**3GPP TSG-RAN WG2 Meeting #127  *R2-240xxxx***

**Maastricht, Netherlands, 19th - 23rd August 2024**

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| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **38.331** | **CR** | **TBD** | **rev** | **-** | **Current version:** | **18.2.0** |  |
|  |
| *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:***  | Correction on extension of ToAddModList |
|  |  |
| ***Source to WG:*** | Samsung |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | TEI18, NR\_SL\_enh2 |  | ***Date:*** | 2024-08-23 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-18 |
|  | *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:*** | During the Rel-16 ASN.1 review, there were several extensions of ToAddModLists, but it was found they were extended in a different way. To avoid ASN.1 inconsistency and misuse for extension of ToAddModLists, RAN2 agreed and introduced clause A.4.3.6 in current RRC specification. In Rel-18, there are some extensions of ToAddModList which does not follow the annex.1. *CG-SDT-ConfigLCH-Restriction-v1800* does not include suffix “Ext”
2. All the fields within *SL-FreqConfigExt-v1800* are optional with Need M, so cannot be released other than releasing the entire element.
 |
|  |  |
| ***Summary of change:*** | 1. Update *CG-SDT-ConfigLCH-Restriction-v1800* to *CG-SDT-ConfigLCH-RestrictionExt-v1800*.
2. Update Need code (i.e., from Need M to Need R) in the fields in *SL-FreqConfigExt-v1800*.

**Impact analysis**Impacted 5G architecture options: NR SAImpacted functionality: Sidelink communicationInter-operability:* For change 1, if the network is implemented according to the CR and the UE is not, inter-operability issue is not forseen.
* For change 1, if the UE is implemented according to the CR and the NW is not, inter-operability issue is not forseen.
* For change 2, if the network is implemented according to the CR and the UE is not, UE may keep the previously configured value when NW wants to release the value by configuring the field absent.
* For change 2, if the UE is implemented according to the CR and the NW is not, UE may release the previously configured value when NW wants to keep it by configuring the field absent.

The 2nd change in this CR is mandatory for UEs and networks supporting sidelink. |
|  |  |
| ***Consequences if not approved:*** | It may cause inconsistency and misuse for extending ToAddModList. Besides, NW unnecessarily releases the entire element to release one of extended fields within the element. |
|  |  |
| ***Clauses affected:*** | 6.2.2, 6.3.5 |
|  |  |
|  | **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:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

### 6.2.2 Message definitions

#### – *CounterCheck*

The *CounterCheck* message is used by the network to indicate the current COUNT MSB values associated to each DRB and to request the UE to compare these to its COUNT MSB values and to report the comparison results to the network.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*CounterCheck message*

-- ASN1START

-- TAG-COUNTERCHECK-START

CounterCheck ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 counterCheck CounterCheck-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

CounterCheck-IEs ::= SEQUENCE {

 drb-CountMSB-InfoList DRB-CountMSB-InfoList,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

DRB-CountMSB-InfoList ::= SEQUENCE (SIZE (1..maxDRB)) OF DRB-CountMSB-Info

DRB-CountMSB-Info ::= SEQUENCE {

 drb-Identity DRB-Identity,

 countMSB-Uplink INTEGER(0..33554431),

 countMSB-Downlink INTEGER(0..33554431)

}

-- TAG-COUNTERCHECK-STOP

-- ASN1STOP

|  |
| --- |
| *CounterCheck-IEs* field descriptions |
| ***drb-CountMSB-InfoList***Indicates the MSBs of the COUNT values of the DRBs. |

|  |
| --- |
| *DRB-CountMSB-Info* field descriptions |
| ***countMSB-Downlink***Indicates the value of 25 MSBs from RX\_NEXT – 1 (specified in TS 38.323 [5]) associated to this DRB. |
| ***countMSB-Uplink***Indicates the value of 25 MSBs from TX\_NEXT – 1 (specified in TS 38.323 [5]) associated to this DRB. |

#### – *CounterCheckResponse*

The *CounterCheckResponse* message is used by the UE to respond to a *CounterCheck* message.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*CounterCheckResponse message*

-- ASN1START

-- TAG-COUNTERCHECKRESPONSE-START

CounterCheckResponse ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 counterCheckResponse CounterCheckResponse-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

CounterCheckResponse-IEs ::= SEQUENCE {

 drb-CountInfoList DRB-CountInfoList,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

DRB-CountInfoList ::= SEQUENCE (SIZE (0..maxDRB)) OF DRB-CountInfo

DRB-CountInfo ::= SEQUENCE {

 drb-Identity DRB-Identity,

 count-Uplink INTEGER(0..4294967295),

 count-Downlink INTEGER(0..4294967295)

}

-- TAG-COUNTERCHECKRESPONSE-STOP

-- ASN1STOP

|  |
| --- |
| *CounterCheckResponse-IEs* field descriptions |
| ***drb-CountInfoList***Indicates the COUNT values of the DRBs. |

|  |
| --- |
| *DRB-CountInfo* field descriptions |
| ***count-Downlink***Indicates the value of RX\_NEXT – 1 (specified in TS 38.323 [5]) associated to this DRB. |
| ***count-Uplink***Indicates the value of TX\_NEXT – 1 (specified in TS 38.323 [5]) associated to this DRB. |

#### – *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 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 }

}

-- TAG-DEDICATEDSIBREQUEST-STOP

-- ASN1STOP

|  |
| --- |
| *DedicatedSIBRequest field descriptions* |
| ***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. |

|  |
| --- |
| *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*. |

#### – *DLDedicatedMessageSegment*

The *DLDedicatedMessageSegment* message is used to transfer one segment of the *RRCResume* or *RRCReconfiguration* messages.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*DLDedicatedMessageSegment message*

-- ASN1START

-- TAG-DLDEDICATEDMESSAGESEGMENT-START

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

}

-- TAG-DLDEDICATEDMESSAGESEGMENT-STOP

-- 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. |

#### – *DLInformationTransfer*

The *DLInformationTransfer* message is used for the downlink transfer of NAS dedicated information, timing information for the 5G internal system clock, or IAB-DU specific F1-C related information.

Signalling radio bearer: SRB2 or SRB1 (only if SRB2 not established yet). If SRB2 is suspended, the network does not send this message until SRB2 is resumed. If only *dedicatedInfoF1c* is included, SRB2 is used.

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*DLInformationTransfer* message

-- ASN1START

-- TAG-DLINFORMATIONTRANSFER-START

DLInformationTransfer ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 dlInformationTransfer DLInformationTransfer-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

DLInformationTransfer-IEs ::= SEQUENCE {

 dedicatedNAS-Message DedicatedNAS-Message OPTIONAL, -- Need N

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension DLInformationTransfer-v1610-IEs OPTIONAL

}

DLInformationTransfer-v1610-IEs ::= SEQUENCE {

 referenceTimeInfo-r16 ReferenceTimeInfo-r16 OPTIONAL, -- Need N

 nonCriticalExtension DLInformationTransfer-v1700-IEs OPTIONAL

}

DLInformationTransfer-v1700-IEs ::= SEQUENCE {

 dedicatedInfoF1c-r17 DedicatedInfoF1c-r17 OPTIONAL, -- Need N

 rxTxTimeDiff-gNB-r17 RxTxTimeDiff-r17 OPTIONAL, -- Need N

 ta-PDC-r17 ENUMERATED {activate,deactivate} OPTIONAL, -- Need N

 sib9Fallback-r17 ENUMERATED {true} OPTIONAL, -- Need N

 nonCriticalExtension DLInformationTransfer-v1800-IEs OPTIONAL

}

DLInformationTransfer-v1800-IEs ::= SEQUENCE {

 eventID-TSS-r18 INTEGER(0..63) OPTIONAL, -- Cond ClockQualityDetailsLevel

 clockQualityDetailsLevel-r18 CHOICE {

 clockQualityMetrics-r18 ClockQualityMetrics-r18,

 clockQualityAcceptanceStatus-r18 ENUMERATED {acceptable, notAcceptable}

 } OPTIONAL, -- Need N

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-DLINFORMATIONTRANSFER-STOP

-- ASN1STOP

|  |
| --- |
| *DLInformationTransfer* field descriptions |
| ***clockQualityDetailsLevel***This field indicates the clock quality reporting control information as defined in TS 23.501 [32]. |
| ***eventID-TSS***This field indicates the status of the 5G access stratum time distribution parameter Clock Quality Reporting Control Information as defined in TS 23.501 [32]. |
| ***rxTxTimeDiff-gNB***Indicates the Rx-Tx time difference measurement at the gNB (see clause 5.2.3, TS 38.215 [9]). Upon receiving this field, the UE calculates the propagation delay based on the RTT-based PDC mechanism method as described in TS 38.300 [2]. The network does not configure this field, if the UE is configured with *ta-PDC* with value *activate*. |
| ***sib9Fallback***Indicates that the UE fallbacks to receive *referenceTimeInfo* in SIB9. |
| ***ta-PDC***Indicates whether the UE-side TA-based propagation delay compensation (PDC) is activated or de-activated. The network does not configure this field with *activate,* if the field *rxTxTimeDiff-gNB* is configured. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| ***ClockQualityDetailsLevel*** | Field *eventID-TSS* is mandatory present if *clockQualityDetailsLevel* is present. Otherwise, the field is optionally present, Need M. |

#### *– DLInformationTransferMRDC*

The *DLInformationTransferMRDC* message is used for the downlink transfer of RRC messages during fast MCG link recovery.

Signalling radio bearer: SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*DLInformationTransferMRDC message*

-- ASN1START

-- TAG-DLINFORMATIONTRANSFERMRDC-START

DLInformationTransferMRDC-r16 ::= SEQUENCE {

 criticalExtensions CHOICE {

 c1 CHOICE {

 dlInformationTransferMRDC-r16 DLInformationTransferMRDC-r16-IEs,

 spare3 NULL, spare2 NULL, spare1 NULL

 },

 criticalExtensionsFuture SEQUENCE {}

 }

}

DLInformationTransferMRDC-r16-IEs::= SEQUENCE {

 dl-DCCH-MessageNR-r16 OCTET STRING OPTIONAL, -- Need N

 dl-DCCH-MessageEUTRA-r16 OCTET STRING OPTIONAL, -- Need N

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-DLINFORMATIONTRANSFERMRDC-STOP

-- ASN1STOP

| *DLInformationTransferMRDC* field descriptions |
| --- |
| ***dl-DCCH-MessageNR***Includes the *DL-DCCH-Message*. In this version of the specification, the field is only used to transfer the NR *RRCReconfiguration,* *RRCRelease,* and *MobilityFromNRCommand* messages. |
| ***dl-DCCH-MessageEUTRA***Includes the *DL-DCCH-Message*. In this version of the specification, the field is only used to transfer the E-UTRA *RRCConnectionReconfiguration,* *RRCConnectionRelease*, and *MobilityFromEUTRACommand* messages as specified in TS 36.331 [10]. |

#### – *FailureInformation*

The *FailureInformation* message is used to inform the network about a failure detected by the UE.

Signalling radio bearer: SRB1 or SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to network

*FailureInformation message*

-- ASN1START

-- TAG-FAILUREINFORMATION-START

FailureInformation ::= SEQUENCE {

 criticalExtensions CHOICE {

 failureInformation FailureInformation-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

FailureInformation-IEs ::= SEQUENCE {

 failureInfoRLC-Bearer FailureInfoRLC-Bearer OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension FailureInformation-v1610-IEs OPTIONAL

}

FailureInfoRLC-Bearer ::= SEQUENCE {

 cellGroupId CellGroupId,

 logicalChannelIdentity LogicalChannelIdentity,

 failureType ENUMERATED {rlc-failure, spare3, spare2, spare1}

}

FailureInformation-v1610-IEs ::= SEQUENCE {

 failureInfoDAPS-r16 FailureInfoDAPS-r16 OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

FailureInfoDAPS-r16 ::= SEQUENCE {

 failureType-r16 ENUMERATED {daps-failure, spare3, spare2, spare1}

}

-- TAG-FAILUREINFORMATION-STOP

-- ASN1STOP

#### – *IABOtherInformation*

The *IABOtherInformation* message is used by IAB-MT to request the network to allocate IP addresses for the collocated IAB-DU or inform the network about IP addresses allocated to the collocated IAB-DU.

Signalling radio bearer: SRB1 or SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: IAB-MT to Network

*IABOtherInformation* message

-- ASN1START

-- TAG-IABOTHERINFORMATION-START

IABOtherInformation-r16 ::= SEQUENCE {

 dummy RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 iabOtherInformation-r16 IABOtherInformation-r16-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

IABOtherInformation-r16-IEs ::= SEQUENCE {

 ip-InfoType-r16 CHOICE {

 iab-IP-Request-r16 SEQUENCE {

 iab-IPv4-AddressNumReq-r16 IAB-IP-AddressNumReq-r16 OPTIONAL,

 iab-IPv6-AddressReq-r16 CHOICE {

 iab-IPv6-AddressNumReq-r16 IAB-IP-AddressNumReq-r16,

 iab-IPv6-AddressPrefixReq-r16 IAB-IP-AddressPrefixReq-r16,

 ...

 } OPTIONAL

 },

 iab-IP-Report-r16 SEQUENCE {

 iab-IPv4-AddressReport-r16 IAB-IP-AddressAndTraffic-r16 OPTIONAL,

 iab-IPv6-Report-r16 CHOICE {

 iab-IPv6-AddressReport-r16 IAB-IP-AddressAndTraffic-r16,

 iab-IPv6-PrefixReport-r16 IAB-IP-PrefixAndTraffic-r16,

 ...

 } OPTIONAL

 },

 ...

 },

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

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

 all-Traffic-NumReq-r16 INTEGER (1..8) OPTIONAL,

 f1-C-Traffic-NumReq-r16 INTEGER (1..8) OPTIONAL,

 f1-U-Traffic-NumReq-r16 INTEGER (1..8) OPTIONAL,

 non-F1-Traffic-NumReq-r16 INTEGER (1..8) OPTIONAL,

 ...

}

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

 all-Traffic-PrefixReq-r16 ENUMERATED {true} OPTIONAL,

 f1-C-Traffic-PrefixReq-r16 ENUMERATED {true} OPTIONAL,

 f1-U-Traffic-PrefixReq-r16 ENUMERATED {true} OPTIONAL,

 non-F1-Traffic-PrefixReq-r16 ENUMERATED {true} OPTIONAL,

 ...

}

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

 all-Traffic-IAB-IP-Address-r16 SEQUENCE (SIZE(1..8)) OF IAB-IP-Address-r16 OPTIONAL,

 f1-C-Traffic-IP-Address-r16 SEQUENCE (SIZE(1..8)) OF IAB-IP-Address-r16 OPTIONAL,

 f1-U-Traffic-IP-Address-r16 SEQUENCE (SIZE(1..8)) OF IAB-IP-Address-r16 OPTIONAL,

 non-F1-Traffic-IP-Address-r16 SEQUENCE (SIZE(1..8)) OF IAB-IP-Address-r16 OPTIONAL

}

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

 all-Traffic-IAB-IP-Address-r16 IAB-IP-Address-r16 OPTIONAL,

 f1-C-Traffic-IP-Address-r16 IAB-IP-Address-r16 OPTIONAL,

 f1-U-Traffic-IP-Address-r16 IAB-IP-Address-r16 OPTIONAL,

 non-F1-Traffic-IP-Address-r16 IAB-IP-Address-r16 OPTIONAL

}

-- TAG-IABOTHERINFORMATION-STOP

-- ASN1STOP

|  |
| --- |
| *IABOtherInformation-IEs* field descriptions |
| ***dummy***This field is not used in the specification and network ignores the received value. |
| ***iab-IPv4-AddressNumReq***This field is used to request the numbers of IPv4 address per specific usage. The specific usages include F1-C traffic, F1-U traffic, non-F1 traffic and all traffic. |
| ***iab-IPv4-AddressReport***This field is used to report the IPv4 address per specific usage assigned by OAM for IAB-DU. The specific usages include F1-C traffic, F1-U traffic, non-F1 traffic and all traffic. |
| ***iab-IPv6-AddressNumReq***This field is used to request the numbers of IPv6 address per specific usage. The specific usages include F1-C traffic, F1-U traffic, non-F1 traffic and all traffic. |
| ***iab-IPv6-AddressPrefixReq***This field is used to request the prefix of IPv6 address per specific usage. The specific usages include F1-C traffic, F1-U traffic, non-F1 traffic and all traffic. |
| ***iab-IPv6-AddressReport***This field is used to report the IPv6 address per specific usage assigned by OAM for IAB-DU. The specific usages include F1-C traffic, F1-U traffic, non-F1 traffic and all traffic. |
| ***iab-IPv6-PrefixReport***This field is used to report the prefix of IPv6 address per specific usage assigned by OAM for IAB-DU. The specific usages include F1-C traffic, F1-U traffic, non-F1 traffic and all traffic. |

|  |
| --- |
| *IAB-IP-AddressNumReq-IEs field descriptions* |
| ***all-Traffic-NumReq***This field is used to request the numbers of IP address for all traffic. |
| ***f1-C-Traffic-NumReq***This field is used to request the numbers of IP address for F1-C traffic. |
| ***f1-U-Traffic-NumReq***This field is used to request the numbers of IP address for F1-U traffic. |
| ***non-F1-Traffic-NumReq***This field is used to request the numbers of IP address for non-F1 traffic. |

|  |
| --- |
| *IAB-IP-AddressPrefixReq-IEs field descriptions* |
| ***all-Traffic-PrefixReq***This field is used to request the IPv6 address prefix for all traffic. The length of allocated IPv6 prefix is fixed to 64. |
| ***f1-C-Traffic-PrefixReq***This field is used to request the IPv6 address prefix for F1-C traffic. The length of allocated IPv6 prefix is fixed to 64. |
| ***f1-U-Traffic-PrefixReq***This field is used to request the IPv6 address prefix for F1-U traffic. The length of allocated IPv6 prefix is fixed to 64. |
| ***non-F1-Traffic-PrefixReq***This field is used to request the IPv6 address prefix for non-F1 traffic. The length of allocated IPv6 prefix is fixed to 64. |

|  |
| --- |
| *IAB-IP-AddressAndTraffic-IEs field descriptions* |
| ***all-Traffic-IAB-IP-Address***This field is used to report to IAB-donor-CU the IP address(es) or IPv6 address prefix for all traffic. |
| ***f1-C-Traffic-IP-Address***This field is used to report to IAB-donor-CU the IP address(es) or IPv6 address prefix for F1-C traffic. |
| ***f1-U-Traffic-IP-Address***This field is used to report to IAB-donor-CU the IP address(es) or IPv6 address prefix for F1-U traffic. |
| ***non-F1-Traffic-IP-Address***This field is used to report to IAB-donor-CU the IP address(es) or IPv6 address prefix for non-F1 traffic. |

#### *– IndirectPathFailureInformation*

The *IndirectPathFailureInformation* message is used to provide information regarding indirect path failure detected by the MP remote UE.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*IndirectPathFailureInformation* message

-- ASN1START

-- TAG-INDIRECTPATHFAILUREINFORMATION-START

IndirectPathFailureInformation-r18 ::= SEQUENCE {

 criticalExtensions CHOICE {

 indirectPathFailureInformation-r18 IndirectPathFailureInformation-r18-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

IndirectPathFailureInformation-r18-IEs ::= SEQUENCE {

 failureReportIndirectPath-r18 FailureReportIndirectPath-r18 OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

FailureReportIndirectPath-r18 ::= SEQUENCE {

 failureTypeIndirectPath-r18 ENUMERATED {t421-Expiry,sl-Failure,n3c-Failure, relayUE-Uu-RLF,

 relayUE-Uu-RRC-Failure,

 indirectPathAddChangeFailure, sl-PC5-Release, spare1} OPTIONAL,

 sl-MeasResultServingRelay-r18 OCTET STRING OPTIONAL,

 -- Contains PC5 SL-MeasResultRelay-r17

 sl-MeasResultsCandRelay-r18 OCTET STRING OPTIONAL,

 n3c-RelayUE-InfoList-r18 SEQUENCE (SIZE (0..8)) OF N3C-RelayUE-Info-r18 OPTIONAL,

 ...

}

-- TAG-INDIRECTPATHFAILUREINFORMATION-STOP

-- ASN1STOP

| *IndirectPathFailureInformation* field descriptions |
| --- |
| ***failureTypeIndirectPath***The field indicates the failure type of the indirect path failure. |
| ***n3c-RelayUE-InfoList***Information of available N3C relay UE(s). |
| ***sl-MeasResultsCandRelay***Measurement result(s) of candiate L2 U2N relay UE(s). |
| ***sl-MeasResultServingRelay***Measurement result of serving L2 U2N relay UE. |

#### – *LocationMeasurementIndication*

The *LocationMeasurementIndication* message is used to indicate that the UE is going to either start or stop location related measurement which requires measurement gaps.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*LocationMeasurementIndication message*

-- ASN1START

-- TAG-LOCATIONMEASUREMENTINDICATION-START

LocationMeasurementIndication ::= SEQUENCE {

 criticalExtensions CHOICE {

 locationMeasurementIndication LocationMeasurementIndication-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

LocationMeasurementIndication-IEs ::= SEQUENCE {

 measurementIndication SetupRelease {LocationMeasurementInfo},

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE{} OPTIONAL

}

-- TAG-LOCATIONMEASUREMENTINDICATION-STOP

-- ASN1STOP

#### – *LoggedMeasurementConfiguration*

The *LoggedMeasurementConfiguration* message is used to perform logging of measurement results while in RRC\_IDLE or RRC\_INACTIVE. It is used to transfer the logged measurement configuration for network performance optimisation.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*LoggedMeasurementConfiguration message*

-- ASN1START

-- TAG-LOGGEDMEASUREMENTCONFIGURATION-START

LoggedMeasurementConfiguration-r16 ::= SEQUENCE {

 criticalExtensions CHOICE {

 loggedMeasurementConfiguration-r16 LoggedMeasurementConfiguration-r16-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

LoggedMeasurementConfiguration-r16-IEs ::= SEQUENCE {

 traceReference-r16 TraceReference-r16,

 traceRecordingSessionRef-r16 OCTET STRING (SIZE (2)),

 tce-Id-r16 OCTET STRING (SIZE (1)),

 absoluteTimeInfo-r16 AbsoluteTimeInfo-r16,

 areaConfiguration-r16 AreaConfiguration-r16 OPTIONAL, --Need R

 plmn-IdentityList-r16 PLMN-IdentityList2-r16 OPTIONAL, --Need R

 bt-NameList-r16 SetupRelease {BT-NameList-r16} OPTIONAL, --Need M

 wlan-NameList-r16 SetupRelease {WLAN-NameList-r16} OPTIONAL, --Need M

 sensor-NameList-r16 SetupRelease {Sensor-NameList-r16} OPTIONAL, --Need M

 loggingDuration-r16 LoggingDuration-r16,

 reportType CHOICE {

 periodical LoggedPeriodicalReportConfig-r16,

 eventTriggered LoggedEventTriggerConfig-r16,

 ...

 },

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension LoggedMeasurementConfiguration-v1700-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1700-IEs ::= SEQUENCE {

 sigLoggedMeasType-r17 ENUMERATED {true} OPTIONAL, -- Need R

 earlyMeasIndication-r17 ENUMERATED {true} OPTIONAL, -- Need R

 areaConfiguration-r17 AreaConfiguration-r17 OPTIONAL, --Need R

 nonCriticalExtension LoggedMeasurementConfiguration-v1800-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1800-IEs ::= SEQUENCE {

 areaConfiguration-v1800 AreaConfiguration-v1800 OPTIONAL, --Need R

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

LoggedPeriodicalReportConfig-r16 ::= SEQUENCE {

 loggingInterval-r16 LoggingInterval-r16,

 ...

 }

LoggedEventTriggerConfig-r16 ::= SEQUENCE {

 eventType-r16 EventType-r16,

 loggingInterval-r16 LoggingInterval-r16,

 ...

}

EventType-r16 ::= CHOICE {

 outOfCoverage NULL,

 eventL1 SEQUENCE {

 l1-Threshold MeasTriggerQuantity,

 hysteresis Hysteresis,

 timeToTrigger TimeToTrigger

 },

 ...

}

-- TAG-LOGGEDMEASUREMENTCONFIGURATION-STOP

-- ASN1STOP

| *LoggedMeasurementConfiguration* field descriptions |
| --- |
| ***absoluteTimeInfo***Indicates the absolute time in the current cell. |
| ***areaConfiguration***Used to restrict the area in which the UE performs measurement logging to cells broadcasting any of the included cell identities, the included tracking area codes/ frequencies, the included PNI-NPN identities or the SNPN identities. If *areaConfiguration-r17* is present, the UE shall ignore *areaConfiguration-r16*. The *areaConfiguration-v180*0 is a non-critical extension of *areaConfiguration-r17*. See NOTE 1. |
| ***earlyMeasIndication***If included, the field indicates the UE is allowed to log measurements on early measurement related frequencies in logged measurements. |
| ***eventType***The value outOfCoverage indicates the UE to perform logging of measurements when the UE enters any cell selection state, and the value eventL1 indicates the UE to perform logging of measurements when the triggering condition (similar as event A2 as specified in 5.5.4.3) as configured in the event is met for the camping cell in camped normally state. |
| ***plmn-IdentityList***Indicates a set of PLMNs defining when the UE performs measurement logging as well as the associated status indication and information retrieval i.e. the UE performs these actions when the RPLMN is part of this set of PLMNs. |
| ***sigLoggedMeasType***If included, the field indicates a signalling based logged measurement configuration (See TS 37.320 [61]). |
| ***tce-Id***Parameter Trace Collection Entity Id: See TS 32.422 [52]. |
| ***traceRecordingSessionRef***Parameter Trace Recording Session Reference: See TS 32.422 [52]. |
| ***reportType***Parameter configures the type of MDT configuration, specifically Periodic MDT configuration or Event Triggerd MDT configuration. |

NOTE 1: The UE should perform measurement logging based on the following area configuration limitations:

- If the *areaConfiguration-r16/areaConfiguration-r17* is present, and the *cag-ConfigList* is absent, the UE should perform logging in both PN and PNI-NPN based on *areaConfiguration-r16/areaConfiguration-r17*, if any;

- If the *areaConfiguration-r17* and the *cag-ConfigList* are present simultaneously, the UE should perform logging in PN within the *areaConfig-r16/areaConfig-r17* and perform logging in PNI-NPN within *cag-ConfigList*;

- If the *snpn-ConfigList* is present, the UE should perform logging only in SNPN based on *snpn-ConfigList*. The *snpn-ConfigList* should not be configured together with PN or PNI-NPN area configurations.

#### *– MBSBroadcastConfiguration*

The *MBSBroadcastConfiguration* message contains the control information applicable for MBS broadcast services transmitted via broadcast MRB.

Signalling radio bearer: N/A

RLC-SAP: UM

Logical channel: MCCH

Direction: Network to UE

*MBSBroadcastConfiguration message*

-- ASN1START

-- TAG-MBSBROADCASTCONFIGURATION-START

MBSBroadcastConfiguration-r17 ::= SEQUENCE {

 criticalExtensions CHOICE {

 mbsBroadcastConfiguration-r17 MBSBroadcastConfiguration-r17-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

MBSBroadcastConfiguration-r17-IEs ::= SEQUENCE {

 mbs-SessionInfoList-r17 MBS-SessionInfoList-r17 OPTIONAL, -- Need R

 mbs-NeighbourCellList-r17 MBS-NeighbourCellList-r17 OPTIONAL, -- Need S

 drx-ConfigPTM-List-r17 SEQUENCE (SIZE (1..maxNrofDRX-ConfigPTM-r17)) OF DRX-ConfigPTM-r17 OPTIONAL, -- Need R

 pdsch-ConfigMTCH-r17 PDSCH-ConfigBroadcast-r17 OPTIONAL, -- Need S

 mtch-SSB-MappingWindowList-r17 MTCH-SSB-MappingWindowList-r17 OPTIONAL, -- Need R

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-MBSBROADCASTCONFIGURATION-STOP

-- ASN1STOP

| *MBSBroadcastConfiguration* field descriptions |
| --- |
| ***pdsch-ConfigMTCH***Provides parameters for acquiring the PDSCH for MTCH. When this field is absent, the UE shall use parameters in *pdsch-ConfigMCCH* to acquire the PDSCH for MTCH. |
| ***mbs-SessionInfoList***Provides the configuration of each MBS session provided by MBS broadcast in the current cell. |
| ***mbs-NeighbourCellList***List of neighbour cells providing one or more MBS broadcast services via broadcast MRB that are provided by the current cell. This field is used by the UE together with *mtch-NeighbourCell* field signalled for each MBS session in the corresponding *MBS-SessionInfo*. When an empty *mbs-NeighbourCellList* list is signalled, the UE shall assume that MBS broadcast services signalled in *mbs-SessionInfoList* in the *MBSBroadcastConfiguration* message are not provided in any neighbour cell. When a non-empty *mbs-NeighbourCellList* is signalled, the current serving cell does not provide information about MBS broadcast services of a neighbour cell that is not included in *mbs-NeighbourCellList*, i.e., the UE cannot determine the presence or absence of an MBS service of a neighbour cell that is absent. When the field *mbs-NeighbourCellList* is absent, the current serving cell does not provide information about MBS broadcast services in the neighbouring cells, i.e. the UE cannot determine the presence or absence of an MBS service in neighbouring cells based on the absence of this field. |

#### *– MBSInterestIndication*

The *MBSInterestIndication* message is used to inform network that the UE is receiving/ interested to receive or no longer receiving/ interested to receive MBS broadcast service(s) via a broadcast MRB.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*MBSInterestIndication message*

-- ASN1START

-- TAG-MBSINTERESTINDICATION-START

MBSInterestIndication-r17 ::= SEQUENCE {

 criticalExtensions CHOICE {

 mbsInterestIndication-r17 MBSInterestIndication-r17-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

MBSInterestIndication-r17-IEs ::= SEQUENCE {

 mbs-FreqList-r17 CarrierFreqListMBS-r17 OPTIONAL,

 mbs-Priority-r17 ENUMERATED {true} OPTIONAL,

 mbs-ServiceList-r17 MBS-ServiceList-r17 OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension MBSInterestIndication-v1800 OPTIONAL

}

MBSInterestIndication-v1800 ::= SEQUENCE {

 mbs-NonServingInfoList-r18 MBS-NonServingInfoList-r18 OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-MBSINTERESTINDICATION-STOP

-- ASN1STOP

| *MBSInterestIndication* field descriptions |
| --- |
| ***mbs-FreqList***List of MBS frequencies on which the UE is receiving or interested to receive MBS broadcast service via a broadcast MRB. |
| ***mbs-NonServingInfoList***Indicates information for MBS broadcast reception on the non-serving cell. |
| ***mbs-Priority***Indicates whether the UE prioritises MBS broadcast reception above unicast and MBS multicast reception. The field is present (i.e. value *true*), if the UE prioritises reception of broadcast services, on frequencies indicated in *mbs-FreqLis*t, above a reception of any of the unicast bearers and multicast MRBs. Otherwise the field is absent. |
| ***mbs-ServiceList***List of MBS broadcast services which the UE is receiving or interested to receive. |

#### *– MBSMulticastConfiguration*

The *MBSMulticastConfiguration* message contains the control information applicable for MBS multicast services transmitted via multicast MRBs for RRC\_INACTIVE UEs.

Signalling radio bearer: N/A

RLC-SAP: UM

Logical channel: multicast MCCH

Direction: Network to UE

*MBSMulticastConfiguration* message

-- ASN1START

-- TAG-MBSMULTICASTCONFIGURATION-START

MBSMulticastConfiguration-r18 ::= SEQUENCE {

 criticalExtensions CHOICE {

 mbsMulticastConfiguration-r18 MBSMulticastConfiguration-r18-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

MBSMulticastConfiguration-r18-IEs ::= SEQUENCE {

 mbs-SessionInfoListMulticast-r18 MBS-SessionInfoListMulticast-r18 OPTIONAL, -- Need R

 mbs-NeighbourCellList-r18 MBS-NeighbourCellList-r17 OPTIONAL, -- Need S

 drx-ConfigPTM-List-r18 SEQUENCE (SIZE (1..maxNrofDRX-ConfigPTM-r17)) OF DRX-ConfigPTM-r17 OPTIONAL, -- Need R

 pdsch-ConfigMTCH-r18 PDSCH-ConfigBroadcast-r17 OPTIONAL, -- Need S

 mtch-SSB-MappingWindowList-r18 MTCH-SSB-MappingWindowList-r17 OPTIONAL, -- Need R

 thresholdMBS-List-r18 SEQUENCE (SIZE (1..maxNrofThresholdMBS-r18)) OF ThresholdMBS-r18 OPTIONAL, -- Need R

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

ThresholdMBS-r18 ::= SEQUENCE {

 rsrp-r18 RSRP-Range OPTIONAL, -- Need R

 rsrq-r18 RSRQ-Range OPTIONAL -- Need R

}

-- TAG-MBSMULTICASTCONFIGURATION-STOP

-- ASN1STOP

| *MBSMulticastConfiguration* field descriptions |
| --- |
| ***mbs-NeighbourCellList***List of neighbour cells providing one or more MBS multicast services for RRC\_INACTIVE that are provided by the current cell. This field is used by the UE together with *mtch-NeighbourCell* field signalled for each MBS session in the corresponding *MBS-SessionInfo*. When an empty *mbs-NeighbourCellList* list is signalled, the UE shall assume that MBS multicast services signalled in *mbs-SessionInfoListMulticast* in the *MBSMulticastConfiguration* message are not provided in any neighbour cell. When a non-empty *mbs-NeighbourCellList* is signalled, the current serving cell does not provide information about MBS multicast services of a neighbour cell that is not included in *mbs-NeighbourCellList*, i.e., the UE cannot determine the presence or absence of an MBS multicast service of a neighbour cell that is absent. When the field *mbs-NeighbourCellList* is absent, the current serving cell does not provide information about MBS multicast services in the neighbouring cells, i.e. the UE cannot determine the presence or absence of an MBS multicast service in neighbouring cells based on the absence of this field. |
| ***mbs-SessionInfoListMulticast***Provides the configuration of MBS multicast session(s) in the current cell.  |
| ***pdsch-ConfigMTCH***Provides parameters for acquiring the PDSCH for multicast MTCH. When this field is absent, the UE shall use parameters in *pdsch-ConfigMCCH* in *SIB24* to acquire the PDSCH for multicast MTCH. |
| ***thresholdMBS-List***List of reception quality thresholds for RRC connection resume for a UE receiving multicast in RRC\_INACTIVE. |

#### *– MCGFailureInformation*

The *MCGFailureInformation* message is used to provide information regarding NR MCG failures detected by the UE.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*MCGFailureInformation* message

-- ASN1START

-- TAG-MCGFAILUREINFORMATION-START

MCGFailureInformation-r16 ::= SEQUENCE {

 criticalExtensions CHOICE {

 mcgFailureInformation-r16 MCGFailureInformation-r16-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

MCGFailureInformation-r16-IEs ::= SEQUENCE {

 failureReportMCG-r16 FailureReportMCG-r16 OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

FailureReportMCG-r16 ::= SEQUENCE {

 failureType-r16 ENUMERATED {t310-Expiry, randomAccessProblem, rlc-MaxNumRetx,

 t312-Expiry-r16, lbt-Failure-r16, beamFailureRecoveryFailure-r16,

 bh-RLF-r16, spare1} OPTIONAL,

 measResultFreqList-r16 MeasResultList2NR OPTIONAL,

 measResultFreqListEUTRA-r16 MeasResultList2EUTRA OPTIONAL,

 measResultSCG-r16 OCTET STRING (CONTAINING MeasResultSCG-Failure) OPTIONAL,

 measResultSCG-EUTRA-r16 OCTET STRING OPTIONAL,

 measResultFreqListUTRA-FDD-r16 MeasResultList2UTRA OPTIONAL,

 ...

}

MeasResultList2UTRA ::= SEQUENCE (SIZE (1..maxFreq)) OF MeasResult2UTRA-FDD-r16

MeasResult2UTRA-FDD-r16 ::= SEQUENCE {

 carrierFreq-r16 ARFCN-ValueUTRA-FDD-r16,

 measResultNeighCellList-r16 MeasResultListUTRA-FDD-r16

}

MeasResultList2EUTRA ::= SEQUENCE (SIZE (1..maxFreq)) OF MeasResult2EUTRA-r16

-- TAG-MCGFAILUREINFORMATION-STOP

-- ASN1STOP

| *MCGFailureInformation field descriptions* |
| --- |
| ***measResultFreqList***The field contains available results of measurements on NR frequencies the UE is configured to measure by the *measConfig* associated with the MCG. |
| ***measResultFreqListEUTRA***The field contains available results of measurements on E-UTRA frequencies the UE is configured to measure by *measConfig* associated with the MCG. |
| ***measResultFreqListUTRA-FDD***The field contains available results of measurements on UTRA FDD frequencies the UE is configured to measure by measConfig associated with the MCG. |
| ***measResultSCG***The field contains the *MeasResultSCG-Failure* IE which includes available measurement results on NR frequencies the UE is configured to measure by the *measConfig* associated with the SCG. |
| ***measResultSCG-EUTRA***The field contains the EUTRA *MeasResultSCG-FailureMRDC* IE which includes available results of measurements on E-UTRA frequencies the UE is configured to measure by the E-UTRA *RRCConnectionReconfiguration* message as specified in TS 36.331 [10]. |

#### – *MeasurementReport*

The *MeasurementReport* message is used for the indication of measurement results.

Signalling radio bearer: SRB1, SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*MeasurementReport message*

-- ASN1START

-- TAG-MEASUREMENTREPORT-START

MeasurementReport ::= SEQUENCE {

 criticalExtensions CHOICE {

 measurementReport MeasurementReport-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

MeasurementReport-IEs ::= SEQUENCE {

 measResults MeasResults,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE{} OPTIONAL

}

-- TAG-MEASUREMENTREPORT-STOP

-- ASN1STOP

#### – *MeasurementReportAppLayer*

The *MeasurementReportAppLayer* message is used for sending application layer measurement report.

Signalling radio bearer: SRB4, SRB5

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*MeasurementReportAppLayer message*

-- ASN1START

-- TAG-MEASUREMENTREPORTAPPLAYER-START

MeasurementReportAppLayer-r17 ::= SEQUENCE {

 criticalExtensions CHOICE {

 measurementReportAppLayer-r17 MeasurementReportAppLayer-r17-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

MeasurementReportAppLayer-r17-IEs ::= SEQUENCE {

 measurementReportAppLayerList-r17 MeasurementReportAppLayerList-r17,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension MeasurementReportAppLayer-v1800-IEs OPTIONAL

}

MeasurementReportAppLayer-v1800-IEs ::= SEQUENCE {

 measurementReportAppLayerList-v1800 MeasurementReportAppLayerList-v1800 OPTIONAL,

 nonCriticalExtension SEQUENCE{} OPTIONAL

}

MeasurementReportAppLayerList-r17 ::= SEQUENCE (SIZE (1..maxNrofAppLayerMeas-r17)) OF MeasReportAppLayer-r17

MeasurementReportAppLayerList-v1800 ::= SEQUENCE (SIZE (1..maxNrofAppLayerMeas-r17)) OF MeasReportAppLayer-v1800

MeasReportAppLayer-r17 ::= SEQUENCE {

 measConfigAppLayerId-r17 MeasConfigAppLayerId-r17,

 measReportAppLayerContainer-r17 OCTET STRING OPTIONAL,

 appLayerSessionStatus-r17 ENUMERATED {start, stop} OPTIONAL,

 ran-VisibleMeasurements-r17 RAN-VisibleMeasurements-r17 OPTIONAL

}

MeasReportAppLayer-v1800 ::= SEQUENCE {

 appLayerIdleInactiveConfig-r18 AppLayerIdleInactiveConfig-r18 OPTIONAL,

 measReportAppLayerContainerList-r18 SEQUENCE (SIZE (1..maxNrofAppLayerReports-r18)) OF OCTET STRING OPTIONAL,

 ...

}

RAN-VisibleMeasurements-r17 ::= SEQUENCE {

 appLayerBufferLevelList-r17 SEQUENCE (SIZE (1..8)) OF AppLayerBufferLevel-r17 OPTIONAL,

 playoutDelayForMediaStartup-r17 INTEGER (0..30000) OPTIONAL,

 pdu-SessionIdList-r17 SEQUENCE (SIZE (1..maxNrofPDU-Sessions-r17)) OF PDU-SessionID OPTIONAL,

 ...,

 [[

 pdu-SessionIdListExt-v1800 SEQUENCE (SIZE (1..maxNrofPDU-Sessions-r17)) OF QFI-List-r18 OPTIONAL

 ]]

}

AppLayerBufferLevel-r17 ::= INTEGER (0..30000)

QFI-List-r18 ::= SEQUENCE (SIZE (1..maxNrofQFIs)) OF QFI

-- TAG-MEASUREMENTREPORTAPPLAYER-STOP

-- ASN1STOP

|  |
| --- |
| *MeasurementReportAppLayer* field descriptions |
| ***measurementReportAppLayerList***The field contains a list of application layer measurement reports. If *measurementReportAppLayerList-v1800* is present, it contains the same number of entries, listed in the same order as in *measurementReportAppLayerList-r17.* |

|  |
| --- |
| *MeasReportAppLayer* field descriptions |
| ***appLayerSessionStatus***Indicates that an application layer measurement session in the application layer starts or ends. For application layer measurements applicable to RRC\_IDLE or RRC\_INACTIVE, the UE transmits *appLayerSessionStatus* upon transfer to RRC\_CONNECTED if *transmissionOfSessionStartStop* is set to *true* for the application layer measurement configuration. |
| ***measReportAppLayerContainer***The field contains the application layer measurement report container, see Annex L (normative) in TS 26.247 [68], clause 16.5 in TS 26.114 [69] and TS 26.118 [70]. |
| ***measReportAppLayerContainerList***The field contains a list of application layer measurement report containers for each *measConfigAppLayerId*, see Annex L (normative) in TS 26.247 [68], clause 16.5 in TS 26.114 [69] and TS 26.118 [70]. |
| ***ran-VisibleMeasurements***The field contains the RAN visible application layer measurement report. |

|  |
| --- |
| *RAN-VisibleMeasurements* field descriptions |
| ***appLayerBufferLevelList***The field indicates a list of application layer buffer levels, and each *AppLayerBufferLevel* indicates the application layer buffer level in ms. Value 0 corresponds to 0ms, value 1 corresponds to 10ms, value 2 corresponds to 20 ms and so on. If the buffer level is larger than the maximum value of 30000 (5 minutes), the UE reports 30000. |
| ***playoutDelayForMediaStartup***Indicates the application layer playout delay for media start-up in ms. Value 0 corresponds to 0ms, value 1 corresponds to 1ms, value 2 corresponds to 2 ms and so on. If the playout delay for media start-up is larger than the maximum value of 30000ms, the UE reports 30000. |
| ***pdu-SessionIdList***List of PDU session identities and QoS flow identities per PDU session associated with the application data flows subject to the RAN visible application layer measurements. If *pdu-SessionIdListExt-v1800* is present, it contains the same number of entries, listed in the same order as in *pdu-SessionIdList-r17.* |

#### – *MIB*

The *MIB* includes the system information transmitted on BCH.

Signalling radio bearer: N/A

RLC-SAP: TM

Logical channel: BCCH

Direction: Network to UE

*MIB*

-- ASN1START

-- TAG-MIB-START

MIB ::= SEQUENCE {

 systemFrameNumber BIT STRING (SIZE (6)),

 subCarrierSpacingCommon ENUMERATED {scs15or60, scs30or120},

 ssb-SubcarrierOffset INTEGER (0..15),

 dmrs-TypeA-Position ENUMERATED {pos2, pos3},

 pdcch-ConfigSIB1 PDCCH-ConfigSIB1,

 cellBarred ENUMERATED {barred, notBarred},

 intraFreqReselection ENUMERATED {allowed, notAllowed},

 spare BIT STRING (SIZE (1))

}

-- TAG-MIB-STOP

-- ASN1STOP

|  |
| --- |
| *MIB* field descriptions |
| ***cellBarred***Value *barred* means that the cell is barred, as defined in TS 38.304 [20]. This field is ignored by IAB-MT and NCR-MT. This field is ignored for connectivity to NTN or ATG. |
| ***dmrs-TypeA-Position***Position of (first) DM-RS for downlink (see TS 38.211 [16], clause 7.4.1.1.2) and uplink (see TS 38.211 [16], clause 6.4.1.1.3). |
| ***intraFreqReselection***Controls cell selection/reselection to intra-frequency cells when the highest ranked cell is barred, or treated as barred by the UE, as specified in TS 38.304 [20]. This field is ignored by IAB-MT and NCR-MT. |
| ***pdcch-ConfigSIB1***Determines a common *ControlResourceSet* (CORESET), a common search space and necessary PDCCH parameters. If the field *ssb-SubcarrierOffset* indicates that *SIB1* is absent, the field *pdcch-ConfigSIB1* indicates the frequency positions where the UE may find SS/PBCH block with *SIB1* or the frequency range where the network does not provide SS/PBCH block with *SIB1* (see TS 38.213 [13], clause 13). |
| ***ssb-SubcarrierOffset***Corresponds to kSSB (see TS 38.213 [13]), which is the frequency domain offset between SSB and the overall resource block grid in number of subcarriers. (See TS 38.211 [16], clause 7.4.3.1). For operation with shared spectrum channel access in FR1 (see 37.213 [48]), this field corresponds to $\overbar{k}\_{SSB}$, and kSSB is obtained from (see TS 38.211 [16], clause 7.4.3.1); the LSB of this field is used also for deriving the QCL relation between SS/PBCH blocks as specified in TS 38.213 [13], clause 4.1.The value range of this field may be extended by an additional most significant bit encoded within PBCH as specified in TS 38.213 [13].This field may indicate that this cell does not provide *SIB1* and that there is hence no CORESET#0 configured in *MIB* (see TS 38.213 [13], clause 13). In this case, the field *pdcch-ConfigSIB1* may indicate the frequency positions where the UE may (not) find a SS/PBCH with a control resource set and search space for *SIB1* (see TS 38.213 [13], clause 13). |
| ***subCarrierSpacingCommon***Subcarrier spacing for *SIB1*, Msg.2/4 and MsgB for initial access, paging and broadcast SI-messages. If the UE acquires this *MIB* on an FR1 carrier frequency, the value *scs15or60* corresponds to 15 kHz and the value *scs30or120* corresponds to 30 kHz. If the UE acquires this *MIB* on an FR2 carrier frequency, the value *scs15or60* corresponds to 60 kHz and the value *scs30or120* corresponds to 120 kHz. For operation with shared spectrum channel access in FR1 (see 37.213 [48]) and for operation in FR2-2, the subcarrier spacing for *SIB1*, Msg.2/4 and MsgB for initial access, paging and broadcast SI-messages is same as that for the corresponding SSB. For operation with shared spectrum channel access, this field instead is used for deriving the QCL relation between SS/PBCH blocks as specified in TS 38.213 [13], clause 4.1. |
| ***systemFrameNumber***The 6 most significant bits (MSB) of the 10-bit System Frame Number (SFN). The 4 LSB of the SFN are conveyed in the PBCH transport block as part of channel coding (i.e. outside the *MIB* encoding), as defined in clause 7.1 in TS 38.212 [17]. |

#### – *MobilityFromNRCommand*

The *MobilityFromNRCommand* message is used to command handover from NR to E-UTRA/EPC, E-UTRA/5GC or UTRA-FDD.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*MobilityFromNRCommand* message

-- ASN1START

-- TAG-MOBILITYFROMNRCOMMAND-START

MobilityFromNRCommand ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 mobilityFromNRCommand MobilityFromNRCommand-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

MobilityFromNRCommand-IEs ::= SEQUENCE {

 targetRAT-Type ENUMERATED { eutra, utra-fdd-v1610, spare2, spare1, ...},

 targetRAT-MessageContainer OCTET STRING,

 nas-SecurityParamFromNR OCTET STRING OPTIONAL, -- Cond HO-ToEPCUTRAN

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension MobilityFromNRCommand-v1610-IEs OPTIONAL

}

MobilityFromNRCommand-v1610-IEs ::= SEQUENCE {

 voiceFallbackIndication-r16 ENUMERATED {true} OPTIONAL, -- Need N

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-MOBILITYFROMNRCOMMAND-STOP

-- ASN1STOP

|  |
| --- |
| *MobilityFromNRCommand-IEs* field descriptions |
| ***nas-SecurityParamFromNR***If *targetRAT-Type* is *eutra*, this field is used to deliver the key synchronisation and Key freshness for the NR to LTE/EPC handovers and a part of the downlink NAS COUNT as specified in TS 33.501 [11] and the content of the parameter is defined in TS 24.501 [23]. If *targetRAT-Type* is *utra-fdd*, this field is used to deliver the key synchronisation and Key freshness for the NR to FDD UTRAN handover and a part of the downlink NAS COUNT as specified in TS 33.501 [11] and the content of the parameter is defined in TS 24.501 [23]. |
| ***targetRAT-MessageContainer***The field contains a message specified in another standard, as indicated by the *targetRAT-Type*, and carries information about the target cell identifier(s) and radio parameters relevant for the target radio access technology. A complete message is included, as specified in the other standard. See NOTE 1 |
| ***targetRAT-Type***Indicates the target RAT type. |
| ***voiceFallbackIndication***Indicates the handover is triggered by EPS fallback for IMS voice as specified in TS 23.502 [43]. |

NOTE 1: The correspondence between the value of the *targetRAT-Type*, the standard to apply, and the message contained within the *targetRAT-MessageContainer* is shown in the table below:

|  |  |  |
| --- | --- | --- |
| targetRAT-Type | Standard to apply | targetRAT-MessageContainer |
| *eutra* | TS 36.331 [10] (clause 5.4.2) | *DL-DCCH-Message* including the *RRCConnectionReconfiguration* |
| *utra-fdd* | TS 25.331 [45] (clause 10.2.16a) | *Handover TO UTRAN command* |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *HO-ToEPCUTRAN* | This field is mandatory present in case of inter system handover to "EPC" or "FDD UTRAN". Otherwise it is absent. |

#### – *Paging*

The *Paging* message is used for the notification of one or more UEs.

Signalling radio bearer: N/A

RLC-SAP: TM

Logical channel: PCCH

Direction: Network to UE

*Paging* message

-- ASN1START

-- TAG-PAGING-START

Paging ::= SEQUENCE {

 pagingRecordList PagingRecordList OPTIONAL, -- Need N

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension Paging-v1700-IEs OPTIONAL

}

Paging-v1700-IEs ::= SEQUENCE {

 pagingRecordList-v1700 PagingRecordList-v1700 OPTIONAL, -- Need N

 pagingGroupList-r17 PagingGroupList-r17 OPTIONAL, -- Need N

 nonCriticalExtension Paging-v1800-IEs OPTIONAL

}

Paging-v1800-IEs ::= SEQUENCE {

 pagingRecordList-v1800 PagingRecordList-v1800 OPTIONAL, -- Need N

 pagingGroupList-v1800 PagingGroupList-v1800 OPTIONAL, -- Need N

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

PagingRecordList ::= SEQUENCE (SIZE(1..maxNrofPageRec)) OF PagingRecord

PagingRecordList-v1700 ::= SEQUENCE (SIZE(1..maxNrofPageRec)) OF PagingRecord-v1700

PagingGroupList-r17 ::= SEQUENCE (SIZE(1..maxNrofPageGroup-r17)) OF TMGI-r17

PagingRecordList-v1800 ::= SEQUENCE (SIZE(1..maxNrofPageRec)) OF PagingRecord-v1800

PagingGroupList-v1800 ::= SEQUENCE (SIZE(1..maxNrofPageGroup-r17)) OF GroupPaging-r18

PagingRecord ::= SEQUENCE {

 ue-Identity PagingUE-Identity,

 accessType ENUMERATED {non3GPP} OPTIONAL, -- Need N

 ...

}

PagingRecord-v1700 ::= SEQUENCE {

 pagingCause-r17 ENUMERATED {voice} OPTIONAL -- Need N

}

PagingRecord-v1800 ::= SEQUENCE {

 mt-SDT ENUMERATED {true} OPTIONAL -- Need N

}

PagingUE-Identity ::= CHOICE {

 ng-5G-S-TMSI NG-5G-S-TMSI,

 fullI-RNTI I-RNTI-Value,

 ...

}

GroupPaging-r18 ::= SEQUENCE {

 inactiveReceptionAllowed-r18 ENUMERATED {true} OPTIONAL -- Need N

}

-- TAG-PAGING-STOP

-- ASN1STOP

|  |
| --- |
| *PagingRecord* field descriptions |
| ***accessType***Indicates whether the *Paging* message is originated due to the PDU sessions from the non-3GPP access. |
| ***inactiveReceptionAllowed***Indicates whether the UE with a valid PTM configuration for a *TMGI* in the *PagingGroupList* stays in RRC\_INACTIVE to receive the corresponding MBS multicast session. |
| ***mt-SDT***Mobile Terminated SDT indication. The network includes *mt-SDT* indication in paging message only if the UE's I-RNTI is included in the paging message. |
| ***pagingRecordList***If the network includes pagingRecordList-v1700, it includes the same number of entries, and listed in the same order, as in pagingRecordList (i.e. without suffix). If the network includes *pagingRecordList-v1800*, it includes the same number of entries, and listed in the same order, as in *pagingRecordList* (i.e. without suffix). The first element in *pagingRecordList-v1700* corresponds to the first UE identity in *pagingRecordList* (i.e. without suffix). The second element in *pagingRecordList-v1700* corresponds to the second UE identity in *pagingRecordList* (i.e. without suffix), and so on. The first element in *pagingRecordList-v1800* corresponds to the first UE identity in *pagingRecordList* (i.e. without suffix). The second element in *pagingRecordList-v1800* corresponds to the second UE identity in *pagingRecordList* (i.e. without suffix), and so on. |
| ***pagingCause***Indicates whether the Paging message is originated due to IMS voice. If this field is present, it implies that the corresponding paging entry is for IMS voice. If upper layers indicate the support of paging cause and if this field is not present but pagingRecordList-v1700 is present, it implies that the corresponding paging entry is for a service other than IMS voice. Otherwise, paging cause is undetermined. |
| ***pagingGroupList***If the network includes *pagingGroupList-v1800*, it includes the same number of elements, and listed in the same order, as in *pagingGroupList-r17*. The first element corresponds to the first TMGI in *pagingGroupList-r17*. The second element corresponds to the second TMGI in *pagingGroupList-r17*, and so on. |

#### – *RRCReestablishment*

The *RRCReestablishment* message is used to re-establish SRB1.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*RRCReestablishment* message

-- ASN1START

-- TAG-RRCREESTABLISHMENT-START

RRCReestablishment ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 rrcReestablishment RRCReestablishment-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

RRCReestablishment-IEs ::= SEQUENCE {

 nextHopChainingCount NextHopChainingCount,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCReestablishment-v1700-IEs OPTIONAL

}

RRCReestablishment-v1700-IEs ::= SEQUENCE {

 sl-L2RemoteUE-Config-r17 SetupRelease {SL-L2RemoteUE-Config-r17} OPTIONAL, -- Cond L2RemoteUE

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-RRCREESTABLISHMENT-STOP

-- ASN1STOP

|  |
| --- |
| *RRCReestablishment-IEs* field descriptions |
| ***sl-L2RemoteUE-Config***Contains dedicated configurations used for L2 U2N relay related operation. The network configures only the SRAP configuration for local UE ID. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *L2RemoteUE* | The field is mandatory present for L2 U2N Remote UE; otherwise it is absent. |

#### – *RRCReestablishmentComplete*

The *RRCReestablishmentComplete* message is used to confirm the successful completion of an RRC connection re-establishment.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*RRCReestablishmentComplete* message

-- ASN1START

-- TAG-RRCREESTABLISHMENTCOMPLETE-START

RRCReestablishmentComplete ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 rrcReestablishmentComplete RRCReestablishmentComplete-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

RRCReestablishmentComplete-IEs ::= SEQUENCE {

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCReestablishmentComplete-v1610-IEs OPTIONAL

}

RRCReestablishmentComplete-v1610-IEs ::= SEQUENCE {

 ue-MeasurementsAvailable-r16 UE-MeasurementsAvailable-r16 OPTIONAL,

 nonCriticalExtension RRCReestablishmentComplete-v1800-IEs OPTIONAL

}

RRCReestablishmentComplete-v1800-IEs ::= SEQUENCE {

 flightPathInfoAvailable-r18 ENUMERATED {true} OPTIONAL,

 measConfigReportAppLayerAvailable-r18 ENUMERATED {true} OPTIONAL,

 musim-CapRestrictionInd-r18 ENUMERATED {true} OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-RRCREESTABLISHMENTCOMPLETE-STOP

-- ASN1STOP

|  |
| --- |
| *RRCReestablishmentComplete-IEs* field descriptions |
| ***measConfigReportAppLayerAvailable***Indication that the UE has at least one application layer measurement configuration with *appLayerIdleInactiveConfig* configured. |
| ***musim-CapRestrictionInd***This field indicates the UE temporary capability restriction due to MUSIM operation. |

#### – *RRCReestablishmentRequest*

The *RRCReestablishmentRequest* message is used to request the reestablishment of an RRC connection.

Signalling radio bearer: SRB0

RLC-SAP: TM

Logical channel: CCCH

Direction: UE to Network

*RRCReestablishmentRequest* message

-- ASN1START

-- TAG-RRCREESTABLISHMENTREQUEST-START

RRCReestablishmentRequest ::= SEQUENCE {

 rrcReestablishmentRequest RRCReestablishmentRequest-IEs

}

RRCReestablishmentRequest-IEs ::= SEQUENCE {

 ue-Identity ReestabUE-Identity,

 reestablishmentCause ReestablishmentCause,

 spare BIT STRING (SIZE (1))

}

ReestabUE-Identity ::= SEQUENCE {

 c-RNTI RNTI-Value,

 physCellId PhysCellId,

 shortMAC-I ShortMAC-I

}

ReestablishmentCause ::= ENUMERATED {reconfigurationFailure, handoverFailure, otherFailure, spare1}

-- TAG-RRCREESTABLISHMENTREQUEST-STOP

-- ASN1STOP

|  |
| --- |
| *ReestabUE-Identity* field descriptions |
| ***physCellId***The Physical Cell Identity of the PCell the UE was connected to prior to the failure. |

|  |
| --- |
| *RRCReestablishmentRequest-IEs* field descriptions |
| ***reestablishmentCause***Indicates the failure cause that triggered the re-establishment procedure. gNB is not expected to reject a *RRCReestablishmentRequest* due to unknown cause value being used by the UE. |
| ***ue-Identity***UE identity included to retrieve UE context and to facilitate contention resolution by lower layers. |

#### – *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 N

 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 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. |
| ***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]. |
| ***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 case the *RRCReconfiguration* message is part of an *LTM-Candidate* 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. |
| ***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 *LTM-Candidate* 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. |

#### *– RRCReconfigurationComplete*

The *RRCReconfigurationComplete* message is used to confirm the successful completion of an RRC connection reconfiguration.

Signalling radio bearer: SRB1 or SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*RRCReconfigurationComplete message*

-- ASN1START

-- TAG-RRCRECONFIGURATIONCOMPLETE-START

RRCReconfigurationComplete ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 rrcReconfigurationComplete RRCReconfigurationComplete-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

RRCReconfigurationComplete-IEs ::= SEQUENCE {

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1530-IEs OPTIONAL

}

RRCReconfigurationComplete-v1530-IEs ::= SEQUENCE {

 uplinkTxDirectCurrentList UplinkTxDirectCurrentList OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1560-IEs OPTIONAL

}

RRCReconfigurationComplete-v1560-IEs ::= SEQUENCE {

 scg-Response CHOICE {

 nr-SCG-Response OCTET STRING (CONTAINING RRCReconfigurationComplete),

 eutra-SCG-Response OCTET STRING

 } OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1610-IEs OPTIONAL

}

RRCReconfigurationComplete-v1610-IEs ::= SEQUENCE {

 ue-MeasurementsAvailable-r16 UE-MeasurementsAvailable-r16 OPTIONAL,

 needForGapsInfoNR-r16 NeedForGapsInfoNR-r16 OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1640-IEs OPTIONAL

}

RRCReconfigurationComplete-v1640-IEs ::= SEQUENCE {

 uplinkTxDirectCurrentTwoCarrierList-r16 UplinkTxDirectCurrentTwoCarrierList-r16 OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1700-IEs OPTIONAL

}

RRCReconfigurationComplete-v1700-IEs ::= SEQUENCE {

 needForGapNCSG-InfoNR-r17 NeedForGapNCSG-InfoNR-r17 OPTIONAL,

 needForGapNCSG-InfoEUTRA-r17 NeedForGapNCSG-InfoEUTRA-r17 OPTIONAL,

 selectedCondRRCReconfig-r17 CondReconfigId-r16 OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1720-IEs OPTIONAL

}

RRCReconfigurationComplete-v1720-IEs ::= SEQUENCE {

 uplinkTxDirectCurrentMoreCarrierList-r17 UplinkTxDirectCurrentMoreCarrierList-r17 OPTIONAL,

 nonCriticalExtension RRCReconfigurationComplete-v1800-IEs OPTIONAL

}

RRCReconfigurationComplete-v1800-IEs ::= SEQUENCE {

 needForInterruptionInfoNR-r18 NeedForInterruptionInfoNR-r18 OPTIONAL,

 flightPathInfoAvailable-r18 ENUMERATED {true} OPTIONAL,

 selectedPSCellForCHO-WithSCG-r18 SelectedPSCellForCHO-WithSCG-r18 OPTIONAL,

 selectedSK-Counter-r18 SK-Counter OPTIONAL,

 measConfigReportAppLayerAvailable-r18 ENUMERATED {true} OPTIONAL,

 appliedLTM-CandidateId-r18 LTM-CandidateId-r18 OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-RRCRECONFIGURATIONCOMPLETE-STOP

-- ASN1STOP

|  |
| --- |
| *RRCReconfigurationComplete-IEs* field descriptions |
| ***measConfigReportAppLayerAvailable***Indication that the UE has at least one application layer measurement configuration with *appLayerIdleInactiveConfig* configured. |
| ***needForGapsInfoNR***This field is used to indicate the measurement gap requirement information of the UE for NR target bands. |
| ***needForGapNCSG-InfoEUTRA***This field is used to indicate the measurement gap and NCSG requirement information of the UE for E‑UTRA target bands. |
| ***needForGapNCSG-InfoNR***This field is used to indicate the measurement gap and NCSG requirement information of the UE for NR target bands. |
| ***needForInterruptionInfoNR***This field indicates whether interruption is needed while performing measurement on NR target bands without measurement gap. |
| ***scg-Response***In case of NR-DC (*nr-SCG-Response*), this field includes the *RRCReconfigurationComplete* message. In case of NE-DC (*eutra-SCG-Response*), this field includes the E-UTRA *RRCConnectionReconfigurationComplete* message as specified in TS 36.331 [10]*.* |
| ***selectedCondRRCReconfig***This field indicates the ID of the selected conditional reconfiguration the UE applied upon the execution of CPA or inter-SN CPC. |
| ***selectedPSCellForCHO-WithSCG***This field indicates the information of the selected target PSCell to target MN at execution of a conditional reconfiguration for CHO with candidate SCG(s). |
| ***selectedSK-Counter***This field includes the selected *sk-counter* value for security key update upon the execution of subsequent CPAC. |
| ***uplinkTxDirectCurrentList***The Tx Direct Current locations for the configured serving cells and BWPs if requested by the NW (see *reportUplinkTxDirectCurrent* in *CellGroupConfig*). |
| ***uplinkTxDirectCurrentMoreCarrierList***The Tx Direct Current locations for the configured intra-band CA requested by *reportUplinkTxDirectCurrentMoreCarrier-r17*. |
| ***uplinkTxDirectCurrentTwoCarrierList***The Tx Direct Current locations for the configured uplink intra-band CA with two carriers if requested by the NW (see *reportUplinkTxDirectCurrentTwoCarrier-r16* in *CellGroupConfig*). |

#### – *RRCReject*

The *RRCReject* message is used to reject an RRC connection establishment or an RRC connection resumption.

Signalling radio bearer: SRB0

RLC-SAP: TM

Logical channel: CCCH

Direction: Network to UE

*RRCReject* message

-- ASN1START

-- TAG-RRCREJECT-START

RRCReject ::= SEQUENCE {

 criticalExtensions CHOICE {

 rrcReject RRCReject-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

RRCReject-IEs ::= SEQUENCE {

 waitTime RejectWaitTime OPTIONAL, -- Need N

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE{} OPTIONAL

}

-- TAG-RRCREJECT-STOP

-- ASN1STOP

|  |
| --- |
| *RRCReject-IEs* field descriptions |
| ***waitTime***Wait time value in seconds. The field is always included. |

#### – *RRCRelease*

The *RRCRelease* message is used to command the release of an RRC connection or the suspension of the RRC connection.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*RRCRelease* message

-- ASN1START

-- TAG-RRCRELEASE-START

RRCRelease ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 rrcRelease RRCRelease-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

RRCRelease-IEs ::= SEQUENCE {

 redirectedCarrierInfo RedirectedCarrierInfo OPTIONAL, -- Need N

 cellReselectionPriorities CellReselectionPriorities OPTIONAL, -- Need R

 suspendConfig SuspendConfig OPTIONAL, -- Need R

 deprioritisationReq SEQUENCE {

 deprioritisationType ENUMERATED {frequency, nr},

 deprioritisationTimer ENUMERATED {min5, min10, min15, min30}

 } OPTIONAL, -- Need N

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCRelease-v1540-IEs OPTIONAL

}

RRCRelease-v1540-IEs ::= SEQUENCE {

 waitTime RejectWaitTime OPTIONAL, -- Need N

 nonCriticalExtension RRCRelease-v1610-IEs OPTIONAL

}

RRCRelease-v1610-IEs ::= SEQUENCE {

 voiceFallbackIndication-r16 ENUMERATED {true} OPTIONAL, -- Need N

 measIdleConfig-r16 SetupRelease {MeasIdleConfigDedicated-r16} OPTIONAL, -- Need M

 nonCriticalExtension RRCRelease-v1650-IEs OPTIONAL

}

RRCRelease-v1650-IEs ::= SEQUENCE {

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

 nonCriticalExtension RRCRelease-v1710-IEs OPTIONAL

}

RRCRelease-v1710-IEs ::= SEQUENCE {

 noLastCellUpdate-r17 ENUMERATED {true} OPTIONAL, -- Need S

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

RedirectedCarrierInfo ::= CHOICE {

 nr CarrierInfoNR,

 eutra RedirectedCarrierInfo-EUTRA,

 ...

}

RedirectedCarrierInfo-EUTRA ::= SEQUENCE {

 eutraFrequency ARFCN-ValueEUTRA,

 cnType ENUMERATED {epc,fiveGC} OPTIONAL -- Need N

}

CarrierInfoNR ::= SEQUENCE {

 carrierFreq ARFCN-ValueNR,

 ssbSubcarrierSpacing SubcarrierSpacing,

 smtc SSB-MTC OPTIONAL, -- Need S

 ...

