vehicle UE | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Vehicle UE | - | - |
| Pedestrian UE | O |  | ENUMERATED (authorized, not authorized, ...) | Indicates whether the UE is authorized as Pedestrian UE | - | - |

**NEXT CHANGE**

#### 9.2.3.y1 NR UE Sidelink Aggregate Maximum Bit Rate

This IE provides information on the Aggregate Maximum Bitrate of the UE’s sidelink communication for NR V2X services.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| NR UE Sidelink Aggregate Maximum Bit Rate | M |  | Bit Rate 9.2.3.4 | Value 0 shall be considered as a logical error by the receiving NG-RAN node. |

#### 9.2.3.y2 LTE UE Sidelink Aggregate Maximum Bit Rate

This IE provides information on the Aggregate Maximum Bitrate of the UE’s sidelink communication for LTE V2X services.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| LTE UE Sidelink Aggregate Maximum Bit Rate | M |  | Bit Rate 9.2.3.4 | Value 0 shall be considered as a logical error by the receiving NG-RAN node. |

#### 9.2.3.xx PC5 QoS Parameters

This IE provides information on the PC5 QoS parameters of the UE’s sidelink communication for NR PC5.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IE/Group Name | Presence | Range | IE type and reference | Semantics description |
| **PC5 QoS Flow List** |  | *1* |  |  |
| **>PC5 QoS Flow Item** |  | *1..<maxnoofPC5QoSFlows>* |  |  |
| >>PQI  | M |  | INTEGER (0..255, …) | PQI is a special 5QI as specified in TS 23.501 [9]. |
| >>PC5 Flow Bit Rates | O |  |  | Only applies for GBR QoS Flows. |
| >>>Guaranteed Flow Bit Rate | M |  | Bit Rate9.2.3.4 | Guaranteed Bit Rate for the PC5 QoS flow. Details in TS 23.501 [9]. |
| >>>Maximum Flow Bit Rate | M |  | Bit Rate9.2.3.4 | Maximum Bit Rate for the PC5 QoS flow. Details in TS 23.501 [9]. |
| >>Range | O |  | ENUMERATED (m50, m80, m180, m200, m350, m400, m500, m700, m1000, …) | Only applies for groupcast. |
| PC5 Link Aggregated Bit Rates | O |  | Bit Rate9.2.3.4 | Only applies for non-GBR QoS Flows. |

|  |  |
| --- | --- |
| Range bound | Explanation |
| *maxnoofPC5QoSFlows* | Maximum no. of PC5 QoS flows allowed towards one UE. Value is 2048.  |

**NEXT CHANGE**

### 9.3.4 PDU Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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-- PDU definitions for XnAP.

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-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

XnAP-PDU-Contents {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) xnap (2) version1 (1) xnap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IE parameter types from other modules.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IMPORTS

