**3GPP TSG-RAN WG2 Meeting #109 electronic *R2-200xxxx***

**24 Feb – 6 Mar 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.331** | **CR** | **4222** | **rev** | **1** | **Current version:** | 15.8.0 |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Introduction of 5G V2X with NR Sidelink in TS 36.331 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_V2X\_NRSL-Core | | | | |  | ***Date:*** | | | 2020-02-13 |
|  |  | | | |  | |  | | |  |
| ***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 can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
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| ***Reason for change:*** | | This CR is to capture the following agreements related to RRC for the 5G\_V2X\_NRSL-Core WI:  **RAN2#105bis agreements:**   * LTE Uu supports configuration for NR mode-2 operation through RRC signaling and through SIB signaling. However, on demand or per valid area mode-2 configuration via SIB signaling is not supported. * New system information block type should be designed to support NR sidelink Tx and Rx resource pool configuration via LTE Uu. New system information will be defined as container (OCTET STRING) and actual information will follow what is defined in NR RRC. * eNB should be able to configure the NR V2X mode 2 sidelink resource pool or type 1 configured grant for NR V2X sidelink communication via dedicated signalling. * NR Sidelink UE information and/or NR UE Assistance information will be transmitted as container (OCTET STRING) and actual information will be defined in NR RRC.   **RAN2#107 agreements:**   * For LTE SL controlled by NR Uu, NR Uu can provide the inter-carrier LTE SL configuration, the NR anchor carrier which provides the LTE SL configuration, and the LTE anchor carrier which provides the LTE SL configuration.   **RAN2#108 agreements:**   * Define new RRC message including a container to transmit the LTE UAI. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | **For RAN2#109 the following changes have been implemented:**  5.5 Measurement, 6.3.5 Measurement information element  - CBR measurement for NR sidelink communication  5.6.X UAI for NR sidelink communication  - Separate UE assistance information message for NR sidelink communication  5.10.Y Sidelink Sync Inforamtion transmision  - Sidelink Sync information transmission for NR sidelink communication  **For RAN2#108 the following changes have been implemented:**  2 References  - Add a reference to 3GPP TS 23.287  3.1 Definitions  - Add the definition of NR Sidelink Communication.  5.2.2 System information acquisition  - Condition for acquistion of new system information.  - Add a new subclause on the actions upon receptio of new SIB  5.3.5 RRC connection reconfiguration  - Actions upon reception of reconfiguration message which includes dedicated configuration for NR sidelink communication  5.6 UE Assistance information  - Add procedures related to configured grant assistance information  5.10 Sidelink  - Modify the conditions for V2X sidelink communication  - Add note for V2X sidelink communicaiton monitoring and transmission when configurations are from gNB  - New subclause on sidelink UE information for NR sidelink communication  6.2.2 Message defination  - Add a new IE to configure dedicated configuration for NR sidelink communication,  - Add new message sidelinkUEInformationNR  - Add new IE for configured grant assistance information  6.3.1 Systerm information blocks  - Add NR anchor carrier list that may includes freqencies for V2X sidelink communication in SIB21  - Add a new sytem information blocks for the configuration for NR sidelink communication  6.3.6 Other information elements  - Add configuration on whether the UE is allowed to report configuredGrantAssistanceInfo.  6.3.8 Sidelink information elements  - Add new IE NR anchor carrier list that may includes freqencies for V2X sidelink communication in SIB21  6.4 Multiplicity and type constraint definitions  - Add the maximum number of NR anchor carrier frequencies on which the configurations for V2X sidelink communication are provided.  10.3 Inter-node RRC information element definations  - Add SidelinkUEInformationNR and configuredGrantAssistantInfo into AS-Context. | | | | | | | | |
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| ***Consequences if not approved:*** | | If the CR is not approved, the inter-RAT sceduling for NR sidelink communication is not supported. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 3.1, 5.2.2.4, 5.2.2.xx (new), 5.3.3.1a, 5.3.5.3, 5.5, 5.6.X (new), 5.10.1d, 5.10.12, 5.10.13, 5.10.x (new), 5.10.Y (new), 6.2.1, 6.2.2, 6.3.1, 6.3.5, 6.3.6, 6.3.8, 6.4, 7.1, 10.2.1, 10.2.2, 10.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS38.331 CR xxxx | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |

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| ***This CR's revision history:*** |  |

Beginning of changes

# 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] Void.

[3] 3GPP TS 36.302: "Evolved Universal Terrestrial Radio Access (E-UTRA); Services provided by the physical layer ".

[4] 3GPP TS 36.304: "Evolved Universal Terrestrial Radio Access (E-UTRA); UE Procedures in Idle Mode".

[5] 3GPP TS 36.306 "Evolved Universal Terrestrial Radio Access (E-UTRA); UE Radio Access Capabilities".

[6] 3GPP TS 36.321: "Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification".

[7] 3GPP TS 36.322:"Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Link Control (RLC) protocol specification".

[8] 3GPP TS 36.323: "Evolved Universal Terrestrial Radio Access (E-UTRA); Packet Data Convergence Protocol (PDCP) Specification".

[9] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access (E-UTRAN); Overall description; Stage 2".

[10] 3GPP TS 22.011: "Service accessibility".

[11] 3GPP TS 23.122: "Non-Access-Stratum (NAS) functions related to Mobile Station (MS) in idle mode".

[12] 3GPP2 C.S0002-F v1.0: "Physical Layer Standard for cdma2000 Spread Spectrum Systems".

[13] ITU-T Recommendation X.680 (07/2002) "Information Technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation" (Same as the ISO/IEC International Standard 8824-1).

[14] ITU-T Recommendation X.681 (07/2002) "Information Technology - Abstract Syntax Notation One (ASN.1): Information object specification" (Same as the ISO/IEC International Standard 8824-2).

[15] ITU-T Recommendation X.691 (07/2002) "Information technology - ASN.1 encoding rules: Specification of Packed Encoding Rules (PER)" (Same as the ISO/IEC International Standard 8825-2).

[16] 3GPP TS 36.133: "Evolved Universal Terrestrial Radio Access (E-UTRA); Requirements for support of radio resource management".

[17] 3GPP TS 25.101: "Universal Terrestrial Radio Access (UTRA); User Equipment (UE) radio transmission and reception (FDD)".

[18] 3GPP TS 25.102: "Universal Terrestrial Radio Access (UTRA); User Equipment (UE) radio transmission and reception (TDD)".

[19] 3GPP TS 25.331:"Universal Terrestrial Radio Access (UTRA); Radio Resource Control (RRC); Protocol specification".

[20] 3GPP TS 45.005: "Radio transmission and reception".

[21] 3GPP TS 36.211: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Channels and Modulation".

[22] 3GPP TS 36.212: "Evolved Universal Terrestrial Radio Access (E-UTRA); Multiplexing and channel coding".

[23] 3GPP TS 36.213: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures".

[24] 3GPP2 C.S0057-E v1.0: "Band Class Specification for cdma2000 Spread Spectrum Systems".

[25] 3GPP2 C.S0005-F v1.0: "Upper Layer (Layer 3) Signaling Standard for cdma2000 Spread Spectrum Systems".

[26] 3GPP2 C.S0024-C v2.0: "cdma2000 High Rate Packet Data Air Interface Specification".

[27] 3GPP TS 23.003: "Numbering, addressing and identification".

[28] 3GPP TS 45.008: "Radio subsystem link control".

[29] 3GPP TS 25.133: "Requirements for Support of Radio Resource Management (FDD)".

[30] 3GPP TS 25.123: "Requirements for Support of Radio Resource Management (TDD)".

[31] 3GPP TS 36.401: "Evolved Universal Terrestrial Radio Access (E-UTRA); Architecture description".

[32] 3GPP TS 33.401: "3GPP System Architecture Evolution (SAE); Security architecture".

[33] 3GPP2 A.S0008-C v4.0: "Interoperability Specification (IOS) for High Rate Packet Data (HRPD) Radio Access Network Interfaces with Session Control in the Access Network"

[34] 3GPP2 C.S0004-F v1.0: "Signaling Link Access Control (LAC) Standard for cdma2000 Spread Spectrum Systems"

[35] 3GPP TS 24.301: "Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3".

[36] 3GPP TS 44.060: "General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control/Medium Access Control (RLC/MAC) protocol".

[37] 3GPP TS 23.041: "Technical realization of Cell Broadcast Service (CBS)".

[38] 3GPP TS 23.038: "Alphabets and Language".

[39] 3GPP TS 36.413: "Evolved Universal Terrestrial Radio Access (E-UTRAN); S1 Application Protocol (S1 AP)".

[40] 3GPP TS 25.304: "Universal Terrestrial Radio Access (UTRAN); User Equipment (UE) procedures in idle mode and procedures for cell reselection in connected mode".

[41] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

[42] 3GPP TS 36.101: "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception".

[43] 3GPP TS 45.005: "GSM/EDGE Radio transmission and reception".

[44] 3GPP2 C.S0087-A v2.0: "E-UTRAN - cdma2000 HRPD Connectivity and Interworking Air Interface Specification"

[45] 3GPP TS 44.018: "Mobile radio interface layer 3 specification; Radio Resource Control (RRC) protocol".

[46] 3GPP TS 25.223: "Spreading and modulation (TDD)".

[47] 3GPP TS 36.104: "Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) radio transmission and reception".

[48] 3GPP TS 36.214: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer - Measurements".

[49] 3GPP TS 24.008: "Mobile radio interface layer 3 specification; Core network protocols; Stage 3".

[50] 3GPP TS 45.010: "Radio subsystem synchronization".

[51] 3GPP TS 23.272: "Circuit Switched Fallback in Evolved Packet System; Stage 2".

[52] 3GPP TS 29.061: "Interworking between the Public Land Mobile Network (PLMN) supporting packet based services and Packet Data Networks (PDN)".

[53] 3GPP2 C.S0097-0 v3.0: "E-UTRAN - cdma2000 1x Connectivity and Interworking Air Interface Specification".

[54] 3GPP TS 36.355: "LTE Positioning Protocol (LPP)".

[55] 3GPP TS 36.216: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer for relaying operation".

[56] 3GPP TS 23.246: "Multimedia Broadcast/Multicast Service (MBMS); Architecture and functional description".

[57] 3GPP TS 26.346: "Multimedia Broadcast/Multicast Service (MBMS); Protocols and codecs".

[58] 3GPP TS 32.422: "Telecommunication management; Subsriber and equipment trace; Trace control and confiuration management".

[59] 3GPP TS 22.368: "Service Requirements for Machine Type Communications; Stage 1".

[60] 3GPP TS 37.320: "Universal Terrestrial Radio Access (UTRA) and Evolved Universal Terrestrial Radio Access (E-UTRA); Radio measurement collection for Minimization of Drive Tests (MDT); Overall description; Stage 2".

[61] 3GPP TS 23.216: "Single Radio Voice Call Continuity (SRVCC); Stage 2".

[62] 3GPP TS 22.146: "Multimedia Broadcast/Multicast Service (MBMS); Stage 1".

[63] 3GPP TR 36.816: "Evolved Universal Terrestrial Radio Access (E-UTRA); Study on signalling and procedure for interference avoidance for in-device coexistence".

[64] IS-GPS-200F: "Navstar GPS Space Segment/Navigation User Segment Interfaces".

[65] 3GPP TS 25.307: "Requirement on User Equipments (UEs) supporting a release-independent frequency band".

[66] 3GPP TS 24.312: "Access Network Discovery and Selection Function (ANDSF) Management Object (MO)".

[67] IEEE 802.11-2012, Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications, IEEE Std.

[68] 3GPP TS 23.303: "Proximity-based services (ProSe); Stage 2".

[69] 3GPP TS 24.334: "Proximity-services (ProSe) User Equipment (UE) to ProSe function protocol aspects; Stage 3".

[70] 3GPP TS 24.333: "Proximity-services (ProSe) Management Objects (MO)".

[71] 3GPP TS 36.314: "Evolved Universal Terrestrial Radio Access (E-UTRA); Layer 2- Measurements".

[72] 3GPP TS 24.105: "Application specific Congestion control for Data Communication (ACDC) Management Object (MO)".

[73] 3GPP TS 23.179: "Functional architecture and information flows to support mission critical communication services; Stage 2".

[74] 3GPP TS 24.302: "Access to the 3GPP Evolved Packet Core (EPC) via non-3GPP access networks".

[75] 3GPP TS 23.402: "Architecture enhancements for non-3GPP accesses; Stage-2".

[76] Wi-Fi Alliance® Technical Committee, Hotspot 2.0 Technical Task Group Hotspot 2.0 (Release 2) Technical Specification Version 3.11.

[77] 3GPP TS 22.101: "Service aspects; Service principles".

[78] 3GPP TS 23.285: "Technical Specification Group Services and System Aspects; Architecture enhancements for V2X services".

[79] 3GPP TS 36.307: "Evolved Universal Terrestrial Radio Access (E-UTRA); Requirements on User Equipments (UEs) supporting a release-independent frequency band".

[80] Military Standard WGS84 Metric MIL-STD-2401 (11 January 1994): "Military Standard Department of Defence World Geodetic System (WGS)".

[81] 3GPP TS 37.340: "NR; Multi-connectivity; Overall description; Stage-2".

[82] 3GPP TS 38.331: "NR; Radio Resource Control (RRC); Protocol specification".

[83] 3GPP TS 38.323: "NR; Packet Data Convergence Protocol (PDCP) Specification".

[84] 3GPP TS 38.133: "NR; Requirements for support of radio resource management".

[85] 3GPP TS 38.101-1: "NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone ".

[86] 3GPP TS 33.501: "Security Architecture and Procedures for 5G System".

[87] 3GPP TS 38.306: "NR; UE Radio Access Capabilities".

[88] 3GPP TS 38.213: "NR; Physical layer procedures".

[89] 3GPP TS 38.215: "NR; Physical layer measurements".

[90] 3GPP TS 26.247: "Transparent end-to-end Packet-switched Streaming Service (PSS); Progressive Download and Dynamic Adaptive Streaming over HTTP (3GP-DASH)".

[91] 3GPP TS 38.104: "NR; Base Station (BS) radio transmission and reception".

[92] 3GPP TS 38.304: "NR; User Equipment (UE) procedures in Idle mode and RRC Inactive state".

[93] Bluetooth Special Interest Group: "Bluetooth Core Specification v5.0", December 2016.

[94] 3GPP TS 37.213: "Physical layer procedures for shared spectrum channel access".

[95] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[96] 3GPP TS 22.261: "Service requirements for the 5G System".

[97] 3GPP TS 37.324: "Service Data Adaptation Protocol (SDAP) specification".

[98] ATIS 0700041: "WEA 3.0: Device-Based Geo-Fencing".

[99] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia Telephony; Media handling and interaction ".

[100] 3GPP TS 38.101-2: "NR; User Equipment (UE) radio transmission and reception; Part 2: Range 2 Standalone ".

[101] 3GPP TS 38.101-3: "NR; User Equipment (UE) radio transmission and reception; Part 3: Range 1 and Range 2 Interworking operation with other radios".

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

Next change

# 3 Definitions, symbols and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

**Anchor carrier:** In NB-IoT, a carrier where the UE assumes that NPSS/NSSS/NPBCH/SIB-NB for FDD or NPSS/NSSS/NPBCH for TDD are transmitted.

**Bandwidth Reduced:** Refers to operation in downlink and uplink with a limited channel bandwidth of 6 PRBs.

**Cellular IoT EPS Optimisation**: Provides improved support of small data transfer, as defined in TS 24.301 [35].

**Commercial Mobile Alert System:** Public Warning System that delivers *Warning Notifications* provided by *Warning Notification Providers* to CMAS capable UEs.

**Common access barring parameters:** The common access barring parameters refer to the access class barring parameters that are broadcast in *SystemInformationBlockType2* outside the list of PLMN specific parameters (i.e. in *ac-BarringPerPLMN-List*).

**Control plane CIoT EPS optimisation**: Enables support of efficient transport of user data (IP, non-IP or SMS) over control plane via the MME without triggering data radio bearer establishment, as defined in TS 24.301 [35].

**Control plane EDT**: Early Data Transmission used with the Control plane CIoT EPS optimisation.

**CSG member cell:** A cell broadcasting the identity of the selected PLMN, registered PLMN or equivalent PLMN and for which the CSG whitelist of the UE includes an entry comprising cell's CSG ID and the respective PLMN identity.

**Dual Connectivity**: A UE in RRC\_CONNECTED is configured with Dual Connectivity when configured with a Master and a Secondary Cell Group.

**Early Data Transmission:** Allows one uplink data transmission optionally followed by one downlink data transmission during the random access procedure as specified in TS 36.300 [9]. The S1 connection is established or resumed upon reception of the uplink data and may be released or suspended along with the transmission of the downlink data. Early data transmission refers to both CP-EDT and UP-EDT.

**E-UTRA-NR Dual Connectivity:** A form of dual connectivity in which a UE in RRC\_CONNECTED is configured with MCG cells using E-UTRA and SCG cells using NR as defined in TS 37.340 [81].

**EU-Alert:** Public Warning System that delivers Warning Notifications provided by Warning Notification Providers using the same AS mechanisms as defined for CMAS.

**Field:** The individual contents of an information element are referred as fields.

**Floor:** Mathematical function used to 'round down' i.e. to the nearest integer having a lower or equal value.

**Information element:** A structural element containing a single or multiple fields is referred as information element.

**Korean Public Alert System (KPAS):** Public Warning System that delivers Warning Notifications provided by Warning Notification Providers using the same AS mechanisms as defined for CMAS.

**Master Cell Group**: For a UE not configured with DC, the MCG comprises all serving cells. For a UE configured with DC, the MCG concerns a subset of the serving cells comprising of the PCell and zero or more secondary cells.

**Mixed Operation Mode:** In NB-IoT FDD, multi-carrier operation where the anchor carrier is in standalone mode while the non-anchor carrier is in inband or guardand mode, and vice versa. See TS 36.300 [9].

**MBMS service:** MBMS bearer service as defined in TS 23.246 [56] (i.e. provided via an MRB or an SC-MRB).

**NB-IoT:** NB-IoT allows access to network services via E-UTRA with a channel bandwidth limited to 200 kHz.

**NB-IoT UE:** A UE that uses NB-IoT.

**NCSG:** Network controlled small gap as defined in TS 36.133 [16].

**NR-E-UTRA Dual Connectivity (NE-DC):** A form of dual connectivity in which a UE in RRC\_CONNECTED is configured with MCG cells using NR and SCG cells using E-UTRA as defined in TS 37.340 [81].

**Non-anchor carrier:** In NB-IoT, a carrier where the UE does not assume that NPSS/NSSS/NPBCH/SIB-NB for FDD or NPSS/NSSS/NPBCH for TDD are transmitted.

**NR Carrier Frequency:** Frequency referring to the position of resource element RE=#0 (subcarrier #0) of resource block RB#10 of the SS block.

**NR sidelink communication**: AS functionality enabling at least V2X Communication as defined in TS 23.287 [xxx], between two or more nearby UEs, using NR technology but not traversing any network node.

**Primary Cell**: The cell, operating on the primary frequency, in which the UE either performs the initial connection establishment procedure or initiates the connection re-establishment procedure, or the cell indicated as the primary cell in the handover procedure.

**Primary Secondary Cell**: The SCG cell in which the UE is instructed to perform random access or initial PUSCH transmission if random access procedure is skipped when performing the SCG change procedure.

**Primary Timing Advance Group**: Timing Advance Group containing the PCell or the PSCell.

**PUCCH SCell:** An SCell configured with PUCCH.

**RLC bearer configuration:** The lower layer part of the radio bearer configuration comprising the RLC and logical channel configurations.

**Secondary Cell**: A cell, operating on a secondary frequency, which may be configured once an RRC connection is established and which may be used to provide additional radio resources. Except for the case of (NG)EN-DC, the PSCell is considered to be an SCell.

**Secondary Cell Group**: For a UE configured with DC, the subset of serving cells not part of the MCG, i.e. comprising of the PSCell and zero or more other secondary cells.

**Secondary Timing Advance Group**: Timing Advance Group neither containing the PCell nor the PSCell. A secondary timing advance group contains at least one cell with configured uplink.

**Serving Cell**: For a UE in RRC\_CONNECTED not configured with CA/ DC there is only one serving cell comprising of the primary cell. For a UE in RRC\_CONNECTED configured with CA/ DC the term 'serving cells' is used to denote the set of one or more cells comprising of the primary cell and all secondary cells.

**Sidelink**: UE to UE interface for sidelink communication, V2X sidelink communication and sidelink discovery. The sidelink corresponds to the PC5 interface as defined in TS 23.303 [68].

**Sidelink communication**: AS functionality enabling ProSe Direct Communication as defined in TS 23.303 [68], between two or more nearby UEs, using E-UTRA technology but not traversing any network node. In this version, the terminology "sidelink communication" without "V2X" prefix only concerns PS unless specifically stated otherwise.

**Sidelink discovery**: AS functionality enabling ProSe Direct Discovery as defined in TS 23.303 [68], using E-UTRA technology but not traversing any network node.

**Sidelink operation**: Includes sidelink communication, V2X sidelink communication and sidelink discovery.

**Split SRB**: in MR-DC, an SRB between the MN and the UE, allowing selection of either the direct path or the path via the SN as well as duplication of RRC PDUs across both paths as defined in TS 37.340 [81].

**Timing Advance Group**: A group of serving cells that is configured by RRC and that, for the cells with an UL configured, use the same timing reference cell and the same Timing Advance value. A Timing Advance Group only includes cells of the same cell group i.e. it either includes MCG cells or SCG cells.

**UE Inactive AS Context:** UE Inactive AS Context is stored when the connection is suspended and restored when the connection is resumed. It includes information as defined in clause 5.3.8.7.

**UE in CE:** Refers to a UE that is capable of using coverage enhancement, and requires coverage enhancement mode to access a cell or is configured in a coverage enhancement mode.

**User plane CIoT EPS optimisation**: Enables support for change from EMM-IDLE mode to EMM-CONNECTED mode without the need for using the Service Request procedure, as defined in TS 24.301 [35].

**User plane EDT:** Early Data Transmission used with the User plane CIoT EPS optimisation.

**V2X Sidelink communication**: AS functionality enabling V2X Communication as defined in TS 23.285 [78], between nearby UEs, using E-UTRA technology but not traversing any network node.

Next change

# 5 Procedures

*/unchanged parts are omitted/*

### 5.2.2 System information acquisition

*/unchanged parts are omitted/*

#### 5.2.2.4 System information acquisition by the UE

The UE shall:

1> apply the specified BCCH configuration defined in 9.1.1.1 or BR-BCCH configuration defined in 9.1.1.8;

1> if the procedure is triggered by a system information change notification:

2> if the UE uses an idle DRX cycle longer than the modification period:

3> start acquiring the required system information, as defined in 5.2.2.3, from the next eDRX acquisition period boundary;

2> else

3> start acquiring the required system information, as defined in 5.2.2.3, from the beginning of the modification period following the one in which the change notification was received;

NOTE 1: The UE continues using the previously received system information until the new system information has been acquired.