}

SuspendConfig ::= SEQUENCE {

 fullI-RNTI I-RNTI-Value,

 shortI-RNTI ShortI-RNTI-Value,

 ran-PagingCycle PagingCycle,

 ran-NotificationAreaInfo RAN-NotificationAreaInfo OPTIONAL, -- Need M

 t380 PeriodicRNAU-TimerValue OPTIONAL, -- Need R

 nextHopChainingCount NextHopChainingCount,

 ...,

 [[

 sl-UEIdentityRemote-r17 RNTI-Value OPTIONAL, -- Cond L2RemoteUE

 sdt-Config-r17 SetupRelease { SDT-Config-r17 } OPTIONAL, -- Need M

 srs-PosRRC-Inactive-r17 SetupRelease { SRS-PosRRC-Inactive-r17 } OPTIONAL, -- Need M

 ran-ExtendedPagingCycle-r17 ExtendedPagingCycle-r17 OPTIONAL -- Cond RANPaging

 ]],

 [[

 ncd-SSB-RedCapInitialBWP-SDT-r17 SetupRelease {NonCellDefiningSSB-r17} OPTIONAL -- Need M

 ]],

 [[

 resumeIndication-r18 ENUMERATED {true} OPTIONAL, -- Need N

 srs-PosRRC-InactiveEnhanced-r18 SetupRelease { SRS-PosRRC-InactiveEnhanced-r18 } OPTIONAL, -- Need M

 ran-ExtendedPagingCycleConfig-r18 ExtendedPagingCycleConfig-r18 OPTIONAL, -- Cond RANPaging

 multicastConfigInactive-r18 SetupRelease { MulticastConfigInactive-r18 } OPTIONAL -- Need M

 ]]

}

PeriodicRNAU-TimerValue ::= ENUMERATED { min5, min10, min20, min30, min60, min120, min360, min720}

CellReselectionPriorities ::= SEQUENCE {

 freqPriorityListEUTRA FreqPriorityListEUTRA OPTIONAL, -- Need M

 freqPriorityListNR FreqPriorityListNR OPTIONAL, -- Need M

 t320 ENUMERATED {min5, min10, min20, min30, min60, min120, min180, spare1} OPTIONAL, -- Need R

 ...,

 [[

 freqPriorityListDedicatedSlicing-r17 FreqPriorityListDedicatedSlicing-r17 OPTIONAL -- Need M

 ]]

}

PagingCycle ::= ENUMERATED {rf32, rf64, rf128, rf256}

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

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

FreqPriorityEUTRA ::= SEQUENCE {

 carrierFreq ARFCN-ValueEUTRA,

 cellReselectionPriority CellReselectionPriority,

 cellReselectionSubPriority CellReselectionSubPriority OPTIONAL -- Need R

}

FreqPriorityNR ::= SEQUENCE {

 carrierFreq ARFCN-ValueNR,

 cellReselectionPriority CellReselectionPriority,

 cellReselectionSubPriority CellReselectionSubPriority OPTIONAL -- Need R

}

RAN-NotificationAreaInfo ::= CHOICE {

 cellList PLMN-RAN-AreaCellList,

 ran-AreaConfigList PLMN-RAN-AreaConfigList,

 ...

}

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

PLMN-RAN-AreaCell ::= SEQUENCE {

 plmn-Identity PLMN-Identity OPTIONAL, -- Need S

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

}

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

PLMN-RAN-AreaConfig ::= SEQUENCE {

 plmn-Identity PLMN-Identity OPTIONAL, -- Need S

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

}

RAN-AreaConfig ::= SEQUENCE {

 trackingAreaCode TrackingAreaCode,

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

}

SDT-Config-r17 ::= SEQUENCE {

 sdt-DRB-List-r17 SEQUENCE (SIZE (0..maxDRB)) OF DRB-Identity OPTIONAL, -- Need M

 sdt-SRB2-Indication-r17 ENUMERATED {allowed} OPTIONAL, -- Need R

 sdt-MAC-PHY-CG-Config-r17 SetupRelease {SDT-CG-Config-r17} OPTIONAL, -- Need M

 sdt-DRB-ContinueROHC-r17 ENUMERATED { cell, rna } OPTIONAL -- Need S

}

SDT-CG-Config-r17 ::= OCTET STRING (CONTAINING SDT-MAC-PHY-CG-Config-r17)

SDT-MAC-PHY-CG-Config-r17 ::= SEQUENCE {

 -- CG-SDT specific configuration

 cg-SDT-ConfigLCH-RestrictionToAddModList-r17 SEQUENCE (SIZE(1..maxLC-ID)) OF CG-SDT-ConfigLCH-Restriction-r17 OPTIONAL, -- Need N

 cg-SDT-ConfigLCH-RestrictionToReleaseList-r17 SEQUENCE (SIZE(1..maxLC-ID)) OF LogicalChannelIdentity OPTIONAL, -- Need N

 cg-SDT-ConfigInitialBWP-NUL-r17 SetupRelease {BWP-UplinkDedicatedSDT-r17} OPTIONAL, -- Need M

 cg-SDT-ConfigInitialBWP-SUL-r17 SetupRelease {BWP-UplinkDedicatedSDT-r17} OPTIONAL, -- Need M

 cg-SDT-ConfigInitialBWP-DL-r17 BWP-DownlinkDedicatedSDT-r17 OPTIONAL, -- Need M

 cg-SDT-TimeAlignmentTimer-r17 TimeAlignmentTimer OPTIONAL, -- Need M

 cg-SDT-RSRP-ThresholdSSB-r17 RSRP-Range OPTIONAL, -- Need M

 cg-SDT-TA-ValidationConfig-r17 SetupRelease { CG-SDT-TA-ValidationConfig-r17 } OPTIONAL, -- Need M

 cg-SDT-CS-RNTI-r17 RNTI-Value OPTIONAL, -- Need M

 ...,

 [[

 cg-SDT-ConfigLCH-RestrictionToAddModListExt-v1800 SEQUENCE (SIZE(1..maxLC-ID)) OF CG-SDT-ConfigLCH-RestrictionExt-v1800

 OPTIONAL, -- Need N

 cg-MT-SDT-MaxDurationToNextCG-Occasion-r18 ENUMERATED {

 ms10, ms100, sec1, sec10, sec60, sec100, sec300, sec600,

 sec1200, sec1800, sec3600,

 spare5, spare4, spare3, spare2, spare1} OPTIONAL -- Need R

 ]]

}

CG-SDT-TA-ValidationConfig-r17 ::= SEQUENCE {

 cg-SDT-RSRP-ChangeThreshold-r17 ENUMERATED { dB2, dB4, dB6, dB8, dB10, dB14, dB18, dB22,

 dB26, dB30, dB34, spare5, spare4, spare3, spare2, spare1}

}

BWP-DownlinkDedicatedSDT-r17 ::= SEQUENCE {

 pdcch-Config-r17 SetupRelease { PDCCH-Config } OPTIONAL, -- Need M

 pdsch-Config-r17 SetupRelease { PDSCH-Config } OPTIONAL, -- Need M

 ...

}

BWP-UplinkDedicatedSDT-r17 ::= SEQUENCE {

 pusch-Config-r17 SetupRelease { PUSCH-Config } OPTIONAL, -- Need M

 configuredGrantConfigToAddModList-r17 ConfiguredGrantConfigToAddModList-r16 OPTIONAL, -- Need N

 configuredGrantConfigToReleaseList-r17 ConfiguredGrantConfigToReleaseList-r16 OPTIONAL, -- Need N

 ...

}

CG-SDT-ConfigLCH-Restriction-r17 ::= SEQUENCE {

 logicalChannelIdentity-r17 LogicalChannelIdentity,

 configuredGrantType1Allowed-r17 ENUMERATED {true} OPTIONAL, -- Need R

 allowedCG-List-r17 SEQUENCE (SIZE (0.. maxNrofConfiguredGrantConfigMAC-1-r16)) OF ConfiguredGrantConfigIndexMAC-r16

 OPTIONAL -- Need R

}

CG-SDT-ConfigLCH-RestrictionExt-v1800 ::= SEQUENCE {

 cg-SDT-MaxDurationToNextCG-Occasion-r18 ENUMERATED {

 ms10, ms100, sec1, sec10, sec60, sec100, sec300, sec600,

 sec1200, sec1800, sec3600,

 spare5, spare4, spare3, spare2, spare1} OPTIONAL -- Need R

}

SRS-PosRRC-Inactive-r17 ::= OCTET STRING (CONTAINING SRS-PosRRC-InactiveConfig-r17)

SRS-PosRRC-InactiveConfig-r17 ::= SEQUENCE {

 srs-PosConfigNUL-r17 SRS-PosConfig-r17 OPTIONAL, -- Need R

 srs-PosConfigSUL-r17 SRS-PosConfig-r17 OPTIONAL, -- Need R

 bwp-NUL-r17 BWP OPTIONAL, -- Need S

 bwp-SUL-r17 BWP OPTIONAL, -- Need S

 inactivePosSRS-TimeAlignmentTimer-r17 TimeAlignmentTimer OPTIONAL, -- Need M

 inactivePosSRS-RSRP-ChangeThreshold-r17 RSRP-ChangeThreshold-r17 OPTIONAL -- Need M

}

RSRP-ChangeThreshold-r17 ::= ENUMERATED {dB4, dB6, dB8, dB10, dB14, dB18, dB22, dB26, dB30, dB34, spare6, spare5, spare4, spare3, spare2, spare1}

SRS-PosConfig-r17 ::= SEQUENCE {

 srs-PosResourceSetToReleaseList-r17 SEQUENCE (SIZE(1..maxNrofSRS-PosResourceSets-r16)) OF SRS-PosResourceSetId-r16 OPTIONAL,-- Need N

 srs-PosResourceSetToAddModList-r17 SEQUENCE (SIZE(1..maxNrofSRS-PosResourceSets-r16)) OF SRS-PosResourceSet-r16 OPTIONAL,-- Need N

 srs-PosResourceToReleaseList-r17 SEQUENCE (SIZE(1..maxNrofSRS-PosResources-r16)) OF SRS-PosResourceId-r16 OPTIONAL,-- Need N

 srs-PosResourceToAddModList-r17 SEQUENCE (SIZE(1..maxNrofSRS-PosResources-r16)) OF SRS-PosResource-r16 OPTIONAL -- Need N

}

SRS-PosRRC-InactiveEnhanced-r18 ::= OCTET STRING (CONTAINING SRS-PosRRC-InactiveEnhancedConfig-r18)

SRS-PosRRC-InactiveEnhancedConfig-r18 ::= SEQUENCE {

 srs-PosRRC-AggBW-InactiveConfigList-r18 SetupRelease { SRS-PosRRC-AggBW-InactiveConfigList-r18 } OPTIONAL, -- Need M

 srs-PosTx-Hopping-r18 SetupRelease { SRS-PosTx-Hopping-r18 } OPTIONAL, -- Need M

 srs-PosRRC-InactiveValidityAreaPreConfigList-r18 SetupRelease { SRS-PosRRC-InactiveValidityAreaPreConfigList-r18 } OPTIONAL, -- Need M

 srs-PosRRC-InactiveValidityAreaNonPreConfig-r18 SetupRelease { SRS-PosRRC-InactiveValidityAreaConfig-r18 } OPTIONAL, -- Need M

 ...

}

SRS-PosRRC-InactiveValidityAreaPreConfigList-r18 ::= SEQUENCE (SIZE(1..maxNrOfVA-r18)) OF SRS-PosRRC-InactiveValidityAreaConfig-r18

SRS-PosRRC-InactiveValidityAreaConfig-r18 ::= SEQUENCE {

 srs-PosConfigValidityArea-r18 SEQUENCE (SIZE(1..maxNrOfCellsInVA-r18)) OF CellIdentity,

 srs-PosConfigNUL-r18 SRS-PosConfig-r17 OPTIONAL, -- Need R

 srs-PosConfigSUL-r18 SRS-PosConfig-r17 OPTIONAL, -- Need R

 bwp-NUL-r18 BWP OPTIONAL, -- Need S

 bwp-SUL-r18 BWP OPTIONAL, -- Need S

 areaValidityTA-Config-r18 AreaValidityTA-Config-r18 OPTIONAL, -- Need R

 ...

}

AreaValidityTA-Config-r18 ::= SEQUENCE {

 inactivePosSRS-ValidityAreaTAT-r18 ENUMERATED {ms1280, ms1920, ms2560, ms5120, ms10240, ms20480, ms40960, infinity},

 inactivePosSRS-ValidityAreaRSRP-r18 RSRP-ChangeThreshold-r17 OPTIONAL, -- Need R

 autonomousTA-AdjustmentEnabled-r18 ENUMERATED {true} OPTIONAL -- Need R

}

SRS-PosRRC-AggBW-InactiveConfigList-r18 ::= SEQUENCE (SIZE(1..maxNrOfLinkedSRS-PosResSetCombInactive-r18)) OF

 SRS-InactivePosResourceSetLinkedForAggBW-List-r18

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

 SRS-PosResourceSetLinkedForAggBW-r18

ExtendedPagingCycle-r17 ::= ENUMERATED {rf256, rf512, rf1024, spare1}

ExtendedPagingCycleConfig-r18 ::= SEQUENCE {

 extendedPagingCycle-r18 ENUMERATED {hf2, hf4, hf8, hf16, hf32, hf64, hf128,hf256, hf512, hf1024,

 spare6, spare5, spare4, spare3, spare2, spare1},

 pagingPTWLength-r18 ENUMERATED {ms1280, ms2560, ms3840, ms5120, ms6400, ms7680, ms8960, ms10240, ms11520,

 ms12800, ms14080, ms15360, ms16640, ms17920, ms19200, ms20480, ms21760,

 ms23040, ms24320, ms25600, ms26880, ms28160, ms29440, ms30720, ms32000,

 ms33280, ms34560, ms35840, ms37120, ms38400, ms39680, ms40960}

}

MulticastConfigInactive-r18::= SEQUENCE {

 inactivePTM-Config-r18 OCTET STRING (CONTAINING MBSMulticastConfiguration-r18) OPTIONAL, -- Need S

 inactiveMCCH-Config-r18 OCTET STRING (CONTAINING SystemInformation) OPTIONAL -- Need N

}

-- TAG-RRCRELEASE-STOP

-- ASN1STOP

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| *RRCRelease-IEs* field descriptions |
| ***cellReselectionPriorities***Dedicated priorities to be used for cell reselection as specified in TS 38.304 [20]*.* The maximum number of NR carrier frequencies that the network can configure through *FreqPriorityListNR* and *FreqPriorityListDedicatedSlicing* together is eight. If the same frequency is configured in both *FreqPriorityListNR* and *FreqPriorityListDedicatedSlicing*, the frequency is only counted once. |
| ***cnType***Indicate that the UE is redirected to EPC or 5GC. |
| ***deprioritisationReq***Indicates whether the current frequency or RAT is to be de-prioritised. |
| ***deprioritisationTimer***Indicates the period for which either the current carrier frequency or NR is deprioritised. Value *minN* corresponds to N minutes. |
| ***srs-PosRRC-InactiveEnhanced***Contains the SRS for positioning configuration in RRC\_INACTIVE state that is applicable for a validity area. The field also contains bandwidth aggregation (see TS 38.214 [19], clause 6.2.1.4.2) and frequency hopping configurations (see TS 38.214 [19], clause 6.2.1.4.1) for SRS for positioning in RRC\_INACTIVE state. |
| ***measIdleConfig***Indicates 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 *mps-PriorityAccess* for a new connection following a redirect to NR or set the resume cause to *mps-PriorityAccess* for a resume following a redirect to NR. If the target RAT is E-UTRA, see TS 36.331 [10]. The gNB sets the indication only for UEs authorized to receive MPS treatment as indicated by ARP and/or QoS characteristics at the gNB, and it is applicable only for this instance of release with redirection to carrier/RAT included in the *redirectedCarrierInfo* field in the *RRCRelease* message. |
| ***multicastConfigInactive***Indicates whether the UE is configured to receive MBS multicast in RRC\_INACTIVE. The presence of this field indicates the UE is configured to receive MBS multicast in RRC\_INACTIVE; otherwise, the UE is not configured to receive MBS multicast in RRC\_INACTIVE. |
| ***noLastCellUpdate***Presence of the field indicates that the last used cell for PEI shall not be updated. When the field is absent, the PEI-capable UE shall update its last used cell with the current cell. The UE shall not update its last used cell with the current cell if the AS security is not activated. |
| ***redirectedCarrierInfo***Indicates a carrier frequency (downlink for FDD) and is used to redirect the UE to an NR or an inter-RAT carrier frequency, by means of cell selection at transition to RRC\_IDLE or RRC\_INACTIVE as specified in TS 38.304 [20]. Based on UE capability, the network may include *redirectedCarrierInfo* in *RRCRelease* message with *suspendConfig* if this message is sent in response to an *RRCResumeRequest* or an *RRCResumeRequest1* which is triggered by the NAS layer (see 5.3.1.4 in TS 24.501 [23]). |
| ***srs-PosRRC-Inactive***Contains the SRS for positioning configuration in RRC\_INACTIVE state. |
| ***suspendConfig***Indicates configuration for the RRC\_INACTIVE state. The network does not configure *suspendConfig* when the network redirect the UE to an inter-RAT carrier frequency or if the UE is configured with a DAPS bearer. |
| ***voiceFallbackIndication***Indicates the RRC release is triggered by EPS fallback for IMS voice as specified in TS 23.502 [43]. |

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| *CarrierInfoNR* field descriptions |
| ***carrierFreq***Indicates the redirected NR frequency. |
| ***ssbSubcarrierSpacing***Subcarrier spacing of SSB in the redirected SSB frequency.Only the following values are applicable depending on the used frequency:FR1: 15 or 30 kHzFR2-1: 120 or 240 kHzFR2-2: 120, 480, or 960 kHz |
| ***smtc***The SSB periodicity/offset/duration configuration for the redirected SSB frequency. It is based on timing reference of PCell. If the field is absent, the UE uses the SMTC configured in the measObjectNR having the same SSB frequency and subcarrier spacing. |

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| *RAN-NotificationAreaInfo* field descriptions |
| ***cellList***A list of cells configured as RAN area. |
| ***ran-AreaConfigList***A list of RAN area codes or RA code(s) as RAN area. |

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| *PLMN-RAN-AreaConfig* field descriptions |
| ***plmn-Identity***PLMN Identity to which the cells in *ran-Area* belong. If the field is absent the UE not in SNPN access mode uses the ID of the registered PLMN. This field is not included for UE in SNPN access mode (for UE in SNPN access mode the *ran-Area* always belongs to the registered SNPN). |
| ***ran-AreaCodeList***The total number of RAN-AreaCodes of all PLMNs does not exceed 32. |
| ***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 both TA code(s) and RAN area code(s) to configure a UE. The total number of TACs across all PLMNs does not exceed 16. |

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| *PLMN-RAN-AreaCell* field descriptions |
| ***plmn-Identity***PLMN Identity to which the cells in *ran-AreaCells* belong. If the field is absent the UE not in SNPN access mode uses the ID of the registered PLMN. This field is not included for UE in SNPN access mode (for UE in SNPN access mode the *ran-AreaCells* always belongs to the registered SNPN). |
| ***ran-AreaCells***The total number of cells of all PLMNs does not exceed 32. |

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| *SDT-Config* field descriptions |
| ***sdt-DRB-ContinueROHC***Indicates whether the PDCP entity of the radio bearers configured for SDT continues or resets the ROHC header compression protocol during PDCP re-establishment during SDT procedure, as specified in TS 38.323 [5]. Value *cell* indicates that ROHC header compression continues when the UE resumes for SDT in the same cell as the PCell when the RRCRelease message was received. Value *rna* indicates that ROHC header compression continues when the UE resumes for SDT in a cell belonging to the same RNA as the PCell where the RRCRelease message was received. If the field is absent, the UE releases any stored value for this field and the PDCP entity of the radio bearers configured for SDT always resets the ROHC header compression protocol during PDCP re-establishment when SDT procedure is initiated, as specified in TS 38.323 [5]. |
| ***sdt-DRB-List***Indicates the ID(s) of the DRB(s) that are configured for SDT. If size of the sequence is zero, then the UE assumes that none of the DRBs are configured for SDT. The network only configures MN terminated MCG bearers for SDT. |
| ***sdt-SRB2-Indication***Indicates whether SRB2 is configured for SDT or not. |

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| *SDT-MAC-PHY-CG-Config* field descriptions |
| ***cg-MT-SDT-MaxDurationToNextCG-Occasion***The maximum duration until the next CG-SDT occasion as specified in TS 38.321 [3] for MT-SDT. If configured, the CG-SDT resource can only be used for the initial CG-SDT transmission if the duration between the initiation of the CG-SDT procedure and the next CG-SDT occasion is less than the value configured by this field. |
| ***cg-SDT-ConfigInitialBWP-DL***Downlink BWP configuration for CG-SDT. If a UE is an (e)RedCap UE and if the *initialDownlinkBWP-RedCap* is configured in *downlinkConfigCommon* in *SIB1*, this field is configured for *initialDownlinkBWP-RedCap*, otherwise it is configured for *initialDownlinkBWP*. |
| ***cg-SDT-ConfigInitialBWP-NUL***UL BWP configuration for CG-SDT on NUL carrier. If a UE is an (e)RedCap UE and if the *initialUplinkBWP-RedCap* is configured in *uplinkConfigCommon* in *SIB1*, this field is configured for *initialUplinkBWP-RedCap*, otherwise it is configured for *initialUplinkBWP* for NUL. |
| ***cg-SDT-ConfigInitialBWP-SUL***UL BWP configuration for CG-SDT on SUL carrier configured for the *initialUplinkBWP* for SUL. |
| ***cg-SDT-ConfigLCH-RestrictionToAddModList, cg-SDT-ConfigLCH-RestrictionToAddModListExt, cg-SDT-ConfigLCH-RestrictionToReleaseList***Lists for adding and releasing logical channel mapping restrictions for CG-SDT. If the network includes *cg-SDT-ConfigLCH-RestrictionToAddModListExt*, it includes the same number of entries, and listed in the same order, as in *cg-SDT-ConfigLCH-RestrictionToAddModList*. |
| ***cg-SDT-CS-RNTI***The CS-RNTI value for CG-SDT as specified in TS 38.321 [3]. |
| ***cg-SDT-RSRP-ThresholdSSB***An RSRP threshold configured for SSB selection for CG-SDT as specified in TS 38.321 [3]. |
| ***cg-SDT-TA-ValidationConfig***Configuration for the RSRP based TA validation. If this field is not configured, then the UE does not perform RSRP based TA validation. |
| ***cg-SDT-timeAlignmentTimer***TAT value for CG-SDT as specified in TS 38.321 [3]. The network always configures this field when *sdt-MAC-PHY-CG-Config* is configured. This field is associated with the PTAG indicated by *tag-Id.* |

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| *CG-SDT-ConfigLCH-Restriction, CG-SDT-ConfigLCH-RestrictionExt* field descriptions |
| ***allowedCG-List***This restriction applies only when the UL grant is a configured grant for CG-SDT. If present, UL MAC SDUs from this logical channel can only be mapped to the indicated CG-SDT configured grant configuration. If the size of the sequence is zero, then UL MAC SDUs from this logical channel cannot be mapped to any CG-SDT configured grant configurations. If the field is not present, UL MAC SDUs from this logical channel can be mapped to any CG-SDT configured grant configurations. If the field *configuredGrantType1Allowed* is present, only those CG-SDT configured grant type 1 configurations indicated in this sequence are allowed for use by this logical channel; otherwise, this sequence shall not include any CG-SDT configured grant type 1 configuration. Corresponds to "*allowedCG*-*List*" as specified in TS 38.321 [3]. |
| ***cg-SDT-MaxDurationToNextCG-Occasion***The maximum duration until the next CG-SDT occasion for the logical channel identified by the *logicalChannelIdentity* as specified in TS 38.321 [3]. If configured, the CG-SDT resource can only be used for the initial CG-SDT transmission if the duration between the initiation of the CG-SDT procedure and the next CG-SDT occasion is less than the value configured by this field as specified in TS 38.321 [3]. |
| ***configuredGrantType1Allowed***If present, or if the capability *lcp-Restriction* as specified in TS 38.306 [26] is not supported, UL MAC SDUs from this logical channel can be transmitted on a configured grant type 1 for CG-SDT. Otherwise, UL MAC SDUs from this logical channel cannot be transmitted on a configured grant type 1 for CG-SDT. Corresponds to "*configuredGrantType1Allowed*" in TS 38.321 [3]. |
| ***logicalChannelIdentity***ID used commonly for the MAC logical channel and for the RLC bearer associated with a *servedRadioBearer* configured for SDT. |

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| *CG-SDT-TA-ValidationConfig* field descriptions |
| ***cg-SDT-RSRP-ChangeThreshold***The RSRP threshold for TA validation for CG-SDT as specified in TS 38.321 [3]. Value *dB2* corresponds to 2 dB, value *dB4* corresponds to 4 dB and so on. |

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| *SRS-PosRRC-InactiveConfig* field descriptions |
| ***bwp-NUL***BWP configuration for SRS for Positioning during the RRC\_INACTIVE state in Normal Uplink Carrier. If the field is absent UE is configured with an SRS for Positioning associated with the initial UL BWP and transmitted, during the RRC\_INACTIVE state, inside the initial UL BWP with the same CP and SCS as configured for initial UL BWP. |
| ***bwp-SUL***BWP configuration for SRS for Positioning during the RRC\_INACTIVE state in Supplementary Uplink Carrier. If the field is absent UE is configured with an SRS for Positioning associated with the initial UL BWP and transmitted, during the RRC\_INACTIVE state, inside the initial UL BWP with the same CP and SCS as configured for initial UL BWP. |
| ***inactivePosSRS-RSRP-ChangeThreshold***RSRP threshold for the increase/decrease of RSRP for time alignment validation as specified in TS 38.321 [3]. |
| ***inactivePosSRS-TimeAlignmentTimer***TAT value for SRS for positioning transmission during RRC\_INACTIVE state as specified in TS 38.321 [3]. The network always configures this field when *srs-PosRRC-Inactive* is configured. |
| ***srs-PosConfigNUL***SRS for Positioning configuration in RRC\_INACTIVE state in Normal Uplink Carrier. |
| ***srs-PosConfigSUL***SRS for Positioning configuration in RRC\_INACTIVE state in Supplementary Uplink Carrier. |

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| *SRS-PosRRC-InactiveEnhancedConfig* field descriptions |
| ***srs-PosRRC-AggBW-InactiveConfigList***SRS for positioning configuration with additional one or two carrier(s) configuration where the primary carrier is provided by *srs-PosRRC-Inactive-r17* for bandwidth aggregation and to be used in RRC\_INACTIVE state (see TS 38.214 [19], clause 6.2.1.4.2). This field is included only if *srs-PosRRC-Inactive-r17* is configured. |
| ***srs-PosRRC-InactiveValidityAreaNonPreConfig***Contains the SRS for positioning configuration to be applied immediately upon reception. The configuration is valid across a number of cells as indicated in *srs-PosConfigValidityArea* in RRC\_INACTIVE state. |
| ***srs-PosRRC-InactiveValidityAreaPreConfigList***Contains the SRS for positioning configurations to be applied when a trigger for an event is met and which is valid across a number of cells comprising a validity area during RRC\_INACTIVE state. For each validity area, the UE is preconfigured with only one SRS for positioning configuration.The below fields for the respective IEs are configured commonly in the validity area when *srs-PosRRC-InactiveValidityAreaPreConfigList/ srs-PosRRC-InactiveValidityAreaNonPreConfig* is configured:*IE SRS-PosResourceSet: srs-PosResourceSetId, srs-PosResourceSetIdList, srs-PosResourceIdList, resourceType, alpha, p0**IE SRS-PosResource: srs-PosResourceId, transmissionComb, resourceMapping, freqDomainShift, freqHopping, resourceType, groupOrSequenceHopping, sequenceID* |
| ***srs-PosTx-Hopping***Contains configuration related to the SRS for Positioning with frequency hopping for RRC\_INACTIVE state (see TS 38.214 [19], clause 6.2.1.4.1). |

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| *SRS-PosRRC-InactiveValidityAreaConfig* field descriptions |
| ***autonomousTA-AdjustmentEnabled***This field indicates that UE may adjust the TA value and stored RSRP autonomously after cell reselection within a validity area, if configured. |
| ***bwp-NUL***BWP configuration for SRS for Positioning during the RRC\_INACTIVE state in Normal Uplink Carrier. If the field is absent UE is configured with an SRS for Positioning associated with the initial UL BWP and transmitted, during the RRC\_INACTIVE state, inside the initial UL BWP with the same CP and SCS as configured for initial UL BWP. |
| ***bwp-SUL***BWP configuration for SRS for Positioning during the RRC\_INACTIVE state in Supplementary Uplink Carrier. If the field is absent UE is configured with an SRS for Positioning associated with the initial UL BWP and transmitted, during the RRC\_INACTIVE state, inside the initial UL BWP with the same CP and SCS as configured for initial UL BWP. |
| ***srs-PosRRC-InactiveValidityArea***Provides a list of cells where SRS Positioning Configuration in RRC\_INACTIVE state is valid. |
| ***inactivePosSRS-ValidityAreaTAT***Time alignment timer value for SRS for positioning transmission during RRC\_INACTIVE state which is applicable in a validity area. |
| ***inactivePosSRS-ValidityAreaRSRP***RSRP threshold for the increase/decrease of RSRP for validity area time alignment validation as specified in TS 38.321 [3]. |

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| *SuspendConfig* field descriptions |
| ***ncd-SSB-RedCapInitialBWP-SDT***Indicates that the UE uses the RedCap-specific initial DL BWP associated with the NCD-SSB for SDT. The network configures this field if an (e)RedCap UE is configured with SDT in the RedCap-specific initial DL BWP not associated with CD-SSB. If configured, the NCD-SSB indicated by this field can only be used during the SDT procedure for CG-SDT or RA-SDT. In the MIB associated with this NCD-SSB, the *systemFrameNumber* field indicates the frame boundary and frame number of the NCD-SSB. The *subCarrierSpacingCommon* and *dmrs-TypeA-Position* field in the MIBs associated with CD-SSB and NCD-SSB in the same cell are configured with the same values, respectively. |
| ***ran-ExtendedPagingCycle***The extended DRX (eDRX) cycle for RAN-initiated paging to be applied by the UE as defined in TS 38.304 [20]. Value *rf256* corresponds to 256 radio frames, value *rf512* corresponds to 512 radio frames and so on. Value of the field indicates an eDRX cycle which is shorter or equal to the IDLE mode eDRX cycle configured for the UE. |
| ***ran-ExtendedPagingCycleConfig***The extended DRX (eDRX) configuraiton for RAN-initiated paging to be applied by the UE when the eDRX cycle for RAN-initiated paging is longer than 10.24s. |
| ***ran-NotificationAreaInfo***Network ensures that the UE in RRC\_INACTIVE always has a valid *ran-NotificationAreaInfo*. |
| ***ran-PagingCycle***Refers to the UE specific cycle for RAN-initiated paging. Value *rf32* corresponds to 32 radio frames, value *rf64* corresponds to 64 radio frames and so on. |
| ***resumeIndication***Indicates that the UE shall trigger the RRC connection resume procedure after receiving this *RRCRelease* message, as specified in clause 5.3.8.3. The network only includes this field in the *RRCRelease* message used to terminate an ongoing SDT procedure. |
| ***sl-UEIdentityRemote***Indicates the C-RNTI to the L2 U2N Remote UE. |
| ***t380***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. |

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| *MulticastConfigInactive* field descriptions |
| ***inactivePTM-Config***Indicates the multicast session(s) that can be received in RRC\_INACTIVE and optionally the corresponding PTM configuration (which includes *mrb-ListMulticast*, *pdsch-ConfigIndex*, *mtch-SSB-MappingWindowIndex*, etc.) for the cell where the multicast session(s) was received in RRC\_CONNECTED. If absent, UE considers that all joined multicast sessions can be received in RRC\_INACTIVE. |
| ***inactiveMCCH-Config***Indicates multicast MCCH/MTCH configuration for MBS multicast reception in RRC\_INACTIVE in the serving cell. Only *SIB24* is allowed to be included. |

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| *ExtendedPagingCycleConfig* field descriptions |
| ***extendedPagingCycle***The eDRX cycle longer than 10.24 s for RAN-initiated paging to be applied by the UE. Value hf2 corresponds to 2 hyper frames, value hf4 corresponds to 4 hyper frames and so on. Value of the field is shorter than or equal to the IDLE mode eDRX cycle configured for the UE. |
| ***pagingPTWLength***The length of paging transmission window for RAN-initiated paging to be applied by the UE as defined in TS 38.304 [20]. Value ms1280 corresponds to 1280 milliseconds, value ms2560 corresponds to 2560 milliseconds and so on. |

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| Conditional Presence | Explanation |
| *L2RemoteUE* | The field is mandatory present for L2 U2N Remote UE's RNAU; otherwise it is absent. |
| *RANPaging* | This field is optionally present, Need R, if the UE is configured with IDLE eDRX, see TS 24.501 [23]; otherwise the field is not present. |
| *Redirection2* | The field is optionally present, Need R, if *redirectedCarrierInfo* is included; otherwise the field is not present. |

#### – *RRCResume*

The *RRCResume* message is used to resume the suspended RRC connection.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*RRCResume* message

-- ASN1START

-- TAG-RRCRESUME-START

RRCResume ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 rrcResume RRCResume-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

RRCResume-IEs ::= SEQUENCE {

 radioBearerConfig RadioBearerConfig OPTIONAL, -- Need M

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

 measConfig MeasConfig OPTIONAL, -- Need M

 fullConfig ENUMERATED {true} OPTIONAL, -- Need N

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCResume-v1560-IEs OPTIONAL

}

RRCResume-v1560-IEs ::= SEQUENCE {

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

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

 nonCriticalExtension RRCResume-v1610-IEs OPTIONAL

}

RRCResume-v1610-IEs ::= SEQUENCE {

 idleModeMeasurementReq-r16 ENUMERATED {true} OPTIONAL, -- Need N

 restoreMCG-SCells-r16 ENUMERATED {true} OPTIONAL, -- Need N

 restoreSCG-r16 ENUMERATED {true} OPTIONAL, -- Need N

 mrdc-SecondaryCellGroup-r16 CHOICE {

 nr-SCG-r16 OCTET STRING (CONTAINING RRCReconfiguration),

 eutra-SCG-r16 OCTET STRING

 } OPTIONAL, -- Cond RestoreSCG

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

 nonCriticalExtension RRCResume-v1700-IEs OPTIONAL

}

RRCResume-v1700-IEs ::= SEQUENCE {

 sl-ConfigDedicatedNR-r17 SetupRelease {SL-ConfigDedicatedNR-r16} OPTIONAL, -- Cond L2RemoteUE

 sl-L2RemoteUE-Config-r17 SetupRelease {SL-L2RemoteUE-Config-r17} OPTIONAL, -- Cond L2RemoteUE

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

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

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

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

 nonCriticalExtension RRCResume-v1800-IEs OPTIONAL

}

RRCResume-v1800-IEs ::= SEQUENCE {

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

 reselectionMeasurementReq-r18 ENUMERATED { true } OPTIONAL, -- Need N

 validatedMeasurementsReq-r18 ENUMERATED { true } OPTIONAL, -- Need N

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-RRCRESUME-STOP

-- ASN1STOP

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| *RRCResume-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. |
| ***idleModeMeasurementReq***This field indicates that the UE shall report the idle/inactive measurements, if available, to the network in the *RRCResumeComplete* message |
| ***masterCellGroup***Configuration of the master cell group. |
| ***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* (with at least *reconfigurationWithSync*)*,* *otherConfig* and *measConfig*.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 only include the field *scg-Configuration* with at least *mobilityControlInfoSCG*. |
| ***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. |
| ***radioBearerConfig***Configuration of Radio Bearers (DRBs, SRBs, multicast MRBs) including SDAP/PDCP. |
| ***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. |
| ***reselectionMeasurementReq***This field indicates that the UE shall report the reselection measurements, if available, to the network in the *RRCResumeComplete* message. |
| ***restoreMCG-SCells***Indicates that the UE shall restore the MCG SCells from the UE Inactive AS Context, if stored. |
| ***restoreSCG***Indicates that the UE shall restore the SCG configurations from the UE Inactive AS Context, if stored. |
| ***scg-State***Indicates that the SCG is in deactivated state. |
| ***sk-Counter***A counter used to derive S-KgNB or S-KeNB based on the newly derived KgNB during RRC Resume. The field is only included when there is one or more RB with *keyToUse* set to *secondary* *or mrdc-SecondaryCellGroup* is included. |
| ***sl-ConfigDedicatedNR***This field is used to provide the dedicated configurations for NR sidelink communication/discovery used by L2 U2N Remote UE. |
| ***sl-L2RemoteUE-Config***Contains L2 U2N relay operation related configurations used by L2 U2N Remote UE. The field is absent if *appLayerMeasConfig* or SRB4 is configured/not released. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *L2RemoteUE* | The field is mandatory present for L2 U2N Remote UE; otherwise it is absent. |
| *RestoreSCG* | The field is mandatory present if *restoreSCG* is included. It is optionally present, Need M, otherwise. |

#### – *RRCResumeComplete*

The *RRCResumeComplete* message is used to confirm the successful completion of an RRC connection resumption.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*RRCResumeComplete* message

-- ASN1START

-- TAG-RRCRESUMECOMPLETE-START

RRCResumeComplete ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 rrcResumeComplete RRCResumeComplete-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

RRCResumeComplete-IEs ::= SEQUENCE {

 dedicatedNAS-Message DedicatedNAS-Message OPTIONAL,

 selectedPLMN-Identity INTEGER (1..maxPLMN) OPTIONAL,

 uplinkTxDirectCurrentList UplinkTxDirectCurrentList OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCResumeComplete-v1610-IEs OPTIONAL

}

RRCResumeComplete-v1610-IEs ::= SEQUENCE {

 idleMeasAvailable-r16 ENUMERATED {true} OPTIONAL,

 measResultIdleEUTRA-r16 MeasResultIdleEUTRA-r16 OPTIONAL,

 measResultIdleNR-r16 MeasResultIdleNR-r16 OPTIONAL,

 scg-Response-r16 CHOICE {

 nr-SCG-Response OCTET STRING (CONTAINING RRCReconfigurationComplete),

 eutra-SCG-Response OCTET STRING

 } OPTIONAL,

 ue-MeasurementsAvailable-r16 UE-MeasurementsAvailable-r16 OPTIONAL,

 mobilityHistoryAvail-r16 ENUMERATED {true} OPTIONAL,

 mobilityState-r16 ENUMERATED {normal, medium, high, spare} OPTIONAL,

 needForGapsInfoNR-r16 NeedForGapsInfoNR-r16 OPTIONAL,

 nonCriticalExtension RRCResumeComplete-v1640-IEs OPTIONAL

}

RRCResumeComplete-v1640-IEs ::= SEQUENCE {

 uplinkTxDirectCurrentTwoCarrierList-r16 UplinkTxDirectCurrentTwoCarrierList-r16 OPTIONAL,

 nonCriticalExtension RRCResumeComplete-v1700-IEs OPTIONAL

}

RRCResumeComplete-v1700-IEs ::= SEQUENCE {

 needForGapNCSG-InfoNR-r17 NeedForGapNCSG-InfoNR-r17 OPTIONAL,

 needForGapNCSG-InfoEUTRA-r17 NeedForGapNCSG-InfoEUTRA-r17 OPTIONAL,

 nonCriticalExtension RRCResumeComplete-v1720-IEs OPTIONAL

}

RRCResumeComplete-v1720-IEs ::= SEQUENCE {

 uplinkTxDirectCurrentMoreCarrierList-r17 UplinkTxDirectCurrentMoreCarrierList-r17 OPTIONAL,

 nonCriticalExtension RRCResumeComplete-v1800-IEs OPTIONAL

}

RRCResumeComplete-v1800-IEs ::= SEQUENCE {

 needForInterruptionInfoNR-r18 NeedForInterruptionInfoNR-r18 OPTIONAL,

 musim-CapRestrictionInd-r18 ENUMERATED {true} OPTIONAL,

 flightPathInfoAvailable-r18 ENUMERATED {true} OPTIONAL,

 measConfigReportAppLayerAvailable-r18 ENUMERATED {true} OPTIONAL,

 measResultReselectionNR-r18 MeasResultIdleNR-r16 OPTIONAL,

 reselectionMeasAvailable-r18 ENUMERATED {true} OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-RRCRESUMECOMPLETE-STOP

-- ASN1STOP

|  |
| --- |
| *RRCResumeComplete-IEs* field descriptions |
| ***idleMeasAvailable***Indication that the UE has idle/inactive measurement report available. |
| ***measConfigReportAppLayerAvailable***Indication that the UE has at least one application layer measurement configuration with *appLayerIdleInactiveConfig* configured. |
| ***measResultIdleEUTRA***EUTRA measurement results performed during RRC\_INACTIVE. |
| ***measResultIdleNR***NR measurement results performed during RRC\_INACTIVE. |
| ***musim-CapRestrictionInd***This field indicates the UE temporary capability restriction due to MUSIM operation. |
| ***needForGapsInfoNR***This field is used to indicate the measurement gap requirement information of the UE for NR target bands. |
| ***needForGapNCSG-InfoEUTRA***This field is used to indicate the measurement gap and NCSG requirement information of the UE for E‑UTRA target bands |
| ***needForGapNCSG-InfoNR***This field is used to indicate the measurement gap and NCSG requirement information of the UE for NR target bands |
| ***needForInterruptionInfoNR***This field indicates whether interruption is needed while performing measurement on NR target bands without measurement gap. |
| ***reselectionMeasAvailable***Indication that the UE has reselection measurement report available. |
| ***selectedPLMN-Identity***Index of the PLMN selected by the UE from the *plmn-IdentityInfoList* or *npn-IdentityInfoList* fields included in *SIB1*. |
| ***uplinkTxDirectCurrentList***The Tx Direct Current locations for the configured serving cells and BWPs if requested by the NW (see *reportUplinkTxDirectCurrent* in *CellGroupConfig*). |
| ***uplinkTxDirectCurrentMoreCarrierList***The Tx Direct Current locations for the configured intra-band CA requested by *reportUplinkTxDirectCurrentMoreCarrier-r17*. |
| ***uplinkTxDirectCurrentTwoCarrierList***The Tx Direct Current locations for the configured uplink intra-band CA with two carriers if requested by the NW (see *reportUplinkTxDirectCurrentTwoCarrier-r16* in *CellGroupConfig*). |

#### – *RRCResumeRequest*

The *RRCResumeRequest* message is used to request the resumption of a suspended RRC connection or perform an RNA update.

Signalling radio bearer: SRB0

RLC-SAP: TM

Logical channel: CCCH

Direction: UE to Network

*RRCResumeRequest* message

-- ASN1START

-- TAG-RRCRESUMEREQUEST-START

RRCResumeRequest ::= SEQUENCE {

 rrcResumeRequest RRCResumeRequest-IEs

}

RRCResumeRequest-IEs ::= SEQUENCE {

 resumeIdentity ShortI-RNTI-Value,

 resumeMAC-I BIT STRING (SIZE (16)),

 resumeCause ResumeCause,

 spare BIT STRING (SIZE (1))

}

-- TAG-RRCRESUMEREQUEST-STOP

-- ASN1STOP

|  |
| --- |
| *RRCResumeRequest-IEs* field descriptions |
| ***resumeCause***Provides the resume cause for the RRC connection resume request as provided by the upper layers or RRC. The network is not expected to reject an *RRCResumeRequest* due to unknown cause value being used by the UE. |
| ***resumeIdentity***UE identity to facilitate UE context retrieval at gNB. |
| ***resumeMAC-I***Authentication token to facilitate UE authentication at gNB. The 16 least significant bits of the MAC-I calculated using the AS security configuration as specified in 5.3.13.3. |

#### – *RRCResumeRequest1*

The *RRCResumeRequest1* message is used to request the resumption of a suspended RRC connection or perform an RNA update.

Signalling radio bearer: SRB0

RLC-SAP: TM

Logical channel: CCCH1

Direction: UE to Network

*RRCResumeRequest1* message

-- ASN1START

-- TAG-RRCRESUMEREQUEST1-START

RRCResumeRequest1 ::= SEQUENCE {

 rrcResumeRequest1 RRCResumeRequest1-IEs

}

RRCResumeRequest1-IEs ::= SEQUENCE {

 resumeIdentity I-RNTI-Value,

 resumeMAC-I BIT STRING (SIZE (16)),

 resumeCause ResumeCause,

 spare BIT STRING (SIZE (1))

}

-- TAG-RRCRESUMEREQUEST1-STOP

-- ASN1STOP

|  |
| --- |
| *RRCResumeRequest1-IEs* field descriptions |
| ***resumeCause***Provides the resume cause for the *RRCResumeRequest1* as provided by the upper layers or RRC. A gNB is not expected to reject an *RRCResumeRequest1* due to unknown cause value being used by the UE. |
| ***resumeIdentity***UE identity to facilitate UE context retrieval at gNB. |
| ***resumeMAC-I***Authentication token to facilitate UE authentication at gNB. The 16 least significant bits of the MAC-I calculated using the AS security configuration as specified in 5.3.13.3. |

#### – *RRCSetup*

The *RRCSetup* message is used to establish SRB1.

Signalling radio bearer: SRB0

RLC-SAP: TM

Logical channel: CCCH

Direction: Network to UE

*RRCSetup* message

-- ASN1START

-- TAG-RRCSETUP-START

RRCSetup ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 rrcSetup RRCSetup-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

RRCSetup-IEs ::= SEQUENCE {

 radioBearerConfig RadioBearerConfig,

 masterCellGroup OCTET STRING (CONTAINING CellGroupConfig),

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCSetup-v1700-IEs OPTIONAL

}

RRCSetup-v1700-IEs ::= SEQUENCE {

 sl-ConfigDedicatedNR-r17 SL-ConfigDedicatedNR-r16 OPTIONAL, -- Cond L2RemoteUE

 sl-L2RemoteUE-Config-r17 SL-L2RemoteUE-Config-r17 OPTIONAL, -- Cond L2RemoteUE

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-RRCSETUP-STOP

-- ASN1STOP

|  |
| --- |
| *RRCSetup-IEs* field descriptions |
| ***masterCellGroup***The network configures only the RLC bearer for the SRB1, *mac-CellGroupConfig*, *physicalCellGroupConfig* and *spCellConfig*. |
| ***radioBearerConfig***Only SRB1 can be configured in RRC setup. |
| ***sl-ConfigDedicatedNR***Contains dedicated configurations for NR sidelink communication. The network configures only the PC5 Relay RLC channel and *sl-PHY-MAC-RLC-Config* used for the SRB1. |
| ***sl-L2RemoteUE-Config***Contains dedicated configurations used for L2 U2N relay related operation. The network configures only the SRAP configuration used for the SRB1 and local UE ID. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *L2RemoteUE* | The field is mandatory present for L2 U2N Remote UE; otherwise it is absent. |

#### – *RRCSetupComplete*

The *RRCSetupComplete* message is used to confirm the successful completion of an RRC connection establishment.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*RRCSetupComplete* message

-- ASN1START

-- TAG-RRCSETUPCOMPLETE-START

RRCSetupComplete ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 rrcSetupComplete RRCSetupComplete-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

RRCSetupComplete-IEs ::= SEQUENCE {

 selectedPLMN-Identity INTEGER (1..maxPLMN),

 registeredAMF RegisteredAMF OPTIONAL,

 guami-Type ENUMERATED {native, mapped} OPTIONAL,

 s-NSSAI-List SEQUENCE (SIZE (1..maxNrofS-NSSAI)) OF S-NSSAI OPTIONAL,

 dedicatedNAS-Message DedicatedNAS-Message,

 ng-5G-S-TMSI-Value CHOICE {

 ng-5G-S-TMSI NG-5G-S-TMSI,

 ng-5G-S-TMSI-Part2 BIT STRING (SIZE (9))

 } OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCSetupComplete-v1610-IEs OPTIONAL

}

RRCSetupComplete-v1610-IEs ::= SEQUENCE {

 iab-NodeIndication-r16 ENUMERATED {true} OPTIONAL,

 idleMeasAvailable-r16 ENUMERATED {true} OPTIONAL,

 ue-MeasurementsAvailable-r16 UE-MeasurementsAvailable-r16 OPTIONAL,

 mobilityHistoryAvail-r16 ENUMERATED {true} OPTIONAL,

 mobilityState-r16 ENUMERATED {normal, medium, high, spare} OPTIONAL,

 nonCriticalExtension RRCSetupComplete-v1690-IEs OPTIONAL

}

RRCSetupComplete-v1690-IEs ::= SEQUENCE {

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

 nonCriticalExtension RRCSetupComplete-v1700-IEs OPTIONAL

}

RRCSetupComplete-v1700-IEs ::= SEQUENCE {

 onboardingRequest-r17 ENUMERATED {true} OPTIONAL,

 nonCriticalExtension RRCSetupComplete-v1800-IEs OPTIONAL

}

RRCSetupComplete-v1800-IEs ::= SEQUENCE {

 ncr-NodeIndication-r18 ENUMERATED {true} OPTIONAL,

 musim-CapRestrictionInd-r18 ENUMERATED {true} OPTIONAL,

 flightPathInfoAvailable-r18 ENUMERATED {true} OPTIONAL,

 measConfigReportAppLayerAvailable-r18 ENUMERATED {true} OPTIONAL,

 mobileIAB-NodeIndication-r18 ENUMERATED {true} OPTIONAL,

 reselectionMeasAvailable-r18 ENUMERATED {true} OPTIONAL,

 nonCriticalExtension SEQUENCE{} OPTIONAL

}

RegisteredAMF ::= SEQUENCE {

 plmn-Identity PLMN-Identity OPTIONAL,

 amf-Identifier AMF-Identifier

}

-- TAG-RRCSETUPCOMPLETE-STOP

-- ASN1STOP

|  |
| --- |
| *RRCSetupComplete-IEs* field descriptions |
| ***guami-Type***This field is used to indicate whether the GUAMI included is native (derived from native 5G-GUTI) or mapped (from EPS, derived from EPS GUTI) as specified in TS 24.501 [23]. |
| ***iab-NodeIndication***This field is used to indicate that the connection is being established by an IAB-node as specified in TS 38.300 [2]. If this field is included, the UE shall not include the field *mobileIAB-NodeIndication*. |
| ***idleMeasAvailable***Indication that the UE has idle/inactive measurement report available. |
| ***measConfigReportAppLayerAvailable***Indication that the UE has at least one application layer measurement configuration with *appLayerIdleInactiveConfig* configured. |
| ***mobileIAB-NodeIndication***This field is used to indicate that the connection is being established by a mobile IAB-node as specified in TS 38.300 [2]. If this field is included, the UE shall not include the field *iab-NodeIndication*. |
| ***mobilityState***This field indicates the UE mobility state (as defined in TS 38.304 [20], clause 5.2.4.3) just prior to UE going into RRC\_CONNECTED state. The UE indicates the value of *medium* and *high* when being in Medium-mobility and High-mobility states respectively. Otherwise the UE indicates the value *normal*. |
| ***musim-CapRestrictionInd***This field indicates the UE temporary capability restriction due to MUSIM operation. |
| ***ncr-NodeIndication***This field is used to indicate that the connection is being established by an NCR-node as specified in TS 38.300 [2]. |
| ***ng-5G-S-TMSI-Part2***The leftmost 9 bits of 5G-S-TMSI. |
| ***onboardingRequest***This field indicates that the connection is being established for UE onboarding in the selected onboarding SNPN, see TS 23.501 [32]. |
| ***registeredAMF***This field is used to transfer the GUAMI of the AMF where the UE is registered, as provided by upper layers, see TS 23.003 [21]. |
| ***reselectionMeasAvailable***Indication that the UE has reselection measurement report available. |
| ***selectedPLMN-Identity***Index of the PLMN or SNPN selected by the UE from the *plmn-IdentityInfoList* or *npn-IdentityInfoList* fields included in SIB1. |
| ***ul-RRC-Segmentation***This field indicates the UE supports uplink RRC segmentation of *UECapabilityInformation.* |

#### *– RRCSetupRequest*

The *RRCSetupRequest* message is used to request the establishment of an RRC connection.

Signalling radio bearer: SRB0

RLC-SAP: TM

Logical channel: CCCH

Direction: UE to Network

*RRCSetupRequest message*

-- ASN1START

-- TAG-RRCSETUPREQUEST-START

RRCSetupRequest ::= SEQUENCE {

 rrcSetupRequest RRCSetupRequest-IEs

}

RRCSetupRequest-IEs ::= SEQUENCE {

 ue-Identity InitialUE-Identity,

 establishmentCause EstablishmentCause,

 spare BIT STRING (SIZE (1))

}

InitialUE-Identity ::= CHOICE {

 ng-5G-S-TMSI-Part1 BIT STRING (SIZE (39)),

 randomValue BIT STRING (SIZE (39))

}

EstablishmentCause ::= ENUMERATED {

 emergency, highPriorityAccess, mt-Access, mo-Signalling,

 mo-Data, mo-VoiceCall, mo-VideoCall, mo-SMS, mps-PriorityAccess, mcs-PriorityAccess,

 spare6, spare5, spare4, spare3, spare2, spare1}

-- TAG-RRCSETUPREQUEST-STOP

-- ASN1STOP

|  |
| --- |
| *RRCSetupRequest-IEs* field descriptions |
| ***establishmentCause***Provides the establishment cause for the *RRCSetupRequest* in accordance with the information received from upper layers. gNB is not expected to reject an *RRCSetupRequest* due to unknown cause value being used by the UE. |
| ***ue-Identity***UE identity included to facilitate contention resolution by lower layers. |

|  |
| --- |
| *InitialUE-Identity* field descriptions |
| ***ng-5G-S-TMSI-Part1***The rightmost 39 bits of 5G-S-TMSI. |
| ***randomValue***Integer value in the range 0 to 239 – 1. |

#### – *RRCSystemInfoRequest*

The *RRCSystemInfoRequest* message is used to request SI message(s) required by the UE as specified in clause 5.2.2.3.3 and 5.2.2.3.3a.

Signalling radio bearer: SRB0

RLC-SAP: TM

Logical channel: CCCH

Direction: UE to Network

*RRCSystemInfoRequest* message

-- ASN1START

-- TAG-RRCSYSTEMINFOREQUEST-START

RRCSystemInfoRequest ::= SEQUENCE {

 criticalExtensions CHOICE {

 rrcSystemInfoRequest RRCSystemInfoRequest-IEs,

 criticalExtensionsFuture-r16 CHOICE {

 rrcPosSystemInfoRequest-r16 RRC-PosSystemInfoRequest-r16-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

 }

}

RRCSystemInfoRequest-IEs ::= SEQUENCE {

 requested-SI-List BIT STRING (SIZE (maxSI-Message)), --32bits

 spare BIT STRING (SIZE (12))

}

RRC-PosSystemInfoRequest-r16-IEs ::= SEQUENCE {

 requestedPosSI-List BIT STRING (SIZE (maxSI-Message)), --32bits

 spare BIT STRING (SIZE (11))

}

-- TAG-RRCSYSTEMINFOREQUEST-STOP

-- ASN1STOP

|  |
| --- |
| *RRCSystemInfoRequest-IEs* field descriptions |
| ***requested-SI-List***Contains a list of requested SI messages which are configured by *schedulingInfoList* in *si-SchedulingInfo* and *schedulingInfoList2* in *si-SchedulingInfo-v1700* (if present) in SIB1.If *si-SchedulingInfo-v1700* is not present:-According to the order of entry in the list of SI messages configured by *schedulingInfoList* in *si-SchedulingInfo* in *SIB1*, first bit corresponds to first/leftmost listed SI message, second bit corresponds to second listed SI message, and so on.If *si-SchedulingInfo-v1700* is present:- The UE generates a list of concatenated SI messages by appending the SI messages containing type1 SIB configured by *schedulingInfoList2* in *si-SchedulingInfo-v1700* to the SI messages configured by *schedulingInfoList* in *si-SchedulingInfo*.- According to the order of entry in the list of concatenated SI messages, first bit corresponds to first/leftmost listed SI message, second bit corresponds to second listed SI message, and so on. |
| ***requestedPosSI-List***Contains a list of requested SI messages which are configured by *posSchedulingInfoList* in *posSI-SchedulingInfo* and *schedulingInfoList2* in *si-SchedulingInfo-v1700* (if present) in SIB1.If *si-SchedulingInfo-v1700* is not present:-According to the order of entry in the list of SI messages configured by *pos*S*chedulingInfoList* in *posSI*-*SchedulingInfo* in *SIB1*, first bit corresponds to first/leftmost listed SI message, second bit corresponds to second listed SI message, and so on.If *si-SchedulingInfo-v1700* is present:- The UE creates a list of concatenated SI messages by appending the SI messages containing type2 SIB configured by *schedulingInfoList2* in *si-SchedulingInfo-v1700* to the SI messages configured by *posSchedulingInfoList* in *posSI-SchedulingInfo*.- According to the order of entry in the list of concatenated SI messages, first bit corresponds to first/leftmost listed SI message, second bit corresponds to second listed SI message, and so on. |

#### *– SCGFailureInformation*

The *SCGFailureInformation* message is used to provide information regarding NR SCG failures detected by the UE.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*SCGFailureInformation* message

-- ASN1START

-- TAG-SCGFAILUREINFORMATION-START

SCGFailureInformation ::= SEQUENCE {

 criticalExtensions CHOICE {

 scgFailureInformation SCGFailureInformation-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

SCGFailureInformation-IEs ::= SEQUENCE {

 failureReportSCG FailureReportSCG OPTIONAL,

 nonCriticalExtension SCGFailureInformation-v1590-IEs OPTIONAL

}

SCGFailureInformation-v1590-IEs ::= SEQUENCE {

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

FailureReportSCG ::= SEQUENCE {

 failureType ENUMERATED {

 t310-Expiry, randomAccessProblem,

 rlc-MaxNumRetx,

 synchReconfigFailureSCG, scg-ReconfigFailure,

 srb3-IntegrityFailure, other-r16, spare1},

 measResultFreqList MeasResultFreqList OPTIONAL,

 measResultSCG-Failure OCTET STRING (CONTAINING MeasResultSCG-Failure) OPTIONAL,

 ...,

 [[

 locationInfo-r16 LocationInfo-r16 OPTIONAL,

 failureType-v1610 ENUMERATED {scg-lbtFailure-r16, beamFailureRecoveryFailure-r16,

 t312-Expiry-r16, bh-RLF-r16, beamFailure-r17, spare3, spare2, spare1} OPTIONAL

 ]],

 [[

 previousPSCellId-r17 SEQUENCE {

 physCellId-r17 PhysCellId,

 carrierFreq-r17 ARFCN-ValueNR

 } OPTIONAL,

 failedPSCellId-r17 SEQUENCE {

 physCellId-r17 PhysCellId,

 carrierFreq-r17 ARFCN-ValueNR

 } OPTIONAL,

 timeSCGFailure-r17 INTEGER (0..1023) OPTIONAL,

 perRAInfoList-r17 PerRAInfoList-r16 OPTIONAL

 ]]

}

MeasResultFreqList ::= SEQUENCE (SIZE (1..maxFreq)) OF MeasResult2NR

-- TAG-SCGFAILUREINFORMATION-STOP

-- ASN1STOP

| *SCGFailureInformation field descriptions* |
| --- |
| ***measResultFreqList***The field contains available results of measurements on NR frequencies the UE is configured to measure by *measConfig*. |
| ***measResultSCG-Failure***The field contains the *MeasResultSCG-Failure* IE which includes available results of measurements on NR frequencies the UE is configured to measure by the NR SCG *RRCReconfiguration* message.  |
| ***previousPSCellId***This field indicates the physical cell id and carrier frequency of the cell that is the source PSCell of the last PSCell change. In case of PSCell addition failure, this field is absent. |
| ***failedPSCellId***This field indicates the physical cell id and carrier frequency of the cell in which SCG failure is detected or the target PSCell of the failed PSCell change or failed PSCell addition. |
| ***timeSCGFailure***This field is used to indicate the time elapsed since the last execution of *RRCReconfiguration* with *reconfigurationWithSync* for the SCG until the SCG failure. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |

#### *– SCGFailureInformationEUTRA*

The *SCGFailureInformationEUTRA* message is used to provide information regarding E-UTRA SCG failures detected by the UE.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*SCGFailureInformationEUTRA* message

-- ASN1START

-- TAG-SCGFAILUREINFORMATIONEUTRA-START

SCGFailureInformationEUTRA ::= SEQUENCE {

 criticalExtensions CHOICE {

 scgFailureInformationEUTRA SCGFailureInformationEUTRA-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

SCGFailureInformationEUTRA-IEs ::= SEQUENCE {

 failureReportSCG-EUTRA FailureReportSCG-EUTRA OPTIONAL,

 nonCriticalExtension SCGFailureInformationEUTRA-v1590-IEs OPTIONAL

}

SCGFailureInformationEUTRA-v1590-IEs ::= SEQUENCE {

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

FailureReportSCG-EUTRA ::= SEQUENCE {

 failureType ENUMERATED {

 t313-Expiry, randomAccessProblem,rlc-MaxNumRetx,

 scg-ChangeFailure, spare4,

 spare3, spare2, spare1},

 measResultFreqListMRDC MeasResultFreqListFailMRDC OPTIONAL,

 measResultSCG-FailureMRDC OCTET STRING OPTIONAL,

 ...,

 [[

 locationInfo-r16 LocationInfo-r16 OPTIONAL

 ]]

}

MeasResultFreqListFailMRDC ::= SEQUENCE (SIZE (1.. maxFreq)) OF MeasResult2EUTRA

-- TAG-SCGFAILUREINFORMATIONEUTRA-STOP

-- ASN1STOP

| *SCGFailureInformationEUTRA field descriptions* |
| --- |
| ***measResultFreqListMRDC***The field contains available results of measurements on E-UTRA frequencies the UE is configured to measure by *measConfig*. |
| ***measResultSCG-FailureMRDC***Includes the E-UTRA *MeasResultSCG-FailureMRDC* IE as specified in TS 36.331 [10]. The field contains available results of measurements on E-UTRA frequencies the UE is configured to measure by the E-UTRA *RRCConnectionReconfiguration* message. |

#### – *SecurityModeCommand*

The *SecurityModeCommand* message is used to command the activation of AS security.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*SecurityModeCommand* message

-- ASN1START

-- TAG-SECURITYMODECOMMAND-START

SecurityModeCommand ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 securityModeCommand SecurityModeCommand-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

SecurityModeCommand-IEs ::= SEQUENCE {

 securityConfigSMC SecurityConfigSMC,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE{} OPTIONAL

}

SecurityConfigSMC ::= SEQUENCE {

 securityAlgorithmConfig SecurityAlgorithmConfig,

 ...

}

-- TAG-SECURITYMODECOMMAND-STOP

-- ASN1STOP

#### – *SecurityModeComplete*

The *SecurityModeComplete* message is used to confirm the successful completion of a security mode command.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*SecurityModeComplete* message

-- ASN1START

-- TAG-SECURITYMODECOMPLETE-START

SecurityModeComplete ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 securityModeComplete SecurityModeComplete-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

SecurityModeComplete-IEs ::= SEQUENCE {

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE{} OPTIONAL

}

-- TAG-SECURITYMODECOMPLETE-STOP

-- ASN1STOP

#### – *SecurityModeFailure*

The *SecurityModeFailure* message is used to indicate an unsuccessful completion of a security mode command.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*SecurityModeFailure* message

-- ASN1START

-- TAG-SECURITYMODEFAILURE-START

SecurityModeFailure ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 securityModeFailure SecurityModeFailure-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

SecurityModeFailure-IEs ::= SEQUENCE {

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE{} OPTIONAL

}

-- TAG-SECURITYMODEFAILURE-STOP

-- ASN1STOP

#### – *SIB1*

*SIB1* contains information relevant when evaluating if a UE is allowed to access a cell and defines the scheduling of other system information.It also contains radio resource configuration information that is common for all UEs and barring information applied to the unified access control.

