**3GPP TSG-RAN WG2 Meeting #129bis R2-250**

**Wuhan, P. R. China, Apr. 7th – 11st, 2025**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **38.331** | **CR** | 5288 | **rev** | 2 | **Current version:** | 18.5.1 |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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|  |
| ***Title:***  | Introduction of control parameters for on-demand posSIB request [PosOdSIB-Req] |
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| ***Source to WG:*** | Huawei, HiSilicon, Ericsson |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | TEI19 |  | ***Date:*** | 2025-04-14 |
|  |  |  |  |  |
| ***Category:*** | B |  | ***Release:*** | Rel-19 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | For positioning SIB, the assistance data for some of the SIBs require periodic update and periodic delivery of the posSIB is thus required. For instance, RTK message is typically updated periodically (a typical update periodicity is 640ms) and the update needs to be delivered to the UE in a timely manner. During R16 discussion, we have agreed to introduce on-demand SIB request in RRC\_CONNECTED. When a certain SIB/posSIB that the UE needs is not currently broadcasted, the UE may send a UL dedicated RRC message to the gNB to request this needed SIB/posSIB. Then, based on the request, the gNB may send the SIB/posSIB either by dedicated signaling or by system information.The issue is that, based on the current mechanism, the network does not know how many time the SIB should be delivered to the UE. Take posSIB for RTK for example:* If the network delivers multiple RTK posSIB per UE request, the network does not know when it should stop
* If the network delivers only one RTK posSIB per UE request, the UE might repeatedly send the request to the network, which results in much signalling overhead.

This hence motivates us to allow for UE to indicate the amount of periodic deliveries that it needs when requesting the posSIB.Note that for the support of RTK in LPP, LPP control parameters are defined for periodic assistance delivery with periodicity and requested amount.We can follow what has been defined in LPP for the delivery amount and the posSIB can be delivered to the UE periodically whenever the gNB receives an updated posSIB from the LMF.For the posSIBs that have the requirement for periodic delivery, LPP has the following list of tables for RAT-independent and RAT-dependent positioning methodsMapping to posSIBs, the following posSIBs would have the requirement for periodic deliveries========== UPDATE after RAN2#129===========After the discussion during RAN2#129, the following agreement has been achievedAgreements:Introduce control parameters, including delivery amount and start/stop, for posSIBs with periodic delivery requirements for SI request in RRC\_CONNECTED.Control signalling in reconfiguration to be encoded as ENUMERATED { enabled } OPTIONAL Need R. |
|  |  |
| ***Summary of change:*** | 1/ Introduce control parameters, including delivery amount for posSIBs for SIB request in RRC\_CONNECTED2/ Added capability signalling for the control parameters for posSIBs |
|  |  |
| ***Consequences if not approved:*** | The UE needs to repeatedly send on-demand SI request for posSIB, which results in large signaling overhead and delay |
|  |  |
| ***Clauses affected:*** | 5.2.2.3.6, 6.2.2, 6.3.3 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 38.306 CR 1248TS 38.300 CR 0978TS 38.305 CR 0184 |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

==================================CHANGE BEGINS=====================================

##### 5.2.2.3.5 Acquisition of SIB(s) or posSIB(s) in RRC\_CONNECTED

The UE shall:

1> if the UE is in RRC\_CONNECTED with an active BWP not configured with common search space with the field *searchSpaceOtherSystemInformation* and the UE has not stored a valid version of a SIB or posSIB, in accordance with clause 5.2.2.2.1, of one or several required SIB(s) or posSIB(s) in accordance with clause 5.2.2.1, or

1> if the UE is in RRC\_CONNECTED and acting as a L2 U2N Remote UE and the UE has not stored a valid version of a SIB, in accordance with clause 5.2.2.2.1, of one or several required SIB(s) in accordance with clause 5.2.2.1:

2> for the SI message(s) that, according to the *si-SchedulingInfo* or *posSI-SchedulingInfo* in the stored SIB1, contain at least one required SIB or requested posSIB:

3> if *onDemandSIB-Request* is configured and timer T350 is not running:

4> initiate transmission of the *DedicatedSIBRequest* message in accordance with 5.2.2.3.6;

4> start timer T350 with the timer value set to the *onDemandSIB-RequestProhibitTimer*;

1> else if the UE is in RRC\_CONNECTED with an active BWP configured with common search space with the field *searchSpaceOtherSystemInformation* and the UE has not stored a valid version of a SIB or posSIB, in accordance with clause 5.2.2.2.1, of one or several required SIB(s) or posSIB(s) in accordance with clause 5.2.2.1:

2> for the SI message(s) that, according to the *si-SchedulingInfo* in the stored SIB1, contain at least one required SIB and for which *si-BroadcastStatus* is set to *broadcasting*:

3> acquire the SI message(s) as defined in clause 5.2.2.3.2;

2> for the SI message(s) that, according to the *si-SchedulingInfo* in the stored SIB1, contain at least one required SIB and for which *si-BroadcastStatus* is set to *notBroadcasting*:

3> if *onDemandSIB-Request* is configured and timer T350 is not running:

4> initiate transmission of the *DedicatedSIBRequest* message in accordance with 5.2.2.3.6;

4> start timer T350 with the timer value set to the *onDemandSIB-RequestProhibitTimer*;

4> acquire the requested SI message(s) corresponding to the requested SIB(s) as defined in clause 5.2.2.3.2.

2> for the SI message(s) that, according to the *posSI-SchedulingInfo* or *si-SchedulingInfo-v1700*, if present, in the stored SIB1, contain at least one requested posSIB and for which *posSI-BroadcastStatus* in *posSchedulingInfoList* in *posSI-SchedulingInfo* or *si-BroadcastStatus* of the type2 SIB configured by *schedulingInfoList2* in *si-SchedulingInfo-v1700*, if present,is set to *broadcasting*:

3> acquire the SI message(s) as defined in clause 5.2.2.3.2;

2> for the SI message(s) that, according to the *posSI-SchedulingInfo* or *si-SchedulingInfo-v1700*, if present, in the stored SIB1, contain at least one requested posSIB and for which *posSI-BroadcastStatus* in *posSchedulingInfoList* in *posSI-SchedulingInfo* or *si-BroadcastStatus* of the type2 SIB configured by *schedulingInfoList2* in *si-SchedulingInfo-v1700*, if present,is set to *notBroadcasting*:

3> if *onDemandSIB-Request* is configured and timer T350 is not running:

4> initiate transmission of the *DedicatedSIBRequest* message in accordance with 5.2.2.3.6;

4> start timer T350 with the timer value set to the *onDemandSIB-RequestProhibitTimer*;

4> acquire the requested SI message(s) corresponding to the requested posSIB(s) as defined in clause 5.2.2.3.2.

NOTE: UE may include on demand request for SIB and/or posSIB(s) in the same *DedicatedSIBRequest* message.

##### 5.2.2.3.6 Actions related to transmission of *DedicatedSIBRequest* message

The UE shall set the contents of *DedicatedSIBRequest* message as follows:

1> if the procedure is triggered to request the required SIB(s):

2> include *requestedSIB-List* in the *onDemandSIB-RequestList* to indicate the requested SIB(s);

1> if the procedure is triggered to request the required posSIB(s):

2> if *onDemandSIB-RequestCtrlParam* is configured:

3> if periodic delivery of the posSIB(s) is required by the upper layers; or

3> if the periodic delivery previously requested is no longer required by the upper layers:

4> include the posSIB(s) in the *requstedPosSIB-List-r19* and set the *deliveryAmount* to the requested number of periodic deliveries for the requested posSIB(s).

