**3GPP TSG-RAN WG2 Meeting #117-e *R2-220xxxx***

**Electronic, 21st February – 3rd March 2022**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.331** | **CR** | **4754** | **rev** | **1** | **Current version:** | **16.7.0** |  |
|  | | | | | | | | |
| *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:*** | Dummify empty sequence in FlightPathInfoReport-r15 and other corrections | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Lenovo, Motorola Mobility | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_Aerial-Core, TEI15 | | | | |  | ***Date:*** | | | 2022-02-24 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **A** |  | | | | | ***Release:*** | | | Rel-15 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | 1. In the description of *subcarrierSpacingSSB* in RRCConnectionRelease field descriptions, the explicit frequency ranges "<6GHz" and ">6GHz" are used for the applicable SCS of SSB of redirected target NR frequency. Originally, FR1 was specified in the range 450 MHz – 6000 MHz, but this was later changed to 410 MHz – 7125 MHz. Therefore, the explicit frequency ranges should be replaced by "FR1" and "FR2" resp. 2. In the UEInformationResponse message two empty sequences have been specified for non-critical extensions: one on parent level and one inside the IE *FlightPathInfoReport-r15*. In general, one empty sequence for non-critical extensions on parent level is sufficient. Furthermore, the empty sequence in IE *FlightPathInfoReport-r15* will result in non-backwards compatible issues if it is extended in the future, because the legacy network cannot decode the UEInformationResponse message as it is unable to determine the length of the extension. Therefore, it should be ensured that the empty sequence in IE *FlightPathInfoReport-r15* should never be used in the future. 3. Minor editorial issues need to be fixed (formatting issue, redundant letter “s” in field name, redundant comma). | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. In the field description of *subcarrierSpacingSSB* the explicit frequency ranges "<6GHz" and ">6GHz" have been replaced by "FR1" and "FR2" resp. Furthermore, definitions of FR1 and FR2 have been added in clause 3.1. 2. In IE *FlightPathInfoReport-r15* the empty sequence has been dummified. 3. Minor editorial issues have been fixed.   **Impact analysis**  Impacted functionality:  RRC connection release, UE information response  Inter-operability:  There are no interoperability issues. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | To change 1): Incorrect frequency ranges for the applicable SCS of SSB of redirected target NR frequency remain in the specification.  To change 2): The empty sequence in IE *FlightPathInfoReport-r15* will result in non-backwards compatible issues if it is extended in the future, because the legacy network cannot decode the UEInformationResponse message as it is unable to determine the length of the extension.  To change 3): Minor editorial issues remain in the specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3.1, 6.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | Compared to the Rel-15 CR, this Rel-16 shadow CR fixes further minor editorial issues. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*Start of changes*

## 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.

**CEIL:** Mathematical function used to 'round up' i.e. to the nearest integer having a higher or equal value.

**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 5GS optimisation:** Enables support of efficient transport of user data (IP, Ethernet or unstructured) or SMS messages over control plane via the AMF without triggering data radio bearer establishment, as defined in TS 24.501 [95].

**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 or Control plane CIoT 5GS 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.

**DAPS bearer**: A bearer whose radio protocols are located in both the source eNB and the target eNB during a DAPS handover to use both source eNB and target eNB resources.

**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.

**Early Security Reactivation:** Re-activation of AS security prior to the transmission of *RRCConnectionResumeRequest* message when a UE is provided with an NCC value during suspension.

**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.

**FR1:** Frequency range 1 as defined in clause 5.1 of TS 38.101-1 [85].

**FR2:** Frequency range 2 as defined in clause 5.1 of TS 38.101-2 [100].

**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 [104], 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.

**Transmission using PUR:** Allows one uplink data transmission using preconfigured uplink resource from RRC\_IDLE mode as specified in TS 36.300 [9]. Transmission using PUR refers to both CP transmission using PUR and UP transmission using PUR.

**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 5GS optimisation:** Enables support for change from 5GMM-IDLE mode to 5GMM-CONNECTED mode without the need for using the Service Request procedure, as defined in TS 24.501 [95].

**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 or User plane CIoT 5GS 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*

### 6.2.2 Message definitions

<Text omitted>

#### – *DLDedicatedMessageSegment*

The *DLDedicatedMessageSegment* message is used to transfer one segment of the *RRCConnectionResume* or *RRCConnectionReconfiguration* messages.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: E-UTRAN to UE

*DLDedicatedMessageSegment* message

-- ASN1START

DLDedicatedMessageSegment-r16 ::= SEQUENCE {

criticalExtensions CHOICE {

dlDedicatedMessageSegment-r16 DLDedicatedMessageSegment-r16-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

DLDedicatedMessageSegment-r16-IEs ::= SEQUENCE {

segmentNumber-r16 INTEGER (0..4),

rrc-MessageSegmentContainer-r16 OCTET STRING,

rrc-MessageSegmentType-r16 ENUMERATED {notLastSegment, lastSegment},

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

|  |
| --- |
| *DLDedicatedMessageSegment* field descriptions |
| ***segmentNumber***  Identifies the sequence number of a segment within the encoded DL DCCH message. The network transmits the segments with continuously increasing *segmentNumber* order so that the UE's RRC layer may expect to obtain them from lower layers in the correct order. Hence, the UE is not required to perform segment re-ordering on RRC level. |
| ***rrc-MessageSegmentContainer***  Includes a segment of the encoded DL DCCH message. The size of the included segment in this container should be small enough so the resulting encoded RRC message PDU is less than or equal to the PDCP SDU size limit. |
| ***rrc-MessageSegmentType***  Indicates whether the included DL DCCH message segment is the last segment of the message or not. |

<Text omitted>

#### – *RRCConnectionRelease*

The *RRCConnectionRelease* message is used to command the release of an RRC connection, or to complete an UP-EDT procedure.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: E‑UTRAN to UE

*RRCConnectionRelease message*

-- ASN1START

RRCConnectionRelease ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

c1 CHOICE {

rrcConnectionRelease-r8 RRCConnectionRelease-r8-IEs,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

RRCConnectionRelease-r8-IEs ::= SEQUENCE {

releaseCause ReleaseCause,

redirectedCarrierInfo RedirectedCarrierInfo OPTIONAL, -- Need ON

idleModeMobilityControlInfo IdleModeMobilityControlInfo OPTIONAL, -- Need OP

nonCriticalExtension RRCConnectionRelease-v890-IEs OPTIONAL

}

RRCConnectionRelease-v890-IEs ::= SEQUENCE {

lateNonCriticalExtension OCTET STRING (CONTAINING RRCConnectionRelease-v9e0-IEs) OPTIONAL,

nonCriticalExtension RRCConnectionRelease-v920-IEs OPTIONAL

}

-- Late non critical extensions

RRCConnectionRelease-v9e0-IEs ::= SEQUENCE {

redirectedCarrierInfo-v9e0 RedirectedCarrierInfo-v9e0 OPTIONAL, -- Cond NoRedirect-r8

idleModeMobilityControlInfo-v9e0 IdleModeMobilityControlInfo-v9e0 OPTIONAL, -- Cond IdleInfoEUTRA

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Regular non critical extensions