1> if the UE is in RRC\_IDLE and enters a cell for which the UE does not have stored a valid version of the system information required in RRC\_IDLE, as defined in 5.2.2.3:

2> acquire, using the system information acquisition procedure as defined in 5.2.3, the system information required in RRC\_IDLE, as defined in 5.2.2.3;

1> following successful handover completion to a PCell for which the UE does not have stored a valid version of the system information required in RRC\_CONNECTED, as defined in 5.2.2.3:

2> acquire, using the system information acquisition procedure as defined in 5.2.3, the system information required in RRC\_CONNECTED, as defined in 5.2.2.3;

2> upon acquiring the concerned system information:

3> discard the corresponding radio resource configuration information included in the *radioResourceConfigCommon* previously received in a dedicated message, if any;

1> following a request from CDMA2000 upper layers:

2> acquire *SystemInformationBlockType8*, as defined in 5.2.3;

1> neither initiate the RRC connection establishment/resume procedure nor initiate transmission of the *RRCConnectionReestablishmentRequest* message until the UE has a valid version of the *MasterInformationBlock* (*MasterInformationBlock-NB/ MasterInformationBlock-TDD-NB* in NB-IoT) and *SystemInformationBlockType1* (*SystemInformationBlockType1-NB* in NB-IoT) messages as well as *SystemInformationBlockType2* (*SystemInformationBlockType2-NB* in NB-IoT), and for NB-IoT, *SystemInformationBlockType22-NB*;

1> not initiate the RRC connection establishment/resume procedure subject to EAB until the UE has a valid version of *SystemInformationBlockType14*, if broadcast;

1> if the UE is ETWS capable:

2> upon entering a cell during RRC\_IDLE, following successful handover or upon connection re-establishment:

3> discard any previously buffered *warningMessageSegment*;

3> clear, if any, the current values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType11*;

2> when the UE acquires *SystemInformationBlockType1* following ETWS indication, upon entering a cell during RRC\_IDLE, following successful handover or upon connection re-establishment:

3> if *schedulingInfoList* indicates that *SystemInformationBlockType10* is present:

4> if the UE is in CE:

5> start acquiring *SystemInformationBlockType10*;

4> else

5> start acquiring *SystemInformationBlockType10* immediately;

3> if *schedulingInfoList* indicates that *SystemInformationBlockType11* is present:

4> start acquiring *SystemInformationBlockType11* immediately;

NOTE 2: UEs shall start acquiring *SystemInformationBlockType10* and *SystemInformationBlockType11* as described above even when *systemInfoValueTag* in *SystemInformationBlockType1* has not changed.

1> if the UE is CMAS capable:

2> upon entering a cell during RRC\_IDLE, following successful handover or upon connection re-establishment:

3> discard any previously buffered *warningMessageSegment*;

3> clear, if any, stored values of *messageIdentifier* and *serialNumber* for *SystemInformationBlockType12* associated with the discarded *warningMessageSegment*;

2> when the UE acquires *SystemInformationBlockType1* following CMAS indication, upon entering a cell during RRC\_IDLE, following successful handover and upon connection re-establishment:

3> if *schedulingInfoList* indicates that *SystemInformationBlockType12* is present:

4> acquire *SystemInformationBlockType12*;

NOTE 3: UEs shall start acquiring *SystemInformationBlockType12* as described above even when *systemInfoValueTag* in *SystemInformationBlockType1* has not changed.

1> if the UE is interested to receive MBMS services:

2> if the UE is capable of MBMS reception as specified in 5.8:

3> if *schedulingInfoList* indicates that *SystemInformationBlockType13* is present and the UE does not have stored a valid version of this system information block:

4> acquire *SystemInformationBlockType13*;

3> else if *SystemInformationBlockType13* is present in *SystemInformationBlockType1-MBMS* and the UE does not have stored a valid version of this system information block:

4> acquire *SystemInformationBlockType13* from *SystemInformationBlockType1-MBMS*;

2> if the UE is capable of SC-PTM reception as specified in 5.8a:

3> if *schedulingInfoList* indicates that *SystemInformationBlockType20* (*SystemInformationBlockType20-NB* in NB-IoT) is present and the UE does not have stored a valid version of this system information block:

4> acquire *SystemInformationBlockType20* (*SystemInformationBlockType20-NB* in NB-IoT);

2> if the UE is capable of MBMS Service Continuity:

3> if *schedulingInfoList* indicates that *SystemInformationBlockType15* (*SystemInformationBlockType15-NB* in NB-IoT) is present and the UE does not have stored a valid version of this system information block:

4> acquire *SystemInformationBlockType15* (*SystemInformationBlockType15-NB* in NB-IoT);

1> if the UE is EAB capable:

2> when the UE does not have stored a valid version of *SystemInformationBlockType14* upon entering RRC\_IDLE, or when the UE acquires *SystemInformationBlockType1* following EAB parameters change notification, or upon entering a cell during RRC\_IDLE, or before establishing an RRC connection if using eDRX with DRX cycle longer than the modification period:

3> if *schedulingInfoList* indicates that *SystemInformationBlockType14* is present:

4> start acquiring *SystemInformationBlockType14* immediately;

3> else:

4> discard *SystemInformationBlockType14*, if previously received;

NOTE 4: EAB capable UEs start acquiring *SystemInformationBlockType14* as described above even when *systemInfoValueTag* in *SystemInformationBlockType1* has not changed.

NOTE 5: EAB capable UEs maintain an up to date *SystemInformationBlockType14* in RRC\_IDLE.

1> if the UE is capable of sidelink communication and is configured by upper layers to receive or transmit sidelink communication:

2> if the cell used for sidelink communication meets the S-criteria as defined in TS 36.304 [4]; and

2> if *schedulingInfoList* indicates that *SystemInformationBlockType18* is present and the UE does not have stored a valid version of this system information block:

3> acquire *SystemInformationBlockType18*;

1> if the UE is capable of sidelink discovery and is configured by upper layers to receive or transmit sidelink discovery announcements on the primary frequency:

2> if *schedulingInfoList* of the serving cell/ PCell indicates that *SystemInformationBlockType19* is present and the UE does not have stored a valid version of this system information block:

3> acquire *SystemInformationBlockType19*;

1> if the UE is capable of sidelink discovery and, for each of the one or more frequencies included in *discInterFreqList*, if included in *SystemInformationBlockType19* and for which the UE is configured by upper layers to receive sidelink discovery announcements on:

2> if *SystemInformationBlockType19* of the serving cell/ PCell does not provide the corresponding reception resources; and

2> if *schedulingInfoList* of the cell on the concerned frequency indicates that *SystemInformationBlockType19* is present and the UE does not have stored a valid version of this system information block:

3> acquire *SystemInformationBlockType19*;

1> if the UE is capable of sidelink discovery and, for each of the one or more frequencies included in *discInterFreqList*, if included in *SystemInformationBlockType19* and for which the UE is configured by upper layers to transmit sidelink discovery announcements on:

2> if *SystemInformationBlockType19* of the serving cell/ PCell includes *discTxResourcesInterFreq* which is set to *acquireSI-FromCarrier*; and

2> if *schedulingInfoList* of the cell on the concerned frequency indicates that *SystemInformationBlockType19* is present and the UE does not have stored a valid version of this system information block:

3> acquire *SystemInformationBlockType19*;

1> if the UE is a NB-IoT UE and if *ab-Enabled* included in *MasterInformationBlock-NB/ MasterInformationBlock-TDD-NB* is set to *TRUE*:

2> not initiate the RRC connection establishment/resume procedure for all access causes except mobile terminating calls until the UE has acquired the *SystemInformationBlockType14*-*NB*;

1> if the UE is capable of V2X sidelink communication and is configured by upper layers to receive or transmit V2X sidelink communication on a frequency:

2> if *schedulingInfoList* on the serving cell/PCell indicates that *SystemInformationBlockType21* is present and the UE does not have stored valid version of this system information block:

3> acquire *SystemInformationBlockType21* from serving cell/PCell;

2> if *schedulingInfoList* on the serving cell/PCell indicates that *SystemInformationBlockType26* is present and the UE does not have stored valid version of this system information block;

3> acquire *SystemInformationBlockType26* from serving cell/PCell;

1> if the UE is capable of V2X sidelink communication and is configured by upper layers to receive V2X sidelink communication on a frequency, which is not primary frequency:

2> if neither *SystemInformationBlockType21* nor *SystemInformationBlockType26* of the serving cell/ PCell provide reception resource pool for V2X sidelink communication for the concerned frequency; and

2> if the cell used for V2X sidelink communication on the concerned frequency meets the S-criteria as defined in TS 36.304 [4]:

3> if *schedulingInfoList* on the concerned frequency indicates that *SystemInformationBlockType21* is present and the UE does not have stored a valid version of this system information block:

4> acquire *SystemInformationBlockType21* from the concerned frequency;

3> if *schedulingInfoList* on the concerned frequency indicates that *SystemInformationBlockType26* is present and the UE does not have stored a valid version of this system information block:

4> acquire *SystemInformationBlockType26* from the concerned frequency;

1> if the UE is capable of V2X sidelink communication and is configured by upper layers to transmit V2X sidelink communication on a frequency, which is not primary frequency and is not included in *v2x-InterFreqInfoList* in *SystemInformationBlockType21* nor *SystemInformationBlockType26* of the serving cell/PCell:

2> if the cell used for V2X sidelink communication on the concerned frequency meets the S-criteria as defined in TS 36.304 [4]:

3> if *schedulingInfoList* on the concerned frequency indicates that *SystemInformationBlockType21* is present and the UE does not have stored a valid version of this system information block:

4> acquire *SystemInformationBlockType21* from the concerned frequency;

3> if *schedulingInfoList* on the concerned frequency indicates that *SystemInformationBlockType26* is present and the UE does not have stored a valid version of this system information block:

4> acquire *SystemInformationBlockType26* from the concerned frequency;

1> if the NB-IoT UE supports NPRACH resources using preamble format 2:

2> if *schedulingInfoList* indicates that *SystemInformationBlockType23-NB* is present and the UE does not have stored a valid version of this system information block:

3> acquire *SystemInformationBlockType23-NB*;

1> following a request from positioning upper layers:

2> acquire *SystemInformationBlockPos*, as defined in 5.2.3;

1> if the UE is capable of NR sidelink communication and is configured by upper layers to receive or transmit NR sidelink communication on a frequency:

2> if *schedulingInfoList* on the serving cell/PCell indicates that *SystemInformationBlockTypeXX2* is present and the UE does not have stored valid version of this system information block:

3> acquire *SystemInformationBlockTypeXX2* from serving cell/PCell;

The UE may apply the received SIBs or posSIBs immediately, i.e. the UE does not need to delay using a SIB or posSIB until all SI messages have been received. The UE may delay applying the received SIBs until completing lower layer procedures associated with a received or a UE originated RRC message, e.g. an ongoing random access procedure.

NOTE 6: While attempting to acquire a particular SIB/posSIB, if the UE detects from *schedulingInfoList*/ *posSchedulingInfoList* that it is no longer present, the UE should stop trying to acquire the particular SIB/ posSIB.

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*/unchanged parts are omitted/*

#### 5.2.2.34 Actions upon reception of *SystemInformationBlockPos*

No UE requirements related to the contents of the *SystemInformationBlockPos* apply other than those specified elsewhere e.g. within TS 36.355 [54], and/or within the corresponding field descriptions.

#### 5.2.2.xx Actions upon reception of *SystemInformationBlockXX*

Upon receiving *SystemInformationBlockTypeXX2*, the UE shall perform actions as specified in 5.2.2.4.x in TS 38.331 [82].

Next change

## 5.3 Connection control

*/unchanged parts are omitted/*

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

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

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

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

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

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

2> if the UE has a selected sidelink relay UE; and if the sidelink remote UE threshold conditions as specified in 5.10.11.5 are met and if *SystemInformationBlockType18* is broadcast by the cell on which the UE camps; and if the valid version of *SystemInformationBlockType18* does not include *commTxPoolNormalCommon* or *commTxAllowRelayCommon*;

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

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

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

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

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

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

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

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

NOTE X: *SIBX* specified in subclause 5.3.3.1a of TS 38.331 are provided in *SystemInformationBlockXX*.

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

1> if configured by upper layers to transmit non-PS related sidelink discovery announcements:

2> if the frequency on which the UE is configured to transmit non-PS related sidelink discovery announcements concerns the camped frequency; and *SystemInformationBlockType19* of the cell on which the UE camps does not include *discTxPoolCommon-r12*; or

2> if the frequency on which the UE is configured to transmit non-PS related sidelink discovery announcements is included in *discInterFreqList* in *SystemInformationBlockType19* broadcast by the cell on which the UE camps, with *discTxResourcesInterFreq* included within *discResourcesNonPS* and set to *requestDedicated*;

1> if configured by upper layers to transmit non-relay PS related sidelink discovery announcements:

2> if the frequency on which the UE is configured to transmit non-relay PS related sidelink discovery announcements concerns the camped frequency; and *SystemInformationBlockType19* of the cell on which the UE camps includes *discConfigPS* but does not include *discTxPoolPS-Common*; or

2> if the frequency on which the UE is configured to transmit non-relay PS related sidelink discovery announcements (e.g. group member discovery) is included in *discInterFreqList* in *SystemInformationBlockType19* broadcast by the cell on which the UE camps, with *discTxResourcesInterFreq* within *discResourcesPS* included and set to *requestDedicated*;

1> if configured by upper layers to transmit relay PS related sidelink discovery announcements:

2> if the UE is acting as sidelink relay UE; and if the sidelink relay UE threshold conditions as specified in 5.10.10.4 are met; or

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

3> if the frequency on which the UE is configured to transmit relay PS related sidelink discovery announcements concerns the camped frequency; and *SystemInformationBlockType19* of the cell on which the UE camps includes *discConfigRelay* and *discConfigPS* but does not include *discTxPoolPS-Common*;

NOTE: Upper layers initiate an RRC connection. The interaction with NAS is left to UE implementation.

Next change

# 5 Procedures

*/unchanged parts are omitted/*

### 5.3.5 RRC connection reconfiguration

*/unchanged parts are omitted/*

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

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

1> if this is the first *RRCConnectionReconfiguration* message after successful completion of the RRC connection re-establishment procedure:

2> re-establish PDCP for SRB2 configured with E-UTRA PDCP entity and for all DRBs that are established and configured with E-UTRA PDCP, if any;

2> re-establish RLC for SRB2 and for all DRBs that are established and configured with E-UTRA RLC, if any;

2> if the *RRCConnectionReconfiguration* message includes the *fullConfig*:

3> perform the radio configuration procedure as specified in 5.3.5.8;

2> if the *RRCConnectionReconfiguration* message includes the *radioResourceConfigDedicated*:

3> perform the radio resource configuration procedure as specified in 5.3.10;

NOTE 1: Void

NOTE 2: Void

1> else:

2> if the *RRCConnectionReconfiguration* message includes the *radioResourceConfigDedicated*:

3> perform the radio resource configuration procedure as specified in 5.3.10;

NOTE 3: If the *RRCConnectionReconfiguration* message includes the establishment of radio bearers other than SRB1, the UE may start using these radio bearers immediately, i.e. there is no need to wait for an outstanding acknowledgment of the *SecurityModeComplete* message.

1> if the received *RRCConnectionReconfiguration* includes the *sCellToReleaseList*:

2> perform SCell release as specified in 5.3.10.3a;

1> if the received *RRCConnectionReconfiguration* includes the *sCellToAddModList*:

2> perform SCell addition or modification as specified in 5.3.10.3b;

1> if the received *RRCConnectionReconfiguration* includes the *sCellGroupToReleaseList*:

2> perform SCell group release as specified in 5.3.10.3d;

1> if the received *RRCConnectionReconfiguration* includes the *sCellGroupToAddModList*:

2> perform SCell group addition or modification as specified in 5.3.10.3e;

1> if the received *RRCConnectionReconfiguration* includes the *scg-Configuration*; or

1> if the current UE configuration includes one or more split DRBs configured with *pdcp-Config* and the received *RRCConnectionReconfiguration* includes *radioResourceConfigDedicated* including *drb-ToAddModList*:

2> perform SCG reconfiguration as specified in 5.3.10.10;

1> if the received *RRCConnectionReconfiguration* includes the *nr-Config* and it is set to *release*: or

1> if the received *RRCConnectionReconfiguration* includes *endc-ReleaseAndAdd* and it is set to *TRUE*:

2> perform MR-DC release as specified in TS 38.331 [82], clause 5.3.5.10;

1> if the received *RRCConnectionReconfiguration* includes the *sk-Counter*:

2> perform key update procedure as specified in TS 38.331 [82], clause 5.3.5.7;

1> if the received *RRCConnectionReconfiguration* includes the *nr-SecondaryCellGroupConfig*:

2> perform NR RRC Reconfiguration as specified in TS 38.331 [82], clause 5.3.5.3;

1> if the received *RRCConnectionReconfiguration* includes the *nr-RadioBearerConfig1*:

2> perform radio bearer configuration as specified in TS 38.331 [82], clause 5.3.5.6;

1> if the received *RRCConnectionReconfiguration* includes the *nr-RadioBearerConfig2*:

2> perform radio bearer configuration as specified in TS 38.331 [82], clause 5.3.5.6;

1> if this is the first *RRCConnectionReconfiguration* message after successful completion of the RRC connection re-establishment procedure:

2> resume SRB2 and all DRBs that are suspended, if any, including RBs configured with NR PDCP;

NOTE 4: The handling of the radio bearers after the successful completion of the PDCP re-establishment, e.g. the re-transmission of unacknowledged PDCP SDUs (as well as the associated status reporting), the handling of the SN and the HFN, is specified in TS 36.323 [8].

NOTE 5: The UE may discard SRB2 messages and data that it receives prior to completing the reconfiguration used to resume these bearers.

1> if the received *RRCConnectionReconfiguration* includes the *systemInformationBlockType1Dedicated*:

2> perfom the actions upon reception of the *SystemInformationBlockType1* message as specified in 5.2.2.7*;*

1> if the received *RRCConnectionReconfiguration* includes the *systemInformationBlockType2Dedicated*:

2> perfom the actions upon reception of the *SystemInformationBlockType2* message as specified in 5.2.2.9;

1> if the *RRCConnectionReconfiguration* message includes the *dedicatedInfoNASList*:

2> forward each element of the *dedicatedInfoNASList* to upper layers in the same order as listed;

1> if the *RRCConnectionReconfiguration* message includes the *measConfig*:

2> perform the measurement configuration procedure as specified in 5.5.2;

1> perform the measurement identity autonomous removal as specified in 5.5.2.2a;

1> if the *RRCConnectionReconfiguration* message includes the *otherConfig*:

2> perform the other configuration procedure as specified in 5.3.10.9;

1> if the *RRCConnectionReconfiguration* message includes the *sl-DiscConfig* or *sl-CommConfig*:

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

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

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

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

2> perform the NR sidelink communication dedicated configuration procedure as specified in 5.3.5.x in TS 38.331 [82];

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

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

1> if the *RRCConnectionReconfiguration* message includes *rclwi-Configuration*:

2> perform the WLAN traffic steering command procedure as specified in 5.6.16.2;

1> if the *RRCConnectionReconfiguration* message includes *lwa-Configuration*:

2> perform the LWA configuration procedure as specified in 5.6.14.2;

1> if the *RRCConnectionReconfiguration* message includes *lwip-Configuration*:

2> perform the LWIP reconfiguration procedure as specified in 5.6.17.2;

1> upon RRC connection establishment, if UE does not need UL gaps during continuous uplink transmission:

2> configure lower layers to stop using UL gaps during continuous uplink transmission in FDD for *RRCConnectionReconfigurationComplete* message and subsequent uplink transmission in RRC\_CONNECTED except for UL transmissions as specified in TS36.211 [21];

1> set the content of *RRCConnectionReconfigurationComplete* message as follows:

2> if the *RRCConnectionReconfiguration* message includes *perCC-GapIndicationRequest*:

3> include *perCC-GapIndicationList* and *numFreqEffective*;

2> if the frequencies are configured for reduced measurement performance:

3> include *numFreqEffectiveReduced*;

2> if the received *RRCConnectionReconfiguration* message included *nr-SecondaryCellGroupConfig*:

3> include *scg-ConfigResponseNR* in accordance with TS 38.331 [82], clause 5.3.5.3;

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

2> transfer the *RRCConnectionReconfigurationComplete* message via SRB1 embedded in NR RRC message *RRCReconfigurationComplete* as specified in TS 38.331 [82];

1> else:

2> submit the *RRCConnectionReconfigurationComplete* message to lower layers for transmission using the new configuration, upon which the procedure ends;

Next change

## 5.5 Measurements

### 5.5.1 Introduction

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

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

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

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

- Inter-RAT measurements of NR frequencies.

- Inter-RAT measurements of UTRA frequencies.

- Inter-RAT measurements of GERAN frequencies.

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

- CBR measurements for V2X sidelink communication.

- Sensing measurements.

- CBR measurements for NR sidelink communication.

The measurement configuration includes the following parameters:

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

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

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

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

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

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

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

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

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

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

2. **Reporting configurations**: A list of reporting configurations where each reporting configuration consists of the following:

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

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

3. **Measurement identities**: A list of measurement identities where each measurement identity links one measurement object with one reporting configuration. By configuring multiple measurement identities it is possible to link more than one measurement object to the same reporting configuration, as well as to link more than one reporting configuration to the same measurement object. The measurement identity is used as a reference number in the measurement report.

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

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

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

The UE maintains a single measurement object list, a single reporting configuration list, and a single measurement identities list. The measurement object list includes measurement objects, that are specified per RAT type, possibly including intra-frequency object(s) (i.e. the object(s) corresponding to the serving frequency(ies)), inter-frequency object(s) and inter-RAT objects. Similarly, the reporting configuration list includes E-UTRA and inter-RAT reporting configurations. Any measurement object can be linked to any reporting configuration of the same RAT type. Some reporting configurations may not be linked to a measurement object. Likewise, some measurement objects may not be linked to a reporting configuration.

The measurement procedures distinguish the following types of cells:

1. The serving cell(s) - these are the PCell and one or more SCells, if configured for a UE supporting CA or DC. Likewise, NR serving cell(s) are the NR PCell, NR PSCell and NR SCells, if the UE is configured with MR-DC.

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

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

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

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

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

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

*/unchanged parts are omitted/*

#### 5.5.2.2a Measurement identity autonomous removal

The UE shall:

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

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

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

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

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

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

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

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

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

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

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

*/unchanged parts are omitted/*

### 5.5.3 Performing measurements

#### 5.5.3.1 General

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

The UE shall:

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

2> for the PCell, apply the time domain measurement resource restriction in accordance with *measSubframePatternPCell,* if configured;

2> if the UE supports CRS based discovery signals measurement:

3> for each SCell in deactivated state, apply the discovery signals measurement timing configuration in accordance with *measDS-Config*, if configured within the *measObject* corresponding to the frequency of the SCell;

1> if the UE has a *measConfig* with *rs-sinr-Config* configured, perform RS-SINR (as indicated in the associated *reportConfig*) measurements as follows:

2> perform the corresponding measurements on the frequency indicated in the associated *measObject* using available idle periods or using autonomous gaps as necessary;

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

2> if the *purpose* for the associated *reportConfig* is set to *reportCGI*:

3> if the RAT indicated in the associated *measObject* is not NR:

4> if *si-RequestForHO* is configured for the associated *reportConfig*:

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

4> else:

5> perform the corresponding measurements on the frequency and RAT indicated in the associated *measObject* using available idle periods or using autonomous gaps as necessary;

3> else:

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

NOTE 1: If autonomous gaps are used to perform measurements, the UE is allowed to temporarily abort communication with all serving cell(s), i.e. create autonomous gaps to perform the corresponding measurements within the limits specified in TS 36.133 [16]. Otherwise, the UE only supports the measurements with the purpose set to *reportCGI* only if E-UTRAN has provided sufficient idle periods.