3> else:

4> include the posSIB(s) in the *requestedPosSIB-List-r16* in the *onDemandSIB-RequestList* to indicate the requested posSIB(s)

2> else:

3> include the posSIB(s) in the *requestedPosSIB-List-r16* in the *onDemandSIB-RequestList* to indicate the requested posSIB(s).

The UE shall submit the *DedicatedSIBRequest* message to lower layers for transmission.

=======================================================NEXT CHANGE===========================================================

#### – *DedicatedSIBRequest*

The *DedicatedSIBRequest* message is used to request SIB(s) required by the UE in RRC\_CONNECTED as specified in clause 5.2.2.3.5.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*DedicatedSIBRequest message*

-- ASN1START

-- TAG-DEDICATEDSIBREQUEST-START

DedicatedSIBRequest-r16 ::= SEQUENCE {

 criticalExtensions CHOICE {

 dedicatedSIBRequest-r16 DedicatedSIBRequest-r16-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

DedicatedSIBRequest-r16-IEs ::= SEQUENCE {

 onDemandSIB-RequestList-r16 SEQUENCE {

 requestedSIB-List-r16 SEQUENCE (SIZE (1..maxOnDemandSIB-r16)) OF SIB-ReqInfo-r16 OPTIONAL,

 requestedPosSIB-List-r16 SEQUENCE (SIZE (1..maxOnDemandPosSIB-r16)) OF PosSIB-ReqInfo-r16 OPTIONAL

 } OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension DedicatedSIBRequest-v19xy-IEs OPTIONAL

}

DedicatedSIBRequest-v19xy-IEs ::= SEQUENCE{

 onDemandSIB-RequestList-v19xy SEQUENCE {

 requestedPosSIB-List-r19 SEQUENCE (SIZE (1..maxOnDemandPosSIB-r16)) OF PosSIB-ReqInfo-r19 OPTIONAL

 } OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

SIB-ReqInfo-r16 ::= ENUMERATED { sib12, sib13, sib14, sib20-v1700, sib21-v1700, sib23-v1810, spare2, spare1 }

PosSIB-ReqInfo-r16 ::= SEQUENCE {

 gnss-id-r16 GNSS-ID-r16 OPTIONAL,

 sbas-id-r16 SBAS-ID-r16 OPTIONAL,

 posSibType-r16 ENUMERATED { posSibType1-1, posSibType1-2, posSibType1-3, posSibType1-4, posSibType1-5, posSibType1-6,

 posSibType1-7, posSibType1-8, posSibType2-1, posSibType2-2, posSibType2-3, posSibType2-4,

 posSibType2-5, posSibType2-6, posSibType2-7, posSibType2-8, posSibType2-9, posSibType2-10,

 posSibType2-11, posSibType2-12, posSibType2-13, posSibType2-14, posSibType2-15,

 posSibType2-16, posSibType2-17, posSibType2-18, posSibType2-19, posSibType2-20,

 posSibType2-21, posSibType2-22, posSibType2-23, posSibType3-1, posSibType4-1,

 posSibType5-1, posSibType6-1, posSibType6-2, posSibType6-3,..., posSibType1-9-v1710,

 posSibType1-10-v1710, posSibType2-24-v1710, posSibType2-25-v1710,

 posSibType6-4-v1710, posSibType6-5-v1710, posSibType6-6-v1710, posSibType2-17a-v1770,

 posSibType2-18a-v1770, posSibType2-20a-v1770, posSibType1-11-v1800, posSibType1-12-v1800,

 posSibType2-26-v1800, posSibType2-27-v1800, posSibType6-7-v1800, posSibType7-1-v1800,

 posSibType7-2-v1800, posSibType7-3-v1800, posSibType7-4-v1800 }

}

PosSIB-ReqInfo-r19 ::= SEQUENCE{

 gnss-id-r19 GNSS-ID-r16 OPTIONAL,

 sbas-id-r19 SBAS-ID-r16 OPTIONAL,

 posSibType-r19 ENUMERATED { posSibType1-10, posSibType1-12, posSibType2-12, posSibType2-13, posSibType2-14,

 posSibType2-15, posSibType2-16, posSibType2-17, posSibType2-17a, posSibType2-18, posSibType2-18a,

 posSibType2-19, posSibType2-20, posSibType2-20a, posSibType2-21, posSibType2-22, posSibType2-23,

 posSibType6-7,... },

 posSIB-ReqPeriodicControlParam-r19 PosSIB-ReqPeriodicControlParam-r19,

 ...

}

PosSIB-ReqPeriodicControlParam-r19 ::= SEQUENCE{

 deliveryAmount-r19 INTEGER (0..31),

 ...

}

-- TAG-DEDICATEDSIBREQUEST-STOP

-- ASN1STOP

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| *DedicatedSIBRequest field descriptions* |
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| ***requestedSIB-List***Contains a list of SIB(s) the UE requests while in RRC\_CONNECTED. |
| ***requestedPosSIB-List***Contains a list of posSIB(s) the UE requests while in RRC\_CONNECTED. |

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| *PosSIB-ReqInfo* field descriptions |
| ***gnss-id***The presence of this field indicates that the request positioning SIB type is for a specific GNSS. Indicates a specific GNSS (see also TS 37.355 [49]) |
| ***sbas-id***The presence of this field indicates that the request positioning SIB type is for a specific SBAS. Indicates a specific SBAS (see also TS 37.355 [49]). If the UE includes this field it shall set *gnss-id* to *sbas*. |

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| ***PosSIB-ReqPeriodicControlParam*** |
| ***deliveryAmount***This field specifies the number of periodic deliveries for the indicated posSIB. Integer values N=1…30 correspond to an amount of Integer value N=31 indicates an 'infinite/indefinite' amount and integer value N=0 indicates that no more deliveries are needed. |

=====================================================NEXT CHANGE=============================================================

#### – *RRCReconfiguration*

The *RRCReconfiguration* 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) and AS security configuration.

Signalling radio bearer: SRB1 or SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*RRCReconfiguration message*

-- ASN1START

-- TAG-RRCRECONFIGURATION-START

RRCReconfiguration ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 rrcReconfiguration RRCReconfiguration-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

RRCReconfiguration-IEs ::= SEQUENCE {

 radioBearerConfig RadioBearerConfig OPTIONAL, -- Need M

 secondaryCellGroup OCTET STRING (CONTAINING CellGroupConfig) OPTIONAL, -- Cond SCG

 measConfig MeasConfig OPTIONAL, -- Need M

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCReconfiguration-v1530-IEs OPTIONAL