 ActivationIDforCellActivation,

 ActivationIDforCellActivation,

 AMF-Region-Information,

 AMF-UE-NGAP-ID,

 AS-SecurityInformation,

 AssistanceDataForRANPaging,

 BitRate,

 Cause,

 CellAssistanceInfo-NR,

 CPTransportLayerInformation,

 TNLA-To-Add-List,

 TNLA-To-Update-List,

 TNLA-To-Remove-List,

 TNLA-Setup-List,

 TNLA-Failed-To-Setup-List,

 CriticalityDiagnostics,

 XnUAddressInfoperPDUSession-List,

 DataTrafficResourceIndication,

 DeliveryStatus,

 DesiredActNotificationLevel,

 DRB-ID,

 DRB-List,

 DRB-Number,

 DRBsSubjectToStatusTransfer-List,

 DRBToQoSFlowMapping-List,

 E-UTRA-CGI,

 ExpectedUEBehaviour,

 GlobalNG-RANNode-ID,

 GlobalNG-RANCell-ID,

 GUAMI,

 InterfaceInstanceIndication,

 I-RNTI,

 LocationInformationSNReporting,

 LocationReportingInformation,

 LowerLayerPresenceStatusChange,

LTEUESidelinkAggregateMaximumBitRate,

LTEV2XServicesAuthorized,

 MR-DC-ResourceCoordinationInfo,

 ServedCells-E-UTRA,

 ServedCells-NR,

 ServedCellsToUpdate-E-UTRA,

 ServedCellsToUpdate-NR,

 MAC-I,

 MaskedIMEISV,

 MobilityRestrictionList,

 NG-RAN-Cell-Identity,

 NG-RANnodeUEXnAPID,

 NR-CGI,

 NE-DC-TDM-Pattern,

NRUESidelinkAggregateMaximumBitRate,

NRV2XServicesAuthorized,

 PagingDRX,

 PagingPriority,

 PLMN-Identity,

 PDCPChangeIndication,

 PDUSessionAggregateMaximumBitRate,

 PDUSession-ID,

 PDUSession-List,

 PDUSession-List-withCause,

 PDUSession-List-withDataForwardingFromTarget,

 PDUSession-List-withDataForwardingRequest,

 PDUSessionResourcesAdmitted-List,

 PDUSessionResourcesNotAdmitted-List,

 PDUSessionResourcesToBeSetup-List,

 PDUSessionResourceChangeRequiredInfo-SNterminated,

 PDUSessionResourceChangeRequiredInfo-MNterminated,

 PDUSessionResourceChangeConfirmInfo-SNterminated,

 PDUSessionResourceChangeConfirmInfo-MNterminated,

 PDUSessionResourceSecondaryRATUsageList,

 PDUSessionResourceSetupInfo-SNterminated,

 PDUSessionResourceSetupInfo-MNterminated,

 PDUSessionResourceSetupResponseInfo-SNterminated,

 PDUSessionResourceSetupResponseInfo-MNterminated,

 PDUSessionResourceModificationInfo-SNterminated,

 PDUSessionResourceModificationInfo-MNterminated,

 PDUSessionResourceModificationResponseInfo-SNterminated,

 PDUSessionResourceModificationResponseInfo-MNterminated,

 PDUSessionResourceModConfirmInfo-SNterminated,

 PDUSessionResourceModConfirmInfo-MNterminated,

 PDUSessionResourceModRqdInfo-SNterminated,

 PDUSessionResourceModRqdInfo-MNterminated,

 PDUSessionType,

 PC5QoSParameters,

 QoSFlowIdentifier,

 QoSFlowNotificationControlIndicationInfo,

 QoSFlows-List,

 RANPagingArea,

 ResetRequestTypeInfo,

 ResetResponseTypeInfo,

 RFSP-Index,

 RRCConfigIndication,

 RRCResumeCause,

 SCGConfigurationQuery,

 SecurityIndication,

 ServedCells-NR,

 S-NG-RANnode-SecurityKey,

 SpectrumSharingGroupID,

 SplitSRBsTypes,

 S-NSSAI,

 TAISupport-List,

 Target-CGI,

 TimeToWait,

 TraceActivation,

 TraceActivation,

 UEAggregateMaximumBitRate,

 UEContextID,

 UEContextInfoRetrUECtxtResp,

 UEContextKeptIndicator,

 UEHistoryInformation,

 UEIdentityIndexValue,

 UERadioCapabilityForPaging,

 UERANPagingIdentity,

 UESecurityCapabilities,

 UPTransportLayerInformation,

 UserPlaneTrafficActivityReport,

 XnBenefitValue,

 RANPagingFailure

FROM XnAP-IEs

 PrivateIE-Container{},

 ProtocolExtensionContainer{},

 ProtocolIE-Container{},

 ProtocolIE-ContainerList{},

 ProtocolIE-ContainerPair{},

 ProtocolIE-ContainerPairList{},

 ProtocolIE-Single-Container{},

 XNAP-PRIVATE-IES,

 XNAP-PROTOCOL-EXTENSION,

 XNAP-PROTOCOL-IES,

 XNAP-PROTOCOL-IES-PAIR

FROM XnAP-Containers

 id-ActivatedServedCells,

 id-ActivationIDforCellActivation,

 id-AdditionalDRBIDs,

 id-AMF-Region-Information,

 id-AMF-Region-Information-To-Add,

 id-AMF-Region-Information-To-Delete,

 id-AssistanceDataForRANPaging,

 id-AvailableDRBIDs,

 id-Cause,

 id-cellAssistanceInfo-NR,

 id-ConfigurationUpdateInitiatingNodeChoice,

 id-UEContextID,

 id-CriticalityDiagnostics,

 id-XnUAddressInfoperPDUSession-List,

 id-DesiredActNotificationLevel,

 id-DRBsSubjectToStatusTransfer-List,

 id-ExpectedUEBehaviour,

 id-GlobalNG-RAN-node-ID,

 id-GUAMI,

 id-indexToRatFrequSelectionPriority,

 id-List-of-served-cells-E-UTRA,

 id-List-of-served-cells-NR,

 id-LocationInformationSN,

 id-LocationInformationSNReporting,

 id-LocationReportingInformation,

id-LTEUESidelinkAggregateMaximumBitRate,

id-LTEV2XServicesAuthorized,

 id-MAC-I,

 id-MaskedIMEISV,

 id-MN-to-SN-Container,

 id-MobilityRestrictionList,

 id-M-NG-RANnodeUEXnAPID,

 id-new-NG-RAN-Cell-Identity,

 id-newNG-RANnodeUEXnAPID,

id-NRUESidelinkAggregateMaximumBitRate,

id-NRV2XServicesAuthorized,

 id-oldNG-RANnodeUEXnAPID,

 id-OldtoNewNG-RANnodeResumeContainer,

 id-PagingDRX,

 id-PagingPriority,

 id-PCellID,

 id-PDUSessionResourceSecondaryRATUsageList,

 id-PDUSessionResourcesActivityNotifyList,

 id-PDUSessionResourcesAdmitted-List,

 id-PDUSessionResourcesNotAdmitted-List,

 id-PDUSessionResourcesNotifyList,

 id-PDUSessionToBeAddedAddReq,

 id-PDUSessionToBeReleased-RelReqAck,

 id-RANPagingArea,

 id-requestedSplitSRB,

 id-RequiredNumberOfDRBIDs,

 id-ResetRequestTypeInfo,

 id-ResetResponseTypeInfo,

 id-RespondingNodeTypeConfigUpdateAck,

 id-RRCResumeCause,

 id-selectedPLMN,

 id-ServedCellsToActivate,

 id-servedCellsToUpdate-E-UTRA,

 id-ServedCellsToUpdateInitiatingNodeChoice,

 id-servedCellsToUpdate-NR,

 id-sourceNG-RANnodeUEXnAPID,

 id-SpareDRBIDs,

 id-S-NG-RANnodeMaxIPDataRate-UL,

 id-S-NG-RANnodeMaxIPDataRate-DL,

 id-S-NG-RANnodeUEXnAPID,

 id-TAISupport-list,

 id-Target2SourceNG-RANnodeTranspContainer,

 id-targetCellGlobalID,

 id-targetNG-RANnodeUEXnAPID,

 id-TimeToWait,

 id-TNLA-To-Add-List,

 id-TNLA-To-Update-List,

 id-TNLA-To-Remove-List,

 id-TNLA-Setup-List,

 id-TNLA-Failed-To-Setup-List,

 id-TraceActivation,

 id-TraceActivation,

 id-UEContextInfoHORequest,

 id-UEContextInfoRetrUECtxtResp,

 id-UEContextKeptIndicator,

 id-UEContextRefAtSN-HORequest,

 id-UEHistoryInformation,

 id-UEIdentityIndexValue,

 id-UERANPagingIdentity,

 id-UESecurityCapabilities,

 id-UserPlaneTrafficActivityReport,

 id-XnRemovalThreshold,

 id-PDUSessionAdmittedAddedAddReqAck,

 id-PDUSessionNotAdmittedAddReqAck,

 id-SN-to-MN-Container,

 id-admittedSplitSRB,

 id-RRCConfigIndication,

 id-SplitSRB-RRCTransfer,

 id-UEReportRRCTransfer,

 id-PDUSessionReleasedList-RelConf,

 id-BearersSubjectToCounterCheck,

 id-PDUSessionReleasedList-RelConf,

 id-PDUSessionToBeReleasedList-RelRqd,

 id-ResponseInfo-ReconfCompl,

 id-initiatingNodeType-ResourceCoordRequest,

 id-respondingNodeType-ResourceCoordResponse,

 id-PDUSessionToBeReleased-RelReq,

 id-PDUSession-SNChangeRequired-List,

 id-PDUSession-SNChangeConfirm-List,

 id-PDCPChangeIndication,

 id-PC5QoSParameters,

 id-SCGConfigurationQuery,

 id-UEContextInfo-SNModRequest,

 id-requestedSplitSRBrelease,

 id-PDUSessionAdmitted-SNModResponse,

 id-PDUSessionNotAdmitted-SNModResponse,

 id-admittedSplitSRB,

 id-admittedSplitSRBrelease,

 id-PDUSessionAdmittedModSNModConfirm,

 id-PDUSessionReleasedSNModConfirm,

 id-s-ng-RANnode-SecurityKey,

 id-PDUSessionToBeModifiedSNModRequired,

 id-S-NG-RANnodeUE-AMBR,

 id-PDUSessionToBeReleasedSNModRequired,

 id-target-S-NG-RANnodeID,

 id-S-NSSAI,

 id-MR-DC-ResourceCoordinationInfo,

 id-RANPagingFailure,

 id-UERadioCapabilityForPaging,

 id-PDUSessionDataForwarding-SNModResponse,

 id-Secondary-MN-Xn-U-TNLInfoatM,

 id-NE-DC-TDM-Pattern,

 id-InterfaceInstanceIndication,

 maxnoofCellsinNG-RANnode,

 maxnoofDRBs,

 maxnoofPDUSessions,

 maxnoofQoSFlows

FROM XnAP-Constants;

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- HANDOVER REQUEST

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

HandoverRequest ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{HandoverRequest-IEs}},

 ...

}

HandoverRequest-IEs XNAP-PROTOCOL-IES ::= {

 { ID id-sourceNG-RANnodeUEXnAPID CRITICALITY reject TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-Cause CRITICALITY reject TYPE Cause PRESENCE mandatory}|

 { ID id-targetCellGlobalID CRITICALITY reject TYPE Target-CGI PRESENCE mandatory}|

 { ID id-GUAMI CRITICALITY reject TYPE GUAMI PRESENCE mandatory}|

 { ID id-UEContextInfoHORequest CRITICALITY reject TYPE UEContextInfoHORequest PRESENCE mandatory}|

 { ID id-TraceActivation CRITICALITY ignore TYPE TraceActivation PRESENCE optional }|

 { ID id-MaskedIMEISV CRITICALITY ignore TYPE MaskedIMEISV PRESENCE optional }|

 { ID id-UEHistoryInformation CRITICALITY ignore TYPE UEHistoryInformation PRESENCE mandatory}|

 { ID id-UEContextRefAtSN-HORequest CRITICALITY ignore TYPE UEContextRefAtSN-HORequest PRESENCE optional }|

{ ID id-NRV2XServicesAuthorized CRITICALITY ignore TYPE NRV2XServicesAuthorized PRESENCE optional }|

{ ID id-LTEV2XServicesAuthorized CRITICALITY ignore TYPE LTEV2XServicesAuthorized PRESENCE optional }|

{ ID id-PC5QoSParameters CRITICALITY ignore TYPE PC5QoSParameters

 PRESENCE optional },

 ...