Signalling radio bearer: N/A

RLC-SAP: TM

Logical channels: BCCH

Direction: Network to UE

*SIB1* message

-- ASN1START

-- TAG-SIB1-START

SIB1 ::= SEQUENCE {

 cellSelectionInfo SEQUENCE {

 q-RxLevMin Q-RxLevMin,

 q-RxLevMinOffset INTEGER (1..8) OPTIONAL, -- Need S

 q-RxLevMinSUL Q-RxLevMin OPTIONAL, -- Need R

 q-QualMin Q-QualMin OPTIONAL, -- Need S

 q-QualMinOffset INTEGER (1..8) OPTIONAL -- Need S

 } OPTIONAL, -- Cond Standalone

 cellAccessRelatedInfo CellAccessRelatedInfo,

 connEstFailureControl ConnEstFailureControl OPTIONAL, -- Need R

 si-SchedulingInfo SI-SchedulingInfo OPTIONAL, -- Need R

 servingCellConfigCommon ServingCellConfigCommonSIB OPTIONAL, -- Need R

 ims-EmergencySupport ENUMERATED {true} OPTIONAL, -- Need R

 eCallOverIMS-Support ENUMERATED {true} OPTIONAL, -- Need R

 ue-TimersAndConstants UE-TimersAndConstants OPTIONAL, -- Need R

 uac-BarringInfo SEQUENCE {

 uac-BarringForCommon UAC-BarringPerCatList OPTIONAL, -- Need S

 uac-BarringPerPLMN-List UAC-BarringPerPLMN-List OPTIONAL, -- Need S

 uac-BarringInfoSetList UAC-BarringInfoSetList,

 uac-AccessCategory1-SelectionAssistanceInfo CHOICE {

 plmnCommon UAC-AccessCategory1-SelectionAssistanceInfo,

 individualPLMNList SEQUENCE (SIZE (2..maxPLMN)) OF UAC-AccessCategory1-SelectionAssistanceInfo

 } OPTIONAL -- Need S

 } OPTIONAL, -- Need R

 useFullResumeID ENUMERATED {true} OPTIONAL, -- Need R

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SIB1-v1610-IEs OPTIONAL

}

SIB1-v1610-IEs ::= SEQUENCE {

 idleModeMeasurementsEUTRA-r16 ENUMERATED{true} OPTIONAL, -- Need R

 idleModeMeasurementsNR-r16 ENUMERATED{true} OPTIONAL, -- Need R

 posSI-SchedulingInfo-r16 PosSI-SchedulingInfo-r16 OPTIONAL, -- Need R

 nonCriticalExtension SIB1-v1630-IEs OPTIONAL

}

SIB1-v1630-IEs ::= SEQUENCE {

 uac-BarringInfo-v1630 SEQUENCE {

 uac-AC1-SelectAssistInfo-r16 SEQUENCE (SIZE (2..maxPLMN)) OF UAC-AC1-SelectAssistInfo-r16

 } OPTIONAL, -- Need R

 nonCriticalExtension SIB1-v1700-IEs OPTIONAL

}

SIB1-v1700-IEs ::= SEQUENCE {

 hsdn-Cell-r17 ENUMERATED {true} OPTIONAL, -- Need R

 uac-BarringInfo-v1700 SEQUENCE {

 uac-BarringInfoSetList-v1700 UAC-BarringInfoSetList-v1700

 } OPTIONAL, -- Cond MINT

 sdt-ConfigCommon-r17 SDT-ConfigCommonSIB-r17 OPTIONAL, -- Need R

 redCap-ConfigCommon-r17 RedCap-ConfigCommonSIB-r17 OPTIONAL, -- Need R

 featurePriorities-r17 SEQUENCE {

 redCapPriority-r17 FeaturePriority-r17 OPTIONAL, -- Need R

 slicingPriority-r17 FeaturePriority-r17 OPTIONAL, -- Need R

 msg3-Repetitions-Priority-r17 FeaturePriority-r17 OPTIONAL, -- Need R

 sdt-Priority-r17 FeaturePriority-r17 OPTIONAL -- Need R

 } OPTIONAL, -- Need R

 si-SchedulingInfo-v1700 SI-SchedulingInfo-v1700 OPTIONAL, -- Need R

 hyperSFN-r17 BIT STRING (SIZE (10)) OPTIONAL, -- Need R

 eDRX-AllowedIdle-r17 ENUMERATED {true} OPTIONAL, -- Need R

 eDRX-AllowedInactive-r17 ENUMERATED {true} OPTIONAL, -- Cond EDRX-RC

 intraFreqReselectionRedCap-r17 ENUMERATED {allowed, notAllowed} OPTIONAL, -- Need S

 cellBarredNTN-r17 ENUMERATED {barred, notBarred} OPTIONAL, -- Need S

 nonCriticalExtension SIB1-v1740-IEs OPTIONAL

}

SIB1-v1740-IEs ::= SEQUENCE {

 si-SchedulingInfo-v1740 SI-SchedulingInfo-v1740 OPTIONAL, -- Need R

 nonCriticalExtension SIB1-v1800-IEs OPTIONAL

}

SIB1-v1800-IEs ::= SEQUENCE {

 ncr-Support-r18 ENUMERATED {true} OPTIONAL, -- Need S

 mt-SDT-ConfigCommonSIB-r18 MT-SDT-ConfigCommonSIB-r18 OPTIONAL, -- Need R

 musim-CapRestrictionAllowed-r18 ENUMERATED {true} OPTIONAL, -- Need R

 featurePriorities-v1800 SEQUENCE {

 msg1-Repetitions-Priority-r18 FeaturePriority-r17 OPTIONAL, -- Need R

 eRedCapPriority-r18 FeaturePriority-r17 OPTIONAL -- Need R

 } OPTIONAL, -- Need R

 si-SchedulingInfo-v1800 SI-SchedulingInfo-v1800 OPTIONAL, -- Need R

 cellBarredATG-r18 ENUMERATED {barred, notBarred} OPTIONAL, -- Need S

 cellBarredNES-r18 ENUMERATED {notBarred} OPTIONAL, -- Need R

 mobileIAB-Cell-r18 ENUMERATED {true} OPTIONAL, -- Need R

 eDRX-AllowedInactive-r18 ENUMERATED {true} OPTIONAL, -- Cond EDRX-RC

 intraFreqReselection-eRedCap-r18 ENUMERATED {allowed, notAllowed} OPTIONAL, -- Need S

 nonServingCellMII-r18 ENUMERATED {true} OPTIONAL, -- Need R

 sdt-BeamFailureRecoveryProhibitTimer-r18 ENUMERATED {ms50, ms100, ms200, ms500, ms1000, ms1500, ms2000, ms3000}

 OPTIONAL, -- Need R

 eRedCap-ConfigCommon-r18 ERedCap-ConfigCommonSIB-r18 OPTIONAL, -- Need R

 cellBarredFixedVSAT-r18 ENUMERATED {barred, notBarred} OPTIONAL, -- Cond NTN

 cellBarredMobileVSAT-r18 ENUMERATED {barred, notBarred} OPTIONAL, -- Cond NTN

 reselectionMeasurementsNR-r18 ENUMERATED{true} OPTIONAL, -- Need R

 cellBarred2RxXR-r18 ENUMERATED {barred} OPTIONAL, -- Need R

 intraFreqReselection2RxXR-r18 ENUMERATED {allowed, notAllowed} OPTIONAL, -- Need R

 barringExemptEmergencyCall-r18 ENUMERATED {true} OPTIONAL, -- Cond EM-Barring

 n3c-Support-r18 ENUMERATED {true} OPTIONAL, -- Need R

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

UAC-AccessCategory1-SelectionAssistanceInfo ::= ENUMERATED {a, b, c}

UAC-AC1-SelectAssistInfo-r16 ::= ENUMERATED {a, b, c, notConfigured}

SDT-ConfigCommonSIB-r17 ::= SEQUENCE {

 sdt-RSRP-Threshold-r17 RSRP-Range OPTIONAL, -- Need R

 sdt-LogicalChannelSR-DelayTimer-r17 ENUMERATED { sf20, sf40, sf64, sf128, sf512, sf1024, sf2560, spare1} OPTIONAL, -- Need R

 sdt-DataVolumeThreshold-r17 ENUMERATED {byte32, byte100, byte200, byte400, byte600, byte800, byte1000, byte2000, byte4000,

 byte8000, byte9000, byte10000, byte12000, byte24000, byte48000, byte96000},

 t319a-r17 ENUMERATED { ms100, ms200, ms300, ms400, ms600, ms1000, ms2000,

 ms3000, ms4000, spare7, spare6, spare5, spare4, spare3, spare2, spare1}

}

RedCap-ConfigCommonSIB-r17 ::= SEQUENCE {

 halfDuplexRedCapAllowed-r17 ENUMERATED {true} OPTIONAL, -- Need R

 cellBarredRedCap-r17 SEQUENCE {

 cellBarredRedCap1Rx-r17 ENUMERATED {barred, notBarred},

 cellBarredRedCap2Rx-r17 ENUMERATED {barred, notBarred}

 } OPTIONAL, -- Need R

 ...

}

ERedCap-ConfigCommonSIB-r18 ::= SEQUENCE {

 cellBarredeRedCap-r18 SEQUENCE {

 cellBarredeRedCap1Rx-r18 ENUMERATED {barred, notBarred},

 cellBarredeRedCap2Rx-r18 ENUMERATED {barred, notBarred}

 }

}

FeaturePriority-r17 ::= INTEGER (0..7)

MT-SDT-ConfigCommonSIB-r18 ::= SEQUENCE {

 mt-SDT-RSRP-Threshold-r18 RSRP-Range OPTIONAL, -- Need S

 sdt-LogicalChannelSR-DelayTimer-r18 ENUMERATED { sf20, sf40, sf64, sf128, sf512, sf1024, sf2560, spare1} OPTIONAL, -- Cond MT-SDT1

 t319a-r18 ENUMERATED { ms100, ms200, ms300, ms400, ms600, ms1000, ms2000,

 ms3000, ms4000, spare7, spare6, spare5, spare4,

 spare3, spare2, spare1} OPTIONAL -- Cond MT-SDT2

}

-- TAG-SIB1-STOP

-- ASN1STOP

|  |
| --- |
| *SIB1* field descriptions |
| ***barringExemptEmergencyCall***Indicates whether the cell allows emergency bearer services for UEs who would otherwise consider the cell as barred as specified in TS 38.304 [20]. |
| ***cellBarred2RxXR***Indicates whether the cell is barred for 2Rx XR UEs. This field is ignored by all UEs that are not 2Rx XR UEs. This field may be configured only if the cell operates in a frequency band where 4Rx antenna ports are mandated as specified in TS 38.101-1 [15]. If this field is absent on a cell operating in a frequency band where 4RX antenna ports are mandated, a 2RX XR UE shall treat the cell as not barred, as specified in TS 38.304 [20]. |
| ***cellBarredATG***Value *barred* means that the cell is barred for connectivity to ATG, as defined in TS 38.304 [20]. Value *notBarred* means that the cell is allowed for connectivity to ATG. If not present, the UE considers the cell is not allowed for connectivity to ATG, as defined in TS 38.304 [20]. This field is only applicable to ATG-capable UEs. |
| ***cellBarred-eRedCap1Rx***Value *barred* means that the cell is barred for an eRedCap UE supporting 1 Rx branch on the selected frequency band as specified in clause 5.2.2.4.2, as defined in TS 38.304 [20]. This field is ignored by non-eRedCap UEs. An eRedCap UE supporting 2 Rx on the selected frequency band as specified in clause 5.2.2.4.2 shall ignore this field when *cellBarred-eRedCap2Rx* is set to *notBarred*. |
| ***cellBarred-eRedCap2Rx***Value *barred* means that the cell is barred for an eRedCap UE supporting 2 Rx branches on the selected frequency band as specified in clause 5.2.2.4.2, as defined in TS 38.304 [20]. This field is ignored by non-eRedCap UEs. An eRedCap UE supporting 1 Rx on the selected frequency band as specified in clause 5.2.2.4.2 shall ignore this field when *cellBarred-eRedCap1Rx* is set to *notBarred*. |
| ***cellBarredFixedVSAT***Value *barred* means that the cell is barred for fixed VSAT UEs, as defined in TS 38.304 [20]. If not present, the cell is not allowed for fixed VSAT UEs. This field is ignored by non-VSAT UEs. |
| ***cellBarredMobileVSAT***Value *barred* means that the cell is barred for mobile VSAT UEs, as defined in TS 38.304 [20]. If not present, the cell is not allowed for mobile VSAT UEs. This field is ignored by non-VSAT UEs. |
| ***cellBarredNES***This field indicates the cell barring status for UEs supporting *nes-CellDTX-DRX* as described in 5.2.2.4.2. |
| ***cellBarredNTN***Value *barred* means that the cell is barred for connectivity to NTN, as defined in TS 38.304 [20]. Value *notBarred* means that the cell is allowed for connectivity to NTN. If not present, the UE considers the cell is not allowed for connectivity to NTN, as defined in TS 38.304 [20]. This field is only applicable to NTN-capable UEs. |
| ***cellBarredRedCap1Rx***Value *barred* means that the cell is barred for a RedCap UE supporting 1 Rx branch on the selected frequency band as specified in clause 5.2.2.4.2, as defined in TS 38.304 [20]. This field is ignored by non-RedCap UEs. A RedCap UE supporting 2 Rx on the selected frequency band as specified in clause 5.2.2.4.2 shall ignore this field when *cellBarredRedCap2Rx* is set to *notBarred*. |
| ***cellBarredRedCap2Rx***Value *barred* means that the cell is barred for a RedCap UE supporting 2 Rx branches on the selected frequency band as specified in clause 5.2.2.4.2, as defined in TS 38.304 [20]. This field is ignored by non-RedCap UEs. A RedCap UE supporting 1 Rx on the selected frequency band as specified in clause 5.2.2.4.2 shall ignore this field when *cellBarredRedCap1Rx* is set to *notBarred*. |
| ***cellSelectionInfo***Parameters for cell selection related to the serving cell. |
| ***eCallOverIMS-Support***Indicates whether the cell supports eCall over IMS services as defined in TS 23.501 [32]. If absent, eCall over IMS is not supported by the network in the cell. |
| ***eDRX-AllowedIdle***The presence of this field indicates that extended DRX for CN paging is allowed in the cell for UEs in RRC\_IDLE or RRC\_INACTIVE. The UE shall stop using extended DRX for CN paging in RRC\_IDLE or RRC\_INACTIVE if *eDRX-AllowedIdle* is not present. |
| ***eDRX-AllowedInactive***The presence of *eDRX-AllowedInactive-r17* indicates that extended DRX cycle equal to or shorter than 10.24 s for RAN paging is allowed in the cell for UEs in RRC\_INACTIVE. The UE shall stop using extended DRX cycle equal to or shorter than 10.24 s for RAN paging in RRC\_INACTIVE if *eDRX-AllowedInactive-r17* is not present. The presence of *eDRX-AllowedInactive-r18* indicates that extended DRX cycle longer than 10.24 s for RAN paging is allowed in the cell for UEs in RRC\_INACTIVE. The UE shall stop using extended DRX cycle longer than 10.24 s for RAN paging in RRC\_INACTIVE if *eDRX-AllowedInactive-r18* is not present. |
| ***featurePriorities***Indicates priorities for features, such as (e)RedCap, Slicing, SDT, MSG1-Repetitions and MSG3-Repetitions for Coverage Enhancements. These priorities are used to determine which *FeatureCombinationPreambles* the UE shall use when a feature maps to more than one *FeatureCombinationPreambles*, as specified in TS 38.321 [3]. A lower value means a higher priority. The network does not signal the same priority for more than one feature. The network signals a priority for all feature that map to at least one *FeatureCombinationPreambles*. |
| ***halfDuplexRedCap-Allowed***The presence of this field indicates that the cell supports half-duplex FDD (e)RedCap UEs. |
| ***hsdn-Cell***This field indicates this is a HSDN cell as specified in TS 38.304 [20]. |
| ***hyperSFN***Indicates hyper SFN which increments by one when the SFN wraps around. This field is excluded when determining changes in system information, i.e. changes of hyper SFN should not result in system information change notifications. |
| ***idleModeMeasurementsEUTRA***This field indicates that a UE that is configured for EUTRA idle/inactive measurements shall perform the measurements while camping in this cell and report availability of these measurements when establishing or resuming a connection in this cell. If absent, a UE is not required to perform EUTRA idle/inactive measurements. |
| ***idleModeMeasurementsNR***This field indicates that a UE that is configured for NR idle/inactive measurements shall perform the measurements while camping in this cell and report availability of these measurements when establishing or resuming a connection in this cell. If absent, a UE is not required to perform NR idle/inactive measurements. |
| ***ims-EmergencySupport***Indicates whether the cell supports IMS emergency bearer services for UEs in limited service mode. If absent, IMS emergency call is not supported by the network in the cell for UEs in limited service mode. |
| ***intraFreqReselection2RxXR***This field controls cell selection/reselection to intra-frequency cells for 2Rx XR UEs when this cell is barred or treated as barred by the 2Rx XR UE, as specified in TS 38.304 [20]. This field is ignored by all UEs that are not 2Rx XR UEs. This field may be configured only if the cell operates in a frequency band where 4Rx antenna ports are mandated, as specified in TS 38.101-1 [15]. |
| ***intraFreqReselection-eRedCap***Controls cell selection/reselection to intra-frequency cells for eRedCap UEs when this cell is barred, or treated as barred by the eRedCap UE, as specified in TS 38.304 [20]. If not present, an eRedCap UE treats the cell as barred, i.e., the UE considers that the cell does not support eRedCap. |
| ***intraFreqReselectionRedCap***Controls cell selection/reselection to intra-frequency cells for RedCap UEs when this cell is barred, or treated as barred by the RedCap UE, as specified in TS 38.304 [20]. If not present, a RedCap UE treats the cell as barred, i.e.,the UE considers that the cell does not support RedCap. |
| ***mobileIAB-Cell***The presence of this field indicates that this is a mobile IAB cell. |
| ***mt-SDT-RSRP-Threshold***RSRP threshold used to determine whether MT-SDT procedure can be initiated, as specified in TS 38.321 [3]. If the field is absent, and the field *sdt-RSRP-Threshold* is present, the UE applies the value in the field *sdt-RSRP-Threshold*. |
| ***musim-CapRestrictionAllowed***Indicates the UE is allowed to send the *musim-CapRestrictionInd* in *RRCSetupComplete*, *RRCResumeComplete* and *RRCReestablishmentComplete* messages. |
| ***n3c-Support***This field indicates the support of N3C MP. If the field is present, the UE can perform early detection of candidate N3C relay UEs. If absent, a UE is not required to perform early detection of candidate N3C relay UEs. |
| ***ncr-Support***This field combines both the support of NCR and the cell status for NCR. If the field is present, the cell supports NCR and the cell is also considered as a candidate for cell (re)selection for NCR-node; if the field is absent, the cell does not support NCR and/or the cell is barred for NCR-node. |
| ***nonServingCellMII***Indicates whether the *MBSInterestIndication* message for MBS broadcast reception on a non-serving cell is allowed to be transmitted to the serving gNB. |
| ***q-QualMin***Parameter "Qqualmin" in TS 38.304 [20], applicable for serving cell. If the field is absent, the UE applies the (default) value of negative infinity for Qqualmin.  |
| ***q-QualMinOffset***Parameter "Qqualminoffset" in TS 38.304 [20]. Actual value Qqualminoffset = field value [dB]. If the field is absent, the UE applies the (default) value of 0 dB for Qqualminoffset.Affects the minimum required quality level in the cell. |
| ***q-RxLevMin***Parameter "Qrxlevmin" in TS 38.304 [20], applicable for serving cell. |
| ***q-RxLevMinOffset***Parameter "Qrxlevminoffset" in TS 38.304 [20]. Actual value Qrxlevminoffset = field value \* 2 [dB]. If absent, the UE applies the (default) value of 0 dB for Qrxlevminoffset*.* Affects the minimum required Rx level in the cell. |
| ***q-RxLevMinSUL***Parameter "Qrxlevmin" in TS 38.304 [20], applicable for serving cell. |
| ***reselectionMeasurementsNR***This field indicates that a UE that is configured for NR reselection measurements shall report availability of these measurements when establishing or resuming a connection in this cell. |
| ***sdt-BeamFailureRecoveryProhibitTimer***The value of the prohibit timer used for RACH for beam failure indication during SDT as specified in TS 38.321 [3]. Value *ms50* corresponds to 50 milliseconds, value *ms100* corresponds to 100 milliseconds and so on. |
| ***sdt-DataVolumeThreshold***Data volume threshold used to determine whether SDT can be initiated, as specified in TS 38.321 [3]. Value *byte32* corresponds to 32 bytes, value *byte100* corresponds to 100 bytes, and so on. |
| ***sdt-LogicalChannelSR-DelayTimer***The value of *logicalChannelSR-DelayTimer* applied during SDT for logical channels configured with SDT, as specified in TS 38.321 [3]. Value in number of subframes. Value *sf20* corresponds to 20 subframes, *sf40* corresponds to 40 subframes, and so on. If *sdt-LogicalChannelSR-DelayTimer-r18* is absent and *sdt-LogicalChannelSR-DelayTimer-r17* is present then, the UE applies the value configured in *sdt-LogicalChannelSR-DelayTimer-r17* for this field. If this field is not configured, then logicalChannelSR-DelayTimer is not applied for SDT logical channels. |
| ***sdt-RSRP-Threshold***RSRP threshold used to determine whether SDT procedure can be initiated, as specified in TS 38.321 [3]. |
| ***servingCellConfigCommon***Configuration of the serving cell. |
| ***t319a***Initial value of the timer T319a used for detection of SDT failure. Value *ms100* corresponds to 100 milliseconds, value *ms200* corresponds to 200 milliseconds and so on. If *t319a-r18* is absent, the UE applies the value configured in *t319a-r17.* |
| ***uac-AccessCategory1-SelectionAssistanceInfo***Information used to determine whether Access Category 1 applies to the UE, as defined in TS 22.261 [25]. If *plmnCommon* is chosen, the *UAC-AccessCategory1-SelectionAssistanceInfo* is applicable to all the PLMNs and SNPNs in *plmn-IdentityInfoList* and *npn-IdentityInfoList*. If *individualPLMNList* is chosen, the 1st entry in the list corresponds to the first network within all of the PLMNs and SNPNs across the *plmn-IdentityList* and the *npn-IdentityInfoList*, the 2nd entry in the list corresponds to the second network within all of the PLMNs and SNPNs across the *plmn-IdentityList* and the *npn-IdentityInfoList* and so on. If *uac-AC1-SelectAssistInfo-r16* is present, the UE shall ignore the *uac-AccessCategory1-SelectionAssistanceInfo*. |
| ***uac-AC1-SelectAssistInfo***Information used to determine whether Access Category 1 applies to the UE, as defined in TS 22.261 [25]. The 1st entry in the list corresponds to the first network within all of the PLMNs and SNPNs across the *plmn-IdentityList* and *npn-IdentityInfoList*, the 2nd entry in the list corresponds to the second network within all of the PLMNs and SNPNs across the *plmn-IdentityList* and the *npn-IdentityInfoList* and so on. Value *notConfigured* indicates that Access Category1 is not configured for the corresponding PLMN/SNPN. |
| ***uac-BarringForCommon***Common access control parameters for each access category. Common values are used for all PLMNs/SNPNs, unless overwritten by the PLMN/SNPN specific configuration provided in *uac-BarringPerPLMN-List*. The parameters are specified by providing an index to the set of configurations (*uac-BarringInfoSetList*). UE behaviour upon absence of this field is specified in clause 5.3.14.2. |
| ***ue-TimersAndConstants***Timer and constant values to be used by the UE. The cell operating as PCell always provides this field. |
| ***useFullResumeID***Indicates which resume identifier and Resume request message should be used. UE uses *fullI-RNTI* and *RRCResumeRequest1* if the field is present, or *shortI-RNTI* and *RRCResumeRequest* if the field is absent. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *EDRX-RC* | The field is optionally present, Need R, in a cell that enables *eDRX-AllowedIdle*, otherwise it is absent. |
| *EM-Barring* | The field is optionally present, Need R, in a cell that supports (e)RedCap or XR UEs, otherwise it is absent. |
| *MINT* | The field is optionally present, Need R, in a cell that provides a configuration for disaster roaming, otherwise it is absent, Need R. |
| *MT-SDT1* | This field is optionally present, Need S, in a cell that supports MT-SDT if *sdt-ConfigCommon-r17* is not present, otherwise it is absent. |
| *MT-SDT2* | This field is mandatory present in a cell that supports MT-SDT if *sdt-ConfigCommon-r17* is not present, otherwise it is absent. |
| *NTN* | The field is optionally present, Need S, in a cell where *cellBarredNTN* is included with value *notBarred*, otherwise it is absent. |
| *Standalone* | The field is mandatory present in a cell that supports standalone operation, otherwise it is absent. |

#### – *SidelinkUEInformationNR*

The *SidelinkUEinformationNR* message is used for the indication of NR sidelink UE information to the network.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*SidelinkUEInformationNR* message

-- ASN1START

-- TAG-SIDELINKUEINFORMATIONNR-START

SidelinkUEInformationNR-r16::= SEQUENCE {

 criticalExtensions CHOICE {

 sidelinkUEInformationNR-r16 SidelinkUEInformationNR-r16-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

SidelinkUEInformationNR-r16-IEs ::= SEQUENCE {

 sl-RxInterestedFreqList-r16 SL-InterestedFreqList-r16 OPTIONAL,

 sl-TxResourceReqList-r16 SL-TxResourceReqList-r16 OPTIONAL,

 sl-FailureList-r16 SL-FailureList-r16 OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SidelinkUEInformationNR-v1700-IEs OPTIONAL

}

SidelinkUEInformationNR-v1700-IEs ::= SEQUENCE {

 sl-TxResourceReqList-v1700 SL-TxResourceReqList-v1700 OPTIONAL,

 sl-RxDRX-ReportList-v1700 SL-RxDRX-ReportList-v1700 OPTIONAL,

 sl-RxInterestedGC-BC-DestList-r17 SL-RxInterestedGC-BC-DestList-r17 OPTIONAL,

 sl-RxInterestedFreqListDisc-r17 SL-InterestedFreqList-r16 OPTIONAL,

 sl-TxResourceReqListDisc-r17 SL-TxResourceReqListDisc-r17 OPTIONAL,

 sl-TxResourceReqListCommRelay-r17 SL-TxResourceReqListCommRelay-r17 OPTIONAL,

 ue-Type-r17 ENUMERATED {relayUE, remoteUE} OPTIONAL,

 sl-SourceIdentityRemoteUE-r17 SL-SourceIdentity-r17 OPTIONAL,

 nonCriticalExtension SidelinkUEInformationNR-v1800-IEs OPTIONAL

}

SidelinkUEInformationNR-v1800-IEs ::= SEQUENCE {

 sl-CarrierFailureList-r18 SL-CarrierFailureList-r18 OPTIONAL,

 sl-TxResourceReqListL2-U2U-r18 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-TxResourceReqL2-U2U-r18 OPTIONAL,

 sl-PosRxInterestedFreqList-r18 SL-InterestedFreqList-r16 OPTIONAL,

 sl-PosTxResourceReqList-r18 SL-PosTxResourceReqList-r18 OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

SL-InterestedFreqList-r16 ::= SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF INTEGER (1..maxNrofFreqSL-r16)

SL-TxResourceReqList-r16 ::= SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-TxResourceReq-r16

SL-PosTxResourceReqList-r18 ::= SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-PosTxResourceReq-r18

SL-TxResourceReq-r16 ::= SEQUENCE {

 sl-DestinationIdentity-r16 SL-DestinationIdentity-r16,

 sl-CastType-r16 ENUMERATED {broadcast, groupcast, unicast, spare1},

 sl-RLC-ModeIndicationList-r16 SEQUENCE (SIZE (1.. maxNrofSLRB-r16)) OF SL-RLC-ModeIndication-r16 OPTIONAL,

 sl-QoS-InfoList-r16 SEQUENCE (SIZE (1..maxNrofSL-QFIsPerDest-r16)) OF SL-QoS-Info-r16 OPTIONAL,

 sl-TypeTxSyncList-r16 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-TypeTxSync-r16 OPTIONAL,

 sl-TxInterestedFreqList-r16 SL-TxInterestedFreqList-r16 OPTIONAL,

 sl-CapabilityInformationSidelink-r16 OCTET STRING OPTIONAL

}

SL-TxResourceReqList-v1700 ::= SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-TxResourceReq-v1700

SL-RxDRX-ReportList-v1700 ::= SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-RxDRX-Report-v1700

SL-TxResourceReq-v1700 ::= SEQUENCE {

 sl-DRX-InfoFromRxList-r17 SEQUENCE (SIZE (1..maxNrofSL-RxInfoSet-r17)) OF SL-DRX-ConfigUC-SemiStatic-r17 OPTIONAL,

 sl-DRX-Indication-r17 ENUMERATED {on, off} OPTIONAL,

 ...,

 [[

 sl-QoS-InfoList-v1800 SEQUENCE (SIZE (1..maxNrofSL-QFIsPerDest-r16)) OF SL-QoS-Info-v1800 OPTIONAL

 ]]

}

SL-RxDRX-Report-v1700 ::= SEQUENCE {

 sl-DRX-ConfigFromTx-r17 SL-DRX-ConfigUC-SemiStatic-r17,

 ...

}

SL-RxInterestedGC-BC-DestList-r17 ::= SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-RxInterestedGC-BC-Dest-r17

SL-RxInterestedGC-BC-Dest-r17 ::= SEQUENCE {

 sl-RxInterestedQoS-InfoList-r17 SEQUENCE (SIZE (1..maxNrofSL-QFIsPerDest-r16)) OF SL-QoS-Info-r16,

 sl-DestinationIdentity-r16 SL-DestinationIdentity-r16

}

SL-TxResourceReqListDisc-r17 ::= SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-TxResourceReqDisc-r17

SL-TxResourceReqDisc-r17 ::= SEQUENCE {

 sl-DestinationIdentityDisc-r17 SL-DestinationIdentity-r16,

 sl-SourceIdentityRelayUE-r17 SL-SourceIdentity-r17 OPTIONAL,

 sl-CastTypeDisc-r17 ENUMERATED {broadcast, groupcast, unicast, spare1},

 sl-TxInterestedFreqListDisc-r17 SL-TxInterestedFreqList-r16,

 sl-TypeTxSyncListDisc-r17 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-TypeTxSync-r16,

 sl-DiscoveryType-r17 ENUMERATED {relay, non-Relay},

 ...,

 [[

 ue-TypeU2U-r18 ENUMERATED {relayUE, remoteUE} OPTIONAL

 ]]

}

SL-TxResourceReqListCommRelay-r17 ::= SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-TxResourceReqCommRelayInfo-r17

SL-TxResourceReqCommRelayInfo-r17 ::= SEQUENCE {

 sl-RelayDRXConfig-r17 SL-TxResourceReq-v1700 OPTIONAL,

 sl-TxResourceReqCommRelay-r17 SL-TxResourceReqCommRelay-r17

}

SL-TxResourceReqCommRelay-r17 ::= CHOICE {

 sl-TxResourceReqL2U2N-Relay-r17 SL-TxResourceReqL2U2N-Relay-r17,

 sl-TxResourceReqL3U2N-Relay-r17 SL-TxResourceReq-r16

}

SL-TxResourceReqL2U2N-Relay-r17 ::= SEQUENCE {

 sl-DestinationIdentityL2U2N-r17 SL-DestinationIdentity-r16 OPTIONAL,

 sl-TxInterestedFreqListL2U2N-r17 SL-TxInterestedFreqList-r16,

 sl-TypeTxSyncListL2U2N-r17 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-TypeTxSync-r16,

 sl-LocalID-Request-r17 ENUMERATED {true} OPTIONAL,

 sl-PagingIdentityRemoteUE-r17 SL-PagingIdentityRemoteUE-r17 OPTIONAL,

 sl-CapabilityInformationSidelink-r17 OCTET STRING OPTIONAL,

 ...

}

SL-TxResourceReqL2-U2U-r18 ::= SEQUENCE {

 sl-DestinationIdentityL2-U2U-r18 SL-DestinationIdentity-r16 OPTIONAL,

 sl-TxInterestedFreqListL2-U2U-r18 SL-TxInterestedFreqList-r16,

 sl-TypeTxSyncListL2-U2U-r18 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-TypeTxSync-r16,

 sl-CapabilityInformationSidelink-r18 OCTET STRING OPTIONAL,

 sl-U2U-InfoList-r18 SEQUENCE (SIZE (1.. maxNrofRemoteUE-r17)) OF SL-U2U-Info-r18 OPTIONAL,

 sl-RLC-ModeIndicationListL2-U2U-r18 SEQUENCE (SIZE (1.. maxNrofSLRB-r16)) OF SL-RLC-Mode-r18 OPTIONAL,

 ...

}

SL-U2U-Info-r18 ::= SEQUENCE {

 sl-U2U-Identity-r18 CHOICE {

 sl-TargetUE-Identity-r18 SL-DestinationIdentity-r16,

 sl-SourceUE-Identity-r18 SL-SourceIdentity-r17

 },

 sl-E2E-QoS-InfoList-r18 SEQUENCE (SIZE (1.. maxNrofSL-QFIsPerDest-r16)) OF SL-QoS-Info-r16 OPTIONAL,

 sl-PerHop-QoS-InfoList-r18 SEQUENCE (SIZE (1.. maxNrofSL-QFIsPerDest-r16)) OF SL-SplitQoS-Info-r18 OPTIONAL,

 sl-PerSLRB-QoS-InfoList-r18 SEQUENCE (SIZE (1.. maxNrofSLRB-r16)) OF SL-PerSLRB-QoS-Info-r18 OPTIONAL,

 sl-CapabilityInformationTargetRemoteUE-r18 OCTET STRING OPTIONAL

}

SL-PosTxResourceReq-r18 ::= SEQUENCE {

 sl-PosDestinationIdentity-r18 SL-DestinationIdentity-r16,

 sl-PosCastType-r18 ENUMERATED {broadcast, groupcast, unicast, spare1},

 sl-PosTxInterestedFreqList-r18 SL-TxInterestedFreqList-r16 OPTIONAL,

 sl-PosTypeTxSyncList-r18 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-TypeTxSync-r16 OPTIONAL,

 sl-PosQoS-InfoList-r18 SEQUENCE (SIZE (1..maxNrofSL-PRS-PerDest-r18)) OF SL-PRS-QoS-Info-r18 OPTIONAL,

 sl-CapabilityInformationSidelink-r18 OCTET STRING OPTIONAL,

 ...

}

SL-TxInterestedFreqList-r16 ::= SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF INTEGER (1..maxNrofFreqSL-r16)

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

 sl-QoS-FlowIdentity-r16 SL-QoS-FlowIdentity-r16,

 sl-QoS-Profile-r16 SL-QoS-Profile-r16 OPTIONAL

}

SL-QoS-Info-v1800 ::= SEQUENCE {

 sl-TxInterestedFreqList-r18 SL-TxInterestedFreqList-r16,

 sl-TxProfile-r18 SL-TxProfile-r18 OPTIONAL,

 ...

}

SL-TxProfile-r18 ::= ENUMERATED {backwardsCompatible, backwardsIncompatible}

SL-RLC-ModeIndication-r16 ::= SEQUENCE {

 sl-Mode-r16 CHOICE {

 sl-AM-Mode-r16 NULL,

 sl-UM-Mode-r16 NULL

 },

 sl-QoS-InfoList-r16 SEQUENCE (SIZE (1..maxNrofSL-QFIsPerDest-r16)) OF SL-QoS-Info-r16

}

SL-FailureList-r16 ::= SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-Failure-r16

SL-Failure-r16 ::= SEQUENCE {

 sl-DestinationIdentity-r16 SL-DestinationIdentity-r16,

 sl-Failure-r16 ENUMERATED {rlf,configFailure, drxReject-v1710, spare5, spare4, spare3, spare2, spare1}

}

SL-CarrierFailureList-r18 ::= SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-CarrierFailure-r18

SL-CarrierFailure-r18 ::= SEQUENCE {

 sl-DestinationIdentity-r18 SL-DestinationIdentity-r16,

 sl-CarrierFailure-r18 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF INTEGER (1..maxNrofFreqSL-r16)

}

SL-SplitQoS-Info-r18 ::= SEQUENCE {

 sl-QoS-FlowIdentity-r18 SL-QoS-FlowIdentity-r16,

 sl-SplitPacketDelayBudget-r18 INTEGER (0..1023) OPTIONAL,

 ...

}

SL-PerSLRB-QoS-Info-r18 ::= SEQUENCE {

 sl-RemoteUE-SLRB-Identity-r18 SLRB-Uu-ConfigIndex-r16,

 sl-QoS-ProfilePerSLRB-r18 SL-QoS-Profile-r16 OPTIONAL

}

SL-PRS-QoS-Info-r18 ::= SEQUENCE {

 sl-PRS-Priority-r18 INTEGER (1..8) OPTIONAL,

 sl-PRS-DelayBudget-r18 INTEGER (0..1023) OPTIONAL,

 sl-PRS-Bandwidth-r18 ENUMERATED {mhz5, mhz10, mhz15, mhz20, mhz25, mhz30, mhz35, mhz40,

 mhz45, mhz50, mhz60, mhz70, mhz80, mhz90, mhz100, mhz200, mhz400,

 spare15, spare14, spare13, spare12, spare11, spare10, spare9, spare8,

 spare7, spare6, spare5, spare4, spare3, spare2, spare1} OPTIONAL,

 ...

}

SL-RLC-Mode-r18 ::= CHOICE {

 sl-AM-Mode-r18 NULL,

 sl-UM-Mode-r18 NULL

}

-- TAG-SIDELINKUEINFORMATIONNR-STOP

-- ASN1STOP

| *SidelinkUEinformationNR* field descriptions |
| --- |
| ***sl-PosRxInterestedFreqList***Indicates the index of frequency on which the UE is interested to receive NR sidelink positioning. The value 1 corresponds to the frequency of first entry in *sl-FreqInfoList* broadcast in *SIB23*, the value 2 corresponds to the frequency of second entry in *sl-FreqInfoList* broadcast in *SIB23* and so on. In this release, only value 1 can be included in the interested frequency list. |
| ***sl-PosTxResourceReqList***List of parameters to request the transmission resources for NR sidelink positioning for the associated destination. |
| ***sl-RxDRX-ReportList***Indicates the accepted DRX configuration that is received from the peer UE and reported to the network for NR sidelink unicast communication. |
| ***sl-RxInterestedFreqList***Indicates the index of frequency on which the UE is interested to receive NR sidelink communication. The value 1 corresponds to the frequency of first entry in *sl-FreqInfoList* broadcast in *SIB12*, the value 2 corresponds to the frequency of first entry in *sl-FreqInfoListSizeExt* broadcast in *SIB12*, the value 3 corresponds to the frequency of second entry in *sl-FreqInfoListSizeExt* broadcast in *SIB12* and so on. |
| ***sl-RxInterestedGC-BC-DestList***Indicates the reported QoS profile and associated destination for which UE is interested in reception to the network for NR sidelink groupcast and broadcast communication, or for NR sidelink discovery or ProSe Direct Link Establishment Request as described in TS 24.554 [72], or for Direct Link Establishment Request (TS 24.587 [57]). |
| ***sl-SourceIdentityRemoteUE***This field is used to indicate the Source Layer-2 ID to be used to establish PC5 link with the target L2 U2N Relay UE for path switch. |
| ***sl-TxResourceReq***Parameters to request the transmission resources for NR sidelink communication to the network in the Sidelink UE Information report. |
| ***sl-TxResourceReqList***List of parameters to request the transmission resources for NR sidelink communication for the associated destination. If *sl-TxResourceReqList-v1700* is present, it shall contain the same number of entries, listed in the same order as in *sl-TxResourceReqList-r16*. |
| ***ue-Type***Indicates the UE is acting as U2N Relay UE or U2N Remote UE. |

| *SL-TxResourceReq* field descriptions |
| --- |
| ***sl-CapabilityInformationSidelink***Includes the *UECapabilityInformationSidelink* message (which can be also included in *ueCapabilityInformationSidelink-r16* in *UECapabilityEnquirySidelink* from peer UE) received from the peer UE. |
| ***sl-CastType***Indicates the cast type for the corresponding destination for which to request the resource. |
| ***sl-DestinationIdentity***Indicates the destination for which the TX resource request and allocation from the network are concerned. |
| ***sl-DRX-Indication***Indicates the sidelink DRX is applied (value *on*) or not applied (value *off*) for the associated destination. This field is only valid for NR sidelink groupcast communication. |
| ***sl-DRX-InfoFromRxList***Indicates list of the sidelink DRX configurations as assistance information received from the peer UE for NR sidelink unicast communication. |
| ***sl-QoS-InfoList***Includes the QoS profile of the sidelink QoS flow as specified in TS 23.287 [55]. If *sl-QoS-InfoList-v1800* is included, shall include the same number of entries, and listed in the same order, as in *sl-QoS-InfoList-r16*. |
| ***sl-QoS-FlowIdentity***This identity uniquely identifies one sidelink QoS flow between the UE and the network in the scope of UE, which is unique for different destination and cast type. |
| ***sl-RLC-ModeIndicationList***Each entry of this field indicates the RLC mode and optionally the related QoS profiles for the sidelink radio bearer, which has not been configured by the network and is initiated by another UE in unicast. The RLC mode for one sidelink radio bearer is aligned between UE and NW by the *sl-QoS-FlowIdentity*. |
| ***sl-TxInterestedFreqList***Each entry of this field indicates the index of frequency on which the UE is interested to transmit NR sidelink communication/positioning, for each destination. The value 1 corresponds to the frequency of first entry in *sl-FreqInfoList* broadcast in *SIB12*/*SIB23*, the value 2 corresponds to the frequency of first entry in *sl-FreqInfoListSizeExt broadcast* in *SIB12*/*SIB23*, the value 3 corresponds to the frequency of second entry in *sl-FreqInfoListSizeExt* broadcast in *SIB12*/*SIB23* and so on. |
| ***sl-TypeTxSyncList***A list of synchronization reference used by the UE. The UE shall include the same number of entries, listed in the same order, as in *sl-TxInterestedFreqList*, i.e. one for each carrier frequency included in *sl-TxInterestedFreqList*. |

| *SL-Failure* field descriptions |
| --- |
| ***sl-DestinationIdentity***Indicates the destination for which the SL failure is reporting for unicast. |
| ***sl-Failure***Indicates the sidelink cause for the sidelink RLF (value *rlf*), sidelink AS configuration failure (value *configFailure*) and the rejection of sidelink DRX configuration (value *drxReject-v1710*) for the associated destination for unicast. |

| *SL-RxDRX-Report* field descriptions |
| --- |
| ***sl-DRX-ConfigFromTx***Indicates the sidelink DRX configuration received from the peer UE for NR sidelink unicast communication. |

| *SL-RxInterestedGC-BC-Dest* field descriptions |
| --- |
| ***sl-RxInterestedQoS-InfoList***Indicates the QoS profile for which UE reports its interested service to which SL DRX is applied to the network, for NR sidelink groupcast or broadcast reception. |

| *SL-TxResourceReqDisc* field descriptions |
| --- |
| ***sl-CastTypeDisc***Indicates the cast type for the NR sidelink discovery messages. Only value *broadcast* can be set in this release. |
| ***sl-DestinationIdentityDisc***This field is used to indicate the destination L2 ID for which the TX resource request and allocation from the network are concerned for relay discovery and non-relay discovery. |
| ***sl-SourceIdentityRelayUE***This field is used to indicate the source L2 ID of relay-related discovery transmission by L2 U2N Relay UE. |
| ***sl-TxInterestedFreqListDisc***Each entry of this field indicates the index of frequency on which the UE is interested to transmit NR sidelink discovery. The value 1 corresponds to the frequency of first entry in *sl-FreqInfoList* broadcast in *SIB12*, the value 2 corresponds to the frequency of second entry in *sl-FreqInfoList broadcast* in *SIB12* and so on. In this release, only value 1 can be included in the interested frequency list. In this release, only one entry can be included in the list. |

| *SL-PosTxResourceReq* field descriptions |
| --- |
| ***sl-CapabilityInformationSidelink***Includes the *UECapabilityInformationSidelink* message (which can be also included in *ueCapabilityInformationSidelink-r16* in *UECapabilityEnquirySidelink* from peer UE) received from the peer UE. |
| ***sl-PosCastType***Indicates the cast type for the SL-PRS transmission. |
| ***sl-PosDestinationIdentity***This field is used to indicate the destination L2 ID for which the TX resource request and allocation from the network are concerned for SL-PRS transmission |
| ***sl-PosQoS-InfoList***This field is used to indicate the QoS information for SL-PRS transmission. |
| ***sl-PosTxInterestedFreqList***Each entry of this field indicates the index of frequency on which the UE is interested to transmit SL-PRS. The value 1 corresponds to the frequency of first entry in sl-FreqInfoList broadcast in *SIB23*, the value 2 corresponds to the frequency of second entry in *sl-FreqInfoList* broadcast in *SIB23* and so on. In this release, only value 1 can be included in the interested frequency list. In this release, only one entry can be included in the list. |
| ***sl-PosTypeTxSyncList***A list of synchronization references used by the UE. The UE shall include the same number of entries, listed in the same order, as in *sl-TxInterestedFreqList*, i.e. one for each carrier frequency included in *sl-TxInterestedFreqList*. |
| ***sl-PRS-DelayBudget***Indicates the SL-PRS delay budget provided by upper layers (see TS 38.355 [77]). |
| ***sl-PRS-Priority***Indicates the priority of SL-PRS provided by upper layers (see TS 38.355 [77]). Value 1 is the highest priority whereas value 8 is the lowest priority. |
| ***sl-PRS-Bandwidth***Indicates the desired bandwidth of the requested SL-PRS resources provided by upper layers (see TS 38.355 [77]) in the unit of MHz. |

| *SL-TxResourceReqCommRelayInfo* field descriptions |
| --- |
| ***sl-RelayDRXConfig***This field is used to indicate the applied sidelink DRX configuration for the relay related communication. |
| ***sl-DestinationIdentityL2U2N***This field is used to indicate the destination L2 ID for which the TX resource request and allocation from the network are concerned for the established PC5 link for relay by L2 U2N Relay UE. |
| ***sl-LocalID-Request***This field is used to request local UE ID for the corresponding destination by the L2 U2N Relay UE. |
| ***sl-TxInterestedFreqListL2U2N***Each entry of this field indicates the index of frequency on which the UE is interested to transmit NR sidelink communication for established PC5 link for relay. The value 1 corresponds to the frequency of first entry in *sl-FreqInfoList* broadcast in SIB12, the value 2 corresponds to the frequency of second entry in *sl-FreqInfoList* broadcast in *SIB12* and so on. In this release, only value 1 can be included in the interested frequency list. In this release, only one entry can be included in the list. |
| ***sl-PagingIdentityRemoteUE***This field is used to indicate the paging UE ID(s) for the corresponding destination(s) by the L2 U2N Relay UE. |

| *SL-QoS-Info* field descriptions |
| --- |
| ***sl-TxInterestedFreqList***Each entry of this field indicates the index of frequency on which the UE is interested to transmit NR sidelink communication, for each QoS flow. The value 1 corresponds to the frequency of first entry in *sl-FreqInfoList* broadcast in *SIB12*, the value 2 corresponds to the frequency of first entry in *sl-FreqInfoListSizeExt* broadcast in *SIB12*, the value 3 corresponds to the frequency of second entry in *sl-FreqInfoListSizeExt* broadcast in *SIB12* and so on. |
| ***sl-TxProfile***Indicating Tx profile for each QoS flow, i.e., compatibility of supporting SL CA operation. The IE of *SL-TxProfile* is referred by upper layer signaling as specified TS 24.588 [78]. |

| *SL-CarrierFailure* field descriptions |
| --- |
| ***sl-CarrierFailure***Indicate the carrier(s) where the Sidelink carrier failure RLF has been indicated by lower layer as specified in TS 38.321 [3]. The value 1 corresponds to the frequency of first entry in *sl-FreqInfoList* broadcast in *SIB12*, the value 2 corresponds to the frequency of first entry in *sl-FreqInfoListSizeExt* broadcast in *SIB12*, the value 3 corresponds to the frequency of second entry in *sl-FreqInfoListSizeExt* broadcast in *SIB12* and so on. |
| ***sl-DestinationIdentity***This field is used to indicate the destination L2 ID for which the per-carrier RLF report is concerned. |

| *SL-TxResourceReqL2-U2U* field descriptions |
| --- |
| ***sl-CapabilityInformationSidelink***Includes the *UECapabilityInformationSidelink* message (which can be also included in *ueCapabilityInformationSidelink-r16* in *UECapabilityEnquirySidelink* from the L2 U2U Relay UE) received from the L2 U2U Relay UE. |
| ***sl-DestinationIdentityL2-U2U***This field is used to indicate the destination L2 ID for which the TX resource request and allocation from the network are concerned for the established per-hop PC5 link between the L2 U2U Remote UE and L2 U2U Relay UE. |
| ***sl-TxInterestedFreqListL2-U2U***Each entry of this field indicates the index of frequency on which the UE is interested to transmit NR sidelink communication for established per-hop PC5 link. The value 1 corresponds to the frequency of first entry in sl-FreqInfoList broadcast in SIB12, the value 2 corresponds to the frequency of second entry in sl-FreqInfoList broadcast in SIB12 and so on. In this release, only value 1 can be included in the interested frequency list. In this release, only one entry can be included in the list. |
| ***sl-U2U-InfoList***This field indicates the information related to a list of end-to-end PC5 links.  |

| *SL-U2U-Info* field descriptions |
| --- |
| ***sl-CapabilityInformationTargetRemoteUE***Includes the *UECapabilityInformationSidelink* message(which can be also included in *ueCapabilityInformationSidelink-r16* in *UECapabilityEnquirySidelink* from the target L2 U2U Remote UE) received from the target L2 U2U Remote UE. In this version of the specification, only *outOfOrderDeliverySidelink-r16* and *accessStratumReleaseSidelink-r16* are included in the *UECapabilityInformationSidelink* message. |
| ***sl-E2E-QoS-InfoList***This field is used by L2 U2U Remote UE to indicate a list of end-to-end QoS info. |
| ***sl-PerHop-QoS-InfoList***This field is used by L2 U2U Remote UE to indicate a list of split QoS info for the first hop. |
| ***sl-PerSLRB-QoS-InfoList***This field is used by L2 U2U Relay UE to indicate a list of split QoS info for the second hop in per-SLRB level, with each entry in accordance with an end-to-end SLRB. |
| ***sl-U2U-Identity***This field is to identify an end-to-end PC5 link. For a L2 U2U Remote UE acting as source UE it includes *sl-TargetUE-Identity* to indicate the target L2 U2U Remote UE on the second hop, and for a L2 U2U Relay UE, it includes *sl-SourceUE-Identity* to indicate the source L2 U2U Remote UE on the first hop. |

#### – *SystemInformation*

The *SystemInformation* message is used to convey one or more System Information Blocks or Positioning System Information Blocks. All the SIBs or posSIBs included are transmitted with the same periodicity.

Signalling radio bearer: N/A

RLC-SAP: TM

Logical channels: BCCH

Direction: Network to UE

*SystemInformation message*

-- ASN1START

-- TAG-SYSTEMINFORMATION-START

SystemInformation ::= SEQUENCE {

 criticalExtensions CHOICE {

 systemInformation SystemInformation-IEs,

 criticalExtensionsFuture-r16 CHOICE {

 posSystemInformation-r16 PosSystemInformation-r16-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

 }

}

SystemInformation-IEs ::= SEQUENCE {

 sib-TypeAndInfo SEQUENCE (SIZE (1..maxSIB)) OF CHOICE {

 sib2 SIB2,

 sib3 SIB3,

 sib4 SIB4,

 sib5 SIB5,

 sib6 SIB6,

 sib7 SIB7,

 sib8 SIB8,

 sib9 SIB9,

 ...,

 sib10-v1610 SIB10-r16,

 sib11-v1610 SIB11-r16,

 sib12-v1610 SIB12-r16,

 sib13-v1610 SIB13-r16,

 sib14-v1610 SIB14-r16,

 sib15-v1700 SIB15-r17,

 sib16-v1700 SIB16-r17,

 sib17-v1700 SIB17-r17,

 sib18-v1700 SIB18-r17,

 sib19-v1700 SIB19-r17,

 sib20-v1700 SIB20-r17,

 sib21-v1700 SIB21-r17,

 sib22-v1800 SIB22-r18,

 sib23-v1800 SIB23-r18,

 sib24-v1800 SIB24-r18,

 sib25-v1800 SIB25-r18,

 sib17bis-v1820 SIB17bis-r18

 },

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-SYSTEMINFORMATION-STOP

-- ASN1STOP

#### – *UEAssistanceInformation*

The *UEAssistanceInformation* message is used for the indication of UE assistance information to the network.

Signalling radio bearer: SRB1, SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*UEAssistanceInformation message*

-- ASN1START

-- TAG-UEASSISTANCEINFORMATION-START

UEAssistanceInformation ::= SEQUENCE {

 criticalExtensions CHOICE {

 ueAssistanceInformation UEAssistanceInformation-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

UEAssistanceInformation-IEs ::= SEQUENCE {

 delayBudgetReport DelayBudgetReport OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension UEAssistanceInformation-v1540-IEs OPTIONAL

}

DelayBudgetReport::= CHOICE {

 type1 ENUMERATED {

 msMinus1280, msMinus640, msMinus320, msMinus160,msMinus80, msMinus60, msMinus40,

 msMinus20, ms0, ms20,ms40, ms60, ms80, ms160, ms320, ms640, ms1280},

 ...

}

UEAssistanceInformation-v1540-IEs ::= SEQUENCE {

 overheatingAssistance OverheatingAssistance OPTIONAL,

 nonCriticalExtension UEAssistanceInformation-v1610-IEs OPTIONAL

}

OverheatingAssistance ::= SEQUENCE {

 reducedMaxCCs ReducedMaxCCs-r16 OPTIONAL,

 reducedMaxBW-FR1 ReducedMaxBW-FRx-r16 OPTIONAL,

 reducedMaxBW-FR2 ReducedMaxBW-FRx-r16 OPTIONAL,

 reducedMaxMIMO-LayersFR1 SEQUENCE {

 reducedMIMO-LayersFR1-DL MIMO-LayersDL,

 reducedMIMO-LayersFR1-UL MIMO-LayersUL

 } OPTIONAL,

 reducedMaxMIMO-LayersFR2 SEQUENCE {

 reducedMIMO-LayersFR2-DL MIMO-LayersDL,

 reducedMIMO-LayersFR2-UL MIMO-LayersUL

 } OPTIONAL

}

OverheatingAssistance-r17 ::= SEQUENCE {

 reducedMaxBW-FR2-2-r17 SEQUENCE {

 reducedBW-FR2-2-DL-r17 ReducedAggregatedBandwidth-r17,

 reducedBW-FR2-2-UL-r17 ReducedAggregatedBandwidth-r17

 } OPTIONAL,

 reducedMaxMIMO-LayersFR2-2 SEQUENCE {

 reducedMIMO-LayersFR2-2-DL MIMO-LayersDL,

 reducedMIMO-LayersFR2-2-UL MIMO-LayersUL

 } OPTIONAL

}

ReducedAggregatedBandwidth ::= ENUMERATED {mhz0, mhz10, mhz20, mhz30, mhz40, mhz50, mhz60, mhz80, mhz100, mhz200, mhz300, mhz400}

ReducedAggregatedBandwidth-r17 ::= ENUMERATED {mhz0, mhz100, mhz200, mhz400, mhz800, mhz1200, mhz1600, mhz2000}

UEAssistanceInformation-v1610-IEs ::= SEQUENCE {

 idc-Assistance-r16 IDC-Assistance-r16 OPTIONAL,

 drx-Preference-r16 DRX-Preference-r16 OPTIONAL,

 maxBW-Preference-r16 MaxBW-Preference-r16 OPTIONAL,

 maxCC-Preference-r16 MaxCC-Preference-r16 OPTIONAL,

 maxMIMO-LayerPreference-r16 MaxMIMO-LayerPreference-r16 OPTIONAL,

 minSchedulingOffsetPreference-r16 MinSchedulingOffsetPreference-r16 OPTIONAL,

 releasePreference-r16 ReleasePreference-r16 OPTIONAL,

 sl-UE-AssistanceInformationNR-r16 SL-UE-AssistanceInformationNR-r16 OPTIONAL,

 referenceTimeInfoPreference-r16 BOOLEAN OPTIONAL,

 nonCriticalExtension UEAssistanceInformation-v1700-IEs OPTIONAL

}

UEAssistanceInformation-v1700-IEs ::= SEQUENCE {

 ul-GapFR2-Preference-r17 UL-GapFR2-Preference-r17 OPTIONAL,

 musim-Assistance-r17 MUSIM-Assistance-r17 OPTIONAL,

 overheatingAssistance-r17 OverheatingAssistance-r17 OPTIONAL,

 maxBW-PreferenceFR2-2-r17 MaxBW-PreferenceFR2-2-r17 OPTIONAL,

 maxMIMO-LayerPreferenceFR2-2-r17 MaxMIMO-LayerPreferenceFR2-2-r17 OPTIONAL,

 minSchedulingOffsetPreferenceExt-r17 MinSchedulingOffsetPreferenceExt-r17 OPTIONAL,

 rlm-MeasRelaxationState-r17 BOOLEAN OPTIONAL,

 bfd-MeasRelaxationState-r17 BIT STRING (SIZE (1..maxNrofServingCells)) OPTIONAL,

 nonSDT-DataIndication-r17 SEQUENCE {

 resumeCause-r17 ResumeCause OPTIONAL

 } OPTIONAL,

 scg-DeactivationPreference-r17 ENUMERATED { scg-DeactivationPreferred, noPreference } OPTIONAL,

 uplinkData-r17 ENUMERATED { true } OPTIONAL,

 rrm-MeasRelaxationFulfilment-r17 BOOLEAN OPTIONAL,

 propagationDelayDifference-r17 PropagationDelayDifference-r17 OPTIONAL,

 nonCriticalExtension UEAssistanceInformation-v1800-IEs OPTIONAL

}

UEAssistanceInformation-v1800-IEs ::= SEQUENCE {

 idc-FDM-Assistance-r18 IDC-FDM-Assistance-r18 OPTIONAL,

 idc-TDM-Assistance-r18 IDC-TDM-Assistance-r18 OPTIONAL,

 multiRx-PreferenceFR2-r18 ENUMERATED {single, multiple } OPTIONAL,

 musim-Assistance-v1800 MUSIM-Assistance-v1800 OPTIONAL,

 flightPathInfoAvailable-r18 ENUMERATED {true} OPTIONAL,

 ul-TrafficInfo-r18 UL-TrafficInfo-r18 OPTIONAL,

 n3c-RelayUE-InfoList-r18 SEQUENCE (SIZE (0..8)) OF N3C-RelayUE-Info-r18 OPTIONAL,

 sl-PRS-UE-AssistanceInformationNR-r18 SL-PRS-UE-AssistanceInformationNR-r18 OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

IDC-Assistance-r16 ::= SEQUENCE {

 affectedCarrierFreqList-r16 AffectedCarrierFreqList-r16 OPTIONAL,

 affectedCarrierFreqCombList-r16 AffectedCarrierFreqCombList-r16 OPTIONAL,

 ...

}

AffectedCarrierFreqList-r16 ::= SEQUENCE (SIZE (1.. maxFreqIDC-r16)) OF AffectedCarrierFreq-r16

AffectedCarrierFreq-r16 ::= SEQUENCE {

 carrierFreq-r16 ARFCN-ValueNR,

 interferenceDirection-r16 ENUMERATED {nr, other, both, spare}

}

AffectedCarrierFreqCombList-r16 ::= SEQUENCE (SIZE (1..maxCombIDC-r16)) OF AffectedCarrierFreqComb-r16

AffectedCarrierFreqComb-r16 ::= SEQUENCE {

 affectedCarrierFreqComb-r16 SEQUENCE (SIZE (2..maxNrofServingCells)) OF ARFCN-ValueNR OPTIONAL,

 victimSystemType-r16 VictimSystemType-r16

}

VictimSystemType-r16 ::= SEQUENCE {

 gps-r16 ENUMERATED {true} OPTIONAL,

 glonass-r16 ENUMERATED {true} OPTIONAL,

 bds-r16 ENUMERATED {true} OPTIONAL,

 galileo-r16 ENUMERATED {true} OPTIONAL,

 navIC-r16 ENUMERATED {true} OPTIONAL,

 wlan-r16 ENUMERATED {true} OPTIONAL,

 bluetooth-r16 ENUMERATED {true} OPTIONAL,

 ...,

 [[

 uwb-r18 ENUMERATED {true} OPTIONAL

 ]]

}

DRX-Preference-r16 ::= SEQUENCE {

 preferredDRX-InactivityTimer-r16 ENUMERATED {

 ms0, ms1, ms2, ms3, ms4, ms5, ms6, ms8, ms10, ms20, ms30, ms40, ms50, ms60, ms80,

 ms100, ms200, ms300, ms500, ms750, ms1280, ms1920, ms2560, spare9, spare8,

 spare7, spare6, spare5, spare4, spare3, spare2, spare1} OPTIONAL,

 preferredDRX-LongCycle-r16 ENUMERATED {

 ms10, ms20, ms32, ms40, ms60, ms64, ms70, ms80, ms128, ms160, ms256, ms320, ms512,

 ms640, ms1024, ms1280, ms2048, ms2560, ms5120, ms10240, spare12, spare11, spare10,

 spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1 } OPTIONAL,

 preferredDRX-ShortCycle-r16 ENUMERATED {

 ms2, ms3, ms4, ms5, ms6, ms7, ms8, ms10, ms14, ms16, ms20, ms30, ms32,

 ms35, ms40, ms64, ms80, ms128, ms160, ms256, ms320, ms512, ms640, spare9,

 spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1 } OPTIONAL,

 preferredDRX-ShortCycleTimer-r16 INTEGER (1..16) OPTIONAL

}

MaxBW-Preference-r16 ::= SEQUENCE {

 reducedMaxBW-FR1-r16 ReducedMaxBW-FRx-r16 OPTIONAL,

 reducedMaxBW-FR2-r16 ReducedMaxBW-FRx-r16 OPTIONAL

}

MaxBW-PreferenceFR2-2-r17 ::= SEQUENCE {

 reducedMaxBW-FR2-2-r17 SEQUENCE {

 reducedBW-FR2-2-DL-r17 ReducedAggregatedBandwidth-r17 OPTIONAL,

 reducedBW-FR2-2-UL-r17 ReducedAggregatedBandwidth-r17 OPTIONAL

 } OPTIONAL

}

MaxCC-Preference-r16 ::= SEQUENCE {

 reducedMaxCCs-r16 ReducedMaxCCs-r16 OPTIONAL

}

MaxMIMO-LayerPreference-r16 ::= SEQUENCE {

 reducedMaxMIMO-LayersFR1-r16 SEQUENCE {

 reducedMIMO-LayersFR1-DL-r16 INTEGER (1..8),

 reducedMIMO-LayersFR1-UL-r16 INTEGER (1..4)

 } OPTIONAL,

 reducedMaxMIMO-LayersFR2-r16 SEQUENCE {

 reducedMIMO-LayersFR2-DL-r16 INTEGER (1..8),

 reducedMIMO-LayersFR2-UL-r16 INTEGER (1..4)

 } OPTIONAL

}

MaxMIMO-LayerPreferenceFR2-2-r17 ::= SEQUENCE {

 reducedMaxMIMO-LayersFR2-2-r17 SEQUENCE {

 reducedMIMO-LayersFR2-2-DL-r17 INTEGER (1..8),

 reducedMIMO-LayersFR2-2-UL-r17 INTEGER (1..4)

 } OPTIONAL

}

MinSchedulingOffsetPreference-r16 ::= SEQUENCE {

 preferredK0-r16 SEQUENCE {

 preferredK0-SCS-15kHz-r16 ENUMERATED {sl1, sl2, sl4, sl6} OPTIONAL,

 preferredK0-SCS-30kHz-r16 ENUMERATED {sl1, sl2, sl4, sl6} OPTIONAL,

 preferredK0-SCS-60kHz-r16 ENUMERATED {sl2, sl4, sl8, sl12} OPTIONAL,

 preferredK0-SCS-120kHz-r16 ENUMERATED {sl2, sl4, sl8, sl12} OPTIONAL

 } OPTIONAL,

 preferredK2-r16 SEQUENCE {

 preferredK2-SCS-15kHz-r16 ENUMERATED {sl1, sl2, sl4, sl6} OPTIONAL,

 preferredK2-SCS-30kHz-r16 ENUMERATED {sl1, sl2, sl4, sl6} OPTIONAL,

 preferredK2-SCS-60kHz-r16 ENUMERATED {sl2, sl4, sl8, sl12} OPTIONAL,

 preferredK2-SCS-120kHz-r16 ENUMERATED {sl2, sl4, sl8, sl12} OPTIONAL

 } OPTIONAL

}

MinSchedulingOffsetPreferenceExt-r17 ::= SEQUENCE {

 preferredK0-r17 SEQUENCE {

 preferredK0-SCS-480kHz-r17 ENUMERATED {sl8, sl16, sl32, sl48} OPTIONAL,

 preferredK0-SCS-960kHz-r17 ENUMERATED {sl8, sl16, sl32, sl48} OPTIONAL

 } OPTIONAL,

 preferredK2-r17 SEQUENCE {

 preferredK2-SCS-480kHz-r17 ENUMERATED {sl8, sl16, sl32, sl48} OPTIONAL,

 preferredK2-SCS-960kHz-r17 ENUMERATED {sl8, sl16, sl32, sl48} OPTIONAL

 } OPTIONAL

}

MUSIM-Assistance-r17 ::= SEQUENCE {

 musim-PreferredRRC-State-r17 ENUMERATED {idle, inactive, outOfConnected} OPTIONAL,

 musim-GapPreferenceList-r17 MUSIM-GapPreferenceList-r17 OPTIONAL

}

MUSIM-GapPreferenceList-r17 ::= SEQUENCE (SIZE (1..4)) OF MUSIM-GapInfo-r17

MUSIM-Assistance-v1800 ::= SEQUENCE {

 musim-GapPriorityPreferenceList-r18 MUSIM-GapPriorityPreferenceList-r18 OPTIONAL,

 musim-GapKeepPreference-r18 ENUMERATED {true} OPTIONAL,

 musim-CapRestriction-r18 MUSIM-CapRestriction-r18 OPTIONAL,

 musim-NeedForGapsInfoNR-r18 NeedForGapsInfoNR-r16 OPTIONAL,

 ...

}

MUSIM-GapPriorityPreferenceList-r18 ::= SEQUENCE (SIZE (1..3)) OF GapPriority-r17

MUSIM-CapRestriction-r18 ::= SEQUENCE {

 musim-Cell-SCG-ToRelease-r18 MUSIM-Cell-SCG-ToRelease-r18 OPTIONAL,

 musim-CellToAffectList-r18 MUSIM-CellToAffectList-r18 OPTIONAL,

 musim-AffectedBandsList-r18 MUSIM-AffectedBandsList-r18 OPTIONAL,

 musim-AvoidedBandsList-r18 MUSIM-AvoidedBandsList-r18 OPTIONAL,

 musim-MaxCC-r18 MUSIM-MaxCC-r18 OPTIONAL

}

MUSIM-Cell-SCG-ToRelease-r18 ::= SEQUENCE {

 musim-CellToRelease-r18 MUSIM-CellToRelease-r18 OPTIONAL,

 scg-ReleasePreference-r18 ENUMERATED {true} OPTIONAL

}

MUSIM-CellToRelease-r18 ::= SEQUENCE (SIZE (1..maxNrofServingCells)) OF ServCellIndex

MUSIM-CellToAffectList-r18::= SEQUENCE (SIZE (1..maxNrofServingCells)) OF MUSIM-CellToAffect-r18

MUSIM-CellToAffect-r18 ::= SEQUENCE {

 musim-ServCellIndex-r18 ServCellIndex,

 musim-MIMO-Layers-DL-r18 INTEGER (1..8) OPTIONAL,

 musim-MIMO-Layers-UL-r18 INTEGER (1..4) OPTIONAL,

 musim-SupportedBandwidth-DL-r18 SupportedBandwidth-v1700 OPTIONAL,

 musim-SupportedBandwidth-UL-r18 SupportedBandwidth-v1700 OPTIONAL

}

MUSIM-AffectedBandsList-r18 ::= SEQUENCE (SIZE (1..maxBandComb-MUSIM-r18)) OF MUSIM-AffectedBands-r18

MUSIM-AffectedBands-r18 ::= SEQUENCE (SIZE (1..maxCandidateBandIndex-r18)) OF MUSIM-CapabilityRestrictedBandParameters-r18

MUSIM-CapabilityRestrictedBandParameters-r18 ::= SEQUENCE {

 musim-bandEntryIndex-r18 MUSIM-BandEntryIndex-r18,

 musim-CapabilityRestricted-r18 SEQUENCE {

 musim-MIMO-Layers-DL-r18 INTEGER (1..8) OPTIONAL,

 musim-MIMO-Layers-UL-r18 INTEGER (1..4) OPTIONAL,

 musim-SupportedBandwidth-DL-r18 SupportedBandwidth-v1700 OPTIONAL,

 musim-SupportedBandwidth-UL-r18 SupportedBandwidth-v1700 OPTIONAL

 }

}

MUSIM-AvoidedBandsList-r18 ::= SEQUENCE (SIZE (1..maxBandComb-MUSIM-r18)) OF MUSIM-AvoidedBands-r18

MUSIM-AvoidedBands-r18 ::= SEQUENCE (SIZE (1..maxCandidateBandIndex-r18)) OF MUSIM-BandEntryIndex-r18

MUSIM-BandEntryIndex-r18 ::= INTEGER(1.. maxCandidateBandIndex-r18)

MUSIM-MaxCC-r18 ::= SEQUENCE {

 musim-MaxCC-TotalDL-r18 INTEGER (1..32) OPTIONAL,

 musim-MaxCC-TotalUL-r18 INTEGER (1..32) OPTIONAL,

 musim-MaxCC-FR1-DL-r18 INTEGER (1..32) OPTIONAL,

 musim-MaxCC-FR1-UL-r18 INTEGER (1..32) OPTIONAL,

 musim-MaxCC-FR2-1-DL-r18 INTEGER (1..32) OPTIONAL,

 musim-MaxCC-FR2-1-UL-r18 INTEGER (1..32) OPTIONAL,

 musim-MaxCC-FR2-2-DL-r18 INTEGER (1..32) OPTIONAL,

 musim-MaxCC-FR2-2-UL-r18 INTEGER (1..32) OPTIONAL

}

ReleasePreference-r16 ::= SEQUENCE {

 preferredRRC-State-r16 ENUMERATED {idle, inactive, connected, outOfConnected}

}

ReducedMaxBW-FRx-r16 ::= SEQUENCE {

 reducedBW-DL-r16 ReducedAggregatedBandwidth,

 reducedBW-UL-r16 ReducedAggregatedBandwidth

}

ReducedMaxCCs-r16 ::= SEQUENCE {

 reducedCCsDL-r16 INTEGER (0..31),

 reducedCCsUL-r16 INTEGER (0..31)

}

SL-UE-AssistanceInformationNR-r16 ::= SEQUENCE (SIZE (1..maxNrofTrafficPattern-r16)) OF SL-TrafficPatternInfo-r16

SL-TrafficPatternInfo-r16::= SEQUENCE {

 trafficPeriodicity-r16 ENUMERATED {ms20, ms50, ms100, ms200, ms300, ms400, ms500, ms600, ms700, ms800, ms900, ms1000},

 timingOffset-r16 INTEGER (0..10239),

 messageSize-r16 BIT STRING (SIZE (8)),

 sl-QoS-FlowIdentity-r16 SL-QoS-FlowIdentity-r16

}

UL-GapFR2-Preference-r17::= SEQUENCE {

 ul-GapFR2-PatternPreference-r17 INTEGER (0..3) OPTIONAL

}

PropagationDelayDifference-r17 ::= SEQUENCE (SIZE (1..4)) OF INTEGER (-270..270)

IDC-FDM-Assistance-r18 ::= SEQUENCE {

 affectedCarrierFreqRangeList-r18 AffectedCarrierFreqRangeList-r18 OPTIONAL,

 affectedCarrierFreqRangeCombList-r18 AffectedCarrierFreqRangeCombList-r18 OPTIONAL,

 ...