}

RRCReconfiguration-v1530-IEs ::= SEQUENCE {

 masterCellGroup OCTET STRING (CONTAINING CellGroupConfig) OPTIONAL, -- Need M

 fullConfig ENUMERATED {true} OPTIONAL, -- Cond FullConfig

 dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message OPTIONAL, -- Cond nonHO

 masterKeyUpdate MasterKeyUpdate OPTIONAL, -- Cond MasterKeyChange

 dedicatedSIB1-Delivery OCTET STRING (CONTAINING SIB1) OPTIONAL, -- Need N

 dedicatedSystemInformationDelivery OCTET STRING (CONTAINING SystemInformation) OPTIONAL, -- Need N

 otherConfig OtherConfig OPTIONAL, -- Need M

 nonCriticalExtension RRCReconfiguration-v1540-IEs OPTIONAL

}

RRCReconfiguration-v1540-IEs ::= SEQUENCE {

 otherConfig-v1540 OtherConfig-v1540 OPTIONAL, -- Need M

 nonCriticalExtension RRCReconfiguration-v1560-IEs OPTIONAL

}

RRCReconfiguration-v1560-IEs ::= SEQUENCE {

 mrdc-SecondaryCellGroupConfig SetupRelease { MRDC-SecondaryCellGroupConfig } OPTIONAL, -- Need M

 radioBearerConfig2 OCTET STRING (CONTAINING RadioBearerConfig) OPTIONAL, -- Need M

 sk-Counter SK-Counter OPTIONAL, -- Need N

 nonCriticalExtension RRCReconfiguration-v1610-IEs OPTIONAL

}

RRCReconfiguration-v1610-IEs ::= SEQUENCE {

 otherConfig-v1610 OtherConfig-v1610 OPTIONAL, -- Need M

 bap-Config-r16 SetupRelease { BAP-Config-r16 } OPTIONAL, -- Need M

 iab-IP-AddressConfigurationList-r16 IAB-IP-AddressConfigurationList-r16 OPTIONAL, -- Need M

 conditionalReconfiguration-r16 ConditionalReconfiguration-r16 OPTIONAL, -- Need M

 daps-SourceRelease-r16 ENUMERATED{true} OPTIONAL, -- Need N

 t316-r16 SetupRelease {T316-r16} OPTIONAL, -- Need M

 needForGapsConfigNR-r16 SetupRelease {NeedForGapsConfigNR-r16} OPTIONAL, -- Need M

 onDemandSIB-Request-r16 SetupRelease { OnDemandSIB-Request-r16 } OPTIONAL, -- Need M

 dedicatedPosSysInfoDelivery-r16 OCTET STRING (CONTAINING PosSystemInformation-r16-IEs) OPTIONAL, -- Need N

 sl-ConfigDedicatedNR-r16 SetupRelease {SL-ConfigDedicatedNR-r16} OPTIONAL, -- Need M

 sl-ConfigDedicatedEUTRA-Info-r16 SetupRelease {SL-ConfigDedicatedEUTRA-Info-r16} OPTIONAL, -- Need M

 targetCellSMTC-SCG-r16 SSB-MTC OPTIONAL, -- Need S

 nonCriticalExtension RRCReconfiguration-v1700-IEs OPTIONAL

}

RRCReconfiguration-v1700-IEs ::= SEQUENCE {

 otherConfig-v1700 OtherConfig-v1700 OPTIONAL, -- Need M

 sl-L2RelayUE-Config-r17 SetupRelease { SL-L2RelayUE-Config-r17 } OPTIONAL, -- Need M

 sl-L2RemoteUE-Config-r17 SetupRelease { SL-L2RemoteUE-Config-r17 } OPTIONAL, -- Need M

 dedicatedPagingDelivery-r17 OCTET STRING (CONTAINING Paging) OPTIONAL, -- Cond PagingRelay

 needForGapNCSG-ConfigNR-r17 SetupRelease {NeedForGapNCSG-ConfigNR-r17} OPTIONAL, -- Need M

 needForGapNCSG-ConfigEUTRA-r17 SetupRelease {NeedForGapNCSG-ConfigEUTRA-r17} OPTIONAL, -- Need M

 musim-GapConfig-r17 SetupRelease {MUSIM-GapConfig-r17} OPTIONAL, -- Need M

 ul-GapFR2-Config-r17 SetupRelease { UL-GapFR2-Config-r17 } OPTIONAL, -- Need M

 scg-State-r17 ENUMERATED { deactivated } OPTIONAL, -- Need S

 appLayerMeasConfig-r17 AppLayerMeasConfig-r17 OPTIONAL, -- Need M

 ue-TxTEG-RequestUL-TDOA-Config-r17 SetupRelease {UE-TxTEG-RequestUL-TDOA-Config-r17} OPTIONAL, -- Need M

 nonCriticalExtension RRCReconfiguration-v1800-IEs OPTIONAL

}

RRCReconfiguration-v1800-IEs ::= SEQUENCE {

 needForInterruptionConfigNR-r18 ENUMERATED { disabled, enabled } OPTIONAL, -- Need M

 aerial-Config-r18 SetupRelease { Aerial-Config-r18 } OPTIONAL, -- Need M

 sl-IndirectPathAddChange-r18 SetupRelease { SL-IndirectPathAddChange-r18 } OPTIONAL, -- Need M

 n3c-IndirectPathAddChange-r18 SetupRelease { N3C-IndirectPathAddChange-r18 } OPTIONAL, -- Need M

 n3c-IndirectPathConfigRelay-r18 SetupRelease { N3C-IndirectPathConfigRelay-r18 } OPTIONAL, -- Need M

 otherConfig-v1800 OtherConfig-v1800 OPTIONAL, -- Need M

 srs-PosResourceSetAggBW-CombinationList-r18 SetupRelease { SRS-PosResourceSetAggBW-CombinationList-r18 } OPTIONAL, -- Need M

 ltm-Config-r18 SetupRelease {LTM-Config-r18} OPTIONAL, -- Need M

 nonCriticalExtension RRCReconfiguration-v1830-IEs OPTIONAL

}

RRCReconfiguration-v1830-IEs ::= SEQUENCE {

 otherConfig-v1830 OtherConfig-v1830 OPTIONAL, -- Need M

 nonCriticalExtension RRCReconfiguration-v19xy-IEs OPTIONAL

}

RRCReconfiguration-v19xy-IEs ::= SEQUENCE {

 onDemandSIB-RequestCtrlParam-r19 ENUMERATED { enabled } OPTIONAL, -- Need R

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

MRDC-SecondaryCellGroupConfig ::= SEQUENCE {

 mrdc-ReleaseAndAdd ENUMERATED {true} OPTIONAL, -- Need N

 mrdc-SecondaryCellGroup CHOICE {

 nr-SCG OCTET STRING (CONTAINING RRCReconfiguration),

 eutra-SCG OCTET STRING

 }

}

BAP-Config-r16 ::= SEQUENCE {

 bap-Address-r16 BIT STRING (SIZE (10)) OPTIONAL, -- Need M

 defaultUL-BAP-RoutingID-r16 BAP-RoutingID-r16 OPTIONAL, -- Need M

 defaultUL-BH-RLC-Channel-r16 BH-RLC-ChannelID-r16 OPTIONAL, -- Need M

 flowControlFeedbackType-r16 ENUMERATED {perBH-RLC-Channel, perRoutingID, both} OPTIONAL, -- Need R

 ...

}

MasterKeyUpdate ::= SEQUENCE {

 keySetChangeIndicator BOOLEAN,

 nextHopChainingCount NextHopChainingCount,

 nas-Container OCTET STRING OPTIONAL, -- Cond securityNASC

 ...