RRCConnectionRelease-v920-IEs ::= SEQUENCE {

cellInfoList-r9 CHOICE {

geran-r9 CellInfoListGERAN-r9,

utra-FDD-r9 CellInfoListUTRA-FDD-r9,

utra-TDD-r9 CellInfoListUTRA-TDD-r9,

...,

utra-TDD-r10 CellInfoListUTRA-TDD-r10

} OPTIONAL, -- Cond Redirection

nonCriticalExtension RRCConnectionRelease-v1020-IEs OPTIONAL

}

RRCConnectionRelease-v1020-IEs ::= SEQUENCE {

extendedWaitTime-r10 INTEGER (1..1800) OPTIONAL, -- Need ON

nonCriticalExtension RRCConnectionRelease-v1320-IEs OPTIONAL

}

RRCConnectionRelease-v1320-IEs::= SEQUENCE {

resumeIdentity-r13 ResumeIdentity-r13 OPTIONAL, -- Need OR

nonCriticalExtension RRCConnectionRelease-v1530-IEs OPTIONAL

}

RRCConnectionRelease-v1530-IEs ::= SEQUENCE {

drb-ContinueROHC-r15 ENUMERATED {true} OPTIONAL, -- Cond UP-EDTorPUR

nextHopChainingCount-r15 NextHopChainingCount OPTIONAL, -- Cond EarlySec

measIdleConfig-r15 MeasIdleConfigDedicated-r15 OPTIONAL, -- Need ON

rrc-InactiveConfig-r15 RRC-InactiveConfig-r15 OPTIONAL, -- Need OR

cn-Type-r15 ENUMERATED {epc,fivegc} OPTIONAL, -- Need OR

nonCriticalExtension RRCConnectionRelease-v1540-IEs OPTIONAL

}

RRCConnectionRelease-v1540-IEs ::= SEQUENCE {

waitTime INTEGER (1..16) OPTIONAL, -- Cond 5GC

nonCriticalExtension RRCConnectionRelease-v15b0-IEs OPTIONAL

}

RRCConnectionRelease-v15b0-IEs ::= SEQUENCE {

noLastCellUpdate-r15 ENUMERATED {true} OPTIONAL, -- Need OP

nonCriticalExtension RRCConnectionRelease-v1610-IEs OPTIONAL

}

RRCConnectionRelease-v1610-IEs ::= SEQUENCE {

fullI-RNTI-r16 I-RNTI-r15 OPTIONAL, -- Need OR

shortI-RNTI-r16 ShortI-RNTI-r15 OPTIONAL, -- Need OR

pur-Config-r16 SetupRelease {PUR-Config-r16} OPTIONAL, -- Need ON

rrc-InactiveConfig-v1610 RRC-InactiveConfig-v1610 OPTIONAL, -- Cond BLCE-IDLEeDRX

releaseIdleMeasConfig-r16 ENUMERATED {true} OPTIONAL, -- Need ON

altFreqPriorities-r16 ENUMERATED {true} OPTIONAL, -- Need ON

t323-r16 ENUMERATED {

min5, min10, min20, min30, min60, min120, min180,

min720} OPTIONAL, -- Need OR

nonCriticalExtension RRCConnectionRelease-v1650-IEs OPTIONAL

}

RRCConnectionRelease-v1650-IEs ::= SEQUENCE {

mpsPriorityIndication-r16 ENUMERATED {true} OPTIONAL, -- Cond Redirection2

nonCriticalExtension SEQUENCE {} OPTIONAL

}

ReleaseCause ::= ENUMERATED {loadBalancingTAUrequired,

other, cs-FallbackHighPriority-v1020, rrc-Suspend-v1320}

RedirectedCarrierInfo ::= CHOICE {

eutra ARFCN-ValueEUTRA,

geran CarrierFreqsGERAN,

utra-FDD ARFCN-ValueUTRA,

utra-TDD ARFCN-ValueUTRA,

cdma2000-HRPD CarrierFreqCDMA2000,

cdma2000-1xRTT CarrierFreqCDMA2000,

...,

utra-TDD-r10 CarrierFreqListUTRA-TDD-r10,

nr-r15 CarrierInfoNR-r15

}

RedirectedCarrierInfo-v9e0 ::= SEQUENCE {

eutra-v9e0 ARFCN-ValueEUTRA-v9e0

}

RRC-InactiveConfig-r15::= SEQUENCE {

fullI-RNTI-r15 I-RNTI-r15,

shortI-RNTI-r15 ShortI-RNTI-r15,

ran-PagingCycle-r15 ENUMERATED { rf32, rf64, rf128, rf256} OPTIONAL, --Need OR

ran-NotificationAreaInfo-r15 RAN-NotificationAreaInfo-r15 OPTIONAL, --Need ON

periodic-RNAU-timer-r15 ENUMERATED {min5, min10, min20, min30, min60,

min120, min360, min720} OPTIONAL, --Need OR

nextHopChainingCount-r15 NextHopChainingCount OPTIONAL, --Cond INACTIVE

dummy SEQUENCE{} OPTIONAL

}

RRC-InactiveConfig-v1610::= SEQUENCE {

ran-PagingCycle-v1610 ENUMERATED {rf512, rf1024}

}

RAN-NotificationAreaInfo-r15 ::= CHOICE {

cellList-r15 PLMN-RAN-AreaCellList-r15,

ran-AreaConfigList-r15 PLMN-RAN-AreaConfigList-r15

}

PLMN-RAN-AreaCellList-r15 ::= SEQUENCE (SIZE (1..maxPLMN-r15)) OF PLMN-RAN-AreaCell-r15

PLMN-RAN-AreaCell-r15 ::= SEQUENCE {

plmn-Identity-r15 PLMN-Identity OPTIONAL,

ran-AreaCells-r15 SEQUENCE (SIZE (1..32)) OF CellIdentity

}

PLMN-RAN-AreaConfigList-r15 ::= SEQUENCE (SIZE (1..maxPLMN-r15)) OF PLMN-RAN-AreaConfig-r15

PLMN-RAN-AreaConfig-r15 ::= SEQUENCE {

plmn-Identity-r15 PLMN-Identity OPTIONAL,

ran-Area-r15 SEQUENCE (SIZE (1..16)) OF RAN-AreaConfig-r15

}

RAN-AreaConfig-r15 ::= SEQUENCE {

trackingAreaCode-5GC-r15 TrackingAreaCode-5GC-r15,

ran-AreaCodeList-r15 SEQUENCE (SIZE (1..32)) OF RAN-AreaCode-r15 OPTIONAL --Need OR

}

CarrierFreqListUTRA-TDD-r10 ::= SEQUENCE (SIZE (1..maxFreqUTRA-TDD-r10)) OF ARFCN-ValueUTRA