3> try to acquire the global cell identity of the cell indicated by the *cellForWhichToReportCGI* in the associated *measObject* by acquiring the relevant system information from the concerned cell;

3> if an entry in the *cellAccessRelatedInfoList* includes the selected PLMN, acquire the relevant system information from the concerned cell;

3> if the cell indicated by the *cellForWhichToReportCGI* included in the associated *measObject* is an E-UTRAN cell:

4> try to acquire the CSG identity, if the CSG identity is broadcast in the concerned cell;

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

4> try to acquire the list of additional PLMN Identities, as included in the *plmn-IdentityList*, if multiple PLMN identities are broadcast in the concerned cell;

4> if *cellAccessRelatedInfoList* is included, use *trackingAreaCode* and *plmn-IdentityList* from the entry of *cellAccessRelatedInfoList* containing the selected PLMN;

4> if the *includeMultiBandInfo* is configured:

5> try to acquire the *freqBandIndicator* in the *SystemInformationBlockType1*of the concerned cell;

5> try to acquire the list of additional frequency band indicators, as included in the *multiBandInfoList*, if multiple frequency band indicators are included in the *SystemInformationBlockType1*of the concerned cell;

5> try to acquire the *freqBandIndicatorPriority*, if the *freqBandIndicatorPriority* is included in the *SystemInformationBlockType1*of the concerned cell;

4> if *cellAccessRelatedInfoList-5GC* is broadcast in the concerned cell and the UE is E-UTRA/5GC capable:

5> try to acquire the *cellAccessRelatedInfoList-5GC*;

NOTE 2: The 'primary' PLMN is part of the global cell identity.

3> if the cell indicated by the *cellForWhichToReportCGI* included in the associated *measObject* is a UTRAN cell:

4> try to acquire the LAC, the RAC and the list of additional PLMN Identities, if multiple PLMN identities are broadcast in the concerned cell;

4> try to acquire the CSG identity, if the CSG identity is broadcast in the concerned cell;

3> if the cell indicated by the *cellForWhichToReportCGI* included in the associated *measObject* is a GERAN cell:

4> try to acquire the RAC in the concerned cell;

3> if the cell indicated by the *cellForWhichToReportCGI* included in the associated *measObject* is a CDMA2000 cell and the *cdma2000-Type* included in the *measObject* is *typeHRPD*:

4> try to acquire the Sector ID in the concerned cell;

3> if the cell indicated by the *cellForWhichToReportCGI* included in the associated *measObject* is a CDMA2000 cell and the *cdma2000-Type* included in the *measObject* is *type1XRTT*:

4> try to acquire the BASE ID, SID and NID in the concerned cell;

3> if the cell indicated by the *cellForWhichToReportCGI* included in the associated *MeasObject* is an NR cell:

4> if the indicated cell is broadcasting *SIB1* (see TS 38.213 [88], clause 13):

5> try to acquire the plmn-IdentityInfoList including plmn-IdentityList, trackingAreaCode (if available), ran-AreaCode (if available) and cellIdentity for each entry of the plmn-IdentityInfoList;

5> try to acquire the frequencyBandList, if multiple frequency bands are broadcasted in the concerned cell;

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

3> ignore the *measObject*;

3> configure the PDCP layer to perform UL PDCP Packet Delay per QCI measurement;

2> else:

3> if a measurement gap configuration is setup; or

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

4> if *s-Measure* is not configured; or

4> if the UE is not in NE-DC and the PCell RSRP, after layer 3 filtering, is lower than *s-Measure*; or

4> if the UE is in NE-DC and the PSCell RSRP, after layer 3 filtering, is lower than *s-Measure*; or

4> if the associated *measObject* concerns NR; or

4> if *measDS-Config* is configured in the associated *measObject*:

5> if the UE supports CSI-RS based discovery signals measurement; and

5> if the *eventId* in the associated *reportConfig* is set to *eventC1* or *eventC2*, or if *reportStrongestCSI-RSs* is included in the associated *reportConfig*:

6> perform the corresponding measurements of CSI-RS resources on the frequency indicated in the concerned *measObject*, applying the discovery signals measurement timing configuration in accordance with *measDS-Config* in the concerned *measObject*;

6> if *reportCRS-Meas* is included in the associated *reportConfig,* perform the corresponding measurements of neighbouring cells on the frequencies indicated in the concerned *measObject* as follows:

7> for neighbouring cells on the primary frequency, apply the time domain measurement resource restriction in accordance with *measSubframePatternConfigNeigh,* if configured in the concerned *measObject*;

7> apply the discovery signals measurement timing configuration in accordance with *measDS-Config* in the concerned *measObject*;

5> else:

6> perform the corresponding measurements of neighbouring cells on the frequencies and RATs indicated in the concerned *measObject* as follows:

7> for neighbouring cells on the primary frequency, apply the time domain measurement resource restriction in accordance with *measSubframePatternConfigNeigh,* if configured in the concerned *measObject*;

7> if the UE supports CRS based discovery signals measurement, apply the discovery signals measurement timing configuration in accordance with *measDS-Config*, if configured in the concerned *measObject*;

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

5> perform the UE Rx–Tx time difference measurements on the PCell;

4> if the *reportSSTD-Meas* is set to *true* or *pSCell* in the associated *reportConfig*:

5> perform SSTD measurements between the PCell and the PSCell;

4> if the *reportSFTD-Meas* is set to *pSCell* in the associated *reportConfig*:

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

4> if the *reportSFTD-Meas* is set to *neighborCells* in the associated *reportConfig*:

5> perform SFTD measurements between the PCell and NR cell(s) on the frequency indicated in the associated *measObject*;

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

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

2> perform the evaluation of reporting criteria as specified in 5.5.4;

The UE capable of CBR measurement when configured to transmit non-P2X related V2X sidelink communication shall:

1> if in coverage on the frequency used for V2X sidelink communication transmission as defined in TS 36.304 [4], clause 11.4; or

1> if the concerned frequency is included in *v2x-InterFreqInfoList* in *RRCConnectionReconfiguration* or in *v2x-InterFreqInfoList* within *SystemInformationBlockType21* or *SystemInformationBlockType26*:

2> if the UE is in RRC\_IDLE:

3> if the concerned frequency is the camped frequency:

4> perform CBR measurement on the pools in *v2x-CommTxPoolNormalCommon* and *v2x-CommTxPoolExceptional* if included in *SystemInformationBlockType21*;

3> else if *v2x-CommTxPoolNormal* or *v2x-CommTxPoolExceptional* is included in *v2x-InterFreqInfoList* forthe concerned frequency within *SystemInformationBlockType21* or *SystemInformationBlockType26*:

4> perform CBR measurement on pools in *v2x-CommTxPoolNormal* and *v2x-CommTxPoolExceptional* in *v2x-InterFreqInfoList* for the concerned frequency in *SystemInformationBlockType21* or *SystemInformationBlockType26*;

3> else if the concerned frequency broadcasts *SystemInformationBlockType21*:

4> perform CBR measurement on pools in *v2x-CommTxPoolNormalCommon* and *v2x-CommTxPoolExceptional* if included in *SystemInformationBlockType21* broadcast on the concerned frequency;

2> if the UE is in RRC\_CONNECTED:

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

4> perform CBR measurements on each resource pool indicated in *tx-ResourcePoolToAddList*;

3> if the concerned frequency is the PCell's frequency:

4> perform CBR measurement on the pools in *v2x-CommTxPoolNormalDedicated* or *v2x-SchedulingPool* if included in *RRCConnectionReconfiguration*, *v2x-CommTxPoolExceptional* if included in *SystemInformationBlockType21* for the concerned frequency and *v2x-CommTxPoolExceptional* if included in *mobilityControlInfoV2X*;

3> else if *v2x-CommTxPoolNormal*, *v2x-SchedulingPool* or *v2x-CommTxPoolExceptional* is included in *v2x-InterFreqInfoList* forthe concerned frequency within *RRCConnectionReconfiguration*:

4> perform CBR measurement on pools in *v2x-CommTxPoolNormal, v2x-SchedulingPool,* and *v2x-CommTxPoolExceptional* if included in *v2x-InterFreqInfoList* for the concerned frequency in *RRCConnectionReconfiguration*;

3> else if the concerned frequency broadcasts *SystemInformationBlockType21*:

4> perform CBR measurement on pools in *v2x-CommTxPoolNormalCommon* and *v2x-CommTxPoolExceptional* if included in *SystemInformationBlockType21* for the concerned frequency;

1> else:

2> perform CBR measurement on pools in *v2x-CommTxPoolList* in *SL-V2X-Preconfiguration* for the concerned frequency;

The UE capable of sensing measurement, with *commTxResources* set to *scheduled*, shall:

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

2> if *measSensing-Config* is configured in the associated *measObject*

3> perform the sensing measurement in accordance with TS 36.213 [23] on the pools of *v2x-SchedulingPool* and also indicated in *tx-ResourcePoolToAddList* in the associated *measObject*, using *sensingSubchannelNumber*, *sensingPeriodicity*, *sensingReselectionCounter* and *sensingPriority*.

If a UE that is configured by upper layers to transmit NR sidelink communication is configured with transmission resource pool(s) in *SystemInformationBlockTypeXX2* or *sl-ConfigDedicatedNR* and the measurement objects concerning NR sidelink communication (i.e. *measObjectNR-SL*) by EUTRA, it shall perform CBR measurement as specified in subclause 5.5.3 of TS 38.331 [82], based on the transmission resource pool(s) in *SystemInformationBlockTypeXX2* or *sl-ConfigDedicatedNR* and the measurement object(s) concerning NR sidelink communication configured by EUTRA.

NOTE X: *SIBX* specified in subclause 5.5.3 of TS 38.331 is provided in *SystemInformationBlockXX*.

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

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

*/unchanged parts are omitted/*

### 5.5.4 Measurement report triggering

#### 5.5.4.1 General

If security has been activated successfully, the UE shall:

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

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

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

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

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

2> else:

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

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

5> consider only the PCell to be applicable;

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

5> consider the PSCell to be applicable;

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

5> consider only the serving cell to be applicable;

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

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

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

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

4> else:

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

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

5> else:

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

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

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

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

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

4> consider a neighbouring cell on the associated frequency to be applicable when the concerned cell is included in the *cellsToAddModList* defined within the *VarMeasConfig* for this *measId* (i.e. the cell is included in the white-list);

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

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

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

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

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

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

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

5> consider the PSCell to be applicable;

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

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

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

5> else:

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

4> else:

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

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

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

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

2> if *tx-ResourcePoolToAddList* is configured in the *measObjectNR-SL*, and if the corresponding *reportConfig* includes a purpose set to *sidelinkNR* or includes *eventS1* or *eventS2*:

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

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

3> consider only the PCell to be applicable;

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

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

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

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

3> if the UE supports T312 and if *useT312* is included for this event and if T310 is running:

4> if T312 is not running:

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

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

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

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

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

3> if the UE supports T312 and if *useT312* is included for this event and if T310 is running:

4> if T312 is not running:

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

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

2> if the *triggerType* is set to *event* and if the corresponding *reportConfig* includes *numberOfTriggeringCells,* and if the entry condition applicable for this event, i.e. the event corresponding with the *eventId* of the corresponding *reportConfig* within *VarMeasConfig*, is fulfilled for one or more applicable cells for all measurements after layer 3 filtering taken during *timeToTrigger* defined for this event within the *VarMeasConfig*:

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

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

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

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

3> else:

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

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

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

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

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

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

3> if *reportOnLeave* is set to *TRUE* for the corresponding reporting configuration or if *a6-ReportOnLeave* is set to *TRUE* or if *a4-a5-ReportOnLeave* is set to TRUE for the corresponding reporting configuration:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3> if *c1-ReportOnLeave* is set to *TRUE* for the corresponding reporting configuration or if *c2-ReportOnLeave* is set to *TRUE* for the corresponding reporting configuration:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

NOTE X: For the report configurations concerning NR sidelink communication, the UE decides whether to initiate the measurement reporting procedure as specified in 5.5.5 based on the CBR measurement results acquired from the transmission resource pools configured for NR sidelink communication as specified in subclause 5.5.3.1.

2> if the *triggerType* is set to *event* and if the *eventId* is set to *eventH1* or *eventH2* and if the entering condition applicable for this event, i.e. the event corresponding with the *eventId* of the corresponding *reportConfig* within *VarMeasConfig*, is fulfilled during *timeToTrigger* defined within the *VarMeasConfig* for this event:

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

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

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

2> if *measRSSI-ReportConfig* is included and if a (first) measurement result is available:

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

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

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

2> else if the *purpose* is included and set to *reportStrongestCells,* *reportStrongestCellsForSON*, *reportLocation sidelink* or *sensing* and if a (first) measurement result is available:

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

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

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

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

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

4> else if the corresponding measurement object concerns WLAN:

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

4> else if the *reportAmount* exceeds 1:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2> if the *purpose* is included and set to *reportCGI*:

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

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

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

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

4> stop timer T321;

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

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

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

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

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

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

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

*/unchanged parts are omitted/*

#### 5.5.4.X Event S1 (The NR sidelink channel busy ratio is above a threshold)

The UE behaviour is specified in subclause 5.5.4.z of TS 38.331 [82].

#### 5.5.4.Y Event S2 (The NR sidelink channel busy ratio is below a threshold)

The UE behaviour is specified in subclause 5.5.4.w of TS 38.331 [82].

### 5.5.5 Measurement reporting

#### 5.5.5.1 General



Figure 5.5.5.1-1: Measurement reporting

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

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

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

1> set the *measResultPCell* to include the quantities of the PCell;

1> set the *measResultServFreqList* to include for each E-UTRA SCell that is configured, if any, within *measResultSCell* the quantities of the concerned SCell, if available according to performance requirements in TS 36.133 [16], except if *purpose* for the *reportConfig* associated with the *measId* that triggered the measurement reporting is set to *reportLocation*;

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

2> for each E-UTRA serving frequency for which *measObjectId* is referencedin the *measIdList*, other than the frequency corresponding with the *measId* that triggered the measurement reporting:

3> set the *measResultServFreqList* to include within *measResultBestNeighCell* the *physCellId* and the quantities of the best non-serving cell, based on RSRP, on the concerned serving frequency;

1> if the *triggerType* is set to *event*; and if the corresponding measObject concerns NR; and if *eventId* is set to *eventB1-NR* or *eventB2-NR*; or

1> if the *triggerType* is set to *event*; and if *eventId* is set to *eventA3* or *eventA4* or *eventA5*:

2> if *purpose* for the *reportConfig* or *reportConfigInterRAT* associated with the *measId* that triggered the measurement reporting is set to a value other than *reportLocation*:

3> set the *measResultServFreqListNR* to include for each NR serving frequency that the UE is configured to measure according to TS 38.331 [82], if any, the following:

4> set *measResultSCell* to include the available results of the NR serving cell, as specified in 5.5.5.2;

4> if the *reportConfig* associated with the *measId* that triggered the measurement reporting includes *reportAddNeighMeas* and if *eventId* is set to *eventA3* or *eventA4* or *eventA5*:

5> set *measResultBestNeighCell* to include the available results, as specified in 5.5.5.2, of the non-serving cell with the highest sorting quantity determined as specified in 5.5.5.3;

3> for each (serving or neighbouring) cell for which the UE reports results according to the previous, additionally include available beam results according to the following:

4> if *maxReportRS-Index* is configured, set *measResultRS-IndexList* to include available results, as specified in 5.5.5.2, of up to *maxReportRS-Index* beams, ordered based on the quantity determined as specified in 5.5.5.3;

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

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

3> if the *triggerType* is set to *event*:

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

3> else:

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

NOTE 1: The reliability of the report (i.e. the certainty it contains the strongest cells on the concerned frequency) depends on the measurement configuration i.e. the *reportInterval*. The related performance requirements are specified in TS 36.133 [16].

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

3> if the *triggerType* is set to *event*; or the *purpose* is set to *reportStrongestCells* or to *reportStrongestCellsForSON*:

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

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

6> set the *measResult* to include the quantity(ies) indicated in the *reportQuantity* within the concerned *reportConfig*;

6> sort the included cells in order of decreasing *triggerQuantity*, i.e. the best cell is included first;

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

6> set the *measResultCell* to include the quantity(ies) indicated in the *reportQuantityCellNR* within the concerned *reportConfig*;

6> if *maxReportRS-Index* and *reportQuantityRS-IndexNR* are configured, set *measResultRS-IndexList* to include the result of the best beam if *threshRS-Index* is included in the *VarMeasConfig* for the corresponding *measObject*, and the remaining beams whose quantity is above *threshRS-Index*, up to *maxReportRS-Index* beams in total:

7> order beams based on the sorting quantity determined as specified in 5.5.5.3;

7> for each included beam:

8> include *ssbIndex*;

8> if *reportRS-IndexResultsNR* is set to TRUE, for each quantity indicated, include the corresponding measurement result in *measResultSSB-Index* for each *ssb-Index*;

6> sort the included cells in order of decreasing sorting quantity determined as specified in 5.5.5.3;

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

6> set the *measResult* to include the quantities indicated by the *reportQuantityUTRA-FDD* in order of decreasing *measQuantityUTRA-FDD* within the *quantityConfig*, i.e. the best cell is included first;

5> if the *measObject* associated with this *measId* concerns UTRA FDD and if *ReportConfigInterRAT* does not include the *reportQuantityUTRA-FDD*; or

5> if the *measObject* associated with this *measId* concerns UTRA TDD, GERAN or CDMA2000:

6> set the *measResult* to the quantity as configured for the concerned RAT within the *quantityConfig* in order of either decreasing quantity for UTRA and GERAN or increasing quantity for CDMA2000 *pilotStrength*, i.e. the best cell is included first;

3> else if the *purpose* is set to *reportCGI* and the corresponding *measObject* concerns a RAT other than NR:

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

5> if the *includeMultiBandInfo* is configured:

6> include the *freqBandIndicator*;

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

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

5> if the cell broadcasts a CSG identity:

6> include the *csg-Identity*;

6> include the *csg-MemberStatus* and set it to *member* if the cell is a CSG member cell;

5> if the *si-RequestForHO* is configured within the *reportConfig* associated with this *measId*:

6> include the *cgi-Info* containing all the fields other than the *plmn-IdentityList* that have been successfully acquired;

6> include, within the *cgi-Info*, the field *plmn-IdentityList* in accordance with the following:

7> if the cell is a CSG member cell, determine the subset of the PLMN identities, starting from the second entry of PLMN identities in the broadcast information, that meet the following conditions:

a) equal to the RPLMN or an EPLMN; and

b) the CSG whitelist of the UE includes an entry comprising of the concerned PLMN identity and the CSG identity broadcast by the cell;

7> if the subset of PLMN identities determined according to the previous includes at least one PLMN identity, include the *plmn-IdentityList* and set it to include this subset of the PLMN identities;

7> if the cell is a CSG member cell, include the *primaryPLMN-Suitable* if the primary PLMN meets conditions a) and b) specified above;

7> if the cell does not broadcast *csg-Identity* and the UE is capable of reporting the *plmn-IdentityList* from cells not broadcasting *csg-Identity*:

8> include in the plmn-IdentityList the list of identities starting from the second entry of PLMN identities in the broadcast information;

5> else:

6> include the *cgi-Info* containing all the fields that have been successfully acquired and in accordance with the following:

7> include in the *plmn-IdentityList* the list of identities starting from the second entry of PLMN Identities in the broadcast information;

4> if the *cellAccessRelatedInfoList-5GC* has been acquired:

5> include *cgi-Info-5GC*;

NOTE 1a: The UE may include the *cgi-Info-5GC* even when the N1 mode is disabled.

3> else if the *purpose* is set to *reportCGI* and the corresponding *measObject* concerns NR RAT:

4> if the Cell information of *cgi-Info* for the cell indicated by the *cellForWhichToReportCGI* in the associated *measObject* has been obtained:

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

5> include *frequencyBandList* if broadcasted;

4> else if MIB associated with the concerned *measObject* indicates that SIB1 is not broadcast*:*

5> include the *noSIB1* field;

1> for the cells included according to the previous (i.e. covering the PCell, the SCells, the best non-serving cells on serving frequencies as well as neighbouring EUTRA cells) include results according to the extended RSRQ if corresponding results are available according to the associated performance requirements defined in TS 36.133 [16];

1> if there is at least one applicable CSI-RS resource to report:

2> set the *measResultCSI-RS-List* to include the best CSI-RS resources up to *maxReportCells* in accordance with the following:

3> if the *triggerType* is set to *event*:

4> include the CSI-RS resources included in the *csi-RS-TriggeredList* as defined within the *VarMeasReportList* for this *measId*;

3> else:

4> include the applicable CSI-RS resources for which the new measurement results became available since the last periodical reporting or since the measurement was initiated or reset;

NOTE 2: The reliability of the report (i.e. the certainty it contains the strongest CSI-RS resources on the concerned frequency) depends on the measurement configuration i.e. the *reportInterval*. The related performance requirements are specified in TS 36.133 [16].

3> for each CSI-RS resource that is included in the *measResultCSI-RS-List*:

4> include the *measCSI-RS-Id*;

4> include the layer 3 filtered measured results in accordance with the *reportConfig* for this *measId*, ordered as follow:

5> set the *csi-RSRP-Result* to include the quantity indicated in the *reportQuantity* within the concerned *reportConfig* in order of decreasing *triggerQuantityCSI-RS*, i.e. the best CSI-RS resource is included first;

4> if *reportCRS-Meas* is included within the associated *reportConfig*, and the cell indicated by *physCellId* of this CSI-RS resource is not a serving cell:

5> set the *measResultNeighCells* to include the cell indicated by *physCellId* of this CSI-RS resource, and include the *physCellId*;

5> set the *rsrpResult* to include the RSRP of the concerned cell, if available according to performance requirements in TS 36.133 [16];

5> set the *rsrqResult* to include the RSRQ of the concerned cell, if available according to performance requirements in TS 36.133 [16];

1> if the *ue-RxTxTimeDiffPeriodical* is configured within the corresponding *reportConfig* for this *measId*;

2> set the *ue-RxTxTimeDiffResult* to the measurement result provided by lower layers;

2> set the *currentSFN*;

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

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

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

1> if uplink PDCP delay results are available:

2> set the *ul-PDCP-DelayResultList* to include the uplink PDCP delay results available;

1> if the *includeLocationInfo* is configured in the corresponding *reportConfig* for this *measId* or if *purpose* for the *reportConfig* associated with the *measId* that triggered the measurement reporting is set to *reportLocation*; and detailed location information that has not been reported is available, set the content of the *locationInfo* as follows:

2> include the *locationCoordinates*;

2> if available, include the *gnss-TOD-msec*, except if *purpose* for the *reportConfig* associated with the *measId* that triggered the measurement reporting is set to *reportLocation*;

2> include the *verticalVelocityInfo*, if available;

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

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

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

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

1> if the *reportSSTD-Meas* is set to *true* or *pSCell* within the corresponding *reportConfig* for this *measId*:

2> set the *measResultSSTD* to the measurement results provided by lower layers;

1> if the *reportSFTD-Meas* is set to *neighborCells* or *pSCell* within the corresponding *reportConfigInterRAT* for this *measId*, for each applicable cell for which results are available:

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

2> if the *ss-rsrp* in the *reportQuantityCellNR* is set to *TRUE* within the corresponding *reportConfigInterRAT* for this *measId*:

3> include *rsrpResult* set to the RSRP of the concerned cell;

1> if there is at least one applicable transmission resource pool to report:

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

3> if the *triggerType* is set to *event*:

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

3> else:

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

3> for each transmission resource pool to be reported:

4> set the *poolIdentity* to the *poolReportId* of this transmission resource pool;

4> if *adjacencyPSCCH-PSSCH* is set to *TRUE* for this transmission resource pool:

5> set the *cbr-PSSCH* to the CBR measurement result on PSSCH and PSCCH of this transmission resource pool provided by lower layers;

4> else:

5> set the *cbr-PSSCH* to the CBR measurement result on PSSCH of this transmission resource pool provided by lower layers if available;

5> set the *cbr-PSCCH* to the CBR measurement result on PSCCH of this transmission resource pool provided by lower layers if available;

2> set the *measResultSensing* to include the sensing measurement results in accordance with the following:

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

3> for each transmission resource pool to be reported:

4> set the *sensingResult* to the sensing measurement results provided by the lower layers;

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

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

3> if the *triggerType* is set to *event*:

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

3> else:

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

3> for each transmission resource pool to be reported:

4> set the *poolIdentityNR* to the *sl-ResourcePoolReportNR* of this transmission resource pool;

4> set the *CBR-Results-NR* to the CBR measurement result on PSCCH and PSSCH of this transmission resource pool provided by lower layers if available;

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

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

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

1> stop the periodical reporting timer, if running;

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

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

1> else:

2> if the *triggerType* is set to *periodical*:

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

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

1> if the measured results are for CDMA2000 HRPD:

2> set the *preRegistrationStatusHRPD* to the UE's CDMA2000 upper layer's HRPD *preRegistrationStatus*;

1> if the measured results are for CDMA2000 1xRTT:

2> set the preRegistrationStatusHRPD to *FALSE*;

1> if the measured results are for WLAN:

2> set the *measResultListWLAN* to include the quantities within the *quantityConfigWLAN* for up to *maxReportCells* WLAN(s), determined according to the following:

3> include WLAN the UE is connected to, if any;

3> if *reportAnyWLAN* is set to TRUE:

4> consider WLAN with any WLAN identifiers to be applicable for measurement reporting;

3> else:

4> consider only WLANs which do not match all WLAN identifiers of any entry within *wlan-MobilitySet* in *VarWLAN-MobilityConfig* to be applicable for measurement reporting;

3> include applicable WLAN in order of decreasing WLAN RSSI, i.e. the best WLAN is included first;

2> for each included WLAN:

3> set *wlan-Identifiers* to include all WLAN identifiers that can be acquired for the WLAN measured;

3> set *connectedWLAN* to *TRUE* if the UE is connected to the WLAN measured;

3> if *reportQuantityWLAN* existswithin the *ReportConfigInterRAT* within the *VarMeasConfig* for this *measId*:

4> if *bandRequestWLAN* is set to *TRUE*:

5> set *bandWLAN* to include WLAN band of the WLAN measured;

4> if *carrierInfoRequestWLAN* is set to *TRUE*:

5> set *carrierInfoWLAN* to include WLAN carrier information of the WLAN measured if it can be acquired;

4> if *availableAdmissionCapacityRequestWLAN* is set to *TRUE*:

5> set the *measResult* to include *avaiableAdmissionCapacityWLAN* if it can be acquired;

4> if *backhaulDL-BandwidthRequestWLAN* is set to *TRUE*:

5> set the *measResult* to include *backhaulDL-BandwidthWLAN* if it can be acquired;

4> if *backhaulUL-BandwidthRequestWLAN* is set to *TRUE*:

5> set the *measResult* to include *backhaulUL-BandwidthWLAN* if it can be acquired;

4> if *channelUtilizationRequestWLAN* is set to *TRUE*:

5> set the *measResult* to include *channelUtilizationWLAN* if it can be acquired;

4> if *stationCountRequestWLAN* is set to *TRUE*:

5> set the *measResult* to include *stationCountWLAN* if it can be acquired;

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

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

1> else:

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

Next change

## 5.6 Other

*/unchanged parts are omitted/*

### 5.6.10 UE Assistance Information

#### 5.6.10.1 General



Figure 5.6.10.1-1: UE Assistance Information

The purpose of this procedure is to inform E-UTRAN of the UE's power saving preference and SPS assistance information, maximum PDSCH/PUSCH bandwidth configuration preference, overheating assistance information, or the UE's delay budget report carrying desired increment/decrement in the Uu air interface delay or connected mode DRX cycle length and for BL UEs or UEs in CE of the RLM event ("early-out-of-sync" or "early-in-sync") and RLM information. Upon configuring the UE to provide power preference indications E-UTRAN may consider that the UE does not prefer a configuration primarily optimised for power saving until the UE explictly indicates otherwise.