}

OnDemandSIB-Request-r16 ::= SEQUENCE {

 onDemandSIB-RequestProhibitTimer-r16 ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30}

}

T316-r16 ::= ENUMERATED {ms50, ms100, ms200, ms300, ms400, ms500, ms600, ms1000, ms1500, ms2000}

IAB-IP-AddressConfigurationList-r16 ::= SEQUENCE {

 iab-IP-AddressToAddModList-r16 SEQUENCE (SIZE(1..maxIAB-IP-Address-r16)) OF IAB-IP-AddressConfiguration-r16 OPTIONAL, -- Need N

 iab-IP-AddressToReleaseList-r16 SEQUENCE (SIZE(1..maxIAB-IP-Address-r16)) OF IAB-IP-AddressIndex-r16 OPTIONAL, -- Need N

 ...

}

IAB-IP-AddressConfiguration-r16 ::= SEQUENCE {

 iab-IP-AddressIndex-r16 IAB-IP-AddressIndex-r16,

 iab-IP-Address-r16 IAB-IP-Address-r16 OPTIONAL, -- Need M

 iab-IP-Usage-r16 IAB-IP-Usage-r16 OPTIONAL, -- Need M

 iab-donor-DU-BAP-Address-r16 BIT STRING (SIZE(10)) OPTIONAL, -- Need M

...

}

SL-ConfigDedicatedEUTRA-Info-r16 ::= SEQUENCE {

 sl-ConfigDedicatedEUTRA-r16 OCTET STRING OPTIONAL, -- Need M

 sl-TimeOffsetEUTRA-List-r16 SEQUENCE (SIZE (8)) OF SL-TimeOffsetEUTRA-r16 OPTIONAL -- Need M

}

SL-TimeOffsetEUTRA-r16 ::= ENUMERATED {ms0, ms0dot25, ms0dot5, ms0dot625, ms0dot75, ms1, ms1dot25, ms1dot5, ms1dot75,

 ms2, ms2dot5, ms3, ms4, ms5, ms6, ms8, ms10, ms20}

UE-TxTEG-RequestUL-TDOA-Config-r17 ::= CHOICE {

 oneShot-r17 NULL,

 periodicReporting-r17 ENUMERATED { ms160, ms320, ms1280, ms2560, ms61440, ms81920, ms368640, ms737280 }

}

SRS-PosResourceSetAggBW-CombinationList-r18 ::= SEQUENCE (SIZE(1.. maxNrOfLinkedSRS-PosResSetComb-r18)) OF SRS-PosResourceSetLinkedForAggBW-List-r18

SRS-PosResourceSetLinkedForAggBW-List-r18 ::= SEQUENCE (SIZE(2..maxNrOfLinkedSRS-PosResourceSet-r18)) OF SRS-PosResourceSetLinkedForAggBW-r18