}

UEContextInfoHORequest ::= SEQUENCE {

 ng-c-UE-reference AMF-UE-NGAP-ID,

 cp-TNL-info-source CPTransportLayerInformation,

 ueSecurityCapabilities UESecurityCapabilities,

 securityInformation AS-SecurityInformation,

 indexToRatFrequencySelectionPriority RFSP-Index OPTIONAL,

 ue-AMBR UEAggregateMaximumBitRate,

 pduSessionResourcesToBeSetup-List PDUSessionResourcesToBeSetup-List,

 rrc-Context OCTET STRING,

 locationReportingInformation LocationReportingInformation OPTIONAL,

 mrl MobilityRestrictionList OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {UEContextInfoHORequest-ExtIEs} } OPTIONAL,

 ...

}

UEContextInfoHORequest-ExtIEs XNAP-PROTOCOL-EXTENSION ::={

 { ID id-FiveGCMobilityRestrictionListContainer CRITICALITY ignore EXTENSION FiveGCMobilityRestrictionListContainer PRESENCE optional }|

{ ID id-NRUESidelinkAggregateMaximumBitRate CRITICALITY ignore EXTENSION NRUESidelinkAggregateMaximumBitRate PRESENCE optional}|

{ ID id-LTEUESidelinkAggregateMaximumBitRate CRITICALITY ignore EXTENSION LTEUESidelinkAggregateMaximumBitRate PRESENCE optional},

 ...

}

UEContextRefAtSN-HORequest ::= SEQUENCE {

 globalNG-RANNode-ID GlobalNG-RANNode-ID,

 sN-NG-RANnodeUEXnAPID NG-RANnodeUEXnAPID,

 iE-Extensions ProtocolExtensionContainer { {UEContextRefAtSN-HORequest-ExtIEs} } OPTIONAL,

 ...

}

UEContextRefAtSN-HORequest-ExtIEs XNAP-PROTOCOL-EXTENSION ::={

 ...

}

**UNCHANGED PART OMITTED**

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- RETRIEVE UE CONTEXT RESPONSE

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

RetrieveUEContextResponse ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{ RetrieveUEContextResponse-IEs}},

 ...

}

RetrieveUEContextResponse-IEs XNAP-PROTOCOL-IES ::= {

 { ID id-newNG-RANnodeUEXnAPID CRITICALITY ignore TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-oldNG-RANnodeUEXnAPID CRITICALITY ignore TYPE NG-RANnodeUEXnAPID PRESENCE mandatory}|

 { ID id-GUAMI CRITICALITY reject TYPE GUAMI PRESENCE mandatory}|

 { ID id-UEContextInfoRetrUECtxtResp CRITICALITY reject TYPE UEContextInfoRetrUECtxtResp PRESENCE mandatory}|

 { ID id-TraceActivation CRITICALITY ignore TYPE TraceActivation PRESENCE optional }|

 { ID id-MaskedIMEISV CRITICALITY ignore TYPE MaskedIMEISV PRESENCE optional }|

 { ID id-LocationReportingInformation CRITICALITY ignore TYPE LocationReportingInformation PRESENCE optional }|

 { ID id-CriticalityDiagnostics CRITICALITY ignore TYPE CriticalityDiagnostics PRESENCE optional }|

{ ID id-NRV2XServicesAuthorized CRITICALITY ignore TYPE NRV2XServicesAuthorized PRESENCE optional}|

{ ID id-LTEV2XServicesAuthorized CRITICALITY ignore TYPE LTEV2XServicesAuthorized PRESENCE optional}|

 { ID id-PC5QoSParameters CRITICALITY ignore TYPE PC5QoSParameters PRESENCE optional },

 ...

}

**UNCHANGED PART OMITTED**

**NEXT CHANGE**

ASN.1 changes related to sidelink carriers are FFS.

### 9.3.5 Information Element definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Information Element Definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

XnAP-IEs {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) xnap (2) version1 (1) xnap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

 id-CNTypeRestrictionsForEquivalent,

 id-CNTypeRestrictionsForServing,

 id-Additional-UL-NG-U-TNLatUPF-List,

 id-DefaultDRB-Allowed,

 id-EndpointIPAddressAndPort,

 id-FiveGCMobilityRestrictionListContainer,

 id-SecondarydataForwardingInfoFromTarget-List,

 id-LastE-UTRANPLMNIdentity,

 id-IntendedTDD-DL-ULConfiguration-NR,

 id-MaxIPrate-DL,

 id-SecurityResult,

 id-OldQoSFlowMap-ULendmarkerexpected,

 id-PDUSessionCommonNetworkInstance,

 id-BPLMN-ID-Info-EUTRA,

 id-BPLMN-ID-Info-NR,

 id-DRBsNotAdmittedSetupModifyList,

 id-Secondary-MN-Xn-U-TNLInfoatM,

 id-ULForwardingProposal,

 id-DRB-IDs-takenintouse,

 id-SplitSessionIndicator,

 id-NonGBRResources-Offered,

 (FFS)id-LTEV2XSidelinkInfoList,

 id-LTEUESidelinkAggregateMaximumBitRate,

 (FFS)id-NRV2XSidelinkInfoList,

 id-NRUESidelinkAggregateMaximumBitRate,

 id-ExtendedRATRestrictionInformation,

 id-QoSMonitoringRequest,

 maxEARFCN,

 maxnoofAllowedAreas,

 maxnoofAMFRegions,

 maxnoofAoIs,

 maxnoofBPLMNs,

 maxnoofCellsinAoI,

 maxnoofCellsinNG-RANnode,

 maxnoofCellsinRNA,

 maxnoofCellsinUEHistoryInfo,

 maxnoofCellsUEMovingTrajectory,

 maxnoofDRBs,

 maxnoofEPLMNs,

 maxnoofEUTRABands,

 maxnoofEUTRABPLMNs,

 maxnoofForbiddenTACs,

 maxnoofMBSFNEUTRA,

 maxnoofMultiConnectivityMinusOne,

 maxnoofNeighbours,

 maxnoofNRCellBands,

 maxnoofPDUSessions,

 maxnoofPLMNs,

 maxnoofProtectedResourcePatterns,

 maxnoofQoSFlows,

 maxnoofRANAreaCodes,

 maxnoofRANAreasinRNA,

 maxnoofSCellGroups,

 maxnoofSCellGroupsplus1,

 maxnoofSliceItems,

 maxnoofsupportedTACs,

 maxnoofsupportedPLMNs,

 maxnoofTAI,

 maxnoofTAIsinAoI,

 maxnoofTNLAssociations,

 maxnoofUEContexts,

 maxNRARFCN,

 maxNrOfErrors,

 maxnoofRANNodesinAoI,

 maxnooftimeperiods,

 maxnoofslots,

 maxnoofExtTLAs,

 maxnoofGTPTLAs,

 (FFS)maxnoofLTEV2XSidelinkCarriers,

 (FFS)maxnoofNRV2XSidelinkCarriers,

 maxnoofPC5QoSFlows

FROM XnAP-Constants

 Criticality,

 ProcedureCode,

 ProtocolIE-ID,

 TriggeringMessage

FROM XnAP-CommonDataTypes

 ProtocolExtensionContainer{},

 ProtocolIE-Single-Container{},

 XNAP-PROTOCOL-EXTENSION,

 XNAP-PROTOCOL-IES

FROM XnAP-Containers;

**NEXT CHANGE**

-- L

LastVisitedCell-Item ::= CHOICE {

 nG-RAN-Cell LastVisitedNGRANCellInformation,

 e-UTRAN-Cell LastVisitedEUTRANCellInformation,

 uTRAN-Cell LastVisitedUTRANCellInformation,

 gERAN-Cell LastVisitedGERANCellInformation,

 choice-extension ProtocolIE-Single-Container { { LastVisitedCell-Item-ExtIEs} }

}

LastVisitedCell-Item-ExtIEs XNAP-PROTOCOL-IES ::= {

 ...

}

LastVisitedEUTRANCellInformation ::= OCTET STRING

LastVisitedGERANCellInformation ::= OCTET STRING

LastVisitedNGRANCellInformation ::= OCTET STRING

LastVisitedUTRANCellInformation ::= OCTET STRING

LCID ::= INTEGER (1..32, ...)