#### 5.6.10.2 Initiation

A UE capable of providing power preference indications in RRC\_CONNECTED may initiate the procedure in several cases including upon being configured to provide power preference indications and upon change of power preference.

A UE capable of providing SPS assistance information in RRC\_CONNECTED may initiate the procedure in several cases including upon being configured to provide SPS assistance information and upon change of SPS assistance information.

A UE capable of providing delay budget report in RRC\_CONNECTED may initiate the procedure in several cases, including upon being configured to provide delay budget report and upon change of delay budget preference.

A UE capable of CE mode and providing maximum PDSCH/PUSCH bandwidth preference in RRC\_CONNECTED may initiate the procedure upon being configured to provide maximum PDSCH/PUSCH bandwidth preference and/or upon change of maximum PDSCH/PUSCH bandwidth preference.

A UE capable of providing overheating assistance information in RRC\_CONNECTED may initiate the procedure if it was configured to do so, upon detecting internal overheating, or upon detecting that it is no longer experiencing an overheating condition.

Upon initiating the procedure, the UE shall:

1> if configured to provide power preference indications:

2> if the UE did not transmit a *UEAssistanceInformation* message with *powerPrefIndication* since it was configured to provide power preference indications; or

2> if the current power preference is different from the one indicated in the last transmission of the *UEAssistanceInformation* message and timer T340 is not running:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.6.10.3;

1> if configured to provide maximum PDSCH/PUSCH bandwidth preference:

2> if the UE did not transmit a *UEAssistanceInformation* message with *bw-Preference* since it was configured to provide maximum PDSCH/PUSCH bandwidth preference; or

2> if the current maximum PDSCH/PUSCH bandwidth preference is different from the one indicated in the last transmission of the *UEAssistanceInformation* message and timer T341 is not running;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.6.10.3;

1> if configured to provide SPS assistance information:

2> if the UE did not transmit a *UEAssistanceInformation* message with *sps-AssistanceInformation* since it was configured to provide SPS assistance information; or

2> if the current SPS assistance information is different from the one indicated in the last transmission of the *UEAssistanceInformation* message:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.6.10.3;

1> if configured to report RLM events:

2> if "early-out-of-sync" event has been detected and T343 is not running; or

2> if "early-in-sync" event has been detected and T344 is not running:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.6.10.3;

1> if configured to provide delay budget report:

2> if the UE did not transmit a *UEAssistanceInformation* message with *delayBudgetReport* since it was configured to provide delay budget report; or

2> if the current delay budget is different from the one indicated in the last transmission of the *UEAssistanceInformation* message and timer T342 is not running:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.6.10.3;

1> if configured to provide overheating assistance information:

2> if the overheating condition has been detected and T345 is not running; or

2> if the current overheating assistance information is different from the one indicated in the last transmission of the *UEAssistanceInformation* message and timer T345 is not running:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.6.10.3;

#### 5.6.10.3 Actions related to transmission of *UEAssistanceInformation* message

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

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

2> set *powerPrefIndication* to *lowPowerConsumption*;

1> else if configured to provide power preference indication:

2> start or restart timer T340 with the timer value set to the *powerPrefIndicationTimer*;

2> set *powerPrefIndication* to *normal*;

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

1> if configured to provide SPS assistance information:

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

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

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

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

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

1> start timer T341 with the timer value set to the *bw-PreferenceIndicationTimer*;

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

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

1> if configured to provide delay budget report:

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

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

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

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

2> start or restart timer T342 with the timer value set to the *delayBudgetReportingProhibitTimer*;

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

1> if configured to provide RLM report:

2> if T314 has expired:

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

3> start timer T343 with the timer value set to the *rlmReportTimer*:

2> if T315 has expired:

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

3> start timer T344 with the timer value set to the *rlmReportTimer*:

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

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

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

1> if configured to provide overheating assistance indication:

2> if the UE experiences internal overheating:

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

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

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

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

3> if the UE prefers to temporarily reduce the number of maximum secondary component carriers:

4> include *reducedMaxCCs* in the *OverheatingAssistance* IE;

4> set *reducedCCsDL* to the number of maximum SCells the UE prefers to be temporarily configured in downlink;

4> set *reducedCCsUL* to the number of maximum SCells the UE prefers to be temporarily configured in uplink;

3> start timer T345 with the timer value set to the *overheatingIndicationProhibitTimer*;

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

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

3> start timer T345 with the timer value set to the *overheatingIndicationProhibitTimer*;

The UE shall submit the *UEAssistanceInformation* message to lower layers for transmission.

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

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

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

*/unchanged parts are omitted/*

### 5.6.X UE Assistance Information for NR sidelink communication



Figure 5.6.X-1: UE Assistance Information for NR sidelink communication

The purpose of this procedure is to inform the network of the configured grant assistance information for NR sidelink communication.

The initiation and the procedure for the transmission of *UEAssistanceInformationNR* follow the procedure specified for NR sidelink communication in subclause 5.7.4 of TS 38.331 [82].

Next change

## 5.10 Sidelink

*/unchanged parts are omitted/*

### 5.10.1d Conditions for V2X sidelink communication operation

When it is specified that the UE shall perform V2X sidelink communication operation only if the conditions defined in this clause are met, the UE shall perform V2X sidelink communication operation only if:

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

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

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

*/unchanged parts are omitted/*

### 5.10.12 V2X sidelink communication monitoring

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

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

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

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

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

3> else:

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

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

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

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

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

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

3> else:

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

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

Next change

### 5.10.13 V2X sidelink communication transmission

#### 5.10.13.1 Transmission of V2X sidelink communication

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

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

2> if in coverage on the frequency used for V2X sidelink communication as defined in TS 36.304 [4], clause 11.4, or TS 38.304 [92], clause x.x; or2> if the frequency used to transmit V2X sidelink communication is included in *v2x-InterFreqInfoList* in *RRCConnectionReconfiguration* or in *v2x-InterFreqInfoList* within *SystemInformationBlockType21* or *SystemInformationBlockType26*:

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

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

5> if T310 or T311 is running; and if the PCell at which the UE detected physical layer problems or radio link failure broadcasts *SystemInformationBlockType21* including *v2x-CommTxPoolExceptional* in *sl-V2X-ConfigCommon*, or *v2x-CommTxPoolExceptional* is included in *v2x-InterFreqInfoList* for the concerned frequency in *SystemInformationBlockType21* or *SystemInformationBlockType26* or *RRCConnectionReconfiguration*; or

5> if T301 is running and the cell on which the UE initiated connection re-establishment broadcasts *SystemInformationBlockType21* including *v2x-CommTxPoolExceptional* in *sl-V2X-ConfigCommon*, or *v2x-CommTxPoolExceptional* is included in *v2x-InterFreqInfoList* for the concerned frequency in *SystemInformationBlockType21* or *SystemInformationBlockType26*; or

5> if T304 is running and the UE is configured with *v2x-CommTxPoolExceptional* includedin *mobilityControlInfoV2X* in *RRCConnectionReconfiguration* or in *v2x-InterFreqInfoList* for the concerned frequency in *RRCConnectionReconfiguration*:

6> configure lower layers to transmit the sidelink control information and the corresponding data based on random selection using the pool of resources indicated by *v2x-CommTxPoolExceptional* as defined in TS 36.321 [6];

5> else:

6> configure lower layers to request E-UTRAN to assign transmission resources for V2X sidelink communication;

4> else if the UE is configured with *v2x-CommTxPoolNormalDedicated* or *v2x-CommTxPoolNormal* or *p2x-CommTxPoolNormal* in the entry of *v2x-InterFreqInfoList* for the concerned frequency in *sl-V2X-ConfigDedicated* in *RRCConnectionReconfiguration*:

5> if the UE is configured to transmit non-P2X related V2X sidelink communication and a result of sensing on the resources configured in *v2x-CommTxPoolNormalDedicated* or *v2x-CommTxPoolNormal* in the entry of *v2x-InterFreqInfoList* for the concerned frequency in *RRCConnectionReconfiguration* is not available in accordance with TS 36.213 [23]; or

5> if the UE is configured to transmit P2X related V2X sidelink communication and selects to use partial sensing according to 5.10.13.1a, and a result of partial sensing on the resources configured in *v2x-CommTxPoolNormalDedicated* or *p2x-CommTxPoolNormal* in the entry of *v2x-InterFreqInfoList* for the concerned frequency in *RRCConnectionReconfiguration* is not available in accordance with TS 36.213 [23]:

6> if *v2x-CommTxPoolExceptional* is includedin *mobilityControlInfoV2X* in *RRCConnectionReconfiguration* (i.e., handover case); or

6> if *v2x-CommTxPoolExceptional* is included in the entry of *v2x-InterFreqInfoList* for the concerned frequency in *RRCConnectionReconfiguration*; or

6> if the PCell broadcasts *SystemInformationBlockType21* including *v2x-CommTxPoolExceptional* in *sl-V2X-ConfigCommon* or *v2x-CommTxPoolExceptional* in *v2x-InterFreqInfoList* for the concerned frequency or broadcasts *SystemInformationBlockType26* including *v2x-CommTxPoolExceptional* in *v2x-InterFreqInfoList* for the concerned frequency:

7> configure lower layers to transmit the sidelink control information and the corresponding data based on random selection using the pool of resources indicated by *v2x-CommTxPoolExceptional* as defined in TS 36.321 [6];

5> else if the UE is configured to transmit P2X related V2X sidelink communication:

6> select a resource pool according to 5.10.13.2;

6> perform P2X related V2X sidelink communication according to 5.10.13.1a;

5> else if the UE is configured to transmit non-P2X related V2X sidelink communication:

6> configure lower layers to transmit the sidelink control information and the corresponding data based on sensing (as defined in TS 36.321 [6] and TS 36.213 [23]) using one of the resource pools indicated by *v2x-commTxPoolNormalDedicated* or *v2x-CommTxPoolNormal* in the entry of *v2x-InterFreqInfoList* for the concerned frequency, which is selected according to 5.10.13.2;

3> else:

4> if the cell chosen for V2X sidelink communication transmission broadcasts *SystemInformationBlockType21* or *SystemInformationBlockType26*:

5> if the UE is configured to transmit non-P2X related V2X sidelink communication, and if *SystemInformationBlockType21* includes *v2x-CommTxPoolNormalCommon* or *v2x-CommTxPoolNormal* in *v2x-InterFreqInfoList* for the concerned frequency*,* or *SystemInformationBlockType26* includes *v2x-CommTxPoolNormal* in *v2x-InterFreqInfoList* for the concerned frequency, and if a result of sensing on the resources configured in *v2x-CommTxPoolNormalCommon* or *v2x-CommTxPoolNormal* in *v2x-InterFreqInfoList* for the concerned frequency is available in accordance with TS 36.213 [23]:

6> configure lower layers to transmit the sidelink control information and the corresponding data based on sensing (as defined in TS 36.321 [6] and TS 36.213 [23]) using one of the resource pools indicated by *v2x-CommTxPoolNormalCommon* or *v2x-CommTxPoolNormal* in *v2x-InterFreqInfoList* for the concerned frequency, which is selected according to 5.10.13.2;

5> else if the UE is configured to transmit P2X related V2X sidelink communication, and if *SystemInformationBlockType21* includes *p2x-CommTxPoolNormalCommon* or *p2x-CommTxPoolNormal* in *v2x-InterFreqInfoList* for the concerned frequency,or *SystemInformationBlockType26* includes *p2x-CommTxPoolNormal* in *v2x-InterFreqInfoList* for the concerned frequency,and if the UE selects to use random selection according to 5.10.13.1a, or selects to use partial sensing according to 5.10.13.1a and a result of partial sensing on the resources configured in *p2x-CommTxPoolNormalCommon* or *p2x-CommTxPoolNormal* in *v2x-InterFreqInfoList* for the concerned frequency is available in accordance with TS 36.213 [23]:

6> select a resource pool from *p2x-CommTxPoolNormalCommon* or *p2x-CommTxPoolNormal* in *v2x-InterFreqInfoList* for the concerned frequency according to 5.10.13.2, but ignoring *zoneConfig* in *SystemInformationBlockType21* or *SystemInformationBlockType26*;

6> perform P2X related V2X sidelink communication according to 5.10.13.1a;

5> else if *SystemInformationBlockType21* includes *v2x-CommTxPoolExceptional* in *sl-V2X-ConfigCommon* or *v2x-CommTxPoolExceptional* in *v2x-InterFreqInfoList* for the concerned frequency, or *SystemInformationBlockType26* includes *v2x-CommTxPoolExceptional* in *v2x-InterFreqInfoList* for the concerned frequency:

6> from the moment the UE initiates connection establishment until receiving an *RRCConnectionReconfiguration* including *sl-V2X-ConfigDedicated,* or until receiving an *RRCConnectionRelease* or an *RRCConnectionReject;* or

6> if the UE is in RRC\_IDLE and a result of sensing on the resources configured in *v2x-CommTxPoolNormalCommon* or *v2x-CommTxPoolNormal* in *v2x-InterFreqInfoList* for the concerned frequency in *Systeminformationblocktype21* or *v2x-CommTxPoolNormal* in *v2x-InterFreqInfoList* for the concerned frequency in *Systeminformationblocktype26* is not available in accordance with TS 36.213 [23]; or

6> if the UE is in RRC\_IDLE and UE selects to use partial sensing according to 5.10.13.1a and a result of partial sensing on the resources configured in *p2x-CommTxPoolNormalCommon* or *p2x-CommTxPoolNormal* in *v2x-InterFreqInfoList* for the concerned frequency in *Systeminformationblocktype21* or *v2x-CommTxPoolNormal* in *v2x-InterFreqInfoList* for the concerned frequency in *Systeminformationblocktype26* is not available in accordance with TS 36.213 [23]:

7> configure lower layers to transmit the sidelink control information and the corresponding data based on random selection (as defined in TS 36.321 [6]) using the pool of resources indicated in *v2x-CommTxPoolExceptional*;

2> else:

3> configure lower layers to transmit the sidelink control information and the corresponding data based on sensing (as defined in TS 36.321 [6] and TS 36.213 [23]) using one of the resource pools indicated by *v2x-CommTxPoolList* in *SL-V2X-Preconfiguration* in case of non-P2X related V2X sidelink communication, which is selected according to 5.10.13.2, or using one of the resource pools indicated by *p2x-CommTxPoolList* in *SL-V2X-Preconfiguration* in case of P2X related V2X sidelink communication, which is selected according to 5.10.13.2, and in accordance with the timing of the selected reference as defined in 5.10.8;

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

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

*/unchanged parts are omitted/*

### 5.10.x Sidelink UE information for NR sidelink communication



Figure 5.10.x-1: Sidelink UE information for NR sidelink communication

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

The initiation and the procedure for the transmission of *SidelinkUEInformationNR* follow the procedures specified for NR sidelink communication in subclause 5.X.3 of TS 38.331 [82].

NOTE X: When applying the the procedure in this subclause, *SystemInformationBlockTypeXX2* corresponds to *SIBX* specified in TS 38.331 [82].

### 5.10.Y Sidelink synchronisation information transmission for NR sidelink communication



Figure 5.10.Y-1: Synchronisation information transmission for NR sidelink communication, in (partial) coverage



Figure 5.10.Y-2: Synchronisation information transmission for NR sidelink communication, out of coverage

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

The initiation and the procedure for the transmission of sidelink SSB follow the procedure specified for NR sidelink communication in subclause 5.X.5 of TS 38.331 [82].

NOTE X: When applying the procedure in this subclause, *SystemInformationBlockTypeXX2* correspond to *SIBX* specified in TS 38.331 [82].

Next change

### 6.2.1 General message structure

*/unchanged parts are omitted/*

#### – *UL-DCCH-Message*

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

-- ASN1START

UL-DCCH-Message ::= SEQUENCE {

message UL-DCCH-MessageType

}

UL-DCCH-MessageType ::= CHOICE {

c1 CHOICE {

csfbParametersRequestCDMA2000 CSFBParametersRequestCDMA2000,

measurementReport MeasurementReport,

rrcConnectionReconfigurationComplete RRCConnectionReconfigurationComplete,

rrcConnectionReestablishmentComplete RRCConnectionReestablishmentComplete,

rrcConnectionSetupComplete RRCConnectionSetupComplete,

securityModeComplete SecurityModeComplete,

securityModeFailure SecurityModeFailure,

ueCapabilityInformation UECapabilityInformation,

ulHandoverPreparationTransfer ULHandoverPreparationTransfer,

ulInformationTransfer ULInformationTransfer,

counterCheckResponse CounterCheckResponse,

ueInformationResponse-r9 UEInformationResponse-r9,

proximityIndication-r9 ProximityIndication-r9,

rnReconfigurationComplete-r10 RNReconfigurationComplete-r10,

mbmsCountingResponse-r10 MBMSCountingResponse-r10,

interFreqRSTDMeasurementIndication-r10 InterFreqRSTDMeasurementIndication-r10

},

messageClassExtension CHOICE {

c2 CHOICE {

ueAssistanceInformation-r11 UEAssistanceInformation-r11,

inDeviceCoexIndication-r11 InDeviceCoexIndication-r11,

mbmsInterestIndication-r11 MBMSInterestIndication-r11,

scgFailureInformation-r12 SCGFailureInformation-r12,

sidelinkUEInformation-r12 SidelinkUEInformation-r12,

wlanConnectionStatusReport-r13 WLANConnectionStatusReport-r13,

rrcConnectionResumeComplete-r13 RRCConnectionResumeComplete-r13,

ulInformationTransferMRDC-r15 ULInformationTransferMRDC-r15,

scgFailureInformationNR-r15 SCGFailureInformationNR-r15,

measReportAppLayer-r15 MeasReportAppLayer-r15,

failureInformation-r15 FailureInformation-r15,

sidelinkUEInformationNR-r16 SidelinkUEInformationNR-r16,

ueAssitanceInformationNR-r16 UEAssistanceInformationNR-r16,

spare3 NULL, spare2 NULL, spare1 NULL

},

messageClassExtensionFuture-r11 SEQUENCE {}

}

}

-- ASN1STOP

Next change

### 6.2.2 Message definitions

*/unchanged parts are omitted/*

– *RRCConnectionReconfiguration*

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

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: E‑UTRAN to UE

***RRCConnectionReconfiguration message***

-- ASN1START

RRCConnectionReconfiguration ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

c1 CHOICE{

rrcConnectionReconfiguration-r8 RRCConnectionReconfiguration-r8-IEs,

spare7 NULL,

spare6 NULL, spare5 NULL, spare4 NULL,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

RRCConnectionReconfiguration-r8-IEs ::= SEQUENCE {

measConfig MeasConfig OPTIONAL, -- Need ON

mobilityControlInfo MobilityControlInfo OPTIONAL, -- Cond HO

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

DedicatedInfoNAS OPTIONAL, -- Cond nonHO

radioResourceConfigDedicated RadioResourceConfigDedicated OPTIONAL, -- Cond HO-toEUTRA

securityConfigHO SecurityConfigHO OPTIONAL, -- Cond HO-toEPC

nonCriticalExtension RRCConnectionReconfiguration-v890-IEs OPTIONAL

}

RRCConnectionReconfiguration-v890-IEs ::= SEQUENCE {

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

nonCriticalExtension RRCConnectionReconfiguration-v920-IEs OPTIONAL

}

-- Late non-critical extensions:

RRCConnectionReconfiguration-v8m0-IEs ::= SEQUENCE {

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

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCConnectionReconfiguration-v10i0-IEs OPTIONAL

}

RRCConnectionReconfiguration-v10i0-IEs ::= SEQUENCE {

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

nonCriticalExtension RRCConnectionReconfiguration-v10l0-IEs OPTIONAL

}

RRCConnectionReconfiguration-v10l0-IEs ::= SEQUENCE {

mobilityControlInfo-v10l0 MobilityControlInfo-v10l0 OPTIONAL,

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

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

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCConnectionReconfiguration-v12f0-IEs OPTIONAL

}

RRCConnectionReconfiguration-v12f0-IEs ::= SEQUENCE {

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

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

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCConnectionReconfiguration-v1370-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1370-IEs ::= SEQUENCE {

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

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

nonCriticalExtension RRCConnectionReconfiguration-v13c0-IEs OPTIONAL

}

RRCConnectionReconfiguration-v13c0-IEs ::= SEQUENCE {

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

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

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

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

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

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Regular non-critical extensions:

RRCConnectionReconfiguration-v920-IEs ::= SEQUENCE {

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

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

nonCriticalExtension RRCConnectionReconfiguration-v1020-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1020-IEs ::= SEQUENCE {