IdleModeMobilityControlInfo ::= SEQUENCE {

freqPriorityListEUTRA FreqPriorityListEUTRA OPTIONAL, -- Need ON

freqPriorityListGERAN FreqsPriorityListGERAN OPTIONAL, -- Need ON

freqPriorityListUTRA-FDD FreqPriorityListUTRA-FDD OPTIONAL, -- Need ON

freqPriorityListUTRA-TDD FreqPriorityListUTRA-TDD OPTIONAL, -- Need ON

bandClassPriorityListHRPD BandClassPriorityListHRPD OPTIONAL, -- Need ON

bandClassPriorityList1XRTT BandClassPriorityList1XRTT OPTIONAL, -- Need ON

t320 ENUMERATED {

min5, min10, min20, min30, min60, min120, min180,

spare1} OPTIONAL, -- Need OR

...,

[[ freqPriorityListExtEUTRA-r12 FreqPriorityListExtEUTRA-r12 OPTIONAL -- Need ON

]],

[[ freqPriorityListEUTRA-v1310 FreqPriorityListEUTRA-v1310 OPTIONAL, -- Need ON

freqPriorityListExtEUTRA-v1310 FreqPriorityListExtEUTRA-v1310 OPTIONAL -- Need ON

]],

[[ freqPriorityListNR-r15 FreqPriorityListNR-r15 OPTIONAL -- Need ON

]]

}

IdleModeMobilityControlInfo-v9e0 ::= SEQUENCE {

freqPriorityListEUTRA-v9e0 SEQUENCE (SIZE (1..maxFreq)) OF FreqPriorityEUTRA-v9e0

}

FreqPriorityListEUTRA ::= SEQUENCE (SIZE (1..maxFreq)) OF FreqPriorityEUTRA

FreqPriorityListExtEUTRA-r12 ::= SEQUENCE (SIZE (1..maxFreq)) OF FreqPriorityEUTRA-r12

FreqPriorityListEUTRA-v1310 ::= SEQUENCE (SIZE (1..maxFreq)) OF FreqPriorityEUTRA-v1310

FreqPriorityListExtEUTRA-v1310 ::= SEQUENCE (SIZE (1..maxFreq)) OF FreqPriorityEUTRA-v1310

FreqPriorityEUTRA ::= SEQUENCE {

carrierFreq ARFCN-ValueEUTRA,

cellReselectionPriority CellReselectionPriority

}

FreqPriorityEUTRA-v9e0 ::= SEQUENCE {

carrierFreq-v9e0 ARFCN-ValueEUTRA-v9e0 OPTIONAL -- Cond EARFCN-max

}

FreqPriorityEUTRA-r12 ::= SEQUENCE {

carrierFreq-r12 ARFCN-ValueEUTRA-r9,

cellReselectionPriority-r12 CellReselectionPriority

}

FreqPriorityEUTRA-v1310 ::= SEQUENCE {

cellReselectionSubPriority-r13 CellReselectionSubPriority-r13 OPTIONAL -- Need ON

}

FreqPriorityListNR-r15 ::= SEQUENCE (SIZE (1..maxFreq)) OF FreqPriorityNR-r15

FreqPriorityNR-r15 ::= SEQUENCE {

carrierFreq-r15 ARFCN-ValueNR-r15,

cellReselectionPriority-r15 CellReselectionPriority,

cellReselectionSubPriority-r15 CellReselectionSubPriority-r13 OPTIONAL -- Need OR

}

FreqsPriorityListGERAN ::= SEQUENCE (SIZE (1..maxGNFG)) OF FreqsPriorityGERAN

FreqsPriorityGERAN ::= SEQUENCE {

carrierFreqs CarrierFreqsGERAN,

cellReselectionPriority CellReselectionPriority

}

FreqPriorityListUTRA-FDD ::= SEQUENCE (SIZE (1..maxUTRA-FDD-Carrier)) OF FreqPriorityUTRA-FDD

FreqPriorityUTRA-FDD ::= SEQUENCE {

carrierFreq ARFCN-ValueUTRA,

cellReselectionPriority CellReselectionPriority

}

FreqPriorityListUTRA-TDD ::= SEQUENCE (SIZE (1..maxUTRA-TDD-Carrier)) OF FreqPriorityUTRA-TDD

FreqPriorityUTRA-TDD ::= SEQUENCE {

carrierFreq ARFCN-ValueUTRA,

cellReselectionPriority CellReselectionPriority

}

BandClassPriorityListHRPD ::= SEQUENCE (SIZE (1..maxCDMA-BandClass)) OF BandClassPriorityHRPD

BandClassPriorityHRPD ::= SEQUENCE {

bandClass BandclassCDMA2000,

cellReselectionPriority CellReselectionPriority

}

BandClassPriorityList1XRTT ::= SEQUENCE (SIZE (1..maxCDMA-BandClass)) OF BandClassPriority1XRTT

BandClassPriority1XRTT ::= SEQUENCE {

bandClass BandclassCDMA2000,

cellReselectionPriority CellReselectionPriority

}

CellInfoListGERAN-r9 ::= SEQUENCE (SIZE (1..maxCellInfoGERAN-r9)) OF CellInfoGERAN-r9

CellInfoGERAN-r9 ::= SEQUENCE {

physCellId-r9 PhysCellIdGERAN,

carrierFreq-r9 CarrierFreqGERAN,

systemInformation-r9 SystemInfoListGERAN

}

CarrierInfoNR-r15 ::= SEQUENCE {

carrierFreq-r15 ARFCN-ValueNR-r15,

subcarrierSpacingSSB-r15 ENUMERATED {kHz15, kHz30, kHz120, kHz240},

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

}

CellInfoListUTRA-FDD-r9 ::= SEQUENCE (SIZE (1..maxCellInfoUTRA-r9)) OF CellInfoUTRA-FDD-r9

CellInfoUTRA-FDD-r9 ::= SEQUENCE {

physCellId-r9 PhysCellIdUTRA-FDD,

utra-BCCH-Container-r9 OCTET STRING

}

CellInfoListUTRA-TDD-r9 ::= SEQUENCE (SIZE (1..maxCellInfoUTRA-r9)) OF CellInfoUTRA-TDD-r9

CellInfoUTRA-TDD-r9 ::= SEQUENCE {

physCellId-r9 PhysCellIdUTRA-TDD,

utra-BCCH-Container-r9 OCTET STRING

}

CellInfoListUTRA-TDD-r10 ::= SEQUENCE (SIZE (1..maxCellInfoUTRA-r9)) OF CellInfoUTRA-TDD-r10