-- TAG-RRCRECONFIGURATION-STOP

-- ASN1STOP

|  |
| --- |
| *RRCReconfiguration-IEs* field descriptions |
| ***appLayerMeasConfig***This field is used to configure application layer measurements. This field is absent when the UE is configured to operate with shared spectrum channel access or if *sl-L2RemoteUE-Config-r17* is configured or not released. |
| ***bap-Config***This field is used to configure the BAP entity for IAB nodes. |
| ***bap-Address***Indicates the BAP address of an IAB-node. The BAP address of an IAB-node cannot be changed once configured for the cell group to the BAP entity. |
| ***conditionalReconfiguration***Configuration of candidate target SpCell(s) and execution condition(s) for conditional handover, conditional PSCell addition or conditional PSCell change. The field is absent if any DAPS bearer is configured, if the *sl-L2RemoteUE-Config* or *sl-L2RelayUE-Config* is configured, or if the *RRCReconfiguration* message is contained within *condRRCReconfig*. When the *masterCellGroup* and/or *secondaryCellGroup* includes *ReconfigurationWithSync*, if this field is present, it only includes configurations/fields specific to subsequent CPAC. The *RRCReconfiguration* message contained in *DLInformationTransferMRDC* cannot contain the field *conditionalReconfiguration* for conditional PSCell change or for conditional PSCell addition. The network does not include this field in an *RRCReconfiguration* message contained within a *LTM-Config* IE*.* |
| ***daps-SourceRelease***Indicates to UE that the source cell part of DAPS operation is to be stopped and the source cell part of DAPS configuration is to be released. |
| ***dedicatedNAS-MessageList***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.  |
| ***dedicatedPagingDelivery***This field is used to transfer *Paging* message for the associated L2 U2N Remote UE to the L2 U2N Relay UE in RRC\_CONNECTED. |
| ***dedicatedPosSysInfoDelivery***This field is used to transfer *SIBPos* to the UE in RRC\_CONNECTED. |
| ***dedicatedSIB1-Delivery***This field is used to transfer *SIB1* to the UE (including L2 U2N Remote UE). The field has the same values as the corresponding configuration in *servingCellConfigCommon*. |
| ***dedicatedSystemInformationDelivery***This field is used to transfer *SIB6*, *SIB7*, *SIB8, SIB19, SIB20, SIB21, SIB25* to the UE with an active BWP with no common search space configured or the L2 U2N Remote UE in RRC\_CONNECTED. For UEs in RRC\_CONNECTED (including L2 U2N Remote UE), this field is also used to transfer the SIBs requested on-demand. |
| ***defaultUL-BAP-RoutingID***This field is used for IAB-node to configure the default uplink Routing ID, which is used by IAB-node during IAB-node bootstrapping*,* migration, IAB-MT RRC resume and IAB-MT RRC re-establishment for *F1-C* and *non-F1* traffic. The *defaultUL-BAP-RoutingID* can be (re-)configured when IAB-node IP address for *F1-C* related traffic changes. This field is mandatory only for IAB-node bootstrapping. |
| ***defaultUL-BH-RLC-Channel***This field is used for IAB-nodes to configure the default uplink BH RLC channel*,* which is used by IAB-nodeduring IAB-node bootstrapping*,* migration, IAB-MT RRC resume and IAB-MT RRC re-establishment *for F1-C and non-F1 traffic*. The *defaultUL-BH-RLC-Channel* can be (re-)configured when IAB-node IP address for *F1-C* related traffic changes, and the new IP address is anchored at a different IAB-donor-DU. This field is mandatory for IAB-node bootstrapping. If the IAB-MT is operating in EN-DC, the default uplink BH RLC channel is referring to an RLC channel on the SCG; Otherwise, it is referring to an RLC channel either on the MCG or on the SCG depending on whether the MN or the SN configures this field. |
| ***flowControlFeedbackType***This field is only used for IAB-node that support hop-by-hop flow control to configure the type of flow control feedback. Value *perBH-RLC-Channel* indicates that the IAB-node shall provide flow control feedback per BH RLC channel, value *perRoutingID* indicates that the IAB-node shall provide flow control feedback per routing ID, and value *both* indicates that the IAB-node shall provide flow control feedback both per BH RLC channel and per routing ID. |
| ***fullConfig***Indicates that the full configuration option is applicable for the *RRCReconfiguration* message for intra-system intra-RAT HO. For inter-RAT HO from E-UTRA to NR, *fullConfig* indicates whether or not delta signalling of SDAP/PDCP from source RAT is applicable. This field is absent if any DAPS bearer is configured or when the *RRCReconfiguration* message is transmitted on SRB3, and in an *RRCReconfiguration* message for SCG contained in another *RRCReconfiguration* message (or *RRCConnectionReconfiguration* message, see TS 36.331 [10]) transmitted on SRB1. |
| ***iab-IP-Address***This field is used to provide the IP address information for IAB-node. |
| ***iab-IP-AddressIndex***This field is used to identify a configuration of an IP address. |
| ***iab-IP-AddressToAddModList***List of IP addresses allocated for IAB-node to be added and modified. |
| ***iab-IP-AddressToReleaseList***List of IP address allocated for IAB-node to be released. |
| ***iab-IP-Usage***This field is used to indicate the usage of the assigned IP address. If this field is not configured, the assigned IP address is used for all traffic. |
| ***iab-donor-DU-BAP-Address***This field is used to indicate the BAP address of the IAB-donor-DU where the IP address is anchored. |
| ***keySetChangeIndicator***Indicates whether UE shall derive a new KgNB. If *reconfigurationWithSync* is included, value *true* indicates that a KgNB key is derived from a KAMF key taken into use through the latest successful NAS SMC procedure, or N2 handover procedure with KAMF change, as described in TS 33.501 [11] for KgNB re-keying. Value *false* indicates that the new KgNB key is obtained from the current KgNB key or from the NH as described in TS 33.501 [11]. |
| ***ltm-Config***The network does not configure this field in an *RRCReconfiguration* message within an *LTM-Config* IE and *ConditionalReconfiguration* IE. |
| ***masterCellGroup***Configuration of master cell group. |
| ***mrdc-ReleaseAndAdd***This field indicates that the current SCG configuration is released and a new SCG is added at the same time. |
| ***mrdc-SecondaryCellGroup***Includes an RRC message for SCG configuration in NR-DC or NE-DC.For NR-DC (nr-SCG), *mrdc-SecondaryCellGroup* contains the *RRCReconfiguration* message as generated (entirely) by SN gNB. In this version of the specification, the RRC message can only include fields *secondaryCellGroup, otherConfig, conditionalReconfiguration,* *ltm-Config,* *measConfig,* *bap-Config,* *IAB-IP-AddressConfigurationList* and *appLayerMeasConfig*.For NE-DC (eutra-SCG), *mrdc-SecondaryCellGroup* includes the E-UTRA *RRCConnectionReconfiguration* message as specified in TS 36.331 [10]. In this version of the specification, the E-UTRA RRC message can only include the field *scg-Configuration*. |
| ***mrdc-SecondaryCellGroupConfig***This field is used to configure and release an SCG in NR-DC and NE-DC. In an *RRCReconfiguration* message within an *LTM-Config* IE associated with the MCG, if this field is present its value can only be set to *release*. |
| ***musim-GapConfig***Indicates the MUSIM gap configuration and controls setup/release of MUSIM gaps. In this version of the specification, the network does not configure MUSIM gap together preconfigured measurement gap for positioning. For the UE not supporting *musim-GapPriorityPreference*, the network does not configure MUSIM gap together with concurrent measurement gap. |
| ***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 it affects activation of AS security after inter-system handover to NR. The content is defined in TS 24.501 [23]. |
| ***needForGapsConfigNR***Configuration for the UE to report measurement gap requirement information of NR target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. |
| ***needForGapNCSG-ConfigEUTRA***Configuration for the UE to report measurement gap and NCSG requirement information of E‑UTRA target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. |
| ***needForGapNCSG-ConfigNR***Configuration for the UE to report measurement gap and NCSG requirement information of NR target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. |
| ***needForInterruptionConfigNR***Indicates whether the UE shall report interruption requirement information of NR target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. The network sets this field to *enabled* only if the *needForGapsConfigNR* is configured. The network sets this field to *disabled* if the *needForGapsConfigNR* is released. |
| ***nextHopChainingCount***Parameter NCC: See TS 33.501 [11] |
| ***onDemandSIB-Request***Indicates that the UE is allowed to request SIB(s) on-demand while in RRC\_CONNECTED according to clause 5.2.2.3.5. |
| ***onDemandSIB-RequestProhibitTimer***Prohibit timer for requesting SIB(s) on-demand while in RRC\_CONNECTED according to clause 5.2.2.3.5. Value in seconds. Value s0 means prohibit timer is set to 0 seconds, value s0dot5 means prohibit timer is set to 0.5 seconds, value s1 means prohibit timer is set to 1 second and so on. |
| ***onDemandSIB-RequestCtrlParam***Indicates whether the UE is enabled to request periodic delivery of posSIB(s) while in RRC\_CONNECTED. This field can only be present when the field *onDemandSIB-Request* is present.  |
| ***otherConfig***Contains configuration related to other configurations. When configured for the SCG, only fields *drx-PreferenceConfig, maxBW-PreferenceConfig, maxBW-PreferenceConfigFR2-2, maxCC-PreferenceConfig, maxMIMO-LayerPreferenceConfig*, *maxMIMO-LayerPreferenceConfigFR2-2*, *minSchedulingOffsetPreferenceConfig, minSchedulingOffsetPreferenceConfigExt, rlm-RelaxationReportingConfig, bfd-RelaxationReportingConfig, btNameList, wlanNameList, sensorNameList*, *obtainCommonLocation*, *idc-AssistanceConfig*, *multiRx-PreferenceReportingConfigFR2*, *ul-TrafficInfoReportingConfig*, *n3c-RelayUE-InfoReportConfig, successPSCell-Config* and *sn-InitiatedPSCellChange* can be included. |
| ***radioBearerConfig***Configuration of Radio Bearers (DRBs, SRBs, multicast MRBs) including SDAP/PDCP. In (NG)EN-DC this field may only be present if the *RRCReconfiguration* is transmitted over SRB3. SRB4 should not be configured if *sl-L2RemoteUE-Config-r17* is configured or not released. |
| ***radioBearerConfig2***Configuration of Radio Bearers (DRBs, SRBs) including SDAP/PDCP. This field can only be used if the UE supports NR-DC or NE-DC. |
| ***scg-State***Indicates that the SCG is in deactivated state.This field is not used- in an *RRCReconfiguration* message received:- within *mrdc-SecondaryCellGroup*, or- in an E-UTRA *RRCConnectionReconfiguration* message, or- in an E-UTRA *RRCConnectionResume* message or- in an *RRCReconfiguration* message received via SRB3, except if the *RRCReconfiguration* message is included in *DLInformationTransferMRDC*.The field is absent if CPA, CPC, or subsequent CPAC is configured for the UE, or if the *RRCReconfiguration* message is contained in *CondRRCReconfig,* or PSCell is configured with *tag2*, or if the *RRCReconfiguration* message is included within an *LTM-Config* IE. |
| ***sl-L2RelayUE-Config***Contains L2 U2N relay operation related configurations used by a UE acting as or to be acting as a L2 U2N Relay UE or L2 U2U relay operation related configuration used by a UE acting as a L2 U2U Relay UE. In case of L2 U2N relay operation, the field is absent if *conditionalReconfiguration* is configured for CHO. |
| ***sl-L2RemoteUE-Config***Contains L2 U2N relay operation related configurations used by a UE acting as or to be acting as a L2 U2N Remote UE or L2 U2U relay operation related configuration used by a UE acting as a L2 U2U Remote UE. In case of L2 U2N relay operation, the field is absent if *conditionalReconfiguration* is configured for CHO, or if *appLayerMeasConfig* or SRB4 is configured/not released. |
| ***secondaryCellGroup***Configuration of secondary cell group ((NG)EN-DC or NR-DC). |
| ***sk-Counter***A counter used upon initial configuration of S-KgNB or S-KeNB, as well as upon refresh of S-KgNB or S-KeNB. This field is always included either upon initial configuration of an NR SCG or upon configuration of the first RB with *keyToUse* set to *secondary*, whichever happens first. This field is absent if there is neither any NR SCG nor any RB with *keyToUse* set to *secondary*, or if the *RRCReconfiguration* message is contained in *condRRCReconfig* for subsequent CPAC. |
| ***sl-ConfigDedicatedNR***This field is used to provide the dedicated configurations for NR sidelink communication/discovery/positioning. |
| ***sl-ConfigDedicatedEUTRA-Info***This field includes the E-UTRA *RRCConnectionReconfiguration* as specified in TS 36.331 [10]. In this version of the specification, the E-UTRA *RRCConnectionReconfiguration* can only includes sidelink related fields for V2X sidelink communication, i.e. *sl-V2X-ConfigDedicated*, *sl-V2X-SPS-Config*, *measConfig* and/or *otherConfig*. |
| ***srs-PosResourceSetLinkedForAggBWList***This field indicates the SRS resource sets across two or three carriers which are linked for SRS bandwidth aggregation in RRC\_CONNECTED state as defined in clause 6.2.1.4 of TS 38.214 [19]. |
| ***sl-TimeOffsetEUTRA***This field indicates the possible time offset to (de)activation of V2X sidelink transmission after receiving DCI format 3\_1 used for scheduling V2X sidelink communication. Value *ms0dpt75* corresponds to 0.75ms, *ms1* corresponds to 1ms and so on. The network includes this field only when *sl-ConfigDedicatedEUTRA* is configured. |
| ***targetCellSMTC-SCG***The SSB periodicity/offset/duration configuration of target cell for NR PSCell addition and SN change. When UE receives this field, UE applies the configuration based on the timing reference of NR PCell for PSCell addition and PSCell change for the case of no reconfiguration with sync of MCG, and UE applies the configuration based on the timing reference of target NR PCell for the case of reconfiguration with sync of MCG. If both this field and the *smtc* in *secondaryCellGroup* -> *SpCellConfig* -> *reconfigurationWithSync* are 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. |
| ***t316***Indicates the value for timer T316 as described in clause 7.1. Value *ms50* corresponds to 50 ms, value *ms100* corresponds to 100 ms and so on. This field can be configured only if the UE is configured with split SRB1 or SRB3. |
| ***ue-TxTEG-RequestUL-TDOA-Config***Configures the periodicity of UE reporting for the association between Tx TEG and SRS Positioning resources. When configured with *oneShot* UE reports the association only one time. When configured with *periodicReporting* UE reports the association periodically and the *periodicReporting* indicates the periodicity. Value *ms160* corresponds to 160ms, value *ms320* corresponds to 320ms and so on. |
| ***ul-GapFR2-Config***Indicates the FR2 UL gap configuration to UE. In EN-DC and NGEN-DC, the SN decides and configures the FR2 UL gap pattern. In NE-DC, the MN decides and configures the FR2 UL gap pattern. In NR-DC without FR2-FR2 band combination, the network entity which is configured with FR2 serving cell(s) decides and configures the FR2 UL gap pattern. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *nonHO* | The field is absent in case of reconfiguration with sync within NR or to NR; otherwise it is optionally present, need N. |
| *securityNASC* | This field is mandatory present in case of inter system handover. Otherwise the field is optionally present, need N. |
| *MasterKeyChange* | This field is mandatory present in case *masterCellGroup* includes *ReconfigurationWithSync* and *RadioBearerConfig* includes *SecurityConfig* with *SecurityAlgorithmConfig*, indicating a change of the AS security algorithms associated to the master key. If *ReconfigurationWithSync* is included for other cases, this field is optionally present, need N. If *ReconfigurationWithSync* is part of an *RRCReconfiguration* message within an *LTM-Config* IE associated with the MCG, the field is absent. Otherwise the field is absent. |
| *FullConfig* | The field is mandatory present in case of inter-system handover from E-UTRA/EPC to NR. It is optionally present, Need N, during a reconfiguration with sync which is not related to an LTM cell switch or subsequent CPAC, and also in first reconfiguration after reestablishment; or for intra-system handover from E-UTRA/5GC to NR. It is absent otherwise. |
| *SCG* | The field is mandatory present in:- an *RRCReconfiguration* message contained in an *RRCResume* message (or in an *RRCConnectionResume* message, see TS 36.331 [10]),- an *RRCReconfiguration* message contained in an *RRCConnectionReconfiguration* message, see TS 36.331 [10], which is contained in *DLInformationTransferMRDC* transmitted on SRB3 (as a response to *ULInformationTransferMRDC* including an *MCGFailureInformation*).The field is optional present, Need M, in:- an *RRCReconfiguration* message transmitted on SRB3,- an *RRCReconfiguration* message contained in another *RRCReconfiguration* message (or in an *RRCConnectionReconfiguration* message, see TS 36.331 [10]) transmitted on SRB1- an *RRCReconfiguration* message contained in another *RRCReconfiguration* message which is contained in *DLInformationTransferMRDC* transmitted on SRB3 (as a response to *ULInformationTransferMRDC* including an *MCGFailureInformation*).Otherwise, the field is absent. |
| *PagingRelay* | For L2 U2N Relay UE, the field is optionally present, Need N. Otherwise, it is absent. |