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

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

nonCriticalExtension RRCConnectionReconfiguration-v1130-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1130-IEs ::= SEQUENCE {

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

nonCriticalExtension RRCConnectionReconfiguration-v1250-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1250-IEs ::= SEQUENCE {

wlan-OffloadInfo-r12 CHOICE {

release NULL,

setup SEQUENCE {

wlan-OffloadConfigDedicated-r12 WLAN-OffloadConfig-r12,

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

min120, min180, spare1} OPTIONAL -- Need OR

}

} OPTIONAL, -- Need ON

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

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

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

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

nonCriticalExtension RRCConnectionReconfiguration-v1310-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1310-IEs ::= SEQUENCE {

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

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

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

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

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

nonCriticalExtension RRCConnectionReconfiguration-v1430-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1430-IEs ::= SEQUENCE {

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

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

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

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

nonCriticalExtension RRCConnectionReconfiguration-v1510-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1510-IEs ::= SEQUENCE {

nr-Config-r15 CHOICE {

release NULL,

setup SEQUENCE {

endc-ReleaseAndAdd-r15 BOOLEAN,

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

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

}

} OPTIONAL, -- Need ON

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

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

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

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

nonCriticalExtension RRCConnectionReconfiguration-v1530-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1530-IEs ::= SEQUENCE {

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

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

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

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

DedicatedInfoNAS OPTIONAL, -- Cond nonHO

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

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

nonCriticalExtension RRCConnectionReconfiguration-v16xy-IEs OPTIONAL

}

RRCConnectionReconfiguration-v16xy-IEs ::= SEQUENCE {

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

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

nonCriticalExtension SEQUENCE {} OPTIONAL

}

SL-SyncTxControl-r12 ::= SEQUENCE {

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

}

PSCellToAddMod-r12 ::= SEQUENCE {

sCellIndex-r12 SCellIndex-r10,

cellIdentification-r12 SEQUENCE {

physCellId-r12 PhysCellId,

dl-CarrierFreq-r12 ARFCN-ValueEUTRA-r9

} OPTIONAL, -- Cond SCellAdd

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

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

...,

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

]],

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

]],

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

]],

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

]]

}

PSCellToAddMod-v12f0 ::= SEQUENCE {

radioResourceConfigCommonPSCell-r12 RadioResourceConfigCommonPSCell-v12f0 OPTIONAL

}

PSCellToAddMod-v1440 ::= SEQUENCE {

radioResourceConfigCommonPSCell-r14 RadioResourceConfigCommonPSCell-v1440 OPTIONAL

}

PowerCoordinationInfo-r12 ::= SEQUENCE {

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

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

powerControlMode-r12 INTEGER (1..2)

}

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

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

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

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

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

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

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

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

SCellToAddMod-r10 ::= SEQUENCE {

sCellIndex-r10 SCellIndex-r10,

cellIdentification-r10 SEQUENCE {

physCellId-r10 PhysCellId,

dl-CarrierFreq-r10 ARFCN-ValueEUTRA

} OPTIONAL, -- Cond SCellAdd

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

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

...,

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

]],

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

]],

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

]],

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

]]

}

SCellToAddMod-v10l0 ::= SEQUENCE {

radioResourceConfigCommonSCell-v10l0 RadioResourceConfigCommonSCell-v10l0 OPTIONAL

}

SCellToAddMod-v13c0 ::= SEQUENCE {

radioResourceConfigDedicatedSCell-v13c0 RadioResourceConfigDedicatedSCell-v13c0 OPTIONAL

}

SCellToAddModExt-r13 ::= SEQUENCE {

sCellIndex-r13 SCellIndex-r13,

cellIdentification-r13 SEQUENCE {

physCellId-r13 PhysCellId,

dl-CarrierFreq-r13 ARFCN-ValueEUTRA-r9

} OPTIONAL, -- Cond SCellAdd

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

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

antennaInfoDedicatedSCell-r13 AntennaInfoDedicated-v10i0 OPTIONAL -- Need ON

}

SCellToAddModExt-v1370 ::= SEQUENCE {

radioResourceConfigCommonSCell-v1370 RadioResourceConfigCommonSCell-v10l0 OPTIONAL

}

SCellToAddModExt-v1430 ::= SEQUENCE {

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

...,

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

]]

}

SCellGroupToAddMod-r15 ::= SEQUENCE {

sCellGroupIndex-r15 SCellGroupIndex-r15,

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

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

sCellToAddModList-r15 SCellToAddModListExt-r13 OPTIONAL -- Need ON

}

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

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

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

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

SCellConfigCommon-r15 ::= SEQUENCE {

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

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

antennaInfoDedicatedSCell-r15 AntennaInfoDedicated-v10i0 OPTIONAL -- Need ON

}

SCG-Configuration-r12 ::= CHOICE {

release NULL,

setup SEQUENCE {

scg-ConfigPartMCG-r12 SEQUENCE {

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

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

...

} OPTIONAL, -- Need ON

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

}

}

SCG-Configuration-v12f0 ::= CHOICE {

release NULL,

setup SEQUENCE {

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

}

}

SCG-Configuration-v13c0 ::= CHOICE {

release NULL,

setup SEQUENCE {

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

}

}

SCG-ConfigPartSCG-r12 ::= SEQUENCE {

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

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

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

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

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

...,

[[

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

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

]],

[[

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

]],

[[

pSCellToAddMod-v1440 PSCellToAddMod-v1440 OPTIONAL -- Need ON

]],

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

sCellGroupToAddModListSCG-r15 SCellGroupToAddModList-r15 OPTIONAL -- Need ON

]],

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

measConfigSN-r15 MeasConfig OPTIONAL, -- Need ON

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

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

]],

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

]]

}

SCG-ConfigPartSCG-v12f0 ::= SEQUENCE {

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

sCellToAddModListSCG-v12f0 SCellToAddModList-v10l0 OPTIONAL -- Need ON

}

SCG-ConfigPartSCG-v13c0 ::= SEQUENCE {

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

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

}

SecurityConfigHO ::= SEQUENCE {

handoverType CHOICE {

intraLTE SEQUENCE {

securityAlgorithmConfig SecurityAlgorithmConfig OPTIONAL, -- Cond fullConfig

keyChangeIndicator BOOLEAN,

nextHopChainingCount NextHopChainingCount

},

interRAT SEQUENCE {

securityAlgorithmConfig SecurityAlgorithmConfig,

nas-SecurityParamToEUTRA OCTET STRING (SIZE(6))

}

},

...

}

SecurityConfigHO-v1530 ::= SEQUENCE {

handoverType-v1530 CHOICE {

intra5GC-r15 SEQUENCE {

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

keyChangeIndicator-r15 BOOLEAN,

nextHopChainingCount-r15 NextHopChainingCount,

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

},

fivegc-ToEPC-r15 SEQUENCE {

securityAlgorithmConfig-r15 SecurityAlgorithmConfig,

nextHopChainingCount-r15 NextHopChainingCount

},

epc-To5GC-r15 SEQUENCE {

securityAlgorithmConfig-r15 SecurityAlgorithmConfig,

nas-Container-r15 OCTET STRING

}

},

...

}

TDM-PatternConfig-r15 ::= CHOICE {

release NULL,

setup SEQUENCE {

subframeAssignment-r15 SubframeAssignment-r15,

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

}

}

-- ASN1STOP

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

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

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

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

*/unchanged parts are omitted/*

#### – *SidelinkUEInformationNR*

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

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to E‑UTRAN

*SidelinkUEInformationNR message*

-- ASN1START

SidelinkUEInformationNR-r16 ::= SEQUENCE {

criticalExtensions CHOICE {

sidelinkUEInformationNR-r16 SidelinkUEInformationNR-r16-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

SidelinkUEInformationNR-r16-IEs::= SEQUENCE {

sidelinkUEInformationNR-r16 OCTET STRING,

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

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

*/unchanged parts are omitted/*

– *SystemInformation*

The *SystemInformation* message is used to convey one or more System Information Blocks or Positioning System Information Blocks. All the SIBs or posSIBs included are transmitted with the same periodicity. *SystemInformation-BR* and *SystemInformation-MBMS* use the same structure as *SystemInformation.*

Signalling radio bearer: N/A

RLC-SAP: TM

Logical channels: BCCH and BR-BCCH

Direction: E‑UTRAN to UE

***SystemInformation message***

-- ASN1START

SystemInformation-BR-r13 ::= SystemInformation

SystemInformation-MBMS-r14 ::= SystemInformation

SystemInformation ::= SEQUENCE {

criticalExtensions CHOICE {

systemInformation-r8 SystemInformation-r8-IEs,

criticalExtensionsFuture-r15 CHOICE {

posSystemInformation-r15 PosSystemInformation-r15-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

}

SystemInformation-r8-IEs ::= SEQUENCE {

sib-TypeAndInfo SEQUENCE (SIZE (1..maxSIB)) OF CHOICE {

sib2 SystemInformationBlockType2,

sib3 SystemInformationBlockType3,

sib4 SystemInformationBlockType4,

sib5 SystemInformationBlockType5,

sib6 SystemInformationBlockType6,

sib7 SystemInformationBlockType7,

sib8 SystemInformationBlockType8,

sib9 SystemInformationBlockType9,

sib10 SystemInformationBlockType10,

sib11 SystemInformationBlockType11,

...,

sib12-v920 SystemInformationBlockType12-r9,

sib13-v920 SystemInformationBlockType13-r9,

sib14-v1130 SystemInformationBlockType14-r11,

sib15-v1130 SystemInformationBlockType15-r11,

sib16-v1130 SystemInformationBlockType16-r11,

sib17-v1250 SystemInformationBlockType17-r12,

sib18-v1250 SystemInformationBlockType18-r12,

sib19-v1250 SystemInformationBlockType19-r12,

sib20-v1310 SystemInformationBlockType20-r13,

sib21-v1430 SystemInformationBlockType21-r14,

sib24-v1530 SystemInformationBlockType24-r15,

sib25-v1530 SystemInformationBlockType25-r15,

sib26-v1530 SystemInformationBlockType26-r15,

sibxx2-r16 SystemInformationBlockTypeXX2-r16

},

nonCriticalExtension SystemInformation-v8a0-IEs OPTIONAL

}

SystemInformation-v8a0-IEs ::= SEQUENCE {

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

PosSystemInformation-r15-IEs ::= SEQUENCE {

posSIB-TypeAndInfo-r15 SEQUENCE (SIZE (1..maxSIB)) OF CHOICE {

posSib1-1-r15 SystemInformationBlockPos-r15,

posSib1-2-r15 SystemInformationBlockPos-r15,

posSib1-3-r15 SystemInformationBlockPos-r15,

posSib1-4-r15 SystemInformationBlockPos-r15,

posSib1-5-r15 SystemInformationBlockPos-r15,

posSib1-6-r15 SystemInformationBlockPos-r15,

posSib1-7-r15 SystemInformationBlockPos-r15,

posSib2-1-r15 SystemInformationBlockPos-r15,

posSib2-2-r15 SystemInformationBlockPos-r15,

posSib2-3-r15 SystemInformationBlockPos-r15,

posSib2-4-r15 SystemInformationBlockPos-r15,

posSib2-5-r15 SystemInformationBlockPos-r15,

posSib2-6-r15 SystemInformationBlockPos-r15,

posSib2-7-r15 SystemInformationBlockPos-r15,

posSib2-8-r15 SystemInformationBlockPos-r15,

posSib2-9-r15 SystemInformationBlockPos-r15,

posSib2-10-r15 SystemInformationBlockPos-r15,

posSib2-11-r15 SystemInformationBlockPos-r15,

posSib2-12-r15 SystemInformationBlockPos-r15,

posSib2-13-r15 SystemInformationBlockPos-r15,

posSib2-14-r15 SystemInformationBlockPos-r15,

posSib2-15-r15 SystemInformationBlockPos-r15,

posSib2-16-r15 SystemInformationBlockPos-r15,

posSib2-17-r15 SystemInformationBlockPos-r15,

posSib2-18-r15 SystemInformationBlockPos-r15,

posSib2-19-r15 SystemInformationBlockPos-r15,

posSib3-1-r15 SystemInformationBlockPos-r15,

...

},

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

*/unchanged parts are omitted/*

– *UEAssistanceInformation*

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

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to E‑UTRAN

***UEAssistanceInformation message***

-- ASN1START

UEAssistanceInformation-r11 ::= SEQUENCE {

criticalExtensions CHOICE {

c1 CHOICE {

ueAssistanceInformation-r11 UEAssistanceInformation-r11-IEs,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

UEAssistanceInformation-r11-IEs ::= SEQUENCE {

powerPrefIndication-r11 ENUMERATED {normal, lowPowerConsumption} OPTIONAL,

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension UEAssistanceInformation-v1430-IEs OPTIONAL

}

UEAssistanceInformation-v1430-IEs ::= SEQUENCE {

bw-Preference-r14 BW-Preference-r14 OPTIONAL,

sps-AssistanceInformation-r14 SEQUENCE {

trafficPatternInfoListSL-r14 TrafficPatternInfoList-r14 OPTIONAL,

trafficPatternInfoListUL-r14 TrafficPatternInfoList-r14 OPTIONAL

} OPTIONAL,

rlm-Report-r14 SEQUENCE {

rlm-Event-r14 ENUMERATED {earlyOutOfSync, earlyInSync},

excessRep-MPDCCH-r14 ENUMERATED {excessRep1, excessRep2} OPTIONAL

} OPTIONAL,

delayBudgetReport-r14 DelayBudgetReport-r14 OPTIONAL,

nonCriticalExtension UEAssistanceInformation-v1450-IEs OPTIONAL

}

UEAssistanceInformation-v1450-IEs ::= SEQUENCE {

overheatingAssistance-r14 OverheatingAssistance-r14 OPTIONAL,

nonCriticalExtension UEAssistanceInformation-v1530-IEs OPTIONAL

}

UEAssistanceInformation-v1530-IEs ::= SEQUENCE {

sps-AssistanceInformation-v1530 SEQUENCE {

trafficPatternInfoListSL-v1530 TrafficPatternInfoList-v1530

} OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

BW-Preference-r14 ::= SEQUENCE {

dl-Preference-r14 ENUMERATED {mhz1dot4, mhz5, mhz20 } OPTIONAL,

ul-Preference-r14 ENUMERATED {mhz1dot4, mhz5} OPTIONAL

}

TrafficPatternInfoList-r14 ::= SEQUENCE (SIZE (1..maxTrafficPattern-r14)) OF TrafficPatternInfo-r14

TrafficPatternInfo-r14 ::= SEQUENCE {

trafficPeriodicity-r14 ENUMERATED {

sf20, sf50, sf100, sf200, sf300, sf400, sf500,

sf600, sf700, sf800, sf900, sf1000},

timingOffset-r14 INTEGER (0..10239),

priorityInfoSL-r14 SL-Priority-r13 OPTIONAL,

logicalChannelIdentityUL-r14 INTEGER (3..10) OPTIONAL,

messageSize-r14 BIT STRING (SIZE (6))

}

TrafficPatternInfoList-v1530 ::= SEQUENCE (SIZE (1..maxTrafficPattern-r14)) OF TrafficPatternInfo-v1530

TrafficPatternInfo-v1530 ::= SEQUENCE {

trafficDestination-r15 SL-DestinationIdentity-r12 OPTIONAL,

reliabilityInfoSL-r15 SL-Reliability-r15 OPTIONAL

}

DelayBudgetReport-r14::= CHOICE {

type1 ENUMERATED {

msMinus1280, msMinus640, msMinus320, msMinus160,

msMinus80, msMinus60, msMinus40, msMinus20, ms0, ms20, ms40, ms60, ms80, ms160, ms320, ms640, ms1280},

type2 ENUMERATED {

msMinus192, msMinus168,msMinus144, msMinus120,

msMinus96, msMinus72, msMinus48, msMinus24, ms0, ms24, ms48, ms72, ms96, ms120, ms144, ms168, ms192}

}

OverheatingAssistance-r14 ::= SEQUENCE {

reducedUE-Category SEQUENCE {

reducedUE-CategoryDL INTEGER (0..19),

reducedUE-CategoryUL INTEGER (0..21)

} OPTIONAL,

reducedMaxCCs SEQUENCE {

reducedCCsDL INTEGER (0..31),

reducedCCsUL INTEGER (0..31)

} OPTIONAL

}

-- ASN1STOP

| ***UEAssistanceInformation* field descriptions** |
| --- |
| ***delayBudgetReport***  Indicates the UE-preferred adjustment to connected mode DRX or coverage enhancement configuration. |
| ***dl-Preference***  Indicates UE's preference on configuration of maximum PDSCH bandwidth. The value mhz1dot4 corresponds to CE mode usage in 1.4MHz bandwidth, mhz5 corresponds to CE mode usage in 5MHz bandwidth, and mhz20 corresponds to CE mode usage in 20MHz bandwidth or normal coverage. |
| ***excessRep-MPDCCH***  Indicates the excess number of repetitions on MPDCCH. Value excessRep1 and excessRep2 indicate the excess number of repetitions defined in TS 36.133 [16]. |
| ***logicalChannelIdentityUL***  Indicates the logical channel identity associated with the reported traffic pattern in the uplink logical channel. |
| ***messageSize***  Indicates the maximum TB size based on the observed traffic pattern. The value refers to the index of TS 36.321 [6], table 6.1.3.1-1. |
| ***powerPrefIndication***  Value *lowPowerConsumption* indicates the UE prefers a configuration that is primarily optimised for power saving. Otherwise the value is set to *normal*. |
| ***priorityInfoSL***  Indicates the traffic priority (i.e., PPPP) associated with the reported traffic pattern for V2X sidelink communication. |
| ***reducedCCsDL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of downlink SCells indicated by the field, to address overheating. This maximum number includes both SCells of E-UTRA and PSCell/SCells of NR in (NG)EN-DC. |
| ***reducedCCsUL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of uplink SCells indicated by the field, to address overheating. This maximum number includes both SCells of E-UTRA and PSCell/SCells of NR in (NG)EN-DC. |
| ***reducedUE-CategoryDL, reducedUE-CategoryUL***  Indicates that UE prefers a configuration corresponding to the reduced UE category, to address overheating. The reduced UE DL category and reduced UE UL category should be indicated according to supported combinations for UE UL and DL Categories, see TS 36.306 [5], Table 4.1A-6. |
| ***reliabilityInfoSL***  Indicates the traffic reliability (i.e., PPPR) associated with the reported traffic pattern for V2X sidelink communication. |
| ***rlm-Event***  This field provides the RLM event ("early-out-of-sync" or "early-in-sync"). |
| ***rlm-Report***  This field provides the RLM report for BL UEs and UEs in CE. |
| ***sps-AssistanceInformation***  Indicates the UE assistance information to assist E-UTRAN to configure SPS. |
| ***timingOffset***  This field indicates the estimated timing for a packet arrival in a SL/UL logical channel. Specifically, the value indicates the timing offset with respect to subframe#0 of SFN#0 in milliseconds. |
| ***trafficDestination***  Indicates the destination associated with the reported traffic pattern for V2X sidelink communication. |
| ***trafficPatternInfoListSL***  This field provides the traffic characteristics of sidelink logical channel(s) that are setup for V2X sidelink communication. If *trafficPatternInfoListSL-v1530* is included*,* it includes the same number of entries, and listed in the same order, as in*trafficPatternInfoListSL-r14*. |
| ***trafficPatternInfoListUL***  This field provides the traffic characteristics of uplink logical channel(s). |
| ***trafficPeriodicity***  This field indicates the estimated data arrival periodicity in a SL/UL logical channel. Value sf20 corresponds to 20 ms, sf50 corresponds to 50 ms and so on. |
| ***type1***  Indicates the preferred amount of increment/decrement to the connected mode DRX cycle length with respect to the current configuration. Value in number of milliseconds. Value ms40 corresponds to 40 milliseconds, msMinus40 corresponds to -40 milliseconds and so on. |
| ***type2***  Indicates the preferred amount of increment/decrement to the coverage enhancement configuration with respect to the current configuration so that the Uu air interface delay changes by the indicated amount. Value in number of milliseconds. Value ms24 corresponds to 24 milliseconds, msMinus24 corresponds to -24 milliseconds and so on. |
| ***ul-Preference***  Indicates UE's preference on configuration of maximum PUSCH bandwidth. The value mhz1dot4 corresponds to CE mode usage in 1.4MHz bandwidth, and mhz5 corresponds to CE mode usage in 5MHz bandwidth. |

– *UEAssistanceInformationNR*

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

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to E‑UTRAN

***UEAssistanceInformationNR message***

-- ASN1START

UEAssistanceInformationNR-r16 ::= SEQUENCE {

criticalExtensions CHOICE {

c1 CHOICE {

ueAssistanceInformationNR-r16 UEAssistanceInformationNR-r16-IEs,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

UEAssistanceInformationNR-r16-IEs ::= SEQUENCE {

configuredGrantAssistanceInfo-r16 OCTET STRING OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

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

Next change

## 6.3 RRC information elements

### 6.3.1 System information blocks

*/unchanged parts are omitted/*

– *SystemInformationBlockType21*

The IE *SystemInformationBlockType21* contains V2X sidelink communication configuration.

***SystemInformationBlockType21* information element**

-- ASN1START

SystemInformationBlockType21-r14 ::= SEQUENCE {

sl-V2X-ConfigCommon-r14 SL-V2X-ConfigCommon-r14 OPTIONAL, -- Need OR

lateNonCriticalExtension OCTET STRING OPTIONAL,

...,

[[ anchorCarrierFreqListNR-r16 SL-NR-AnchorCarrierFreqList-r16 OPTIONAL -- Need OR

]]}

SL-V2X-ConfigCommon-r14 ::= SEQUENCE {

v2x-CommRxPool-r14 SL-CommRxPoolListV2X-r14 OPTIONAL, -- Need OR

v2x-CommTxPoolNormalCommon-r14 SL-CommTxPoolListV2X-r14 OPTIONAL, -- Need OR

p2x-CommTxPoolNormalCommon-r14 SL-CommTxPoolListV2X-r14 OPTIONAL, -- Need OR

v2x-CommTxPoolExceptional-r14 SL-CommResourcePoolV2X-r14 OPTIONAL, -- Need OR

v2x-SyncConfig-r14  SL-SyncConfigListV2X-r14 OPTIONAL, -- Need OR

v2x-InterFreqInfoList-r14 SL-InterFreqInfoListV2X-r14 OPTIONAL, -- Need OR

v2x-ResourceSelectionConfig-r14 SL-CommTxPoolSensingConfig-r14 OPTIONAL, -- Need OR

zoneConfig-r14 SL-ZoneConfig-r14 OPTIONAL, -- Need OR

typeTxSync-r14 SL-TypeTxSync-r14 OPTIONAL, -- Need OR

thresSL-TxPrioritization-r14 SL-Priority-r13 OPTIONAL, -- Need OR

anchorCarrierFreqList-r14 SL-AnchorCarrierFreqList-V2X-r14 OPTIONAL, -- Need OR

offsetDFN-r14 INTEGER (0..1000) OPTIONAL, -- Need OR

cbr-CommonTxConfigList-r14 SL-CBR-CommonTxConfigList-r14 OPTIONAL -- Need OR

}

-- ASN1STOP

| ***SystemInformationBlockType21* field descriptions** |
| --- |
| ***anchorCarrierFreqList***  Indicates EUTRA carrier frequencies which may include inter-carrier resource configuration for V2X sidelink communication. |
| ***anchorCarrierFreqListNR***  Indicates NR carrier frequencies which may include inter-carrier resource configuration for V2X sidelink communication. |
| ***cbr-CommonTxConfigList***  Indicates the common list of CBR ranges and the list of PSSCH transmissions parameter configurations available to configure congestion control to the UE for V2X sidelink communication. |
| ***offsetDFN***  Indicates the timing offset for the UE to determine DFN timing when GNSS is used for timing reference for the PCell. Value 0 corresponds to 0 milliseconds, value 1 corresponds to 0.001 milliseconds, value 2 corresponds to 0.002 milliseconds, and so on. |
| ***p2x-CommTxPoolNormalCommon***  Indicates the resources by which the UE is allowed to transmit P2X related V2X sidelink communication. *zoneID* is not configured in the pools in this field. |
| ***thresSL-TxPrioritization***  Indicates the threshold used to determine whether SL V2X transmission is prioritized over uplink transmission if they overlap in time (see TS 36.321 [6]). This value shall overwrite *thresSL-TxPrioritization* configured in *SL-V2X-Preconfiguration* if any. |
| ***typeTxSync***  Indicates the prioritized synchronization type (i.e. eNB or GNSS) for performing V2X sidelink communication on the carrier frequency on which this field is broadcast. |
| ***v2x-CommRxPool***  Indicates the resources by which the UE is allowed to receive V2X sidelink communication while in RRC\_IDLE and in RRC\_CONNECTED. |
| ***v2x-CommTxPoolExceptional***  Indicates the resources by which the UE is allowed to transmit V2X sidelink communication in exceptional conditions, as specified in 5.10.13. |
| ***v2x-CommTxPoolNormalCommon***  Indicates the resources by which the UE is allowed to transmit non-P2X related V2X sidelink communication when in RRC\_IDLE or when in RRC\_CONNECTED while transmitting V2X sidelink communication via a frequency other than the primary. E-UTRAN configures one resource pool per zone. |
| ***v2x-InterFreqInfoList***  Indicates synchronization and resource allocation configurations of neighboring frequencies for V2X sidelink communication. |
| ***v2x-ResourceSelectionConfig***  Indicates V2X sidelink communication configurations used for UE autonomous resource selection. |
| ***v2x-SyncConfig***  Indicates the configuration by which the UE is allowed to receive and transmit synchronisation information for V2X sidelink communication. E-UTRAN configures *v2x-*S*yncConfig* including *txParameters* when configuring UEs to transmit synchronisation information. |
| ***zoneConfig***  Indicates zone configurations used for V2X sidelink communication in 5.10.13.2. |

*/unchanged parts are omitted/*

#### – *SystemInformationBlockTypeXX2*

The IE *SystemInformationBlockTypeXX2* contains NR sidelink communication configuration.