}

IDC-TDM-Assistance-r18 ::= SEQUENCE {

 cycleLength-r18 ENUMERATED {ms2, ms3, ms4, ms5, ms6, ms7, ms8, ms10, ms14, ms16, ms20, ms30,

 ms32, ms35, ms40, ms60, ms64, ms70, ms80, ms96, ms100, ms128, ms160,

 ms256, ms320, ms512, ms640, ms1024, ms1280, ms2048, ms2560, ms5120, ms10240},

 startOffset-r18 INTEGER (0..10239),

 slotOffset-r18 INTEGER (0..31),

 activeDuration-r18 CHOICE {

 subMilliSeconds INTEGER (1..31),

 milliSeconds ENUMERATED {

 ms1, ms2, ms3, ms4, ms5, ms6, ms8, ms10, ms20, ms30, ms40, ms50, ms60,

 ms80, ms100, ms200, ms300, ms400, ms500, ms600, ms800, ms1000, ms1200,

 ms1600, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1 }

 },

 ...

}

AffectedCarrierFreqRangeList-r18 ::= SEQUENCE (SIZE (1..maxFreqIDC-r16)) OF AffectedCarrierFreqRange-r18

AffectedCarrierFreqRange-r18 ::= SEQUENCE {

 affectedFreqRange-r18 AffectedFreqRange-r18,interferenceDirection-r18 ENUMERATED {nr, other, both, spare},

 victimSystemType-r18 VictimSystemType-r16 OPTIONAL

}

AffectedCarrierFreqRangeCombList-r18 ::= SEQUENCE (SIZE (1..maxCombIDC-r16)) OF AffectedCarrierFreqRangeComb-r18

AffectedCarrierFreqRangeComb-r18 ::= SEQUENCE {

 affectedCarrierFreqRangeComb-r18 SEQUENCE (SIZE (2..maxNrofServingCells)) OF AffectedFreqRange-r18,

 interferenceDirection-r18 ENUMERATED {nr, other, both, spare},

 victimSystemType-r18 VictimSystemType-r16 OPTIONAL

}

AffectedFreqRange-r18 ::= SEQUENCE {

 centerFreq-r18 ARFCN-ValueNR,

 affectedBandwidth-r18 ENUMERATED {khz200, khz400, khz600, khz800, mhz1, mhz2, mhz3, mhz4, mhz5, mhz6,

 mhz8, mhz10, mhz20, mhz30, mhz40, mhz50, mhz60, mhz80, mhz100, mhz200,

 mhz300, mhz400, spare10, spare9, spare8, spare7, spare6, spare5, spare4,

 spare3, spare2, spare1}

}

UL-TrafficInfo-r18 ::= SEQUENCE (SIZE (1..maxNrofPDU-Sessions-r17)) OF PDU-SessionUL-TrafficInfo-r18

PDU-SessionUL-TrafficInfo-r18 ::= SEQUENCE {

 pdu-SessionID-r18 PDU-SessionID,

 qos-FlowUL-TrafficInfoList-r18 SEQUENCE (SIZE (1..maxNrofQFIs)) OF QOS-FlowUL-TrafficInfo-r18

}

QOS-FlowUL-TrafficInfo-r18 ::= SEQUENCE {

 qfi-r18 QFI,

 jitterRange-r18 SEQUENCE {

 lowerBound-r18 JitterBound-r18,

 upperBound-r18 JitterBound-r18

 } OPTIONAL,

 burstArrivalTime-r18 CHOICE {

 referenceTime ReferenceTime-r16,

 referenceSFN-AndSlot ReferenceSFN-AndSlot-r18

 } OPTIONAL,

 trafficPeriodicity-r18 INTEGER (1..640000) OPTIONAL,

 pduSetIdentification-r18 BOOLEAN OPTIONAL,

 psiIdentification-r18 BOOLEAN OPTIONAL,

 ...

}

ReferenceSFN-AndSlot-r18 ::= SEQUENCE {

 referenceSFN-r18 INTEGER (0..1023),

 referenceSlot-r18 INTEGER (0..639)

}

JitterBound-r18 ::= ENUMERATED {ms0, ms0dot5, ms1, ms1dot5, ms2, ms2dot5, ms3, ms3dot5, ms4, ms4dot5, ms5, ms5dot5, ms6, ms6dot5, ms7, beyondMs7}

SL-PRS-UE-AssistanceInformationNR-r18 ::= SEQUENCE (SIZE (1..maxNrofSL-PRS-TxConfig-r18)) OF SL-PRS-TxInfo-r18

SL-PRS-TxInfo-r18 ::= SEQUENCE {

 sl-PRS-Periodicity-r18 ENUMERATED {ms100, ms200, ms300, ms400, ms500, ms600, ms700, ms800, ms900, ms1000, spare6,

 spare5, spare4, spare3, spare2, spare1},

 sl-PRS-Priority-r18 INTEGER (1..8) OPTIONAL,

 sl-PRS-DelayBudget-r18 INTEGER (0..1023) OPTIONAL,

 sl-PRS-Bandwidth-r18 ENUMERATED {mhz5, mhz10, mhz15, mhz20, mhz25, mhz30, mhz35, mhz40,

 mhz45, mhz50, mhz60, mhz70, mhz80, mhz90, mhz100, mhz200, mhz400,

 spare15, spare14, spare13, spare12, spare11, spare10, spare9, spare8,

 spare7, spare6, spare5, spare4, spare3, spare2, spare1} OPTIONAL,

 ...

}

-- TAG-UEASSISTANCEINFORMATION-STOP

-- ASN1STOP

|  |
| --- |
| *UEAssistanceInformation* field descriptions |
| ***activeDuration***Indicates the UE's preferred active duration to resolve the IDC problem. Value in multiples of 1/32 ms (subMilliSeconds) or in ms (milliSecond). For the latter, value ms1 corresponds to 1 ms, value ms2 corresponds to 2 ms, and so on. |
| ***affectedBandwidth***Indicates the bandwidth around the center frequency of the carrier frequency range which is affected by the IDC problem. Value mhz5 corresponds to 5 MHz, value mhz10 corresponds to 10 MHz and so on. If *candidateBandwidth* is not configured, the UE is allowed to report the frequency range for any bandwidth as indicated by *affectedBandwidth*, within the frequency band limitation as defined in TS 38.101-1 [15], TS 38.101-2 [39], TS 38.101-3 [34] and TS 38.101-5 [75]. |
| ***affectedCarrierFreqList***Indicates a list of NR carrier frequencies that are affected by IDC problem. |
| ***affectedCarrierFreqRangeList***Indicates a list of NR carrier frequency ranges that are affected by IDC problem. |
| ***affectedCarrierFreqCombList***Indicates a list of NR carrier frequency combinations that are affected by IDC problems due to Inter-Modulation Distortion and harmonics from NR when configured with UL CA or NR-DC. |
| ***affectedCarrierFreqRangeCombList***Indicates a list of NR carrier frequency range combinations that are affected by IDC problems due to Inter-Modulation Distortion and harmonics from NR when configured with UL CA or NR-DC |
| ***bfd-MeasRelaxationState***Indicates the relaxation state of BFD measurements. Each bit corresponds to a serving cell of the cell group. A serving cell is mapped to the (*servCellIndex*+1)-th bit, starting from MSB. A bit that is set to 1 indicates that the UE is performing BFD measurements relaxation on the serving cell mapped on the bit. A bit that is set to 0 indicates that the UE is not performing BFD measurements relaxation on the serving cell mapped on the bit. If a serving cell is not configured to the UE, the corresponding bit is set to 0. |
| ***centerFreq***Indicates the center frequency of the carrier frequency range which is affected by the IDC problem. |
| ***cycleLength***Indicates the UE's preferred cycle length to resolve the IDC problem. Value in ms. Value *ms2* corresponds to 2 ms, value *ms3* corresponds to 3 ms, and so on. |
| ***delayBudgetReport***Indicates the UE-preferred adjustment to connected mode DRX. |
| ***interferenceDirection***Indicates the direction of IDC interference. Value *nr* indicates that only NR is victim of IDC interference, value *other* indicates that only another radio is victim of IDC interference and value *both* indicates that both NR and another radio are victims of IDC interference. The other radio refers to either the ISM radio or GNSS (see TR 36.816 [44]). |
| ***minSchedulingOffsetPreference***Indicates the UE's preferences on *minimumSchedulingOffset* of cross-slot scheduling for power saving. |
| ***minSchedulingOffsetPreferenceExt***Indicates the UE's preferences on *minimumSchedulingOffset* of cross-slot scheduling for power saving for SCS 480 kHz and/or 960 kHz. |
| ***multiRx-PreferenceFR2***Indicates the UE's preference on single FR2 Rx operation to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cells operating on FR2. |
| ***musim-AffectedBandsList***Indicates the UE's preference on the band(s) and/or combination(s) of bands with restricted capability for MUSIM operation. UE explicitly indicates each band and each combination of bands that are affected. The Network should respect these capability restrictions when configuring the UE with bands or band combinations that contain these bands and/or combination of bands. Fields musim-MIMO-Layers-DL/UL and musim-SupportedBandwidth-DL/UL indicate the max number of MIMO layers and max bandwidth on each CC of the band, respectively. The band(s) and/or combination(s) of bands is a subset of the band combination(s) in UE capability, and the *musim-MIMO-Layers-DL/UL* and *musim-SupportedBandwidth-DL/UL* range up to the concerned capability of band(s) and/or combination(s) of bands in UE capability. |
| ***musim-AvoidedBandsList***Indicates the UE's preference on band(s) and/or combination(s) of bands to be avoided for MUSIM purpose. UE explicitly indicates each band and each combination of bands to be avoided. The Network should respect these capability restrictions when configuring the UE with bands or band combinations that contain these bands and/or combination of bands. The band(s) and/or combination(s) of bands is a subset of the band combination(s) in UE capability. |
| ***musim-bandEntryIndex***Indicates an NR band by referring to the position of a band entry in *musim-CandidateBandList* IE. Value 1 identifies the first band in the *musim-CandidateBandList* IE, value 2 identifies the second band in the *musim-CandidateBandList* IE, and so on. |
| ***musim-CapabilityRestricted***Indicates the UE's preference on the temporary capability restriction on the band for MUSIM operation. |
| ***musim-CapRestriction***Indicates the UE's preference on SCell(s) or PSCell to be released, serving cell(s) with restricted capability, band(s) or combination(s) of bands with restricted capability, or band(s) or band combination(s) to be avoided for UE temporary capabilities restriction. |
| ***musim-Cell-SCG-ToRelease***Indicates the UE's preference on any serving cell(s), except for Pcell, and/or SCG to be releasedfor MUSIM operation. |
| ***musim-CellToAffectList***Indicates the UE's preference on the temporary capability restriction on the serving cell(s) for MUSIM operation. |
| ***musim-CellToRelease***Indicates the UE's preference on the temporary capability restriction on the serving cell(s) to release, except PCell, for MUSIM operation. |
| ***musim-GapKeepPreference***Indicates the UE's preference to keep all colliding gaps for requested MUSIM gap(s). If the field is absent, the colliding MUSIM gaps with lower priority shall be dropped as specified in TS 38.133 [14]. |
| ***musim-GapPreferenceList***Indicates the UE's MUSIM gap preference and related MUSIM gap configuration, as defined in TS 38.133 [14] clause 9.1.10. |
| ***musim-GapPriorityPreferenceList***Indicates the UE's MUSIM gap priority preference for periodic MUSIM gaps as specified in TS 38.133[14].If the UE includes *musim-GapPriorityPreferenceList-r18*, it includes the same number of entries, and listed in the same order for periodic gaps, as in *musim-GapPreferenceList-r17*. |
| ***musim-MaxCC***Indicates the UE's preference on the temporary capability restriction on maximum number of CCs per DL/UL in total, and per FR1/FR2-1/F2-2. |
| ***musim-NeedForGapsInfoNR***This field is used to indicate the measurement gap requirement information of the UE for NR target bands when in MUSIM operation while NR-DC or NE-DC is not configured.  |
| ***musim-PreferredRRC-State***Indicates the UE's preferred RRC state when leaving RRC\_CONNECTED. |
| ***n3c-RelayUE-InfoList***Information of available N3C relay UE(s). |
| ***nonSDT-DataIndication***Informs the network about the arrival of data and/or signaling mapped to radio bearers not configured for SDT while SDT procedure is ongoing. |
| ***preferredDRX-InactivityTimer***Indicates the UE's preferred DRX inactivity timer length for power saving. Value in ms (milliSecond). *ms0* corresponds to 0, *ms1* corresponds to 1 ms, *ms2* corresponds to 2 ms, and so on. If the field is absent from the *DRX-Preference* IE, it is interpreted as the UE having no preference for the DRX inactivity timer. If secondary DRX group is configured, the *preferredDRX-InactivityTimer* only applies to the default DRX group. |
| ***preferredDRX-LongCycle***Indicates the UE's preferred long DRX cycle length for power saving. Value in ms. *ms10* corresponds to 10ms, *ms20* corresponds to 20 ms, *ms32* corresponds to 32 ms, and so on. If *preferredDRX-ShortCycle* is provided, the value of *preferredDRX-LongCycle* shall be a multiple of the *preferredDRX-ShortCycle* value. If the field is absent from the *DRX-Preference* IE, it is interpreted as the UE having no preference for the long DRX cycle. |
| ***preferredDRX-ShortCycle***Indicates the UE's preferred short DRX cycle length for power saving. Value in ms. *ms2* corresponds to 2ms, *ms3* corresponds to 3 ms, *ms4* corresponds to 4 ms, and so on. If the field is absent from the *DRX-Preference* IE, it is interpreted as the UE having no preference for the short DRX cycle. |
| ***preferredDRX-ShortCycleTimer***Indicates the UE's preferred short DRX cycle timer for power saving. Value in multiples of *preferredDRX-ShortCycle*. A value of 1 corresponds to *preferredDRX-ShortCycle*, a value of 2 corresponds to 2 \* *preferredDRX-ShortCycle* and so on. If the field is absent from the *DRX-Preference* IE, it is interpreted as the UE having no preference for the short DRX cycle timer. A preference for the short DRX cycle is indicated when a preference for the short DRX cycle timer is indicated. |
| ***preferredK0***Indicates the UE's preferred value of *k0* (slot offset between DCI and its scheduled PDSCH - see TS 38.214 [19], clause 5.1.2.1) for cross-slot scheduling for power saving. Value is defined for each subcarrier spacing (numerology) in units of slots. *sl1* corresponds to 1 slot, *sl2* corresponds to 2 slots, *sl4* corresponds to 4 slots, and so on. If a value for a subcarrier spacing is absent, it is interpreted as the UE having no preference on *k0* for cross-slot scheduling for that subcarrier spacing. If the field is absent from the *MinSchedulingOffsetPreference* IE, it is interpreted as the UE having no preference on *k0* for cross-slot scheduling. |
| ***preferredK2***Indicates the UE's preferred value of *k2* (slot offset between DCI and its scheduled PUSCH - see TS 38.214 [19], clause 6.1.2.1) for cross-slot scheduling for power saving. Value is defined for each subcarrier spacing (numerology) in units of slots. *sl1* corresponds to 1 slot, *sl2* corresponds to 2 slots, *sl4* corresponds to 4 slots, and so on. If a value for a subcarrier spacing is absent, it is interpreted as the UE having no preference on *k2* for cross-slot scheduling for that subcarrier spacing. If the field is absent from the *MinSchedulingOffsetPreference* IE, it is interpreted as the UE having no preference on *k2* for cross-slot scheduling. |
| ***preferredRRC-State***Indicates the UE's preferred RRC state. The value *idle* is indicated if the UE prefers to be released from RRC\_CONNECTED and transition to RRC\_IDLE. The value *inactive* is indicated if the UE prefers to be released from RRC\_CONNECTED and transition to RRC\_INACTIVE. The value *connected* is indicated if the UE prefers to revert an earlier indication to leave RRC\_CONNECTED state. The value *outOfConnected* is indicated if the UE prefers to be released from RRC\_CONNECTED and has no preferred RRC state to transition to. The value *connected* can only be indicated if the UE is configured with *connectedReporting*. |
| ***propagationDelayDifference***Indicates the one-way service link propagation delay difference between serving cell and each neighbour cell included in *neighCellInfoList,* defined as neighbour cell's service link propagation delay minus serving cell's service link propagation delay, in number of ms. First entry in *propagationDelayDifference* corresponds to first entry in *neighCellInfoList*, second entry in *propagationDelayDifference* corresponds to second entry in *neighCellInfoList*, and so on. |
| ***reducedCCsDL***Indicates the UE's preference on reduced configuration corresponding to the maximum number of downlink SCells indicated by the field, to address overheating or power saving.When indicated to address overheating, this maximum number includes SCells of the NR MCG, PSCell and SCells of the SCG. This maximum number only includes PSCell and SCells of the SCG in (NG)EN-DC.When indicated to address power saving, this maximum number includes PSCell and SCells of the cell group that this UE assistance information is associated with. The maximum number of downlink SCells can only range up to the current active configuration when indicated to address power savings. |
| ***reducedCCsUL***Indicates the UE's preference on reduced configuration corresponding to the maximum number of uplink SCells indicated by the field, to address overheating or power saving.When indicated to address overheating, this maximum number includes SCells of the NR MCG, PSCell and SCells of the SCG. This maximum number only includes PSCell and SCells of the SCG in (NG)EN-DC.When indicated to address power saving, this maximum number includes PSCell and SCells of the cell group that this UE assistance information is associated with. The maximum number of uplink SCells can only range up to the current active configuration when indicated to address power savings. |
| ***reducedMaxBW-FR1***Indicates the UE's preference on reduced configuration corresponding to the maximum aggregated bandwidth across all downlink carrier(s) and across all uplink carrier(s) of FR1, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cell(s) operating on FR1. The aggregated bandwidth across all downlink carrier(s) of FR1 is the sum of bandwidth of active downlink BWP(s) across all activated downlink carrier(s) of FR1. The aggregated bandwidth across all uplink carrier(s) of FR1 is the sum of bandwidth of active uplink BWP(s) across all activated uplink carrier(s) of FR1. If the field is absent from the *MaxBW-Preference* IE or the *OverheatingAssistance* IE, it is interpreted as the UE having no preference on the maximum aggregated bandwidth of FR1.When indicated to address overheating, this maximum aggregated bandwidth includes carrier(s) of FR1 of both the NR MCG and the SCG. This maximum aggregated bandwidth only includes carriers of FR1 of the SCG in (NG)EN-DC. Value *mhz0* is not used when indicated to address overheating.When indicated to address power saving, this maximum aggregated bandwidth includes carrier(s) of FR1 of the cell group that this UE assistance information is associated with. The aggregated bandwidth can only range up to the current active configuration when indicated to address power savings. |
| ***reducedMaxBW-FR2***Indicates the UE's preference on reduced configuration corresponding to the maximum aggregated bandwidth across all downlink carrier(s) and across all uplink carrier(s) of FR2-1, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cell(s) operating on FR2-1. The aggregated bandwidth across all downlink carrier(s) of FR2-1 is the sum of bandwidth of active downlink BWP(s) across all activated downlink carrier(s) of FR2-1. The aggregated bandwidth across all uplink carrier(s) of FR2-1 is the sum of bandwidth of active uplink BWP(s) across all activated uplink carrier(s) of FR2-1. If the field is absent from the *MaxBW-Preference* IE or the *OverheatingAssistance* IE, it is interpreted as the UE having no preference on the maximum aggregated bandwidth of FR2-1.When indicated to address overheating, this maximum aggregated bandwidth includes carrier(s) of FR2-1 of both the NR MCG and the NR SCG. This maximum aggregated bandwidth only includes carriers of FR2-1 of the SCG in (NG)EN-DC.When indicated to address power saving, this maximum aggregated bandwidth includes carrier(s) of FR2-1 of the cell group that this UE assistance information is associated with. The aggregated bandwidth can only range up to the current active configuration when indicated to address power savings. |
| ***reducedMaxBW-FR2-2***Indicates the UE's preference on reduced configuration corresponding to the maximum aggregated bandwidth across all downlink carrier(s) and across all uplink carrier(s) of FR2-2, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cell(s) operating on FR2-2. The aggregated bandwidth across all downlink carrier(s) of FR2-2 is the sum of bandwidth of active downlink BWP(s) across all activated downlink carrier(s) of FR2-2. The aggregated bandwidth across all uplink carrier(s) of FR2-2 is the sum of bandwidth of active uplink BWP(s) across all activated uplink carrier(s) of FR2-2. If the field is absent from the *MaxBW-PreferenceFR2-2* IE or the *OverheatingAssistance* IE, it is interpreted as the UE having no preference on the maximum aggregated bandwidth of FR2-2.When indicated to address overheating, this maximum aggregated bandwidth includes carrier(s) of FR2-2 of both the NR MCG and the NR SCG. This maximum aggregated bandwidth only includes carriers of FR2-2 of the SCG in (NG)EN-DC.When indicated to address power saving, this maximum aggregated bandwidth includes carrier(s) of FR2-2 of the cell group that this UE assistance information is associated with. The aggregated bandwidth can only range up to the current active configuration when indicated to address power savings. |
| ***reducedMIMO-LayersFR1-DL***Indicates the UE's preference on reduced configuration corresponding to the maximum number of downlink MIMO layers of each serving cell operating on FR1 indicated by the field, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cells operating on FR1. The maximum number of downlink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated downlink carrier(s) of FR1 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR1-UL***Indicates the UE's preference on reduced configuration corresponding to the maximum number of uplink MIMO layers of each serving cell operating on FR1 indicated by the field, to address overheating or power saving (see NOTE 1). This field is allowed to be reported only when UE is configured with serving cells operating on FR1. The maximum number of uplink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated uplink carrier(s) of FR1 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR2-DL***Indicates the UE's preference on reduced configuration corresponding to the maximum number of downlink MIMO layers of each serving cell operating on FR2-1 indicated by the field, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cells operating on FR2-1. The maximum number of downlink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated downlink carrier(s) of FR2-1 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR2-UL***Indicates the UE's preference on reduced configuration corresponding to the maximum number of uplink MIMO layers of each serving cell operating on FR2-1 indicated by the field, to address overheating or power saving (see NOTE 1). This field is allowed to be reported only when UE is configured with serving cells operating on FR2-1. The maximum number of uplink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated uplink carrier(s) of FR2-1 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR2-2-DL***Indicates the UE's preference on reduced configuration corresponding to the maximum number of downlink MIMO layers of each serving cell operating on FR2-2 indicated by the field, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cells operating on FR2-2. The maximum number of downlink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated downlink carrier(s) of FR2-2 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR2-2-UL***Indicates the UE's preference on reduced configuration corresponding to the maximum number of uplink MIMO layers of each serving cell operating on FR2-2 indicated by the field, to address overheating or power saving (see NOTE 1). This field is allowed to be reported only when UE is configured with serving cells operating on FR2-2. The maximum number of uplink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated uplink carrier(s) of FR2-2 in the cell group when indicated to address power savings. |
| ***referenceTimeInfoPreference***Indicates whether the UE prefers being provisioned with the timing information specified in the IE *ReferenceTimeInfo*. |
| ***resumeCause***Provides the resume cause based on the information received from the upper layers. |
| ***rlm-MeasRelaxationState***Indicates the relaxation state of RLM measurements. Value *true* indicates that the UE is performing relaxation of RLM measurements, and value *false* indicates that the UE is not performing relaxation of RLM measurements. |
| ***rrm-MeasRelaxationFulfilment***Indicates whether the UE fulfils the relaxed measurement criterion for stationary UE in 5.7.4.4. Value true indicates that the UE fulfils the criterion, and value false indicates that the UE does not fulfil the criterion. |
| ***sl-QoS-FlowIdentity***This identity uniquely identifies one sidelink QoS flow between the UE and the network in the scope of UE, which is unique for different destination and cast type. |
| ***sl-PRS-Bandwidth***Indicates the desired bandwidth of the requested SL-PRS resources provided by upper layers (see TS 38.355 [77]) in the unit of MHz. |
| ***sl-PRS-DelayBudget***Indicates the SL-PRS delay budget provided by upper layers (see TS 38.355 [77]). |
| ***sl-PRS-Periodicity***Indicates the periodicity of SL-PRS transmission. |
| ***sl-PRS-Priority***Indicates the priority of SL-PRS provided by upper layers (see TS 38.355 [77]). Value 1 is the highest priority whereas value 8 is the lowest priority. |
| ***sl-UE-AssistanceInformationNR***Indicates the traffic characteristic of sidelink logical channel(s), specified in the IE *SL-TrafficPatternInfo,* that are setup for NR sidelink communication. |
| ***slotOffset***Indicates the UE's preferred slot offset to resolve the IDC problem, in multiples of 1/32 ms. |
| ***startOffset***Indicates the UE's preferred start offset to resolve the IDC problem, in multiples of 1 ms. |
| ***type1***Indicates the preferred amount of increment/decrement to the long DRX cycle length with respect to the current configuration. Value in number of milliseconds. Value *ms40* corresponds to 40 milliseconds, *msMinus40* corresponds to -40 milliseconds and so on. |
| ***ul-GapFR2-PatternPreference***Indicates the UE's preference on FR2 UL gap pattern as defined in TS 38.133 [14]. |
| ***victimSystemType***Indicate the list of victim system types to which IDC interference is caused from NR. Value *gps*, *glonass*, *bds*, *galileo* and *navIC* indicates the type of GNSS. Value *wlan* indicates WLAN and value *bluetooth* indicates Bluetooth. Value *uwb* indicates Ultra Wide Band. |

NOTE 1: The field may also indicate the UE's preference on reduced configuration corresponding to the maximum number of SRS ports (i.e. *nrofSRS-Ports*) of each serving cell operating on the associated frequency range.

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| *SL-TrafficPatternInfo field descriptions* |
| ***messageSize***Indicates the maximum TB size based on the observed traffic pattern. The value refers to the index of TS 38.321 [3], table 6.1.3.1-2. |
| ***timingOffset***This field indicates the estimated timing for a packet arrival in a sidelink logical channel. Specifically, the value indicates the timing offset with respect to subframe#0 of SFN#0 in milliseconds. |
| ***trafficPeriodicity***This field indicates the estimated data arrival periodicity in a sidelink logical channel. Value ms20 corresponds to 20 ms, ms50 corresponds to 50 ms and so on. |

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| *UL-TrafficInfo field descriptions* |
| ***burstArrivalTime***Indicates the expected arrival time of the first packet of the Data Burst for the concerned QoS flow. If the UE provides both *burstArrivalTime* and *jitterRange, burstArrivalTime* is used as a reference time for the indicated jitter range.If *burstArrivalTime* is indicated as *referenceTime*, the indicated time in 10ns unit from the origin is *refDays*\*86400\*1000\*100000 + *refSeconds*\*1000\*100000 + *refMilliSeconds*\*100000 + *refTenNanoSeconds*. The *refDays* field specifies the sequential number of days (with day count starting at 0) from 00:00:00 on Gregorian calendar date 6 January, 1980 (start of GPS time).If *burstArrivalTime* is indicated as *referenceSFN-AndSlot*, it refers to the UL timing of the closest SFN and slot of the PCell with the indicated number. |
| ***jitterRange***Indicates the maximum deviation of the arrival time of the first packet of a Data Burst compared to the time indicated with *burstArrivalTime* and the periodicity of the Data Bursts. *lowerBound* indicates the negative deviation while *upperBound* indicates the positive deviation. This field shall only be reported together with the *burstArrivalTime* or after the *burstArrivalTime* has been already reported. Value ms0 corresponds to 0 ms, value 0dot5 to 0.5 ms, value ms1 to 1 ms and so on. Value *beyondMs7* indicates the jitter bound is higher than 7 ms. Value 0 ms means there is no Data Burst arrival time deviation from the indicated *burstArrivalTime*. |
| ***pduSetIdentification***Indicates whether the UE is able to identify PDU Set(s) for the QoS flow. If set to *true*, the UE is able to identify PDU Set(s) for the associated QoS flow, otherwise, the UE is not able to do so. Before receiving this indication, the network assumes the value is set to *false*. |
| ***psiIdentification***Indicates whether the UE is able to identify PSI(s) for the QoS flow. This field shall only be set to *true* if *pduSetIdentification* is also set to *true* (or was set to *true* previously for the same QoS flow). If set to *true*, the UE is able to identify PSI(s) for the associated QoS flow, otherwise, the UE is not able to do so. Before receiving this indication, the network assumes the value is set to *false*. |
| ***qfi***Identity of the QoS flow to which this UL traffic information refers. |
| ***trafficPeriodicity***Indicates the average time period between the start times of two data bursts, expressed in the number of microseconds. |

#### – *UECapabilityEnquiry*

The *UECapabilityEnquiry* message is used to request UE radio access capabilities for NR as well as for other RATs.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*UECapabilityEnquiry* message

-- ASN1START

-- TAG-UECAPABILITYENQUIRY-START

UECapabilityEnquiry ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 ueCapabilityEnquiry UECapabilityEnquiry-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

UECapabilityEnquiry-IEs ::= SEQUENCE {

 ue-CapabilityRAT-RequestList UE-CapabilityRAT-RequestList,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 ue-CapabilityEnquiryExt OCTET STRING (CONTAINING UECapabilityEnquiry-v1560-IEs) OPTIONAL -- Need N

}

UECapabilityEnquiry-v1560-IEs ::= SEQUENCE {

 capabilityRequestFilterCommon UE-CapabilityRequestFilterCommon OPTIONAL, -- Need N

 nonCriticalExtension UECapabilityEnquiry-v1610-IEs OPTIONAL

}

UECapabilityEnquiry-v1610-IEs ::= SEQUENCE {

 rrc-SegAllowed-r16 ENUMERATED {enabled} OPTIONAL, -- Need N

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-UECAPABILITYENQUIRY-STOP

-- ASN1STOP

#### – *UECapabilityInformation*

The IE *UECapabilityInformation* message is used to transfer UE radio access capabilities requested by the network.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*UECapabilityInformation* message

-- ASN1START

-- TAG-UECAPABILITYINFORMATION-START

UECapabilityInformation ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 ueCapabilityInformation UECapabilityInformation-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

UECapabilityInformation-IEs ::= SEQUENCE {

 ue-CapabilityRAT-ContainerList UE-CapabilityRAT-ContainerList OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE{} OPTIONAL

}

-- TAG-UECAPABILITYINFORMATION-STOP

-- ASN1STOP

#### – *UEInformationRequest*

The *UEInformationRequest* message is used by the network to retrieve information from the UE.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*UEInformationRequest message*

-- ASN1START

-- TAG-UEINFORMATIONREQUEST-START

UEInformationRequest-r16 ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 ueInformationRequest-r16 UEInformationRequest-r16-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

UEInformationRequest-r16-IEs ::= SEQUENCE {

 idleModeMeasurementReq-r16 ENUMERATED{true} OPTIONAL, -- Need N

 logMeasReportReq-r16 ENUMERATED {true} OPTIONAL, -- Need N

 connEstFailReportReq-r16 ENUMERATED {true} OPTIONAL, -- Need N

 ra-ReportReq-r16 ENUMERATED {true} OPTIONAL, -- Need N

 rlf-ReportReq-r16 ENUMERATED {true} OPTIONAL, -- Need N

 mobilityHistoryReportReq-r16 ENUMERATED {true} OPTIONAL, -- Need N

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension UEInformationRequest-v1700-IEs OPTIONAL

}

UEInformationRequest-v1700-IEs ::= SEQUENCE {

 successHO-ReportReq-r17 ENUMERATED {true} OPTIONAL, -- Need N

 coarseLocationRequest-r17 ENUMERATED {true} OPTIONAL, -- Need N

 nonCriticalExtension UEInformationRequest-v1800-IEs OPTIONAL

}

UEInformationRequest-v1800-IEs ::= SEQUENCE {

 flightPathInfoReq-r18 FlightPathInfoReportConfig-r18 OPTIONAL, -- Need N

 successPSCell-ReportReq-r18 ENUMERATED {true} OPTIONAL, -- Need N

 reselectionMeasurementReq-r18 ENUMERATED {true} OPTIONAL, -- Need N

 validatedMeasurementsReq-r18 ENUMERATED {true} OPTIONAL, -- Need N

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

FlightPathInfoReportConfig-r18 ::= SEQUENCE {

 maxWayPointNumber-r18 INTEGER (1..maxWayPoint-r18),

 includeTimeStamp-r18 ENUMERATED {true} OPTIONAL -- Need N

}

-- TAG-UEINFORMATIONREQUEST-STOP

-- ASN1STOP

|  |
| --- |
| *UEInformationRequest-IEs* field descriptions |
| ***coarseLocationRequest***This field is used to request UE to report coarse location information. |
| ***connEstFailReportReq***This field is used to indicate whether the UE shall report information about the connection failure. |
| ***flightPathInfoReq***This field is used to indicate whether the UE shall report the flight path information, if available, and to specify the flight path information report configuration. |
| ***idleModeMeasurementReq***This field indicates that the UE shall report the idle/inactive measurement information, if available, to the network in the *UEInformationResponse* message.  |
| ***logMeasReportReq***This field is used to indicate whether the UE shall report information about logged measurements. |
| ***mobilityHistoryReportReq***This field is used to indicate whether the UE shall report information about mobility history information. |
| ***ra-ReportReq***This field is used to indicate whether the UE shall report information about the random access procedure. |
| ***reselectionMeasurementReq***This field indicates that the UE shall report the reselection measurement information, if available, to the network in the *UEInformationResponse* message.  |
| ***rlf-ReportReq***This field is used to indicate whether the UE shall report information about the radio link failure. |
| ***successHO-ReportReq***This field is used to indicate whether the UE shall report information about the successful handover report. |
| ***successPSCell-ReportReq***This field is used to indicate whether the UE shall report information about the successful PSCell change or addition report. |

| *FlightPathInfoReportConfig* field descriptions |
| --- |
| ***includeTimeStamp***Indicates whether time stamp of each way point can be reported in the flight path information report if time stamp information is available at the UE. |
| ***maxWayPointNumber***Indicates the maximum number of way points UE can include in the flight path information report if this information is available at the UE.  |

#### – *UEInformationResponse*

The *UEInformationResponse* message is used by the UE to transfer information requested by the network.

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

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to network

*UEInformationResponse message*

-- ASN1START

-- TAG-UEINFORMATIONRESPONSE-START

UEInformationResponse-r16 ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 ueInformationResponse-r16 UEInformationResponse-r16-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

UEInformationResponse-r16-IEs ::= SEQUENCE {

 measResultIdleEUTRA-r16 MeasResultIdleEUTRA-r16 OPTIONAL,

 measResultIdleNR-r16 MeasResultIdleNR-r16 OPTIONAL,

 logMeasReport-r16 LogMeasReport-r16 OPTIONAL,

 connEstFailReport-r16 ConnEstFailReport-r16 OPTIONAL,

 ra-ReportList-r16 RA-ReportList-r16 OPTIONAL,

 rlf-Report-r16 RLF-Report-r16 OPTIONAL,

 mobilityHistoryReport-r16 MobilityHistoryReport-r16 OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension UEInformationResponse-v1700-IEs OPTIONAL

}

UEInformationResponse-v1700-IEs ::= SEQUENCE {

 successHO-Report-r17 SuccessHO-Report-r17 OPTIONAL,

 connEstFailReportList-r17 ConnEstFailReportList-r17 OPTIONAL,

 coarseLocationInfo-r17 OCTET STRING OPTIONAL,

 nonCriticalExtension UEInformationResponse-v1800-IEs OPTIONAL

}

UEInformationResponse-v1800-IEs ::= SEQUENCE {

 flightPathInfoReport-r18 FlightPathInfoReport-r18 OPTIONAL,

 successPSCell-Report-r18 SuccessPSCell-Report-r18 OPTIONAL,

 measResultReselectionNR-r18 MeasResultIdleNR-r16 OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

FlightPathInfoReport-r18 ::= SEQUENCE (SIZE (0..maxWayPoint-r18)) OF WayPoint-r18

WayPoint-r18 ::= SEQUENCE {

 wayPointLocation-r18 OCTET STRING,

 timeStamp-r18 AbsoluteTimeInfo-r16 OPTIONAL

}

LogMeasReport-r16 ::= SEQUENCE {

 absoluteTimeStamp-r16 AbsoluteTimeInfo-r16,

 traceReference-r16 TraceReference-r16,

 traceRecordingSessionRef-r16 OCTET STRING (SIZE (2)),

 tce-Id-r16 OCTET STRING (SIZE (1)),

 logMeasInfoList-r16 LogMeasInfoList-r16,

 logMeasAvailable-r16 ENUMERATED {true} OPTIONAL,

 logMeasAvailableBT-r16 ENUMERATED {true} OPTIONAL,

 logMeasAvailableWLAN-r16 ENUMERATED {true} OPTIONAL,

 ...

}

LogMeasInfoList-r16 ::= SEQUENCE (SIZE (1..maxLogMeasReport-r16)) OF LogMeasInfo-r16

LogMeasInfo-r16 ::= SEQUENCE {

 locationInfo-r16 LocationInfo-r16 OPTIONAL,

 relativeTimeStamp-r16 INTEGER (0..7200),

 servCellIdentity-r16 CGI-Info-Logging-r16 OPTIONAL,

 measResultServingCell-r16 MeasResultServingCell-r16 OPTIONAL,

 measResultNeighCells-r16 SEQUENCE {

 measResultNeighCellListNR MeasResultListLogging2NR-r16 OPTIONAL,

 measResultNeighCellListEUTRA MeasResultList2EUTRA-r16 OPTIONAL

 },

 anyCellSelectionDetected-r16 ENUMERATED {true} OPTIONAL,

 ...,

 [[

 inDeviceCoexDetected-r17 ENUMERATED {true} OPTIONAL

 ]]

}

ConnEstFailReport-r16 ::= SEQUENCE {

 measResultFailedCell-r16 MeasResultFailedCell-r16,

 locationInfo-r16 LocationInfo-r16 OPTIONAL,

 measResultNeighCells-r16 SEQUENCE {

 measResultNeighCellListNR MeasResultList2NR-r16 OPTIONAL,

 measResultNeighCellListEUTRA MeasResultList2EUTRA-r16 OPTIONAL

 },

 numberOfConnFail-r16 INTEGER (1..8),

 perRAInfoList-r16 PerRAInfoList-r16,

 timeSinceFailure-r16 TimeSinceFailure-r16,

 ...

}

ConnEstFailReportList-r17 ::= SEQUENCE (SIZE (1..maxCEFReport-r17)) OF ConnEstFailReport-r16

MeasResultServingCell-r16 ::= SEQUENCE {

 resultsSSB-Cell MeasQuantityResults,

 resultsSSB SEQUENCE{

 best-ssb-Index SSB-Index,

 best-ssb-Results MeasQuantityResults,

 numberOfGoodSSB INTEGER (1..maxNrofSSBs-r16)

 } OPTIONAL

}

MeasResultFailedCell-r16 ::= SEQUENCE {

 cgi-Info CGI-Info-Logging-r16,

 measResult-r16 SEQUENCE {

 cellResults-r16 SEQUENCE{

 resultsSSB-Cell-r16 MeasQuantityResults

 },

 rsIndexResults-r16 SEQUENCE{

 resultsSSB-Indexes-r16 ResultsPerSSB-IndexList

 }

 }

}

RA-ReportList-r16 ::= SEQUENCE (SIZE (1..maxRAReport-r16)) OF RA-Report-r16

RA-Report-r16 ::= SEQUENCE {

 cellId-r16 CHOICE {

 cellGlobalId-r16 CGI-Info-Logging-r16,

 pci-arfcn-r16 PCI-ARFCN-NR-r16

 },

 ra-InformationCommon-r16 RA-InformationCommon-r16 OPTIONAL,

 raPurpose-r16 ENUMERATED {accessRelated, beamFailureRecovery, reconfigurationWithSync, ulUnSynchronized,

 schedulingRequestFailure, noPUCCHResourceAvailable, requestForOtherSI,

 msg3RequestForOtherSI-r17, lbt-Failure-r18, spare7, spare6, spare5, spare4, spare3,

 spare2, spare1},

 ...,

 [[

 spCellID-r17 CGI-Info-Logging-r16 OPTIONAL

 ]],

 [[

 sdt-Failed-r18 ENUMERATED {true} OPTIONAL

 ]]

}

RA-InformationCommon-r16 ::= SEQUENCE {

 absoluteFrequencyPointA-r16 ARFCN-ValueNR,

 locationAndBandwidth-r16 INTEGER (0..37949),

 subcarrierSpacing-r16 SubcarrierSpacing,

 msg1-FrequencyStart-r16 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

 msg1-FrequencyStartCFRA-r16 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

 msg1-SubcarrierSpacing-r16 SubcarrierSpacing OPTIONAL,

 msg1-SubcarrierSpacingCFRA-r16 SubcarrierSpacing OPTIONAL,

 msg1-FDM-r16 ENUMERATED {one, two, four, eight} OPTIONAL,

 msg1-FDMCFRA-r16 ENUMERATED {one, two, four, eight} OPTIONAL,

 perRAInfoList-r16 PerRAInfoList-r16,

 ...,

 [[

 perRAInfoList-v1660 PerRAInfoList-v1660 OPTIONAL

 ]],

 [[

 msg1-SCS-From-prach-ConfigurationIndex-r16 ENUMERATED {kHz1dot25, kHz5, spare2, spare1} OPTIONAL

 ]],

 [[

 msg1-SCS-From-prach-ConfigurationIndexCFRA-r16 ENUMERATED {kHz1dot25, kHz5, spare2, spare1} OPTIONAL

 ]],

 [[

 msgA-RO-FrequencyStart-r17 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

 msgA-RO-FrequencyStartCFRA-r17 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

 msgA-SubcarrierSpacing-r17 SubcarrierSpacing OPTIONAL,

 msgA-RO-FDM-r17 ENUMERATED {one, two, four, eight} OPTIONAL,

 msgA-RO-FDMCFRA-r17 ENUMERATED {one, two, four, eight} OPTIONAL,

 msgA-SCS-From-prach-ConfigurationIndex-r17 ENUMERATED {kHz1dot25, kHz5, spare2, spare1} OPTIONAL,

 msgA-TransMax-r17 ENUMERATED {n1, n2, n4, n6, n8, n10, n20, n50, n100, n200} OPTIONAL,

 msgA-MCS-r17 INTEGER (0..15) OPTIONAL,

 nrofPRBs-PerMsgA-PO-r17 INTEGER (1..32) OPTIONAL,

 msgA-PUSCH-TimeDomainAllocation-r17 INTEGER (1..maxNrofUL-Allocations) OPTIONAL,

 frequencyStartMsgA-PUSCH-r17 INTEGER (0..maxNrofPhysicalResourceBlocks-1) OPTIONAL,

 nrofMsgA-PO-FDM-r17 ENUMERATED {one, two, four, eight} OPTIONAL,

 dlPathlossRSRP-r17 RSRP-Range OPTIONAL,

 intendedSIBs-r17 SEQUENCE (SIZE (1..maxSIB)) OF SIB-Type-r17 OPTIONAL,

 ssbsForSI-Acquisition-r17 SEQUENCE (SIZE (1..maxNrofSSBs-r16)) OF SSB-Index OPTIONAL,

 msgA-PUSCH-PayloadSize-r17 BIT STRING (SIZE (5)) OPTIONAL,

 onDemandSISuccess-r17 ENUMERATED {true} OPTIONAL

 ]],

 [[

 usedFeatureCombination-r18 ReportedFeatureCombination-r18 OPTIONAL,

 triggeredFeatureCombination-r18 ReportedFeatureCombination-r18 OPTIONAL,

 startPreambleForThisPartition-r18 INTEGER (0..63) OPTIONAL,

 numberOfPreamblesPerSSB-ForThisPartition-r18 INTEGER (1..64) OPTIONAL,

 attemptedBWP-InfoList-r18 SEQUENCE (SIZE (1..maxNrofBWPs)) OF AttemptedBWP-Info-r18 OPTIONAL,

 numberOfLBT-Failures-r18 INTEGER (1..128) OPTIONAL,

 perRAInfoList-v1800 PerRAInfoList-v1800 OPTIONAL,

 intendedSIBs-r18 SEQUENCE (SIZE (1..maxSIB)) OF SIB-Type-r18 OPTIONAL

 ]]

}

AttemptedBWP-Info-r18 ::= SEQUENCE {

 locationAndBandwidth-r18 INTEGER (0..37949),

 subcarrierSpacing-r18 SubcarrierSpacing

}

ReportedFeatureCombination-r18 ::= SEQUENCE {

 redCap-r18 ENUMERATED {true} OPTIONAL,

 smallData-r18 ENUMERATED {true} OPTIONAL,

 nsag-r18 NSAG-List-r17 OPTIONAL,

 msg3-Repetitions-r18 ENUMERATED {true} OPTIONAL,

 msg1-Repetitions-r18 ENUMERATED {true} OPTIONAL,

 eRedCap-r18 ENUMERATED {true} OPTIONAL,

 triggered-S-NSSAI-List-r18 SEQUENCE (SIZE (1..maxNrofS-NSSAI)) OF S-NSSAI OPTIONAL

}

PerRAInfoList-r16 ::= SEQUENCE (SIZE (1..200)) OF PerRAInfo-r16

PerRAInfoList-v1660 ::= SEQUENCE (SIZE (1..200)) OF PerRACSI-RSInfo-v1660

PerRAInfo-r16 ::= CHOICE {

 perRASSBInfoList-r16 PerRASSBInfo-r16,

 perRACSI-RSInfoList-r16 PerRACSI-RSInfo-r16

}

PerRAInfoList-v1800 ::= SEQUENCE (SIZE (1..200)) OF PerRAInfo-v1800

PerRAInfo-v1800 ::= CHOICE {

 perRASSBInfoList-v1800 PerRASSBInfo-v1800,

 perRACSI-RSInfoList-v1800 PerRACSI-RSInfo-v1800

}

PerRASSBInfo-r16 ::= SEQUENCE {

 ssb-Index-r16 SSB-Index,

 numberOfPreamblesSentOnSSB-r16 INTEGER (1..200),

 perRAAttemptInfoList-r16 PerRAAttemptInfoList-r16

}

PerRASSBInfo-v1800 ::= SEQUENCE {

 allPreamblesBlocked ENUMERATED {true} OPTIONAL,

 lbt-Detected-r18 ENUMERATED {true} OPTIONAL,

 ...

}

PerRACSI-RSInfo-r16 ::= SEQUENCE {

 csi-RS-Index-r16 CSI-RS-Index,

 numberOfPreamblesSentOnCSI-RS-r16 INTEGER (1..200)

}

PerRACSI-RSInfo-v1660 ::= SEQUENCE {

 csi-RS-Index-v1660 INTEGER (1..96) OPTIONAL

}

PerRACSI-RSInfo-v1800 ::= SEQUENCE {

 allPreamblesBlocked ENUMERATED {true} OPTIONAL,

 lbt-Detected-r18 ENUMERATED {true} OPTIONAL,

 ...

}

PerRAAttemptInfoList-r16 ::= SEQUENCE (SIZE (1..200)) OF PerRAAttemptInfo-r16

PerRAAttemptInfo-r16 ::= SEQUENCE {

 contentionDetected-r16 BOOLEAN OPTIONAL,

 dlRSRPAboveThreshold-r16 BOOLEAN OPTIONAL,

 ...,

 [[

 fallbackToFourStepRA-r17 ENUMERATED {true} OPTIONAL

 ]]

}

SIB-Type-r17 ::= ENUMERATED {sibType2, sibType3, sibType4, sibType5, sibType9, sibType10, sibType11, sibType12,

 sibType13, sibType14, posSIB-v1810, spare5, spare4, spare3, spare2, spare1}

SIB-Type-r18 ::= ENUMERATED {sibType15, sibType16, sibType17, sibType18, sibType19, sibType20,

 sibType21, sibType22, sibType23, sibType24, sibType25, spare5, spare4,

 spare3, spare2, spare1}

RLF-Report-r16 ::= CHOICE {

 nr-RLF-Report-r16 SEQUENCE {

 measResultLastServCell-r16 MeasResultRLFNR-r16,

 measResultNeighCells-r16 SEQUENCE {

 measResultListNR-r16 MeasResultList2NR-r16 OPTIONAL,

 measResultListEUTRA-r16 MeasResultList2EUTRA-r16 OPTIONAL

 } OPTIONAL,

 c-RNTI-r16 RNTI-Value,

 previousPCellId-r16 CHOICE {

 nrPreviousCell-r16 CGI-Info-Logging-r16,

 eutraPreviousCell-r16 CGI-InfoEUTRALogging

 } OPTIONAL,

 failedPCellId-r16 CHOICE {

 nrFailedPCellId-r16 CHOICE {

 cellGlobalId-r16 CGI-Info-Logging-r16,

 pci-arfcn-r16 PCI-ARFCN-NR-r16

 },

 eutraFailedPCellId-r16 CHOICE {

 cellGlobalId-r16 CGI-InfoEUTRALogging,

 pci-arfcn-r16 PCI-ARFCN-EUTRA-r16

 }

 },

 reconnectCellId-r16 CHOICE {

 nrReconnectCellId-r16 CGI-Info-Logging-r16,

 eutraReconnectCellId-r16 CGI-InfoEUTRALogging

 } OPTIONAL,

 timeUntilReconnection-r16 TimeUntilReconnection-r16 OPTIONAL,

 reestablishmentCellId-r16 CGI-Info-Logging-r16 OPTIONAL,

 timeConnFailure-r16 INTEGER (0..1023) OPTIONAL,

 timeSinceFailure-r16 TimeSinceFailure-r16,

 connectionFailureType-r16 ENUMERATED {rlf, hof},

 rlf-Cause-r16 ENUMERATED {t310-Expiry, randomAccessProblem, rlc-MaxNumRetx,

 beamFailureRecoveryFailure, lbtFailure-r16,

 bh-rlfRecoveryFailure, t312-expiry-r17, spare1},

 locationInfo-r16 LocationInfo-r16 OPTIONAL,

 noSuitableCellFound-r16 ENUMERATED {true} OPTIONAL,

 ra-InformationCommon-r16 RA-InformationCommon-r16 OPTIONAL,

 ...,

 [[

 csi-rsRLMConfigBitmap-v1650 BIT STRING (SIZE (96)) OPTIONAL

 ]],

 [[

 lastHO-Type-r17 ENUMERATED {cho, daps, spare2, spare1} OPTIONAL,

 timeConnSourceDAPS-Failure-r17 TimeConnSourceDAPS-Failure-r17 OPTIONAL,

 timeSinceCHO-Reconfig-r17 TimeSinceCHO-Reconfig-r17 OPTIONAL,

 choCellId-r17 CHOICE {

 cellGlobalId-r17 CGI-Info-Logging-r16,

 pci-arfcn-r17 PCI-ARFCN-NR-r16

 } OPTIONAL,

 choCandidateCellList-r17 ChoCandidateCellList-r17 OPTIONAL

 ]],

 [[

 pSCellId-r18 CHOICE {

 cellGlobalId-r18 CGI-Info-Logging-r16,

 pci-arfcn-r18 PCI-ARFCN-NR-r16

 } OPTIONAL,

 mcg-RecoveryFailureCause-r18 ENUMERATED {t316-Expiry, scg-Deactivated, spare2, spare1} OPTIONAL,

 scg-FailureCause-r18 ENUMERATED {t310-Expiry, randomAccessProblem, rlc-MaxNumRetx,

 synchReconfigFailureSCG, scg-ReconfigFailure,

 srb3-IntegrityFailure, scg-lbtFailure, beamFailureRecoveryFailure,

 t312-Expiry, bh-RLF, beamFailure, spare5, spare4, spare3, spare2, spare1 }

 OPTIONAL,

 elapsedTimeSCG-Failure-r18 ElapsedTimeSCG-Failure-r18 OPTIONAL,

 voiceFallbackHO-r18 ENUMERATED {true} OPTIONAL,

 measResultLastServCellRSSI-r18 RSSI-Range-r16 OPTIONAL,

 measResultNeighFreqListRSSI-r18 MeasResultNeighFreqListRSSI-r18 OPTIONAL,

 bwp-Info-r18 AttemptedBWP-Info-r18 OPTIONAL,

 elapsedTimeT316-r18 ElapsedTimeT316-r18 OPTIONAL,

 scg-FailedAfterMCG-r18 ENUMERATED {true} OPTIONAL
 ]]

 },

 eutra-RLF-Report-r16 SEQUENCE {

 failedPCellId-EUTRA CGI-InfoEUTRALogging,

 measResult-RLF-Report-EUTRA-r16 OCTET STRING,

 ...,

 [[

 measResult-RLF-Report-EUTRA-v1690 OCTET STRING OPTIONAL

 ]]

 }

}

SuccessHO-Report-r17 ::= SEQUENCE {

 sourceCellInfo-r17 SEQUENCE {

 sourcePCellId-r17 CGI-Info-Logging-r16,

 sourceCellMeas-r17 MeasResultSuccessHONR-r17 OPTIONAL,

 rlf-InSourceDAPS-r17 ENUMERATED {true} OPTIONAL

 },

 targetCellInfo-r17 SEQUENCE {

 targetPCellId-r17 CGI-Info-Logging-r16,

 targetCellMeas-r17 MeasResultSuccessHONR-r17 OPTIONAL

 },

 measResultNeighCells-r17 SEQUENCE {

 measResultListNR-r17 MeasResultList2NR-r16 OPTIONAL,

 measResultListEUTRA-r17 MeasResultList2EUTRA-r16 OPTIONAL

 } OPTIONAL,

 locationInfo-r17 LocationInfo-r16 OPTIONAL,

 timeSinceCHO-Reconfig-r17 TimeSinceCHO-Reconfig-r17 OPTIONAL,

 shr-Cause-r17 SHR-Cause-r17 OPTIONAL,

 ra-InformationCommon-r17 RA-InformationCommon-r16 OPTIONAL,

 upInterruptionTimeAtHO-r17 UPInterruptionTimeAtHO-r17 OPTIONAL,

 c-RNTI-r17 RNTI-Value OPTIONAL,

 ...,

 [[

 targetCell-PCI-ARFCN-r17 PCI-ARFCN-NR-r16 OPTIONAL

 ]],

 [[

 eutra-TargetCellInfo-r18 SEQUENCE {

 targetPCellId-r18 CHOICE {

 cellGlobalId-r18 CGI-Info-Logging-r16,

 pci-arfcn-r18 PCI-ARFCN-EUTRA-r16

 },

 targetCellMeas-r18 MeasQuantityResultsEUTRA OPTIONAL

 } OPTIONAL,

 measResultServCellRSSI-r18 RSSI-Range-r16 OPTIONAL,

 measResultNeighFreqListRSSI-r18 MeasResultNeighFreqListRSSI-r18 OPTIONAL,

 eutra-C-RNTI-r18 EUTRA-C-RNTI OPTIONAL,

 timeSinceSHR-r18 TimeSinceSHR-r18 OPTIONAL

 ]]

}

SuccessPSCell-Report-r18 ::= SEQUENCE {

 pCellId-r18 CGI-Info-Logging-r16,

 sourcePSCellInfo-r18 SEQUENCE {

 sourcePSCellId-r18 CHOICE {

 cellGlobalId-r18 CGI-Info-Logging-r16,

 pci-arfcn-r18 PCI-ARFCN-EUTRA-r16

 },

 sourcePSCellMeas-r18 MeasResultSuccessHONR-r17 OPTIONAL

 } OPTIONAL,

 targetPSCellInfo-r18 SEQUENCE {

 targetPSCellId-r18 CHOICE {

 cellGlobalId-r18 CGI-Info-Logging-r16,

 pci-arfcn-r18 PCI-ARFCN-NR-r16

 },

 targetPSCellMeas-r18 MeasResultSuccessHONR-r17 OPTIONAL

 },

 measResultNeighCells-r18 SEQUENCE {

 measResultListNR-r18 MeasResultList2NR-r16 OPTIONAL,

 measResultListEUTRA-r18 MeasResultList2EUTRA-r16 OPTIONAL

 } OPTIONAL,

 spr-Cause-r18 SPR-Cause-r18 OPTIONAL,

 timeSinceCPAC-Reconfig-r18 TimeSinceCPAC-Reconfig-r18 OPTIONAL,

 locationInfo-r18 LocationInfo-r16 OPTIONAL,

 ra-InformationCommon-r18 RA-InformationCommon-r16 OPTIONAL,

 sn-InitiatedPSCellChange-r18 ENUMERATED {true} OPTIONAL,

...

}

MeasResultNeighFreqListRSSI-r18 ::= SEQUENCE(SIZE (1..maxFreq)) OF MeasResultNeighFreqRSSI-r18

MeasResultNeighFreqRSSI-r18 ::= SEQUENCE {

 ssbFrequency-r18 ARFCN-ValueNR OPTIONAL,

 ssbSubcarrierSpacing-r18 SubcarrierSpacing OPTIONAL,

 refFreqCSI-RS-r18 ARFCN-ValueNR OPTIONAL,

 measResult-RSSI-r18 RSSI-Range-r16 OPTIONAL

}

MeasResultList2NR-r16 ::= SEQUENCE(SIZE (1..maxFreq)) OF MeasResult2NR-r16

MeasResultList2EUTRA-r16 ::= SEQUENCE(SIZE (1..maxFreq)) OF MeasResult2EUTRA-r16

MeasResult2NR-r16 ::= SEQUENCE {

 ssbFrequency-r16 ARFCN-ValueNR OPTIONAL,

 refFreqCSI-RS-r16 ARFCN-ValueNR OPTIONAL,

 measResultList-r16 MeasResultListNR

}

MeasResultListLogging2NR-r16 ::= SEQUENCE(SIZE (1..maxFreq)) OF MeasResultLogging2NR-r16

MeasResultLogging2NR-r16 ::= SEQUENCE {

 carrierFreq-r16 ARFCN-ValueNR,

 measResultListLoggingNR-r16 MeasResultListLoggingNR-r16

}

MeasResultListLoggingNR-r16 ::= SEQUENCE (SIZE (1..maxCellReport)) OF MeasResultLoggingNR-r16

MeasResultLoggingNR-r16 ::= SEQUENCE {

 physCellId-r16 PhysCellId,

 resultsSSB-Cell-r16 MeasQuantityResults,

 numberOfGoodSSB-r16 INTEGER (1..maxNrofSSBs-r16) OPTIONAL

}

MeasResult2EUTRA-r16 ::= SEQUENCE {

 carrierFreq-r16 ARFCN-ValueEUTRA,

 measResultList-r16 MeasResultListEUTRA

}

MeasResultRLFNR-r16 ::= SEQUENCE {

 measResult-r16 SEQUENCE {

 cellResults-r16 SEQUENCE{

 resultsSSB-Cell-r16 MeasQuantityResults OPTIONAL,

 resultsCSI-RS-Cell-r16 MeasQuantityResults OPTIONAL

 },

 rsIndexResults-r16 SEQUENCE{

 resultsSSB-Indexes-r16 ResultsPerSSB-IndexList OPTIONAL,

 ssbRLMConfigBitmap-r16 BIT STRING (SIZE (64)) OPTIONAL,

 resultsCSI-RS-Indexes-r16 ResultsPerCSI-RS-IndexList OPTIONAL,

 csi-rsRLMConfigBitmap-r16 BIT STRING (SIZE (96)) OPTIONAL

 } OPTIONAL

 }

}

MeasResultSuccessHONR-r17::= SEQUENCE {

 measResult-r17 SEQUENCE {

 cellResults-r17 SEQUENCE{

 resultsSSB-Cell-r17 MeasQuantityResults OPTIONAL,

 resultsCSI-RS-Cell-r17 MeasQuantityResults OPTIONAL

 },

 rsIndexResults-r17 SEQUENCE{

 resultsSSB-Indexes-r17 ResultsPerSSB-IndexList OPTIONAL,

 resultsCSI-RS-Indexes-r17 ResultsPerCSI-RS-IndexList OPTIONAL

 }

 }

}

ChoCandidateCellList-r17 ::= SEQUENCE(SIZE (1..maxNrofCondCells-r16)) OF ChoCandidateCell-r17

ChoCandidateCell-r17 ::= CHOICE {

 cellGlobalId-r17 CGI-Info-Logging-r16,

 pci-arfcn-r17 PCI-ARFCN-NR-r16

}

SHR-Cause-r17 ::= SEQUENCE {

 t304-cause-r17 ENUMERATED {true} OPTIONAL,

 t310-cause-r17 ENUMERATED {true} OPTIONAL,

 t312-cause-r17 ENUMERATED {true} OPTIONAL,

 sourceDAPS-Failure-r17 ENUMERATED {true} OPTIONAL,

 ...

}

SPR-Cause-r18 ::= SEQUENCE {

 t304-cause-r18 ENUMERATED {true} OPTIONAL,

 t310-cause-r18 ENUMERATED {true} OPTIONAL,

 t312-cause-r18 ENUMERATED {true} OPTIONAL,

 ...