ListOfCells ::= SEQUENCE (SIZE(1..maxnoofCellsinAoI)) OF CellsinAoI-Item

CellsinAoI-Item ::= SEQUENCE {

 pLMN-Identity PLMN-Identity,

 ng-ran-cell-id NG-RAN-Cell-Identity,

 iE-Extensions ProtocolExtensionContainer { {CellsinAoI-Item-ExtIEs} } OPTIONAL,

 ...

}

CellsinAoI-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

ListOfRANNodesinAoI ::= SEQUENCE (SIZE(1.. maxnoofRANNodesinAoI)) OF GlobalNG-RANNodesinAoI-Item

GlobalNG-RANNodesinAoI-Item ::= SEQUENCE {

 global-NG-RAN-Node-ID GlobalNG-RANNode-ID,

 iE-Extensions ProtocolExtensionContainer { {GlobalNG-RANNodesinAoI-Item-ExtIEs} } OPTIONAL,

 ...

}

GlobalNG-RANNodesinAoI-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

ListOfTAIsinAoI ::= SEQUENCE (SIZE(1..maxnoofTAIsinAoI)) OF TAIsinAoI-Item

TAIsinAoI-Item ::= SEQUENCE {

 pLMN-Identity PLMN-Identity,

 tAC TAC,

 iE-Extensions ProtocolExtensionContainer { {TAIsinAoI-Item-ExtIEs} } OPTIONAL,

 ...

}

TAIsinAoI-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

LocationInformationSNReporting ::= ENUMERATED {

 pSCell,

 ...

}

LocationReportingInformation ::= SEQUENCE {

 eventType EventType,

 reportArea ReportArea,

 areaOfInterest AreaOfInterestInformation OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {LocationReportingInformation-ExtIEs} } OPTIONAL,

 ...

}

LocationReportingInformation-ExtIEs XNAP-PROTOCOL-EXTENSION ::={

 ...

}

LowerLayerPresenceStatusChange ::= ENUMERATED {

 release-lower-layers,

 re-establish-lower-layers,

 ...

}

LTEV2XServicesAuthorized ::= SEQUENCE {

 vehicleUE VehicleUE OPTIONAL,

pedestrianUE PedestrianUE OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {LTEV2XServicesAuthorized-ExtIEs} } OPTIONAL,

 ...

}

LTEV2XServicesAuthorized-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

LTEUESidelinkAggregateMaximumBitRate ::= SEQUENCE {

 uESidelinkAggregateMaximumBitRate BitRate,

 iE-Extensions ProtocolExtensionContainer { {LTEUESidelinkAggregateMaximumBitRates-ExtIEs} } OPTIONAL,

 ...

}

LTEUESidelinkAggregateMaximumBitRates-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

(FFS) LTEV2XSidelinkInfoList ::= SEQUENCE (SIZE (1..maxnoofLTEV2XSidelinkCarriers)) OF LTEV2XSidelinkInfo-Item

(FFS) LTEV2XSidelinkInfo-Item ::= SEQUENCE {

 lteV2XSidelinkCarrier E-UTRAARFCN,

 ...

}

**NEXT CHANGE**

-- N

NE-DC-TDM-Pattern ::= SEQUENCE {

 subframeAssignment ENUMERATED {sa0,sa1,sa2,sa3,sa4,sa5,sa6},

 harqOffset INTEGER (0..9),

 iE-Extension ProtocolExtensionContainer { {NE-DC-TDM-Pattern-ExtIEs}} OPTIONAL,

 ...

}

NE-DC-TDM-Pattern-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

NeighbourInformation-E-UTRA ::= SEQUENCE (SIZE(1..maxnoofNeighbours)) OF NeighbourInformation-E-UTRA-Item

NeighbourInformation-E-UTRA-Item ::= SEQUENCE {

 e-utra-PCI E-UTRAPCI,

 e-utra-cgi E-UTRA-CGI,

 earfcn E-UTRAARFCN,

 tac TAC,

 ranac RANAC OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {NeighbourInformation-E-UTRA-Item-ExtIEs} } OPTIONAL,

 ...

}

NeighbourInformation-E-UTRA-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::={

(FFS) { ID id-LTEV2XSidelinkInfoList CRITICALITY ignore EXTENSION LTEV2XSidelinkInfoList PRESENCE optional }|

(FFS) { ID id-NRV2XSidelinkInfoList CRITICALITY ignore EXTENSION NRV2XSidelinkInfoList PRESENCE optional },

 ...

}

NeighbourInformation-NR ::= SEQUENCE (SIZE(1..maxnoofNeighbours)) OF NeighbourInformation-NR-Item

NeighbourInformation-NR-Item ::= SEQUENCE {

 nr-PCI NRPCI,

 nr-cgi NR-CGI,

 tac TAC,

 ranac RANAC OPTIONAL,

 nr-mode-info NeighbourInformation-NR-ModeInfo,

 connectivitySupport Connectivity-Support,

 measurementTimingConfiguration OCTET STRING,

 iE-Extensions ProtocolExtensionContainer { {NeighbourInformation-NR-Item-ExtIEs} } OPTIONAL,

 ...

}

NeighbourInformation-NR-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::={

(FFS) { ID id-LTEV2XSidelinkInfoList CRITICALITY ignore EXTENSION LTEV2XSidelinkInfoList PRESENCE optional }|

(FFS) { ID id-NRV2XSidelinkInfoList CRITICALITY ignore EXTENSION NRV2XSidelinkInfoList PRESENCE optional },

 ...

}

NeighbourInformation-NR-ModeInfo ::= CHOICE {

 fdd-info NeighbourInformation-NR-ModeFDDInfo,

 tdd-info NeighbourInformation-NR-ModeTDDInfo,

 choice-extension ProtocolIE-Single-Container { {NeighbourInformation-NR-ModeInfo-ExtIEs} }

}

NeighbourInformation-NR-ModeInfo-ExtIEs XNAP-PROTOCOL-IES ::= {

 ...

}

NeighbourInformation-NR-ModeFDDInfo ::= SEQUENCE {

 ul-NR-FreqInfo NRFrequencyInfo,

 dl-NR-FequInfo NRFrequencyInfo,

 ie-Extensions ProtocolExtensionContainer { {NeighbourInformation-NR-ModeFDDInfo-ExtIEs} } OPTIONAL,

 ...

}

NeighbourInformation-NR-ModeFDDInfo-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

NeighbourInformation-NR-ModeTDDInfo ::= SEQUENCE {

 nr-FreqInfo NRFrequencyInfo,

 ie-Extensions ProtocolExtensionContainer { {NeighbourInformation-NR-ModeTDDInfo-ExtIEs} } OPTIONAL,

 ...

}

NeighbourInformation-NR-ModeTDDInfo-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

NG-RAN-Cell-Identity ::= CHOICE {

 nr NR-Cell-Identity,

 e-utra E-UTRA-Cell-Identity,

 choice-extension ProtocolIE-Single-Container { {NG-RAN-Cell-Identity-ExtIEs} }

}

NG-RAN-Cell-Identity-ExtIEs XNAP-PROTOCOL-IES ::= {

 ...

}

NG-RAN-CellPCI ::= CHOICE {

 nr NRPCI,

 e-utra E-UTRAPCI,

 choice-extension ProtocolIE-Single-Container { {NG-RAN-CellPCI-ExtIEs} }

}

NG-RAN-CellPCI-ExtIEs XNAP-PROTOCOL-IES ::= {

 ...

}

NG-RANnodeUEXnAPID ::= INTEGER (0.. 4294967295)

NonDynamic5QIDescriptor ::= SEQUENCE {

 fiveQI FiveQI,

 priorityLevelQoS PriorityLevelQoS OPTIONAL,

 averagingWindow AveragingWindow OPTIONAL,

 maximumDataBurstVolume MaximumDataBurstVolume OPTIONAL,

 iE-Extension ProtocolExtensionContainer { {NonDynamic5QIDescriptor-ExtIEs } } OPTIONAL,

 ...