*SystemInformationBlockTypeXX2* information element

-- ASN1START

SystemInformationBlockTypeXX2-r16 ::= SEQUENCE {

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

lateNonCriticalExtension OCTET STRING OPTIONAL,

...

}

-- ASN1STOP

| *SystemInformationBlockTypeXX2* field descriptions |
| --- |
| ***sl-ConfigCommonNR***  Container for the configuration for NR sidelink communication, this fieild includes the *SL-ConfigCommonNR* IE as specified in TS 38.331 [82]. |

Next change

### 6.3.5 Measurement information elements

*/unchanged parts are omitted/*

– *MeasObjectNR*

The IE *MeasObjectNR* specifies information applicable for inter-RAT NR neighbouring cells.

***MeasObjectNR* information element**

-- ASN1START

MeasObjectNR-r15 ::= SEQUENCE {

carrierFreq-r15 ARFCN-ValueNR-r15,

rs-ConfigSSB-r15 RS-ConfigSSB-NR-r15,

threshRS-Index-r15 ThresholdListNR-r15 OPTIONAL, -- Need OR

maxRS-IndexCellQual-r15 MaxRS-IndexCellQualNR-r15 OPTIONAL, -- Need OR

offsetFreq-r15 Q-OffsetRangeInterRAT DEFAULT 0,

blackCellsToRemoveList-r15 CellIndexList OPTIONAL, -- Need ON

blackCellsToAddModList-r15 CellsToAddModListNR-r15 OPTIONAL, -- Need ON

quantityConfigSet-r15 INTEGER (1.. maxQuantSetsNR-r15),

cellsForWhichToReportSFTD-r15 SEQUENCE (SIZE (1..maxCellSFTD)) OF PhysCellIdNR-r15 OPTIONAL, -- Need OR

...,

[[ cellForWhichToReportCGI-r15 PhysCellIdNR-r15 OPTIONAL, -- Need ON

deriveSSB-IndexFromCell-r15 BOOLEAN OPTIONAL, -- Need ON

ss-RSSI-Measurement-r15 SS-RSSI-Measurement-r15 OPTIONAL, -- Need ON

bandNR-r15 CHOICE {

release NULL,

setup FreqBandIndicatorNR-r15

} OPTIONAL -- Need ON

]]

}

RS-ConfigSSB-NR-r15 ::= SEQUENCE {

measTimingConfig-r15 MTC-SSB-NR-r15,

subcarrierSpacingSSB-r15 ENUMERATED {kHz15, kHz30, kHz120, kHz240},

...,

[[ ssb-ToMeasure-r15 CHOICE {

release NULL,

setup SSB-ToMeasure-r15

} OPTIONAL -- Need ON

]]

}

CellsToAddModListNR-r15 ::= SEQUENCE (SIZE (1..maxCellMeas)) OF CellsToAddModNR-r15

CellsToAddModNR-r15 ::= SEQUENCE {

cellIndex-r15 INTEGER (1..maxCellMeas),

physCellId-r15 PhysCellIdNR-r15

}

-- ASN1STOP

| ***MeasObjectNR* field descriptions** |
| --- |
| ***bandNR***  Indicates the frequency band of the NR carrier frequency configured in this *MeasObjectNR*. This field is always set to setup when the network configures measurements with this *MeasObjectNR*. |
| ***carrierFreq***  Identifies the SSB frequency to be measured. E-UTRAN does not configure more than one measurement object for the same SSB frequency. |
| ***deriveSSB-IndexFromCell***  The field indicates whether the UE may use, to derive the SSB index of a cell on the indicated SSB frequency and subcarrier spacing, the timing of the NR serving cell with the same SSB frequency and subcarrier spacing if configured. Otherwise, the field indicates whether the UE may use the timing of any detected cell with the same SSB frequency and subcarrier spacing. |
| ***quantityConfigSet***  Indicates the n-th element of *quantityConfigNRList* provided in *MeasConfig*. |
| ***rs-ConfigSSB***  Indicates the SSB configuration for measuring the set of SS blocks within the SMTC measurement duration. |
| ***threshRS-Index***  List of thresholds for consolidation of L1 measurements per RS index. |

– *MeasObjectNR-SL*

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

***MeasObjectNR-SL* information element**

-- ASN1START

MeasObjectNR-SL-r16 ::= SEQUENCE {

carrierFreq-r15 ARFCN-ValueNR-r15,

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

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

...

}

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

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

SL-PoolReportNR-r16 ::= SEQUENCE {

sl-ResourcePoolReportNR-r16 OCTET STRING,

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

}

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

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

}

-- ASN1STOP

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

– *MeasObjectToAddModList*

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

***MeasObjectToAddModList* information element**

-- ASN1START

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

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

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

MeasObjectToAddMod ::= SEQUENCE {

measObjectId MeasObjectId,

measObject CHOICE {

measObjectEUTRA MeasObjectEUTRA,

measObjectUTRA MeasObjectUTRA,

measObjectGERAN MeasObjectGERAN,

measObjectCDMA2000 MeasObjectCDMA2000,

...,

measObjectWLAN-r13 MeasObjectWLAN-r13,

measObjectNR-r15 MeasObjectNR-r15,

measObjectNR-SL-r16 MeasObjectNR-SL-r16

}

}

MeasObjectToAddModExt-r13 ::= SEQUENCE {

measObjectId-r13 MeasObjectId-v1310,

measObject-r13 CHOICE {

measObjectEUTRA-r13 MeasObjectEUTRA,

measObjectUTRA-r13 MeasObjectUTRA,

measObjectGERAN-r13 MeasObjectGERAN,

measObjectCDMA2000-r13 MeasObjectCDMA2000,

...,

measObjectWLAN-v1320 MeasObjectWLAN-r13,

measObjectNR-r15 MeasObjectNR-r15,

measObjectNR-SL-r16 MeasObjectNR-SL-r16

}

}

MeasObjectToAddMod-v9e0 ::= SEQUENCE {

measObjectEUTRA-v9e0 MeasObjectEUTRA-v9e0 OPTIONAL -- Cond eutra

}

-- ASN1STOP

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

*/unchanged parts are omitted/*

– *MeasResults*

The IE *MeasResults* covers measured results for intra-frequency, inter-frequency and inter- RAT mobility.

***MeasResults* information element**

-- ASN1START

MeasResults ::= SEQUENCE {

measId MeasId,

measResultPCell SEQUENCE {

rsrpResult RSRP-Range,

rsrqResult RSRQ-Range

},

measResultNeighCells CHOICE {

measResultListEUTRA MeasResultListEUTRA,

measResultListUTRA MeasResultListUTRA,

measResultListGERAN MeasResultListGERAN,

measResultsCDMA2000 MeasResultsCDMA2000,

...,

measResultNeighCellListNR-r15 MeasResultCellListNR-r15

} OPTIONAL,

...,

[[ measResultForECID-r9 MeasResultForECID-r9 OPTIONAL

]],

[[ locationInfo-r10 LocationInfo-r10 OPTIONAL,

measResultServFreqList-r10 MeasResultServFreqList-r10 OPTIONAL

]],

[[ measId-v1250 MeasId-v1250 OPTIONAL,

measResultPCell-v1250 RSRQ-Range-v1250 OPTIONAL,

measResultCSI-RS-List-r12 MeasResultCSI-RS-List-r12 OPTIONAL

]],

[[ measResultForRSSI-r13 MeasResultForRSSI-r13 OPTIONAL,

measResultServFreqListExt-r13 MeasResultServFreqListExt-r13 OPTIONAL,

measResultSSTD-r13 MeasResultSSTD-r13 OPTIONAL,

measResultPCell-v1310 SEQUENCE {

rs-sinr-Result-r13 RS-SINR-Range-r13

} OPTIONAL,

ul-PDCP-DelayResultList-r13 UL-PDCP-DelayResultList-r13 OPTIONAL,

measResultListWLAN-r13 MeasResultListWLAN-r13 OPTIONAL

]],

[[ measResultPCell-v1360 RSRP-Range-v1360 OPTIONAL

]],

[[ measResultListCBR-r14 MeasResultListCBR-r14 OPTIONAL,

measResultListWLAN-r14 MeasResultListWLAN-r14 OPTIONAL

]],

[[ measResultServFreqListNR-r15 MeasResultServFreqListNR-r15 OPTIONAL,

measResultCellListSFTD-r15 MeasResultCellListSFTD-r15 OPTIONAL

]],

[[ logMeasResultListBT-r15 LogMeasResultListBT-r15 OPTIONAL,

logMeasResultListWLAN-r15 LogMeasResultListWLAN-r15 OPTIONAL,

measResultSensing-r15 MeasResultSensing-r15 OPTIONAL,

heightUE-r15 INTEGER (-400..8880) OPTIONAL

]],

[[ measResultListNR-SL-r16 MeasResultListNR-SL-r16 OPTIONAL

]]

}

MeasResultListEUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultEUTRA

MeasResultEUTRA ::= SEQUENCE {

physCellId PhysCellId,

cgi-Info SEQUENCE {

cellGlobalId CellGlobalIdEUTRA,

trackingAreaCode TrackingAreaCode,

plmn-IdentityList PLMN-IdentityList2 OPTIONAL

} OPTIONAL,

measResult SEQUENCE {

rsrpResult RSRP-Range OPTIONAL,

rsrqResult RSRQ-Range OPTIONAL,

...,

[[ additionalSI-Info-r9 AdditionalSI-Info-r9 OPTIONAL

]],

[[ primaryPLMN-Suitable-r12 ENUMERATED {true} OPTIONAL,

measResult-v1250 RSRQ-Range-v1250 OPTIONAL

]],

[[ rs-sinr-Result-r13 RS-SINR-Range-r13 OPTIONAL,

cgi-Info-v1310 SEQUENCE {

freqBandIndicator-r13 FreqBandIndicator-r11 OPTIONAL,

multiBandInfoList-r13 MultiBandInfoList-r11 OPTIONAL,

freqBandIndicatorPriority-r13 ENUMERATED {true} OPTIONAL

} OPTIONAL

]],

[[

measResult-v1360 RSRP-Range-v1360 OPTIONAL

]],

[[

cgi-Info-5GC-r15 SEQUENCE (SIZE (1..maxPLMN-r11)) OF CellAccessRelatedInfo-5GC-r15 OPTIONAL

]]

}

}

MeasResultListIdle-r15 ::= SEQUENCE (SIZE (1..maxIdleMeasCarriers-r15)) OF MeasResultIdle-r15

MeasResultIdle-r15 ::= SEQUENCE {

measResultServingCell-r15 SEQUENCE {

rsrpResult-r15 RSRP-Range,

rsrqResult-r15 RSRQ-Range-r13

},

measResultNeighCells-r15 CHOICE {

measResultIdleListEUTRA-r15 MeasResultIdleListEUTRA-r15,

...

} OPTIONAL,

...

}

MeasResultIdleListEUTRA-r15 ::= SEQUENCE (SIZE (1..maxCellMeasIdle-r15)) OF MeasResultIdleEUTRA-r15

MeasResultIdleEUTRA-r15 ::= SEQUENCE {

carrierFreq-r15 ARFCN-ValueEUTRA-r9,

physCellId-r15 PhysCellId,

measResult-r15 SEQUENCE {

rsrpResult-r15 RSRP-Range,

rsrqResult-r15 RSRQ-Range-r13

},

...

}

MeasResultServFreqListNR-r15 ::= SEQUENCE (SIZE (1..maxServCell-r13)) OF MeasResultServFreqNR-r15

MeasResultServFreqNR-r15 ::= SEQUENCE {

carrierFreq-r15 ARFCN-ValueNR-r15,

measResultSCell-r15 MeasResultCellNR-r15 OPTIONAL,

measResultBestNeighCell-r15 MeasResultCellNR-r15 OPTIONAL,

...

}

MeasResultCellListNR-r15::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultCellNR-r15

MeasResultCellNR-r15 ::= SEQUENCE {

pci-r15 PhysCellIdNR-r15,

measResultCell-r15 MeasResultNR-r15,

measResultRS-IndexList-r15 MeasResultSSB-IndexList-r15 OPTIONAL,

...,

[[ cgi-Info-r15 CGI-InfoNR-r15 OPTIONAL

]]

}

MeasResultNR-r15 ::= SEQUENCE {

rsrpResult-r15 RSRP-RangeNR-r15 OPTIONAL,

rsrqResult-r15 RSRQ-RangeNR-r15 OPTIONAL,

rs-sinr-Result-r15 RS-SINR-RangeNR-r15 OPTIONAL,

...

}

MeasResultSSB-IndexList-r15::= SEQUENCE (SIZE (1..maxRS-IndexReport-r15)) OF MeasResultSSB-Index-r15

MeasResultSSB-Index-r15 ::= SEQUENCE {

ssb-Index-r15 RS-IndexNR-r15,

measResultSSB-Index-r15 MeasResultNR-r15 OPTIONAL,

...

}

MeasResultServFreqList-r10 ::= SEQUENCE (SIZE (1..maxServCell-r10)) OF MeasResultServFreq-r10

MeasResultServFreqListExt-r13 ::= SEQUENCE (SIZE (1..maxServCell-r13)) OF MeasResultServFreq-r13

MeasResultServFreq-r10 ::= SEQUENCE {

servFreqId-r10 ServCellIndex-r10,

measResultSCell-r10 SEQUENCE {

rsrpResultSCell-r10 RSRP-Range,

rsrqResultSCell-r10 RSRQ-Range

} OPTIONAL,

measResultBestNeighCell-r10 SEQUENCE {

physCellId-r10 PhysCellId,

rsrpResultNCell-r10 RSRP-Range,

rsrqResultNCell-r10 RSRQ-Range

} OPTIONAL,

...,

[[ measResultSCell-v1250 RSRQ-Range-v1250 OPTIONAL,

measResultBestNeighCell-v1250 RSRQ-Range-v1250 OPTIONAL

]],

[[ measResultSCell-v1310 SEQUENCE {

rs-sinr-Result-r13 RS-SINR-Range-r13

} OPTIONAL,

measResultBestNeighCell-v1310 SEQUENCE {

rs-sinr-Result-r13 RS-SINR-Range-r13

} OPTIONAL

]]

}

MeasResultServFreq-r13 ::= SEQUENCE {

servFreqId-r13 ServCellIndex-r13,

measResultSCell-r13 SEQUENCE {

rsrpResultSCell-r13 RSRP-Range,

rsrqResultSCell-r13 RSRQ-Range-r13,

rs-sinr-Result-r13 RS-SINR-Range-r13 OPTIONAL

} OPTIONAL,

measResultBestNeighCell-r13 SEQUENCE {

physCellId-r13 PhysCellId,

rsrpResultNCell-r13 RSRP-Range,

rsrqResultNCell-r13 RSRQ-Range-r13,

rs-sinr-Result-r13 RS-SINR-Range-r13 OPTIONAL

} OPTIONAL,

...,

[[ measResultBestNeighCell-v1360 SEQUENCE {

rsrpResultNCell-v1360 RSRP-Range-v1360

} OPTIONAL

]]

}

MeasResultCSI-RS-List-r12 ::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultCSI-RS-r12

MeasResultCSI-RS-r12 ::= SEQUENCE {

measCSI-RS-Id-r12 MeasCSI-RS-Id-r12,

csi-RSRP-Result-r12 CSI-RSRP-Range-r12,

...

}

MeasResultListUTRA ::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultUTRA

MeasResultUTRA ::= SEQUENCE {

physCellId CHOICE {

fdd PhysCellIdUTRA-FDD,

tdd PhysCellIdUTRA-TDD

},

cgi-Info SEQUENCE {

cellGlobalId CellGlobalIdUTRA,

locationAreaCode BIT STRING (SIZE (16)) OPTIONAL,

routingAreaCode BIT STRING (SIZE (8)) OPTIONAL,

plmn-IdentityList PLMN-IdentityList2 OPTIONAL

} OPTIONAL,

measResult SEQUENCE {

utra-RSCP INTEGER (-5..91) OPTIONAL,

utra-EcN0 INTEGER (0..49) OPTIONAL,

...,

[[ additionalSI-Info-r9 AdditionalSI-Info-r9 OPTIONAL

]],

[[ primaryPLMN-Suitable-r12 ENUMERATED {true} OPTIONAL

]]

}

}

MeasResultListGERAN ::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultGERAN

MeasResultGERAN ::= SEQUENCE {

carrierFreq CarrierFreqGERAN,

physCellId PhysCellIdGERAN,

cgi-Info SEQUENCE {

cellGlobalId CellGlobalIdGERAN,

routingAreaCode BIT STRING (SIZE (8)) OPTIONAL

} OPTIONAL,

measResult SEQUENCE {

rssi INTEGER (0..63),

...

}

}

MeasResultsCDMA2000 ::= SEQUENCE {

preRegistrationStatusHRPD BOOLEAN,

measResultListCDMA2000 MeasResultListCDMA2000

}

MeasResultListCDMA2000 ::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultCDMA2000

MeasResultCDMA2000 ::= SEQUENCE {

physCellId PhysCellIdCDMA2000,

cgi-Info CellGlobalIdCDMA2000 OPTIONAL,

measResult SEQUENCE {

pilotPnPhase INTEGER (0..32767) OPTIONAL,

pilotStrength INTEGER (0..63),

...

}

}

MeasResultListWLAN-r13 ::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultWLAN-r13

MeasResultListWLAN-r14 ::= SEQUENCE (SIZE (1..maxWLAN-Id-Report-r14)) OF MeasResultWLAN-r13

MeasResultWLAN-r13 ::= SEQUENCE {

wlan-Identifiers-r13 WLAN-Identifiers-r12,

carrierInfoWLAN-r13 WLAN-CarrierInfo-r13 OPTIONAL,

bandWLAN-r13 WLAN-BandIndicator-r13 OPTIONAL,

rssiWLAN-r13 WLAN-RSSI-Range-r13,

availableAdmissionCapacityWLAN-r13 INTEGER (0..31250) OPTIONAL,

backhaulDL-BandwidthWLAN-r13 WLAN-backhaulRate-r12 OPTIONAL,

backhaulUL-BandwidthWLAN-r13 WLAN-backhaulRate-r12 OPTIONAL,

channelUtilizationWLAN-r13 INTEGER (0..255) OPTIONAL,

stationCountWLAN-r13 INTEGER (0..65535) OPTIONAL,

connectedWLAN-r13 ENUMERATED {true} OPTIONAL,

...

}

MeasResultListCBR-r14 ::= SEQUENCE (SIZE (1..maxCBR-Report-r14)) OF MeasResultCBR-r14

MeasResultCBR-r14 ::= SEQUENCE {

poolIdentity-r14 SL-V2X-TxPoolReportIdentity-r14,

cbr-PSSCH-r14 SL-CBR-r14,

cbr-PSCCH-r14 SL-CBR-r14 OPTIONAL

}

MeasResultListNR-SL-r16 ::= SEQUENCE (SIZE (1..maxCBR-ReportNR-r16)) OF MeasResultCBR-NR-r16

MeasResultCBR-NR-r16 ::= SEQUENCE {

poolIdentityNR-r16 SL-ResourcePoolID-NR-r16,

cbr-ResultsNR-r16 OCTET STRING

}

MeasResultSensing-r15 ::= SEQUENCE {

sl-SubframeRef-r15 INTEGER (0..10239),

sensingResult-r15 SEQUENCE (SIZE (0..400)) OF SensingResult-r15

}

SensingResult-r15 ::= SEQUENCE {

resourceIndex-r15 INTEGER (1..2000)

}

MeasResultForECID-r9 ::= SEQUENCE {

ue-RxTxTimeDiffResult-r9 INTEGER (0..4095),

currentSFN-r9 BIT STRING (SIZE (10))

}

PLMN-IdentityList2 ::= SEQUENCE (SIZE (1..5)) OF PLMN-Identity

AdditionalSI-Info-r9 ::= SEQUENCE {

csg-MemberStatus-r9 ENUMERATED {member} OPTIONAL,

csg-Identity-r9 CSG-Identity OPTIONAL

}

MeasResultForRSSI-r13 ::= SEQUENCE {

rssi-Result-r13 RSSI-Range-r13,

channelOccupancy-r13 INTEGER (0..100),

...

}

UL-PDCP-DelayResultList-r13 ::= SEQUENCE (SIZE (1..maxQCI-r13)) OF UL-PDCP-DelayResult-r13

UL-PDCP-DelayResult-r13 ::= SEQUENCE {

qci-Id-r13 ENUMERATED {qci1, qci2, qci3, qci4, spare4, spare3, spare2, spare1},

excessDelay-r13 INTEGER (0..31),

...

}

CGI-InfoNR-r15 ::= SEQUENCE {

plmn-IdentityInfoList-r15 PLMN-IdentityInfoListNR-r15 OPTIONAL,

frequencyBandList-15 MultiFrequencyBandListNR-r15 OPTIONAL,

noSIB1-r15 SEQUENCE {

ssb-SubcarrierOffset-r15 INTEGER (0..15),

pdcch-ConfigSIB1-r15 INTEGER (0..255)

} OPTIONAL,

...