==========================================================NEXT CHANGE =======================================================

#### – *UE-NR-Capability*

The IE *UE-NR-Capability* is used to convey the NR UE Radio Access Capability Parameters, see TS 38.306 [26].

*UE-NR-Capability* information element

-- ASN1START

-- TAG-UE-NR-CAPABILITY-START

UE-NR-Capability ::= SEQUENCE {

 accessStratumRelease AccessStratumRelease,

 pdcp-Parameters PDCP-Parameters,

 rlc-Parameters RLC-Parameters OPTIONAL,

 mac-Parameters MAC-Parameters OPTIONAL,

 phy-Parameters Phy-Parameters,

 rf-Parameters RF-Parameters,

 measAndMobParameters MeasAndMobParameters OPTIONAL,

 fdd-Add-UE-NR-Capabilities UE-NR-CapabilityAddXDD-Mode OPTIONAL,

 tdd-Add-UE-NR-Capabilities UE-NR-CapabilityAddXDD-Mode OPTIONAL,

 fr1-Add-UE-NR-Capabilities UE-NR-CapabilityAddFRX-Mode OPTIONAL,

 fr2-Add-UE-NR-Capabilities UE-NR-CapabilityAddFRX-Mode OPTIONAL,

 featureSets FeatureSets OPTIONAL,

 featureSetCombinations SEQUENCE (SIZE (1..maxFeatureSetCombinations)) OF FeatureSetCombination OPTIONAL,

 lateNonCriticalExtension OCTET STRING (CONTAINING UE-NR-Capability-v15c0) OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v1530 OPTIONAL

}

-- Regular non-critical Rel-15 extensions:

UE-NR-Capability-v1530 ::= SEQUENCE {

 fdd-Add-UE-NR-Capabilities-v1530 UE-NR-CapabilityAddXDD-Mode-v1530 OPTIONAL,

 tdd-Add-UE-NR-Capabilities-v1530 UE-NR-CapabilityAddXDD-Mode-v1530 OPTIONAL,

 dummy ENUMERATED {supported} OPTIONAL,

 interRAT-Parameters InterRAT-Parameters OPTIONAL,

 inactiveState ENUMERATED {supported} OPTIONAL,

 delayBudgetReporting ENUMERATED {supported} OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v1540 OPTIONAL

}

UE-NR-Capability-v1540 ::= SEQUENCE {

 sdap-Parameters SDAP-Parameters OPTIONAL,

 overheatingInd ENUMERATED {supported} OPTIONAL,

 ims-Parameters IMS-Parameters OPTIONAL,

 fr1-Add-UE-NR-Capabilities-v1540 UE-NR-CapabilityAddFRX-Mode-v1540 OPTIONAL,

 fr2-Add-UE-NR-Capabilities-v1540 UE-NR-CapabilityAddFRX-Mode-v1540 OPTIONAL,

 fr1-fr2-Add-UE-NR-Capabilities UE-NR-CapabilityAddFRX-Mode OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v1550 OPTIONAL

}

UE-NR-Capability-v1550 ::= SEQUENCE {

 reducedCP-Latency ENUMERATED {supported} OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v1560 OPTIONAL

}

UE-NR-Capability-v1560 ::= SEQUENCE {

 nrdc-Parameters NRDC-Parameters OPTIONAL,

 receivedFilters OCTET STRING (CONTAINING UECapabilityEnquiry-v1560-IEs) OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v1570 OPTIONAL

}

UE-NR-Capability-v1570 ::= SEQUENCE {

 nrdc-Parameters-v1570 NRDC-Parameters-v1570 OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v1610 OPTIONAL

}

-- Late non-critical Rel-15 extensions:

UE-NR-Capability-v15c0 ::= SEQUENCE {

 nrdc-Parameters-v15c0 NRDC-Parameters-v15c0 OPTIONAL,

 partialFR2-FallbackRX-Req ENUMERATED {true} OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v15g0 OPTIONAL

}

UE-NR-Capability-v15g0 ::= SEQUENCE {

 rf-Parameters-v15g0 RF-Parameters-v15g0 OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v15j0 OPTIONAL

}

UE-NR-Capability-v15j0 ::= SEQUENCE {

 -- Following field is only for REL-15 late non-critical extensions

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v16a0 OPTIONAL

}

-- Regular non-critical Rel-16 extensions:

UE-NR-Capability-v1610 ::= SEQUENCE {

 inDeviceCoexInd-r16 ENUMERATED {supported} OPTIONAL,

 dl-DedicatedMessageSegmentation-r16 ENUMERATED {supported} OPTIONAL,

 nrdc-Parameters-v1610 NRDC-Parameters-v1610 OPTIONAL,

 powSav-Parameters-r16 PowSav-Parameters-r16 OPTIONAL,

 fr1-Add-UE-NR-Capabilities-v1610 UE-NR-CapabilityAddFRX-Mode-v1610 OPTIONAL,

 fr2-Add-UE-NR-Capabilities-v1610 UE-NR-CapabilityAddFRX-Mode-v1610 OPTIONAL,

 bh-RLF-Indication-r16 ENUMERATED {supported} OPTIONAL,

 directSN-AdditionFirstRRC-IAB-r16 ENUMERATED {supported} OPTIONAL,

 bap-Parameters-r16 BAP-Parameters-r16 OPTIONAL,

 referenceTimeProvision-r16 ENUMERATED {supported} OPTIONAL,

 sidelinkParameters-r16 SidelinkParameters-r16 OPTIONAL,

 highSpeedParameters-r16 HighSpeedParameters-r16 OPTIONAL,

 mac-Parameters-v1610 MAC-Parameters-v1610 OPTIONAL,

 mcgRLF-RecoveryViaSCG-r16 ENUMERATED {supported} OPTIONAL,

 resumeWithStoredMCG-SCells-r16 ENUMERATED {supported} OPTIONAL,

 resumeWithStoredSCG-r16 ENUMERATED {supported} OPTIONAL,

 resumeWithSCG-Config-r16 ENUMERATED {supported} OPTIONAL,

 ue-BasedPerfMeas-Parameters-r16 UE-BasedPerfMeas-Parameters-r16 OPTIONAL,

 son-Parameters-r16 SON-Parameters-r16 OPTIONAL,

 onDemandSIB-Connected-r16 ENUMERATED {supported} OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v1640 OPTIONAL

}

UE-NR-Capability-v1640 ::= SEQUENCE {

 redirectAtResumeByNAS-r16 ENUMERATED {supported} OPTIONAL,

 phy-ParametersSharedSpectrumChAccess-r16 Phy-ParametersSharedSpectrumChAccess-r16 OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v1650 OPTIONAL

}

UE-NR-Capability-v1650 ::= SEQUENCE {

 mpsPriorityIndication-r16 ENUMERATED {supported} OPTIONAL,

 highSpeedParameters-v1650 HighSpeedParameters-v1650 OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v1690 OPTIONAL

}

UE-NR-Capability-v1690 ::= SEQUENCE {

 ul-RRC-Segmentation-r16 ENUMERATED {supported} OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v1700 OPTIONAL

}

-- Late non-critical extensions from Rel-16 onwards:

UE-NR-Capability-v16a0 ::= SEQUENCE {

 phy-Parameters-v16a0 Phy-Parameters-v16a0 OPTIONAL,

 rf-Parameters-v16a0 RF-Parameters-v16a0 OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v16c0 OPTIONAL

}

UE-NR-Capability-v16c0 ::= SEQUENCE {

 rf-Parameters-v16c0 RF-Parameters-v16c0 OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v16d0 OPTIONAL

}

UE-NR-Capability-v16d0 ::= SEQUENCE {

 featureSets-v16d0 FeatureSets-v16d0 OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v16j0 OPTIONAL

}

UE-NR-Capability-v16j0 ::= SEQUENCE {

 rf-Parameters-v16j0 RF-Parameters-v16j0 OPTIONAL,

 -- Following field is only for REL-16 late non-critical extensions

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v17b0 OPTIONAL

}

-- Regular non-critical Rel-17 extensions:

UE-NR-Capability-v1700 ::= SEQUENCE {

 inactiveStatePO-Determination-r17 ENUMERATED {supported} OPTIONAL,

 highSpeedParameters-v1700 HighSpeedParameters-v1700 OPTIONAL,

 powSav-Parameters-v1700 PowSav-Parameters-v1700 OPTIONAL,

 mac-Parameters-v1700 MAC-Parameters-v1700 OPTIONAL,

 ims-Parameters-v1700 IMS-Parameters-v1700 OPTIONAL,

 measAndMobParameters-v1700 MeasAndMobParameters-v1700,

 appLayerMeasParameters-r17 AppLayerMeasParameters-r17 OPTIONAL,

 redCapParameters-r17 RedCapParameters-r17 OPTIONAL,

 ra-SDT-r17 ENUMERATED {supported} OPTIONAL,

 srb-SDT-r17 ENUMERATED {supported} OPTIONAL,

 gNB-SideRTT-BasedPDC-r17 ENUMERATED {supported} OPTIONAL,

 bh-RLF-DetectionRecovery-Indication-r17 ENUMERATED {supported} OPTIONAL,

 nrdc-Parameters-v1700 NRDC-Parameters-v1700 OPTIONAL,

 bap-Parameters-v1700 BAP-Parameters-v1700 OPTIONAL,

 musim-GapPreference-r17 ENUMERATED {supported} OPTIONAL,

 musimLeaveConnected-r17 ENUMERATED {supported} OPTIONAL,

 mbs-Parameters-r17 MBS-Parameters-r17,

 nonTerrestrialNetwork-r17 ENUMERATED {supported} OPTIONAL,

 ntn-ScenarioSupport-r17 ENUMERATED {gso, ngso} OPTIONAL,

 sliceInfoforCellReselection-r17 ENUMERATED {supported} OPTIONAL,

 ue-RadioPagingInfo-r17 UE-RadioPagingInfo-r17 OPTIONAL,

 -- R4 17-2 UL gap pattern for Tx power management

 ul-GapFR2-Pattern-r17 BIT STRING (SIZE (4)) OPTIONAL,

 ntn-Parameters-r17 NTN-Parameters-r17 OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v1740 OPTIONAL