CellInfoUTRA-TDD-r10 ::= SEQUENCE {

physCellId-r10 PhysCellIdUTRA-TDD,

carrierFreq-r10 ARFCN-ValueUTRA,

utra-BCCH-Container-r10 OCTET STRING

}

-- ASN1STOP

| *RRCConnectionRelease* field descriptions |
| --- |
| ***altFreqPriorities***  Indicates that the UE shall apply the alternative cell reselectionpriorities, when available. This field is not configured together with *idleModeMobilityControlInfo*. |
| ***carrierFreq or bandClass***  The carrier frequency (UTRA, E-UTRA, and NR) and band class (HRPD and 1xRTT) for which the associated cellReselectionPriority is applied. For NR, the *ARFCN-ValueNR* corresponds to a GSCN value as specified in TS 38.101 [85]. |
| ***carrierFreqs***  The list of GERAN carrier frequencies organised into one group of GERAN carrier frequencies. |
| ***cellInfoList***  Used to provide system information of one or more cells on the redirected inter-RAT carrier frequency. The system information can be used if, upon redirection, the UE selects an inter-RAT cell indicated by the *physCellId* and *carrierFreq* (GERAN and UTRA TDD) or by the *physCellId* (other RATs). The choice shall match the *redirectedCarrierInfo*. In particular, E-UTRAN only applies value *utra-TDD-r10* in case *redirectedCarrierInfo* is set to *utra-TDD-r10*. |
| ***cellList***  Indicates a list of cells configured as RAN area. For each element, in the absence of *plmn-Identity* the UE considers the registered PLMN. Total number of cells across all PLMNs does not exceed 32. |
| ***cn-Type***  The*cn-Type* is used to indicate that the UE is redirected from 5GC to EPC or 5GC when*redirectedCarrierInfo* indicates E-UTRA frequency. |
| ***drb-ContinueROHC***  This field indicates whether to continue or reset the header compression protocol context for the DRBs configured with the header compression protocol. Presence of the field indicates that the header compression protocol context continues when UE initiates UP-EDT in the same cell, while absence indicates that the header compression protocol context is reset. |
| ***dummy***  This field is not used in the specification. If received it shall be ignored by the UE. |
| ***extendedWaitTime***  Value in seconds for the wait time for Delay Tolerant access requests. |
| ***freqPriorityListX***  Provides a cell reselection priority for each frequency, by means of separate lists for each RAT (including E-UTRA). The UE shall be able to store at least 3 occurrences of *FreqsPriorityGERAN*. If E-UTRAN includes *freqPriorityListEUTRA-v9e0* and/or *freqPriorityListEUTRA-v1310* it includes the same number of entries, and listed in the same order, as in *freqPriorityListEUTRA* (i.e. without suffix). Field *freqPriorityListExt* includes additional neighbouring inter-frequencies, i.e. extending the size of the inter-frequency carrier list using the general principles specified in 5.1.2. EUTRAN only includes *freqPriorityListExtEUTRA* if *freqPriorityListEUTRA* (i.e without suffix) includes *maxFreq* entries. If E-UTRAN includes *freqPriorityListExtEUTRA-v1310* it includes the same number of entries, and listed in the same order, as in *freqPriorityListExtEUTRA-r12.* |
| ***idleModeMobilityControlInfo***  Provides dedicated cell reselection priorities. Used for cell reselection as specified in TS 36.304 [4]. For E-UTRA and UTRA frequencies, a UE that supports multi-band cells for the concerned RAT considers the dedicated priorities to be common for all overlapping bands (i.e. regardless of the ARFCN that is used). |
| ***measIdleConfig***  Indicates a one-shot measurement configuration to be stored and used by the UE while in RRC\_IDLE or RRC\_INACTIVE. |
| ***mpsPriorityIndication***  Indicates the UE can set the establishment cause to *highPriorityAccess* for a new connection to a new RAT following a redirect to E-UTRA. If the target RAT is NR, see TS 38.331 [82]. The eNB/ng-eNB sets the indication only for UEs authorized to receive MPS treatment as indicated by ARP and/or QoS characteristics at the eNB/ng-eNB, and it is applicable only for this instance of release with redirection to carrier/RAT included in the *redirectedCarrierInfo* field in the *RRCConnectionRelease* message. |
| ***noLastCellUpdate***  Presence of the field indicates that the last used cell for (G)WUS shall not be updated. |
| ***periodic-RNAU-timer***  Refers to the timer that triggers the periodic RNAU procedure in UE. Value min5 corresponds to 5 minutes, value min10 corresponds to 10 minutes and so on. |
| ***ran-Area***  Indicates whether TA code(s) or RAN area code(s) are used for the RAN notification area. The network uses only TA code(s) or RAN area code(s) to configure a UE. Total number of TACs across all PLMNs does not exceed 16. Total number of RAN-AreaCode across all PLMNs does not exceed 32. |
| ***ran-NotificationAreaInfo***  Network ensures that the UE in RRC\_INACTIVE always has a valid *ran-NotificationAreaInfo*. |
| ***ranAreaConfigList***  Indicates a list of RAN area codes or RA code(s) as RAN area. For each element, in the absence of *plmn-Identity* the UE considers the registered PLMN. |
| ***ran-pagingCycle***  Refers to the UE specific cycle for RAN-initiated paging. Value rf32 corresponds to 32 radio frames, rf64 corresponds to 64 radio frames and so on. |
| ***redirectedCarrierInfo***  The r*edirectedCarrierInfo* indicates a carrier frequency (downlink for FDD) and is used to redirect the UE to an E‑UTRA or an inter-RAT carrier frequency, by means of the cell selection upon leaving RRC\_CONNECTED as specified in TS 36.304 [4]. The value *geran* can only be included after successful security activation when UE is connected to 5GC. |
| ***releaseCause***  The *releaseCause* is used to indicate the reason for releasing the RRC Connection. The cause value *cs-FallbackHighPriority* is only applicable when *redirectedCarrierInfo* is present with the value set to *utra-FDD,* *utra-TDD* or *utra-TDD-r10*. E-UTRAN should not set the *releaseCause* to *loadBalancingTAURequired* or to *cs-FallbackHighPriority* if the *extendedWaitTime* is present. The network should not set the *releaseCause* to *loadBalancingTAURequired* if the UE is connected to 5GC. The network does not set the *releaseCause* to *rrc-Suspend* if the UE is configured with a DAPS bearer, i.e. if source PCell resources after a DAPS handover have not been released. |
| ***releaseIdleMeasConfig***  Indicates that the UE shall release the idle/inactive measurement configurations, if configured. |
| ***rrc-InactiveConfig***  Indicates configuration for the RRC\_INACTIVE state. The network does not configure this field when the UE is redirected to an inter-RAT carrier frequency or if the UE is configured with a DAPS bearer. |
| ***smtc***  The SSB periodicity/offset/duration configuration of the redirected target NR frequency. It is based on the timing reference of EUTRAN PCell. If the field is absent, the UE uses the SMTC configured in the *measObjectNR* having the same SSB frequency and subcarrier spacing |
| ***subcarrierSpacingSSB***  Indicate subcarrier spacing of SSB of redirected target NR frequency. Only the values 15 or 30 (FR1), 120 kHz or 240 kHz (FR2) are applicable. |
| ***systemInformation***  Container for system information of the GERAN cell i.e. one or more System Information (SI) messages as defined in TS 44.018 [45], table 9.1.1. |
| ***t320***  Timer T320 as described in clause 7.3. Value minN corresponds to N minutes. |
| ***t323***  Timer T323 as described in clause 7.3. Value minN corresponds to N minutes. |
| ***utra-BCCH-Container***  Contains System Information Container message as defined in TS 25.331 [19]. |
| ***waitTime***  Wait time value in seconds. |