}

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

MobilityHistoryReport-r16 ::= VisitedCellInfoList-r16

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

TimeSinceCHO-Reconfig-r17 ::= INTEGER (0..1023)

TimeSinceCPAC-Reconfig-r18 ::= INTEGER (0.. 1023)

TimeConnSourceDAPS-Failure-r17 ::= INTEGER (0..1023)

UPInterruptionTimeAtHO-r17 ::= INTEGER (0..1023)

ElapsedTimeT316-r18 ::= INTEGER (0..2000)

ElapsedTimeSCG-Failure-r18 ::= INTEGER (0..1023)

TimeSinceSHR-r18 ::= INTEGER (0..172800)

-- TAG-UEINFORMATIONRESPONSE-STOP

-- ASN1STOP

|  |
| --- |
| *UEInformationResponse-IEs* field descriptions |
| ***coarseLocationInfo***Parameter type Ellipsoid-Point defined in TS 37.355 [49]. The first/leftmost bit of the first octet contains the most significant bit. The least significant bits of *degreesLatitude* and *degreesLongitude* are set to 0 to meet the accuracy requirement corresponds to a granularity of approximately 2 km.It is up to UE implementation how many LSBs are set to 0 to meet the accuracy requirement. |
| ***connEstFailReport***This field is used to provide connection establishment failure or connection resume failure information*.* |
| ***connEstFailReportList***This field is used to provide the list of *connEstFailReport* that are stored by the UE for the past up to *maxCEFReport-r17.* |
| ***flightPathInfoReport***This field is used to provide the flight path information as list of waypoints and, if available, corresponding timestamps. List of size zero indicates the previously provided flight path information is no longer valid. |
| ***logMeasReport***This field is used to provide the measurement results stored by the UE associated to logged MDT.  |
| ***measResultIdleEUTRA***EUTRA measurement results performed during RRC\_INACTIVE or RRC\_IDLE. |
| ***measResultIdleNR***NR measurement results performed during RRC\_INACTIVE or RRC\_IDLE. |
| ***ra-ReportList***This field is used to provide the list of RA reports that is stored by the UE for up to *maxRAReport-r16* number of random access procedures. If the UE is an eRedCap UE, this field is used to provide the list of RA reports that is stored by the UE for up to 2 number of random access procedures. |
| ***rlf-Report***This field is used to indicate the RLF report related contents. |
| ***successHO-Report***This field is used to provide the successful handover report if triggered based on the successful handover configuration. |
| ***successPSCell-Report***This field is used to provide the successful PSCell change or addition report if triggered based on the successful PSCell change or addition report configuration. |

|  |
| --- |
| *LogMeasReport* field descriptions |
| ***absoluteTimeStamp***Indicates the absolute time when the logged measurement configuration logging is provided, as indicated by NR within *absoluteTimeInfo*. |
| ***anyCellSelectionDetected***This field is used to indicate the detection of *any cell selection* state, as defined in TS 38.304 [20]. The UE sets this field when performing the logging of measurement results in RRC\_IDLE or RRC\_INACTIVE and there is no suitable cell or no acceptable cell. |
| ***inDeviceCoexDetected***Indicates that measurement logging is suspended due to IDC problem detection. |
| ***measResultServingCell***This field refers to the log measurement results taken in the Serving cell. |
| ***numberOfGoodSSB***Indicates the number of good beams (beams that are above *absThreshSS-BlocksConsolidation,* if configured by the network) associated to the cells within the R value range (which is configured by network for cell reselection) of the highest ranked cell as part of the beam level measurements. If the UE has no SSB of a neighbour cell whose measurement quantity is above the *absThreshSS-BlocksConsolidation* or if the network has not configured the *absThreshSS-BlocksConsolidation*, then the UE does not include *numberOfGoodSSB* for the corresponding neighbour cell. If the UE has no SSB of the serving cell whose measurement quantity is above the *absThreshSS-BlocksConsolidation* or if the network has not configured the *absThreshSS-BlocksConsolidation*, then the UE shall set the *numberOfGoodSSB* for the serving cell to one. |
| ***relativeTimeStamp***Indicates the time of logging measurement results, measured relative to the *absoluteTimeStamp*. Value in seconds. |
| ***tce-Id***Parameter Trace Collection Entity Id: See TS 32.422 [52]. |
| ***traceRecordingSessionRef***Parameter Trace Recording Session Reference: See TS 32.422 [52]. |

|  |
| --- |
| *ConnEstFailReport* field descriptions |
| ***measResultFailedCell***This field refers to the last measurement results taken in the cell, where connection establishment failure or connection resume failure happened. |
| ***measResultNeighCells***This field refers to the neighbour cell measurements when connection establishment failure or connection resume failure happened. |
| ***numberOfConnFail***This field is used to indicate the latest number of consecutive failed RRCSetup or RRCResume procedures in the same cell independent of RRC state transition. |
| ***timeSinceFailure***This field is used to indicate the time that elapsed since the connection (establishment or resume) failure. Value in seconds. The maximum value 172800 means 172800s or longer. |

|  |
| --- |
| *RA-InformationCommon* field descriptions |
| ***absoluteFrequencyPointA***This field indicates the absolute frequency position of the reference resource block (Common RB 0). |
| ***allPreamblesBlocked***This field is included when the all the preamble transmission attempts in the corresponding beam (SSB or CSI-RS) are blocked by failed LBT. |
| ***attemptedBWP-InfoList***This field indicates *locationAndBandwidth* and *subcarrierSpacing* of all the bandwidth parts in which the consistent LBT failures are triggered at the moment of successful RA completion. |
| ***locationAndBandwidth***Frequency domain location and bandwidth of the bandwidth part associated to the random-access resources used by the UE or of the bandwidth part in which the consistent LBT failures is triggered and not cancelled prior to successful completion of random access procedure (if this field is included in *attemptedBWP-InfoList*) or prior to RLF/HOF (if this field is included in *attemptedBWP-InfoList* or *bwp-Info*). |
| ***numberOfLBT-Failures***This field is used to indicate the total number of preamble transmission attempts for which LBT failure indication is received in the RA procedure. If the number of LBT failure indications received from lower layers during the RA procedure exceeds or equals to 128, UE sets the field to 128.This field is optional present when there is at least one preamble transmission attempt for which LBT failure indication is received during the RA procedure, otherwise it is absent. |
| ***numberOfPreamblesPerSSB-ForThisPartition***This field determines how many consecutive preambles are associated to the used feature or combination of features starting from the starting preamble(s) per SSB. |
| ***perRAInfoList, perRAInfoList-v1660***This field provides detailed information about each of the random access attempts in the chronological order of the random access attempts. If perRAInfoList-v1660 is present, it shall contain the same number of entries, listed in the same order as in perRAInfoList-r16. |
| ***startPreambleForThisPartition***This field indicates the first preamble associated with the used feature or combination of features. |
| ***subcarrierSpacing***Subcarrier spacing used in the bandwidth part associated to the random-access resources used by the UE or of the bandwidth part in which the consistent LBT failures is triggered and not cancelled prior to successful completion of random access procedure (if this field is included in *attemptedBWP-InfoList*) or prior to RLF/HOF (if this field is included in *attemptedBWP-InfoList* or *bwp-Info*). |
| ***triggeredFeatureCombination***One or more features (e.g., *RedCap*, *Slicing*, *SDT* and *MSG3 repetition)* that triggers the random-access procedure. When triggered feature is *Slicing*, UE includes all the S-NSSAIs associated to the slices triggering the access attempt in the random-access procedure. |
| ***usedFeatureCombination***The feature or combination of features (e.g., *redCap*, *smallData*, *nsag* and *msg3-Repetitions*) associated to the used random-access resources as specified in TS 38.321[3]. |

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| *RA-Report* field descriptions |
| ***cellID***This field indicates the CGI of the cell in which the associated random access procedure was performed. |
| ***contentionDetected***This field is used to indicate that contention was detected for the transmitted preamble in the given random access attempt or not. This field is not included when the UE performs random access attempt is using contention free random-access resources or when the *raPurpose* is set to *requestForOtherSI* or when the RA attempt is a 2-step RA attempt and fallback to 4-step RA did not occur (i.e. *fallbackToFourStepRA* is not included). |
| ***csi-RS-Index, csi-RS-Index-v1660***This field is used to indicate the CSI-RS index corresponding to the random access attempt.If the random access procedure is for beam failure recovery, the field indicates the NZP-CSI-RS-ResourceId. For CSI-RS index larger than maxNrofCSI-RS-ResourcesRRM-1, the index value is the sum of csi-RS-Index (without suffix) and csi-RS-Index-v1660. |
| ***dlPathlossRSRP***Measeured RSRP of the DL pathloss reference obtained at the time of *RA\_Type* selection stage of the RA procedure as captured in TS 38.321 [3]. |
| ***dlRSRPAboveThreshold***In 4 step random access procedure, this field is used to indicate whether the DL beam (SSB) quality associated to the random access attempt was above or below the threshold *rsrp-ThresholdSSB* in *beamFailureRecoveryConfig* in UL BWP configuration of UL BWP selected for random access procedure initiated for beam failure recovery; Otherwise, if the UE has received *rsrp-ThresholdSSB* in *FeatureCombinationPreambles* used for the feature specific random access, the field is used to indicate whether DL beam (SSB) quality associated to the random access attempt was above or below this *rsrp-ThresholdSSB-r17*, else *rsrp-ThresholdSSB* in *rach-ConfigCommon* in UL BWP configuration of UL BWP selected for random access procedure.In 2 step random access procedure, if the UE has received *msgA-RSRP-ThresholdSSB* in *FeatureCombinationPreambles* used for the feature specific random access, the field is used to indicate whetherDL beam (SSB) quality associated to the random access attempt was above or below this *rsrp-ThresholdSSB-r17*, else this field is used to indicate whether the DL beam (SSB) quality associated to the random access attempt was above or below the threshold *msgA-RSRP-ThresholdSSB* in *rach-ConfigCommonTwoStepRA* in UL BWP configuration of UL BWP selected for random access procedure. |
| ***fallbackToFourStepRA***This field indicates if a fallback indication in MsgB is received (according to TS 38.321 [3]) for the 2-step random access attempt. |
| ***intendedSIBs***This field indicates the SIB(s) the UE wanted to receive as a result of the on demand SI request (when the RA procedure is a used as a SI request) initiated by the UE. That is, it indicates the one(s) of the SIB(s) in the SI message(s) requested to be broadcast that the UE was interested in. |
| ***lbt-Detected***This field is included when there is at least one LBT failure indication received prior to change of beam for preamble transmission during RA procedure, otherwise this field is absent. |
| ***msg1-SCS-From-prach-ConfigurationIndex***This field is set by the UE with the corresponding SCS for CBRA as derived from the *prach-ConfigurationIndex* in *RACH-ConfigGeneric* when the *msg1-SubcarrierSpacing* is absent; otherwise, this field is absent. |
| ***msg1-SCS-From-prach-ConfigurationIndexCFRA***This field is set by the UE with the corresponding SCS for CFRA as derived from the *prach-ConfigurationIndex* in *RACH-ConfigGeneric* when the *msg1-SubcarrierSpacing* is absent; otherwise, this field is absent. |
| ***msgA-PUSCH-PayloadSize***This field indicates the size of the overall payload available in the UE buffer at the time of initiating the 2 step RA procedure. The value refers to the index of TS 38.321 [3], table 6.1.3.1-1, corresponding to the UE buffer size. |
| ***msgA-RO-FDM***This field indicates the number of msgA PRACH transmission occasions Frequency-Division Multiplexed in one time instance for the PRACH resources configured for 2-step CBRA.. |
| ***msgA-RO-FDMCFRA***This field indicates the number of msgA PRACH transmission occasions Frequency-Division Multiplexed in one time instance for the PRACH resources configured for 2-step CFRA. |
| ***msgA-RO-FrequencyStart***This field indicates the lowest resource block of the contention based random-access resources for 2-step CBRA in the random-access procedure. The indication has the form of the offset of the lowest PRACH transmissions occasion with respect to PRB 0 in the frequency domain. |
| ***msgA-RO-FrequencyStartCFRA***This field indicates the lowest resource block of the contention free random-access resources for the 2-step CFRA in the random-access procedure. The indication has the form of the offset of the lowest PRACH transmissions occasion with respect to PRB 0 in the frequency domain. |
| ***msgA-SCS-From-prach-ConfigurationIndex***This field is set by the UE with the corresponding SCS as derived from the *msgA-PRACH-ConfigurationIndex* in *RACH-ConfigGenericTwoStepRA* (see tables Table 6.3.3.1-1, Table 6.3.3.1-2, Table 6.3.3.2-2 and Table 6.3.3.2-3, TS 38.211 [16]) when the *msgA-SubcarrierSpacing* is absent and when only 2-step random-access resources are available in the UL BWP used in the random-access procedure; otherwise, this field is absent. |
| ***numberOfPreamblesSentOnCSI-RS***This field is used to indicate the total number of successive RA preambles that were transmitted on the corresponding CSI-RS. |
| ***numberOfPreamblesSentOnSSB***This field is used to indicate the total number of successive RA preambles that were transmitted on the corresponding SS/PBCH block. |
| ***onDemandSISuccess***This field is set to *true* when the RA report entry is included because of either msg1 based on demand SI request or msg3 based on demand SI request and if the on-demand SI request is successful. Otherwise, the field is absent. |
| ***perRAAttemptInfoList***This field provides detailed information about a random access attempt. |
| ***perRACSI-RSInfoList***This field provides detailed information about the successive random access attempts associated to the same CSI-RS. |
| ***perRASSBInfoList***This field provides detailed information about the successive random access attempts associated to the same SS/PBCH block. |
| ***ra-InformationCommon***This field is used to provide information on random access attempts. This field is mandatory present. |
| ***raPurpose***This field is used to indicate the RA scenario for which the RA report entry is triggered. The RA accesses associated to Initial access from RRC\_IDLE, RRC re-establishment procedure, transition from RRC-INACTIVE. The indicator *beamFailureRecovery* is used in case of successful beam failure recovery related RA procedure in the SpCell [3]. The indicator *reconfigurationWithSync* is used if the UE executes a reconfiguration with sync. The indicator *ulUnSynchronized* is used if the random access procedure is initiated in a SpCell by DL or UL data arrival during RRC\_CONNECTED when the timeAlignmentTimer is not running in the PTAG or if the RA procedure is initiated in a serving cell by a PDCCH order [3]. The indicator *schedulingRequestFailure* is used in case of SR failures [3]. The indicator *noPUCCHResourceAvailable* is used when the UE has no valid SR PUCCH resources configured [3]. The indicator *requestForOtherSI* is used for MSG1 based on demand SI request. The indicator *msg3RequestForOtherSI* is used in case of MSG3 based SI request. The indication *lbtFailure* is used when the UE initiates RACH in SpCell due to consistent uplink LBT failures [3]. The field can also be used for the SCG-related RA-Report when the *raPurpose* is set to *beamFailureRecovery*, *reconfigurationWithSync*, *ulUnSynchronized*, *schedulingRequestFailure*, *noPUCCHResourceAvailable* and *lbtFailure*. |
| ***sdt-Failed***This field is included when the RA report entry is included because of SDT and if the SDT transmission failed. Otherwise, the field is absent. |
| ***spCellID***This field is used to indicate the CGI of the SpCell of the cell group associated to the SCell in which the associated random access procedure was performed. If the UE performs RA procedure on a SCell associated to the MCG, then this field is set to the CGI of the PCell and if the UE performs RA procedure on a SCell associated to the SCG, then this field is set to the CGI of the PSCell. If the CGI of the PSCell is not available at the UE for the RA procedure performed on a SCell associated to the SCG or for the RA procedure on the PSCell, this field is set to the CGI of the PCell. Otherwise, the field is absent. |
| ***ssb-Index***This field is used to indicate the SS/PBCH index of the SS/PBCH block corresponding to the random access attempt. |
| ***ssbsForSI-Acquisition***This field indicates the SSB(s) (in the form of SSB index(es)) that the UE used to receive the requested SI message(s). The field is present if the purpose of the random access procedure was to request on-demand SI (i.e. if the *raPurpose* is set to *requestForOtherSI* or *msg3RequestForOtherSI*). Otherwise, the field is absent. |

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| *RLF-Report* field descriptions |
| ***bwp-Info***This field is used to indicate the BWP information in which the UE detected consistent uplink LBT failure. This field is set only when the detected consistent uplink LBT failure did not trigger the random access procedure. |
| ***choCandidateCellList***This field is used to indicate the list of candidate target cells for conditional handover included in *condRRCReconfig* at the time of connection failure. The field does not include the candidate target cells included in *measResultNeighCells*. |
| ***choCellId***This field is used to indicate the candidate target cell for conditional handover included in *condRRCReconfig* that the UE selected for CHO based recovery while T311 is running. |
| ***connectionFailureType***This field is used to indicate whether the connection failure is due to radio link failure or handover failure. |
| ***csi-rsRLMConfigBitmap,csi-rsRLMConfigBitmap-v1650***These fields are used to indicate the CSI-RS indexes configured in the RLM configurations for the active BWP when the UE declares RLF or HOF. The UE first fills in the *csi-rsRLMConfigBitmap-r16* to indicate the first 96 CSI-RS indexes and then *csi-rsRLMConfigBitmap-v1650* to indicate the latter 96 CSI-RS indexes. The first/leftmost bit in *csi-rsRLMConfigBitmap-r16* corresponds to CSI-RS index 0, the second bit corresponds to CSI-RS index 1. The first/leftmost bit in *csi-rsRLMConfigBitmap-v1650* corresponds to CSI-RS index 96, the second bit corresponds to CSI-RS index 97. These fields are included only if the *RadioLinkMonitoringConfig* for the respective BWP is configured. |
| ***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. |
| ***elapsedTimeSCG-Failure***This field is used to indicate the time elapsed between the SCG failure and the MCG failure. The maximum value *1023* means 1023ms or longer. |
| ***elapsedTimeT316***This field is used to indicate the value of the elapsed time of the timer T316. Value in milliseconds. |
| ***failedPCellId***This field is used to indicate the PCell in which RLF is detected or the target PCell of the failed handover. For intra-NR handover *nrFailedPCellId* is included and for the handover from NR to EUTRA *eutraFailedPCellId* is included. The UE sets the ARFCN according to the frequency band used for transmission/ reception when the failure occurred. |
| ***failedPCellId-EUTRA***This field is used to indicate the PCell in which RLF is detected or the source PCell of the failed handover in an E-UTRA RLF report. |
| ***lastHO-Type***This field is used to indicate the type of the last executed handover before the last detected connection failure. The field is set to *cho* if the last executed handover was initiated by a conditional reconfiguration execution. The field is set to *daps* if the last executed handover was a DAPS handover. |
| ***mcgRecoveryFailureCause***This field is used to indicate the cause of the fast MCG recovery failure. |
| ***measResultListEUTRA***This field refers to the last measurement results taken in the neighboring EUTRA Cells, when the radio link failure or handover failure happened. |
| ***measResultListNR***This field refers to the last measurement results taken in the neighboring NR Cells, when the radio link failure or handover failure happened. |
| ***measResultLastServCell***This field refers to the log measurement results taken in the PCell upon detecting radio link failure or the source PCell upon handover failure. |
| ***measResultLastServCellRSSI***This field refers to the log RSSI measurement results in dBm (see TS 38.215 [9]) taken for the frequency of the PCell upon detecting radio link failure or source PCell upon detecting handover failure. |
| ***measResultNeighFreqListRSSI***This field is used to log the RSSI measurement results in dBm (see TS 38.215 [9]) taken for the neighbouring frequencies upon detecting radio link failure or handover failure, when UE operates in shared spectrum. |
| ***measResult-RLF-Report-EUTRA***Includes the E-UTRA *RLF-Report-r9* IE as specified in TS 36.331 [10]. |
| ***measResult-RLF-Report-EUTRA-v1690***Includes the E-UTRA *RLF-Report-v9e0* IE as specified in TS 36.331 [10]. |
| ***noSuitableCellFound***This field is set by the UE when the T311 expires. |
| ***previousPCellId***This field is used to indicate the source PCell of the last handover (source PCell when the last executed *RRCReconfiguration* message including *reconfigurationWithSync* was received). For intra-NR handover *nrPreviousCell* is included and for the handover from EUTRA to NR *eutraPreviousCell* is included. |
| ***pSCellId***This field is used to indicate the PSCell in which the UE failed to perform fast MCG recovery procedure or the UE successfully performed fast MCG recovery procedure. |
| ***ra-InformationCommon***This field is optionally included when c*onnectionFailureType* is set to 'hof' or when *connectionFailureType* is set to 'rlf' and the *rlf-Cause* equals to 'randomAccessProblem' or 'beamRecoveryFailure'; otherwise this field is absent. |
| ***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, or to indicate the suitable cell in which the UE reconnects after failure in performing *MobilityFromNRCommand* for voice fallback (without initiating re-establishment procedure). 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***If the UE was not configured with *conditionalReconfiguration* at the time of re-establishment attempt, or if the cell selected for the re-establishment attempt is not a candidate target cell for conditional reconfiguration, this field is used to indicate the cell in which the re-establishment attempt was made after connection failure. |
| ***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, except for the case in which a radio link failure was detected in the source PCell while performing a DAPS handover. |
| ***scg-FailedAfterMCG***This field is set if for the SCG failure is detected after MCG failure while T316 is running. |
| ***ssbRLMConfigBitmap***This field is used to indicate the SS/PBCH block indexes configured in the RLM configurations for the active BWP when the UE declares RLF or HOF.The first/leftmost bit corresponds to SSB index 0, the second bit corresponds to SSB index 1. This field is included only if the *RadioLinkMonitoringConfig* for the respective BWP is configured. |
| ***timeConnFailure***This field is used to indicate the time elapsed since the last HO execution until connection failure. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |
| ***timeConnSourceDAPS-Failure***This field is used to indicate the time that elapsed between the last DAPS handover execution and the radio link failure detected in the source cell while T304 is running. Value in milliseconds. The maximum value 1023 means 1023ms or longer. |
| ***timeSinceFailure***This field is used to indicate the time that elapsed since the connection (radio link or handover) failure. Value in seconds. The maximum value 172800 means 172800s or longer. In the case of failure(s) (either at source or at target or at both) associated to DAPS handover, this field indicates the time elapsed since the latest connection (radio link or handover) failure. |
| *timeSinceCHO-Reconfig*In case of handover failure, this field is used to indicate the time elapsed between the initiation of the last handover execution towards the target cell and the reception of the latest conditional reconfiguration. In case of radio link failure, this field is used to indicate the time elapsed between the radio link failure and the reception of the latest conditional reconfiguration while connected to the source PCell. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |
| ***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. |
| ***voiceFallbackHO***This field is set if for the failed mobility from NR, the *voiceFallbackIndication* was included in the *MobilityFromNRCommand* message. |

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| *SuccessHO-Report* field descriptions |
| ***c-RNTI***This field indicates the C-RNTI assigned by the target PCell of the handover for which the successful HO report was generated. |
| ***eutra-TargetCellInfo***This field is used to indicate the target EUTRA PCell and the last measurement results of the target PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***eutra-C-RNTI***This field indicates the C-RNTI assigned by the E-UTRA target PCell of the mobility from NR command for which the successful HO report was generated. |
| ***measResultListNR***This field refers to the last measurement results taken in the neighboring NR Cells when a successful handover is executed. |
| ***measResultNeighFreqListRSSI***This field is used to log the RSSI measurement results in dBm (see TS 38.215 [9]) taken for the neighbouring frequencies upon successful handover execution. |
| ***measResultServCellRSSI***This field refers to the log RSSI measurement results in dBm (see TS 38.215 [9]) taken for the frequency of the source PCell upon successful handover execution. |
| *rlf-InSourceDAPS*This field indicates whether a radio link failure occurred at the source cell while T304 was running. |
| ***shr-Cause***This field is used to indicate the cause of the successful HO report. |
| ***sourceCellMeas***This field refers to the last measurement results taken in the source PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***sourcePCellId***This field is used to indicate the source PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***targetPCellId***This field is used to indicate the target PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***targetCellMeas***This field refers to the last measurement results taken in the target PCell of a handover in which the successful handover triggers the *SuccessHO-Report*. |
| ***timeSinceCHO-Reconfig***This field is used to indicate the time elapsed between the initiation of the last conditional reconfiguration execution towards the target cell and the reception of the latest conditional reconfiguration for this target cell. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |
| ***timeSinceSHR***This field is used to indicate the time elapsed since the execution of the last MobilityFromNRCommand towards the target EUTRA cell. Value in seconds. The maximum value 172800 means 172800s or longer. |
| ***upInterruptionTimeAtHO***This field is used to indicate the time elapsed between the time of arrival of the last PDCP PDU received from the source cell for any data radio bearer and the time of arrival of the first non-duplicate PDCP PDU received from the target cell for any data radio bearer, and it is measured at the time of arrival of the first non-duplicate PDCP PDU received from the target cell for any data radio bearer. The field is set only in case of DAPS handover.Value in milliseconds. The maximum value 1023 means 1023ms or longer. |

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| *FlightPathInfoReport* field descriptions |
| ***timeStamp***Time stamp that describes estimated time of arrival, if available, of the UE at the corresponding *wayPointLocation*. |
| ***wayPointLocation***Location coordinates of the planned waypoint. Parameter type *LocationCoordinates* defined in TS 37.355 [49]. The first/leftmost bit of the first octet contains the most significant bit. |

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| *SuccessPSCell-Report* field descriptions |
| ***measResultListNR***This field refers to the last measurement results according to the initiating node configuration taken in the neighboring NR Cells when a successful PSCell change/addition is executed. |
| ***pCellId***This field is used to indicate the PCell to which the UE was connected when the successful PSCell change or addition triggers the *SuccessPSCell-Report*. |
| ***sn-InitiatedPSCellChange***This field indicates whether the PSCell change procedure for which the successful PSCell change report is logged is SN initiated or not. |
| ***spr-Cause***This field is used to indicate the cause of the successful PSCell change or addition report. |
| ***sourcePSCellId***This field is used to indicate the source PSCell of a PSCell change in which the successful PSCell change triggers the *SuccessPSCell-Report*. |
| ***sourcePSCellMeas***This field refers to the last measurement results taken in the source PSCell of a PSCell change in which the successful PSCell change triggers the *SuccessPSCell-Report*. |
| ***targetPSCellId***This field is used to indicate the target PSCell of a PSCell change/addition in which the successful PSCell change or addition triggers the *SuccessPSCell-Report*. |
| ***targetPSCellMeas***This field refers to the last measurement results taken in the target PSCell of a PSCell change/addition in which the successful PSCell change or addition triggers the *SuccessPSCell-Report*. |
| ***timeSinceCPAC-Reconfig***This field is used to indicate the time elapsed between the initiation of the last conditional reconfiguration execution towards the target PSCell and the reception of the latest conditional reconfiguration for this target PSCell. Actual value = field value \* 100ms. The maximum value 1023 means 102.3s or longer. |

#### – *UEPositioningAssistanceInfo*

The *UEPositioningAssistanceInfo* message is used to provide positioning assistance information as requested by the Network.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*UEPositioningAssistanceInfo message*

-- ASN1START

-- TAG-UEPOSITIONINGASSISTANCEINFO-START

UEPositioningAssistanceInfo-r17 ::= SEQUENCE {

 criticalExtensions CHOICE {

 uePositioningAssistanceInfo-r17 UEPositioningAssistanceInfo-r17-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

UEPositioningAssistanceInfo-r17-IEs ::= SEQUENCE {

 ue-TxTEG-AssociationList-r17 UE-TxTEG-AssociationList-r17 OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension UEPositioningAssistanceInfo-v1720-IEs OPTIONAL

}

UEPositioningAssistanceInfo-v1720-IEs::= SEQUENCE {

 ue-TxTEG-TimingErrorMarginValue-r17 ENUMERATED {tc0, tc2, tc4, tc6, tc8, tc12, tc16, tc20, tc24, tc32, tc40, tc48, tc56,

 tc64, tc72, tc80} OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

UE-TxTEG-AssociationList-r17 ::= SEQUENCE (SIZE (1..maxNrOfTxTEGReport-r17)) OF UE-TxTEG-Association-r17

UE-TxTEG-Association-r17 ::= SEQUENCE {

 ue-TxTEG-ID-r17 INTEGER (0..maxNrOfTxTEG-ID-1-r17),

 nr-TimeStamp-r17 NR-TimeStamp-r17,

 associatedSRS-PosResourceIdList-r17 SEQUENCE (SIZE(1..maxNrofSRS-PosResources-r16)) OF SRS-PosResourceId-r16,

 servCellId-r17 ServCellIndex OPTIONAL

}

NR-TimeStamp-r17 ::= SEQUENCE {

 nr-SFN-r17 INTEGER (0..1023),

 nr-Slot-r17 CHOICE {

 scs15-r17 INTEGER (0..9),

 scs30-r17 INTEGER (0..19),

 scs60-r17 INTEGER (0..39),

 scs120-r17 INTEGER (0..79)

 },

 ...

}

-- TAG-UEPOSITIONINGASSISTANCEINFO-STOP

-- ASN1STOP

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| *UEPositioningAssistanceInfo* field descriptions |
| ***associatedSRS-PosResourceIdList***This field indicates list of SRS for Positioning Resources which are associated to the *ue-TxTEG-ID*. |
| ***nr-TimeStamp***This field specifies the latest time instance at which the association is valid prior to the reporting. |
| ***servCellID***This field indicates the serving cell information of SRS for positioning resources associated to the UE Tx TEG report. |
| ***ue-TxTEG-ID***Identifies the ID of UE Tx TEG. |
| ***ue-TxTEG-TimingErrorMarginValue***This field specifies the UE Tx TEG timing error margin value of all the UE Tx TEGs within one *UEPositioningAssistanceInfo*. Value *tc0* corresponds to 0 Tc, *tc2* corresponds to 2 Tc and so on (see TS 37.355 [49]). |

#### – *ULDedicatedMessageSegment*

The *ULDedicatedMessageSegment* message is used to transfer segments of the *UECapabilityInformation* or *MeasurementReportAppLayer* message. SRB1 is used at transfer of segments of *UECapabilityInformation* and SRB4 or SRB5 is used at transfer of segments of *MeasurementReportAppLayer*.

Signalling radio bearer: SRB1, SRB4 or SRB5

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*ULDedicatedMessageSegment message*

-- ASN1START

-- TAG-ULDEDICATEDMESSAGESEGMENT-START

ULDedicatedMessageSegment-r16 ::= SEQUENCE {

 criticalExtensions CHOICE {

 ulDedicatedMessageSegment-r16 ULDedicatedMessageSegment-r16-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

ULDedicatedMessageSegment-r16-IEs ::= SEQUENCE {

 segmentNumber-r16 INTEGER (0..15),

 rrc-MessageSegmentContainer-r16 OCTET STRING,

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

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-ULDEDICATEDMESSAGESEGMENT-STOP

-- ASN1STOP

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| *ULDedicatedMessageSegment* field descriptions |
| ***segmentNumber***Identifies the sequence number of a segment within the encoded UL DCCH message.  |
| ***rrc-MessageSegmentContainer***Includes a segment of the encoded UL DCCH message. The size of the included segment in this container should be small enough that the resulting encoded RRC message PDU is less than or equal to the PDCP SDU size limit. |
| ***rrc-MessageSegmentType***Indicates whether the included UL DCCH message segment is the last segment or not. |

#### – *ULInformationTransfer*

The *ULInformationTransfer* message is used for the uplink transfer of NAS or non-3GPP dedicated information, or IAB-DU specific F1-C related information.

Signalling radio bearer: SRB2 or SRB1 (only if SRB2 not established yet). If SRB2 is suspended, the UE does not send this message until SRB2 is resumed. If only *dedicatedInfoF1c* is included, SRB2 is used.

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to network

*ULInformationTransfer message*

-- ASN1START

-- TAG-ULINFORMATIONTRANSFER-START

ULInformationTransfer ::= SEQUENCE {

 criticalExtensions CHOICE {

 ulInformationTransfer ULInformationTransfer-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

ULInformationTransfer-IEs ::= SEQUENCE {

 dedicatedNAS-Message DedicatedNAS-Message OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension ULInformationTransfer-v1700-IEs OPTIONAL

}

ULInformationTransfer-v1700-IEs ::= SEQUENCE {

 dedicatedInfoF1c-r17 DedicatedInfoF1c-r17 OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-ULINFORMATIONTRANSFER-STOP

-- ASN1STOP

#### – *ULInformationTransferIRAT*

The *ULInformationTransferIRAT* message is used for the uplink transfer of information terminated at NR MCG but specified by another RAT. In this version of the specification, the message is used for V2X sidelink communication messages specified in TS 36.331 [10].

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to network

*ULInformationTransferIRAT* message

-- ASN1START

-- TAG-ULINFORMATIONTRANSFERIRAT-START

ULInformationTransferIRAT-r16 ::= SEQUENCE {

 criticalExtensions CHOICE {

 c1 CHOICE {

 ulInformationTransferIRAT-r16 ULInformationTransferIRAT-r16-IEs,

 spare3 NULL, spare2 NULL, spare1 NULL

 },

 criticalExtensionsFuture SEQUENCE {}

 }

}

ULInformationTransferIRAT-r16-IEs ::= SEQUENCE {

 ul-DCCH-MessageEUTRA-r16 OCTET STRING OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-ULINFORMATIONTRANSFERIRAT-STOP

-- ASN1STOP

| *ULInformationTransferIRAT* field descriptions |
| --- |
| ***ul-DCCH-MessageEUTRA***Includes the *UL-DCCH-Message* as defined in TS 36.331 [10]. In this version of the specification, the field is only used to transfer the E-UTRA RRC *MeasurementReport*, E-UTRA RRC *SidelinkUEInformation* and the E-UTRA RRC *UEAssistanceInformation messages*. |

#### *– ULInformationTransferMRDC*

The *ULInformationTransferMRDC* message is used for the uplink transfer of MR-DC dedicated information (e.g. for transferring the NR or E-UTRA RRC *MeasurementReport* message, the *FailureInformation* message, the *UEAssistanceInformation* message, the *RRCReconfigurationComplete* message, the *IABOtherInformation* message or the NR or E-UTRA RRC *MCGFailureInformation* message).

Signalling radio bearer: SRB1, SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

*ULInformationTransferMRDC message*

-- ASN1START

-- TAG-ULINFORMATIONTRANSFERMRDC-START

ULInformationTransferMRDC ::= SEQUENCE {

 criticalExtensions CHOICE {

 c1 CHOICE {

 ulInformationTransferMRDC ULInformationTransferMRDC-IEs,

 spare3 NULL, spare2 NULL, spare1 NULL

 },

 criticalExtensionsFuture SEQUENCE {}

 }

}

ULInformationTransferMRDC-IEs::= SEQUENCE {

 ul-DCCH-MessageNR OCTET STRING OPTIONAL,

 ul-DCCH-MessageEUTRA OCTET STRING OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-ULINFORMATIONTRANSFERMRDC-STOP

-- ASN1STOP

| *ULInformationTransferMRDC* field descriptions |
| --- |
| ***ul-DCCH-MessageNR***Includes the *UL-DCCH-Message*. In this version of the specification, the field is only used to transfer the NR RRC *MeasurementReport*, *RRCReconfigurationComplete, UEAssistanceInformation,* *FailureInformation*, and *IABOtherInformation* messages when sent via SRB1 and to transfer the NR *MCGFailureInformation* message when sent via SRB3. |
| ***ul-DCCH-MessageEUTRA***Includes the *UL-DCCH-Message*. In this version of the specification, the field is only used to transfer the E-UTRA RRC *MeasurementReport* message when sent via SRB1 and to transfer the E-UTRA *MCGFailureInformation* message when sent via SRB3. |

**<Next Change>**

### 6.3.5 Sidelink information elements

#### – *SL-BWP-Config*

The IE *SL-BWP-Config* is used to configure the UE specific NR sidelink communication/discovery/positioning on one particular sidelink bandwidth part.

*SL-BWP-Config* information element

-- ASN1START

-- TAG-SL-BWP-CONFIG-START

SL-BWP-Config-r16 ::= SEQUENCE {

 sl-BWP-Id BWP-Id,

 sl-BWP-Generic-r16 SL-BWP-Generic-r16 OPTIONAL, -- Need M

 sl-BWP-PoolConfig-r16 SL-BWP-PoolConfig-r16 OPTIONAL, -- Need M

 ...,

 [[

 sl-BWP-PoolConfigPS-r17 SetupRelease {SL-BWP-PoolConfig-r16} OPTIONAL, -- Need M

 sl-BWP-DiscPoolConfig-r17 SetupRelease {SL-BWP-DiscPoolConfig-r17} OPTIONAL -- Need M

 ]],

 [[

 sl-BWP-PoolConfigA2X-r18 SetupRelease {SL-BWP-PoolConfig-r16} OPTIONAL, -- Need M

 sl-BWP-PRS-PoolConfig-r18 SetupRelease {SL-BWP-PRS-PoolConfig-r18} OPTIONAL -- Need M

 ]]

}

SL-BWP-Generic-r16 ::= SEQUENCE {

 sl-BWP-r16 BWP OPTIONAL, -- Need M

 sl-LengthSymbols-r16 ENUMERATED {sym7, sym8, sym9, sym10, sym11, sym12, sym13, sym14} OPTIONAL, -- Need M

 sl-StartSymbol-r16 ENUMERATED {sym0, sym1, sym2, sym3, sym4, sym5, sym6, sym7} OPTIONAL, -- Need M

 sl-PSBCH-Config-r16 SetupRelease {SL-PSBCH-Config-r16} OPTIONAL, -- Need M

 sl-TxDirectCurrentLocation-r16 INTEGER (0..3301) OPTIONAL, -- Need M

 ...,

 [[

 sl-Unlicensed-r18 SetupRelease { SL-Unlicensed-r18 } OPTIONAL -- Need M

 ]]

}

SL-Unlicensed-r18 ::= SEQUENCE {

 sl-LBT-FailureRecoveryConfig-r18 SetupRelease { SL-LBT-FailureRecoveryConfig-r18 } OPTIONAL, -- Need M

 sl-StartingSymbolFirst-r18 ENUMERATED {sym0, sym1, sym2, sym3, sym4, sym5, sym6} OPTIONAL, -- Need M

 sl-StartingSymbolSecond-r18 ENUMERATED {sym3, sym4, sym5, sym6, sym7} OPTIONAL, -- Need M

 sl-TransmissionStructureForPSCCHandPSSCH-r18 ENUMERATED {contiguousRB, interlaceRB} OPTIONAL, -- Need M

 sl-GapOfAdditionalSSSB-Occasion-r18 INTEGER (0..639) OPTIONAL, -- Need M

 sl-AbsoluteFrequencySSB-NonAnchorList-r18 SEQUENCE (SIZE (1.. maxSL-NonAnchorRBsets)) OF ARFCN-ValueNR OPTIONAL, -- Need M

 sl-CPE-StartingPositionS-SSB-r18 INTEGER (1..9) OPTIONAL, -- Need M

 sl-CWS-ForPsschWithoutHarqAck-r18 ENUMERATED {t1, t8, t16, t32, infinity} OPTIONAL, -- Need M

 sl-NumOfAdditionalSSSBOccasion-r18 INTEGER (0..4) OPTIONAL, -- Need M

 sl-SSSBPowerOffsetOfAnchorRBSet-r18 ENUMERATED {value1, value2} OPTIONAL, -- Need M

 sl-RBSetConfigList-r18 SEQUENCE (SIZE (1..5)) OF SL-RBSetConfig-r18 OPTIONAL, -- Need M

 sl-IntraCellGuardBandsSL-List-r18 SEQUENCE (SIZE (1..maxSCSs)) OF IntraCellGuardBandsPerSCS-r16 OPTIONAL -- Need M

}

-- TAG-SL-BWP-CONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *SL-BWP-Config* field descriptions |
| ***sl-BWP-DiscPoolConfig***This field indicates the NR sidelink discovery dedicated resource pool configurations on the configured sidelink BWP. The total number of Rx/Tx resource pools configured for communication and discovery does not exceed the maximum number of Rx/Tx resource pool for NR sidelink communication (i.e. *maxNrofRXPool-r16/maxNrofTXPool-r16*). |
| ***sl-BWP-Generic***This field indicates the generic parameters on the configured sidelink BWP. |
| ***sl-BWP-Id***An identifier for this sidelink bandwidth part. |
| ***sl-BWP-PoolConfig***This field indicates the resource pool configurations on the configured sidelink BWP. |
| ***sl-BWP-PoolConfigA2X***This field indicates the resource pool configurations for A2X services on the configured sidelink BWP. This field does not include *sl-TxPoolScheduling*. This field does not include *sl-TxPoolExceptional*. |
| ***sl-BWP-PoolConfigPS***This field indicates the resource pool configurations for power saving on the configured sidelink BWP. This field does not include *sl-TxPoolExceptional*. |
| ***sl-BWP-PRS-PoolConfig***This field indicates the sidelink PRS dedicated resource pool configurations for SL-PRS on the configured sidelink BWP. This field does not include *sl-PRS-TxPoolExceptional*. |

|  |
| --- |
| *SL-BWP-Generic* field descriptions |
| ***sl-LengthSymbols***This field indicates the number of symbols used for sidelink in a slot without S-SSB. A single value can be (pre)configured per sidelink bandwidth part. |
| ***sl-StartSymbol***This field indicates the starting symbol used for sidelink in a slot without S-SSB. A single value can be (pre)configured per sidelink bandwidth part. |
| ***sl-Unlicensed***This field indicates the configurations for sidelink carrier of shared spectrum channel access. This field is not expected to be provided when *sl-FreqInfoListSizeExt* or *sl-PreconfigFreqInfoListSizeExt* is present. |
| ***sl-TxDirectCurrentLocation***The sidelink Tx/Rx Direct Current location for the carrier. Only values in the value range of this field between 0 and 3299, which indicate the subcarrier index within the carrier corresponding to the numerology of the corresponding sidelink BWP and value 3300, which indicates "Outside the carrier" and value 3301, which indicates "Undetermined position within the carrier" are used in this version of the specification. |

|  |
| --- |
| *SL-Unlicensed* field descriptions |
| ***sl-AbsoluteFrequencySSB-NonAnchorList***Indicates the lowest S-SSB in a non-anchor RB set via each parameter in this list. Anchor RB set refers to the RB set where S-SSB indicated by *sl-AbsoluteFrequencySSB-r16* locates. |
| ***sl-CPE-StartingPositionS-SSB***Indicates the CPE starting position within the last symbol before the start of S-SSB transmission. The value is an index of the set of all candidate CPE starting positions specified in Table 5.3.1-3 of [16, TS 38.211] for Ci=1 and the corresponding SCS of the SL BWP. |
| ***sl-CWS-ForPsschWithoutHarqAck***The latest CW\_p is autonomously increased to the next higher allowed value for every priority class p of {1,2,3,4} if the same CW\_p which is different from CW\_(max,p) is consecutively used for general of N\_init in SL Type 1 LBT for a number of times indicated by this parameter. This operation is restricted only to PSCCH/PSSCH transmission(s) with "HARQ feedback enabled/disabled indicator" in the 2nd stage SCI set to disabled, regardless of whether PSFCH resources being configured in a resource pool. |
| ***sl-GapOfAdditionalSSSB-Occasion***Indicate the gap between each R16/R17 NR SL S-SSB slot and its first corresponding additional candidate S-SSB occasion, and the gap between adjacent two additional candidate S-SSB occasions corresponding to a R16/R17 NR SL S-SSB slot. |
| ***sl-IntraCellGuardBandsSL-List***List of intra-cell guard bands for operation with shared spectrum channel access. If not configured, the guard bands are defined according to 38.101-1 [15], see TS 38.214 [19], clause 7. For operation in licensed spectrum, this field is absent, and no UE action is required.NOTE: Value '0' is not expected to be (pre-)configured for *nrofCRBs* when the SL BWP is larger than UE supported RF bandwidth for SL-U operation. |
| ***sl-LBT-FailureRecoveryConfig***Configures parameters used for detection and cancellation of Sidelink consistent LBT failures for operation with shared spectrum channel access, as specified in TS 38.321 [3]. |
| ***sl-NumOfAdditionalSSSBOccasion***Indicate the number of additional candidate S-SSB occasion(s) for each R16/R17 NR SL S-SSB slot. |
| ***sl-SSSBPowerOffsetOfAnchorRBSet***Indicate the power offset for one S-SSB transmission on anchor RB set, where anchor RB set refers to the RB set where S-SSB indicated by *sl-AbsoluteFrequencySSB-r16* locates. Value *value1* corresponds to the power offset of 10lg(N), where N is the number of S-SSB repetitions within the anchor RB set, and *value2* corresponds to the power offset of 10lg(W), where W is the maximum total number of S-SSB repetitions on RB sets within the SL-BWP. |
| ***sl-StartingSymbolFirst***Indicates the location of first starting symbol within a slot. Value *sym0* corresponds to first symbol, value *sym1* corresponds to the second symbol and so on. If the field is not configured, the UE shall use value *sym0*. |
| ***sl-StartingSymbolSecond***Indicates the location of second starting symbol within a slot. Value *sym3* corresponds to fourth symbol, value *sym4* corresponds to the fifth symbol and so on.The number of symbols used for PSCCH/PSSCH transmission from second starting symbol is not smaller than 6. Within a slot, the second starting symbol is later than the first starting symbol. PSCCH/PSSCH transmission starting from first or second starting symbol shall have the same ending symbol within a slot. |
| ***sl-TransmissionStructureForPSCCHandPSSCH***Indicate a SL-BWP is (pre-)configured with contiguous RB-based or interlace RB-based PSCCH/PSSCH transmission. Contiguous RB-based PSCCH/PSSCH are applicable in region with no OCB requirement, or with OCB exemption. |

#### – *SL-BWP-ConfigCommon*

The IE *SL-BWP-ConfigCommon* is used to configure the cell-specific configuration information on one particular sidelink bandwidth part.

*SL-BWP-ConfigCommon* information element

-- ASN1START

-- TAG-SL-BWP-CONFIGCOMMON-START

SL-BWP-ConfigCommon-r16 ::= SEQUENCE {

 sl-BWP-Generic-r16 SL-BWP-Generic-r16 OPTIONAL, -- Need R

 sl-BWP-PoolConfigCommon-r16 SL-BWP-PoolConfigCommon-r16 OPTIONAL, -- Need R

 ...,

 [[

 sl-BWP-PoolConfigCommonPS-r17 SL-BWP-PoolConfigCommon-r16 OPTIONAL, -- Need R

 sl-BWP-DiscPoolConfigCommon-r17 SL-BWP-DiscPoolConfigCommon-r17 OPTIONAL -- Need R

 ]],

 [[

 sl-BWP-PoolConfigCommonA2X-r18 SL-BWP-PoolConfigCommon-r16 OPTIONAL -- Need R

 ]]

}

-- TAG-SL-BWP-CONFIGCOMMON-STOP

-- ASN1STOP

|  |
| --- |
| *SL-BWP-ConfigCommon* field descriptions |
| ***sl-BWP-DiscPoolConfigCommon***This field indicates the NR sidelink discovery dedicated resource pool configurations on the configured sidelink BWP. The total number of Rx/Tx resource pools configured for communication and discovery does not exceed the maximum number of Rx/Tx resource pool for NR sidelink communication (i.e. *maxNrofRXPool-r16/maxNrofTXPool-r16*). |
| ***sl-BWP-Generic***This field indicates the generic parameters on the configured sidelink BWP. |
| ***sl-BWP-PoolConfigCommon***This field indicates the resource pool configurations on the configured sidelink BWP. |
| ***sl-BWP-PoolConfigCommonA2X***This field indicates the resource pool configurations for A2X services on the configured sidelink BWP. This field does not include *sl-TxPoolExceptional*. |
| ***sl-BWP-PoolConfigCommonPS***This field indicates the resource pool configurations for power saving on the configured sidelink BWP. This field does not include *sl-TxPoolExceptional*. |

#### – *SL-BWP-DiscPoolConfig*

The IE *SL-BWP-DiscPoolConfig* is used to configure UE specific NR sidelink discovery dedicated resource pool.

*SL-BWP-DiscPoolConfig* information element

-- ASN1START

-- TAG-SL-BWP-DISCPOOLCONFIG-START

SL-BWP-DiscPoolConfig-r17 ::= SEQUENCE {

 sl-DiscRxPool-r17 SEQUENCE (SIZE (1..maxNrofRXPool-r16)) OF SL-ResourcePool-r16 OPTIONAL, -- Cond HO

 sl-DiscTxPoolSelected-r17 SL-TxPoolDedicated-r16 OPTIONAL, -- Need M

 sl-DiscTxPoolScheduling-r17 SL-TxPoolDedicated-r16 OPTIONAL -- Need N

}

-- TAG-SL-BWP-DISCPOOLCONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *SL-BWP-DiscPoolConfig* field descriptions |
| ***sl-DiscTxPoolScheduling***Indicates the resources by which the UE is allowed to transmit NR sidelink discover based on network scheduling on the configured BWP. For the PSFCH related configuration, if configured, will be used for PSFCH transmission/reception.When this field is configured together with *sl-TxPoolScheduling*, the resource pool index (which is used in DCI Format 3\_0 in TS 38.212 [17], clause 7.3.1.4.1) is defined as 0, 1, …, x-1 for the resource pools included in the *sl-TxPoolScheduling*, and x, x+1, …, x+y-1 for the resource pools included in *sl-DiscTxPoolScheduling*, where x is the number of the resource pools in *sl-TxPoolScheduling*, and y is the number of resource pools in *sl-DiscTxPoolScheduling*. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *HO* | This field is optionally present, need M, in an *RRCReconfiguration* message including *reconfigurationWithSync*; otherwise it is absent, need M. |

#### – *SL-BWP-DiscPoolConfigCommon*

The IE *SL-BWP-DiscPoolConfigCommon* is used to configure the cell-specific NR sidelink discovery dedicated resource pool.

*SL-BWP-DiscPoolConfigCommon* information element

-- ASN1START

-- TAG-SL-BWP-DISCPOOLCONFIGCOMMON-START

SL-BWP-DiscPoolConfigCommon-r17 ::= SEQUENCE {

 sl-DiscRxPool-r17 SEQUENCE (SIZE (1..maxNrofRXPool-r16)) OF SL-ResourcePool-r16 OPTIONAL, -- Need R

 sl-DiscTxPoolSelected-r17 SEQUENCE (SIZE (1..maxNrofTXPool-r16)) OF SL-ResourcePoolConfig-r16 OPTIONAL, -- Need R

 ...

}

-- TAG-SL-BWP-DISCPOOLCONFIGCOMMON-STOP

-- ASN1STOP

#### – *SL-BWP-PoolConfig*

The IE *SL-BWP-PoolConfig* is used to configure NR sidelink communication resource pool.

*SL-BWP-PoolConfig* information element

-- ASN1START

-- TAG-SL-BWP-POOLCONFIG-START

SL-BWP-PoolConfig-r16 ::= SEQUENCE {

 sl-RxPool-r16 SEQUENCE (SIZE (1..maxNrofRXPool-r16)) OF SL-ResourcePool-r16 OPTIONAL, -- Cond HO

 sl-TxPoolSelectedNormal-r16 SL-TxPoolDedicated-r16 OPTIONAL, -- Need M

 sl-TxPoolScheduling-r16 SL-TxPoolDedicated-r16 OPTIONAL, -- Need N

 sl-TxPoolExceptional-r16 SL-ResourcePoolConfig-r16 OPTIONAL -- Need M

}

SL-TxPoolDedicated-r16 ::= SEQUENCE {

 sl-PoolToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofTXPool-r16)) OF SL-ResourcePoolID-r16 OPTIONAL, -- Need N

 sl-PoolToAddModList-r16 SEQUENCE (SIZE (1..maxNrofTXPool-r16)) OF SL-ResourcePoolConfig-r16 OPTIONAL -- Need N

}

SL-ResourcePoolConfig-r16 ::= SEQUENCE {

 sl-ResourcePoolID-r16 SL-ResourcePoolID-r16,

 sl-ResourcePool-r16 SL-ResourcePool-r16 OPTIONAL -- Need M

}

SL-ResourcePoolID-r16 ::= INTEGER (1..maxNrofPoolID-r16)

-- TAG-SL-BWP-POOLCONFIG-STOP

-- ASN1STOP

| *SL-BWP-PoolConfig* field descriptions |
| --- |
| ***sl-RxPool***Indicates the receiving resource pool on the configured BWP. For the PSFCH related configuration, if configured, will be used for PSFCH transmission/reception. If the field is included, it replaces any previous list, i.e. all the entries of the list are replaced and each of the *SL-ResourcePool* entries is considered to be newly created. |
| ***sl-TxPoolExceptional***Indicates the resources by which the UE is allowed to perform NR sidelink transmission in exceptional conditions on the configured BWP. For the PSFCH related configuration, if configured, will be used for PSFCH transmission/reception. |
| ***sl-TxPoolScheduling***Indicates the resources by which the UE is allowed to perform NR sidelink transmission based on network scheduling on the configured BWP. For the PSFCH related configuration, if configured, will be used for PSFCH transmission/reception. |
| ***sl-TxPoolSelectedNormal***Indicates the resources by which the UE is allowed to perform NR sidelink transmission by UE autonomous resource selection on the configured BWP. For the PSFCH related configuration, if configured, will be used for PSFCH transmission/reception. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *HO* | This field is optionally present, need M, in an *RRCReconfiguration* message including *reconfigurationWithSync*; otherwise it is absent, Need M. |

#### – *SL-BWP-PoolConfigCommon*

The IE *SL-BWP-PoolConfigCommon* is used to configure the cell-specific NR sidelink communication resource pool.

*SL-BWP-PoolConfigCommon* information element

-- ASN1START

-- TAG-SL-BWP-POOLCONFIGCOMMON-START

SL-BWP-PoolConfigCommon-r16 ::= SEQUENCE {

 sl-RxPool-r16 SEQUENCE (SIZE (1..maxNrofRXPool-r16)) OF SL-ResourcePool-r16 OPTIONAL, -- Need R

 sl-TxPoolSelectedNormal-r16 SEQUENCE (SIZE (1..maxNrofTXPool-r16)) OF SL-ResourcePoolConfig-r16 OPTIONAL, -- Need R

 sl-TxPoolExceptional-r16 SL-ResourcePoolConfig-r16 OPTIONAL -- Need R

}

-- TAG-SL-BWP-POOLCONFIGCOMMON-STOP

-- ASN1STOP

| *SL-BWP-PoolConfigCommon* field descriptions |
| --- |
| ***sl-TxPoolExceptional***Indicates the resources by which the UE is allowed to perform NR sidelink transmission in exceptional conditions on the configured BWP. For the PSFCH related configuration, if configured, will be used for PSFCH transmission/reception. This field is not present when *SL-BWP-PoolConfigCommon* is included in *SidelinkPreconfigNR*. |

#### – *SL-BWP-PRS-PoolConfig*

The IE *SL-BWP-PRS-PoolConfig* is used to configure UE specific NR sidelink PRS dedicated resource pool.

*SL-BWP-PRSPoolConfig* information element

-- ASN1START

-- TAG-SL-BWP-PRS-POOLCONFIG-START

SL-BWP-PRS-PoolConfig-r18 ::= SEQUENCE {

 sl-PRS-RxPool-r18 SEQUENCE (SIZE (1..maxNrofRXPool-r16)) OF SL-PRS-ResourcePool-r18 OPTIONAL, -- Cond HO

 sl-PRS-TxPoolSelectedNormal-r18 SL-PRS-TxPoolDedicated-r18 OPTIONAL, -- Need M

 sl-PRS-TxPoolScheduling-r18 SL-PRS-TxPoolDedicated-r18 OPTIONAL, -- Need M

 sl-PRS-TxPoolExceptional-r18 SL-PRS-ResourcePoolConfig-r18 OPTIONAL -- Need R

}

SL-PRS-TxPoolDedicated-r18 ::= SEQUENCE {

 sl-PRS-PoolToReleaseList-r1 SEQUENCE (SIZE (1..maxNrofSL-PRS-TxPool-r18)) OF SL-PRS-ResourcePoolID-r18 OPTIONAL, -- Need N

 sl-PRS-PoolToAddModList-r18 SEQUENCE (SIZE (1..maxNrofSL-PRS-TxPool-r18)) OF SL-PRS-ResourcePoolConfig-r18 OPTIONAL -- Need N

}

SL-PRS-ResourcePoolConfig-r18 ::= SEQUENCE {

 sl-PRS-ResourcePoolID-r18 SL-PRS-ResourcePoolID-r18,

 sl-PRS-ResourcePool-r18 SL-PRS-ResourcePool-r18 OPTIONAL -- Need M

}

SL-PRS-ResourcePoolID-r18 ::= INTEGER (1.. maxNrofSL-PRS-TxPool-r18)

-- TAG-SL-BWP-PRS-POOLCONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *SL-BWP-PRSPoolConfig* field descriptions |
| ***sl-PRS-TxPoolSelectedNormal***Indicates the resources by which the UE is allowed to perform SL-PRS transmission by UE autonomous resource selection on the configured BWP. |
| ***sl-PRS-TxPoolScheduling***Indicates the resources by which the UE is allowed to perform SL-PRS transmission based on network selection on the configured BWP. |
| ***sl-PRS-TxPoolExceptional***Indicates the resources by which the UE is allowed to perform SL-PRS transmission in exceptional conditions on the configured BWP. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *HO* | This field is optionally present, need M, in an *RRCReconfiguration* message including *reconfigurationWithSync*; otherwise it is absent, Need M. |

#### – *SL-BWP-PRS-PoolConfigCommon*

The IE *SL-BWP-PRSPoolConfigCommon* is used to configure the cell-specific NR sidelink PRS dedicated resource pool.

*SL-BWP-PRS-PoolConfigCommon* information element

-- ASN1START

-- TAG-SL-BWP-PRS-POOLCONFIGCOMMON-START

SL-BWP-PRS-PoolConfigCommon-r18 ::= SEQUENCE {

 sl-PRS-RxPool-r18 SEQUENCE (SIZE (1..maxNrofRXPool-r16)) OF SL-PRS-ResourcePool-r18 OPTIONAL, -- Need R

 sl-PRS-TxPoolSelectedNormal-r18 SEQUENCE (SIZE (1..maxNrofSL-PRS-TxPool-r18)) OF SL-PRS-ResourcePoolConfig-r18 OPTIONAL, -- Need R

 sl-PRS-TxPoolExceptional-r18 SL-PRS-ResourcePoolConfig-r18 OPTIONAL, -- Need R

 ...

}

-- TAG-SL-BWP-PRSPOOLCONFIGCOMMON-STOP

-- ASN1STOP

| *SL-BWP-PRS-PoolConfigCommon* field descriptions |
| --- |
| ***sl-PRS-TxPoolExceptional***Indicates the resources by which the UE is allowed to perform NR sidelink transmission in exceptional conditions on the configured BWP. This field is not present when *SL-BWP-PRS-PoolConfigCommon* is included in *SL-PreconfigurationNR* |

#### – *SL-CBR-PriorityTxConfigList*

The IE *SL-CBR-PriorityTxConfigList* indicates the mapping between PSSCH transmission parameter (such as MCS, PRB number, retransmission number, CR limit) sets by using the indexes of the configurations provided in *sl-CBR-PSSCH-TxConfigList*, CBR ranges by an index to the entry of the CBR range configuration in *sl-CBR-RangeConfigList*, and priority ranges. It also indicates the default PSSCH transmission parameters to be used when CBR measurement results are not available, and MCS range for the MCS tables used in the resource pool.

*SL-CBR-PriorityTxConfigList* information element

-- ASN1START

-- TAG-SL-CBR-PRIORITYTXCONFIGLIST-START

SL-CBR-PriorityTxConfigList-r16 ::= SEQUENCE (SIZE (1..8)) OF SL-PriorityTxConfigIndex-r16

SL-CBR-PriorityTxConfigList-v1650 ::= SEQUENCE (SIZE (1..8)) OF SL-PriorityTxConfigIndex-v1650

SL-PriorityTxConfigIndex-r16 ::= SEQUENCE {

 sl-PriorityThreshold-r16 INTEGER (1..8) OPTIONAL, -- Need M

 sl-DefaultTxConfigIndex-r16 INTEGER (0..maxCBR-Level-1-r16) OPTIONAL, -- Need M

 sl-CBR-ConfigIndex-r16 INTEGER (0..maxCBR-Config-1-r16) OPTIONAL, -- Need M

 sl-Tx-ConfigIndexList-r16 SEQUENCE (SIZE (1.. maxCBR-Level-r16)) OF SL-TxConfigIndex-r16 OPTIONAL -- Need M

}

SL-PriorityTxConfigIndex-v1650 ::= SEQUENCE {

 sl-MCS-RangeList-r16 SEQUENCE (SIZE (1..maxCBR-Level-r16)) OF SL-MinMaxMCS-List-r16 OPTIONAL -- Need M

}

SL-TxConfigIndex-r16 ::= INTEGER (0..maxTxConfig-1-r16)

-- TAG-SL-CBR-PRIORITYTXCONFIGLIST-STOP

-- ASN1STOP

| *SL-CBR-PriorityTxConfigList* field descriptions |
| --- |
| ***sl-CBR-ConfigIndex***Indicates the CBR ranges to be used by an index to the entry of the CBR range configuration in *sl-CBR-RangeConfigList*. |
| ***sl-DefaultTxConfigIndex***Indicates the PSSCH transmission parameters to be used by the UEs which do not have available CBR measurement results, by means of an index to the corresponding entry in *sl-Tx-ConfigIndexList*. Value 0 indicates the first entry in *sl-Tx-ConfigIndexList*. The field is ignored if the UE has available CBR measurement results. |
| ***sl-MCS-RangeList***Indicates the minimum MCS value and maximum MCS value for the associated MCS table(s). UE shall ignore the minimum MCS value and maximum MCS value used for table of 64QAM indicated in *SL-CBR-PriorityTxConfigList-r16* if *SL-CBR-PriorityTxConfigList-v1650* is present. |
| ***sl-PriorityThreshold***Indicates the upper bound of priority range which is associated with the configurations in *sl-CBR-ConfigIndex* and in *sl-Tx-ConfigIndexList*. The upper bounds of the priority ranges are configured in ascending order for consecutive entries of *SL-PriorityTxConfigIndex* in *SL-CBR-PriorityTxConfigList*. For the first entry of S*L-PriorityTxConfigIndex*, the lower bound of the priority range is 1. |
| ***SL-CBR-PriorityTxConfigList-v1650***If included, it includes the same number of entries, and listed in the same order, as in *SL-CBR-PriorityTxConfigList-r16*. |

#### – *SL-CBR-CommonTxConfigList*

The IE *SL-CBR-CommonTxConfigList* indicates the list of PSSCH transmission parameters (such as MCS, sub-channel number, retransmission number, CR limit) in *sl-CBR-PSSCH-TxConfigList*, and the list of CBR ranges in *sl-CBR-RangeConfigList*, to configure congestion control to the UE for sidelink communication.

*SL-CBR-CommonTxConfigList* information element

-- ASN1START

-- TAG-SL-CBR-COMMONTXCONFIGLIST-START

SL-CBR-CommonTxConfigList-r16 ::= SEQUENCE {

 sl-CBR-RangeConfigList-r16 SEQUENCE (SIZE (1..maxCBR-Config-r16)) OF SL-CBR-LevelsConfig-r16 OPTIONAL, -- Need M

 sl-CBR-PSSCH-TxConfigList-r16 SEQUENCE (SIZE (1.. maxTxConfig-r16)) OF SL-CBR-PSSCH-TxConfig-r16 OPTIONAL -- Need M

}

SL-CBR-LevelsConfig-r16 ::= SEQUENCE (SIZE (1..maxCBR-Level-r16)) OF SL-CBR-r16

SL-CBR-PSSCH-TxConfig-r16 ::= SEQUENCE {

 sl-CR-Limit-r16 INTEGER(0..10000) OPTIONAL, -- Need M

 sl-TxParameters-r16 SL-PSSCH-TxParameters-r16 OPTIONAL -- Need M

}

SL-CBR-r16 ::= INTEGER (0..100)

-- TAG-SL-CBR-COMMONTXCONFIGLIST-STOP

-- ASN1STOP

| *SL-CBR-CommonTxConfigList* field descriptions |
| --- |
| ***sl-CBR-RangeConfigList***Each entry in *sl-CBR-RangeConfigList* is *SL-CBR-LevelsConfig* containing the list of CBR ranges. The values within each *SL-CBR-LevelsConfig* indicate the upper bound of the each CBR range (and implicitly indicate the lower bound of next CBR range) and are configured in ascending order*.* For the first CBR range of each *SL-CBR-LevelsConfig*, the lower bound of the CBR range is 0. Value 0 corresponds to 0, value 1 to 0.01, value 2 to 0.02, and so on. |
| ***sl-CR-Limit***Indicates the maximum limit on the occupancy ratio. Value 0 corresponds to 0, value 1 to 0.0001, value 2 to 0.0002, and so on (i.e. in steps of 0.0001) until value 10000, which corresponds to 1. |
| ***sl-CBR-PSSCH-TxConfigList***Indicates the list of available PSSCH transmission parameters (such as MCS, sub-channel number, retransmission number and CR limit) configurations. |
| ***sl-TxParameters***Indicates PSSCH transmission parameters. |

#### – *SL-CBR-CommonTxDedicated-SL-PRS-RP-List*

The IE *SL-CBR-CommonTxConfigListDedicated-SL-PRS-RP* indicates the list of SL PRS transmission parameters (such as Maximum SL PRS transmission power, Maximum Number of SL PRS (re-)transmissions, and CR limit) in *sl-CBR-SL-PRS-TxConfigList*, and the list of CBR ranges in *sl-CBR-RangeConfigList-Dedicated-SL-PRS-RP*, to configure congestion control to the UE for sidelink positioning.

*SL-CBR-CommonTxDedicatedSL-PRS-RP-List* information element

-- ASN1START

-- TAG- SL-CBR-COMMONTXDEDICATEDSL-PRS-RP-LIST-START

SL-CBR-CommonTxDedicatedSL-PRS-RP-List-r18 ::= SEQUENCE {

 sl-CBR-RangeDedicatedSL-PRS-RP-List-r18 SEQUENCE (SIZE (1..maxCBR-ConfigDedSL-PRS-1-r18)) OF SL-CBR-LevelsDedicatedSL-PRS-RP-r18

 OPTIONAL, -- Need M

 sl-CBR-SL-PRS-TxConfigList-r18 SEQUENCE (SIZE (1.. maxNrofSL-PRS-TxConfig-r18)) OF SL-CBR-SL-PRS-TxConfig-r18

 OPTIONAL -- Need M

}

SL-CBR-LevelsDedicatedSL-PRS-RP-r18 ::= SEQUENCE (SIZE (0..maxCBR-LevelDedSL-PRS-1-r18)) OF SL-CBR-Dedicated-SL-PRS-RP-r18

SL-CBR-SL-PRS-TxConfig-r18 ::= SEQUENCE {

 sl-PRS-CR-Limit-r18 INTEGER(0..10000) OPTIONAL, -- Need M

 sl-PRS-MaxTx-power-r18 INTEGER (-30..33) OPTIONAL, -- Need M

 sl-PRS-MaxNum-Transmissions-r18 INTEGER(1..32) OPTIONAL -- Need M

}

SL-CBR-Dedicated-SL-PRS-RP-r18 ::= INTEGER (0..100)

-- TAG-SL-CBR-COMMONTXDEDICATEDSL-PRS-RP-LIST-STOP

-- ASN1STOP

| *SL-CBR-CommonTxDedicatedSL-PRS-RP-List* field descriptions |
| --- |
| ***sl-CBR-RangeDedicatedSL-PRS-RP-List***Indicates the list of CBR ranges. Each entry of the list indicates in *SL-CBR-LevelsConfig-Dedicated-SL-PRS-RP* the upper bound of the CBR range for the respective entry. The upper bounds of the CBR ranges are configured in ascending order for consecutive entries of *SL-CBR-LevelsConfig-Dedicated-SL-PRS-RP*. For the first entry of *SL-CBR-LevelsConfig-Dedicated-SL-PRS-RP* the lower bound of the CBR range is 0. Value 0 corresponds to 0, value 1 to 0.01, value 2 to 0.02, and so on. |
| ***sl-CBR-SL-PRS-TxConfigList***Indicates the list of available SL PRS transmission parameters configurations. |
| ***sl-PRS-CR-Limit***Indicates the maximum limit on the occupancy ratio. Value 0 corresponds to 0, value 1 to 0.0001, value 2 to 0.0002, and so on (i.e. in steps of 0.0001) until value 10000, which corresponds to 1. |
| ***sl-PRS-MaxNum-Transmissions***Indicates maximum Number of SL PRS (re-)transmissions. |
| ***sl-PRS-MaxTx-power***Indicates maximum SL PRS transmission power. The unit is dBm. |

#### – *SL-ConfigDedicatedNR*

The IE *SL-ConfigDedicatedNR* specifies the dedicated configuration information for NR sidelink communication/discovery/positioning.