}

NonDynamic5QIDescriptor-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

NRARFCN ::= INTEGER (0.. maxNRARFCN)

NR-Cell-Identity ::= BIT STRING (SIZE (36))

NG-RAN-Cell-Identity-ListinRANPagingArea ::= SEQUENCE (SIZE (1..maxnoofCellsinRNA)) OF NG-RAN-Cell-Identity

NR-CGI ::= SEQUENCE {

 plmn-id PLMN-Identity,

 nr-CI NR-Cell-Identity,

 iE-Extension ProtocolExtensionContainer { {NR-CGI-ExtIEs} } OPTIONAL,

 ...

}

NR-CGI-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

NRFrequencyBand ::= INTEGER (1..1024, ...)

NRFrequencyBand-List ::= SEQUENCE (SIZE(1..maxnoofNRCellBands)) OF NRFrequencyBandItem

NRFrequencyBandItem ::= SEQUENCE {

 nr-frequency-band NRFrequencyBand,

 supported-SUL-Band-List SupportedSULBandList OPTIONAL,

 iE-Extension ProtocolExtensionContainer { {NRFrequencyBandItem-ExtIEs} } OPTIONAL,

 ...

}

NRFrequencyBandItem-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

NRFrequencyInfo ::= SEQUENCE {

 nrARFCN NRARFCN,

 sul-information SUL-Information OPTIONAL,

 frequencyBand-List NRFrequencyBand-List,

 iE-Extension ProtocolExtensionContainer { {NRFrequencyInfo-ExtIEs} } OPTIONAL,

 ...

}

NRFrequencyInfo-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

NRModeInfo ::= CHOICE {

 fdd NRModeInfoFDD,

 tdd NRModeInfoTDD,

 choice-extension ProtocolIE-Single-Container { {NRModeInfo-ExtIEs} }

}

NRModeInfo-ExtIEs XNAP-PROTOCOL-IES ::= {

 ...

}

NRModeInfoFDD ::= SEQUENCE {

 ulNRFrequencyInfo NRFrequencyInfo,

 dlNRFrequencyInfo NRFrequencyInfo,

 ulNRTransmissonBandwidth NRTransmissionBandwidth,

 dlNRTransmissonBandwidth NRTransmissionBandwidth,

 iE-Extension ProtocolExtensionContainer { {NRModeInfoFDD-ExtIEs} } OPTIONAL,

 ...

}

NRModeInfoFDD-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

NRModeInfoTDD ::= SEQUENCE {

 nrFrequencyInfo NRFrequencyInfo,

 nrTransmissonBandwidth NRTransmissionBandwidth,

 iE-Extension ProtocolExtensionContainer { {NRModeInfoTDD-ExtIEs} } OPTIONAL,

 ...

}

NRModeInfoTDD-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

NRNRB ::= ENUMERATED { nrb11, nrb18, nrb24, nrb25, nrb31, nrb32, nrb38, nrb51, nrb52, nrb65, nrb66, nrb78, nrb79, nrb93, nrb106, nrb107, nrb121, nrb132, nrb133, nrb135, nrb160, nrb162, nrb189, nrb216, nrb217, nrb245, nrb264, nrb270, nrb273, ...}

NRPCI ::= INTEGER (0..1007, ...)

NRSCS ::= ENUMERATED { scs15, scs30, scs60, scs120, ...}

(FFS) NRV2XSidelinkInfoList ::= SEQUENCE (SIZE (1..maxnoofNRV2XSidelinkCarriers)) OF NRV2XSidelinkInfo-Item

(FFS) NRV2XSidelinkInfo-Item ::= SEQUENCE {

 nrV2XSidelinkCarrier NRFrequencyInfo,

 ...

}

NRTransmissionBandwidth ::= SEQUENCE {

 nRSCS NRSCS,

 nRNRB NRNRB,

 iE-Extensions ProtocolExtensionContainer { {NRTransmissionBandwidth-ExtIEs} } OPTIONAL,

 ...

}

NRTransmissionBandwidth-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

NumberOfAntennaPorts-E-UTRA ::= ENUMERATED {an1, an2, an4, ...}

NG-RANTraceID ::=OCTET STRING (SIZE (8))

NonGBRResources-Offered ::= ENUMERATED {true, ...}

NRV2XServicesAuthorized ::= SEQUENCE {

 vehicleUE VehicleUE OPTIONAL,

pedestrianUE PedestrianUE OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {NRV2XServicesAuthorized-ExtIEs} } OPTIONAL,

 ...

}

NRV2XServicesAuthorized-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

NRUESidelinkAggregateMaximumBitRate ::= SEQUENCE {

 uESidelinkAggregateMaximumBitRate BitRate,

 iE-Extensions ProtocolExtensionContainer { {NRUESidelinkAggregateMaximumBitRates-ExtIEs} } OPTIONAL,

 ...

}

NRUESidelinkAggregateMaximumBitRates-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

**NEXT CHANGE**

**UNCHANGED PART OMITTED**

-- P

PC5QoSParameters ::= SEQUENCE {

 pc5QoSFlowList PC5QoSFlowList,

 pc5LinkAggregatedBitRates BitRate OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { PC5QoSParameters-ExtIEs} } OPTIONAL,

 ...

}

PC5QoSParameters-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

PC5QoSFlowList ::= SEQUENCE (SIZE(1..maxnoofPC5QoSFlows)) OF PC5QoSFlowItem

PC5QoSFlowItem::= SEQUENCE {

 pQI FiveQI,

 pc5FlowBitRates PC5FlowBitRates OPTIONAL,

 range Range OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { { PC5QoSFlowItem-ExtIEs} } OPTIONAL,

 ...

}

PC5QoSFlowItem-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

PC5FlowBitRates ::= SEQUENCE {

 guaranteedFlowBitRate BitRate,

 maximumFlowBitRate BitRate,

 iE-Extensions ProtocolExtensionContainer { { PC5FlowBitRates-ExtIEs} } OPTIONAL,

 ...

}

PC5FlowBitRates-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

PacketDelayBudget ::= INTEGER (0..1023, ...)

PacketErrorRate ::= SEQUENCE {

 pER-Scalar PER-Scalar,

 pER-Exponent PER-Exponent,

 iE-Extensions ProtocolExtensionContainer { {PacketErrorRate-ExtIEs} } OPTIONAL,

 ...

}

PacketErrorRate-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

PedestrianUE ::= ENUMERATED {

 authorized,

 not-authorized,

 ...

}

PER-Scalar ::= INTEGER (0..9, ...)

PER-Exponent ::= INTEGER (0..9, ...)

**UNCHANGED PART OMITTED**

-- R

Range ::= ENUMERATED {m50, m80, m180, m200, m350, m400, m500, m700, m1000, ...}

**UNCHANGED PART OMITTED**

-- Served Cells E-UTRA IEs

ServedCellInformation-E-UTRA ::= SEQUENCE {

 e-utra-pci E-UTRAPCI,

 e-utra-cgi E-UTRA-CGI,

 tac TAC,

 ranac RANAC OPTIONAL,

 broadcastPLMNs SEQUENCE (SIZE(1..maxnoofBPLMNs)) OF ServedCellInformation-E-UTRA-perBPLMN,

 e-utra-mode-info ServedCellInformation-E-UTRA-ModeInfo,

 numberofAntennaPorts NumberOfAntennaPorts-E-UTRA OPTIONAL,

 prach-configuration E-UTRAPRACHConfiguration OPTIONAL,

 mBSFNsubframeInfo MBSFNSubframeInfo-E-UTRA OPTIONAL,

 multibandInfo E-UTRAMultibandInfoList OPTIONAL,

 freqBandIndicatorPriority ENUMERATED {not-broadcast, broadcast, ...} OPTIONAL,

 bandwidthReducedSI ENUMERATED {scheduled, ...} OPTIONAL,

 protectedE-UTRAResourceIndication ProtectedE-UTRAResourceIndication OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {ServedCellInformation-E-UTRA-ExtIEs} } OPTIONAL,

 ...