| Conditional presence | Explanation |
| --- | --- |
| *5GC* | The field is optionally present, Need ON, if the UE is connected to 5GC; otherwise the field is not present. |
| *BLCE-IDLEeDRX* | The field is optionally present, Need OR, if the UE is a BL UE or UE in CE and the UE is connected to 5GC and IDLE mode eDRX is configured and *ran-PagingCycle-r15* is absent; otherwise the field is not present. | |
| *EARFCN-max* | The field is mandatory present if the corresponding *carrierFreq* (i.e. without suffix) is set to *maxEARFCN*. Otherwise the field is not present. |
| *EarlySec* | When the UE is connected to 5GC, the field is mandatory present. When the UE is connected to EPC, the field is optionally present, Need ON, if the UE supports UP-EDT or UP transmission using PUR or early security reactivation and *releaseCause* is set to *rrc-Suspend*; otherwise the field is not present. | |
| *IdleInfoEUTRA* | The field is optionally present, Need OP, if the *IdleModeMobilityControlInfo* (i.e. without suffix) is included and includes *freqPriorityListEUTRA*; otherwise the field is not present. |
| *INACTIVE* | The field is mandatory present in this release. |
| *NoRedirect-r8* | The field is optionally present, Need OP, if the *redirectedCarrierInfo* (i.e. without suffix) is not included; otherwise the field is not present. |
| *Redirection* | The field is optionally present, Need ON, if the *redirectedCarrierInfo* is included and set to *geran*, *utra-FDD*, *utra-TDD* or *utra-TDD-r10*; otherwise the field is not present. |
| *Redirection2* | The field is optionally present, Need OR, if *redirectedCarrierInfo* is included; otherwise the field is not present. |
| *UP-EDTorPUR* | The field is optionally present, Need ON, if the UE supports UP-EDT or UP transmission using PUR and *releaseCause* is set to *rrc-Suspend*; otherwise the field is not present. |

<Text omitted>

#### – *SCPTMConfiguration-BR*

The *SCPTMConfiguration-BR* message contains the control information applicable for MBMS services transmitted via SC-MRB for BL UEs or UEs in CE.

Signalling radio bearer: N/A

RLC-SAP: UM

Logical channel: SC-MCCH

Direction: E‑UTRAN to UE

*SCPTMConfiguration-BR message*

-- ASN1START

SCPTMConfiguration-BR-r14 ::= SEQUENCE {

sc-mtch-InfoList-r14 SC-MTCH-InfoList-BR-r14,

scptm-NeighbourCellList-r14 SCPTM-NeighbourCellList-r13 OPTIONAL, -- Need OP

p-b-r14 INTEGER (0..3) OPTIONAL, -- Need OR

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension SCPTMConfiguration-BR-v1610 OPTIONAL

}

SCPTMConfiguration-BR-v1610 ::= SEQUENCE {

sc-MTCH-InfoList-MultiTB-r16 SC-MTCH-InfoList-BR-r14,

multiTB-Gap-r16 ENUMERATED {sf2, sf4, sf8, sf16, sf32, sf64, sf128, spare}

OPTIONAL, -- Need OR

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

| *SCPTMConfiguration-BR field descriptions* |
| --- |
| ***p-b***  Parameter:  for the PDSCH scrambled by G-RNTI, see TS 36.213 [23], Table 5.2-1. |
| ***multiTB-Gap***  Indicates scheduling gaps in sub-frames for SC-MTCH using multi-TB scheduling. Value sf2 corresponds to 2 sub-frames, value sf4 corresponds to 4 sub-frames and so on. If the field is absent, there is no scheduling gap. |
| ***sc-mtch-InfoList***  Provides the configuration of each SC-MTCH not using multi-TB scheduling in the current cell for BL UEs or UEs in CE. |
| ***sc-MTCH-InfoList-MultiTB***  Provides the configuration of each SC-MTCH using multi-TB scheduling in the current cell for BL UEs or UEs in CE. When this field is included, the total number of SC-MTCH configurations in *sc-mtch-InfoList* and *sc-MTCH-InfoList-MultiTB* cannot be more than *maxSC-MTCH-BR-r14*. |
| ***scptm-NeighbourCellList***  List of neighbour cells providing MBMS services via SC-MRB. When absent, the BL UE or UE in CE shall assume that MBMS services listed in the *SCPTMConfiguration-BR* message are not provided via SC-MRB in any neighbour cell. |

<Text omitted>

#### – *UEInformationResponse*

The *UEInformationResponse* message is used by the UE to transfer the information requested by the E-UTRAN.

Signalling radio bearer: SRB1 or SRB2 (when logged measurement information is included)

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to E-UTRAN

*UEInformationResponse message*

-- ASN1START

UEInformationResponse-r9 ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

c1 CHOICE {

ueInformationResponse-r9 UEInformationResponse-r9-IEs,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

UEInformationResponse-r9-IEs ::= SEQUENCE {

rach-Report-r9 RACH-Report-r16 OPTIONAL,

rlf-Report-r9 RLF-Report-r9 OPTIONAL,

nonCriticalExtension UEInformationResponse-v930-IEs OPTIONAL

}

-- Late non critical extensions

UEInformationResponse-v9e0-IEs ::= SEQUENCE {

rlf-Report-v9e0 RLF-Report-v9e0 OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Regular non critical extensions

UEInformationResponse-v930-IEs ::= SEQUENCE {

lateNonCriticalExtension OCTET STRING (CONTAINING UEInformationResponse-v9e0-IEs) OPTIONAL,

nonCriticalExtension UEInformationResponse-v1020-IEs OPTIONAL

}

UEInformationResponse-v1020-IEs ::= SEQUENCE {

logMeasReport-r10 LogMeasReport-r10 OPTIONAL,

nonCriticalExtension UEInformationResponse-v1130-IEs OPTIONAL

}

UEInformationResponse-v1130-IEs ::= SEQUENCE {

connEstFailReport-r11 ConnEstFailReport-r11 OPTIONAL,

nonCriticalExtension UEInformationResponse-v1250-IEs OPTIONAL

}

UEInformationResponse-v1250-IEs ::= SEQUENCE {

mobilityHistoryReport-r12 MobilityHistoryReport-r12 OPTIONAL,

nonCriticalExtension UEInformationResponse-v1530-IEs OPTIONAL

}

UEInformationResponse-v1530-IEs ::= SEQUENCE {

measResultListIdle-r15 MeasResultListIdle-r15 OPTIONAL,

flightPathInfoReport-r15 FlightPathInfoReport-r15 OPTIONAL,

nonCriticalExtension UEInformationResponse-v1610-IEs OPTIONAL

}

UEInformationResponse-v1610-IEs ::= SEQUENCE {

rach-Report-v1610 RACH-Report-v1610 OPTIONAL,

measResultListExtIdle-r16 MeasResultListExtIdle-r16 OPTIONAL,

measResultListIdleNR-r16 MeasResultListIdleNR-r16 OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