*SL-ConfigDedicatedNR* information element

-- ASN1START

-- TAG-SL-CONFIGDEDICATEDNR-START

SL-ConfigDedicatedNR-r16 ::= SEQUENCE {

 sl-PHY-MAC-RLC-Config-r16 SL-PHY-MAC-RLC-Config-r16 OPTIONAL, -- Need M

 sl-RadioBearerToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SLRB-Uu-ConfigIndex-r16 OPTIONAL, -- Need N

 sl-RadioBearerToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SL-RadioBearerConfig-r16 OPTIONAL, -- Need N

 sl-MeasConfigInfoToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-DestinationIndex-r16 OPTIONAL, -- Need N

 sl-MeasConfigInfoToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-MeasConfigInfo-r16 OPTIONAL, -- Need N

 t400-r16 ENUMERATED {ms100, ms200, ms300, ms400, ms600, ms1000, ms1500, ms2000} OPTIONAL, -- Need M

 ...,

 [[

 sl-PHY-MAC-RLC-Config-v1700 SetupRelease { SL-PHY-MAC-RLC-Config-v1700 } OPTIONAL, -- Need M

 sl-DiscConfig-r17 SetupRelease { SL-DiscConfig-r17} OPTIONAL -- Need M

 ]],

 [[

 sl-DiscConfig-v1800 SL-DiscConfig-v1800 OPTIONAL -- Need M

 ]]

}

SL-DestinationIndex-r16 ::= INTEGER (0..maxNrofSL-Dest-1-r16)

SL-PHY-MAC-RLC-Config-r16::= SEQUENCE {

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

 sl-UE-SelectedConfig-r16 SetupRelease { SL-UE-SelectedConfig-r16 } OPTIONAL, -- Need M

 sl-FreqInfoToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-Freq-Id-r16 OPTIONAL, -- Need N

 sl-FreqInfoToAddModList-r16 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-FreqConfig-r16 OPTIONAL, -- Need N

 sl-RLC-BearerToReleaseList-r16 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-RLC-BearerConfigIndex-r16 OPTIONAL, -- Need N

 sl-RLC-BearerToAddModList-r16 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-RLC-BearerConfig-r16 OPTIONAL, -- Need N

 sl-MaxNumConsecutiveDTX-r16 ENUMERATED {n1, n2, n3, n4, n6, n8, n16, n32} OPTIONAL, -- Need M

 sl-CSI-Acquisition-r16 ENUMERATED {enabled} OPTIONAL, -- Need R

 sl-CSI-SchedulingRequestId-r16 SetupRelease {SchedulingRequestId} OPTIONAL, -- Need M

 sl-SSB-PriorityNR-r16 INTEGER (1..8) OPTIONAL, -- Need R

 networkControlledSyncTx-r16 ENUMERATED {on, off} OPTIONAL -- Need M

}

SL-PHY-MAC-RLC-Config-v1700 ::= SEQUENCE {

 sl-DRX-Config-r17 SL-DRX-Config-r17 OPTIONAL, -- Need M

 sl-RLC-ChannelToReleaseList-r17 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-RLC-ChannelID-r17 OPTIONAL, -- Cond L2U2N

 sl-RLC-ChannelToAddModList-r17 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-RLC-ChannelConfig-r17 OPTIONAL, -- Cond L2U2N

 ...,

 [[

 sl-RLC-BearerToAddModListSizeExt-v1800 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-RLC-BearerConfig-r16 OPTIONAL, -- Need N

 sl-RLC-BearerToReleaseListSizeExt-v1800 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-RLC-BearerConfigIndex-v1800 OPTIONAL, -- Need N

 sl-FreqInfoToAddModListExt-v1800 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-FreqConfigExt-v1800 OPTIONAL, -- Need N

 sl-LBT-SchedulingRequestId-r18 SetupRelease {SchedulingRequestId} OPTIONAL, -- Need M

 sl-SyncFreqList-r18 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-Freq-Id-r16 OPTIONAL, -- Need M

 sl-SyncTxMultiFreq-r18 ENUMERATED {true} OPTIONAL, -- Need R

 sl-MaxTransPowerCA-r18 P-Max OPTIONAL, -- Need R

 sl-SCCH-CarrierSetConfig-r18 SetupRelease {SL-SCCH-CarrierSetConfigList-r18} OPTIONAL, -- Need M

 sl-PRS-SchedulingRequestId-r18 SetupRelease {SchedulingRequestId} OPTIONAL -- Need M

 ]]

}

SL-DiscConfig-r17::= SEQUENCE {

 sl-RelayUE-Config-r17 SetupRelease { SL-RelayUE-Config-r17} OPTIONAL, -- Cond L2RelayUE

 sl-RemoteUE-Config-r17 SetupRelease { SL-RemoteUE-Config-r17} OPTIONAL -- Cond L2RemoteUE

}

SL-DiscConfig-v1800 ::= SEQUENCE {

 sl-RelayUE-ConfigU2U-r18 SetupRelease { SL-RelayUE-ConfigU2U-r18} OPTIONAL, -- Cond U2URelayUE

 sl-RemoteUE-ConfigU2U-r18 SetupRelease { SL-RemoteUE-ConfigU2U-r18} OPTIONAL -- Cond U2URemoteUE

}

SL-SCCH-CarrierSetConfigList-r18 ::= SEQUENCE (SIZE (1..maxNrofSL-CarrierSetConfig-r18)) OF SL-SCCH-CarrierSetConfig-r18

SL-SCCH-CarrierSetConfig-r18 ::= SEQUENCE {

 sl-DestinationList-r18 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-DestinationIdentity-r16,

 sl-SRB-Identity-r18 SEQUENCE (SIZE (1..3)) OF SRB-Identity,

 sl-AllowedCarrierFreqSet1-r18 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF INTEGER (1..maxNrofFreqSL-r16),

 sl-AllowedCarrierFreqSet2-r18 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF INTEGER (1..maxNrofFreqSL-r16)

}

-- TAG-SL-CONFIGDEDICATEDNR-STOP

-- ASN1STOP

| *SL-ConfigDedicatedNR* field descriptions |
| --- |
| ***sl-LBT-SchedulingRequestId***Indicates the scheduling request configuration applicable for Sidelink consistent LBT failure report, as specified in TS 38.321 [3]. |
| ***sl-MaxTransPowerCA***The maximum total transmit power to be used by the UE across all sidelink carriers. |
| ***sl-MeasConfigInfoToAddModList***This field indicates the RSRP measurement configurations for unicast destinations to add and/or modify. |
| ***sl-MeasConfigInfoToReleaseList***This field indicates the RSRP measurement configurations for unicast destinations to remove. |
| ***sl-PHY-MAC-RLC-Config***This field indicates the lower layer sidelink radio bearer configurations. |
| ***sl-RadioBearerToAddModList***This field indicates one or multiple sidelink radio bearer configurations to add and/or modify. This field is not configured to the PC5 connection used for L2 U2N relay operation. |
| ***sl-RadioBearerToReleaseList***This field indicates one or multiple sidelink radio bearer configurations to remove. This field is not configured to the PC5 connection used for L2 U2N relay operation. |

| *SL-PHY-MAC-RLC-Config* field descriptions |
| --- |
| ***networkControlledSyncTx***This field indicates whether the UE shall transmit synchronisation information (i.e. become synchronisation source). Value *on* indicates the UE to transmit synchronisation information while value *off* indicates the UE to not transmit such information. |
| ***sl-DRX-Config***This field indicates the sidelink DRX configuration(s) for unicast, groupcast and/or broadcast communication, as specified in TS 38.321 [3]. |
| ***sl-MaxNumConsecutiveDTX***This field indicates the maximum number of consecutive HARQ DTX before triggering sidelink RLF. Value n1 corresponds to 1, value n2 corresponds to 2, and so on. |
| ***sl-FreqInfoToAddModList, sl-FreqInfoToAddModListExt***This field indicates the NR sidelink communication configuration on some carrier frequency (ies) to add and/or modify. If the network includes *sl-FreqInfoToAddModListExt*, it includes the same number of entries, and listed in the same order, as in *sl-FreqInfoToAddModList*. |
| ***sl-FreqInfoToReleaseList***This field indicates the NR sidelink communication configuration on some carrier frequency (ies) to remove. In this release, only one entry can be configured in the list. |
| ***sl-RLC-BearerToAddModList, sl-RLC-BearerToAddModListSizeExt***This field indicates one or multiple sidelink RLC bearer configurations to add and/or modify. |
| ***sl-RLC-BearerToReleaseList, sl-RLC-BearerToReleaseListSizeExt***This field indicates one or multiple sidelink RLC bearer configurations to remove. |
| ***sl-RLC-ChannelToAddModList***This field indicates one or multiple PC5 Relay RLC Channel configurations to add and/or modify. Each PC5 Relay RLC channel configuration provided by network to L2 U2N Relay UE is uniquely associated with one L2 U2N Remote UE. |
| ***sl-RLC-ChannelToReleaseList***This field indicates one or multiple PC5 Relay RLC Channel configurations to remove. |
| ***sl-ScheduledConfig***Indicates the configuration for UE to transmit NR sidelink communication based on network scheduling. This field is not configured simultaneously with sl-UE-SelectedConfig. This field is not configured to a L2 U2N Remote UE. |
| ***sl-UE-SelectedConfig***Indicates the configuration used for UE autonomous resource selection. This field is not configured simultaneously with *sl-ScheduledConfig*. |
| ***sl-CSI-Acquisition***Indicates whether CSI reporting is enabled in sidelink unicast. If the field is absent, sidelink CSI reporting is disabled. |
| ***sl-CSI-SchedulingRequestId***If present, it indicates the scheduling request configuration applicable for Sidelink CSI Reporting MAC CE and Sidelink DRX Command MAC CE, as specified in TS 38.321 [3]. |
| ***sl-PRS-SchedulingRequestId***If present, it indicates the scheduling request configuration applicable for Sidelink PRS Request MAC CE, as specified in TS 38.321 [3]. |
| ***sl-SSB-PriorityNR***This field indicates the priority of NR sidelink SSB transmission and reception. |
| ***sl-SyncFreqList***Indicates a list of candidate carrier frequencies that can be used for the synchronisation of NR sidelink communication. |
| ***sl-SyncTxMultiFreq***Indicates that the UE transmits S-SSB on multiple carrier frequencies for NR sidelink communication. If this field is absent, the UE transmits S-SSB only on the synchronisation carrier frequency. |

| *SL-SCCH-CarrierSetConfig* field descriptions |
| --- |
| ***sl-AllowedCarrierFreqSet1, sl-AllowedCarrierFreqSet2***Indicates the set of carrier frequencies applicable for the transmission of the MAC SDUs from the sidelink SRB logical channels whose associated destination is included in sl-destinationList. If present, network ensures *sl-AllowedCarrierFreqSet1* and *sl-AllowedCarrierFreqSet2* do not include the same carrier frequency. The value 1 corresponds to the frequency of first entry in *sl-FreqInfoList* broadcast in *SIB12*, the value 2 corresponds to the frequency of first entry in *sl-FreqInfoListSizeExt* broadcast in *SIB12*, the value 3 corresponds to the frequency of second entry in *sl-FreqInfoListSizeExt* broadcast in *SIB12* and so on. |
| ***sl-DestinationList***This field indicates the list of destination identify that the *sl-AllowedCarrierFreqSet1* and *sl-AllowedCarrierFreqSet2* apply. Only destination identity for unicast link can be included in this field. |
| ***sl-SRB-Identity***This field indicates the list of sidelink SRB identities that the *sl-AllowedCarrierFreqSet1* and *sl-AllowedCarrierFreqSet2* apply. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *L2RelayUE* | For L2 U2N Relay UE, the field is optionally present, Need M. Otherwise, it is absent. |
| *L2RemoteUE* | For L2 U2N Remote UE, the field is optionally present, Need M. Otherwise, it is absent. |
| *L2U2N* | The field is optional present for L2 U2N or L2 U2U Relay UE and L2 U2N or L2 U2U Remote UE, need N. Otherwise, it is absent. |
| *U2URelayUE* | For U2U Relay UE, the field is optionally present, Need M. Otherwise, it is absent. |
| *U2URemoteUE* | For U2U Remote UE, the field is optionally present, Need M. Otherwise, it is absent. |

#### – *SL-ConfiguredGrantConfig*

The IE *SL-ConfiguredGrantConfig* specifies the configured grant configuration information for NR sidelink communication.

*SL-ConfiguredGrantConfig* information element

-- ASN1START

-- TAG-SL-CONFIGUREDGRANTCONFIG-START

SL-ConfiguredGrantConfig-r16 ::= SEQUENCE {

 sl-ConfigIndexCG-r16 SL-ConfigIndexCG-r16,

 sl-PeriodCG-r16 SL-PeriodCG-r16 OPTIONAL, -- Need M

 sl-NrOfHARQ-Processes-r16 INTEGER (1..16) OPTIONAL, -- Need M

 sl-HARQ-ProcID-offset-r16 INTEGER (0..15) OPTIONAL, -- Need M

 sl-CG-MaxTransNumList-r16 SL-CG-MaxTransNumList-r16 OPTIONAL, -- Need M

 rrc-ConfiguredSidelinkGrant-r16 SEQUENCE {

 sl-TimeResourceCG-Type1-r16 INTEGER (0..496) OPTIONAL, -- Need M

 sl-StartSubchannelCG-Type1-r16 INTEGER (0..26) OPTIONAL, -- Need M

 sl-FreqResourceCG-Type1-r16 INTEGER (0..6929) OPTIONAL, -- Need M

 sl-TimeOffsetCG-Type1-r16 INTEGER (0..7999) OPTIONAL, -- Need R

 sl-N1PUCCH-AN-r16 PUCCH-ResourceId OPTIONAL, -- Need M

 sl-PSFCH-ToPUCCH-CG-Type1-r16 INTEGER (0..15) OPTIONAL, -- Need M

 sl-ResourcePoolID-r16 SL-ResourcePoolID-r16 OPTIONAL, -- Need M

 sl-TimeReferenceSFN-Type1-r16 ENUMERATED {sfn512} OPTIONAL -- Need S

 } OPTIONAL, -- Need M

 ...,

 [[

 sl-N1PUCCH-AN-Type2-r16 PUCCH-ResourceId OPTIONAL -- Need M

 ]],

 [[

 sl-StartRBsetCG-Type1-r18 INTEGER (0..4) OPTIONAL -- Need M

 ]]

}

SL-ConfigIndexCG-r16 ::= INTEGER (0..maxNrofCG-SL-1-r16)

SL-CG-MaxTransNumList-r16 ::= SEQUENCE (SIZE (1..8)) OF SL-CG-MaxTransNum-r16

SL-CG-MaxTransNum-r16 ::= SEQUENCE {

 sl-Priority-r16 INTEGER (1..8),

 sl-MaxTransNum-r16 INTEGER (1..32)

}

SL-PeriodCG-r16 ::= CHOICE{

 sl-PeriodCG1-r16 ENUMERATED {ms100, ms200, ms300, ms400, ms500, ms600, ms700, ms800, ms900, ms1000, spare6,

 spare5, spare4, spare3, spare2, spare1},

 sl-PeriodCG2-r16 INTEGER (1..99)

}

-- TAG-SL-CONFIGUREDGRANTCONFIG-STOP

-- ASN1STOP

| *SL-ConfiguredGrantConfig* field descriptions |
| --- |
| ***rrc-ConfiguredSidelinkGrant***Configuration for "sidelink configured grant" transmission with fully RRC-configured SL grant (Type1). If this field is not configured, the UE uses SL grant configured by DCI addressed to SL-CS-RNTI (Type2). |
| ***sl-ConfigIndexCG***This field indicates the ID to identify sidelink configured grant. |
| ***sl-CG-MaxTransNumList***This field indicates the maximum number of times that a TB can be transmitted using the resources provided by the sidelink configured grant. *sl-Priority* corresponds to the logical channel priority. |
| ***sl-FreqResourceCG-Type1***Indicates the frequency resource location of sidelink configured grant type 1. An index giving valid combinations of one or two starting sub-channel and length (jointly encoded) as resource indicator value (RIV), as defined in TS 38.214 [19]. |
| ***sl-HARQ-ProcID-Offset***Indicates the offset used in deriving the HARQ process ID for sidelink configured grant type 1 or sidelink configured grant type 2, see TS 38.321 [3], clause 5.8.3. |
| ***sl-N1PUCCH-AN***This field indicates the PUCCH resource for HARQ feedback for sidelink configured grant type 1. The actual PUCCH-Resource is configured in *sl-PUCCH-Config* and referred to by its ID. |
| ***sl-N1PUCCH-AN-Type2***This field indicates the PUCCH resource for HARQ feedback for PSCCH/PSSCH transmissions without a corresponding PDCCH on sidelink configured grant type 2. The actual PUCCH-Resource is configured in *sl-PUCCH-Config* and referred to by its ID. |
| ***sl-NrOfHARQ-Processes***This field indicates the number of HARQ processes configured for a specific sidelink configured grant. It applies for both type 1 and type 2. |
| ***sl-PeriodCG***This field indicates the period of sidelink configured grant in the unit of ms. |
| ***sl-PSFCH-ToPUCCH-CG-Type1***This field, for sidelink configured grant type 1, indicates slot offset between the PSFCH associated with the last PSSCH resource of each period and the PUCCH occasion used for reporting sidelink HARQ. |
| ***sl-ResourcePoolID***Indicates the resource pool in which the sidelink configured grant type 1 is applied. |
| ***sl-StartRBsetCG-Type1***Indicates starting RB set index of the initial PSSCH transmission of the sidelink configured grant Type 1 for interlace RB-based PSSCH transmission. |
| ***sl-StartSubchannelCG-Type1***This field indicates the starting sub-channel of sidelink configured grant type 1. An index giving valid sub-channel index. |
| ***sl-TimeOffsetCG-Type1***This field indicates the slot offset with respect to logical slot defined by *sl-TimeReferenceSFN-Type1*, as specified in TS 38.321 [3]. |
| ***sl-TimeReferenceSFN-Type1***Indicates SFN used for determination of the offset of a resource in time domain. If it is present, the UE uses the 1st logical slot of associated resource pool after the starting time of the closest SFN with the indicated number preceding the reception of the sidelink configured grant configuration type 1 as reference logical slot, see TS 38.321 [3], clause 5.8.3. If it is not present, the reference SFN is 0. |
| ***sl-TimeResourceCG-Type1***This field indicates the time resource location of sidelink configured grant type 1. An index giving valid combinations of up to two slot positions (jointly encoded) as time resource indicator value (TRIV), as defined in TS 38.212 [17]. |

#### – *SL-ConfiguredGrantConfigDedicated-SL-PRS-RP*

The IE *SL-ConfiguredGrantConfigDedicated-SL-PRS-RP* specifies the configured grant configuration information for NR sidelink positioning in a dedicated SL-PRS resource pool.

***SL-ConfiguredGrantConfigDedicated-SL-PRS-RP* information element**

-- ASN1START

-- TAG-SL-CONFIGUREDGRANTCONFIGDEDICATEDSL-PRS-RP-START

SL-ConfiguredGrantConfigDedicatedSL-PRS-RP-r18 ::= SEQUENCE {

 sl-PRS-ConfigIndexCG-r18 SL-ConfigIndexCG-r16,

 sl-PRS-PeriodCG-r18 SL-PeriodCG-r16 OPTIONAL, -- Need M

 sl-PRS-ResourcePoolID-r18 SL-ResourcePoolID-r16 OPTIONAL, -- Need M

 rrc-ConfiguredSidelinkGrantDedicated-SL-PRS-RP-r18 SEQUENCE {

 sl-TimeOffsetCG-Type1-r18 INTEGER (0..7999) OPTIONAL, -- Need R

 sl-TimeReferenceSFN-Type1-r18 ENUMERATED {sfn512} OPTIONAL, -- Need S

 sl-TimeResourceCG-Type1-r18 INTEGER (0..496) OPTIONAL, -- Need M

 sl-PRS-ResourceIndicationFirstType1-r18 INTEGER(0..11) OPTIONAL, -- Need M

 sl-PRS-ResourceIndicationFutureType1-r18 INTEGER(0..143) OPTIONAL -- Need M

 }

}

-- TAG-SL-CONFIGUREDGRANTCONFIGDEDICATEDSL-PRS-RP-STOP

-- ASN1STOP

| *SL-ConfiguredGrantConfigDedicated-SL-PRS-RP* field descriptions |
| --- |
| ***sl-PRS-ConfigIndexCG***This field indicates the ID to identify sidelink configured grant. The field value should not be duplicated with *sl-ConfigIndexCG* in IE *SL-ConfiguredGrantConfig.* |
| ***sl-PRS-PeriodCG***This field indicates the period of SL PRS configured grant in a dedicated resources in ms for either CG type 1 or CG type 2. |
| ***sl-PRS-ResourceIndicationFirstType1***Indicates SL-PRS Resource ID for the first SL-PRS transmission. |
| ***sl-PRS-ResourceIndicationFutureType1***Indicates SL-PRS resource IDs for future SL PRS transmissions. An index giving valid combinations of up to two SL PRS resource IDs (jointly encoded) . |
| ***sl-PRS-ResourcePoolID***Indicates the resource pool in which the configured sidelink grant Type 1 is applied. The field value should not be duplicated with *sl-ResourcePoolID* in IE *SL-ConfiguredGrantConfig.* |
| ***sl-TimeOffsetCG-Type1***This field indicates the slot offset with respect to logical slot defined by *sl-TimeReferenceSFN-Type1-Dedicated-SL-PRS-RP*, as specified in TS 38.321 [3]. |
| ***sl-TimeReferenceSFN-Type1***Indicates SFN used for determination of the offset of a resource in time domain. If it is present, the UE uses the 1st logical slot of associated resource pool after the starting time of the closest SFN with the indicated number preceding the reception of the sidelink configured grant configuration type 1 as reference logical slot, see TS 38.321 [3], clause 5.8.3. If it is not present, the reference SFN is 0. |
| ***sl-TimeResourceCG-Type1***This field indicates the time resource location of sidelink configured grant type 1. An index giving valid combinations of up to two slot positions (jointly encoded) as time resource indicator value (TRIV), as defined in TS 38.212 [17]. |

#### – *SL-DestinationIdentity*

The IE *SL-DestinationIdentity* is used to identify a destination of a NR sidelink communication.

*SL-DestinationIdentity* information element

-- ASN1START

-- TAG-SL-DESTINATIONIDENTITY-START

SL-DestinationIdentity-r16 ::= BIT STRING (SIZE (24))

-- TAG-SL-DESTINATIONIDENTITY-STOP

-- ASN1STOP

#### *– SL-DRX-Config*

The IE *SL-DRX-Config* is used to configure DRX related parameters for NR sidelink communication/discovery. The SL DRX timers should be calculated in the unit of physical slot.

*SL-DRX-Config information element*

-- ASN1START

-- TAG-SL-DRX-CONFIG-START

SL-DRX-Config-r17 ::= SEQUENCE {

 sl-DRX-ConfigGC-BC-r17 SL-DRX-ConfigGC-BC-r17 OPTIONAL, -- Cond HO

 sl-DRX-ConfigUC-ToReleaseList-r17 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-DestinationIndex-r16 OPTIONAL, -- Need N

 sl-DRX-ConfigUC-ToAddModList-r17 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-DRX-ConfigUC-Info-r17 OPTIONAL, -- Need N

 ...

}

SL-DRX-ConfigUC-Info-r17 ::= SEQUENCE {

 sl-DestinationIndex-r17 SL-DestinationIndex-r16 OPTIONAL, -- Need N

 sl-DRX-ConfigUC-r17 SL-DRX-ConfigUC-r17 OPTIONAL, -- Need N

 ...

}

-- TAG-SL-DRX-CONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *SL-DRX-Config* field descriptions |
| ***sl-DRX-ConfigGC-BC***This field indicates the sidelink DRX configurations for groupcast and broadcast communication, as specified in TS 38.321 [3]. |
| ***sl-DRX-ConfigUC-ToReleaseList***This field indicates the sidelink DRX configurations for corresponding unicast destinations to remove. |
| ***sl-DRX-ConfigUC-ToAddModList***This field indicates the sidelink DRX configurations for corresponding unicast destinations to add and/or modify. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *HO* | This field is optionally present, need M, in an *RRCReconfiguration* message including *reconfigurationWithSync*; otherwise it is absent, Need M. |

#### *– SL-DRX-ConfigGC-BC*

The IE *SL-DRX-ConfigGC-BC* is used to configure DRX related parameters for NR sidelink groupcast and broadcast communication, unicast/broadcast based communication of Direct Link Establishment Request (TS 24.587 [57]), and discovery message (TS 24.554 [72]).

*SL-DRX-ConfigGC-BC* information element

-- ASN1START

-- TAG-SL-DRX-CONFIGGC-BC-START

SL-DRX-ConfigGC-BC-r17 ::= SEQUENCE {

 sl-DRX-GC-BC-PerQoS-List-r17 SEQUENCE (SIZE (1..maxSL-GC-BC-DRX-QoS-r17)) OF SL-DRX-GC-BC-QoS-r17 OPTIONAL, -- Need M

 sl-DRX-GC-generic-r17 SL-DRX-GC-Generic-r17 OPTIONAL, -- Need M

 sl-DefaultDRX-GC-BC-r17 SL-DRX-GC-BC-QoS-r17 OPTIONAL, -- Need M

 ...

}

SL-DRX-GC-BC-QoS-r17 ::= SEQUENCE {

 sl-DRX-GC-BC-MappedQoS-FlowList-r17 SEQUENCE (SIZE (1..maxNrofSL-QFIs-r16)) OF SL-QoS-Profile-r16 OPTIONAL, -- Need M

 sl-DRX-GC-BC-OnDurationTimer-r17 CHOICE {

 subMilliSeconds INTEGER (1..31),

 milliSeconds ENUMERATED {

 ms1, ms2, ms3, ms4, ms5,ms6, ms8, ms10, ms20, ms30, ms40, ms50, ms60,

 ms80, ms100, ms200, ms300, ms400, ms500, ms600, ms800, ms1000, ms1200,

 ms1600, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1}

 },

 sl-DRX-GC-InactivityTimer-r17 ENUMERATED {

 ms0, ms1, ms2, ms3, ms4, ms5, ms6, ms8, ms10, ms20, ms30, ms40, ms50, ms60, ms80,

 ms100, ms200, ms300, ms500, ms750, ms1280, ms1920, ms2560, spare9, spare8,

 spare7, spare6, spare5, spare4, spare3, spare2, spare1},

 sl-DRX-GC-BC-Cycle-r17 ENUMERATED {

 ms10, ms20, ms32, ms40, ms60, ms64, ms70, ms80, ms128, ms160, ms256, ms320, ms512,

 ms640, ms1024, ms1280, ms2048, ms2560, ms5120, ms10240, spare12, spare11, spare10,

 spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1},

 ...

}

SL-DRX-GC-Generic-r17 ::= SEQUENCE {

 sl-DRX-GC-HARQ-RTT-Timer1-r17 ENUMERATED {sl0, sl1, sl2, sl4, spare4, spare3, spare2, spare1} OPTIONAL, -- Need M

 sl-DRX-GC-HARQ-RTT-Timer2-r17 ENUMERATED {sl0, sl1, sl2, sl4, spare4, spare3, spare2, spare1} OPTIONAL, -- Need M

 sl-DRX-GC-RetransmissionTimer-r17 ENUMERATED {

 sl0, sl1, sl2, sl4, sl6, sl8, sl16, sl24, sl33, sl40, sl64, sl80, sl96, sl112, sl128,

 sl160, sl320, spare15, spare14, spare13, spare12, spare11, spare10, spare9, spare8,

 spare7, spare6, spare5, spare4, spare3, spare2, spare1}

}

-- TAG-SL-DRX-CONFIGGC-BC-STOP

-- ASN1STOP

|  |
| --- |
| *SL-DRX-ConfigGC-BC* field descriptions |
| ***sl-DefaultDRX-GC-BC***Indicates the default sidelink DRX configuration for groupcast and broadcast communications, which is used for QoS profile(s) that cannot be mapped into DRX configuration(s) configured for dedicated QoS profile(s). This field can be applied for the broadcast based or unicast based communication of Direct Link Establishment Request as described in TS 24.587 [57], ProSe Direct Link Establishment Request message and discovery message as described in TS 24.554 [72]. |
| ***sl-DRX-GC-BC-PerQoS-List***List of one or multiple sidelink DRX configurations for groupcast and broadcast communication, which are mapped from QoS profile(s). |
| ***sl-DRX-GC-BC-Cycle***Value in ms, ms10 corresponds to 10ms, ms20 corresponds to 20 ms, ms32 corresponds to 32 ms, and so on.  |
| ***sl-DRX-GC-BC-MappedQoS-FlowsList***List of QoS profiles of the NR sidelink communication, which are mapped to a sidelink DRX configuration. |
| ***sl-DRX-GC-BC-OnDurationTimer***Value in multiples of 1/32 ms (subMilliSeconds) or in ms (milliSecond). For the latter, value ms1 corresponds to 1 ms, value ms2 corresponds to 2 ms, and so on. |
| ***sl-DRX-GC-HARQ-RTT-Timer1, sl-DRX-GC-HARQ-RTT-Timer2***Value in number of slot lengths of the sidelink BWP where the transport block was received. Value sl0 corresponds to 0 slots, sl1 corresponds to 1 slot, sl2 corresponds to 2 slots, and so on. *sl-DRX-GC-HARQ-RTT-Timer1* is used for HARQ feedback enabled sidelink retransmission if SCI does not indicate retransmission resource(s). *sl-DRX-GC-HARQ-RTT-Timer2* is used for HARQ feedback disabled sidelink retransmission in resource pool configured with PSFCH if SCI does not indicate retransmission resource(s). |
| ***sl-DRX-GC-Generic***Indicates a sidelink DRX configuration for groupcast communication, which is applicable to any QoS profile or any Destination Layer-2 ID. |
| ***sl-DRX-GC-InactivityTimer***Value in multiple integers of 1 ms, ms0 corresponds to 0, ms1 corresponds to 1 ms, ms2 corresponds to 2 ms, and so on. This field is only valid for groupcast communication. |
| ***sl-DRX-GC-RetransmissionTimer***Value in number of slot lengths of the sidelink BWP where the transport block was received. Value sl0 corresponds to 0 slots, sl1 corresponds to 1 slot, sl2 corresponds to 2 slots, and so on. |

#### *– SL-DRX-ConfigUC*

The IE *SL-DRX-ConfigUC* is used to configure sidelink DRX related parameters for unicast communication.

*SL-DRX-ConfigUC* information element

-- ASN1START

-- TAG-DRX-CONFIGUC-START

SL-DRX-ConfigUC-r17 ::= SEQUENCE {

 sl-drx-onDurationTimer-r17 CHOICE {

 subMilliSeconds INTEGER (1..31),

 milliSeconds ENUMERATED {

 ms1, ms2, ms3, ms4, ms5, ms6, ms8, ms10, ms20, ms30, ms40, ms50, ms60,

 ms80, ms100, ms200, ms300, ms400, ms500, ms600, ms800, ms1000, ms1200,

 ms1600, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1}

 },

 sl-drx-InactivityTimer-r17 ENUMERATED {

 ms0, ms1, ms2, ms3, ms4, ms5, ms6, ms8, ms10, ms20, ms30, ms40, ms50, ms60, ms80,

 ms100, ms200, ms300, ms500, ms750, ms1280, ms1920, ms2560, spare9, spare8,

 spare7, spare6, spare5, spare4, spare3, spare2, spare1},

 sl-drx-HARQ-RTT-Timer1-r17 ENUMERATED {sl0, sl1, sl2, sl4, spare4, spare3, spare2, spare1} OPTIONAL, -- Need M

 sl-drx-HARQ-RTT-Timer2-r17 ENUMERATED {sl0, sl1, sl2, sl4, spare4, spare3, spare2, spare1} OPTIONAL, -- Need M

 sl-drx-RetransmissionTimer-r17 ENUMERATED {

 sl0, sl1, sl2, sl4, sl6, sl8, sl16, sl24, sl33, sl40, sl64, sl80, sl96, sl112, sl128,

 sl160, sl320, spare15, spare14, spare13, spare12, spare11, spare10, spare9,

 spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1},

 sl-drx-CycleStartOffset-r17 CHOICE {

 ms10 INTEGER(0..9),

 ms20 INTEGER(0..19),

 ms32 INTEGER(0..31),

 ms40 INTEGER(0..39),

 ms60 INTEGER(0..59),

 ms64 INTEGER(0..63),

 ms70 INTEGER(0..69),

 ms80 INTEGER(0..79),

 ms128 INTEGER(0..127),

 ms160 INTEGER(0..159),

 ms256 INTEGER(0..255),

 ms320 INTEGER(0..319),

 ms512 INTEGER(0..511),

 ms640 INTEGER(0..639),

 ms1024 INTEGER(0..1023),

 ms1280 INTEGER(0..1279),

 ms2048 INTEGER(0..2047),

 ms2560 INTEGER(0..2559),

 ms5120 INTEGER(0..5119),

 ms10240 INTEGER(0..10239)

 },

 sl-drx-SlotOffset INTEGER (0..31)

}

-- TAG-SL-DRX-CONFIGUC-STOP

-- ASN1STOP

|  |
| --- |
| *SL-DRX-ConfigUC* field descriptions |
| ***sl-drx-CycleStartOffset***Sidelink *drx-Cycle* in ms and sidelink *drx-StartOffset* in multiples of 1 ms. |
| ***sl-drx-HARQ-RTT-Timer1, sl-drx-HARQ-RTT-Timer2***Value in number of slot lengths of the BWP where the transport block was received. Value sl0 corresponds to 0 slots, sl1 corresponds to 1 slot, sl2 corresponds to 2 slots, and so on. *sl-drx-HARQ-RTT-Timer1* is used for HARQ feedback enabled sidelink retransmission if SCI does not indicate retransmission resource(s). *sl-drx-HARQ-RTT-Timer2* is used for HARQ feedback disabled sidelink retransmission in resource pool configured with PSFCH if SCI does not indicate retransmission resource(s). |
| ***sl-drx-InactivityTimer***Value in number of slot lengths of the BWP where the transport block was received, sl0 corresponds to 0, sl1 corresponds to 1 slot, sl2 corresponds to 2 slots, and so on. |
| ***sl-drx-onDurationTimer***Value in multiples of 1/32 ms (subMilliSeconds) or in ms (milliSecond). For the latter, value ms1 corresponds to 1 ms, value ms2 corresponds to 2 ms, and so on. |
| ***sl-drx-RetransmissionTimer***Value in number of slot lengths of the BWP where the transport block was received. Value sl0 corresponds to 0 slots, sl1 corresponds to 1 slot, sl2 corresponds to 2 slots, and so on. |
| ***sl-drx-SlotOffset***Value in 1/32 ms. Value 0 corresponds to 0 ms, value 1 corresponds to 1/32 ms, value 2 corresponds to 2/32 ms, and so on. |

#### *– SL-DRX-ConfigUC-SemiStatic*

The IE *SL-DRX-ConfigUC-SemiStatic* is used to indicate the semi-static sidelink DRX related parameters for unicast communication.

*SL-DRX-ConfigUC*-SemiStatic information element

-- ASN1START

-- TAG-DRX-CONFIGUCSEMISTATIC-START

SL-DRX-ConfigUC-SemiStatic-r17 ::= SEQUENCE {

 sl-drx-onDurationTimer-r17 CHOICE {

 subMilliSeconds INTEGER (1..31),

 milliSeconds ENUMERATED {

 ms1, ms2, ms3, ms4, ms5, ms6, ms8, ms10, ms20, ms30, ms40, ms50, ms60,

 ms80, ms100, ms200, ms300, ms400, ms500, ms600, ms800, ms1000, ms1200,

 ms1600, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1}

 },

 sl-drx-CycleStartOffset-r17 CHOICE {

 ms10 INTEGER(0..9),

 ms20 INTEGER(0..19),

 ms32 INTEGER(0..31),

 ms40 INTEGER(0..39),

 ms60 INTEGER(0..59),

 ms64 INTEGER(0..63),

 ms70 INTEGER(0..69),

 ms80 INTEGER(0..79),

 ms128 INTEGER(0..127),

 ms160 INTEGER(0..159),

 ms256 INTEGER(0..255),

 ms320 INTEGER(0..319),

 ms512 INTEGER(0..511),

 ms640 INTEGER(0..639),

 ms1024 INTEGER(0..1023),

 ms1280 INTEGER(0..1279),

 ms2048 INTEGER(0..2047),

 ms2560 INTEGER(0..2559),

 ms5120 INTEGER(0..5119),

 ms10240 INTEGER(0..10239)

 },

 sl-drx-SlotOffset-r17 INTEGER (0..31)

}

-- TAG-SL-DRX-CONFIGUCSEMISTATIC-STOP

-- ASN1STOP

#### – *SL-FreqConfig*

The IE *SL-FreqConfig* specifies the dedicated configuration information on one particular carrier frequency for NR sidelink communication.

*SL-FreqConfig* information element

-- ASN1START

-- TAG-SL-FREQCONFIG-START

SL-FreqConfig-r16 ::= SEQUENCE {

 sl-Freq-Id-r16 SL-Freq-Id-r16,

 sl-SCS-SpecificCarrierList-r16 SEQUENCE (SIZE (1..maxSCSs)) OF SCS-SpecificCarrier,

 sl-AbsoluteFrequencyPointA-r16 ARFCN-ValueNR OPTIONAL, -- Need M

 sl-AbsoluteFrequencySSB-r16 ARFCN-ValueNR OPTIONAL, -- Need R

 frequencyShift7p5khzSL-r16 ENUMERATED {true} OPTIONAL, -- Cond V2X-SL-Shared

 valueN-r16 INTEGER (-1..1),

 sl-BWP-ToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSL-BWPs-r16)) OF BWP-Id OPTIONAL, -- Need N

 sl-BWP-ToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSL-BWPs-r16)) OF SL-BWP-Config-r16 OPTIONAL, -- Need N

 sl-SyncConfigList-r16 SL-SyncConfigList-r16 OPTIONAL, -- Need M

 sl-SyncPriority-r16 ENUMERATED {gnss, gnbEnb} OPTIONAL -- Need M

}

SL-Freq-Id-r16 ::= INTEGER (1.. maxNrofFreqSL-r16)

SL-FreqConfigExt-v1800 ::= SEQUENCE {

 absenceOfAnyOtherTechnology-r18 ENUMERATED {true} OPTIONAL, -- Need R

 sl-FreqSelectionConfigList-r18 SEQUENCE (SIZE (1..8)) OF SL-FreqSelectionConfig-r18 OPTIONAL, -- Need R

 sl-SyncTxDisabled-r18 ENUMERATED {true} OPTIONAL, -- Need R

 sl-EnergyDetectionConfig-r18 CHOICE {

 sl-MaxEnergyDetectionThreshold-r18 INTEGER (-85..-52),

 sl-EnergyDetectionThresholdOffset-r18 INTEGER (-13..20)

 } OPTIONAL, -- Need R

 ue-ToUE-COT-SharingED-Threshold-r18 INTEGER (-85..-52) OPTIONAL, -- Need R

 harq-ACK-FeedbackRatioforCW-AdjustmentGC-Option2-r18 INTEGER (10..100) OPTIONAL, -- Need R

 ...

}

-- TAG-SL-FREQCONFIG-STOP

-- ASN1STOP

| *SL-FreqConfig* field descriptions |
| --- |
| ***absenceOfAnyOtherTechnology***Presence of this field indicates absence on a long term basis (e.g. by level of regulation) of any other technology sharing the carrier; absence of this field indicates the potential presence of any other technology sharing the carrier, as specified in TS 37.213 [48] clauses 4.5. This parameter is not expected to be provided if the sidelink carrier is overlapped with uplink carrier. |
| ***sl-EnergyDetectionConfig***Indicates whether to use the *maxEnergyDetectionThreshold* or the *energyDetectionThresholdOffset* (see TS 37.213 [48], clause 4.5.5). |
| ***sl-EnergyDetectionThresholdOffset***Indicates the offset to the default maximum energy detection threshold value. Unit in dB. Value -13 corresponds to -13dB, value -12 corresponds to -12dB, and so on (i.e. in steps of 1dB) as specified in TS 37.213 [48], clause 4.5.5. |
| ***frequencyShift7p5khzSL***Enable the NR SL transmission with a 7.5 kHz shift to the LTE raster. If the field is absent, the frequency shift is disabled. |
| ***harq-ACK-FeedbackRatioforCW-AdjustmentGC-Option2***Indicates the ratio threshold for contention window adjustment for SL groupcast option 2 as specified in TS 37.213 [48], clause 4.5.4. Unit is percentage. |
| ***sl-MaxEnergyDetectionThreshold***Indicates the absolute maximum energy detection threshold value. Unit in dBm. Value -85 corresponds to -85 dBm, value -84 corresponds to -84 dBm, and so on (i.e. in steps of 1dBm) as specified in TS 37.213 [48], clause 4.5.5. |
| ***sl-AbsoluteFrequencyPointA***Absolute frequency of the reference resource block (Common RB 0). Its lowest subcarrier is also known as Point A. |
| ***sl-AbsoluteFrequencySSB***Indicates the frequency location of sidelink SSB. The transmission bandwidth for sidelink SSB is within the bandwidth of this sidelink BWP. |
| ***sl-BWP-ToAddModList***This field indicates the list of sidelink BWP(s) on which the NR sidelink communication configuration is to be added or reconfigured. In this release, only one BWP is allowed to be configured for NR sidelink communication. |
| ***sl-BWP-ToReleaseList***This field indicates the list of sidelink BWP(s) on which the NR sidelink communication configuration is to be released.  |
| ***sl-Freq-Id***This field indicates the identity of the dedicated configuration information on the carrier frequency for NR sidelink communication. |
| ***sl-SCS-SpecificCarrierList***A set of UE specific channel bandwidth and location configurations for different subcarrier spacings (numerologies). Defined in relation to Point A. The UE uses the configuration provided in this field only for the purpose of channel bandwidth and location determination. In this release, only one *SCS-SpecificCarrier* is allowed to be configured for NR sidelink communication. |
| ***sl-SyncTxDisabled***Indicates that the carrier, even though equipped with synchronisation resources, cannot be used as a synchronisation carrier frequency to transmit S-SSB. |
| ***sl-SyncPriority***This field indicates synchronization priority order, as specified in clause 5.8.6. *sl-SyncPriority* is configured with the same value across all carrier frequencies configured for UEs performing NR sidelink communication on multiple carrier frequencies. |
| ***ue-ToUE-COT-SharingED-Threshold***Indicates the energy detection threshold that a UE uses to initiate a channel occupancy with other UE(s), and the other UE(s) that shares the initiated channel occupancy shall use this configured parameter for accessing the channel(s) as specified in TS 37.213 [48], clause 4.5.5 for sidelink channel access. Unit in dBm. Value -85 corresponds to -85 dBm, value -84 corresponds to -84 dBm, and so on (i.e. in steps of 1dBm). |
| ***valueN***Indicate the NR SL transmission with a valueN \*5kHz shift to the LTE raster. (see TS 38.101-1 [15], clause 5.4E.2). |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *V2X-SL-Shared* | This field is mandatory present if the carrier frequency configured for NR sidelink communication is shared by V2X sidelink communication. It is absent, Need R, otherwise. |

#### – *SL-FreqConfigCommon*

The IE *SL-FreqConfigCommon* specifies the cell-specific configuration information on one particular carrier frequency for NR sidelink communication.

*SL-FreqConfigCommon* information element

-- ASN1START

-- TAG-SL-FREQCONFIGCOMMON-START

SL-FreqConfigCommon-r16 ::= SEQUENCE {

 sl-SCS-SpecificCarrierList-r16 SEQUENCE (SIZE (1..maxSCSs)) OF SCS-SpecificCarrier,

 sl-AbsoluteFrequencyPointA-r16 ARFCN-ValueNR,

 sl-AbsoluteFrequencySSB-r16 ARFCN-ValueNR OPTIONAL, -- Need R

 frequencyShift7p5khzSL-r16 ENUMERATED {true} OPTIONAL, -- Cond V2X-SL-Shared

 valueN-r16 INTEGER (-1..1),

 sl-BWP-List-r16 SEQUENCE (SIZE (1..maxNrofSL-BWPs-r16)) OF SL-BWP-ConfigCommon-r16 OPTIONAL, -- Need R

 sl-SyncPriority-r16 ENUMERATED {gnss, gnbEnb} OPTIONAL, -- Need R

 sl-NbAsSync-r16 BOOLEAN OPTIONAL, -- Need R

 sl-SyncConfigList-r16 SL-SyncConfigList-r16 OPTIONAL, -- Need R

 ...,

 [[

 sl-UnlicensedFreqConfigCommon-r18 SEQUENCE {

 absenceOfAnyOtherTechnology-r18 ENUMERATED {true} OPTIONAL, -- Need R

 sl-FreqSelectionConfigList-r18 SEQUENCE (SIZE (1..8)) OF SL-FreqSelectionConfig-r18 OPTIONAL, -- Need R

 sl-SyncTxDisabled-r18 ENUMERATED {true} OPTIONAL, -- Need R

 sl-EnergyDetectionConfig-r18 CHOICE {

 sl-MaxEnergyDetectionThreshold-r18 INTEGER (-85..-52),

 sl-EnergyDetectionThresholdOffset-r18 INTEGER (-13..20)

 } OPTIONAL, -- Need R

 ue-ToUE-COT-SharingED-Threshold-r18 INTEGER (-85..-52) OPTIONAL, -- Need R

 harq-ACK-FeedbackRatioforCW-AdjustmentGC-Option2-r18 INTEGER (10..100) OPTIONAL -- Need R

 } OPTIONAL, -- Cond SIB12

 sl-PosBWP-List-r18 SEQUENCE ( SIZE (1..maxNrofSL-BWPs-r16)) OF SL-PosBWP-ConfigCommon-r18 OPTIONAL -- Cond SIB23

 ]]

}

-- TAG-SL-FREQCONFIGCOMMON-STOP

-- ASN1STOP

| *SL-FreqConfigCommon* field descriptions |
| --- |
| ***absenceOfAnyOtherTechnology***Presence of this field indicates absence on a long term basis (e.g. by level of regulation) of any other technology sharing the carrier; absence of this field indicates the potential presence of any other technology sharing the carrier, as specified in TS 37.213 [48] clauses 4.5.5. This parameter is not expected to be provided if the sidelink carrier is overlapped with uplink carrier. |
| ***sl-EnergyDetectionConfig***Indicates whether to use the *maxEnergyDetectionThreshold* or the *energyDetectionThresholdOffset* (see TS 37.213 [48], clause 4.5.5). |
| ***sl-EnergyDetectionThresholdOffset***Indicates the offset to the default maximum energy detection threshold value. Unit in dB. Value -13 corresponds to -13dB, value -12 corresponds to -12dB, and so on (i.e. in steps of 1dB) as specified in TS 37.213 [48], clause 4.5.5. |
| ***frequencyShift7p5khzSL***Enable the NR SL transmission with a 7.5 kHz shift to the LTE raster. If the field is absent, the frequency shift is disabled. |
| ***harq-ACK-FeedbackRatioforCW-AdjustmentGC-Option2***Indicates the ratio threshold for contention window adjustment for SL groupcast option 2 as specified in TS 37.213 [48], clause 4.5.4. Unit is percentage. |
| ***sl-MaxEnergyDetectionThreshold***Indicates the absolute maximum energy detection threshold value. Unit in dBm. Value -85 corresponds to -85 dBm, value -84 corresponds to -84 dBm, and so on (i.e. in steps of 1dBm) as specified in TS 37.213 [48], clause 4.5.5. |
| ***sl-AbsoluteFrequencyPointA***Absolute frequency of the reference resource block (Common RB 0). Its lowest subcarrier is also known as Point A. |
| ***sl-AbsoluteFrequencySSB***Indicates the frequency location of sidelink SSB. The transmission bandwidth for sidelink SSB is within the bandwidth of this sidelink BWP. |
| ***sl-BWP-List***This field indicates the list of sidelink BWP(s) on which the NR sidelink communication configuration. In this release, only one BWP is allowed to be configured for NR sidelink communication. |
| ***sl-NbAsSync***This field indicates whether the network can be selected as synchronization reference directly/indirectly only, if *sl-SyncPriority* is set to gnss. If this field is set to TRUE, the network is enabled to be selected as synchronization reference directly/indirectly. The field is only present in *SidelinkPreconfigNR*. Otherwise it is absent. All values in *sl-NbAsSync* are same across all carrier frequencies configured for UEs performing NR sidelink communication on multiple carrier frequencies. |
| ***sl-SyncTxDisabled***Indicates that the carrier, even though equipped with synchronisation resources, cannot be used as a synchronisation carrier frequency to transmit S-SSB. |
| ***sl-SyncPriority***This field indicates synchronization priority order, as specified in clause 5.8.6. All values in sl-SyncPriority are same across all carrier frequencies configured for UEs performing NR sidelink communication on multiple carrier frequencies. |
| ***sl-SyncConfigList***This field indicates the configuration by which the UE is allowed to receive and transmit synchronisation information for NR sidelink communication. Network configures *sl-SyncConfig* including *txParameters* when configuring UEs to transmit synchronisation information. If this field is configured in *SL-PreconfigurationNR-r16*, only one entry is configured in *sl-SyncConfigList*. |
| ***ue-ToUE-COT-SharingED-Threshold***Indicates the energy detection threshold that a UE uses to initiate a channel occupancy with to other UE(s), and the other UE(s) that shares the initiated channel occupancy shall use this configured parameter for accessing the channel(s) as specified in TS 37.213 [48], clause 4.5.5 for sidelink channel access. Unit in dBm. Value -85 corresponds to -85 dBm, value -84 corresponds to -84 dBm, and so on (i.e. in steps of 1dBm). |
| ***valueN***Indicate the NR SL transmission with a valueN \*5kHz shift to the LTE raster (see TS 38.101-1 [15], clause 5.4E.2). |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *SIB12* | This field is optional present if included within *SIB12*, need R. Otherwise, the field is absent. |
| *SIB23* | This field is optional present if included within *SIB23*, need R. Otherwise, the field is absent. |
| *V2X-SL-Shared* | This field is mandatory present if the carrier frequency configured for NR sidelink communication is shared by V2X sidelink communication. It is absent, Need R, otherwise. |

#### – *SL-FreqSelectionConfig*

The IE *SL-FreqSelectionConfig* specifies the configuration information for carrier selection for NR sidelink transmission using UE autonomous resource selection.

*SL-FreqSelectionConfig* information element

-- ASN1START

-- TAG-SL-FREQSELECTIONCONFIG-START

SL-FreqSelectionConfig-r18 ::= SEQUENCE {

 sl-priorityList-r18 SEQUENCE (SIZE (1..8)) OF INTEGER (1..8),

 sl-threshCBR-FreqReselection-r18 SL-CBR-r16,

 sl-threshCBR-FreqKeeping-r18 SL-CBR-r16

}

-- TAG-SL-FREQSELECTIONCONFIG-STOP

-- ASN1STOP

| *SL-FreqSelectionConfig* field descriptions |
| --- |
| ***sl-priorityList***Indicates the list of sidelink logical channel priority which is associated with the configurations in *sl-threshCBR-FreqReselection* and in *sl-threshCBR-FreqKeeping*.  |
| ***sl-threshCBR-FreqReselection***Indicates the CBR threshold based on which UE determines whether the carrier frequency can be (re)selected for the transmission of NR sidelink. See TS 38.321 [3]. |
| ***sl-threshCBR-FreqKeeping***Indicates the CBR threshold based on which UE determines whether the UE can keep using the carrier which was selected for the transmission of NR sidelink. See TS 38.321 [3]. |

#### *– SL-IndirectPathAddChange*

The IE *SL-IndirectPathAddChange* specifies the configuration information of SL indirect path for SL indirect path addition/change in MP.

*SL-IndirectPathAddChange* information element

-- ASN1START

-- TAG-SL-INDIRECTPATHADDCHANGE-START

SL-IndirectPathAddChange-r18 ::= SEQUENCE {

 sl-IndirectPathRelayUE-Identity-r18 SL-SourceIdentity-r17,

 sl-IndirectPathCellIdentity-r18 CellIdentity,

 t421-r18 ENUMERATED {ms50, ms100, ms150, ms200, ms500, ms1000, ms2000, ms10000} OPTIONAL, -- Need M

 ...

}

-- TAG-SL-INDIRECTPATHADDCHANGE-STOP

-- ASN1STOP

| *SL-IndirectPathAddChange* field descriptions |
| --- |
| ***sl-IndirectPathRelayUEIdentity***Indicates the L2 source ID of the L2 U2N Relay UE of SL indirect path. |
| ***sl-IndirectPathCellIdentity***Identifies the serving cell of the indicated L2 U2N Relay UE. |
| ***t421***Indicates the timer value of T421 to be used during indirect path addition or change. |

#### – *SL-InterUE-CoordinationConfig*

The IE *SL*-*InterUE-CoordinationConfig* is used to configure the sidelink inter-UE coordination (between a UE, UE-A, and a peer UE, UE-B) parameters.

*SL-InterUE-CoordinationConfig* information element

-- ASN1START

-- TAG-SL-INTERUE-COORDINATIONCONFIG-START

SL-InterUE-CoordinationConfig-r17 ::= SEQUENCE {

 sl-InterUE-CoordinationScheme1-r17 SL-InterUE-CoordinationScheme1-r17 OPTIONAL, -- Need M

 sl-InterUE-CoordinationScheme2-r17 SL-InterUE-CoordinationScheme2-r17 OPTIONAL, -- Need M

 ...

}

SL-InterUE-CoordinationScheme1-r17 ::= SEQUENCE {

 sl-IUC-Explicit-r17 ENUMERATED {enabled, disabled} OPTIONAL, -- Need M

 sl-IUC-Condition-r17 ENUMERATED {enabled, disabled} OPTIONAL, -- Need M

 sl-Condition1-A-2-r17 ENUMERATED {disabled} OPTIONAL, -- Need M

 sl-ThresholdRSRP-Condition1-B-1-Option1List-r17 SEQUENCE (SIZE (1..8)) OF SL-ThresholdRSRP-Condition1-B-1-r17 OPTIONAL, -- Need M

 sl-ThresholdRSRP-Condition1-B-1-Option2List-r17 SEQUENCE (SIZE (1..8)) OF SL-ThresholdRSRP-Condition1-B-1-r17 OPTIONAL, -- Need M

 sl-ContainerCoordInfo-r17 ENUMERATED {enabled, disabled} OPTIONAL, -- Need M

 sl-ContainerRequest-r17 ENUMERATED {enabled, disabled} OPTIONAL, -- Need M

 sl-TriggerConditionCoordInfo-r17 INTEGER (0..1) OPTIONAL, -- Need M

 sl-TriggerConditionRequest-r17 INTEGER (0..1) OPTIONAL, -- Need M

 sl-PriorityCoordInfoExplicit-r17 INTEGER (1..8) OPTIONAL, -- Need M

 sl-PriorityCoordInfoCondition-r17 INTEGER (1..8) OPTIONAL, -- Need M

 sl-PriorityRequest-r17 INTEGER (1..8) OPTIONAL, -- Need M

 sl-PriorityPreferredResourceSet-r17 INTEGER (1..8) OPTIONAL, -- Need M

 sl-MaxSlotOffsetTRIV-r17 INTEGER (1..8000) OPTIONAL, -- Need M

 sl-NumSubCH-PreferredResourceSet-r17 INTEGER (1..27) OPTIONAL, -- Need M

 sl-ReservedPeriodPreferredResourceSet-r17 INTEGER (1..16) OPTIONAL, -- Need M

 sl-DetermineResourceType-r17 ENUMERATED {uea, ueb} OPTIONAL, -- Need M

 ...

}

SL-InterUE-CoordinationScheme2-r17 ::= SEQUENCE {

 sl-IUC-Scheme2-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

 sl-RB-SetPSFCH-r17 BIT STRING (SIZE (10..275)) OPTIONAL, -- Need M

 sl-TypeUE-A-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

 sl-PSFCH-Occasion-r17 INTEGER (0..1) OPTIONAL, -- Need M

 sl-SlotLevelResourceExclusion-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

 sl-OptionForCondition2-A-1-r17 INTEGER (0..1) OPTIONAL, -- Need M

 sl-IndicationUE-B-r17 ENUMERATED {enabled, disabled} OPTIONAL, -- Need M

 ...,

 [[

 sl-DeltaRSRP-Thresh-v1720 INTEGER (-30..30) OPTIONAL -- Need M

 ]]

}

SL-ThresholdRSRP-Condition1-B-1-r17 ::= SEQUENCE {

 sl-Priority-r17 INTEGER (1..8),

 sl-ThresholdRSRP-Condition1-B-1-r17 INTEGER (0..66)

}

-- TAG-SL-INTERUE-COORDINATIONCONFIG-STOP

-- ASN1STOP

| *SL-InterUE-CoordinationScheme1* field descriptions |
| --- |
| ***sl-Condition1-A-2***Indicates disabling the use of condition of excluding from preferred resource set resource(s) in slot(s) where UE-A, when it is intended receiver of UE-B, does not expect to perform SL reception from UE-B due to half duplex operation. |
| ***sl-ContainerCoordInfo***Indicates whether a SCI format 2-C can be used as the container of inter-UE coordination information transmission from UE-A to UE-B in Scheme 1 in addition to using MAC CE. |
| ***sl-ContainerRequest***Indicates whether a SCI format 2-C can be used as the container of an explicit request for inter-UE coordination information transmission from UE-B to UE-A in Scheme 1 in addition to using MAC CE. |
| ***sl-DetermineResourceType***Indicates how to determine the resource set type to be provided by inter-UE coordination information transmission. Value "*uea*" means the resource set type is determined by UE-A's implementation. Value "*ueb*" means the resource set type is determined by UE-B's request. |
| ***sl-IUC-Condition***Indicates whether inter-UE coordination information triggered by a condition is enabled or not other than explicit request reception. |
| ***sl-IUC-Explicit***Indicates whether inter-UE coordination information triggered by an explicit request is enabled or not.  |
| ***sl-MaxSlotOffsetTRIV***Indicates the maximum value of logical slot offset with respect to a reference slot that is used for representing the first resource location of each TRIV to indicate the set of resources in Scheme 1 as specified in TS 38.214 [19]. |
| ***sl-NumSubCH-PreferredResousrceSet***Indicates the number of sub-channels used for determining the preferred resource set in Scheme 1 when the inter-UE coordination information transmission is triggered by a condition other than explicit request reception. |
| ***sl-PriorityCoordInfoCondition***Parameter used to determine the priority values for the purpose defined in TS 38.213 [13] and TS 38.214 [19] including, the priority value for sensing and candidate resource (re-)selection for transmitting the TB carrying the IUC MAC CE and the priority value in the SCI Format 1-A corresponding to the TB carrying the IUC MAC CE, triggered by a condition other than explicit request reception in Scheme 1. The priority value of IUC MAC CE used in LCP procedure (see TS 38.321 [3]) is fixed as "1". |
| ***sl-PriorityCoordInfoExplicit***Parameter used to determine the priority values for the purpose defined in TS 38.213 [13] and TS 38.214 [19] including, the priority value for sensing and candidate resource (re-)selection for transmitting the TB carrying the IUC MAC CE and the priority value in the SCI Format 1-A corresponding to the TB carrying the IUC MAC CE, triggered by an explicit request in Scheme 1. The priority value of IUC MAC CE used in LCP procedure (see TS 38.321 [3]) is fixed as "1". |
| ***sl-PriorityPreferredResourceSet***Indicates the priority value used for determining the preferred resource set in Scheme 1 when the inter-UE coordination information transmission is triggered by a condition other than explicit request reception. |
| ***sl-PriorityRequest***Parameter used to determine the priority values for the purpose defined in TS 38.213 [13] and TS 38.214 [19] including, the priority value for sensing and candidate resource (re-)selection for transmitting the TB carrying the IUC request MAC CE and the priority value in the SCI Format 1-A corresponding to the TB carrying the IUC request MAC CE, in an explicit request for inter-UE coordination information in Scheme 1. The priority value of IUC request MAC CE used in LCP procedure (see TS 38.321 [3]) is fixed as "1". |
| ***sl-ReservedPeriodPreferredResourceSet***Indicates the resource reservation interval used for determining the preferred resource set in Scheme 1 when the inter-UE coordination information transmission is triggered by a condition, by means of an index to the corresponding entry of *sl-ResourceReservePeriodList-r16*.  |
| ***sl-TriggerConditionCoordInfo***Indicates the additional alternative trigger condition of inter-UE coordination information triggered by a condition rather than request reception in Scheme-1 from UE-A to UE-B. Value 0 means inter-UE coordination information is triggered by UE-A's implementation. Value 1 means inter-UE coordination information can be triggered only when UE-A has data to be transmitted together with the inter-UE coordination information to UE-B. |
| ***sl-TriggerConditionRequest***Indicates the trigger condition of an explicit request from UE-B to UE-A. Value 0 means the explicit request is triggered by UE-B's implementation. Value 1 means the explicit request can be triggered only when UE-B has data or SL-PRS to be transmitted to UE-A. |
| ***sl-ThresholdRSRP-Condition1-B-1-Option1List***Indicates the RSRP threshold used to determine reserved resource(s) of other UE(s) whose RSRP measurement is larger than it as the set of resource(s) non-preferred for UE-B's transmission for Condition 1-B-1 of Scheme 1, as specified in TS 38.214 [19]. Value 0 corresponds to minus infinity dBm, value 1 corresponds to -128dBm, value 2 corresponds to -126dBm, value n corresponds to (-128 + (n-1)\*2) dBm and so on, value 66 corresponds to infinity dBm. |
| ***sl-ThresholdRSRP-Condition1-B-1-Option2List***Indicates the RSRP threshold used to determine reserved resource(s) of other UE(s) whose RSRP measurement is smaller than it as the set of resource(s) non-preferred for UE-B's transmission for Condition 1-B-1 of Scheme 1, as specified in TS 38.214 [19]. Value 0 corresponds to minus infinity dBm, value 1 corresponds to -128dBm, value 2 corresponds to -126dBm, value n corresponds to (-128 + (n-1)\*2) dBm and so on, value 66 corresponds to infinity dBm. |

| *SL-InterUE-CoordinationScheme2* field descriptions |
| --- |
| ***sl-DeltaRSRP-Thresh***Indicates the RSRP threshold delta value corresponding to *deltaRSRPThresh* specified in clause 16.3.0 of TS 38.213 [13] and used to determine reserved resource(s) of other UE(s). Value in dB. Only even values (step size 2) allowed. |
| ***sl-IndicationUE-B***Indicates whether to enable or disable the usage of 1 LSB of reserved bits of a SCI format 1-A to indicate of whether UE scheduling a conflict TB can be UE-B or not. |
| ***sl-IUC-Scheme2***Indicates whether inter-UE coordination Scheme 2 is enabled or not. |
| ***sl-OptionForCondition2-A-1***Indicates the RSRP threshold used to consider additional criteria for condition 2-A-1. Value 0 corresponds to using the RSRP threshold according to the priorities included in the SCI, UE uses thresholds *sl-Thres-RSRP-List*, in its resource pool configuration *sl-UE-SelectedConfigRP*, corresponding to *ThresPSSCH-RSRP-List* specified in clause 16.3.0 of TS 38.213 [13]. Value 1 corresponds to using a (pre)configured RSRP threshold delta value *sl-DeltaRSRP-Thresh,* corresponding to *deltaRSRPThresh* specified in clause 16.3.0 of TS 38.213 [13]. |
| ***sl-PSFCH-Occasion***Indicates the reference slot from which a PSFCH occasion for inter-UE coordination information transmission is derived. Value 0 corresponds to the slot where UE-B's SCI is transmitted and value 1 corresponds to the slot where expected/potential resource conflict occurs on PSSCH resource indicated by UE-B's SCI. |
| ***sl-RB-SetPSFCH***Indicates the set of PRBs that are actually used for inter-UE coordination information transmission and reception in Scheme 2. The leftmost bit of the bitmap refers to the lowest RB index in the resource pool, and so on. |
| ***sl-SlotLevelResourceExclusion***Indicates that physical layer of UE-B reports resources in a slot including the next reserved resource indicated by the corresponding UE-B's SCI to higher layer. |
| ***sl-TypeUE-A***Indicates that a non-destination UE of a TB transmitted by UE-B can be UE-A which sends inter-UE coordination information to UE-B, when UE-A is a destination UE of another TB conflicting with the TB transmitted by UE-B. |

#### – *SL-LBT-FailureRecoveryConfig*

The IE *SL-LBT-FailureRecoveryConfig-r18* is used to configure the parameters used for detection and cancellation of Sidelink consistent LBT failures for operation with shared spectrum channel access, as specified in TS 38.321 [3].

*SL-LBT-FailureRecoveryConfig* information element

-- ASN1START

-- TAG-SL-LBT-FAILURERECOVERYCONFIG-START

SL-LBT-FailureRecoveryConfig-r18 ::= SEQUENCE {

 sl-LBT-FailureInstanceMaxCount-r18 ENUMERATED {n4, n8, n16, n32, n64, n128, spare2, spare1} OPTIONAL, -- Need M

 sl-LBT-FailureDetectionTimer-r18 ENUMERATED {ms10, ms20, ms40, ms80, ms160, ms320, spare2, spare1} OPTIONAL, -- Need M

 sl-LBT-RecoveryTimer-r18 ENUMERATED {ms10, ms20, ms40, ms80, ms160, ms320, spare2, spare1} OPTIONAL, -- Need M

 ...

}

-- TAG-SL-LBT-FAILURERECOVERYCONFIG-STOP

-- ASN1STOP

| *SL-LBT-FailureRecoveryConfig* field descriptions |
| --- |
| ***sl-LBT-FailureDetectionTimer***Timer for consistent sidelink LBT failure detection (see TS 38.321 [3]). Value ms10 corresponds to 10 ms, value ms20 corresponds to 20 ms, and so on. |
| ***sl-LBT-FailureInstanceMaxCount***This field determines after how many LBT failure indications received from the physical layer the UE triggers sidelink LBT failure recovery (see TS 38.321 [3]). Value n4 corresponds to 4, value n8 corresponds to 8, and so on. |
| ***sl-LBT-RecoveryTimer***Timer for consistent sidelink LBT failure cancellation (see TS 38.321 [3]). Value ms10 corresponds to 10 ms, value ms20 corresponds to 20 ms, and so on. |

#### – *SL-LogicalChannelConfig*

The IE *SL*-*LogicalChannelConfig* is used to configure the sidelink logical channel parameters.