}

ServedCellInformation-E-UTRA-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 { ID id-BPLMN-ID-Info-EUTRA CRITICALITY ignore EXTENSION BPLMN-ID-Info-EUTRA PRESENCE optional }|

 (FFS){ ID id-LTEV2XSidelinkInfoList CRITICALITY ignore EXTENSION LTEV2XSidelinkInfoList PRESENCE optional }|

 (FFS){ ID id-NRV2XSidelinkInfoList CRITICALITY ignore EXTENSION NRV2XSidelinkInfoList PRESENCE optional },

 ...

}

**NEXT CHANGE**

-- Served Cells NR IEs

ServedCellInformation-NR ::= SEQUENCE {

 nrPCI NRPCI,

 cellID NR-CGI,

 tac TAC,

 ranac RANAC OPTIONAL,

 broadcastPLMN BroadcastPLMNs,

 nrModeInfo NRModeInfo,

 measurementTimingConfiguration OCTET STRING,

 connectivitySupport Connectivity-Support,

 iE-Extensions ProtocolExtensionContainer { {ServedCellInformation-NR-ExtIEs} } OPTIONAL,

 ...

}

ServedCellInformation-NR-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 { ID id-BPLMN-ID-Info-NR CRITICALITY ignore EXTENSION BPLMN-ID-Info-NR PRESENCE optional }|

 (FFS){ ID id-LTEV2XSidelinkInfoList CRITICALITY ignore EXTENSION LTEV2XSidelinkInfoList PRESENCE optional }|

 (FFS){ ID id-NRV2XSidelinkInfoList CRITICALITY ignore EXTENSION NRV2XSidelinkInfoList PRESENCE optional },

 ...

}

**NEXT CHANGE**

-- U

UEAggregateMaximumBitRate ::= SEQUENCE {

 dl-UE-AMBR BitRate,

 ul-UE-AMBR BitRate,

 iE-Extension ProtocolExtensionContainer { {UEAggregateMaximumBitRate-ExtIEs} } OPTIONAL,

 ...

}

UEAggregateMaximumBitRate-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

UEContextKeptIndicator ::= ENUMERATED {true, ...}

UEContextID ::= CHOICE {

 rRCResume UEContextIDforRRCResume,

 rRRCReestablishment UEContextIDforRRCReestablishment,

 choice-extension ProtocolIE-Single-Container { {UEContextID-ExtIEs} }

}

UEContextID-ExtIEs XNAP-PROTOCOL-IES ::= {

 ...

}

UEContextIDforRRCResume ::= SEQUENCE {

 i-rnti I-RNTI,

 allocated-c-rnti C-RNTI,

 accessPCI NG-RAN-CellPCI,

 iE-Extension ProtocolExtensionContainer { {UEContextIDforRRCResume-ExtIEs} } OPTIONAL,

 ...

}

UEContextIDforRRCResume-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

UEContextIDforRRCReestablishment ::= SEQUENCE {

 c-rnti C-RNTI,

 failureCellPCI NG-RAN-CellPCI,

 iE-Extension ProtocolExtensionContainer { {UEContextIDforRRCReestablishment-ExtIEs} } OPTIONAL,

 ...

}

UEContextIDforRRCReestablishment-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

UEContextInfoRetrUECtxtResp ::= SEQUENCE {

 ng-c-UE-signalling-ref AMF-UE-NGAP-ID,

 signalling-TNL-at-source CPTransportLayerInformation,

 ueSecurityCapabilities UESecurityCapabilities,

 securityInformation AS-SecurityInformation,

 ue-AMBR UEAggregateMaximumBitRate,

 pduSessionResourcesToBeSetup-List PDUSessionResourcesToBeSetup-List,

 rrc-Context OCTET STRING,

 mobilityRestrictionList MobilityRestrictionList OPTIONAL,

 indexToRatFrequencySelectionPriority RFSP-Index OPTIONAL,

 iE-Extension ProtocolExtensionContainer { {UEContextInfoRetrUECtxtResp-ExtIEs} } OPTIONAL,

 ...

}

UEContextInfoRetrUECtxtResp-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 { ID id-FiveGCMobilityRestrictionListContainer CRITICALITY ignore EXTENSION FiveGCMobilityRestrictionListContainer PRESENCE optional }|

{ ID id-NRUESidelinkAggregateMaximumBitRate CRITICALITY ignore EXTENSION NRUESidelinkAggregateMaximumBitRate PRESENCE optional}|

{ ID id-LTEUESidelinkAggregateMaximumBitRate CRITICALITY ignore EXTENSION LTEUESidelinkAggregateMaximumBitRate PRESENCE optional},

 ...

}

UEHistoryInformation ::= SEQUENCE (SIZE(1..maxnoofCellsinUEHistoryInfo)) OF LastVisitedCell-Item

UEIdentityIndexValue ::= CHOICE {

 indexLength10 BIT STRING (SIZE(10)),

 choice-extension ProtocolIE-Single-Container { {UEIdentityIndexValue-ExtIEs} }

}

UEIdentityIndexValue-ExtIEs XNAP-PROTOCOL-IES ::= {

 ...

}

UERadioCapabilityForPaging ::= SEQUENCE {

 uERadioCapabilityForPagingOfNR UERadioCapabilityForPagingOfNR OPTIONAL,

 uERadioCapabilityForPagingOfEUTRA UERadioCapabilityForPagingOfEUTRA OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {UERadioCapabilityForPaging-ExtIEs} } OPTIONAL,

 ...

}

UERadioCapabilityForPaging-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

UERadioCapabilityForPagingOfNR ::= OCTET STRING

UERadioCapabilityForPagingOfEUTRA ::= OCTET STRING

UERANPagingIdentity ::= CHOICE {

 i-RNTI-full BIT STRING ( SIZE (40)),

 choice-extension ProtocolIE-Single-Container { {UERANPagingIdentity-ExtIEs} }

}

UERANPagingIdentity-ExtIEs XNAP-PROTOCOL-IES ::= {

 ...

}

UESecurityCapabilities ::= SEQUENCE {

 nr-EncyptionAlgorithms BIT STRING {nea1-128(1),

 nea2-128(2),

 nea3-128(3)} (SIZE(16, ...)),

 nr-IntegrityProtectionAlgorithms BIT STRING {nia1-128(1),

 nia2-128(2),

 nia3-128(3)} (SIZE(16, ...)),

 e-utra-EncyptionAlgorithms BIT STRING {eea1-128(1),

 eea2-128(2),

 eea3-128(3)} (SIZE(16, ...)),

 e-utra-IntegrityProtectionAlgorithms BIT STRING {eia1-128(1),

 eia2-128(2),

 eia3-128(3)} (SIZE(16, ...)),

 iE-Extension ProtocolExtensionContainer { {UESecurityCapabilities-ExtIEs} } OPTIONAL,

 ...

}

UESecurityCapabilities-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

ULConfiguration::= SEQUENCE {

 uL-PDCP UL-UE-Configuration,

 iE-Extensions ProtocolExtensionContainer { {ULConfiguration-ExtIEs} } OPTIONAL,

 ...

}

ULConfiguration-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

UL-UE-Configuration::= ENUMERATED {no-data, shared, only, ...}

ULForwarding ::= ENUMERATED {ul-forwarding-proposed, ...}

UPTransportLayerInformation ::= CHOICE {

 gtpTunnel GTPtunnelTransportLayerInformation,

 choice-extension ProtocolIE-Single-Container { {UPTransportLayerInformation-ExtIEs} }

}

UPTransportLayerInformation-ExtIEs XNAP-PROTOCOL-IES ::= {

 ...

}

UPTransportParameters ::= SEQUENCE (SIZE(1..maxnoofSCellGroupsplus1)) OF UPTransportParametersItem

UPTransportParametersItem ::= SEQUENCE {

 upTNLInfo UPTransportLayerInformation,

 cellGroupID CellGroupID,

 iE-Extension ProtocolExtensionContainer { {UPTransportParametersItem-ExtIEs} } OPTIONAL,

 ...