RACH-Report-r16 ::= SEQUENCE {

numberOfPreamblesSent-r16 NumberOfPreamblesSent-r11,

contentionDetected-r16 BOOLEAN

}

RACH-Report-v1610 ::= SEQUENCE {

initialCEL-r16 INTEGER (0..3),

edt-Fallback-r16 BOOLEAN

}

RLF-Report-r9 ::= SEQUENCE {

measResultLastServCell-r9 SEQUENCE {

rsrpResult-r9 RSRP-Range,

rsrqResult-r9 RSRQ-Range OPTIONAL

},

measResultNeighCells-r9 SEQUENCE {

measResultListEUTRA-r9 MeasResultList2EUTRA-r9 OPTIONAL,

measResultListUTRA-r9 MeasResultList2UTRA-r9 OPTIONAL,

measResultListGERAN-r9 MeasResultListGERAN OPTIONAL,

measResultsCDMA2000-r9 MeasResultList2CDMA2000-r9 OPTIONAL

} OPTIONAL,

...,

[[ locationInfo-r10 LocationInfo-r10 OPTIONAL,

failedPCellId-r10 CHOICE {

cellGlobalId-r10 CellGlobalIdEUTRA,

pci-arfcn-r10 SEQUENCE {

physCellId-r10 PhysCellId,

carrierFreq-r10 ARFCN-ValueEUTRA

}

} OPTIONAL,

reestablishmentCellId-r10 CellGlobalIdEUTRA OPTIONAL,

timeConnFailure-r10 INTEGER (0..1023) OPTIONAL,

connectionFailureType-r10 ENUMERATED {rlf, hof} OPTIONAL,

previousPCellId-r10 CellGlobalIdEUTRA OPTIONAL

]],

[[ failedPCellId-v1090 SEQUENCE {

carrierFreq-v1090 ARFCN-ValueEUTRA-v9e0

} OPTIONAL

]],

[[ basicFields-r11 SEQUENCE {

c-RNTI-r11 C-RNTI,

rlf-Cause-r11 ENUMERATED {

t310-Expiry, randomAccessProblem,

rlc-MaxNumRetx, t312-Expiry-r12},

timeSinceFailure-r11 TimeSinceFailure-r11

} OPTIONAL,

previousUTRA-CellId-r11 SEQUENCE {

carrierFreq-r11 ARFCN-ValueUTRA,

physCellId-r11 CHOICE {

fdd-r11 PhysCellIdUTRA-FDD,

tdd-r11 PhysCellIdUTRA-TDD

},

cellGlobalId-r11 CellGlobalIdUTRA OPTIONAL

} OPTIONAL,

selectedUTRA-CellId-r11 SEQUENCE {

carrierFreq-r11 ARFCN-ValueUTRA,

physCellId-r11 CHOICE {

fdd-r11 PhysCellIdUTRA-FDD,

tdd-r11 PhysCellIdUTRA-TDD

}

} OPTIONAL

]],

[[ failedPCellId-v1250 SEQUENCE {

tac-FailedPCell-r12 TrackingAreaCode

} OPTIONAL,

measResultLastServCell-v1250 RSRQ-Range-v1250 OPTIONAL,

lastServCellRSRQ-Type-r12 RSRQ-Type-r12 OPTIONAL,

measResultListEUTRA-v1250 MeasResultList2EUTRA-v1250 OPTIONAL

]],

[[ drb-EstablishedWithQCI-1-r13 ENUMERATED {qci1} OPTIONAL

]],

[[ measResultLastServCell-v1360 RSRP-Range-v1360 OPTIONAL

]],

[[ logMeasResultListBT-r15 LogMeasResultListBT-r15 OPTIONAL,

logMeasResultListWLAN-r15 LogMeasResultListWLAN-r15 OPTIONAL

]],

[[ measResultListNR-r16 MeasResultCellListNR-r15 OPTIONAL,

previousNR-PCellId-r16 CellGlobalIdNR-r16 OPTIONAL,

failedNR-PCellId-r16 CHOICE {

cellGlobalId-r16 CellGlobalIdNR-r16,

pci-arfcn-r16 SEQUENCE {

physCellId-r16 PhysCellIdNR-r15,

carrierFreq-r16 ARFCN-ValueNR-r15

}

} OPTIONAL,

reconnectCellId-r16 CHOICE {

nrReconnectCellId-r16 CellGlobalIdNR-r16,

eutraReconnectCellId-r16 SEQUENCE {

cellGlobalId-r16 CellGlobalIdEUTRA,

trackingAreaCode-EPC-r16 TrackingAreaCode OPTIONAL,

trackingAreaCode-5GC-r16 TrackingAreaCode-5GC-r15 OPTIONAL

}

} OPTIONAL,

timeUntilReconnection-r16 TimeUntilReconnection-r16 OPTIONAL

]],

[[ measResultListNR-v1640 SEQUENCE {

carrierFreqNR-r16 ARFCN-ValueNR-r15

} OPTIONAL,

measResultListExtNR-r16 MeasResultFreqListNR-r16 OPTIONAL

]]

}

RLF-Report-v9e0 ::= SEQUENCE {

measResultListEUTRA-v9e0 MeasResultList2EUTRA-v9e0

}

MeasResultList2EUTRA-r9 ::= SEQUENCE (SIZE (1..maxFreq)) OF MeasResult2EUTRA-r9

MeasResultList2EUTRA-v9e0 ::= SEQUENCE (SIZE (1..maxFreq)) OF MeasResult2EUTRA-v9e0

MeasResultList2EUTRA-v1250 ::= SEQUENCE (SIZE (1..maxFreq)) OF MeasResult2EUTRA-v1250

MeasResult2EUTRA-r9 ::= SEQUENCE {

carrierFreq-r9 ARFCN-ValueEUTRA,

measResultList-r9 MeasResultListEUTRA

}

MeasResult2EUTRA-v9e0 ::= SEQUENCE {

carrierFreq-v9e0 ARFCN-ValueEUTRA-v9e0 OPTIONAL

}

MeasResult2EUTRA-v1250 ::= SEQUENCE {

rsrq-Type-r12 RSRQ-Type-r12 OPTIONAL

}

MeasResultList2UTRA-r9 ::= SEQUENCE (SIZE (1..maxFreq)) OF MeasResult2UTRA-r9

MeasResult2UTRA-r9 ::= SEQUENCE {

carrierFreq-r9 ARFCN-ValueUTRA,

measResultList-r9 MeasResultListUTRA

}

MeasResultList2CDMA2000-r9 ::= SEQUENCE (SIZE (1..maxFreq)) OF MeasResult2CDMA2000-r9

MeasResult2CDMA2000-r9 ::= SEQUENCE {

carrierFreq-r9 CarrierFreqCDMA2000,

measResultList-r9 MeasResultsCDMA2000

}

LogMeasReport-r10 ::= SEQUENCE {

absoluteTimeStamp-r10 AbsoluteTimeInfo-r10,

traceReference-r10 TraceReference-r10,

traceRecordingSessionRef-r10 OCTET STRING (SIZE (2)),

tce-Id-r10 OCTET STRING (SIZE (1)),

logMeasInfoList-r10 LogMeasInfoList-r10,

logMeasAvailable-r10 ENUMERATED {true} OPTIONAL,

...,

[[ logMeasAvailableBT-r15 ENUMERATED {true} OPTIONAL,

logMeasAvailableWLAN-r15 ENUMERATED {true} OPTIONAL

]]

}

LogMeasInfoList-r10 ::= SEQUENCE (SIZE (1..maxLogMeasReport-r10)) OF LogMeasInfo-r10