}

CellIdentityNR-r15 ::= BIT STRING (SIZE (36))

PLMN-IdentityListNR-r15 ::= SEQUENCE (SIZE (1.. maxPLMN-NR-r15)) OF PLMN-Identity

PLMN-IdentityInfoListNR-r15 ::= SEQUENCE (SIZE (1..maxPLMN-NR-r15)) OF PLMN-IdentityInfoNR-r15

PLMN-IdentityInfoNR-r15 ::= SEQUENCE {

plmn-IdentityList-r15 PLMN-IdentityListNR-r15,

trackingAreaCode-r15 TrackingAreaCodeNR-r15 OPTIONAL,

ran-AreaCode-r15 RAN-AreaCode-r15 OPTIONAL,

cellIdentity-r15 CellIdentityNR-r15

}

TrackingAreaCodeNR-r15 ::= BIT STRING (SIZE (24))

-- ASN1STOP

| ***MeasResults* field descriptions** |
| --- |
| ***availableAdmissionCapacityWLAN***  Indicates the available admission capacity of WLAN as defined in IEEE 802.11-2012 [67]. |
| ***backhaulDL-BandwidthWLAN***  Indicates the backhaul available downlink bandwidth of WLAN, equal to Downlink Speed times Downlink Load defined in Wi-Fi Alliance Hotspot 2.0 [76]. |
| ***backhaulUL-BandwidthWLAN***  Indicates the backhaul available uplink bandwidth of WLAN, equal to Uplink Speed times Uplink Load defined in Wi-Fi Alliance Hotspot 2.0 [76]. |
| ***bandWLAN***  Indicates the WLAN band. |
| ***carrierFreq***  Indicates the carrier frequency. Within *MeasResultIdleListEUTRA-r15*, UE only includes measurements with the same carrier frequency. |
| ***carrierInfoWLAN***  Indicates the WLAN channel information. |
| ***cbr-PSSCH***  Indicates the CBR measurement results on the PSSCH of the pool indicated by *poolIdentity*. If *adjacencyPSCCH-PSSCH* is set to *TRUE* for the pool indicated by *pooIIdentit*y, this field indicates the CBR measurement of both the PSSCH and PSCCH resources which are measured together. |
| ***cbr-PSCCH***  Indicates the CBR measurement results on the PSCCH of the pool indicated by *poolIdentity.* This field is only included if *adjacencyPSCCH-PSSCH* is set to *FALSE* for the pool indicated by *pooIIdentity*. |
| ***CBR-ResultsNR***  Container for the CBR measurement results measured on the the pool indicated by *poolIdentityNR*, this fieild includes the *sl-CBR-ResultsNR* IE as specified in TS 38.331 [82]. |
| ***channelOccupancy***  Indicates the percentage of samples when the RSSI was above the configured *channelOccupancyThreshold* for the associated *reportConfig*. |
| ***channelUtilizationWLAN***  Indicates WLAN channel utilization as defined in IEEE 802.11-2012 [67]. |
| ***connectedWLAN***  Indicates whether the UE is connected to the WLAN for which the measurement results are applicable. |
| ***csg-MemberStatus***  Indicates whether or not the UE is a member of the CSG of the neighbour cell. |
| ***currentSFN***  Indicates the current system frame number when receiving the UE Rx-Tx time difference measurement results from lower layer. |
| ***excessDelay***  Indicates excess queueing delay ratio in UL, according to excess delay ratio measurement report mapping table, as defined in TS 36.314 [71], Table 4.2.1.1.1-1. |
| ***heightUE***  Indicates height of the UE in meters relative to the sea level. Value 0 corresponds to sea level (i.e., negative value indicates depth of the UE below sea level). Value -400 corresponds to -400 m, value -399 corresponds to -399 m and so on. |
| ***locationAreaCode***  A fixed length code identifying the location area within a PLMN, as defined in TS 23.003 [27]. |
| ***measId***  Identifies the measurement identity for which the reporting is being performed. If the *measId-v1250* is included, the *measId* (i.e. without a suffix) is ignored by eNB. |
| ***measResult***  Measured result of an E‑UTRA cell;  Measured result of a UTRA cell;  Measured result of a GERAN cell or frequency;  Measured result of a CDMA2000 cell;  Measured result of a WLAN;  Measured result of UE Rx–Tx time difference;  Measured result of UE SFN, radio frame and subframe timing difference; or  Measured result of RSSI and channel occupancy. |
| ***measResultCSI-RS-List***  Measured results of the CSI-RS resources in discovery signals measurement. |
| ***measResultListCDMA2000***  List of measured results for the maximum number of reported best cells for a CDMA2000 measurement identity. |
| ***measResultListEUTRA***  List of measured results for the maximum number of reported best cells for an E‑UTRA measurement identity. For UE supporting CE Mode B, when CE mode B is not restricted by upper layers, *measResult-v1360* is reported if the measured RSRP is less than -140 dBm. |
| ***measResultListGERAN***  List of measured results for the maximum number of reported best cells or frequencies for a GERAN measurement identity. |
| ***MeasResultCBR-NR***  List of measurement results for the transmission resource pool(s) for which CBR measurement is performed for NR sidelink communication. |
| ***measResultListSFTD***  List of measured SFTD results for the reported cells for a NR measurement identity. |
| ***measResultListUTRA***  List of measured results for the maximum number of reported best cells for a UTRA measurement identity. |
| ***measResultListWLAN***  List of measured results for the maximum number of reported best WLAN outside the WLAN mobility set and connected WLAN, if any, for a WLAN measurement identity. |
| ***measResultPCell***  Measured result of the PCell. For BL UEs or UEs in CE, when operating in CE Mode B, *measResultPCell-v1360* is reported if the measured RSRP is less than -140 dBm. |
| **measResultsCDMA2000**  Contains the CDMA2000 HRPD pre-registration status and the list of CDMA2000 measurements. |
| ***MeasResultServFreqList***  Measured results of the serving frequencies: the measurement result of each SCell, if any, and of the best neighbouring cell on each serving frequency. For UE supporting CE Mode B, when CE mode B is not restricted by upper layers, *measResultBestNeighCell-v1360* is reported if the measured RSRP is less than -140 dBm. |
| ***measResultServingCell***  Measured results of the serving cell (i.e., PCell) from IDLE mode measurements. |
| ***noSIB1***  Contains *ssb-SubcarrierOffset* and *pdcch-ConfigSIB1* fields acquired by the UE from MIB of the cell for which report CGI procedure was requested by the network in case SIB1 was not broadcast by the cell. |
| ***pilotPnPhase***  Indicates the arrival time of a CDMA2000 pilot, measured relative to the UE's time reference in units of PN chips, see C.S0005 [25]. This information is used in either SRVCC handover or enhanced 1xRTT CS fallback procedure to CDMA2000 1xRTT. |
| ***pilotStrength***  CDMA2000 Pilot Strength, the ratio of pilot power to total power in the signal bandwidth of a CDMA2000 Forward Channel. See C.S0005 [25] for CDMA2000 1xRTT and C.S0024 [26] for CDMA2000 HRPD. |
| ***poolIdentity***  The identity of the transmission resource pool which is corresponding to the *poolReportId* configured ina resource pool for V2X sidelink communication. |
| ***poolIdentityNR***  The identity of the transmission resource pool which is corresponding to the *sl-TxPoolReportID* configured for the resource pools for CBR measurement and reporting for NR sidelink communication. |
| ***plmn-IdentityList***  The list of PLMN Identity read from broadcast information when the multiple PLMN Identities are broadcast. |
| ***preRegistrationStatusHRPD***  Set to TRUE if the UE is currently pre-registered with CDMA2000 HRPD. Otherwise set to FALSE. This can be ignored by the eNB for CDMA2000 1xRTT. |
| ***qci-Id***  Indicates QCI value for which *excessDelay* is provided, according to TS 36.314 [71]. |
| **resourceIndex**  Indicates the available resource candidates within the [T1, T2] window as specified in TS 36.213 [23]. clause 14.1.1.6. Value 1 indicates the resource candidate on the subframe indicated by *sl-SubframeRe*f, from subchannel 0 to *sensingSubchannelNumber*-1. Value 2 indicates the resource candidate on the first subframe following the subframe indicated by *sl-SubframeRef*, from subchannel 0 to *sensingSubchannelNumber*-1 (Value 101 indicates the resource candidate on the subframe indicated by *sl-SubframeRef*, from subchannel 1 to *sensingSubchannelNumber*, if the *numSubchannel* of the resource pool is larger than *sensingSubchannelNumber*) and so on. |
| ***routingAreaCode***  The RAC identity read from broadcast information, as defined in TS 23.003 [27]. |
| ***rsrpResult***  Measured RSRP result of an E‑UTRA cell.  The rsrpResult is only reported if configured by the eNB. |
| ***rsrqResult***  Measured RSRQ result of an E‑UTRA cell.  The rsrqResult is only reported if configured by the eNB. |
| ***rssi***  GERAN Carrier RSSI. RXLEV is mapped to a value between 0 and 63, TS 45.008 [28]. When mapping the RXLEV value to the RSSI bit string, the first/leftmost bit of the bit string contains the most significant bit. |
| ***rssi-Result***  Measured RSSI result in dBm. |
| ***rs-sinr-Result***  Measured RS-SINR result of an E‑UTRA or NR cell. The *rs-sinr-Result* is only reported if configured by the eNB. |
| ***rssiWLAN***  Measured WLAN RSSI result in dBm. |
| ***sl-SubframeRef***  Indicates the subframe corresponding to n+T1 used to obtain the sensing measurement results (see TS 36.213 [23]). Specifically, the value indicates the timing offset with respect to subframe#0 of DFN#0 in milliseconds. |
| ***stationCountWLAN***  Indicates the total number stations currently associated with this WLAN as defined in IEEE 802.11-2012 [67]. |
| ***ue-RxTxTimeDiffResult***  UE Rx-Tx time difference measurement result of the PCell, provided by lower layers. If *ue-RxTxTimeDiffPeriodicalTDD-r13* is set to *TRUE*, the measurement mapping is according to EUTRAN TDD UE Rx-Tx time difference report mapping in TS 36.133 [16] and measurement result includes *NTAoffset*, else the measurement mapping is according to EUTRAN FDD UE Rx-Tx time difference report mapping in TS 36.133 [16]. |
| ***utra-EcN0***  According to CPICH\_Ec/No in TS 25.133 [29] for FDD. Fourteen spare values. The field is not present for TDD. |
| ***utra-RSCP***  According to CPICH\_RSCP in TS 25.133 [29] for FDD and P-CCPCH\_RSCP in TS 25.123 [30] for TDD. Thirty-one spare values. |
| ***wlan-Identifiers***  Indicates the WLAN parameters used for identification of the WLAN for which the measurement results are applicable. |

*/unchanged parts are omitted/*

– *ReportConfigEUTRA*

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

Event A1: Serving becomes better than absolute threshold;

Event A2: Serving becomes worse than absolute threshold;

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

Event A4: Neighbour becomes better than absolute threshold;

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

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

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

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

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

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

Event V1: CBR becomes larger than absolute threshold;

Event V2: CBR becomes smaller than absolute threshold.

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

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

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

***ReportConfigEUTRA* information element**

-- ASN1START

ReportConfigEUTRA ::= SEQUENCE {

triggerType CHOICE {

event SEQUENCE {

eventId CHOICE {

eventA1 SEQUENCE {

a1-Threshold ThresholdEUTRA

},

eventA2 SEQUENCE {

a2-Threshold ThresholdEUTRA

},

eventA3 SEQUENCE {

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

reportOnLeave BOOLEAN

},

eventA4 SEQUENCE {

a4-Threshold ThresholdEUTRA

},

eventA5 SEQUENCE {

a5-Threshold1 ThresholdEUTRA,

a5-Threshold2 ThresholdEUTRA

},

...,

eventA6-r10 SEQUENCE {

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

a6-ReportOnLeave-r10 BOOLEAN

},

eventC1-r12 SEQUENCE {

c1-Threshold-r12 ThresholdEUTRA-v1250,

c1-ReportOnLeave-r12 BOOLEAN

},

eventC2-r12 SEQUENCE {

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

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

c2-ReportOnLeave-r12 BOOLEAN

},

eventV1-r14 SEQUENCE {

v1-Threshold-r14 SL-CBR-r14

},

eventV2-r14 SEQUENCE {

v2-Threshold-r14 SL-CBR-r14

},

eventH1-r15 SEQUENCE {

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

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

},

eventH2-r15 SEQUENCE {

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

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

},

eventS1-r16 SEQUENCE {

s1-Threshold-r16 OCTET STRING

},

eventS2-r16 SEQUENCE {

s2-Threshold-r16 OCTET STRING

}

},

hysteresis Hysteresis,

timeToTrigger TimeToTrigger

},

periodical SEQUENCE {

purpose ENUMERATED {

reportStrongestCells, reportCGI}

}

},

triggerQuantity ENUMERATED {rsrp, rsrq},

reportQuantity ENUMERATED {sameAsTriggerQuantity, both},

maxReportCells INTEGER (1..maxCellReport),

reportInterval ReportInterval,

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

...,

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

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

]],

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

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

]],

[[ alternativeTimeToTrigger-r12 CHOICE {

release NULL,

setup TimeToTrigger

} OPTIONAL, -- Need ON

useT312-r12 BOOLEAN OPTIONAL, -- Need ON

usePSCell-r12 BOOLEAN OPTIONAL, -- Need ON

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

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

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

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

triggerQuantityCSI-RS-r12 BOOLEAN OPTIONAL -- Need ON

]],

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

rs-sinr-Config-r13 CHOICE {

release NULL,

setup SEQUENCE {

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

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

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

reportQuantity-v1310 ENUMERATED {rsrpANDsinr, rsrqANDsinr, all}

}

} OPTIONAL, -- Need ON

useWhiteCellList-r13 BOOLEAN OPTIONAL, -- Need ON

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

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

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

]],

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

]],

[[

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

OPTIONAL -- Need ON

]],

[[

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

]],

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

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

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

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

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

]],

[[

purpose-v16xy ENUMERATED {sidelinkNR} OPTIONAL -- Need ON

]]

}

RSRQ-RangeConfig-r12 ::= CHOICE {

release NULL,

setup RSRQ-Range-v1250

}

ThresholdEUTRA ::= CHOICE{

threshold-RSRP RSRP-Range,

threshold-RSRQ RSRQ-Range

}

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

MeasRSSI-ReportConfig-r13 ::= SEQUENCE {

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

}

-- ASN1STOP

| ***ReportConfigEUTRA* field descriptions** |
| --- |
| ***a3-Offset/ a6-Offset/ c2-Offset***  Offset value to be used in EUTRA measurement report triggering condition for event a3/ a6/ c2. The actual value is field value \* 0.5 dB. |
| ***alternativeTimeToTrigger***  Indicates the time to trigger applicable for cells specified in *altTTT-CellsToAddModList* of the associated measurement object, if configured |
| ***aN-ThresholdM/ cN-ThresholdM***  Threshold to be used in EUTRA measurement report triggering condition for event number aN/ cN. If multiple thresholds are defined for event number aN/ cN, the thresholds are differentiated by M. E-UTRAN configures *aN-Threshold1* only for events A1, A2, A4, A5 and *a5-Threshold2* only for event A5. |
| ***c1-ReportOnLeave/ c2-ReportOnLeave***  Indicates whether or not the UE shall initiate the measurement reporting procedure when the leaving condition is met for a CSI-RS resource in *csi-RS-TriggeredList*, as specified in 5.5.4.1. |
| ***c2-RefCSI-RS***  Identity of the CSI-RS resource from the *measCSI-RS-ToAddModList* of the associated *measObject*, to be used as the reference CSI-RS resource in EUTRA measurement report triggering condition for event c2. |
| ***channelOccupancyThreshold***  RSSI threshold which is used for channel occupancy evaluation. |
| ***eventId***  Choice of E‑UTRA event triggered reporting criteria. EUTRAN may set this field to *eventC1* or *eventC2* only if *measDS-Config* is configured in the associated *measObject* with one or more CSI-RS resources. The *eventC1* and *eventC2* are not applicable for the *eventId* if RS-SINR is configured as *triggerQuantity* or *reportQuantity*. |
| ***h1-Hysteresis, h2-Hysteresis***  This parameter is used within the entry and leave condition of an event triggered reporting condition for event H1 and event H2. The actual value is field value. If this field is configured UE shall ignore parameter *hysteresis.* |
| ***h1-ThresholdOffset, h2-ThresholdOffset***  An offset value to *heightThreshRef* to obtain the threshold to be used in EUTRA height report triggering condition for event H1 and event H2. The value for h1-ThresholdOffset and h2-ThresholdOffset is expressed in meters such that granularity is 2meters. Value 0 corresponds to offset value 0m, value 1 corresponds to offset value 2m, value 2 correspond to offset value 4m, and so on. |
| ***includeMultiBandInfo***  If this field is present, the UE shall acquire and include multi band information in the measurement report. | |
| ***maxReportCells***  Max number of cells, excluding the serving cell, to include in the measurement report concerning CRS, and max number of CSI-RS resources to include in the measurement report concerning CSI-RS. |
| ***measRSSI-ReportConfig***  If this field is present, the UE shall perform measurement reporting for RSSI and channel occupancy and ignore the *triggerQuantity*, *reportQuantity* and *maxReportCells* fields. E-UTRAN only sets this field to *true* when setting *triggerType* to *periodical* and *purpose* to *reportStrongestCells*. |
| ***numberOfTriggeringCells***  Indicates the number of cells detected that are required to fulfill an event for a measurement report to be triggered. This field is set only for the events concerning neighbor cells, i.e. *eventA3*, *eventA4, eventA5*. |
| ***reportAmount***  Number of measurement reports applicable for *triggerType* *event* as well as for *triggerType* *periodical*. In case *purpose* is set to *reportCGI* or *reportSSTD-Meas* is set to *true*, only value 1 applies. |
| ***reportCRS-Meas***  Inidicates that UE shall include rsrp, rsrq together with csi-rsrp in the measurement report, if possible. |
| ***reportOnLeave/ a6-ReportOnLeave/ a4-a5-ReportOnLeave***  Indicates whether or not the UE shall initiate the measurement reporting procedure when the leaving condition is met for a cell in *cellsTriggeredList*, as specified in 5.5.4.1. |
| ***reportQuantity***  The quantities to be included in the measurement report***.*** The value both means that both the rsrp and rsrq quantities are to be included in the measurement report. The value *rsrpANDsinr* and *rsrqANDsinr* mean that both *rsrp* and *rs-sinr* quantities, and both *rsrq* and *rs-sinr* quantities are to be included respectively in the measurement report. The value *all* means that *rsrp*, *rsrq* and *rs-sinr* are to be included in the measurement report. In case *triggerQuantityCSI-RS* is included, only value *sameAsTriggerQuantity* applies. If *reportQuantity*-v*1310* is configured, the UE only considers this extension (and ignores *reportQuantity* i.e. without suffix). |
| ***reportSSTD-Meas***  If this field is set to *true*, the UE shall measure SSTD between the PCell and the PSCell as specified in TS 36.214 [48] and ignore the *triggerQuantity*, *reportQuantity* and *maxReportCells* fields. E-UTRAN only sets this field to *true* when setting *triggerType* to *periodical* and *purpose* to *reportStrongestCells*. |
| ***reportStrongestCSI-RSs***  Indicates that periodical CSI-RS measurement report is performed. EUTRAN configures value *TRUE* only if *measDS-Config* is configured in the associated *measObject* with one or more CSI-RS resources. |
| ***s1-ThresholdOffset, s2-ThresholdOffset***  Threshold used for events s1 and s2 specified in subclauses 5.5.4.X and 5.5.4.Y, respectively. They are containers with contents being *c1-Threshold* IE and *c2-Threshold* IE respectively, as specified in TS 38.331 [82]. |
| ***si-RequestForHO***  The field applies to the *reportCGI* functionality, and when the field is included, the UE is allowed to use autonomous gaps in acquiring system information from the neighbour cell, applies a different value for T321, and includes different fields in the measurement report. |
| ***ThresholdEUTRA***  For RSRP: RSRP based threshold for event evaluation. The actual value is field value – 140 dBm.  For RSRQ: RSRQ based threshold for event evaluation. The actual value is (field value – 40)/2 dB.  For RS-SINR: RS-SINR based threshold for event evaluation. The actual value is (field value -46)/2 dB.  For CSI-RSRP: CSI-RSRP based threshold for event evaluation. The actual value is field value – 140 dBm.  EUTRAN configures the same threshold quantity for all the thresholds of an event. |
| ***timeToTrigger***  Time during which specific criteria for the event needs to be met in order to trigger a measurement report. |
| ***triggerQuantity***  The quantity used to evaluate the triggering condition for the event concerning CRS***.*** EUTRAN sets the value according to the quantity of the *ThresholdEUTRA* for this event. The values rsrp, rsrq and *sinr* correspond to Reference Signal Received Power (RSRP), Reference Signal Received Quality (RSRQ) and Reference Signal Signal to Noise and Interference Ratio (RS-SINR), see TS 36.214 [48]. If *triggerQuantity-v1310* is configured, the UE only considers this extension (and ignores *triggerQuantity* i.e. without suffix). |
| ***triggerQuantityCSI-RS***  The quantity used to evaluate the triggering condition for the event concerning CSI-RS***.*** The value *TRUE* corresponds to CSI Reference Signal Received Power (CSI-RSRP), see TS 36.214 [48]. E-UTRAN configures value *TRUE* if and only if the measurement reporting event concerns CSI-RS. |
| ***ue-RxTxTimeDiffPeriodical***  If this field is present, the UE shall perform UE Rx-Tx time difference measurement reporting and ignore the fields *triggerQuantity*, *reportQuantity* and *maxReportCells*. If the field is present, the only applicable values for the corresponding *triggerType* and *purpose* are periodical and reportStrongestCells respectively. |
| ***ue-RxTxTimeDiffPeriodicalTDD***  If this field is set to *TRUE*, the UE shall performUE Rx-Tx time difference measurement reporting according to EUTRAN TDD UE Rx-Tx time difference report mapping in TS 36.133 [16]. If the field is configured, the *ue-RxTxTimeDiffPeriodical* shall be configured. The field is applicable for TDD only. |
| ***usePSCell***  If this field is set to *TRUE* the UE shall use the PSCell instead of the PCell. E-UTRAN configures value *TRUE* only for events A3 and A5, see 5.5.4.4 and 5.5.4.6. |
| ***useT312***  If value *TRUE* is configured, the UE shall use the timer T312 with the value *t312* as specified in the corresponding *measObject*. If the corresponding *measObject* does not include the timer T312 then the timer T312 is considered as not configured. E-UTRAN configures value *TRUE* only if *triggerType* is set to *event*. |
| ***useWhiteCellList***  Indicates whether only the cells included in the white-list of the associated *measObject* are applicable as specified in 5.5.4.1. E-UTRAN does not configure the field for events A1, A2, C1 and C2. |
| ***ul-DelayConfig***  If the field is present, E-UTRAN configures UL PDCP Packet Delay per QCI measurement and the UE shall ignore the fields *triggerQuantity* and *maxReportCells*. The applicable values for the corresponding *triggerType* and *reportInterval* are *periodical* and (one of the) ms1024, ms2048, ms5120 or ms10240respectively.The *reportInterval* indicates the periodicity for performing and reporting of UL PDCP Delay per QCI measurement as specified in TS 36.314 [71]. |

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

Next change

### 6.3.6 Other information elements

*/unchanged parts are omitted/*

– *OtherConfig*

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

***OtherConfig* information element**

-- ASN1START

OtherConfig-r9 ::= SEQUENCE {

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

...,

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

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

obtainLocationConfig-r11 ObtainLocationConfig-r11 OPTIONAL -- Need ON

]],

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

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

spare2, spare1} OPTIONAL, -- Need OR

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

delayBudgetReportingConfig-r14 CHOICE{

release NULL,

setup SEQUENCE{

delayBudgetReportingProhibitTimer-r14 ENUMERATED {

s0, s0dot4, s0dot8,

s1dot6, s3, s6, s12, s30}

}

} OPTIONAL, -- Need ON

rlm-ReportConfig-r14 CHOICE {

release NULL,

setup SEQUENCE{

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

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

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

}

} OPTIONAL -- Need ON

]],

[[ overheatingAssistanceConfig-r14 CHOICE{

release NULL,

setup SEQUENCE{

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

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

spare3, spare2, spare1}

}

} OPTIONAL -- Need ON

]],

[[ measConfigAppLayer-r15 CHOICE{

release NULL,

setup SEQUENCE{

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

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

}

} OPTIONAL, -- Need ON

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

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

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

]],

[[ configurdGrantAssistanceInfoReport-r16 BOOLEAN OPTIONAL -- Need ON

]]

}

IDC-Config-r11 ::= SEQUENCE {

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

autonomousDenialParameters-r11 SEQUENCE {

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

n20, n30, spare2, spare1},

autonomousDenialValidity-r11 ENUMERATED {

sf200, sf500, sf1000, sf2000,

spare4, spare3, spare2, spare1}

} OPTIONAL, -- Need OR

...,

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

]],

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

]],

[[ idc-Indication-MRDC-r15 CHOICE{

release NULL,

setup CandidateServingFreqListNR-r15

} OPTIONAL -- Cond idc-Ind

]]

}

ObtainLocationConfig-r11 ::= SEQUENCE {

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

}

PowerPrefIndicationConfig-r11 ::= CHOICE{

release NULL,

setup SEQUENCE{

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

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

spare2, spare1}

}

}

ReportProximityConfig-r9 ::= SEQUENCE {

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

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

}

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

-- ASN1STOP

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

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

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

Next change

### 6.3.8 Sidelink information elements

*/unchanged parts are omitted/*

– *SL-NR-AnchorCarrierFreqList*

The IE *SL-NR-AnchorCarrierFreqList* specifies the NR anchor frequencies i.e. frequencies that include inter-carrier resource configuration for V2X sidelink communication.