}

UPTransportParametersItem-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

UserPlaneTrafficActivityReport ::= ENUMERATED {inactive, re-activated, ...}

-- V

VehicleUE ::= ENUMERATED {

 authorized,

 not-authorized,

 ...

}

**UNCHANGED PART OMITTED**

**NEXT CHANGE**

### 9.3.7 Constant definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Constant definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

XnAP-Constants {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-Access (22) modules (3) xnap (2) version1 (1) xnap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

**UNCHANGED PART OMITTED**

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Lists

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

maxEARFCN INTEGER ::= 262143

maxnoofAllowedAreas INTEGER ::= 16

maxnoofAMFRegions INTEGER ::= 16

maxnoofAoIs INTEGER ::= 64

maxnoofBPLMNs INTEGER ::= 12

maxnoofCellsinAoI INTEGER ::= 256

maxnoofCellsinUEHistoryInfo INTEGER ::= 16

maxnoofCellsinNG-RANnode INTEGER ::= 16384

maxnoofCellsinRNA INTEGER ::= 32

maxnoofCellsUEMovingTrajectory INTEGER ::= 16

maxnoofDRBs INTEGER ::= 32

maxnoofEUTRABands INTEGER ::= 16

maxnoofEUTRABPLMNs INTEGER ::= 6

maxnoofEPLMNs INTEGER ::= 15

maxnoofForbiddenTACs INTEGER ::= 4096

maxnoofMBSFNEUTRA INTEGER ::= 8

maxnoofMultiConnectivityMinusOne INTEGER ::= 3

maxnoofNeighbours INTEGER ::= 1024

maxnoofNRCellBands INTEGER ::= 32

maxnoofPLMNs INTEGER ::= 16

maxnoofPDUSessions INTEGER ::= 256

maxnoofProtectedResourcePatterns INTEGER ::= 16

maxnoofQoSFlows INTEGER ::= 64

maxnoofRANAreaCodes INTEGER ::= 32

maxnoofRANAreasinRNA INTEGER ::= 16

maxnoofRANNodesinAoI INTEGER ::= 64

maxnoofSCellGroups INTEGER ::= 3

maxnoofSCellGroupsplus1 INTEGER ::= 4

maxnoofSliceItems INTEGER ::= 1024

maxnoofsupportedPLMNs INTEGER ::= 12

maxnoofsupportedTACs INTEGER ::= 256

maxnoofTAI INTEGER ::= 16

maxnoofTAIsinAoI INTEGER ::= 16

maxnooftimeperiods INTEGER ::= 2

maxnoofTNLAssociations INTEGER ::= 32

maxnoofUEContexts INTEGER ::= 8192

maxNRARFCN INTEGER ::= 3279165

maxNrOfErrors INTEGER ::= 256

maxnoofslots INTEGER ::= 320

maxnoofExtTLAs INTEGER ::= 16

maxnoofGTPTLAs INTEGER ::= 16

maxnoofLTEV2XSidelinkCarriers INTEGER ::= 8 (FFS)

maxnoofNRV2XSidelinkCarriers INTEGER ::= 8 (FFS)