LogMeasInfo-r10 ::= SEQUENCE {

locationInfo-r10 LocationInfo-r10 OPTIONAL,

relativeTimeStamp-r10 INTEGER (0..7200),

servCellIdentity-r10 CellGlobalIdEUTRA,

measResultServCell-r10 SEQUENCE {

rsrpResult-r10 RSRP-Range,

rsrqResult-r10 RSRQ-Range

},

measResultNeighCells-r10 SEQUENCE {

measResultListEUTRA-r10 MeasResultList2EUTRA-r9 OPTIONAL,

measResultListUTRA-r10 MeasResultList2UTRA-r9 OPTIONAL,

measResultListGERAN-r10 MeasResultList2GERAN-r10 OPTIONAL,

measResultListCDMA2000-r10 MeasResultList2CDMA2000-r9 OPTIONAL

} OPTIONAL,

...,

[[ measResultListEUTRA-v1090 MeasResultList2EUTRA-v9e0 OPTIONAL

]],

[[ measResultListMBSFN-r12 MeasResultListMBSFN-r12 OPTIONAL,

measResultServCell-v1250 RSRQ-Range-v1250 OPTIONAL,

servCellRSRQ-Type-r12 RSRQ-Type-r12 OPTIONAL,

measResultListEUTRA-v1250 MeasResultList2EUTRA-v1250 OPTIONAL

]],

[[ inDeviceCoexDetected-r13 ENUMERATED {true} OPTIONAL

]],

[[ measResultServCell-v1360 RSRP-Range-v1360 OPTIONAL

]],

[[ logMeasResultListBT-r15 LogMeasResultListBT-r15 OPTIONAL,

logMeasResultListWLAN-r15 LogMeasResultListWLAN-r15 OPTIONAL

]],

[[ anyCellSelectionDetected-r15 ENUMERATED {true} OPTIONAL

]],

[[ measResultListNR-r16 MeasResultCellListNR-r15 OPTIONAL

]],

[[ measResultListNR-v1640 SEQUENCE {

carrierFreqNR-r16 ARFCN-ValueNR-r15

} OPTIONAL,

measResultListExtNR-r16 MeasResultFreqListNR-r16 OPTIONAL

]]

}

MeasResultListMBSFN-r12 ::= SEQUENCE (SIZE (1..maxMBSFN-Area)) OF MeasResultMBSFN-r12

MeasResultMBSFN-r12 ::= SEQUENCE {

mbsfn-Area-r12 SEQUENCE {

mbsfn-AreaId-r12 MBSFN-AreaId-r12,

carrierFreq-r12 ARFCN-ValueEUTRA-r9

},

rsrpResultMBSFN-r12 RSRP-Range,

rsrqResultMBSFN-r12 MBSFN-RSRQ-Range-r12,

signallingBLER-Result-r12 BLER-Result-r12 OPTIONAL,

dataBLER-MCH-ResultList-r12 DataBLER-MCH-ResultList-r12 OPTIONAL,

...

}

DataBLER-MCH-ResultList-r12 ::= SEQUENCE (SIZE (1.. maxPMCH-PerMBSFN)) OF DataBLER-MCH-Result-r12

DataBLER-MCH-Result-r12 ::= SEQUENCE {

mch-Index-r12 INTEGER (1..maxPMCH-PerMBSFN),

dataBLER-Result-r12 BLER-Result-r12

}

BLER-Result-r12 ::= SEQUENCE {

bler-r12 BLER-Range-r12,

blocksReceived-r12 SEQUENCE {

n-r12 BIT STRING (SIZE (3)),

m-r12 BIT STRING (SIZE (8))

}

}

BLER-Range-r12 ::= INTEGER(0..31)

MeasResultList2GERAN-r10 ::= SEQUENCE (SIZE (1..maxCellListGERAN)) OF MeasResultListGERAN

MeasResultFreqListNR-r16::= SEQUENCE (SIZE (1..maxFreq-1-r16)) OF MeasResultFreqFailNR-r15

ConnEstFailReport-r11 ::= SEQUENCE {

failedCellId-r11 CellGlobalIdEUTRA,

locationInfo-r11 LocationInfo-r10 OPTIONAL,

measResultFailedCell-r11 SEQUENCE {

rsrpResult-r11 RSRP-Range,

rsrqResult-r11 RSRQ-Range OPTIONAL

},

measResultNeighCells-r11 SEQUENCE {

measResultListEUTRA-r11 MeasResultList2EUTRA-r9 OPTIONAL,

measResultListUTRA-r11 MeasResultList2UTRA-r9 OPTIONAL,

measResultListGERAN-r11 MeasResultListGERAN OPTIONAL,

measResultsCDMA2000-r11 MeasResultList2CDMA2000-r9 OPTIONAL

} OPTIONAL,

numberOfPreamblesSent-r11 NumberOfPreamblesSent-r11,

contentionDetected-r11 BOOLEAN,

maxTxPowerReached-r11 BOOLEAN,

timeSinceFailure-r11 TimeSinceFailure-r11,

measResultListEUTRA-v1130 MeasResultList2EUTRA-v9e0 OPTIONAL,

...,

[[ measResultFailedCell-v1250 RSRQ-Range-v1250 OPTIONAL,

failedCellRSRQ-Type-r12 RSRQ-Type-r12 OPTIONAL,

measResultListEUTRA-v1250 MeasResultList2EUTRA-v1250 OPTIONAL

]],

[[ measResultFailedCell-v1360 RSRP-Range-v1360 OPTIONAL

]],

[[ logMeasResultListBT-r15 LogMeasResultListBT-r15 OPTIONAL,

logMeasResultListWLAN-r15 LogMeasResultListWLAN-r15 OPTIONAL

]],

[[ measResultListNR-r16 MeasResultCellListNR-r15 OPTIONAL

]],

[[ measResultListNR-v1640 SEQUENCE {

carrierFreqNR-r16 ARFCN-ValueNR-r15

} OPTIONAL,

measResultListExtNR-r16 MeasResultFreqListNR-r16 OPTIONAL

]]

}

NumberOfPreamblesSent-r11::= INTEGER (1..200)

TimeSinceFailure-r11 ::= INTEGER (0..172800)

TimeUntilReconnection-r16 ::= INTEGER (0..172800)

MobilityHistoryReport-r12 ::= VisitedCellInfoList-r12

FlightPathInfoReport-r15 ::= SEQUENCE {

flightPath-r15 SEQUENCE (SIZE (1..maxWayPoint-r15)) OF WayPointLocation-r15 OPTIONAL,