*SL-NR-AnchorCarrierFreqList* information element

-- ASN1START

SL-NR-AnchorCarrierFreqList-r16 ::= SEQUENCE (SIZE (1..maxFreqSL-NR-r16)) OF ARFCN-ValueNR-r15

-- ASN1STOP

Next change

6.4 RRC multiplicity and type constraint values

– Multiplicity and type constraint definitions

-- ASN1START

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

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

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

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

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

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

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

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

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

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

-- supported band combination

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

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

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

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

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

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

maxCBR-ReportNR-r16 INTEGER ::= 72 -- Maximum number of CBR results in a report for NR

-- sidelink communication

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

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

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

-- ranges listed in SIB type 4 and 5

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

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

-- formation can be provided as redirection assistance

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

-- information can be provided as redirection

-- assistance

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

-- cells per carrier measured in IDLE mode

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

-- MR-DC combinations

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

-- (per carrier frequency)

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

-- (per carrier frequency)

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

-- REL-13 extension is used

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

-- (per carrier frequency)

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

-- (per carrier frequency)

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

-- frequency)

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

-- configurations using non-zero Tx power

-- (per carrier frequency)

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

-- REL-13 extension is used

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

-- configurations using non-zero Tx power

-- (per carrier frequency)

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

-- configurations using non-zero Tx power

-- (per carrier frequency)

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

-- configurations using zero Tx power(per carrier

-- frequency)

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

-- configurations (per carrier frequency)

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

-- which system information can be provided as

-- redirection assistance

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

-- cells listed in SIB type 5

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

-- cells listed in SIB type 4

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

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

-- cell lists in a measurement object

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

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

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

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

-- configured with SPS C-RNTI

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

-- in a measurement object

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

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

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

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

-- occasion

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

-- a serving cell concerning discovery signals

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

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

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

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

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

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

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

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

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

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

-- (size of the pool)

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

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

-- affected by the IDC problems

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

-- IDLE mode measurements configured by eNB

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

-- MBMS capable UE may indicate an interest

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

-- which a UE may provide measurement results upon

-- NR SCG failure

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

-- which configurations for V2X sidelink communication

-- are provided

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

-- sidelink communication can be configured

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

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

-- provided as part of NACC information

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

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

-- frequency carriers measured in IDLE mode

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

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

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

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

-- different offset

maxMBSFN-Area INTEGER ::= 8

maxMBSFN-Area-1 INTEGER ::= 7

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

-- include in the MBMS interest indication

maxMeasId INTEGER ::= 32

maxMeasId-Plus1 INTEGER ::= 33

maxMeasId-r12 INTEGER ::= 64

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

-- that a cell belongs to

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

-- that a cell belongs to

maxMultiBandsNR-1-r15 INTEGER ::= 31

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

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

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

-- configuration (per carrier frequency)

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

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

maxObjectId INTEGER ::= 32

maxObjectId-Plus1-r13 INTEGER ::= 33

maxObjectId-r13 INTEGER ::= 64

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

-- in NAICS configuration

maxPageRec INTEGER ::= 16 --

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

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

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

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

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

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

maxPMCH-PerMBSFN INTEGER ::= 15

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

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

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

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

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

-- (per carrier frequency)

maxReportConfigId INTEGER ::= 32

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

-- for sidelink V2X communication

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

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

-- RS index in RRM reports.

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

-- cell quality for RRM.

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

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

-- measurement

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

-- broadcast per carrier frequency

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

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

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

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

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

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

-- Rx resource pools on neighbouring freq

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

-- sidelink communication Rx resource pool entries

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

-- Tx resource pool

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

-- Tx resource pool entries

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

-- Tx resource pools

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

-- sidelink Tx resource pool entries

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

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

-- configurations

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

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

-- discovery Rx resource pool entries

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

-- SidelinkUEInformation for SI reporting

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

-- discovery Tx resource pool entries

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

-- for a frequency or assigned

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

-- measurement and report

maxSL-PoolToMeasureNR-r16 INTEGER ::= 8 -- Maximum number of resource pool for NR sidelink

-- measurement to measure for each measurement object

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

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

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

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

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

-- pairs

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

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

-- V2X sidelink communication

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

-- V2X sidelink communication

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

-- V2X sidelink communication

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

-- V2X sidelink communication

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

-- for V2X sidelink communication

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

-- for V2X sidelink communication congestion

-- control

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

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

-- for V2X sidelink communication congestion

-- control

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

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

-- pre-configuration for V2X sidelink

-- communication congestion control

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

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

-- configurations in pre-configuration for V2X

-- sidelink communication congestion control

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

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

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

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

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

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

-- in an MBMS counting request and response

maxServiceCount-1 INTEGER ::= 15

maxSessionPerPMCH INTEGER ::= 29

maxSessionPerPMCH-1 INTEGER ::= 28

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

maxSIB-1 INTEGER ::= 31

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

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

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

-- that the UE can simultaneously recommend to the

-- E-UTRAN for use.

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

-- that the UE can simultaneously report to the

-- E-UTRAN.

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

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

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

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

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

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

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

-- WLAN-CarrierInfo

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

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

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

-- ASN1STOP

NOTE: The value of maxDRB aligns with SA2.

Next change

## 7.1 UE variables

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

– *EUTRA-UE-Variables*

This ASN.1 segment is the start of the E‑UTRA UE variable definitions.

-- ASN1START

EUTRA-UE-Variables DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

AbsoluteTimeInfo-r10,

AreaConfiguration-r10,

AreaConfiguration-v1130,

ARFCN-ValueNR-r15,

BT-NameList-r15,

CarrierFreqGERAN,

CellIdentity,

CellList-r15,

ConnEstFailReport-r11,

EUTRA-CarrierList-r15,

SpeedStateScaleFactors,

C-RNTI,

LoggingDuration-r10,

LoggingInterval-r10,

LogMeasInfo-r10,

MeasCSI-RS-Id-r12,

MeasId,

MeasId-v1250,

MeasIdToAddModList,

MeasIdToAddModListExt-r12,

MeasIdToAddModList-v1310,

MeasIdToAddModListExt-v1310,

MeasObjectToAddModList,

MeasObjectToAddModList-v9e0,

MeasObjectToAddModListExt-r13,

MeasResultListIdle-r15,

MeasScaleFactor-r12,

MobilityStateParameters,

NeighCellConfig,

PhysCellId,

PhysCellIdCDMA2000,

PhysCellIdGERAN,

PhysCellIdUTRA-FDD,

PhysCellIdUTRA-TDD,

PLMN-Identity,

PLMN-IdentityList3-r11,

QuantityConfig,

ReportConfigToAddModList,

RLF-Report-r9,

TargetMBSFN-AreaList-r12,

TraceReference-r10,

Tx-ResourcePoolMeasList-r14,

Tx-PoolMeasToAddModListNR-r16,

VisitedCellInfoList-r12,

maxCellMeas,

maxCSI-RS-Meas-r12,

maxMeasId,

maxMeasId-r12,

maxRS-Index-r15,

PhysCellIdNR-r15,

RS-IndexNR-r15,

UL-DelayConfig-r13,

WLAN-CarrierInfo-r13,

WLAN-Identifiers-r12,

WLAN-Id-List-r13,

WLAN-NameList-r15,

WLAN-Status-r13,

WLAN-Status-v1430,

WLAN-SuspendConfig-r14

FROM EUTRA-RRC-Definitions;

-- ASN1STOP

*/unchanged parts are omitted/*

– *VarMeasReportList*

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

***VarMeasReportList* UE variable**

-- ASN1START

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

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

VarMeasReport ::= SEQUENCE {

-- List of measurement that have been triggered

measId MeasId,

measId-v1250 MeasId-v1250 OPTIONAL,

cellsTriggeredList CellsTriggeredList OPTIONAL,

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

poolsTriggeredList-r14 Tx-ResourcePoolMeasList-r14 OPTIONAL,

poolsTriggeredListNR-r16 Tx-PoolMeasToAddModListNR-r16 OPTIONAL,

numberOfReportsSent INTEGER

}

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

physCellIdEUTRA PhysCellId,

physCellIdUTRA CHOICE {

fdd PhysCellIdUTRA-FDD,

tdd PhysCellIdUTRA-TDD

},

physCellIdGERAN SEQUENCE {

carrierFreq CarrierFreqGERAN,

physCellId PhysCellIdGERAN

},

physCellIdCDMA2000 PhysCellIdCDMA2000,

wlan-Identifiers-r13 WLAN-Identifiers-r12,

physCellIdNR-r15 SEQUENCE {

carrierFreq ARFCN-ValueNR-r15,

physCellId PhysCellIdNR-r15,

rs-IndexList-r15 SSB-IndexList-r15 OPTIONAL

}

}

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

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

-- ASN1STOP

Next change

# 10 Radio information related interactions between network nodes

*/unchanged parts are omitted/*

## 10.2 Inter-node RRC messages

### 10.2.1 General

This clause specifies RRC messages that are sent either across the X2- or the S1-interface, either to or from the eNB, i.e. a single 'logical channel' is used for all RRC messages transferred across network nodes. The information could originate from or be destined for another RAT.

### – *EUTRA-InterNodeDefinitions*

This ASN.1 segment is the start of the E‑UTRA inter-node PDU definitions.

-- ASN1START

EUTRA-InterNodeDefinitions DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

AntennaInfoCommon,

AntennaInfoDedicated-v10i0,

ARFCN-ValueEUTRA,

ARFCN-ValueEUTRA-v9e0,

ARFCN-ValueEUTRA-r9,

CellIdentity,

C-RNTI,

DL-DCCH-Message,

DRB-Identity,

DRB-ToReleaseList,

DRB-ToReleaseList-r15,

FreqBandIndicator-r11,

InDeviceCoexIndication-r11,

LWA-Config-r13,

MasterInformationBlock,

maxBands,

maxFreq,

maxDRB,

maxDRBExt-r15,

maxDRB-r15,

maxSCell-r10,

maxSCell-r13,

maxServCell-r10,

maxServCell-r13,

MBMSInterestIndication-r11,

MeasConfig,

MeasGapConfig,

MeasGapConfigPerCC-List-r14,

MeasResultForRSSI-r13,

MeasResultListWLAN-r13,

OtherConfig-r9,

PhysCellId,

P-Max,

PowerCoordinationInfo-r12,

SidelinkUEInformation-r12,

SidelinkUEInformationNR-r16,

SL-CommConfig-r12,

SL-DiscConfig-r12,

SubframeAssignment-r15,

RadioResourceConfigDedicated,

RadioResourceConfigDedicated-v13c0,

RadioResourceConfigDedicated-v1370,

RAN-NotificationAreaInfo-r15,

RCLWI-Configuration-r13,

RSRP-Range,

RSRQ-Range,

RSRQ-Range-v1250,

RS-SINR-Range-r13,

SCellToAddModList-r10,

SCellToAddModList-v13c0,

SCellToAddModListExt-r13,

SCellToAddModListExt-v13c0,

SCG-ConfigPartSCG-r12,

SCG-ConfigPartSCG-v12f0,

SCG-ConfigPartSCG-v13c0,

SecurityAlgorithmConfig,

SCellIndex-r10,

SCellIndex-r13,

SCellToReleaseList-r10,

SCellToReleaseListExt-r13,

ServCellIndex-r10,

ServCellIndex-r13,

ShortMAC-I,

MeasResultServFreqListNR-r15,

MeasResultSSTD-r13,

SL-V2X-ConfigDedicated-r14,

SystemInformationBlockType1,

SystemInformationBlockType1-v890-IEs,

SystemInformationBlockType2,

UEAssistanceInformation-r11,

UEAssistanceInformationNR-r16,

UECapabilityInformation,

UE-CapabilityRAT-ContainerList,

UE-RadioPagingInfo-r12,

WLANConnectionStatusReport-r13,

WLAN-OffloadConfig-r12

FROM EUTRA-RRC-Definitions;

-- ASN1STOP

*/unchanged parts are omitted/*

### 10.2.2 Message definitions

*/unchanged parts are omitted/*

– *HandoverPreparationInformation*

This message is used to transfer the E-UTRA RRC information used by the target eNB or target ng-eNB during handover preparation, including UE capability information.

Direction: source eNB/ source RAN to target eNB or target ng-eNB

***HandoverPreparationInformation* message**

-- ASN1START

HandoverPreparationInformation ::= SEQUENCE {

criticalExtensions CHOICE {

c1 CHOICE{

handoverPreparationInformation-r8 HandoverPreparationInformation-r8-IEs,

spare7 NULL,

spare6 NULL, spare5 NULL, spare4 NULL,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

HandoverPreparationInformation-r8-IEs ::= SEQUENCE {

ue-RadioAccessCapabilityInfo UE-CapabilityRAT-ContainerList,

as-Config AS-Config OPTIONAL, -- Cond HO

rrm-Config RRM-Config OPTIONAL,

as-Context AS-Context OPTIONAL, -- Cond HO

nonCriticalExtension HandoverPreparationInformation-v920-IEs OPTIONAL

}

HandoverPreparationInformation-v920-IEs ::= SEQUENCE {

ue-ConfigRelease-r9 ENUMERATED {

rel9, rel10, rel11, rel12, v10j0, v11e0,

v1280, rel13, ..., rel14, rel15} OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v9d0-IEs OPTIONAL

}

HandoverPreparationInformation-v9d0-IEs ::= SEQUENCE {

lateNonCriticalExtension OCTET STRING (CONTAINING HandoverPreparationInformation-v9j0-IEs) OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v9e0-IEs OPTIONAL

}

-- Late non-critical extensions:

HandoverPreparationInformation-v9j0-IEs ::= SEQUENCE {

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

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v10j0-IEs OPTIONAL

}

HandoverPreparationInformation-v10j0-IEs ::= SEQUENCE {

as-Config-v10j0 AS-Config-v10j0 OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v10x0-IEs OPTIONAL

}

HandoverPreparationInformation-v10x0-IEs ::= SEQUENCE {

-- Following field is only for late non-critical extensions from REL-10 to REL-12

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v13c0-IEs OPTIONAL

}

HandoverPreparationInformation-v13c0-IEs ::= SEQUENCE {

as-Config-v13c0 AS-Config-v13c0 OPTIONAL,

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

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Regular non-critical extensions:

HandoverPreparationInformation-v9e0-IEs ::= SEQUENCE {

as-Config-v9e0 AS-Config-v9e0 OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1130-IEs OPTIONAL

}

HandoverPreparationInformation-v1130-IEs ::= SEQUENCE {

as-Context-v1130 AS-Context-v1130 OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1250-IEs OPTIONAL

}

HandoverPreparationInformation-v1250-IEs ::= SEQUENCE {

ue-SupportedEARFCN-r12 ARFCN-ValueEUTRA-r9 OPTIONAL, -- Cond HO3

as-Config-v1250 AS-Config-v1250 OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1320-IEs OPTIONAL

}

HandoverPreparationInformation-v1320-IEs ::= SEQUENCE {

as-Config-v1320 AS-Config-v1320 OPTIONAL, -- Cond HO2

as-Context-v1320 AS-Context-v1320 OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1430-IEs OPTIONAL

}

HandoverPreparationInformation-v1430-IEs ::= SEQUENCE {

as-Config-v1430 AS-Config-v1430 OPTIONAL, -- Cond HO2

makeBeforeBreakReq-r14 ENUMERATED {true} OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1530-IEs OPTIONAL

}

HandoverPreparationInformation-v1530-IEs ::= SEQUENCE {

ran-NotificationAreaInfo-r15 RAN-NotificationAreaInfo-r15 OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v1540-IEs OPTIONAL

}

HandoverPreparationInformation-v1540-IEs ::= SEQUENCE {

sourceRB-ConfigIntra5GC-r15 OCTET STRING OPTIONAL, --Cond HO4

nonCriticalExtension HandoverPreparationInformation-v16xy-IEs OPTIONAL

}

HandoverPreparationInformation-v16xy-IEs ::= SEQUENCE {

as-Context-v16xy AS-Context-v16xy OPTIONAL, --Cond HO5

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

| ***HandoverPreparationInformation* field descriptions** |
| --- |
| ***as-Config***  The radio resource configuration. Applicable in case of intra-E-UTRA handover. If the target receives an incomplete *MeasConfig* and/or *RadioResourceConfigDedicated* in the *as-Config*, the target eNB may decide to apply the full configuration option based on the *ue-ConfigRelease*. |
| ***as-Context***  Local E-UTRAN context required by the target eNB. |
| ***makeBeforeBreakReq***  To request the target eNB to add the *makeBeforeBreak* indication in the *mobilityControlInfo* in case of intra-frequency handover. |
| ***rrm-Config***  Local E-UTRAN context used depending on the target node's implementation, which is mainly used for the RRM purpose. May also be provided at inter-RAT intra-5GC handover from NR. |
| ***sourceRB-ConfigIntra5GC***  NR radio bearer config used at intra5GC handover, as defined by *RadioBearerConfig* IE in TS 38.331 [82]. |
| ***ue-ConfigRelease***  Indicates the RRC protocol release or version applicable for the current UE configuration. This could be used by target eNB to decide if the full configuration approach should be used. If this field is not present, the target assumes that the current UE configuration is based on the release 8 version of RRC protocol. NOTE 1. |
| ***ue-RadioAccessCapabilityInfo***  For E-UTRA radio access capabilities, it is up to E-UTRA how the backward compatibility among *supportedBandCombinationReduced*, *supportedBandCombination* and *supportedBandCombinationAdd* is ensured. If *supportedBandCombinationReduced* and *supportedBandCombination*/*supportedBandCombinationAdd* are included into *ueCapabilityRAT-Container*, it can be assumed that the value of fields, *requestedBands*, *reducedIntNonContCombRequested* and *requestedCCsXL* are consistend with all supported band combination fields. NOTE 2 |
| ***ue-SupportedEARFCN***  Includes UE supported EARFCN of the handover target E-UTRA cell if the target E-UTRA cell belongs to multiple frequency bands. |

NOTE 1: The source typically sets the *ue-ConfigRelease* to the release corresponding with the current dedicated radio configuration. The source may however also consider the common radio resource configuration e.g. in case interoperability problems would appear if the UE temporary continues extensions of this part of the configuration in a target PCell not supporting them.

NOTE 2: The following table indicates per source RAT whether RAT capabilities are included or not.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Source RAT** | **E-UTRA capabilites** | **UTRA capabilities** | **GERAN capabilities** | **MR DC capabilities** | **NR capabilities** |
| UTRAN | Included | May be included, ignored by eNB if received | May be included | Excluded | Excluded |
| GERAN CS | Excluded | May be included, ignored by eNB if received | Included | Excluded | Excluded |
| GERAN PS | Excluded | May be included, ignored by eNB if received | Included | Excluded | Excluded |
| E-UTRAN | Included | May be included | May be included | May be included | May be included |
| NR | Included | Excluded | Excluded | May be included | May be included |

| **Conditional presence** | **Explanation** |
| --- | --- |
| *HO* | The field is mandatory present in case of handover within E-UTRA; otherwise the field is not present. |
| *HO2* | The field is optional present in case of handover within E-UTRA; otherwise the field is not present. |
| *HO3* | The field is optional present in case of handover from GERAN to E-UTRA, otherwise the field is not present. |
| *HO4* | The field is mandatory present in case of handover within E-UTRA/5GC and optional present in case of handover from NR to E-UTRA/5GC; otherwise the field is not present. |
| *HO5* | The field is optional present in case of handover within E-UTRA, or handover from NR to E-UTRA; otherwise the field is not present. |

*/unchanged parts are omitted/*

## 10.3 Inter-node RRC information element definitions

*/unchanged parts are omitted/*

– *AS-Context*

The IE *AS-Context* is used to transfer local E-UTRAN context required by the target eNB.

***AS-Context* information element**

-- ASN1START

AS-Context ::= SEQUENCE {

reestablishmentInfo ReestablishmentInfo OPTIONAL -- Cond HO

}

AS-Context-v1130 ::= SEQUENCE {

idc-Indication-r11 OCTET STRING (CONTAINING

InDeviceCoexIndication-r11) OPTIONAL, -- Cond HO2

mbmsInterestIndication-r11 OCTET STRING (CONTAINING

MBMSInterestIndication-r11) OPTIONAL, -- Cond HO2

powerPrefIndication-r11 OCTET STRING (CONTAINING

UEAssistanceInformation-r11) OPTIONAL, -- Cond HO2

...,

[[ sidelinkUEInformation-r12 OCTET STRING (CONTAINING

SidelinkUEInformation-r12) OPTIONAL -- Cond HO2

]],

[[ sourceContextEN-DC-r15 OCTET STRING OPTIONAL -- Cond HO2

]],

[[ selectedbandCombinationInfoEN-DC-v1540 OCTET STRING OPTIONAL -- Cond HO2

]]

}

AS-Context-v1320 ::= SEQUENCE {

wlanConnectionStatusReport-r13 OCTET STRING (CONTAINING

WLANConnectionStatusReport-r13) OPTIONAL -- Cond HO2

}

AS-Context-v16xy ::= SEQUENCE {

sidelinkUEInformationNR-r16 OCTET STRING (CONTAINING

SidelinkUEInformationNR-r16) OPTIONAL, -- Cond HO3

ueAssistanceInformationNR-r16 OCTET STRING (CONTAINING

UEAssistanceInformationNR-r16) OPTIONAL -- Cond HO3

}

-- ASN1STOP

| ***AS-Context* field descriptions** |
| --- |
| ***idc-Indication***  Including information used for handling the IDC problems. |
| ***reestablishmentInfo***  Including information needed for the RRC connection re-establishment. |
| ***sourceContextEN-DC***  (NG)EN-DC related context information, in particular regarding the UE capability coordination, as defined by the *ConfigRestrictInfoSCG* IE specified in TS 38.331 [82]. |
| ***selectedBandCombinationInfoEN-DC***  Including the *BandCombinationInfoSN* IE specified in TS 38.331 [82]. See NOTE 1. |

| **Conditional presence** | **Explanation** |
| --- | --- |
| *HO* | The field is mandatory present in case of handover within E-UTRA; otherwise the field is not present. |
| *HO2* | The field is optional present in case of handover within E-UTRA; otherwise the field is not present. |
| *HO3* | The field is optional present in case of handover within E-UTRA, or handover from NR to E-UTRA; otherwise the field is not present. |

NOTE 1: If the field is present, it is used to help target MN to decide appropriate LTE band for SCell frequency measurement in case of inter-MN handover without SN change.

End of changes