*SL-LogicalChannelConfig* information element

-- ASN1START

-- TAG-SL-LOGICALCHANNELCONFIG-START

SL-LogicalChannelConfig-r16 ::= SEQUENCE {

 sl-Priority-r16 INTEGER (1..8),

 sl-PrioritisedBitRate-r16 ENUMERATED {kBps0, kBps8, kBps16, kBps32, kBps64, kBps128, kBps256, kBps512,

 kBps1024, kBps2048, kBps4096, kBps8192, kBps16384, kBps32768, kBps65536, infinity},

 sl-BucketSizeDuration-r16 ENUMERATED {ms5, ms10, ms20, ms50, ms100, ms150, ms300, ms500, ms1000,

 spare7, spare6, spare5, spare4, spare3,spare2, spare1},

 sl-ConfiguredGrantType1Allowed-r16 ENUMERATED {true} OPTIONAL, -- Need R

 sl-HARQ-FeedbackEnabled-r16 ENUMERATED {enabled, disabled } OPTIONAL, -- Need R

 sl-AllowedCG-List-r16 SEQUENCE (SIZE (0.. maxNrofCG-SL-1-r16)) OF SL-ConfigIndexCG-r16

 OPTIONAL, -- Need R

 sl-AllowedSCS-List-r16 SEQUENCE (SIZE (1..maxSCSs)) OF SubcarrierSpacing OPTIONAL, -- Need R

 sl-MaxPUSCH-Duration-r16 ENUMERATED {ms0p02, ms0p04, ms0p0625, ms0p125, ms0p25, ms0p5, spare2, spare1}

 OPTIONAL, -- Need R

 sl-LogicalChannelGroup-r16 INTEGER (0..maxLCG-ID) OPTIONAL, -- Need R

 sl-SchedulingRequestId-r16 SchedulingRequestId OPTIONAL, -- Need R

 sl-LogicalChannelSR-DelayTimerApplied-r16 BOOLEAN OPTIONAL, -- Need R

 ...,

 [[

 sl-ChannelAccessPriority-r18 INTEGER (1..4) OPTIONAL, -- Need R

 sl-AllowedCarriers-r18 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF INTEGER (1..maxNrofFreqSL-r16) OPTIONAL -- Cond CONNECTED

 ]]

}

-- TAG-SL-LOGICALCHANNELCONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *SL-LogicalChannelConfig field* descriptions |
| ***sl-AllowedCarriers***If present, SL MAC SDUs from this logical channel can only be mapped to the sidelink carriers indicated in this list. Otherwise, SL MAC SDUs from this logical channel can be mapped to any configured sidelink carriers. The value 1 corresponds to the frequency of first entry in *sl-FreqInfoList* broadcast in *SIB12*, the value 2 corresponds to the frequency of first entry in *sl-FreqInfoListSizeExt* broadcast in *SIB12*, the value 3 corresponds to the frequency of second entry in *sl-FreqInfoListSizeExt* broadcast in *SIB12* and so on. |
| ***sl-AllowedCG-List***This restriction applies only when the SL grant is a configured grant. If present, SL MAC SDUs from this logical channel can only be mapped to the indicated configured grant configuration. If the size of the sequence is zero, then SL MAC SDUs from this logical channel cannot be mapped to any configured grant configurations. If the field is not present, SL MAC SDUs from this logical channel can be mapped to any configured grant configurations. If the field *sl-ConfiguredGrantType1Allowed* is present, only those sidelink configured grant type 1 configurations indicated in this sequence are allowed for use by this sidelink logical channel; otherwise, this sequence shall not include any sidelink configured grant type 1 configuration. Corresponds to "sl-AllowedCG-List" as specified in TS 38.321 [3]. |
| ***sl-AllowedSCS-List***If present, it indicates the numerology of UL-SCH resources that this sidelink logical channel is mapped to, when checking the SR trigger condition. Corresponds to ' sl-AllowedSCS-List' in TS 38.321 [3]. |
| ***sl-BucketSizeDuration***Value in ms. *ms5* corresponds to 5 ms, value *ms10* corresponds to 10 ms, and so on. |
| ***sl-ChannelAccessPriority***Indicates the Channel Access Priority Class (CAPC), as specified in TS 38.300 [2], to be used on sidelink transmissions for operation with shared spectrum channel access in FR1. The network configures this field only for DRBs. |
| ***sl-ConfiguredGrantType1Allowed***If present and set to true, or if the capability *lcp-RestrictionSidelink* as specified in TS 38.306 [26] is not indicated, SL MAC SDUs from this sidelink logical channel can be transmitted on a sidelink configured grant type 1. Otherwise, SL MAC SDUs from this logical channel cannot be transmitted on a sidelink configured grant type 1. Corresponds to 'sl-configuredGrantType1Allowed' in TS 38.321 [3]. |
| ***sl-HARQ-FeedbackEnabled***Network always includes this field. It indicates the HARQ feedback enabled/disabled restriction in LCP for this sidelink logical channel. If set to *enabled*, the sidelink logical channel will be multiplexed only with a logical channel which enabling the HARQ feedback. If set to *disabled*, the sidelink logical channel cannot be multiplexed with a logical channel which enabling the HARQ feedback. Corresponds to 'sl-HARQ-FeedbackEnabled' in TS 38.321 [3]. If this field of at least one sidelink logical channel for the UE is set to enabled, *sl-PSFCH-Config* should be mandatory present in configuration *SL-ResourcePool* of at least one of the sidelink resource pools. |
| ***sl-LogicalChannelGroup***ID of the sidelink logical channel group, as specified in TS 38.321 [3], which the sidelink logical channel belongs to. |
| ***sl-LogicalChannelSR-DelayTimerApplied***Indicates whether to apply the delay timer for SR transmission for this sidelink logical channel. Set to false if *logicalChannelSR-DelayTimer* is not included in *sl-BSR-Config*. |
| ***sl-MaxPUSCH-Duration***If present, it indicates the maximum PUSCH duration of UL-SCH resources that this sidelink logical channel is mapped to, when checking the SR trigger condition. Corresponds to "sl-MaxPUSCH-Duration" in TS 38.321 [3]. |
| ***sl-PrioritisedBitRate***Value in kiloBytes/s. Value *kBps0* corresponds to 0 kiloBytes/s, value *kBps8* corresponds to 8 kiloBytes/s, value *kBps16* corresponds to 16 kiloBytes/s, and so on. |
| ***sl-Priority***Sidelink logical channel priority, as specified in TS 38.321 [3]. |
| ***sl-SchedulingRequestId***If present, it indicates the scheduling request configuration applicable for this sidelink logical channel, as specified in TS 38.321 [3]. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *CONNECTED* | This field is optionally present, Need M, in an RRCReconfiguration message, for a SL DRB with additional RLC bearer being configured. The field is absent otherwise. |

#### – *SL-L2RelayUE-Config*

The IE *SL*-*L2RelayUE-Config* is used to configure L2 U2N relay operation related configurations used by L2 U2N Relay UE, or L2 U2U relay operation related configurations used by L2 U2U Relay UE.

*SL-L2RelayUE-Config* information element

-- ASN1START

-- TAG-SL-L2RELAYUE-CONFIG-START

SL-L2RelayUE-Config-r17 ::= SEQUENCE {

 sl-RemoteUE-ToAddModList-r17 SEQUENCE (SIZE (1..maxNrofRemoteUE-r17)) OF SL-RemoteUE-ToAddMod-r17 OPTIONAL, -- Need N

 sl-RemoteUE-ToReleaseList-r17 SEQUENCE (SIZE (1..maxNrofRemoteUE-r17)) OF SL-DestinationIdentity-r16 OPTIONAL, -- Need N

 ...,

 [[

 sl-U2U-RemoteUE-ToAddModList-r18 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-U2U-RemoteUE-Config-r18 OPTIONAL, -- Need N

 sl-U2U-RemoteUE-ToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-DestinationIdentity-r16 OPTIONAL -- Need N

 ]]

}

SL-RemoteUE-ToAddMod-r17 ::= SEQUENCE {

 sl-L2IdentityRemote-r17 SL-DestinationIdentity-r16,

 sl-SRAP-ConfigRelay-r17 SL-SRAP-Config-r17 OPTIONAL, -- Need M

 ...

}

SL-U2U-RemoteUE-Config-r18 ::= SEQUENCE {

 sl-L2IdentityRemoteUE-r18 SL-DestinationIdentity-r16,

 sl-SourceRemoteUE-ToAddModList-r18 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-SourceRemoteUE-Config-r18 OPTIONAL, -- Need N

 sl-SourceRemoteUE-ToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-SourceIdentity-r17 OPTIONAL, -- Need N

 ...

}

SL-SourceRemoteUE-Config-r18 ::= SEQUENCE {

 sl-SourceUE-Identity-r18 SL-SourceIdentity-r17,

 sl-SRAP-ConfigU2U-r18 SL-SRAP-ConfigU2U-r18,

 ...

}

-- TAG-SL-L2RELAYUE-CONFIG-STOP

-- ASN1STOP

| *SL-L2RelayUE-Config* field descriptions |
| --- |
| ***sl-RemoteUE-ToAddModList***List of L2 U2N Remote UEs to be added and modified to the L2 U2N Relay UE. |
| ***sl-RemoteUE-ToReleaseList***List of L2 U2N Remote UEs to be released by the L2 U2N Relay UE. |
| ***sl-U2U-RemoteUE-ToAddModList***List of target L2 U2U Remote UEs for which the related configuration is to be added and modified to the L2 U2U Relay UE. |
| ***sl-U2U-RemoteUE-ToReleaseList***List of target L2 U2U Remote UEs for which the related configuration is to be released by the L2 U2U Relay UE. |
| ***sl-U2U-SourceRemoteUE-ToAddModList***List of Source L2 U2U Remote UEs for which the related configuration is to be added and modified relative to the destination L2 U2U Remote UE identified by the *sl-L2IdentityRemoteUE*. |
| ***sl-U2U-SourceRemoteUE-ToReleaseList***List of Source L2 U2U Remote UEs for which the related configuration is to be released relative to the destination L2 U2U Remote UE identified by the *sl-L2IdentityRemoteUE*. |

#### – *SL-L2RemoteUE-Config*

The IE *SL*-*L2RemoteUE-Config* is used to configure L2 U2N relay operation related configurations used by L2 U2N Remote UE, or L2 U2U relay operation related configurations used by L2 U2U Remote UE.

*SL-L2RemoteUE-Config* information element

-- ASN1START

-- TAG-SL-L2REMOTEUE-CONFIG-START

SL-L2RemoteUE-Config-r17 ::= SEQUENCE {

 sl-SRAP-ConfigRemote-r17 SL-SRAP-Config-r17 OPTIONAL, --Need M

 sl-UEIdentityRemote-r17 RNTI-Value OPTIONAL, -- Cond FirstRRCReconfig

 ...,

 [[

 sl-U2U-RelayUE-ToAddModList-r18 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-U2U-RelayUE-Config-r18 OPTIONAL, -- Need N

 sl-U2U-RelayUE-ToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-DestinationIdentity-r16 OPTIONAL -- Need N

 ]]

}

SL-U2U-RelayUE-Config-r18 ::= SEQUENCE {

 sl-L2IdentityRelay-r18 SL-DestinationIdentity-r16,

 sl-TargetRemoteUE-ToAddModList-r18 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-TargetRemoteUE-Config-r18 OPTIONAL, -- Need N

 sl-TargetRemoteUE-ToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofSL-Dest-r16)) OF SL-DestinationIdentity-r16 OPTIONAL, -- Need N

 ...

}

SL-TargetRemoteUE-Config-r18 ::= SEQUENCE {

 sl-TargetUE-Identity-r18 SL-DestinationIdentity-r16,

 sl-SRAP-ConfigU2U-r18 SL-SRAP-ConfigU2U-r18,

 ...

}

-- TAG-SL-L2REMOTEUE-CONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *SL-L2RemoteUE-Config* field descriptions |
| ***sl-SRAP-ConfigRemote***Indicates SRAP configuration used for L2 U2N Remote UE. |
| ***sl-UEIdentityRemote***Indicates the C-RNTI to the L2 U2N Remote UE. |
| ***sl-U2U-RelayUE-ToAddModList***List of L2 U2U Relay UEs for which the related configuration is to be added and modified to the L2 U2U Remote UE. |
| ***sl-U2U-RelayUE-ToReleaseList***List of L2 U2U Relay UEs for which the related configuration is to be released by the L2 U2U Remote UE. |
| ***sl-U2U-TargetRemoteUE-ToAddModList***List of target L2 U2U Remote UEs for which the related configuration is to be added and modified relative to the L2 U2U Relay UE identified by the *sl-L2IdentityRelay*. |
| ***sl-U2U-TargetRemoteUE-ToReleaseList***List of target L2 U2U Remote UEs for which the related configuration is to be released relative to the L2 U2U Relay UE identified by the *sl-L2IdentityRelay*. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *FirstRRCReconfig* | This field is mandatory present in the first *RRCReconfiguration* for L2 U2N Remote UE when PCell is on indirect path, i.e. MP configuration is not present. Otherwise the field is absent. |

#### – *SL-MeasConfigCommon*

The IE *SL-MeasConfigCommon* is used to set the cell specific SL RSRP measurement configurations for unicast destinations.

*SL-MeasConfigCommon* information element

-- ASN1START

-- TAG-SL-MEASCONFIGCOMMON-START

SL-MeasConfigCommon-r16 ::= SEQUENCE {

 sl-MeasObjectListCommon-r16 SL-MeasObjectList-r16 OPTIONAL, -- Need R

 sl-ReportConfigListCommon-r16 SL-ReportConfigList-r16 OPTIONAL, -- Need R

 sl-MeasIdListCommon-r16 SL-MeasIdList-r16 OPTIONAL, -- Need R

 sl-QuantityConfigCommon-r16 SL-QuantityConfig-r16 OPTIONAL, -- Need R

 ...

}

-- TAG-SL-MEASCONFIGCOMMON-STOP

-- ASN1STOP

| *SL-MeasConfigCommon* field descriptions |
| --- |
| ***sl-MeasIdListCommon***List of sidelink measurement identities |
| ***sl-MeasObjectListCommon***List of sidelink measurement objects. |
| ***sl-QuantityConfigCommon***Indicates the layer 3 filtering coefficient for sidelink measurement. |
| ***sl-ReportConfigListCommon***List of sidelink measurement reporting configurations. |

#### – *SL-MeasConfigInfo*

The IE *SL*-*MeasConfigInfo* is used to set RSRP measurement configurations for unicast destinations.

*SL-MeasConfigInfo* information element

-- ASN1START

-- TAG-SL-MEASCONFIGINFO-START

SL-MeasConfigInfo-r16 ::= SEQUENCE {

 sl-DestinationIndex-r16 SL-DestinationIndex-r16,

 sl-MeasConfig-r16 SL-MeasConfig-r16,

 ...

}

SL-MeasConfig-r16 ::= SEQUENCE {

 sl-MeasObjectToRemoveList-r16 SL-MeasObjectToRemoveList-r16 OPTIONAL, -- Need N

 sl-MeasObjectToAddModList-r16 SL-MeasObjectList-r16 OPTIONAL, -- Need N

 sl-ReportConfigToRemoveList-r16 SL-ReportConfigToRemoveList-r16 OPTIONAL, -- Need N

 sl-ReportConfigToAddModList-r16 SL-ReportConfigList-r16 OPTIONAL, -- Need N

 sl-MeasIdToRemoveList-r16 SL-MeasIdToRemoveList-r16 OPTIONAL, -- Need N

 sl-MeasIdToAddModList-r16 SL-MeasIdList-r16 OPTIONAL, -- Need N

 sl-QuantityConfig-r16 SL-QuantityConfig-r16 OPTIONAL, -- Need M

 ...

}

SL-MeasObjectToRemoveList-r16 ::= SEQUENCE (SIZE (1..maxNrofSL-ObjectId-r16)) OF SL-MeasObjectId-r16

SL-ReportConfigToRemoveList-r16 ::= SEQUENCE (SIZE (1..maxNrofSL-ReportConfigId-r16)) OF SL-ReportConfigId-r16

SL-MeasIdToRemoveList-r16 ::= SEQUENCE (SIZE (1..maxNrofSL-MeasId-r16)) OF SL-MeasId-r16

-- TAG-SL-MEASCONFIGINFO-STOP

-- ASN1STOP

| *SL-MeasConfigInfo* field descriptions |
| --- |
| ***sl-MeasIdToAddModList***List of sidelink measurement identities to add and/or modify. |
| ***sl-MeasIdToRemoveList***List of sidelink measurement identities to remove. |
| ***sl-MeasObjectToAddModList***List of sidelink measurement objects to add and/or modify. |
| ***sl-MeasObjectToRemoveList***List of sidelink measurement objects to remove. |
| ***sl-QuantityConfig***Indicates the layer 3 filtering coefficient for sidelink measurement. |
| ***sl-ReportConfigToAddModList***List of sidelink measurement reporting configurations to add and/or modify. |
| ***sl-ReportConfigToRemoveList***List of sidelink measurement reporting configurations to remove. |

#### – *SL-MeasIdList*

The IE *SL*-*MeasIdList* concerns a list of SL measurement identities to add or modify for a destination, with for each entry the *sl-MeasId*, the associated *sl-MeasObjectId* and the associated *sl-ReportConfigId*.

*SL-MeasIdList* information element

-- ASN1START

-- TAG-SL-MEASIDLIST-START

SL-MeasIdList-r16 ::= SEQUENCE (SIZE (1..maxNrofSL-MeasId-r16)) OF SL-MeasIdInfo-r16

SL-MeasIdInfo-r16 ::= SEQUENCE {

 sl-MeasId-r16 SL-MeasId-r16,

 sl-MeasObjectId-r16 SL-MeasObjectId-r16,

 sl-ReportConfigId-r16 SL-ReportConfigId-r16,

 ...

}

SL-MeasId-r16 ::= INTEGER (1..maxNrofSL-MeasId-r16)

-- TAG-SL-MEASIDLIST-STOP

-- ASN1STOP

#### – *SL-MeasObjectList*

The IE *SL*-*MeasObjectList* concerns a list of SL measurement objects to add or modify for a destination.

*SL-MeasObjectList* information element

-- ASN1START

-- TAG-SL-MEASOBJECTLIST-START

SL-MeasObjectList-r16 ::= SEQUENCE (SIZE (1..maxNrofSL-ObjectId-r16)) OF SL-MeasObjectInfo-r16

SL-MeasObjectInfo-r16 ::= SEQUENCE {

 sl-MeasObjectId-r16 SL-MeasObjectId-r16,

 sl-MeasObject-r16 SL-MeasObject-r16,

 ...

}

SL-MeasObjectId-r16 ::= INTEGER (1..maxNrofSL-ObjectId-r16)

SL-MeasObject-r16 ::= SEQUENCE {

 frequencyInfoSL-r16 ARFCN-ValueNR,

 ...

}

-- TAG-SL-MEASOBJECTLIST-STOP

-- ASN1STOP

| *SL-MeasObjectList* field descriptions |
| --- |
| ***frequencyInfoSL***It indicates the lowest usable subcarrier on the carrier where SL RSRP is measured, determined according to *sl-AbsoluteFrequencyPointA* in IE *SL-FreqConfig/SL-FreqConfigCommon* and *offsetToCarrier* in IE *SCS-SpecificCarrier* configured for *sl-SCS-SpecificCarrierList* in IE *SL-FreqConfig/SL-FreqConfigCommon*. See TS 38.211 [16], clause 8.2.5. |
| ***sl-MeasObjectId***It is used to identify a sidelink measurement object configuration. |
| ***sl-MeasObject***It specifies information applicable for sidelink DMRS, SL-PRS measurement. |

#### – *SL-PagingIdentityRemoteUE*

The IE *SL-PagingIdentityRemoteUE* includes the Remote UE's paging UE ID.

*SL-PagingIdentityRemoteUE* information element

-- ASN1START

-- TAG-SL-PAGINGIDENTITYREMOTEUE-START

SL-PagingIdentityRemoteUE-r17 ::= SEQUENCE {

 ng-5G-S-TMSI-r17 NG-5G-S-TMSI,

 fullI-RNTI-r17 I-RNTI-Value OPTIONAL -- Need R

}

-- TAG-SL-PAGINGIDENTITYREMOTEUE-STOP

-- ASN1STOP

#### – *SL-PBPS-CPS-Config*

The IE *SL-PBPS-CPS-Config* specifies the operation information for a resource pool which can be (pre-)configured to enable full sensing only, partial sensing only, random resource selection only, or any combination(s) thereof.

*SL-PBPS-CPS-Config* information element

-- ASN1START

-- TAG-SL-PBPS-CPS-CONFIG-START

SL-PBPS-CPS-Config-r17 ::= SEQUENCE {

sl-AllowedResourceSelectionConfig-r17 ENUMERATED {c1, c2, c3, c4, c5, c6, c7} OPTIONAL, -- Need M

sl-MinNumCandidateSlotsPeriodic-r17 INTEGER (1..32) OPTIONAL, -- Need M

sl-PBPS-OccasionReservePeriodList-r17 SEQUENCE (SIZE (1..16)) OF INTEGER (1..16) OPTIONAL, -- Need M

sl-Additional-PBPS-Occasion-r17 ENUMERATED { monitored } OPTIONAL, -- Need M

sl-CPS-WindowPeriodic-r17 INTEGER (5..30) OPTIONAL, -- Need M

sl-MinNumCandidateSlotsAperiodic-r17 INTEGER (1..32) OPTIONAL, -- Need M

sl-MinNumRssiMeasurementSlots-r17 INTEGER (1..800) OPTIONAL, -- Need M

sl-DefaultCBR-RandomSelection-r17 INTEGER (0..100) OPTIONAL, -- Need M

sl-DefaultCBR-PartialSensing-r17 INTEGER (0..100) OPTIONAL, -- Need M

sl-CPS-WindowAperiodic-r17 INTEGER (0..30) OPTIONAL, -- Need M

sl-PartialSensingInactiveTime-r17 ENUMERATED { enabled, disabled } OPTIONAL, -- Need M

 ...

}

-- TAG-SL-PBPS-CPS-CONFIG-STOP

-- ASN1STOP

| *SL-PBPS-CPS-Config* field descriptions |
| --- |
| ***sl-Additional-PBPS-Occasion***Indicates that UE additionally monitors periodic sensing occasions that correspond to a set of values. (see TS 38.214 [19], clause 8.1.4). |
| ***sl-AllowedResourceSelectionConfig***Indicates the allowed resource selection mechanism(s), i.e. full sensing only, partial sensing only, random resource selection only, or any combination(s) thereof. (see TS 38.214 [19], clause 8.1.4). Only c1, c4 , c5 or c7 can be configured for a Rel-16 resource pool. If this field is not configured for a resource pool included in *sl-TxPoolSelectedNormal*, only full sensing is allowed in the corresponding resource pool.c1: only full sensing allowedc2: only partial sensing allowedc3: only random selection allowedc4: full sensing+random selection allowedc5: full sensing+ partial sensing allowedc6: partial sensing + random selection allowedc7: full sensing+ partial sensing + random selection allowed. |
| ***sl-CPS-WindowAperiodic***Parameter that indicates the minimum size of contiguous partial sensing window in logical slot units for a resource (re)selection procedure and re-evaluation/pre-emption checking triggered by aperiodic transmission. (see TS 38.214 [19], clause 8.1.4). If not configured, the size of contiguous partial sensing window in logical slot units is 31. |
| ***sl-CPS-WindowPeriodic***Indicates the size of contiguous partial sensing window in logical slot units when UE performs periodic-based and contiguous partial sensing for a resource (re)selection procedure triggered by periodic transmission. If not configured, the size of contiguous partial sensing window in logical slot units is 31. |
| ***sl-DefaultCBR-PartialSensing***Indicates default value of SL CBR measurement for a UE that is configured to perform partial sensing by its higher layer (including when SL DRX is configured) if the number of SL RSSI measurement slots over CBR measurement window is below *sl-MinNumRssiMeasurementSlots*, (see TS 38.214 [19], clause 8.1.6). Value 0 corresponds to 0, value 1 to 0.01, value 2 to 0.02, and so on. |
| ***sl-DefaultCBR-RandomSelection***Indicates default value of CBR measurement for a UE that performs random resource selection if no SL CBR measurement result over SL CBR measurement window, (see TS 38.214 [19], clause 8.1.6). Value 0 corresponds to 0, value 1 to 0.01, value 2 to 0.02, and so on. |
| ***sl-MinNumCandidateSlotsAperiodic***Indicates the minimum number of Y' slots that are included in the possible candidate resources corresponding to periodic-based partial sensing and/or contiguous partial sensing for resource (re)selection triggered by aperiodic transmission. (see TS 38.214 [19], clause 8.1.4). |
| ***sl-MinNumCandidateSlotsPeriodic***Indicates the minimum number of Y slots that are included in the possible candidate resources corresponding to periodic-based partial sensing for resource (re)selection triggered by periodic transmission. (see TS 38.214 [19], clause 8.1.4). |
| ***sl-MinNumRssiMeasurementSlots***Indicates a threshold for a minimum number of SL RSSI measurement slots over CBR measurement window for which the SL RSSI is measured for a UE that is configured to perform partial sensing by its higher layer (including when SL DRX is configured). (see TS 38.214 [19], clause 8.1.6). |
| ***sl-PartialSensingInactiveTime***Indicates whether or not UE is required to perform SL reception of PSCCH and RSRP measurement for partial sensing on slots in SL DRX inactive time when partial sensing is configured by its higher layer. (see TS 38.214 [19], clause 8.1.4). |
| ***sl-PBPS-OccasionReservePeriodList***Indicates the subset of periodicity values from *sl-ResourceReservePeriodList* used to determine periodic sensing occasions in periodic-based partial sensing, by means of an index to the corresponding entry in *sl-ResourceReservePeriodList-r16*. If not configured, all periodicity values from *sl-ResourceReservePeriodList* are used to determine periodic sensing occasions in periodic-based partial sensing (see TS 38.214 [19], clause 8.1.4). |

#### – *SL-PDCP-Config*

The IE *SL*-*PDCP-Config* is used to set the configurable PDCP parameters for a sidelink radio bearer.

*SL-PDCP-Config* information element

-- ASN1START

-- TAG-SL-PDCP-CONFIG-START

SL-PDCP-Config-r16 ::= SEQUENCE {

 sl-DiscardTimer-r16 ENUMERATED {ms3, ms10, ms20, ms25, ms30, ms40, ms50, ms60, ms75, ms100, ms150, ms200,

 ms250, ms300, ms500, ms750, ms1500, infinity} OPTIONAL, -- Cond Setup

 sl-PDCP-SN-Size-r16 ENUMERATED {len12bits, len18bits} OPTIONAL, -- Cond Setup2

 sl-OutOfOrderDelivery ENUMERATED { true } OPTIONAL, -- Need R

 ...

}

-- TAG-SL-PDCP-CONFIG-STOP

-- ASN1STOP

| *SL-PDCP-Config* field descriptions |
| --- |
| ***sl-DiscardTimer***Value in ms of *discardTimer* specified in TS 38.323 [5]. Value *ms50* corresponds to 50 ms, value *ms100* corresponds to 100 ms and so on. |
| ***sl-OutOfOrderDelivery***Indicates whether or not outOfOrderDelivery specified in TS 38.323 [5] is configured. This field should be either always present or always absent, after the radio bearer is established. |
| ***sl-PDCP-SN-Size***PDCP sequence number size for unicast NR sidelink communication, 12 or 18 bits, as specified in TS 38.323 [5]. For groupcast and broadcast NR sidelink communication, only 12 bits is applicable, as specified in 9.1.1.5. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *Setup* | The field is mandatory present in case of sidelink DRB setup via dedicated signaling and in case of sidelink DRB configuration via system information and pre-configuration; otherwise the field is optionally present, need M. |
| *Setup2* | The field is mandatory present in case of sidelink DRB setup via dedicated signaling and in case of sidelink DRB configuration via system information and pre-configuration for RLC-AM and RLC-UM for unicast NR sidelink communication; otherwise the field is not present, Need M. |

#### - *SL-PosBWP-ConfigCommon*

The IE *SL-PosBWP-ConfigCommon* is used to configure the cell-specific configuration for sidelink positioning on one particular sidelink bandwidth part.

*SL-PosBWP-ConfigCommon* information element

-- ASN1START

-- TAG-SL-POSBWP-CONFIGCOMMON

SL-PosBWP-ConfigCommon-r18 ::= SEQUENCE {

 sl-BWP-Generic-r18 SL-BWP-Generic-r16 OPTIONAL, -- Need R

 sl-BWP-PRS-PoolConfigCommon-r18 SL-BWP-PRS-PoolConfigCommon-r18 OPTIONAL, -- Need R

 ...

}

-- TAG- SL-POSBWP-CONFIGCOMMON

-- ASN1STOP

|  |
| --- |
| *SL-PosBWP-ConfigCommon* field descriptions |
| ***sl-BWP-Generic***This field indicates the generic parameters on the configured sidelink BWP. |

#### – *SL-PRS-ResourcePool*

The IE *SL-PRS-ResourcePool* specifies the configuration information for NR sidelink PRS dedicated resource pool.

*SL-PRS-ResourcePool* information element

-- ASN1START

-- TAG-SL-PRS-RESOURCEPOOL-START

SL-PRS-ResourcePool-r18 ::= SEQUENCE {

 sl-PRS-PSCCH-Config-r18 SetupRelease { SL-PSCCH-ConfigDedicatedSL-PRS-RP-r18} OPTIONAL, -- Need M

 sl-StartRB-SubchannelDedicatedSL-PRS-RP-r18 INTEGER (0..265) OPTIONAL, -- Need M

 sl-FilterCoefficient-r18 FilterCoefficient OPTIONAL, -- Need M

 sl-ThreshS-RSSI-PRS-CBR-r18 INTEGER (0..45) OPTIONAL, -- Need M

 sl-RB-Number-r18 INTEGER (10..275) OPTIONAL, -- Need M

 sl-TimeResource-r18 BIT STRING (SIZE (10..160)) OPTIONAL, -- Need M

 sl-PosAllowedResourceSelectionConfig-r18 ENUMERATED {c1, c2, c3} OPTIONAL, -- Need M

 sl-PRS-ResourceReservePeriodList-r18 SEQUENCE (SIZE (1..16)) OF SL-ReservationPeriodAllowedDedicatedSL-PRS-RP-r18

 OPTIONAL,

 sl-PRS-ResourcesDedicatedSL-PRS-RP-r18 SEQUENCE (SIZE (1..12)) OF SL-PRS-ResourceDedicatedSL-PRS-RP-r18 OPTIONAL, -- Need M

 sl-PRS-PowerControl-r18 SL-PRS-PowerControl-r18 OPTIONAL, -- Need M

 sl-SensingWindowDedicatedSL-PRS-RP-r18 ENUMERATED {ms100, ms1100} OPTIONAL, -- Need M

 sl-TxPercentageDedicatedSL-PRS-RP-List-r18 SEQUENCE (SIZE (8)) OF SL-TxPercentageDedicatedSL-PRS-RP-Config-r18 OPTIONAL, -- Need M

 sl-SCI-basedSL-PRS-TxTriggerSCI1-B-r18 BOOLEAN OPTIONAL, -- Need M

 sl-NumSubchannelDedicatedSL-PRS-RP-r18 INTEGER (1..27) OPTIONAL, -- Need M

 sl-SubchannelSizeDedicatedSL-PRS-RP-r18 ENUMERATED {n10, n12, n15, n20, n25, n50, n75, n100} OPTIONAL, -- Need M

 sl-MaxNumPerReserveDedicatedSL-PRS-RP-r18 ENUMERATED {n2, n3} OPTIONAL, -- Need M

 sl-NumReservedBitsSCI1B-DedicatedSL-PRS-RP-r18 INTEGER (0..20) OPTIONAL, -- Need R

 sl-SRC-ID-LenDedicatedSL-PRS-RP-r18 ENUMERATED {n12, n24} OPTIONAL, -- Need M

 sl-CBR-PriorityTxConfigDedicatedSL-PRS-RP-List-r18 SEQUENCE (SIZE (1..8)) OF SL-PriorityTxConfigIndexDedicatedSL-PRS-RP-r18

 OPTIONAL, -- Need M

 sl-TimeWindowSizeCBR-DedicatedSL-PRS-RP-r18 ENUMERATED {ms100, slot100} OPTIONAL, -- Need M

 sl-TimeWindowSizeCR-DedicatedSL-PRS-RP-r18 ENUMERATED {ms1000, slot1000} OPTIONAL, -- Need M

 sl-CBR-CommonTxDedicatedSL-PRS-RP-List-r18 SL-CBR-CommonTxDedicatedSL-PRS-RP-List-r18 OPTIONAL, -- Need M

 sl-PriorityThreshold-UL-URLLC-r18 INTEGER (1..9) OPTIONAL, -- Need M

 sl-PriorityThreshold-r18 INTEGER (1..9) OPTIONAL, -- Need M

 sl-SelectionWindowListDedicatedSL-PRS-RP-r18 SEQUENCE (SIZE (8)) OF SL-SelectionWindowConfigDedicated-SL-PRS-RP-r18

 OPTIONAL, -- Need M

 sl-Thres-RSRP-ListDedicatedSL-PRS-RP-r18 SEQUENCE (SIZE (64)) OF SL-PRS-ThresRSRP-r18 OPTIONAL, -- Need M

 sl-PreemptionEnableDedicatedSL-PRS-RP-r18 ENUMERATED {enabled, pl1, pl2, pl3, pl4, pl5, pl6, pl7, pl8} OPTIONAL -- Need R

}

SL-PSCCH-ConfigDedicatedSL-PRS-RP-r18 ::= SEQUENCE {

 timeResourcePSCCH-DedicatedSL-PRS-RP-r18 ENUMERATED {n2, n3} OPTIONAL, -- Need M

 freqResourcePSCCH-DedicatedSL-PRS-RP-r18 ENUMERATED {n10,n12, n15, n20, n25} OPTIONAL, -- Need M

 ...

}

SL-ReservationPeriodAllowedDedicatedSL-PRS-RP-r18 ::= CHOICE {

 sl-ResourceReservePeriod1-r18 ENUMERATED {ms0, ms100, ms160, ms200, ms300, ms320, ms400, ms500, ms600, ms640,

 ms700, ms800, ms900, ms1000, ms1280, ms2560, ms5120, ms10240},

 sl-ResourceReservePeriod2-r18 INTEGER (1..99)

}

SL-PRS-ResourceDedicatedSL-PRS-RP-r18::= SEQUENCE {

 sl-PRS-ResourceID-r18 INTEGER (0..11) OPTIONAL, -- Need M

 sl-NumberOfSymbols-r18 INTEGER (1..9) OPTIONAL, -- Need M

 sl-CombSize-r18 ENUMERATED{n2,n4,n6} OPTIONAL, -- Need R

 sl-PRS-starting-symbol-r18 INTEGER (4..12) OPTIONAL, -- Need M

 sl-PRS-comb-offset-r18 INTEGER(1..5) OPTIONAL -- Need M

}

SL-PRS-PowerControl-r18::= SEQUENCE {

 dl-P0-SL-PRS-r18 INTEGER(-202..24) OPTIONAL, -- Need M

 dl-Alpha-SL-PRS-r18 ENUMERATED {alpha0, alpha04, alpha05, alpha06, alpha07, alpha08, alpha09, alpha1} OPTIONAL, -- Need M

 sl-P0-SL-PRS-r18 INTEGER(-202..24) OPTIONAL, -- Need M

 sl-Alpha-SL-PRS-r18 ENUMERATED {alpha0, alpha04, alpha05, alpha06, alpha07, alpha08, alpha09, alpha1} OPTIONAL -- Need S

}

SL-TxPercentageDedicatedSL-PRS-RP-Config-r18::= SEQUENCE {

 sl-TxPercentageDedicatedSL-PRS-RP-r18 INTEGER (1..8) OPTIONAL, -- Need M

 sl-Priority-DedicatedSL-PRS-RP ENUMERATED {p20, p35, p50} OPTIONAL -- Need M

}

SL-PriorityTxConfigIndexDedicatedSL-PRS-RP-r18 ::= SEQUENCE {

 sl-PriorityThresholdDedicatedSL-PRS-RP-r18 INTEGER (1..8) OPTIONAL, -- Need M

 sl-DefaultTxConfigIndexDedicatedSL-PRS-RP-r18 INTEGER (0..maxCBR-LevelDedSL-PRS-1-r18) OPTIONAL, -- Need M

 sl-CBR-ConfigIndexDedicatedSL-PRS-RP-r18 INTEGER (0..maxCBR-ConfigDedSL-PRS-1-r18) OPTIONAL, -- Need M

 sl-PRS-TxConfigIndexList-r18 SEQUENCE (SIZE (1.. maxCBR-LevelDedSL-PRS-1-r18)) OF SL-PRS-TxConfigIndex-r18

 OPTIONAL -- Need M

}

SL-PRS-TxConfigIndex-r18 ::= INTEGER (0.. maxNrofSL-PRS-TxConfig-r18)

SL-SelectionWindowConfigDedicated-SL-PRS-RP-r18::= SEQUENCE {

 sl-PRS-Priority-r18 INTEGER (1..8),

 sl-PRS-SelectionWindow-r18 ENUMERATED {n1, n5, n10, n20}

}

SL-PRS-ThresRSRP-r18 ::= INTEGER (0..66)

-- TAG-SL-PRS-RESOURCEPOOL-STOP

-- ASN1STOP

|  |
| --- |
| *SL-PRS-ResourcePool* field descriptions |
| ***sl-CBR-ConfigIndexDedicatedSL-PRS-RP***Indicates the CBR ranges to be used by an index to the entry of the CBR range configuration in *sl-CBR-RangeConfigList-Dedicated-SL-PRS-RP*. |
| ***sl-CBR-PriorityTxConfigDedicatedSL-PRS-RP-List***Indicates the mapping between SL-PRS transmission parameter (such as transmission power, etc.) sets by using the indexes of the configurationsin *sl-CBR-SL-PRS-TxConfigList*, CBR ranges by using the indexes to the entry of the CBR range configurations in *sl-CBR-SL-PRS-RangeConfigList*, and priority ranges. It also indicates the default SL-PRS transmission parameters to be used when CBR measurement results are not available. |
| ***sl-DefaultTxConfigIndexDedicatedSL-PRS-RP***Indicates the SL PRS transmission parameters to be used by the UEs which do not have available CBR measurement results, by means of an index to the corresponding entry in *sl-PRS-TxConfigIndexList*. Value 0 indicates the first entry in *sl-PRS-Tx-ConfigIndexList*. The field is ignored if the UE has available CBR measurement results. |
| ***sl-FilterCoefficient***This field indicates the filtering coefficient for long-term measurement and reference signal power derivation used for sidelink open-loop power control. |
| ***sl-MaxNumPerReserveDedicatedSL-PRS-RP***Indicates the maximum number of SL PRS reservations that can be indicated by an SCI. |
| ***sl-NumReservedBitsSCI1B-DedicatedSL-PRS-RP***Indicates the number of reserved bits in SCI format 1-B. |
| ***sl-NumSubchannelDedicatedSL-PRS-RP***Indicates the number of subchannels in the corresponding resource pool, which consists of contiguous PRBs only. |
| ***sl-PosAllowedResourceSelectionConfig***Indicates allowed resource allocation method configured per resource pool.C1: only sensing allowedc2: only random resource selection allowedc3: sensing and random resource selection allowed |
| ***sl-PreemptionEnableDedicatedSL-PRS-RP***Indicates whether pre-emption is disabled or enabled in a resource pool. If the field is present and the value is *pl1*, *pl2*, and so on (but not *enabled*), it means that pre-emption is enabled and a priority level p\_preemption is configured. If the field is present and the value is *enabled*, the pre-emption is enabled (but p\_preemption is not configured) and pre-emption is applicable to all levels. |
| ***sl-PriorityThreshold***Indicates the threshold used to determine whether NR sidelink transmission in dedicated SL PRS resource pool is prioritized over uplink transmission of priority index 0 as specified in TS 38.213[13], clause 16.2.4.3, or whether PUCCH transmission carrying SL HARQ is prioritized over PUCCH transmission carrying UCI of priority index 0 if they overlap in time as specified in TS 38.213 [13], clause 9.2.5.0. |
| ***sl-PriorityThresholdDedicatedSL-PRS-RP***Indicates the upper bound of priority range which is associated with the configurations in *sl-CBR-ConfigIndex-Dedicated-SL-PRS-RP* and in *sl-PRS-Tx-ConfigIndex*. The upper bounds of the priority ranges are configured in ascending order for consecutive entries of *SL-PriorityTxConfigIndex-Dedicated-SL-PRS-RP* in *SL-PriorityTxConfigList-Dedicated-SL-PRS-RP*. For the first entry of *sl-PriorityThreshold-Dedicated-SL-PRS-RP*, the lower bound of the priority range is 1. |
| ***sl-PriorityThresholdUL-URLLC***Indicates the threshold used to determine whether NR sidelink transmission in dedicated SL PRS resource pool is prioritized over uplink transmission of priority index 1 as specified in TS 38.213[13], clause 16.2.4.3, or whether PUCCH transmission carrying SL HARQ is prioritized over PUCCH transmission carrying UCI of priority index 1 if they overlap in time as specified in TS 38.213 [13], clause 9.2.5.0. |
| ***sl-PRS-ResourceReservePeriodList***Indicates set of possible resource reservation period in the unit of ms allowed in the resource pool. Up to 16 values can be configured per resource pool. The value *ms0* is always configured. |
| ***sl-PRS-ResourcesDedicatedSL-PRS-RP***Indicates SL PRS resources in a slot of dedicated SL PRS resource pool as defined in TS 38.211 [16]. |
| ***sl-PRS-TxConfigIndex***Indicates SL PRS transmission Configuration index. |
| ***sl-PRS-TxConfigIndexList***Indicates List of *sl-PRS-Tx-ConfigIndex* indicating the SL PRS transmission index |
| ***sl-RB-Number***Indicates the number of PRBs in the corresponding SL PRS dedicated resource pool, which consists of contiguous PRBs only. |
| ***sl-SCI-basedSL-PRS-TxTriggerSCI1-B***Indicates presence of a bit-field in SCI format 1-B to trigger SL-PRS transmission by a receiving UE. |
| ***sl-SelectionWindowListDedicatedSL-PRS-RP***Parameter that determines the end of the selection window in the resource selection for a SL-PRS with respect to priority indicated in SCI. Value n1 corresponds to 1\*2µ , value n5 corresponds to 5\*2µ , and so on, where µ = 0,1,2,3 refers to SCS 15,30,60,120 kHz respectively. |
| ***sl-SensingWindowDedicated-SL-PRS-RP***Indicates Parameter that indicates the start of the sensing window for SL PRS in a dedicated resource pool. |
| ***sl-SRC-ID-LenDedicatedSL-PRS-RP***Indicates the number of bits used for the source ID in SCI format 1-B. |
| ***sl-StartRB-Subchannel-DedicatedSL-PRS-RP***Indicates the lowest RB index of the SL PRS dedicated resource pool with respect to the lowest RB index of a SL BWP. |
| ***sl-SubchannelSizeDedicatedSL-PRS-RP***Indicates size of a subchannel for PSCCH in number of RBs. |
| ***sl-Thres-RSRP-ListDedicatedSL-PRS-RP***Indicates a list of 64 thresholds, the threshold should be selected based on the priority in the decoded SCI and the priority in the SCI to be transmitted. |
| ***sl-ThreshS-RSSI-PRS-CBR***Indicates the S-RSSI threshold for determining the contribution of a sub-channel to the SL-PRS CBR measurement in a dedicated SL-PRS resource pool. Value 0 corresponds to -112 dBm, value 1 to -110 dBm, value n to (-112 + n\*2) dBm, and so on. |
| ***sl-TimeResource***This field indicates the bitmap of the SL PRS dedicated resource pool, which is defined by repeating the bitmap with a periodicity during a SFN or DFN cycle. |
| ***sl-TimeWindowSizeCBR-DedicatedSL-PRS-RP***Indicates the time window size for CBR measurement in a dedicated SL-PRS resource pool. |
| ***sl-TimeWindowSizeCR-DedicatedSL-PRS-RP***Indicates the time window size for CR evaluation in a dedicated SL-PRS resource pool. |
| ***sl-TxPercentageDedicatedSL-PRS-RP-List***Indicates List of minimum Tx percentage (list per priority) |

| *SL-PRS-PSCCH-Config* field descriptions |
| --- |
| ***freqResourcePSCCH-Dedicated-SL-PRS-RP***Indicates the number of PRBs for PSCCH in a dedicated SL PRS resource pool. |
| ***timeResourcePSCCH-Dedicated-SL-PRS-RP***Indicates the number of symbols for PSCCH in a dedicated SL PRS resource pool. |

| *SL-PRS-PowerControl* field descriptions |
| --- |
| ***dl-P0-SL-PRS***Indicates P0 value for DL pathloss based open loop power control for SL PRS transmission in dedicated SL PRS resource pool. |
| ***dl-AlphaSL-PRS***Indicates alpha value for DL pathloss based open loop power control for SL PRS transmission in dedicated SL PRS resource pool.  |
| ***sl-P0-SL-PRS***Indicates P0 value for SL pathloss based open loop power control for SL PRS transmission in dedicated SL PRS resource pool. |
| ***sl-AlphaSL-PRS***Indicates alpha value for downlink pathloss based power control for PSCCH/PSSCH when *dl-P0-PSSCH-PSCCH* is configured. When the field is absent the UE applies the value 1. |

– *SL-PSBCH-Config*

The IE *SL-PSBCH-Config* indicates PSBCH transmission parameters on each sidelink bandwidth part.

***SL-PSBCH-Config* information element**

-- ASN1START

-- TAG-SL-PSBCH-CONFIG-START

SL-PSBCH-Config-r16 ::= SEQUENCE {

 dl-P0-PSBCH-r16 INTEGER (-16..15) OPTIONAL, -- Need M

 dl-Alpha-PSBCH-r16 ENUMERATED {alpha0, alpha04, alpha05, alpha06, alpha07, alpha08, alpha09, alpha1} OPTIONAL, -- Need M

 ...,

 [[

 dl-P0-PSBCH-r17 INTEGER (-202..24) OPTIONAL -- Need M

 ]]

}

-- TAG-SL-PSBCH-CONFIG-STOP

-- ASN1STOP

| *SL-PSBCH-Config* field descriptions |
| --- |
| ***dl-Alpha-PSBCH***Indicates alpha value for DL pathloss based power control for PSBCH. When the field is not configured the UE applies the value 1. |
| ***dl-P0-PSBCH***Indicates P0 value for DL pathloss based power control for PSBCH. If not configured, DL pathloss based power control is disabled for PSBCH. When *dl-P0-PSBCH-r17* is configured, the UE ignores *dl-P0-PSBCH-r16*.A Remote UE which is out of coverage, considers downlink pathloss based power control is disabled for PSBCH when *dl-P0-PSBCH* is configured. |

#### – *SL-PSSCH-TxConfigList*

The IE *SL-PSSCH-TxConfigList* indicates PSSCH transmission parameters. When lower layers select parameters from the range indicated in IE *SL-PSSCH-TxConfigList*, the UE considers both configurations in IE *SL-PSSCH-TxConfigList* and the CBR-dependent configurations represented in IE *SL-CBR-PriorityTxConfigList*. Only one IE *SL-PSSCH-TxConfig* is provided per *SL-TypeTxSync*.

*SL-PSSCH-TxConfigList* information element

-- ASN1START

-- TAG-SL-PSSCH-TXCONFIGLIST-START

SL-PSSCH-TxConfigList-r16 ::= SEQUENCE (SIZE (1..maxPSSCH-TxConfig-r16)) OF SL-PSSCH-TxConfig-r16

SL-PSSCH-TxConfig-r16 ::= SEQUENCE {

 sl-TypeTxSync-r16 SL-TypeTxSync-r16 OPTIONAL, -- Need R

 sl-ThresUE-Speed-r16 ENUMERATED {kmph60, kmph80, kmph100, kmph120,

 kmph140, kmph160, kmph180, kmph200},

 sl-ParametersAboveThres-r16 SL-PSSCH-TxParameters-r16,

 sl-ParametersBelowThres-r16 SL-PSSCH-TxParameters-r16,

 ...,

 [[

 sl-ParametersAboveThres-v1650 SL-MinMaxMCS-List-r16 OPTIONAL, -- Need R

 sl-ParametersBelowThres-v1650 SL-MinMaxMCS-List-r16 OPTIONAL -- Need R

 ]]

}

SL-PSSCH-TxParameters-r16 ::= SEQUENCE {

 sl-MinMCS-PSSCH-r16 INTEGER (0..27),

 sl-MaxMCS-PSSCH-r16 INTEGER (0..31),

 sl-MinSubChannelNumPSSCH-r16 INTEGER (1..27),

 sl-MaxSubchannelNumPSSCH-r16 INTEGER (1..27),

 sl-MaxTxTransNumPSSCH-r16 INTEGER (1..32),

 sl-MaxTxPower-r16 SL-TxPower-r16 OPTIONAL -- Cond CBR

}

-- TAG-SL-PSSCH-TXCONFIGLIST-STOP

-- ASN1STOP

| *SL-PSSCH-TxConfigList* field descriptions |
| --- |
| ***sl-MaxTxTransNumPSSCH***Indicates the maximum transmission number (including new transmission and retransmission) for PSSCH. |
| ***sl-MaxTxPower***This field indicates the maximum transmission power for transmission on PSSCH and PSCCH. |
| ***sl-MinMCS-PSSCH, sl-MaxMCS-PSSCH***This field indicates the minimum and maximum MCS values used for transmissions on PSSCH. The UE shall ignore the minimum and maximum MCS values used for the associated MCS table(s) in *sl-ParametersAboveThres-r16* and *sl-ParametersBelowThres-r16* if *sl-ParametersAboveThres-v1650* and *sl-ParametersBelowThres-v1650*are present, respectively. |
| ***sl-MinSubChannelNumPSSCH, sl-MaxSubChannelNumPSSCH***This field indicates the minimum and maximum number of sub-channels which may be used for transmissions on PSSCH. |
| ***sl-TypeTxSync***This field indicates the synchronization reference type. For configurations by the eNB/gNB, only *gnbEnb* can be configured; and for pre-configuration or when this field is absent, the configuration is applicable for all synchronization reference types.  |
| ***sl-ThresUE-Speed***This field indicates a UE absolute speed threshold. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *CBR* | The field is optionally present, Need R, when the IE *SL-PSSCH-TxParameters* is present in *SL-CBR-CommonTxConfigList,* *SL-UE-SelectedConfig,* *SIB12* or *SidelinkPreconfigNR*; otherwise the field is not present, need R. |

#### – *SL-QoS-FlowIdentity*

The IE *SL-QoS-FlowIdentity* is used to identify a sidelink QoS flow.

*SL-QoS-FlowIdentity* information element

-- ASN1START

-- TAG-SL-QOS-FLOWIDENTITY-START

SL-QoS-FlowIdentity-r16 ::= INTEGER (1..maxNrofSL-QFIs-r16)

-- TAG-SL-QOS-FLOWIDENTITY-STOP

-- ASN1STOP

#### – *SL-QoS-Profile*

The IE *SL-QoS-Profile* is used to give the QoS parameters for a sidelink QoS flow. Need codes or conditions specified for *SL-QoS-Profile* do not apply, in case *SL-QoS-Profile* is included in *SidelinkUEInformationNR*.

*SL-QoS-Profile* information element

-- ASN1START

-- TAG-SL-QOS-PROFILE-START

SL-QoS-Profile-r16 ::= SEQUENCE {

 sl-PQI-r16 SL-PQI-r16 OPTIONAL, -- Need R

 sl-GFBR-r16 INTEGER (0..4000000000) OPTIONAL, -- Need R

 sl-MFBR-r16 INTEGER (0..4000000000) OPTIONAL, -- Need R

 sl-Range-r16 INTEGER (1..1000) OPTIONAL, -- Need R

 ...

}

SL-PQI-r16 ::= CHOICE {

 sl-StandardizedPQI-r16 INTEGER (0..255),

 sl-Non-StandardizedPQI-r16 SEQUENCE {

 sl-ResourceType-r16 ENUMERATED {gbr, non-GBR, delayCriticalGBR, spare1} OPTIONAL, -- Need R

 sl-PriorityLevel-r16 INTEGER (1..8) OPTIONAL, -- Need R

 sl-PacketDelayBudget-r16 INTEGER (0..1023) OPTIONAL, -- Need R

 sl-PacketErrorRate-r16 INTEGER (0..9) OPTIONAL, -- Need R

 sl-AveragingWindow-r16 INTEGER (0..4095) OPTIONAL, -- Need R

 sl-MaxDataBurstVolume-r16 INTEGER (0..4095) OPTIONAL, -- Need R

 ...

 }

}

-- TAG-SL-QOS-PROFILE-STOP

-- ASN1STOP

| *SL-QoS-Profile* field descriptions |
| --- |
| ***sl-GFBR***Indicate the guaranteed bit rate for a GBR QoS flow. The unit is: Kbit/s |
| ***sl-MFBR***Indicate the maximum bit rate for a GBR QoS flow. The unit is: Kbit/s |
| ***sl-PQI***This field indicates either the PQI for standardized PQI or non-standardized QoS parameters. |
| ***sl-Range***This field indicates the range parameter of the Qos flow, as defined in clause 5.4.1.1.1, TS 23.287 [55]. It is present only for groupcast. The unit is meter. |

| *SL-PQI* field descriptions |
| --- |
| ***sl-AveragingWindow***Indicates the Averaging Window for a QoS flow, and applies to GBR QoS flows only. Unit: ms. The default value of the IE is 2000ms. |
| ***sl-MaxDataBurstVolume***Indicates the Maximum Data Burst Volume for a QoS flow, and applies to delay critical GBR QoS flows only. Unit: byte. |
| ***sl-PacketDelayBudget***Indicates the Packet Delay Budget for a QoS flow. Upper bound value for the delay that a packet may experience expressed in unit of 0.5ms. |
| ***sl-PacketErrorRate***Indicates the Packet Error Rate for a QoS flow. The packet error rate is expressed as Scalar x 10-k where k is the Exponent. |
| ***sl-PriorityLevel***Indicates the Priority Level for a QoS flow. Values ordered in decreasing order of priority, i.e. with 1 as the highest priority and 8 as the lowest priority. |
| ***sl-StandardizedPQI***Indicate the PQI for standardized PQI. |

#### – *SL-QuantityConfig*

The IE *SL*-*QuantityConfig* specifies the layer 3 filtering coefficients for NR SL RSRP measurement for a destination.

*SL-QuantityConfig* information element

-- ASN1START

-- TAG-SL-QUANTITYCONFIG-START

SL-QuantityConfig-r16 ::= SEQUENCE {

 sl-FilterCoefficientDMRS-r16 FilterCoefficient DEFAULT fc4,

 ...

}

-- TAG-SL-QuantityConfig-STOP

-- ASN1STOP

| *SL-QuantityConfig* field descriptions |
| --- |
| ***sl-FilterCoefficientDMRS***DMRS based L3 filter configuration:Specifies L3 filter configuration for sidelink RSRP measurement result from the L1 fiter(s), as defined in TS 38.215 [9]. |

#### – *SL-RadioBearerConfig*

The IE *SL-RadioBearerConfig* specifies the sidelink DRB configuration information for NR sidelink communication.

*SL-RadioBearerConfig* information element

-- ASN1START

-- TAG-SL-RADIOBEARERCONFIG-START

SL-RadioBearerConfig-r16 ::= SEQUENCE {

 slrb-Uu-ConfigIndex-r16 SLRB-Uu-ConfigIndex-r16,

 sl-SDAP-Config-r16 SL-SDAP-Config-r16 OPTIONAL, -- Cond SLRBSetup

 sl-PDCP-Config-r16 SL-PDCP-Config-r16 OPTIONAL, -- Cond SLRBSetup

 sl-TransRange-r16 ENUMERATED {m20, m50, m80, m100, m120, m150, m180, m200, m220, m250, m270, m300, m350, m370,

 m400, m420, m450, m480, m500, m550, m600, m700, m1000, spare9, spare8, spare7, spare6,

 spare5, spare4, spare3, spare2, spare1} OPTIONAL, -- Need R

 ...

}

-- TAG-SL-RADIOBEARERCONFIG-STOP

-- ASN1STOP

| *SL-RadioBearerConfig* field descriptions |
| --- |
| ***sl-PDCP-Config***This field indicates the PDCP parameters for the sidelink DRB. |
| ***sl-SDAP-Config***This field indicates how to map sidelink QoS flows to sidelink DRB. |
| ***slrb-Uu-ConfigIndex***This field indicates the index of sidelink DRB configuration. |
| ***sl-TransRange***This field indicates the transmission range of the sidelink DRB. The unit is meter. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *SLRBSetup* | The field is mandatory present in case of sidelink DRB setup via the dedicated signalling and in case of sidelink DRB configuration via system information and pre-configuration; otherwise the field is optionally present, need M. |

#### – *SL-RBSetConfig*

The IE SL-RBSetConfig specifies the configuration information for RB set for NR Sidelink Communication.

*SL-RBSetConfig* information element

-- ASN1START

-- TAG-SL-RBSETCONFIG-START

SL-RBSetConfig-r18 ::= SEQUENCE {

 sl-RBSetIndex-r18 INTEGER (0..4),

 sl-NumOfSSSBRepetition-r18 INTEGER (2..9) OPTIONAL, -- Need R

 sl-GapBetweenSSSBRepetition-r18 INTEGER (1..84) OPTIONAL -- Need R

}

-- TAG-SL-RBSETCONFIG-STOP

-- ASN1STOP

| *SL-RBSetConfig* field descriptions |
| --- |
| ***sl-GapBetweenSSSBRepetition***Indicate the gap between two adjacent S-SSB repetitions in frequency domain in one RB set, and the gap is between the lowest subcarrier of the upper PSBCH and the highest subcarrier of the lower PSBCH. The Unit is PRB. |
| ***sl-NumOfSSSBRepetition***Indicate the number of S-SSB repetitions in frequency domain in one RB set. S-SSB in the frequency domain indicated by *sl-AbsoluteFrequencySSB* (i.e. S-SSB transmission without repetition) is applicable in region with no OCB requirement, or with OCB exemption. |
| ***sl-RBSetIndex***Indicates the index of RB-set for which the configuration applies. |

#### – *SL-RelayIndicationMP*

The IE *SL-RelayIndicationMP* is used to indicate the L2 U2N Relay UE supporting RRC connection establishment/resume for MP operation triggered by receiving *RemoteUEInformationSidelink* containing the *connectionForMP* as specified in 5.3.3.1a and 5.3.13.1a in Rel-18.

*SL-RelayIndicationMP* information element

-- ASN1START

-- TAG-SL-RELAYINDICATIONMP-START

SL-RelayIndicationMP-r18 ::= ENUMERATED {support}

-- TAG-SL-RELAYINDICATIONMP-STOP

-- ASN1STOP

– *SL-RelayUE-Config*

The IE *SL-RelayUE-Config* specifies the configuration information for NR sidelink U2N Relay UE.

*SL-RelayUE-Config* information element

-- ASN1START

-- TAG-SL-RELAYUE-CONFIG-START

SL-RelayUE-Config-r17::= SEQUENCE {

 threshHighRelay-r17 RSRP-Range OPTIONAL, -- Need R

 threshLowRelay-r17 RSRP-Range OPTIONAL, -- Need R

 hystMaxRelay-r17 Hysteresis OPTIONAL, -- Cond ThreshHighRelay

 hystMinRelay-r17 Hysteresis OPTIONAL -- Cond ThreshLowRelay

}

-- TAG-SL-RELAYUE-CONFIG-STOP

-- ASN1STOP

| *SL-RelayUE-Config* field descriptions |
| --- |
| ***threshHighRelay***Indicates the upper threshold of Uu RSRP for a UE that is in network coverage to evaluate AS layer conditions for U2N relay UE operation. |
| ***threshLowRelay***Indicates the lower threshold of Uu RSRP for a UE that is in network coverage to evaluate AS layer conditions for U2N relay UE operation. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *ThreshHighRelay* | This field is mandatory present if threshHighRelay is included. Otherwise, the field is absent, Need R. |
| *ThreshLowRelay* | This field is mandatory present if threshLowRelay is included. Otherwise, the field is absent, Need R. |

#### – *SL-RelayUE-ConfigU2U*

The IE *SL-RelayUE-ConfigU2U* specifies the threshold configuration information for NR sidelink U2U Relay UE.

*SL-RelayUE-ConfigU2U* information element

-- ASN1START

-- TAG-SL-RELAYUE-CONFIGU2U-START

SL-RelayUE-ConfigU2U-r18::= SEQUENCE {

 sl-RSRP-Thresh-DiscConfig-r18 SL-RSRP-Range-r16 OPTIONAL, -- Need R

 sd-RSRP-ThreshDiscConfig-r18 SL-RSRP-Range-r16 OPTIONAL, -- Need R

 sd-hystMaxRelay-r18 Hysteresis OPTIONAL -- Cond SD-RSRP-ThreshRelay

}

-- TAG-SL-RELAYUE-CONFIGU2U-STOP

-- ASN1STOP

| *SL-RelayUE-ConfigU2U* field descriptions |
| --- |
| ***sl-RSRP-Thresh-DiscConfig***Indicates the threshold of SL-RSRP for a U2U Relay UE to evaluate AS layer conditions for discovery. The U2U relay UE applies the value of this field to decide which UE(s) can be announced as proximity UE(s) in the discovery message when performing U2U Relay Discovery with Model A, and decide whether to forward the discovery message when performing the U2U Relay Discovery with Model B as specified in [65].  |
| ***sd-RSRP-ThreshDiscConfig***Indicates the threshold of SD-RSRP for a U2U Relay UE to evaluate AS layer conditions for discovery. The U2U relay UE applies the value of this field to evaluate AS layer conditions to decide which UE(s) can be announced as proximity UE(s) in the discovery message when performing U2U Relay Discovery with Model A, and decide whether to forward the discovery message when performing the U2U Relay Discovery with Model B or U2U relay communication with integrated Discovery as specified in TS 23.304 [65]. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *SL-RSRP-ThreshRelay* | This field is mandatory present if *sl-RSRP-Thresh-DiscConfig* is included. Otherwise, the field is absent, Need R. |
| *SD-RSRP-ThreshRelay* | This field is mandatory present if *sd-RSRP-ThreshDiscConfig* is included. Otherwise, the field is absent, Need R. |

#### – *SL-RemoteUE-Config*

The IE *SL-RemoteUE-Config* specifies the configuration information for NR sidelink U2N Remote UE.

*SL-RemoteUE-Config* information element

-- ASN1START

-- TAG-SL-REMOTEUE-CONFIG-START

SL-RemoteUE-Config-r17::= SEQUENCE {

 threshHighRemote-r17 RSRP-Range OPTIONAL, -- Need R

 hystMaxRemote-r17 Hysteresis OPTIONAL, -- Cond ThreshHighRemote

 sl-ReselectionConfig-r17 SL-ReselectionConfig-r17 OPTIONAL -- Need R

}

SL-ReselectionConfig-r17::= SEQUENCE {

 sl-RSRP-Thresh-r17 SL-RSRP-Range-r16 OPTIONAL, -- Need R

 sl-FilterCoefficientRSRP-r17 FilterCoefficient OPTIONAL, -- Need R

 sl-HystMin-r17 Hysteresis OPTIONAL -- Cond SL-RSRP-Thresh

}

-- TAG-SL-REMOTEUE-CONFIG-STOP

-- ASN1STOP

| *SL-RemoteUE-Config* field descriptions |
| --- |
| ***sl-ReselectionConfig***Includes the parameters used by the U2N remote UE when selecting/ reselecting a U2N relay UE. |
| ***thresHighRemote***Indicates the threshold of Uu RSRP for a UE that is in network coverage to evaluate AS layer conditions for U2N remote UE operation. |

| *SL-ReselectionConfig* field descriptions |
| --- |
| ***sl-FilterCoefficientRSRP***Specifies L3 filter coefficient for SL communication/ discovery RSRP measurement results from L1 filter. |
| ***sl-RSRP-Thresh***Indicates the threshold of SL communication/ discovery RSRP for a U2N remote UE to perform relay UE selection/ reselection. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *SL-RSRP-Thresh* | This field is mandatory present if *sl-RSRP-Thresh* is included. Otherwise, the field is absent, Need R. |
| *ThreshHighRemote* | This field is mandatory present if threshHighRemote is included. Otherwise, the field is absent, Need R. |

#### *– SL-RemoteUE-ConfigU2U*

The IE *SL-RemoteUE-ConfigU2U* specifies the threshold configuration information for NR sidelink U2U Remote UE.

*SL-RemoteUE-ConfigU2U* information element

-- ASN1START

-- TAG-SL-REMOTEUE-CONFIGU2U-START

SL-RemoteUE-ConfigU2U-r18::= SEQUENCE {

 sl-RSRP-ThreshU2U-r18 SL-RSRP-Range-r16 OPTIONAL, -- Need R

 sl-HystMinU2U-r18 Hysteresis OPTIONAL, -- Cond SL-RSRP-ThreshU2U

 sd-RSRP-ThreshU2U-r18 SL-RSRP-Range-r16 OPTIONAL, -- Need R

 sd-FilterCoefficientU2U-r18 FilterCoefficient OPTIONAL, -- Need R

 sd-HystMinU2U-r18 Hysteresis OPTIONAL -- Cond SD-RSRP-ThreshU2U

}

-- TAG-SL-REMOTEUE-CONFIGU2U-STOP

-- ASN1STOP

| *SL-RemoteUE-ConfigU2U* field descriptions |
| --- |
| ***sl-RSRP-ThreshU2U***Indicates the threshold of SL-RSRP for a U2U Remote UE to perform Relay UE selection/ reselection. The U2U remote UE applies the value of this field to evaluate AS layer conditions on direct PC5 link with the peer U2U Remote UE to trigger relay selection, and evaluate AS layer conditions on U2U relay link with U2U Relay UE to trigger relay reselection. |
| ***sd-RSRP-ThreshU2U***Indicates the threshold of SD-RSRP for a U2U Remote UE to perform discovery and Relay UE selection/ reselection. For discovery, the U2U Remote UE applies the value of this field to evaluate AS layer conditions to decide whether to respond the discovery message when performing the U2U Relay Discovery with Model B as specified in TS 23.304 [65]. For relay selection and reselection, the U2U remote UE applies the value of this field to evaluate AS layer conditions on direct PC5 link to trigger relay selection, and evaluate AS layer conditions on U2U relay link to trigger relay reselection. The target U2U remote UE applies the value of this field to evaluate AS layer conditions trigger relay selection when performing U2U relay communication with integrated Discovery as specified in TS 23.304 [65].  |
| ***sd-FilterCoefficientU2U***Specifies L3 filter coefficient for SD-RSRP measurement results from L1 filter, and for SL-RSRP measurement when performing U2U Relay Communication with integrated Discovery. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *SL-RSRP-ThreshU2U* | This field is mandatory present if *sl-RSRP-ThreshU2U* is included. Otherwise, the field is absent, Need R. |
| *SD-RSRP-ThreshU2U* | This field is mandatory present if *sd-RSRP-ThreshU2U* is included. Otherwise, the field is absent, Need R. |

#### – *SL-ReportConfigList*

The IE *SL*-*ReportConfigList* concerns a list of SL measurement reporting configurations to add or modify for a destination.

*SL-ReportConfigList* information element

-- ASN1START

-- TAG-SL-REPORTCONFIGLIST-START

SL-ReportConfigList-r16 ::= SEQUENCE (SIZE (1..maxNrofSL-ReportConfigId-r16)) OF SL-ReportConfigInfo-r16

SL-ReportConfigInfo-r16 ::= SEQUENCE {

 sl-ReportConfigId-r16 SL-ReportConfigId-r16,

 sl-ReportConfig-r16 SL-ReportConfig-r16,

 ...

}

SL-ReportConfigId-r16 ::= INTEGER (1..maxNrofSL-ReportConfigId-r16)

SL-ReportConfig-r16 ::= SEQUENCE {

 sl-ReportType-r16 CHOICE {

 sl-Periodical-r16 SL-PeriodicalReportConfig-r16,

 sl-EventTriggered-r16 SL-EventTriggerConfig-r16,

 ...

 },

 ...

}

SL-PeriodicalReportConfig-r16 ::= SEQUENCE {

 sl-ReportInterval-r16 ReportInterval,

 sl-ReportAmount-r16 ENUMERATED {r1, r2, r4, r8, r16, r32, r64, infinity},

 sl-ReportQuantity-r16 SL-MeasReportQuantity-r16,

 sl-RS-Type-r16 SL-RS-Type-r16,

 ...

}

SL-EventTriggerConfig-r16 ::= SEQUENCE {

 sl-EventId-r16 CHOICE {

 eventS1-r16 SEQUENCE {

 s1-Threshold-r16 SL-MeasTriggerQuantity-r16,

 sl-ReportOnLeave-r16 BOOLEAN,

 sl-Hysteresis-r16 Hysteresis,

 sl-TimeToTrigger-r16 TimeToTrigger,

 ...

 },

 eventS2-r16 SEQUENCE {

 s2-Threshold-r16 SL-MeasTriggerQuantity-r16,

 sl-ReportOnLeave-r16 BOOLEAN,

 sl-Hysteresis-r16 Hysteresis,

 sl-TimeToTrigger-r16 TimeToTrigger,

 ...

 },

 ...

 },

 sl-ReportInterval-r16 ReportInterval,

 sl-ReportAmount-r16 ENUMERATED {r1, r2, r4, r8, r16, r32, r64, infinity},

 sl-ReportQuantity-r16 SL-MeasReportQuantity-r16,

 sl-RS-Type-r16 SL-RS-Type-r16,

 ...

}

SL-MeasReportQuantity-r16 ::= CHOICE {

 sl-RSRP-r16 BOOLEAN,

 ...

}

SL-MeasTriggerQuantity-r16 ::= CHOICE {

 sl-RSRP-r16 RSRP-Range,

 ...