dummy SEQUENCE {} OPTIONAL

}

WayPointLocation-r15 ::= SEQUENCE {

wayPointLocation-r15 LocationInfo-r10,

timeStamp-r15 AbsoluteTimeInfo-r10 OPTIONAL

}

-- ASN1STOP

| *UEInformationResponse* field descriptions |
| --- |
| ***absoluteTimeStamp***  Indicates the absolute time when the logged measurement configuration logging is provided, as indicated by E-UTRAN within *absoluteTimeInfo*. |
| ***anyCellSelectionDetected***  This field is used to indicate the detection of *any cell selection* state, as defined in TS 36.304 [4]. The UE sets this field when performing the logging of measurement results in RRC\_IDLE and there is no suitable cell or no acceptable cell. |
| ***bler***  Indicates the measured BLER value. The coding of BLER value is defined in TS 36.133 [16]. |
| ***blocksReceived***  Indicates total number of MCH blocks, which were received by the UE and used for the corresponding BLER calculation, within the measurement period as defined in TS 36.133 [16]. |
| ***carrierFreq***  In case the UE includes *carrierFreq-v9e0* and/ or *carrierFreq-v1090*, the UE shall set the corresponding entry of *carrierFreq-r9* and/ or *carrierFreq-r10* respectively to *maxEARFCN*. For E-UTRA and UTRA frequencies, the UE sets the ARFCN according to the band used when obtaining the concerned measurement results. |
| ***carrierFreqNR***  In case the UE includes *measResultListNR*, the UE uses this field to indicate the ARFCN value according to the band used when obtaining the concrned measurement results |
| ***connectionFailureType***  This field is used to indicate whether the connection failure is due to radio link failure or handover failure. |
| ***contentionDetected***  This field is used to indicate that contention was detected for at least one of the transmitted preambles, see TS 36.321 [6]. |
| ***c-RNTI***  This field indicates the C-RNTI used in the PCell upon detecting radio link failure or the C-RNTI used in the source PCell upon handover failure. |
| ***dataBLER-MCH-ResultList***  Includes a BLER result per MCH on subframes using *dataMCS*, with the applicable MCH(s) listed in the same order as in *pmch-InfoList* within *MBSFNAreaConfiguration*. |
| ***drb-EstablishedWithQCI-1***  This field is used to indicate the radio link failure occurred while a bearer with QCI value equal to 1 was configured, see TS 24.301 [35]. |
| ***dummy***  This field is not used in the specification. It shall not be sent by the UE. |
| ***edt-Fallback***  Value TRUE indicates the last successfully completed random access procedure was initiated with EDT PRACH resource and succeeded after receiving EDT fallback indication from lower layers. |
| ***failedCellId***  This field is used to indicate the cell in which connection establishment failed. |
| ***failedPCellId***  This field is used to indicate the PCell in which RLF is detected or the target PCell of the failed handover. The UE sets the EARFCN according to the band used for transmission/ reception when the failure occurred. |
| ***inDeviceCoexDetected***  Indicates that measurement logging is suspended due to IDC problem detection. |
| ***initialCEL***  Indicates the initial CE level used for the last successfully completed random access procedure for BL UEs and UEs in CE. |
| ***logMeasResultListBT***  This field refers to the Bluetooth measurement results. |
| ***logMeasResultListWLAN***  This field refers to the WLAN measurement results. |
| ***maxTxPowerReached***  This field is used to indicate whether or not the maximum power level was used for the last transmitted preamble, see TS 36.321 [6]. |
| ***mch-Index***  Indicates the MCH by referring to the entry as listed in *pmch-InfoList* within *MBSFNAreaConfiguration*. |
| ***measResultFailedCell***  This field refers to the last measurement results taken in the cell, where connection establishment failure happened. For UE supporting CE Mode B, when CE mode B is not restricted by upper layers, *measResultFailedCell-v1360* is reported if the measured RSRP is less than -140 dBm. |
| ***measResultLastServCell***  This field refers to the last measurement results taken in the PCell, where radio link failure or handover failure happened. For BL UEs or UEs in CE, when operating in CE Mode B, *measResultLastServCell-v1360* is reported if the measured RSRP is less than -140 dBm. |
| ***measResultListEUTRA***  If *measResultListEUTRA-v9e0*, *measResultListEUTRA-v1090* or *measResultListEUTRA-v1130* is included, the UE shall include the same number of entries, and listed in the same order, as in *measResultListEUTRA-r9*, *measResultListEUTRA-r10* and/ or *measResultListEUTRA-r11* respectively. |
| ***measResultListEUTRA-v1250***  If included in *RLF-Report-r9* the UE shall include the same number of entries, and listed in the same order, as in *measResultListEUTRA-r9*;  If included in *LogMeasInfo-r10* the UE shall include the same number of entries, and listed in the same order, as in *measResultListEUTRA-r10*;  If included in *ConnEstFailReport-r11* the UE shall include the same number of entries, and listed in the same order, as in *measResultListEUTRA-r11*; |
| ***measResultListIdle***  This field indicates the E-UTRA measurement results done during RRC\_IDLE and RRC\_INACTIVE at network request. |
| ***measResultListIdleNR***  This field indicates the NR measurement results done during RRC\_IDLE and RRC\_INACTIVE at network request. |
| ***measResultListNR, measResultListExtNR***  Includes NR measurement results, with *measResultListNR* including results of a first NR frequency and *measResultListExtNR* including results of additinal NR frequencies, if available. |
| ***measResultServCell***  This field refers to the log measurement results taken in the Serving cell. For UE supporting CE Mode B, when CE mode B is not restricted by upper layers, *measResultServCell-v1360* is reported if the measured RSRP is less than -140 dBm. |
| ***mobilityHistoryReport***  This field is used to indicate the time of stay in 16 most recently visited E-UTRA cells or of stay out of E-UTRA. |
| ***numberOfPreamblesSent***  This field is used to indicate the number of RACH preambles that were transmitted. Corresponds to parameter PREAMBLE\_TRANSMISSION\_COUNTER in TS 36.321 [6]. |
| ***previousPCellId***  This field is used to indicate the source PCell of the last handover (source PCell when the last *RRCConnectionReconfiguration* message including *mobilityControlInfo* was received). |
| ***previousUTRA-CellId***  This field is used to indicate the source UTRA cell of the last successful handover to E-UTRAN, when RLF occurred at the target PCell. The UE sets the ARFCN according to the band used for transmission/ reception on the concerned cell. |
| ***reconnectCellId***  This field is used to indicate the cell in which the UE comes back to connected after connection failure and after failing to perform reestablishment. If the UE comes back to RRC CONNECTED in an NR cell then *nrReconnectCellID* is included and if the UE comes back to RRC CONNECTED in an LTE cell then *eutraReconnectCellID* is included. |
| ***reestablishmentCellId***  This field is used to indicate the cell in which the re-establishment attempt was made after connection failure. |
| ***relativeTimeStamp***  Indicates the time of logging measurement results, measured relative to the *absoluteTimeStamp*. Value in seconds. |
| ***rlf-Cause***  This field is used to indicate the cause of the last radio link failure that was detected. In case of handover failure information reporting (i.e., the *connectionFailureType* is set to '*hof*'), the UE is allowed to set this field to any value. |
| ***selectedUTRA-CellId***  This field is used to indicate the UTRA cell that the UE selects after RLF is detected, while T311 is running. The UE sets the ARFCN according to the band selected for transmission/ reception on the concerned cell. |
| ***signallingBLER-Result***  Includes a BLER result of MBSFN subframes using *signallingMCS*. |
| ***tac-FailedPCell***  This field is used to indicate the Tracking Area Code of the PCell in which RLF is detected. |
| ***tce-Id***  Parameter Trace Collection Entity Id: See TS 32.422 [58]. |
| ***timeConnFailure***  This field is used to indicate the time elapsed since the last HO initialization until connection failure. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |
| ***timeSinceFailure***  This field is used to indicate the time that elapsed since the connection (establishment) failure. Value in seconds. The maximum value 172800 means 172800s or longer. |
| ***timeStamp***  Includes time stamps for the waypoints that describe planned locations for the UE. |
| ***timeUntilReconnection***  This field is used to indicate the time that elapsed between the connection (radio link or handover) failure and the next time the UE comes to RRC CONNECTED in an NR or EUTRA cell, after failing to perform reestablishment. Value in seconds. The maximum value 172800 means 172800s or longer. |
| ***traceRecordingSessionRef***  Parameter Trace Recording Session Reference: See TS 32.422 [58]. |
| ***wayPointLocation***  Includes location coordinates for a UE for Aerial UE operation. The waypoints describe planned locations for the UE. |

*End of changes*