}

UE-NR-Capability-v1740 ::= SEQUENCE {

 redCapParameters-v1740 RedCapParameters-v1740,

 nonCriticalExtension UE-NR-Capability-v1750 OPTIONAL

}

UE-NR-Capability-v1750 ::= SEQUENCE {

 crossCarrierSchedulingConfigurationRelease-r17 ENUMERATED {supported} OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v1800 OPTIONAL

}

-- Late non-critical extensions from Rel-17 onwards:

 UE-NR-Capability-v17b0 ::= SEQUENCE {

 mac-Parameters-v17b0 MAC-Parameters-v17b0 OPTIONAL,

 rf-Parameters-v17b0 RF-Parameters-v17b0 OPTIONAL,

 ul-RRC-MaxCapaSegments-r17 ENUMERATED {supported} OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Regular non-critical Rel-18 extensions:

UE-NR-Capability-v1800 ::= SEQUENCE {

 airToGroundNetwork-r18 ENUMERATED {supported} OPTIONAL,

 eRedCapParameters-r18 ERedCapParameters-r18 OPTIONAL,

 ncr-Parameters-r18 NCR-Parameters-r18 OPTIONAL,

 softSatelliteSwitchResyncNTN-r18 ENUMERATED {supported} OPTIONAL,

 hardSatelliteSwitchResyncNTN-r18 ENUMERATED {supported} OPTIONAL,

 mt-SDT-r18 ENUMERATED {supported} OPTIONAL,

 mt-SDT-NTN-r18 ENUMERATED {supported} OPTIONAL,

 inDeviceCoexIndAutonomousDenial-r18 ENUMERATED {supported} OPTIONAL,

 inDeviceCoexIndFDM-r18 ENUMERATED {supported} OPTIONAL,

 inDeviceCoexIndTDM-r18 ENUMERATED {supported} OPTIONAL,

 musim-GapPriorityPreference-r18 ENUMERATED {supported} OPTIONAL,

 musim-CapabilityRestriction-r18 ENUMERATED {supported} OPTIONAL,

 dummy ENUMERATED {supported} OPTIONAL,

 ra-InsteadCG-SDT-r18 ENUMERATED {supported} OPTIONAL,

 resumeAfterSDT-Release-r18 ENUMERATED {supported} OPTIONAL,

 ul-TrafficInfo-r18 ENUMERATED {supported} OPTIONAL,

 aerialParameters-r18 AerialParameters-r18 OPTIONAL,

 --R4 40-2: beam steering

 ntn-VSAT-AntennaType-r18 ENUMERATED {electronic, mechanical} OPTIONAL,

 --R4 40-1: VSAT UE type in NTN

 ntn-VSAT-MobilityType-r18 ENUMERATED {fixed, mobile} OPTIONAL,

 ntn-Parameters-v1820 NTN-Parameters-v1820 OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v1830 OPTIONAL

}

UE-NR-Capability-v1830 ::= SEQUENCE {

 sib19-Support-r18 ENUMERATED {supported} OPTIONAL,

 nonCriticalExtension UE-NR-Capability-v19xy OPTIONAL

}

UE-NR-Capability-v19xy ::= SEQUENCE {

 onDemandSIB-ConnectedCtrlParam-r19 ENUMERATED {supported} OPTIONAL,

 nonCriticalExtension SEQUENCE{} OPTIONAL

}

UE-NR-CapabilityAddXDD-Mode ::= SEQUENCE {

 phy-ParametersXDD-Diff Phy-ParametersXDD-Diff OPTIONAL,

 mac-ParametersXDD-Diff MAC-ParametersXDD-Diff OPTIONAL,

 measAndMobParametersXDD-Diff MeasAndMobParametersXDD-Diff OPTIONAL

}

UE-NR-CapabilityAddXDD-Mode-v1530 ::= SEQUENCE {

 eutra-ParametersXDD-Diff EUTRA-ParametersXDD-Diff

}

UE-NR-CapabilityAddFRX-Mode ::= SEQUENCE {

 phy-ParametersFRX-Diff Phy-ParametersFRX-Diff OPTIONAL,

 measAndMobParametersFRX-Diff MeasAndMobParametersFRX-Diff OPTIONAL

}

UE-NR-CapabilityAddFRX-Mode-v1540 ::= SEQUENCE {

 ims-ParametersFRX-Diff IMS-ParametersFRX-Diff OPTIONAL

}

UE-NR-CapabilityAddFRX-Mode-v1610 ::= SEQUENCE {

 powSav-ParametersFRX-Diff-r16 PowSav-ParametersFRX-Diff-r16 OPTIONAL,

 mac-ParametersFRX-Diff-r16 MAC-ParametersFRX-Diff-r16 OPTIONAL

}

BAP-Parameters-r16 ::= SEQUENCE {

 flowControlBH-RLC-ChannelBased-r16 ENUMERATED {supported} OPTIONAL,

 flowControlRouting-ID-Based-r16 ENUMERATED {supported} OPTIONAL

}

BAP-Parameters-v1700 ::= SEQUENCE {

 bapHeaderRewriting-Rerouting-r17 ENUMERATED {supported} OPTIONAL,

 bapHeaderRewriting-Routing-r17 ENUMERATED {supported} OPTIONAL

}

MBS-Parameters-r17 ::= SEQUENCE {

 maxMRB-Add-r17 INTEGER (1..16) OPTIONAL

}

-- TAG-UE-NR-CAPABILITY-STOP

-- ASN1STOP

|  |
| --- |
| *UE-NR-Capability* field descriptions |
| ***featureSetCombinations***A list of *FeatureSetCombination:s* for *supportedBandCombinationList* in *UE-NR-Capability*. The *FeatureSetDownlink:s* and *FeatureSetUplink:s* referred to from these *FeatureSetCombination:s* are defined in the *featureSets* list in *UE-NR-Capability*. |

|  |
| --- |
| *UE-NR-Capability-v1540 field descriptions* |
| ***fr1-fr2-Add-UE-NR-Capabilities***This instance of *UE-NR-CapabilityAddFRX-Mode* does not include any other fields than *csi-RS-IM-ReceptionForFeedback*/ *csi-RS-ProcFrameworkForSRS*/ *csi-ReportFramework*. |

============================================CHAGNE ENDS====================================================================