maxnoofPC5QoSFlows INTEGER ::= 2064

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IEs

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

id-ActivatedServedCells ProtocolIE-ID ::= 0

id-ActivationIDforCellActivation ProtocolIE-ID ::= 1

id-admittedSplitSRB ProtocolIE-ID ::= 2

id-admittedSplitSRBrelease ProtocolIE-ID ::= 3

id-AMF-Region-Information ProtocolIE-ID ::= 4

id-AssistanceDataForRANPaging ProtocolIE-ID ::= 5

id-BearersSubjectToCounterCheck ProtocolIE-ID ::= 6

id-Cause ProtocolIE-ID ::= 7

id-cellAssistanceInfo-NR ProtocolIE-ID ::= 8

id-ConfigurationUpdateInitiatingNodeChoice ProtocolIE-ID ::= 9

id-CriticalityDiagnostics ProtocolIE-ID ::= 10

id-XnUAddressInfoperPDUSession-List ProtocolIE-ID ::= 11

id-DRBsSubjectToStatusTransfer-List ProtocolIE-ID ::= 12

id-ExpectedUEBehaviour ProtocolIE-ID ::= 13

id-GlobalNG-RAN-node-ID ProtocolIE-ID ::= 14

id-GUAMI ProtocolIE-ID ::= 15

id-indexToRatFrequSelectionPriority ProtocolIE-ID ::= 16

id-initiatingNodeType-ResourceCoordRequest ProtocolIE-ID ::= 17

id-List-of-served-cells-E-UTRA ProtocolIE-ID ::= 18

id-List-of-served-cells-NR ProtocolIE-ID ::= 19

id-LocationReportingInformation ProtocolIE-ID ::= 20

id-MAC-I ProtocolIE-ID ::= 21

id-MaskedIMEISV ProtocolIE-ID ::= 22

id-M-NG-RANnodeUEXnAPID ProtocolIE-ID ::= 23

id-MN-to-SN-Container ProtocolIE-ID ::= 24

id-MobilityRestrictionList ProtocolIE-ID ::= 25

id-new-NG-RAN-Cell-Identity ProtocolIE-ID ::= 26

id-newNG-RANnodeUEXnAPID ProtocolIE-ID ::= 27

id-UEReportRRCTransfer ProtocolIE-ID ::= 28

id-oldNG-RANnodeUEXnAPID ProtocolIE-ID ::= 29

id-OldtoNewNG-RANnodeResumeContainer ProtocolIE-ID ::= 30

id-PagingDRX ProtocolIE-ID ::= 31

id-PCellID ProtocolIE-ID ::= 32

id-PDCPChangeIndication ProtocolIE-ID ::= 33

id-PDUSessionAdmittedAddedAddReqAck ProtocolIE-ID ::= 34

id-PDUSessionAdmittedModSNModConfirm ProtocolIE-ID ::= 35

id-PDUSessionAdmitted-SNModResponse ProtocolIE-ID ::= 36

id-PDUSessionNotAdmittedAddReqAck ProtocolIE-ID ::= 37

id-PDUSessionNotAdmitted-SNModResponse ProtocolIE-ID ::= 38

id-PDUSessionReleasedList-RelConf ProtocolIE-ID ::= 39

id-PDUSessionReleasedSNModConfirm ProtocolIE-ID ::= 40

id-PDUSessionResourcesActivityNotifyList ProtocolIE-ID ::= 41

id-PDUSessionResourcesAdmitted-List ProtocolIE-ID ::= 42

id-PDUSessionResourcesNotAdmitted-List ProtocolIE-ID ::= 43

id-PDUSessionResourcesNotifyList ProtocolIE-ID ::= 44

id-PDUSession-SNChangeConfirm-List ProtocolIE-ID ::= 45

id-PDUSession-SNChangeRequired-List ProtocolIE-ID ::= 46

id-PDUSessionToBeAddedAddReq ProtocolIE-ID ::= 47

id-PDUSessionToBeModifiedSNModRequired ProtocolIE-ID ::= 48

id-PDUSessionToBeReleasedList-RelRqd ProtocolIE-ID ::= 49

id-PDUSessionToBeReleased-RelReq ProtocolIE-ID ::= 50

id-PDUSessionToBeReleasedSNModRequired ProtocolIE-ID ::= 51

id-RANPagingArea ProtocolIE-ID ::= 52

id-PagingPriority ProtocolIE-ID ::= 53

id-requestedSplitSRB ProtocolIE-ID ::= 54

id-requestedSplitSRBrelease ProtocolIE-ID ::= 55

id-ResetRequestTypeInfo ProtocolIE-ID ::= 56

id-ResetResponseTypeInfo ProtocolIE-ID ::= 57

id-RespondingNodeTypeConfigUpdateAck ProtocolIE-ID ::= 58

id-respondingNodeType-ResourceCoordResponse ProtocolIE-ID ::= 59

id-ResponseInfo-ReconfCompl ProtocolIE-ID ::= 60

id-RRCConfigIndication ProtocolIE-ID ::= 61

id-RRCResumeCause ProtocolIE-ID ::= 62

id-SCGConfigurationQuery ProtocolIE-ID ::= 63

id-selectedPLMN ProtocolIE-ID ::= 64

id-ServedCellsToActivate ProtocolIE-ID ::= 65

id-servedCellsToUpdate-E-UTRA ProtocolIE-ID ::= 66

id-ServedCellsToUpdateInitiatingNodeChoice ProtocolIE-ID ::= 67

id-servedCellsToUpdate-NR ProtocolIE-ID ::= 68

id-s-ng-RANnode-SecurityKey ProtocolIE-ID ::= 69

id-S-NG-RANnodeUE-AMBR ProtocolIE-ID ::= 70

id-S-NG-RANnodeUEXnAPID ProtocolIE-ID ::= 71

id-SN-to-MN-Container ProtocolIE-ID ::= 72

id-sourceNG-RANnodeUEXnAPID ProtocolIE-ID ::= 73

id-SplitSRB-RRCTransfer ProtocolIE-ID ::= 74

id-TAISupport-list ProtocolIE-ID ::= 75

id-TimeToWait ProtocolIE-ID ::= 76

id-Target2SourceNG-RANnodeTranspContainer ProtocolIE-ID ::= 77

id-targetCellGlobalID ProtocolIE-ID ::= 78

id-targetNG-RANnodeUEXnAPID ProtocolIE-ID ::= 79

id-target-S-NG-RANnodeID ProtocolIE-ID ::= 80

id-TraceActivation ProtocolIE-ID ::= 81

id-UEContextID ProtocolIE-ID ::= 82

id-UEContextInfoHORequest ProtocolIE-ID ::= 83

id-UEContextInfoRetrUECtxtResp ProtocolIE-ID ::= 84

id-UEContextInfo-SNModRequest ProtocolIE-ID ::= 85

id-UEContextKeptIndicator ProtocolIE-ID ::= 86

id-UEContextRefAtSN-HORequest ProtocolIE-ID ::= 87

id-UEHistoryInformation ProtocolIE-ID ::= 88

id-UEIdentityIndexValue ProtocolIE-ID ::= 89

id-UERANPagingIdentity ProtocolIE-ID ::= 90

id-UESecurityCapabilities ProtocolIE-ID ::= 91

id-UserPlaneTrafficActivityReport ProtocolIE-ID ::= 92

id-XnRemovalThreshold ProtocolIE-ID ::= 93

id-DesiredActNotificationLevel ProtocolIE-ID ::= 94

id-AvailableDRBIDs ProtocolIE-ID ::= 95

id-AdditionalDRBIDs ProtocolIE-ID ::= 96

id-SpareDRBIDs ProtocolIE-ID ::= 97

id-RequiredNumberOfDRBIDs ProtocolIE-ID ::= 98

id-TNLA-To-Add-List ProtocolIE-ID ::= 99

id-TNLA-To-Update-List ProtocolIE-ID ::= 100

id-TNLA-To-Remove-List ProtocolIE-ID ::= 101

id-TNLA-Setup-List ProtocolIE-ID ::= 102

id-TNLA-Failed-To-Setup-List ProtocolIE-ID ::= 103

id-PDUSessionToBeReleased-RelReqAck ProtocolIE-ID ::= 104

id-S-NG-RANnodeMaxIPDataRate-UL ProtocolIE-ID ::= 105

id-PDUSessionResourceSecondaryRATUsageList ProtocolIE-ID ::= 107

id-Additional-UL-NG-U-TNLatUPF-List ProtocolIE-ID ::= 108

id-SecondarydataForwardingInfoFromTarget-List ProtocolIE-ID ::= 109

id-LocationInformationSNReporting ProtocolIE-ID ::= 110

id-LocationInformationSN ProtocolIE-ID ::= 111

id-LastE-UTRANPLMNIdentity ProtocolIE-ID ::= 112

id-S-NG-RANnodeMaxIPDataRate-DL ProtocolIE-ID ::= 113

id-MaxIPrate-DL ProtocolIE-ID ::= 114

id-SecurityResult ProtocolIE-ID ::= 115

id-S-NSSAI ProtocolIE-ID ::= 116

id-MR-DC-ResourceCoordinationInfo ProtocolIE-ID ::= 117

id-AMF-Region-Information-To-Add ProtocolIE-ID ::= 118

id-AMF-Region-Information-To-Delete ProtocolIE-ID ::= 119

id-OldQoSFlowMap-ULendmarkerexpected ProtocolIE-ID ::= 120

id-RANPagingFailure ProtocolIE-ID ::= 121

id-UERadioCapabilityForPaging ProtocolIE-ID ::= 122

id-PDUSessionDataForwarding-SNModResponse ProtocolIE-ID ::= 123

id-DRBsNotAdmittedSetupModifyList ProtocolIE-ID ::= 124

id-Secondary-MN-Xn-U-TNLInfoatM ProtocolIE-ID ::= 125

id-NE-DC-TDM-Pattern ProtocolIE-ID ::= 126

id-PDUSessionCommonNetworkInstance ProtocolIE-ID ::= 127

id-BPLMN-ID-Info-EUTRA ProtocolIE-ID ::= 128

id-BPLMN-ID-Info-NR ProtocolIE-ID ::= 129

id-InterfaceInstanceIndication ProtocolIE-ID ::= 130

id-S-NG-RANnode-Addition-Trigger-Ind ProtocolIE-ID ::= 131

id-DefaultDRB-Allowed ProtocolIE-ID ::= 132

id-DRB-IDs-takenintouse ProtocolIE-ID ::= 133

id-SplitSessionIndicator ProtocolIE-ID ::= 134

id-CNTypeRestrictionsForEquivalent ProtocolIE-ID ::= 135

id-CNTypeRestrictionsForServing ProtocolIE-ID ::= 136

id-DRBs-transferred-to-MN ProtocolIE-ID ::= 137

id-ULForwardingProposal ProtocolIE-ID ::= 138

id-EndpointIPAddressAndPort ProtocolIE-ID ::= 139

id-IntendedTDD-DL-ULConfiguration-NR ProtocolIE-ID ::= 140

id-TNLConfigurationInfo ProtocolIE-ID ::= 141

id-PartialListIndicator-NR ProtocolIE-ID ::= 142

id-MessageOversizeNotification ProtocolIE-ID ::= 143

id-CellAndCapacityAssistanceInfo-NR ProtocolIE-ID ::= 144

id-NG-RANTraceID ProtocolIE-ID ::= 145

id-NonGBRResources-Offered ProtocolIE-ID ::= 146

id-FastMCGRecoveryRRCTransfer-SN-to-MN ProtocolIE-ID ::= 147

id-RequestedFastMCGRecoveryViaSRB3 ProtocolIE-ID ::= 148

id-AvailableFastMCGRecoveryViaSRB3 ProtocolIE-ID ::= 149

id-RequestedFastMCGRecoveryViaSRB3Release ProtocolIE-ID ::= 150

id-ReleaseFastMCGRecoveryViaSRB3 ProtocolIE-ID ::= 151

id-FastMCGRecoveryRRCTransfer-MN-to-SN ProtocolIE-ID ::= 152

id-LTEV2XServicesAuthorized ProtocolIE-ID ::= XXX

id-NRV2XServicesAuthorized ProtocolIE-ID ::= XXY

id-LTEUESidelinkAggregateMaximumBitRate ProtocolIE-ID ::= XYY

id-NRUESidelinkAggregateMaximumBitRate ProtocolIE-ID ::= YYY

id-LTEV2XSidelinkInfoList ProtocolIE-ID ::= XXZ

id-NRV2XSidelinkInfoList ProtocolIE-ID ::= XZZ

id-PC5QoSParameters ProtocolIE-ID ::= YXX

END

-- ASN1STOP

**END OF CHANGES**