}

SL-RS-Type-r16 ::= ENUMERATED {dmrs, sl-prs, spare2, spare1}

-- TAG-SL-REPORTCONFIGLIST-STOP

-- ASN1STOP

| *SL-ReportConfig* field descriptions |
| --- |
| ***sl-ReportType***Type of the configured sidelink measurement report. |

| *SL-EventTriggerConfig* field descriptions |
| --- |
| ***sl-EventId***Choice of sidelink measurement event triggered reporting criteria. |
| ***sl-ReportAmount***Number of sidelink measurement reports applicable for *sl-EventTriggered* report type. |
| ***sl-ReportInterval***Indicates the interval between periodical reports (i.e., when *sl-ReportAmount* exceeds 1) for *sl-EventTriggered* report type. |
| ***sl-ReportOnLeave***indicates whether or not the UE shall initiate the sidelink measurement reporting procedure when the leaving condition is met for a frequency in *sl-FrequencyTriggeredList*, as specified in 5.8.10.4.1. |
| ***sl-ReportQuantity***The sidelink measurement quantities to be included in the sidelink measurement report. |
| ***sl-TimeToTrigger***Time during which specific criteria for the event needs to be met in order to trigger a sidelink measurement report. |
| ***sN-Threshold***Threshold used for events S1 and S2 specified in clauses 5.8.10.4.2 and 5.8.10.4.3, respectively. |

| *SL-PeriodicalReportConfig* field descriptions |
| --- |
| ***sl-ReportAmount***Number of sidelink measurement reports applicable for *sl-Periodical* report type. |
| ***sl-ReportInterval***Indicates the interval between periodical reports (i.e., when *sl-ReportAmount* exceeds 1) for *sl-Periodical* report type. |
| ***sl-ReportQuantity***The sidelink measurement quantities to be included in the sidelink measurement report. |

#### – *SL-ResourcePool*

The IE *SL-ResourcePool* specifies the configuration information for NR sidelink communication resource pool.

*SL-ResourcePool* information element

-- ASN1START

-- TAG-SL-RESOURCEPOOL-START

SL-ResourcePool-r16 ::= SEQUENCE {

 sl-PSCCH-Config-r16 SetupRelease { SL-PSCCH-Config-r16 } OPTIONAL, -- Need M

 sl-PSSCH-Config-r16 SetupRelease { SL-PSSCH-Config-r16 } OPTIONAL, -- Need M

 sl-PSFCH-Config-r16 SetupRelease { SL-PSFCH-Config-r16 } OPTIONAL, -- Need M

 sl-SyncAllowed-r16 SL-SyncAllowed-r16 OPTIONAL, -- Need M

 sl-SubchannelSize-r16 ENUMERATED {n10, n12, n15, n20, n25, n50, n75, n100} OPTIONAL, -- Need M

 dummy INTEGER (10..160) OPTIONAL, -- Need M

 sl-StartRB-Subchannel-r16 INTEGER (0..265) OPTIONAL, -- Need M

 sl-NumSubchannel-r16 INTEGER (1..27) OPTIONAL, -- Need M

 sl-Additional-MCS-Table-r16 ENUMERATED {qam256, qam64LowSE, qam256-qam64LowSE } OPTIONAL, -- Need M

 sl-ThreshS-RSSI-CBR-r16 INTEGER (0..45) OPTIONAL, -- Need M

 sl-TimeWindowSizeCBR-r16 ENUMERATED {ms100, slot100} OPTIONAL, -- Need M

 sl-TimeWindowSizeCR-r16 ENUMERATED {ms1000, slot1000} OPTIONAL, -- Need M

 sl-PTRS-Config-r16 SL-PTRS-Config-r16 OPTIONAL, -- Need M

 sl-UE-SelectedConfigRP-r16 SL-UE-SelectedConfigRP-r16 OPTIONAL, -- Need M

 sl-RxParametersNcell-r16 SEQUENCE {

 sl-TDD-Configuration-r16 TDD-UL-DL-ConfigCommon OPTIONAL, -- Need M

 sl-SyncConfigIndex-r16 INTEGER (0..15)

 } OPTIONAL, -- Need M

 sl-ZoneConfigMCR-List-r16 SEQUENCE (SIZE (16)) OF SL-ZoneConfigMCR-r16 OPTIONAL, -- Need M

 sl-FilterCoefficient-r16 FilterCoefficient OPTIONAL, -- Need M

 sl-RB-Number-r16 INTEGER (10..275) OPTIONAL, -- Need M

 sl-PreemptionEnable-r16 ENUMERATED {enabled, pl1, pl2, pl3, pl4, pl5, pl6, pl7, pl8} OPTIONAL, -- Need R

 sl-PriorityThreshold-UL-URLLC-r16 INTEGER (1..9) OPTIONAL, -- Need M

 sl-PriorityThreshold-r16 INTEGER (1..9) OPTIONAL, -- Need M

 sl-X-Overhead-r16 ENUMERATED {n0,n3, n6, n9} OPTIONAL, -- Need S

 sl-PowerControl-r16 SL-PowerControl-r16 OPTIONAL, -- Need M

 sl-TxPercentageList-r16 SL-TxPercentageList-r16 OPTIONAL, -- Need M

 sl-MinMaxMCS-List-r16 SL-MinMaxMCS-List-r16 OPTIONAL, -- Need M

 ...,

 [[

 sl-TimeResource-r16 BIT STRING (SIZE (10..160)) OPTIONAL -- Need M

 ]],

 [[

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

 sl-InterUE-CoordinationConfig-r17 SetupRelease { SL-InterUE-CoordinationConfig-r17 } OPTIONAL -- Need M

 ]],

 [[

 sl-CPE-StartingPositionsPSCCH-PSSCH-InitiateCOT-List-r18

 SetupRelease { SL-CPE-StartingPositionsPSCCH-PSSCH-List-r18 } OPTIONAL, -- Need M

 sl-CPE-StartingPositionsPSCCH-PSSCH-InitiateCOT-Default-r18 INTEGER (1..9) OPTIONAL, -- Need M

 sl-CPE-StartingPositionsPSCCH-PSSCH-WithinCOT-List-r18

 SetupRelease { SL-CPE-StartingPositionsPSCCH-PSSCH-List-r18 } OPTIONAL, -- Need M

 sl-CPE-StartingPositionsPSCCH-PSSCH-WithinCOT-Default-r18 INTEGER (1..9) OPTIONAL, -- Need M

 sl-Type1-LBT-BlockingOption1-r18 ENUMERATED {enabled} OPTIONAL, -- Need R

 sl-Type1-LBT-BlockingOption2-r18 ENUMERATED {enabled} OPTIONAL, -- Need R

 sl-NumInterlacePerSubchannel-r18 ENUMERATED {sc1, sc2} OPTIONAL, -- Need M

 sl-NumReferencePRBs-OfInterlace-r18 ENUMERATED {prb10, prb11} OPTIONAL, -- Need M

 sl-TransmissionStructureForPSFCH-r18 ENUMERATED {commonInterlace, dedicatedInterlace} OPTIONAL, -- Need M

 sl-NumDedicatedPRBs-ForPSFCH-r18 ENUMERATED {prb1, prb2, prb5} OPTIONAL, -- Need M

 sl-NumPSFCH-Occasions-r18 ENUMERATED {o1, o2, o3, o4} OPTIONAL, -- Need M

 sl-PSFCH-CommonInterlaceIndex-r18 INTEGER (0..9) OPTIONAL, -- Need M

 sl-CPE-StartingPositionPSFCH-r18 INTEGER (1..9) OPTIONAL, -- Need M

 sl-NumRefSymbolLength-r18 ENUMERATED {sym7, sym8, sym9, sym10, sym11, sym12, sym13, sym14} OPTIONAL, -- Need M

 sl-PSFCH-RB-SetList-r18 SEQUENCE (SIZE (1..4)) OF BIT STRING (SIZE (10..275)) OPTIONAL, -- Need M

 sl-IUC-RB-SetList-r18 SEQUENCE (SIZE (1..4)) OF BIT STRING (SIZE (10..275)) OPTIONAL, -- Need M

 sl-PSFCH-PowerOffset-r18 INTEGER (0..10) OPTIONAL, -- Need M

 sl-RBSetIndexOfResourcePool-r18 SEQUENCE (SIZE (1..5)) OF INTEGER (0..4) OPTIONAL, -- Need M

 sl-A2X-Service-r18 ENUMERATED {brid, daa, bridAndDAA, spare1} OPTIONAL, -- Cond A2X

 sl-PRS-ResourcesSharedSL-PRS-RP-r18 SEQUENCE (SIZE (1..17)) OF SL-PRS-ResourceSharedSL-PRS-RP-r18 OPTIONAL, -- Need M

 numSym-SL-PRS-2ndStageSCI-r18 INTEGER (1..4) OPTIONAL, -- Need M

 sl-SCI-based-SL-PRS-Tx-Trigger-SCI2-D-r18 BOOLEAN OPTIONAL -- Need M

 ]]

}

SL-CPE-StartingPositionsPSCCH-PSSCH-List-r18 ::= SEQUENCE (SIZE (8)) OF SL-CPE-StartingPositionsPSCCH-PSSCH-r18

SL-CPE-StartingPositionsPSCCH-PSSCH-r18 ::= SEQUENCE {

 sl-Priority-r18 INTEGER (1..8),

 sl-CPE-StartingPositions-r18 SEQUENCE (SIZE (1..9)) OF INTEGER (1..9)

}

SL-ZoneConfigMCR-r16 ::= SEQUENCE {

 sl-ZoneConfigMCR-Index-r16 INTEGER (0..15),

 sl-TransRange-r16 ENUMERATED {m20, m50, m80, m100, m120, m150, m180, m200, m220, m250, m270, m300, m350,

 m370, m400, m420, m450, m480, m500, m550, m600, m700, m1000, spare9, spare8,

 spare7, spare6, spare5, spare4, spare3, spare2, spare1}

 OPTIONAL, -- Need M

 sl-ZoneConfig-r16 SL-ZoneConfig-r16 OPTIONAL, -- Need M

 ...

}

SL-SyncAllowed-r16 ::= SEQUENCE {

 gnss-Sync-r16 ENUMERATED {true} OPTIONAL, -- Need R

 gnbEnb-Sync-r16 ENUMERATED {true} OPTIONAL, -- Need R

 ue-Sync-r16 ENUMERATED {true} OPTIONAL -- Need R

}

SL-PSCCH-Config-r16 ::= SEQUENCE {

 sl-TimeResourcePSCCH-r16 ENUMERATED {n2, n3} OPTIONAL, -- Need M

 sl-FreqResourcePSCCH-r16 ENUMERATED {n10,n12, n15, n20, n25} OPTIONAL, -- Need M

 sl-DMRS-ScrambleID-r16 INTEGER (0..65535) OPTIONAL, -- Need M

 sl-NumReservedBits-r16 INTEGER (2..4) OPTIONAL, -- Need M

 ...

}

SL-PSSCH-Config-r16 ::= SEQUENCE {

 sl-PSSCH-DMRS-TimePatternList-r16 SEQUENCE (SIZE (1..3)) OF INTEGER (2..4) OPTIONAL, -- Need M

 sl-BetaOffsets2ndSCI-r16 SEQUENCE (SIZE (4)) OF SL-BetaOffsets-r16 OPTIONAL, -- Need M

 sl-Scaling-r16 ENUMERATED {f0p5, f0p65, f0p8, f1} OPTIONAL, -- Need M

 ...

}

SL-PSFCH-Config-r16 ::= SEQUENCE {

 sl-PSFCH-Period-r16 ENUMERATED {sl0, sl1, sl2, sl4} OPTIONAL, -- Need M

 sl-PSFCH-RB-Set-r16 BIT STRING (SIZE (10..275)) OPTIONAL, -- Need M

 sl-NumMuxCS-Pair-r16 ENUMERATED {n1, n2, n3, n6} OPTIONAL, -- Need M

 sl-MinTimeGapPSFCH-r16 ENUMERATED {sl2, sl3} OPTIONAL, -- Need M

 sl-PSFCH-HopID-r16 INTEGER (0..1023) OPTIONAL, -- Need M

 sl-PSFCH-CandidateResourceType-r16 ENUMERATED {startSubCH, allocSubCH} OPTIONAL, -- Need M

 ...

}

SL-PTRS-Config-r16 ::= SEQUENCE {

 sl-PTRS-FreqDensity-r16 SEQUENCE (SIZE (2)) OF INTEGER (1..276) OPTIONAL, -- Need M

 sl-PTRS-TimeDensity-r16 SEQUENCE (SIZE (3)) OF INTEGER (0..29) OPTIONAL, -- Need M

 sl-PTRS-RE-Offset-r16 ENUMERATED {offset01, offset10, offset11} OPTIONAL, -- Need M

 ...

}

SL-UE-SelectedConfigRP-r16 ::= SEQUENCE {

 sl-CBR-PriorityTxConfigList-r16 SL-CBR-PriorityTxConfigList-r16 OPTIONAL, -- Need M

 sl-Thres-RSRP-List-r16 SL-Thres-RSRP-List-r16 OPTIONAL, -- Need M

 sl-MultiReserveResource-r16 ENUMERATED {enabled} OPTIONAL, -- Need M

 sl-MaxNumPerReserve-r16 ENUMERATED {n2, n3} OPTIONAL, -- Need M

 sl-SensingWindow-r16 ENUMERATED {ms100, ms1100} OPTIONAL, -- Need M

 sl-SelectionWindowList-r16 SL-SelectionWindowList-r16 OPTIONAL, -- Need M

 sl-ResourceReservePeriodList-r16 SEQUENCE (SIZE (1..16)) OF SL-ResourceReservePeriod-r16 OPTIONAL, -- Need M

 sl-RS-ForSensing-r16 ENUMERATED {pscch, pssch},

 ...,

 [[

 sl-CBR-PriorityTxConfigList-v1650 SL-CBR-PriorityTxConfigList-v1650 OPTIONAL -- Need M

 ]],

 [[

 sl-NRPSSCH-EUTRA-ThresRSRP-List-r18 SL-Thres-RSRP-List-r16 OPTIONAL, -- Need S

 sl-NRPSFCH-EUTRA-ThresRSRP-List-r18 SL-Thres-RSRP-List-r16 OPTIONAL -- Need S

 ]]

}

SL-ResourceReservePeriod-r16 ::= CHOICE {

 sl-ResourceReservePeriod1-r16 ENUMERATED {ms0, ms100, ms200, ms300, ms400, ms500, ms600, ms700, ms800, ms900, ms1000},

 sl-ResourceReservePeriod2-r16 INTEGER (1..99)

}

SL-SelectionWindowList-r16 ::= SEQUENCE (SIZE (8)) OF SL-SelectionWindowConfig-r16

SL-SelectionWindowConfig-r16 ::= SEQUENCE {

 sl-Priority-r16 INTEGER (1..8),

 sl-SelectionWindow-r16 ENUMERATED {n1, n5, n10, n20}

}

SL-TxPercentageList-r16 ::= SEQUENCE (SIZE (8)) OF SL-TxPercentageConfig-r16

SL-TxPercentageConfig-r16 ::= SEQUENCE {

 sl-Priority-r16 INTEGER (1..8),

 sl-TxPercentage-r16 ENUMERATED {p20, p35, p50}

}

SL-MinMaxMCS-List-r16 ::= SEQUENCE (SIZE (1..3)) OF SL-MinMaxMCS-Config-r16

SL-MinMaxMCS-Config-r16 ::= SEQUENCE {

 sl-MCS-Table-r16 ENUMERATED {qam64, qam256, qam64LowSE},

 sl-MinMCS-PSSCH-r16 INTEGER (0..27),

 sl-MaxMCS-PSSCH-r16 INTEGER (0..31)

}

SL-BetaOffsets-r16 ::= INTEGER (0..31)

SL-PowerControl-r16 ::= SEQUENCE {

 sl-MaxTransPower-r16 INTEGER (-30..33),

 sl-Alpha-PSSCH-PSCCH-r16 ENUMERATED {alpha0, alpha04, alpha05, alpha06, alpha07, alpha08, alpha09, alpha1} OPTIONAL, -- Need M

 dl-Alpha-PSSCH-PSCCH-r16 ENUMERATED {alpha0, alpha04, alpha05, alpha06, alpha07, alpha08, alpha09, alpha1} OPTIONAL, -- Need S

 sl-P0-PSSCH-PSCCH-r16 INTEGER (-16..15) OPTIONAL, -- Need S

 dl-P0-PSSCH-PSCCH-r16 INTEGER (-16..15) OPTIONAL, -- Need M

 dl-Alpha-PSFCH-r16 ENUMERATED {alpha0, alpha04, alpha05, alpha06, alpha07, alpha08, alpha09, alpha1} OPTIONAL, -- Need S

 dl-P0-PSFCH-r16 INTEGER (-16..15) OPTIONAL, -- Need M

 ...,

 [[

 dl-P0-PSSCH-PSCCH-r17 INTEGER (-202..24) OPTIONAL, -- Need M

 sl-P0-PSSCH-PSCCH-r17 INTEGER (-202..24) OPTIONAL, -- Need S

 dl-P0-PSFCH-r17 INTEGER (-202..24) OPTIONAL -- Need M

 ]]

}

SL-PRS-ResourceSharedSL-PRS-RP-r18::= SEQUENCE {

 sl-PRS-ResourceID-r18 INTEGER (0..16),

 mNumberOfSymbols-r18 INTEGER (1..9),

 sl-PRS-CombSizeN-AndReOffset-r18 CHOICE {

 n2-r18 INTEGER (0..1),

 n4-r18 INTEGER (0..3),

 n6-r18 INTEGER (0..5),

 ...

 } OPTIONAL -- Need M

}

-- TAG-SL-RESOURCEPOOL-STOP

-- ASN1STOP

| *SL-ZoneConfigMCR* field descriptions |
| --- |
| ***sl-TransRange***Indicates the communication range requirement for the corresponding *sl-ZoneConfigMCR-Index*. The unit is meter. |
| ***sl-ZoneConfig***Indicates the zone configuration for the corresponding *sl-ZoneConfigMCR-Index*. |
| ***sl-ZoneConfigMCR-Index***Indicates the codepoint of the communication range requirement field in SCI. |

|  |
| --- |
| *SL-ResourcePool* field descriptions |
| ***dummy***This field is not used in the specification. If received it shall be ignored by the UE. |
| ***numSym-SL-PRS-2ndStageSCI***Indicates the number symbols to be assumed for SL PRS in determining the number of coded modulation symbols for second stage SCI in a slot of a shared SL PRS resource pool. |
| ***sl-A2X-Service***Presence of this field indicates the resource pool is dedicated for A2X service, i.e., not to be used for other than A2X service. Value *brid* indicates the resource pool is for BRID, value *daa* indicates the resource pool is for DAA, and value *bridAndDAA* indicates the resource pool is for both BRID and DAA. If this field is absent in all the configured resource pools, the UE may choose non-dedicated resource pool for A2X service. |
| ***sl-Additional-MCS-Table***Indicates the MCS table(s) additionally used in the resource pool. 64QAM table is (pre-)configured as default. Zero, one or two can be additionally (pre-)configured using the 256QAM and/or low-SE MCS tables. If two MCS tables are indicated, 256QAM MCS table is the 1st table and qam64lowSE MCS table is the 2nd table as specified in TS 38.214 [19], clause 8.1.3.1. |
| ***sl-CPE-StartingPositionsPSCCH-PSSCH-InitiateCOT-Default***Indicates CPE starting position index for the default CPE starting position, to be used for PSCCH/PSSCH transmission when UE initiating a COT. |
| ***sl-CPE-StartingPositionsPSCCH-PSSCH-InitiateCOT-List***Indicates a set of selected indices that correspond to multiple candidate CPE starting positions to be used for PSCCH/PSSCH transmission when UE initiating a COT, associated per L1 priority of PSSCH. |
| ***sl-CPE-StartingPositionsPSCCH-PSSCH-WithinCOT-Default***Indicates CPE starting position index for the default CPE starting position, to be used by UE for PSCCH/PSSCH transmission within a COT. |
| ***sl-CPE-StartingPositionsPSCCH-PSSCH-WithinCOT-List***Indicates a set of one or multiple selected indices that correspond to one or multiple candidate CPE starting positions to be used by UE for PSCCH/PSSCH transmission within a COT, associated per L1 priority of PSSCH. |
| ***sl-CPE-StartingPositionPSFCH***Indicates CPE starting position within the GP symbol before PSFCH transmission. The value is an index of the set of all candidate CPE starting positions specified in Table 5.3.1-3 of [16, TS38.211] for Ci=1 and the corresponding SCS of the SL BWP. |
| ***sl-FilterCoefficient***This field indicates the filtering coefficient for long-term measurement and reference signal power derivation used for sidelink open-loop power control. |
| ***sl-InterUE-CoordinationConfig***Indicates the configured sidelink inter-UE coordination parameters. |
| ***sl-IUC-RB-SetList***The n-th value in the list indicates the set of PRBs of n-th PSFCH occasion that are actually used for inter-UE coordination information transmission and reception in Scheme 2. It shall be (pre-)configured such that N candidate PSFCH occasion(s) are associated with N different PRB sets. PRBs within intra-cell guard band are not used for PSFCH transmission. The length of this list is aligned with *sl-NumPSFCH-Occasions*. For each PSFCH occasion, the set of PRBs are indicated in the same format as in *sl-PSFCH-RB-Set*. |
| ***sl-NumDedicatedPRBs-ForPSFCH***Indicates the value of K3 when each PSFCH transmission occupies "1 common interlace and K3 dedicated PRB(s)" (as indicated by *sl-TransmissionStructureForPSFCH*). Value prb1 corresponds to K3=1, value prb2 corresponds to K3=2, and so on. UE expects the same (pre-)configured value of *sl-NumDedicatedPRBs-ForPSFCH* across all resource pools. |
| ***sl-NumInterlacePerSubchannel***Indicates the number of (K) interlaces per sub-channel within a resource pool. Value *sc1* corresponds to 1 interlace per sub-channel, and value *sc2* corresponds to 2 interlaces per sub-channel. The applicable values are related to the subcarrier spacing as below:For SCS = 15 kHz: K=1 or 2For SCS = 30 kHz: K=1 |
| ***sl-NumPSFCH-Occasions***Indicates one PSCCH/PSSCH transmission has N associated candidate PSFCH occasion(s). Value *o1* corresponds to N=1, value *o2* corresponds to N=2, and so on. If the field is not configured, the UE shall use value *o1*. |
| ***sl-NumReferencePRBs-OfInterlace***Indicate reference number of PRBs of one interlace within 1 RB set. Value *prb10* corresponds to 10 PRBs, and value *prb11* corresponds to 11 PRBs. |
| ***sl-NumRefSymbolLength***Indicates a reference number of symbols for TBS determination. |
| ***sl-NumSubchannel***Indicates the number of subchannels in the corresponding resource pool, which consists of contiguous PRBs only. |
| ***sl-PBPS-CPS-Config***Indicates the allowed resource allocation schemes of full sensing only, partial sensing only, random resource selection only, or any combination(s), and the related configuration for power saving resource allocation schemes. This field is absent for *sl-TxPoolExceptional*. |
| ***sl-PreemptionEnable***Indicates whether pre-emption is disabled or enabled in a resource pool. If the field is present and the value is *pl1*, *pl2*, and so on (but not *enabled*), it means that pre-emption is enabled and a priority level p\_preemption is configured. If the field is present and the value is *enabled*, the pre-emption is enabled (but p\_preemption is not configured) and pre-emption is applicable to all levels. |
| ***sl-PriorityThreshold-UL-URLLC***Indicates the threshold used to determine whether NR sidelink transmission is prioritized over uplink transmission of priority index 1 as specified in TS 38.213[13], clause 16.2.4.3, or whether PUCCH transmission carrying SL HARQ is prioritized over PUCCH transmission carrying UCI of priority index 1 if they overlap in time as specified in TS 38.213 [13], clause 9.2.5.0. |
| ***sl-PriorityThreshold***Indicates the threshold used to determine whether NR sidelink transmission is prioritized over uplink transmission of priority index 0 as specified in TS 38.213[13], clause 16.2.4.3, or whether PUCCH transmission carrying SL HARQ is prioritized over PUCCH transmission carrying UCI of priority index 0 if they overlap in time as specified in TS 38.213 [13], clause 9.2.5.0. |
| ***sl-PRS-ResourcesSharedSL-PRS-RP***Indicates SL PRS resources in a slot of shared SL PRS resource pool as defined in TS 38.211 [16]. The UE can use the resource pool to transmit or receive SL-PRS only if this field is present. |
| ***sl-PSFCH-CommonInterlaceIndex***Indicate the index of common interlace to meet OCB requirements when *transmissionStructureForPSFCH* is set to common interlace. Value 0 corresponds to interlace 0 is used as common interlace, value 1 corresponds to interlace 1 is used as common interlace and so on. |
| ***sl-PSFCH-PowerOffset***Indicates the power offset between Tx power on one common PRB (P\_common) and Tx power on one dedicated PRB (P\_dedicated) when *sl-TransmissionStructureForPSFCH* is (pre-)configured as *commonInterlace*, i.e., P\_common = P\_dedicated - offset. UE expects the same (pre-)configured value of *sl-PSFCH-PowerOffset* across all resource pools. The unit is dB. |
| ***sl-PSFCH-RB-SetList***The n-th value in the list indicates the set of PRBs that are actually used for PSFCH transmission and reception of n-th PSFCH occasion of a PSCCH/PSSCH transmission.It shall be (pre-)configured such that N candidate PSFCH occasion(s) are associated with N different PRB sets. PRBs within intra-cell guard band are not used for PSFCH transmission. The length of this list is aligned with *sl-NumPSFCH-Occasions*. For each PSFCH occasion, the set of PRBs are indicated in the same format as in *sl-PSFCH-RB-Set*. |
| ***sl-RB-Number***Indicates the number of PRBs in the corresponding resource pool, which consists of contiguous PRBs only. The remaining RB cannot be used (See TS 38.214[19], clause 8). |
| ***sl-RBSetIndexOfResourcePool***For interlace RB based PSCCH/PSSCH, indicates the RB set index(s) included in the resource pool. Contiguous RB sets are (pre-)configured for a resource pool. |
| ***sl-SCI-based-SL-PRS-Tx-Trigger-SCI2-D***Indicates presence of a bit-field in SCI format 2-D to trigger SL-PRS transmission by a receiving UE. |
| ***sl-StartRB-Subchannel***Indicates the lowest RB index of the subchannel with the lowest index in the resource pool with respect to the lowest RB index of a SL BWP. |
| ***sl-SubchannelSize***Indicates the minimum granularity in frequency domain for the sensing for PSSCH resource selection in the unit of PRB. |
| ***sl-SyncAllowed***Indicates the allowed synchronization reference(s) which is (are) allowed to use the configured resource pool. |
| ***sl-SyncConfigIndex***Indicates the synchronisation configuration that is associated with a reception pool, by means of an index to the corresponding entry *SL-SyncConfigList* of in *SIB12* for NR sidelink communication. |
| ***sl-TDD-Configuration***Indicates the TDD configuration associated with the reception pool of the cell indicated by *sl-SyncConfigIndex*. |
| ***sl-ThreshS-RSSI-CBR***Indicates the S-RSSI threshold for determining the contribution of a sub-channel to the CBR measurement. Value 0 corresponds to -112 dBm, value 1 to -110 dBm, value n to (-112 + n\*2) dBm, and so on. |
| ***sl-TimeResource***Indicates the bitmap of the resource pool, which is defined by repeating the bitmap with a periodicity during a SFN or DFN cycle. |
| ***sl-TimeWindowSizeCBR***Indicates the time window size for CBR measurement. |
| ***sl-TimeWindowSizeCR***Indicates the time window size for CR evaluation. |
| ***sl-TransmissionStructureForPSFCH***Indicate each PSFCH transmission occupies "1 common interlace and K3 dedicated PRB(s)", or "1 dedicated interlace". Value *commonInterlace* corresponds to "1 common interlace and K3 dedicated PRB(s)", and value *dedicatedInterlace* corresponds to "1 dedicated interlace". UE expects the same (pre-)configured value of *transmissionStructureForPSFCH* across all resource pools. |
| ***sl-TxPercentageList***Indicates the portion of candidate single-slot PSSCH resources over the total resources. Value p20 corresponds to 20%, and so on. |
| ***sl-Type1-LBT-BlockingOption1***Indicates UE may avoid selection of N consecutive resource(s) before a reserved resource of another UE when the L1 SL priority value for the transmission is higher than the L1 SL priority value of the reserved resource, and UE may also avoid selection of M consecutive resource(s) after a reserved resource of another UE when the transmitting symbols of the reserved resource overlap with LBT of the selected resource. The selection of the value N is up to UE implementation from {0, 1, 2}. M is determined based on UE implementation (at least including 0). |
| ***sl-Type1-LBT-BlockingOption2***Indicates UE may prioritize/select resource(s) in the slot(s) for transmission, if UE's transmission in slot(s) before a reserved resource is able to share its initiated COT to the reservation. |
| ***sl-X-Overhead***Accounts for overhead from CSI-RS, PT-RS. If the field is absent, the UE applies value *n0* (see TS 38.214 [19], clause 5.1.3.2). |

| *SL-SyncAllowed* field descriptions |
| --- |
| ***gnbEnb-Sync***If configured, the (pre-) configured resources can be used if the UE is directly or indirectly synchronized to eNB or gNB (i.e., synchronized to a reference UE which is directly synchronized to eNB or gNB). |
| ***gnss-Sync***If configured, the (pre-) configured resources can be used if the UE is directly or indirectly synchronized to GNSS (i.e., synchronized to a reference UE which is directly synchronized to GNSS). |
| ***ue-Sync***If configured, the (pre-) configured resources can be used if the UE is synchronized to a reference UE which is not synchronized to eNB, gNB and GNSS directly or indirectly. |

| *SL-PSCCH-Config* field descriptions |
| --- |
| ***sl-FreqResourcePSCCH***Indicates the number of PRBs for PSCCH in a resource pool where it is not greater than the number PRBs of the subchannel. |
| ***sl-DMRS-ScrambleID***Indicates the initialization value for PSCCH DMRS scrambling. |
| ***sl-NumReservedBits***Indicates the number of reserved bits in first stage SCI. |
| ***sl-TimeResourcePSCCH***Indicates the number of symbols of PSCCH in a resource pool. |

| *SL-PSSCH-Config* field descriptions |
| --- |
| ***sl-BetaOffsets2ndSCI***Indicates candidates of beta-offset values to determine the number of coded modulation symbols for second stage SCI. The value indicates the index of Table 9.3-2 of TS 38.213 [13]. |
| ***sl-PSSCH-DMRS-TimePatternList***Indicates the set of PSSCH DMRS time domain patterns in terms of PSSCH DMRS symbols in a slot that can be used in the resource pool. |
| ***sl-Scaling***Indicates a scaling factor to limit the number of resource elements assigned to the second stage SCI on PSSCH. Value *f0p5* corresponds to 0.5, value *f0p65* corresponds to 0.65, and so on. |

| *SL-PSFCH-Config* field descriptions |
| --- |
| ***sl-MinTimeGapPSFCH***The minimum time gap between PSFCH and the associated PSSCH in the unit of slots. |
| ***sl-NumMuxCS-Pair***Indicates the number of cyclic shift pairs used for a PSFCH transmission that can be multiplexed in a PRB. |
| ***sl-PSFCH-CandidateResourceType***Indicates the number of PSFCH resources available for multiplexing HARQ-ACK information in a PSFCH transmission (see TS 38.213 [13], clause 16.3). |
| ***sl-PSFCH-HopID***Scrambling ID for sequence hopping of the PSFCH used in the resource pool. |
| ***sl-PSFCH-Period***Indicates the period of PSFCH resource in the unit of slots within this resource pool. If set to *sl0*, no resource for PSFCH, and HARQ feedback for all transmissions in the resource pool is disabled. |
| ***sl-PSFCH-RB-Set***Indicates the set of PRBs that are actually used for PSFCH transmission and reception. The leftmost bit of the bitmap refers to the lowest RB index in the resource pool, and so on. Value 0 in the bitmap indicates that the corresponding PRB is not used for PSFCH transmission and reception while value 1 indicates that the corresponding PRB is used for PSFCH transmission and reception (see TS 38.213 [13]). |

| *SL-PTRS-Config* field descriptions |
| --- |
| ***sl-PTRS-FreqDensity***Presence and frequency density of SL PT-RS as a function of scheduled BW. If the field is not configured, the UE uses K\_PT-RS = 2 |
| ***sl-PTRS-TimeDensity***Presence and time density of SL PT-RS as a function of MCS. If the field is not configured, the UE uses L\_PT-RS = 1 |
| ***sl-PTRS-RE-Offset***Indicates the subcarrier offset for SL PT-RS . If the field is not configured, the UE applies the value *offset00* (see TS 38.211 [16], clause 8.4.1.2.2). |

| *SL-UE-SelectedConfigRP* field descriptions |
| --- |
| ***sl-CBR-PriorityTxConfigList***Indicates the mapping between PSSCH transmission parameter (such as MCS, PRB number, retransmission number, CR limit) sets by using the indexes of the configurations in *sl-CBR-PSSCH-TxConfigList*, CBR ranges by using the indexes to the entry of the CBR range configurations in *sl-CBR-RangeConfigList*, and priority ranges. It also indicates the default PSSCH transmission parameters to be used when CBR measurement results are not available, and MCS range for the MCS tables used in the resource pool. The field *sl-CBR-PriorityTxConfigList-v1650* is present only when *sl-CBR-PriorityTxConfigList-r16* is configured. |
| ***sl-MaxNumPerReserve***Indicates the maximum number of reserved PSCCH/PSSCH resources that can be indicated by an SCI. |
| ***sl-MultiReserveResource***Indicates if it is allowed to reserve a sidelink resource for an initial transmission of a TB by an SCI associated with a different TB, based on sensing and resource selection procedure. |
| ***sl-NRPSFCH-EUTRA-ThresRSRP-List***Indicates a list of 64 thresholds from which a threshold should be selected based on the priority in the decoded EUTRA SCI and the priority in the NR SCI to be transmitted. A NR SL resource is excluded if the corresponding PSFCH transmission occasions overlap with resources indicated or reserved by the decoded EUTRA SCI in time domain and EUTRA PSSCH RSRP in the associated data resource is above the threshold. |
| ***sl-NRPSSCH-EUTRA-ThresRSRP-List***Indicates a list of 64 thresholds, and a threshold should be selected based on the priority in the decoded EUTRA SCI and the priority in the NR SCI to be transmitted. A NR SL resource is excluded if it is indicated or reserved by the decoded EUTRA SCI and EUTRA PSSCH RSRP in the associated data resource is above the threshold. If the field is present, the UE shall perform the dynamic co-channel coexistence of LTE sidelink and NR sidelink as specified in TS 38.214; otherwise it shall not perform it. |
| ***sl-ResourceReservePeriodList***Set of possible resource reservation period allowed in the resource pool in the unit of ms. Up to 16 values can be configured per resource pool. The value *ms0* is always configured. |
| ***sl-RS-ForSensing***Indicates whether DMRS of PSCCH or PSSCH is used for L1 RSRP measurement in the sensing operation. |
| ***sl-SensingWindow***Parameter that indicates the start of the sensing window. |
| ***sl-SelectionWindowList***Parameter that determines the end of the selection window in the resource selection for a TB with respect to priority indicated in SCI. Value n1 corresponds to 1\*2µ, value n5 corresponds to 5\*2µ, and so on, where µ = 0,1,2,3 refers to SCS 15,30,60,120 kHz respectively. |
| ***sl-Thres-RSRP-List***Indicates a list of 64 thresholds, and the threshold should be selected based on the priority in the decoded SCI and the priority in the SCI to be transmitted. A resource is excluded if it is indicated or reserved by a decoded SCI and PSSCH/PSCCH RSRP in the associated data resource is above a threshold. |

| *SL-PowerControl* field descriptions |
| --- |
| ***sl-MaxTransPower***Indicates the maximum value of the UE's sidelink transmission power on this resource pool when the sidelink transmission is performed only on this resource pool. The unit is dBm. If the sidelink transmission is PSFCH, and multiple resource pools are used, the maximum transmission power for PSFCH is configured as sum of fields *sl-maxTransPower* over multiple resource pools, as specified in TS 38.101-1 [15]. |
| ***sl-Alpha-PSSCH-PSCCH***Indicates alpha value for sidelink pathloss based power control for PSCCH/PSSCH when *sl-P0-PSSCH-PSCCH* is configured. When the field is absent the UE applies the value 1.  |
| ***sl-P0-PSSCH-PSCCH***Indicates P0 value for sidelink pathloss based power control for PSCCH/PSSCH. If not configured, sidelink pathloss based power control is disabled for PSCCH/PSSCH. When *sl-P0-PSSCH-PSCCH-r17* is configured, the UE ignores *sl-P0-PSSCH-PSCCH-r16*. |
| ***dl-Alpha-PSSCH-PSCCH***Indicates alpha value for downlink pathloss based power control for PSCCH/PSSCH when *dl-P0-PSSCH-PSCCH* is configured. When the field is absent the UE applies the value 1.  |
| ***dl-P0-PSSCH-PSCCH***Indicates P0 value for downlink pathloss based power control for PSCCH/PSSCH. If not configured, downlink pathloss based power control is disabled for PSCCH/PSSCH. When *dl-P0-PSSCH-PSCCH-r17* is configured, the UE ignores *dl-P0-PSSCH-PSCCH-r16*.A Remote UE which is out of coverage, considers downlink pathloss based power control is disabled for PSCCH/PSSCH when *dl-P0-PSSCH-PSCCH* is configured. |
| ***dl-Alpha-PSFCH***Indicates alpha value for downlink pathloss based power control for PSFCH when *dl-P0-PSFCH* is configured. When the field is absent the UE applies the value 1. For resource pools configured with PSFCH resources overlapping in time, this field is either not configured in any of the resource pools or configured with the same value for all the resource pools. |
| ***dl-P0-PSFCH***Indicates P0 value for downlink pathloss based power control for PSFCH. If not configured, downlink pathloss based power control is disabled for PSFCH. When *dl-P0-PSFCH-r17* is configured, the UE ignores *dl-P0-PSFCH-r16.* For resource pools configured with PSFCH resources overlapping in time, this field is either not configured in any of the resource pools or configured with the same value for all the resource pools.A Remote UE which is out of coverage, considers downlink pathloss based power control is disabled for PSFCH when *dl-P0-PSFCH* is configured. |

| *SL-MinMaxMCS-Config* field descriptions |
| --- |
| ***sl-MaxMCS-PSSCH***Indicates the maximum MCS value when using the associated MCS table. If no MCS is configured, UE autonomously selects MCS from the full range of values. |
| ***sl-MinMCS-PSSCH***Indicates the minimum MCS value when using the associated MCS table. If no MCS is configured, UE autonomously selects MCS from the full range of values. |

| *SL-CPE-StartingPositionsPSCCH-PSSCH* field descriptions |
| --- |
| ***sl-Priority***Indicates L1 priority of PSSCH. |
| ***sl-CPE-StartingPositions***Indicates a set of candidate CPE starting positions specified in Table 5.3.1-3 [16, TS38.211], |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *A2X* | The field is mandatory present in *sl-BWP-PoolConfigA2X* and *sl-BWP-PoolConfigCommonA2X*; otherwise the field is optionally present, Need M. |

#### – *SL-RLC-BearerConfig*

The IE *SL-RLC-BearerConfig* specifies the SL RLC bearer configuration information for NR sidelink communication.

*SL-RLC-BearerConfig* information element

-- ASN1START

-- TAG-SL-RLC-BEARERCONFIG-START

SL-RLC-BearerConfig-r16 ::= SEQUENCE {

 sl-RLC-BearerConfigIndex-r16 SL-RLC-BearerConfigIndex-r16,

 sl-ServedRadioBearer-r16 SLRB-Uu-ConfigIndex-r16 OPTIONAL, -- Cond LCH-SetupOnly

 sl-RLC-Config-r16 SL-RLC-Config-r16 OPTIONAL, -- Cond LCH-Setup

 sl-MAC-LogicalChannelConfig-r16 SL-LogicalChannelConfig-r16 OPTIONAL, -- Cond LCH-Setup

 ...,

 [[

 sl-RLC-BearerConfigIndex-v1800 SL-RLC-BearerConfigIndex-v1800 OPTIONAL -- Need R

 ]]

}

-- TAG-SL-RLC-BEARERCONFIG-STOP

-- ASN1STOP

| *SL-RLC-BearerConfig* field descriptions |
| --- |
| ***sl-MAC-LogicalChannelConfig***The field is used to configure MAC SL logical channel parameters. |
| ***sl-RLC-BearerConfigIndex***The index of the RLC bearer configuration. If the field *sl-RLC-BearerConfigIndex-v1800* is present, the UE shall ignore the *sl-RLC-BearerConfigIndex-r16* field. |
| ***sl-RLC-Config***Determines the RLC mode (UM, AM) and provides corresponding parameters. |
| ***sl-ServedRadioBearer***Associates the sidelink RLC Bearer with a sidelink DRB. It indicates the index of SL radio bearer configuration, which is corresponding to the RLC bearer configuration. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *LCH-Setup* | The field is mandatory present upon creation of a new sidelink logical channel via the dedicated signalling and in case of sidelink DRB configuration via system information and pre-configuration; otherwise the field is optionally present, Need M. |
| *LCH-SetupOnly* | This field is mandatory present upon creation of a new sidelink logical channel via the dedicated signalling and in case of sidelink DRB configuration via system information and pre-configuration. Otherwise, it is absent, Need M. |

#### – *SL-RLC-BearerConfigIndex*

The IE *SL-RLC-BearerConfigIndex* is used to identify a SL RLC bearer configuration.

*SL-RLC-BearerConfigIndex* information element

-- ASN1START

-- TAG-SL-RLC-BEARERCONFIGINDEX-START

SL-RLC-BearerConfigIndex-r16 ::= INTEGER (1..maxSL-LCID-r16)

SL-RLC-BearerConfigIndex-v1800 ::= INTEGER (maxSL-LCID-Plus1-r18..maxSL-LCID-r18)

-- TAG-RLC-BEARERCONFIGINDEX-STOP

-- ASN1STOP

#### – *SL-RLC-ChannelConfig*

The IE *SL-RLC-ChannelConfig* specifies the configuration information for PC5 Relay RLC channel between L2 U2N Relay UE and L2 U2N Remote UE, or between L2 U2U Remote UE and L2 U2U Relay UE.

*SL-RLC-ChannelConfig* information element

-- ASN1START

-- TAG-SL-RLC-RLC-CHANNEL-CONFIG-START

SL-RLC-ChannelConfig-r17 ::= SEQUENCE {

 sl-RLC-ChannelID-r17 SL-RLC-ChannelID-r17,

 sl-RLC-Config-r17 SL-RLC-Config-r16 OPTIONAL, -- Need M

 sl-MAC-LogicalChannelConfig-r17 SL-LogicalChannelConfig-r16 OPTIONAL, -- Need M

 sl-PacketDelayBudget-r17 INTEGER (0..1023) OPTIONAL, -- Need M

 ...}

-- TAG-SL-RLC-CHANNEL-CONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *SL-RLC-ChannelConfig* field descriptions |
| ***sl-MAC-LogicalChannelConfig***The field is used to configure MAC SL logical channel parameters. |
| ***sl-RLC-ChannelID***Indicates the PC5 Relay RLC channel in the link between L2 U2N Relay UE and L2 U2N Remote UE, or between L2 U2U Remote UE and L2 U2U Relay UE. |
| ***sl-RLC-Config***Determines the RLC mode (UM, AM) and provides corresponding parameters. |
| ***sl-PacketDelayBudget***Indicates the Packet Delay Budget for a PC5 Relay RLC channel used in L2 U2N relay operation. Upper bound value for the delay that a packet may experience expressed in unit of 0.5ms. |

#### – *SL-RLC-ChannelID*

The IE *SL-RLC-ChannelID* is used to identify a PC5 Relay RLC channel in the link between L2 U2N Relay UE and L2 U2N Remote UE, or between L2 U2U Relay UE and L2 U2U Remote UE.

*SL-RLC-ChannelID* information element

-- ASN1START

-- TAG-SL-RLC-CHANNELID-START

SL-RLC-ChannelID-r17 ::= INTEGER (1..maxSL-LCID-r16)

-- TAG-SL-RLC-CHANNELID-STOP

-- ASN1STOP

#### – *SL-RLC-Config*

The IE *SL-RLC-Config* is used to specify the RLC configuration of sidelink DRB. RLC AM configuration is only applicable to the unicast NR sidelink communication.

*SL-RLC-Config* information element

-- ASN1START

-- TAG-SL-RLC-CONFIG-START

SL-RLC-Config-r16 ::= CHOICE {

 sl-AM-RLC-r16 SEQUENCE {

 sl-SN-FieldLengthAM-r16 SN-FieldLengthAM OPTIONAL, -- Cond SLRBSetup

 sl-T-PollRetransmit-r16 T-PollRetransmit,

 sl-PollPDU-r16 PollPDU,

 sl-PollByte-r16 PollByte,

 sl-MaxRetxThreshold-r16 ENUMERATED { t1, t2, t3, t4, t6, t8, t16, t32 },

 ...

 },

 sl-UM-RLC-r16 SEQUENCE {

 sl-SN-FieldLengthUM-r16 SN-FieldLengthUM OPTIONAL, -- Cond SLRBSetup

 ...

 },

 ...

}

-- TAG-SL-RLC-CONFIG-STOP

-- ASN1STOP

| *SL-RLC-Config* field descriptions |
| --- |
| ***sl-MaxRetxThreshold***Parameter value of *maxRetxThreshold* for RLC AM for NR sidelink communications, see TS 38.322 [4]. Value *t1* corresponds to 1 retransmission, value *t2* corresponds to 2 retransmissions and so on. |
| ***sl-PollByte***Parameter value of *pollByte* for RLC AM for NR sidelink communications, see TS 38.322 [4]. Value *kB25* corresponds to 25 kBytes, value *kB50* corresponds to 50 kBytes and so on. *infinity* corresponds to an infinite amount of kBytes. |
| ***sl-PollPDU***Parameter value of *pollPDU* for RLC AM for NR sidelink communications, seeTS 38.322 [4]. Value *p4* corresponds to 4 PDUs, value *p8* corresponds to 8 PDUs and so on. *infinity* corresponds to an infinite number of PDUs. |
| ***sl-SN-FieldLength***This field indicates the RLC SN field size for NR sidelink communication, see TS 38.322 [4]. For groupcast and broadcast, only value *size6* (6 bits) is configured for the field *sl-SN-FieldLengthUM*. |
| ***sl-T-PollRetransmit***Timer value of *t-PollRetransmit* for RLC AM for NR sidelink communications, see TS 38.322 [4], in milliseconds. Value *ms5* means 5 ms, value *ms10* means 10 ms and so on. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *SLRBSetup* | The field is mandatory present in case of sidelink DRB setup via the dedicated signalling and in case of sidelink DRB configuration via system information and pre-configuration; otherwise the field is optionally present, need M. |

#### – *SL-ScheduledConfig*

The IE *SL-ScheduledConfig* specifies sidelink communication/positioning configurations used for network scheduled NR sidelink communication/positioning.

*SL-ScheduledConfig* information element

-- ASN1START

-- TAG-SL-SCHEDULEDCONFIG-START

SL-ScheduledConfig-r16 ::= SEQUENCE {

 sl-RNTI-r16 RNTI-Value,

 mac-MainConfigSL-r16 MAC-MainConfigSL-r16 OPTIONAL, -- Need M

 sl-CS-RNTI-r16 RNTI-Value OPTIONAL, -- Need M

 sl-PSFCH-ToPUCCH-r16 SEQUENCE (SIZE (1..8)) OF INTEGER (0..15) OPTIONAL, -- Need M

 sl-ConfiguredGrantConfigList-r16 SL-ConfiguredGrantConfigList-r16 OPTIONAL, -- Need M

 ...,

 [[

 sl-DCI-ToSL-Trans-r16 SEQUENCE (SIZE (1..8)) OF INTEGER (1..32) OPTIONAL -- Need M

 ]],

 [[

 sl-ConfiguredGrantConfigDedicated-SL-PRS-RP-List-r18 SL-ConfiguredGrantConfigDedicated-SL-PRS-RP-List-r18 OPTIONAL, -- Need M

 sl-PRS-RNTI-r18 RNTI-Value OPTIONAL, -- Need M

 sl-PRS-CS-RNTI-r18 RNTI-Value OPTIONAL -- Need M

 ]]

}

MAC-MainConfigSL-r16 ::= SEQUENCE {

 sl-BSR-Config-r16 BSR-Config OPTIONAL, -- Need M

 ul-PrioritizationThres-r16 INTEGER (1..16) OPTIONAL, -- Need M

 sl-PrioritizationThres-r16 INTEGER (1..8) OPTIONAL, -- Need M

 ...

}

SL-ConfiguredGrantConfigList-r16 ::= SEQUENCE {

 sl-ConfiguredGrantConfigToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofCG-SL-r16)) OF SL-ConfigIndexCG-r16 OPTIONAL, -- Need N

 sl-ConfiguredGrantConfigToAddModList-r16 SEQUENCE (SIZE (1..maxNrofCG-SL-r16)) OF SL-ConfiguredGrantConfig-r16 OPTIONAL -- Need N

}

SL-ConfiguredGrantConfigDedicated-SL-PRS-RP-List-r18 ::= SEQUENCE {

 sl-ConfiguredGrantConfigDedicated-SL-PRS-RPToReleaseList-r18 SEQUENCE (SIZE (1..maxNrofCG-SL-r16)) OF SL-ConfigIndexCG-r16

 OPTIONAL, -- Need N

 sl-ConfiguredGrantConfigDedicated-SL-PRS-RPToAddModList-r18

 SEQUENCE (SIZE (1..maxNrofCG-SL-r16)) OF SL-ConfiguredGrantConfigDedicatedSL-PRS-RP-r18 OPTIONAL -- Need N

}

-- TAG-SL-SCHEDULEDCONFIG-STOP

-- ASN1STOP

| *SL-ScheduledConfig* field descriptions |
| --- |
| ***sl-CS-RNTI***Indicate the RNTI used to scramble CRC of DCI format 3\_0, see TS 38.321 [3]. |
| ***sl-DCI-ToSL-Trans***Indicate the time gap between DCI reception and the first sidelink transmission scheduled by the DCI (see TS 38.214 [19], clause 8.1.2.1). Value 1 included in this field corresponds to 1 slot, value 2 corresponds to 2 slots and so on, based on the numerology of sidelink BWP. |
| ***sl-PRS-CS-RNTI***Indicates the RNTI used to scramble CRC of DCI format 3\_2 for configured grants. |
| ***sl-PRS-RNTI***Indicates the SL-PRS-RNTI used for monitoring the network scheduling to transmit NR sidelink positioning reference signal (i.e. the mode 1) for dynamic grants. |
| ***sl-PSFCH-ToPUCCH***For dynamic grant and configured grant type 2, this field configures the values (in number of slot lengths) of the PSFCH to PUCCH gap. The field PSFCH-to-HARQ\_feedback timing indicator in DCI format 3\_0 selects one of the configured values of the PSFCH to PUCCH gap. |
| ***sl-RNTI***Indicate the SL-RNTI used for monitoring the network scheduling to transmit NR sidelink communication (i.e. the mode 1). |

| *MAC-MainConfigSL* field descriptions |
| --- |
| ***sl-BSR-Config***This field is to configure the sidelink buffer status report. |
| ***sl-PrioritizationThres***Indicates the SL priority threshold, which is used to determine whether SL TX is prioritized over UL TX, as specified in TS 38.321 [3]. Network does not configure the *sl-PrioritizationThres* and the *ul-PrioritizationThres* to the UE separately. |
| ***ul-PrioritizationThres***Indicates the UL priority threshold, which is used to determine whether SL TX is prioritized over UL TX, as specified in TS 38.321 [3]. Network does not configure the *sl-PrioritizationThres* and the *ul-PrioritizationThres* to the UE separately. |

#### – *SL-SDAP-Config*

The IE *SL-SDAP-Config* is used to set the configurable SDAP parameters for a Sidelink DRB.

*SL-SDAP-Config* information element

-- ASN1START

-- TAG-SL-SDAP-CONFIG-START

SL-SDAP-Config-r16 ::= SEQUENCE {

 sl-SDAP-Header-r16 ENUMERATED {present, absent},

 sl-DefaultRB-r16 BOOLEAN,

 sl-MappedQoS-Flows-r16 CHOICE {

 sl-MappedQoS-FlowsList-r16 SEQUENCE (SIZE (1..maxNrofSL-QFIs-r16)) OF SL-QoS-Profile-r16,

 sl-MappedQoS-FlowsListDedicated-r16 SL-MappedQoS-FlowsListDedicated-r16

 } OPTIONAL, -- Need M

 sl-CastType-r16 ENUMERATED {broadcast, groupcast, unicast, spare1} OPTIONAL, -- Need M

 ...

}

SL-MappedQoS-FlowsListDedicated-r16 ::= SEQUENCE {

 sl-MappedQoS-FlowsToAddList-r16 SEQUENCE (SIZE (1..maxNrofSL-QFIs-r16)) OF SL-QoS-FlowIdentity-r16 OPTIONAL, -- Need N

 sl-MappedQoS-FlowsToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSL-QFIs-r16)) OF SL-QoS-FlowIdentity-r16 OPTIONAL -- Need N

}

-- TAG-SL-SDAP-CONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *SL-SDAP-Config* field descriptions |
| ***sl-DefaultRB***Indicates whether or not this is the default sidelink DRB for this NR sidelink communication transmission destination. Among all configured instances of *SL-SDAP-Config* for this destination, this field shall be set to *true* in at most one instance of *SL-SDAP-Config* and to *false* in all other instances. |
| ***sl-MappedQoS-Flows***Indicates QoS flows to be mapped to the sidelink DRB. If the field is included in dedicated signalling, it is set to *sl-MappedQoS-FlowsListDedicated*; otherwise, it is set to *sl-MappedQoS-FlowsList*. |
| ***sl-MappedQoS-FlowsList***Indicates the list of QoS profiles of the NR sidelink communication transmission destination mapped to this sidelink DRB. |
| ***sl-MappedQoS-FlowsToAddList***Indicates the list of SL QoS flows ID of the NR sidelink communication transmission destination to be additionally mapped to this sidelink DRB. |
| ***sl-MappedQoS-FlowsToReleaseList***Indicates the list of SL QoS flows ID of the NR sidelink communication transmission destination to be released from existing QoS flow to SLRB mapping of this sidelink DRB.  |
| ***sl-SDAP-Header***Indicates whether or not a SDAP header is present on this sidelink DRB. The field cannot be changed after a sidelink DRB is established. This field is set to present if the field *sl-DefaultRB* is set to *true*. |

#### – *SL-ServingCellInfo*

The IE *SL-ServingCellInfo* is used to indicate the L2 U2N Relay UE's PCell/camping cell, which is considered as PCell/camping cell by the L2 U2N Remote UEs connecting with this L2 U2N Relay UE.

*SL-ServingCellInfo* information element

-- ASN1START

-- TAG-SL-SERVINGCELLINFO-START

SL-ServingCellInfo-r17 ::= SEQUENCE {

 sl-PhysCellId-r17 PhysCellId,

 sl-CarrierFreqNR-r17 ARFCN-ValueNR

}

-- TAG-SL-SERVINGCELLINFO-STOP

-- ASN1STOP

| *SL-ServingCellInfo* field descriptions |
| --- |
| ***sl-CarrierFreqNR***Indicates the DL frequency of the cell indicated by *sl-PhysCellId*. |
| ***sl-PhysCellId***Indicates the PCI of the PCell. |

#### – *SL-SourceIdentity*

The IE *SL-SourceIdentity* is used to identify a source of a NR sidelink communication.

***SL-SourceIdentity* information element**

-- ASN1START

-- TAG-SL-SOURCEIDENTITY-START

SL-SourceIdentity-r17 ::= BIT STRING (SIZE (24))

-- TAG-SL-SOURCEIDENTITY-STOP

-- ASN1STOP

#### – *SL-SRAP-Config*

The IE *SL-SRAP-Config* is used to set the configurable SRAP parameters used by L2 U2N Relay UE and L2 U2N Remote UE as specified in TS 38.351 [66].

***SL-SRAP-Config* information element**

-- ASN1START

-- TAG-SL-SRAP-CONFIG-START

SL-SRAP-Config-r17 ::= SEQUENCE {

 sl-LocalIdentity-r17 INTEGER (0..255) OPTIONAL, -- Need M

 sl-MappingToAddModList-r17 SEQUENCE (SIZE (1..maxLC-ID)) OF SL-MappingToAddMod-r17 OPTIONAL, -- Need N

 sl-MappingToReleaseList-r17 SEQUENCE (SIZE (1..maxLC-ID)) OF SL-RemoteUE-RB-Identity-r17 OPTIONAL, -- Need N

 ...

}

SL-MappingToAddMod-r17 ::= SEQUENCE {

 sl-RemoteUE-RB-Identity-r17 SL-RemoteUE-RB-Identity-r17,

 sl-EgressRLC-ChannelUu-r17 Uu-RelayRLC-ChannelID-r17 OPTIONAL, -- Cond L2RelayUE

 sl-EgressRLC-ChannelPC5-r17 SL-RLC-ChannelID-r17 OPTIONAL, -- Need N

 ...

}

SL-RemoteUE-RB-Identity-r17 ::= CHOICE {

 srb-Identity-r17 INTEGER (0..3),

 drb-Identity-r17 DRB-Identity,

 ...

}

-- TAG-SL-SRAP-CONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *SL-SRAP-Config* field descriptions |
| ***sl-LocalIdentity***Indicates the local UE ID of the L2 U2N Remote UE used in SRAP as specified in TS 38.351 [66]. |
| ***sl-MappingToAddModList***Indicates the list of mappings between the bearer identity of the L2 U2N Remote UE and the egress RLC channel as specified in TS 38.351 [66] to be added or modified. |
| ***sl-MappingToReleaseList***Indicates the list of mappings between the bearer identity of the L2 U2N Remote UE and the egress RLC channel as specified in TS 38.351 [66] to be released. |
| ***sl-RemoteUE-RB-Identity***Identity of the end-to-end Uu bearer identity of the L2 U2N Remote UE. The value 3 for the field *srb-identity-r17* (i.e., for configuring SRB3) is not supported in this version of the specification. |
| ***sl-EgressRLC-ChannelUu***Indicates the egress RLC channel on Uu Hop for uplink transmissions at the L2 U2N Relay UE. |
| ***sl-EgressRLC-ChannelPC5***Indicates the egress RLC channel on PC5 Hop for downlink transmissions at the L2 U2N Relay UE and for uplink transmissions at the L2 U2N Remote UE. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *L2RelayUE* | For L2 U2N Relay UE, the field is optionally present, Need M. Otherwise, it is absent. |

#### – *SL-SRAP-ConfigU2U*

The IE *SL*-*SRAP-ConfigU2U* is used to set the configurable SRAP parameters used by L2 U2U Relay UE and L2 U2U Remote UE as specified in TS 38.351 [66].

*SL-SRAP-ConfigU2U* information element

-- ASN1START

-- TAG-SL-SRAP-CONFIGU2U-START

SL-SRAP-ConfigU2U-r18 ::= SEQUENCE {

 sl-MappingToAddMod-U2U-List-r18 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-MappingConfig-U2U-r18 OPTIONAL, -- Need N

 sl-MappingToRelease-U2U-List-r18 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SLRB-Uu-ConfigIndex-r16 OPTIONAL -- Need N

}

SL-MappingConfig-U2U-r18 ::= SEQUENCE {

 sl-RemoteUE-SLRB-Identity-r18 SLRB-Uu-ConfigIndex-r16,

 sl-EgressRLC-ChannelPC5-r18 SL-RLC-ChannelID-r17,

 ...

}

-- TAG-SL-SRAP-CONFIGU2U-STOP

-- ASN1STOP

|  |
| --- |
| *SL-SRAP-ConfigU2U* field descriptions |
| ***sl-MappingToAddMod-U2U-List***Indicates the list of mappings between the end-to-end sidelink DRB of a given L2 U2U Remote UE and the egress PC5 Relay RLC channel used by L2 U2U Remote UE and L2 U2U Relay UE when acting as Tx UE, as specified in TS 38.351 [66] to be added or modified. |
| ***sl-MappingToRelease-U2U-List***Indicates the list of mappings between the end-to-end sidelink DRB of a given L2 U2U Remote UE and the egress PC5 Relay RLC channel as specified in TS 38.351 [66] to be released. |
| ***sl-EgressRLC-ChannelPC5***Indicates the egress PC5 Relay RLC channel for sidelink transmissions at the L2 U2U Relay UE and at the L2 U2U Remote UE. |
| ***sl-RemoteUE-SLRB-Identity***Identity of the end-to-end sidelink DRB of the L2 U2U Remote UE.  |

#### – *SL-SyncConfig*

The IE *SL-SyncConfig* specifies the configuration information concerning reception of synchronisation signals from neighbouring cells as well as concerning the transmission of synchronisation signals for sidelink communication.

*SL-SyncConfig* information element

-- ASN1START

-- TAG-SL-SYNCCONFIG-START

SL-SyncConfigList-r16 ::= SEQUENCE (SIZE (1..maxSL-SyncConfig-r16)) OF SL-SyncConfig-r16

SL-SyncConfig-r16 ::= SEQUENCE {

 sl-SyncRefMinHyst-r16 ENUMERATED {dB0, dB3, dB6, dB9, dB12} OPTIONAL, -- Need R

 sl-SyncRefDiffHyst-r16 ENUMERATED {dB0, dB3, dB6, dB9, dB12, dBinf} OPTIONAL, -- Need R

 sl-FilterCoefficient-r16 FilterCoefficient OPTIONAL, -- Need R

 sl-SSB-TimeAllocation1-r16 SL-SSB-TimeAllocation-r16 OPTIONAL, -- Need R

 sl-SSB-TimeAllocation2-r16 SL-SSB-TimeAllocation-r16 OPTIONAL, -- Need R

 sl-SSB-TimeAllocation3-r16 SL-SSB-TimeAllocation-r16 OPTIONAL, -- Need R

 sl-SSID-r16 INTEGER (0..671) OPTIONAL, -- Need R

 txParameters-r16 SEQUENCE {

 syncTxThreshIC-r16 SL-RSRP-Range-r16 OPTIONAL, -- Need R

 syncTxThreshOoC-r16 SL-RSRP-Range-r16 OPTIONAL, -- Need R

 syncInfoReserved-r16 BIT STRING (SIZE (2)) OPTIONAL -- Need R

 },

 gnss-Sync-r16 ENUMERATED {true} OPTIONAL, -- Need R

 ...

}

SL-RSRP-Range-r16 ::= INTEGER (0..13)

SL-SSB-TimeAllocation-r16 ::= SEQUENCE {

 sl-NumSSB-WithinPeriod-r16 ENUMERATED {n1, n2, n4, n8, n16, n32, n64} OPTIONAL, -- Need R

 sl-TimeOffsetSSB-r16 INTEGER (0..1279) OPTIONAL, -- Need R

 sl-TimeInterval-r16 INTEGER (0..639) OPTIONAL -- Need R

}

-- TAG-SL-SYNCCONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *SL-SyncConfig* field descriptions |
| ***gnss-Sync***If configured, the synchronization configuration is used for SLSS transmission/reception when the UE is synchronized to GNSS. If not configured, the synchronization configuration is used for SLSS transmission/reception when the UE is synchronized to eNB/gNB. |
| ***sl-SyncRefMinHyst***Hysteresis when evaluating a SyncRef UE using absolute comparison. |
| ***sl-SyncRefDiffHyst***Hysteresis when evaluating a SyncRef UE using relative comparison. |
| ***sl-NumSSB-WithinPeriod***Indicates the number of sidelink SSB transmissions within one sidelink SSB period. The applicable values are related to the subcarrier spacing and frequency as follows:FR1, SCS = 15 kHz: 1FR1, SCS = 30 kHz: 1, 2FR1, SCS = 60 kHz: 1, 2, 4FR2, SCS = 60 kHz: 1, 2, 4, 8, 16, 32FR2, SCS = 120 kHz: 1, 2, 4, 8, 16, 32, 64All values in *sl-NumSSB-WithinPeriod* in *sl-SSB-TimeAllocation1* is set to be same across all carrier frequencies configured for UEs performing NR sidelink communication on multiple carrier frequencies, if configured. All values in *sl-NumSSB-WithinPeriod* in *sl-SSB-TimeAllocation2* is set to be same across all carrier frequencies configured for UEs performing NR sidelink communication on multiple carrier frequencies, if configured. All values in *sl-NumSSB-WithinPeriod* in *sl-SSB-TimeAllocation3* is set to be same across all carrier frequencies configured for UEs performing NR sidelink communication on multiple carrier frequencies, if configured. |
| ***sl-TimeOffsetSSB***Indicates the slot offset from the start of sidelink SSB period to the first sidelink SSB. All values in *sl-TimeOffsetSSB* in *sl-SSB-TimeAllocation1* is set to be same across all carrier frequencies configured for UEs performing NR sidelink communication on multiple carrier frequencies, if configured. All values in *sl-TimeOffsetSSB* in *sl-SSB-TimeAllocation2* is set to be same across all carrier frequencies configured for UEs performing NR sidelink communication on multiple carrier frequencies, if configured. All values in *sl-TimeOffsetSSB* in *sl-SSB-TimeAllocation3* is set to be same across all carrier frequencies configured for UEs performing NR sidelink communication on multiple carrier frequencies, if configured. |
| ***sl-TimeInterval***Indicates the slot interval between neighboring sidelink SSBs. This value is applicable when there are more than one sidelink SSBs within one sidelink SSB period. All values in *sl-TimeInterval* in *sl-SSB-TimeAllocation1* is set to be same across all carrier frequencies configured for UEs performing NR sidelink communication on multiple carrier frequencies, if configured. All values in *sl-TimeInterval* in *sl-SSB-TimeAllocation2* is set to be same across all carrier frequencies configured for UEs performing NR sidelink communication on multiple carrier frequencies, if configured. All values in *sl-TimeInterval* in *sl-SSB-TimeAllocation3* is set to be same across all carrier frequencies configured for UEs performing NR sidelink communication on multiple carrier frequencies, if configured. |
| ***sl-SSID***Indicates the ID of sidelink synchronization signal associated with different synchronization priorities. |
| ***syncInfoReserved***Reserved for future use. |
| ***syncTxThreshIC, syncTxThreshOoC***Indicates the thresholds used while in coverage and out of coverage, respectively. Value 0 corresponds to -infinity, value 1 to -115 dBm, value 2 to -110 dBm, and so on (i.e. in steps of 5 dBm) until value 12, which corresponds to -60 dBm, while value 13 corresponds to +infinity. |

#### – *SL-Thres-RSRP-List*

IE *SL-Thres-RSRP-List* indicates a threshold used for sensing based UE autonomous resource selection (see TS 38.215 [9]). A resource is excluded if it is indicated or reserved by a decoded SCI and PSSCH/PSCCH RSRP in the associated data resource is above the threshold defined by IE *SL-Thres-RSRP-List*. A NR sidelink resource is excluded if the corresponding PSFCH transmission occasions overlap with resources indicated or reserved by the decoded EUTRA SCI in time domain and EUTRA PSSCH RSRP in the associated data resource is above the threshold defined by IE *sl-NRPSFCH-EUTRA-ThresRSRP-List*. A NR sidelink resource is excluded if it is indicated or reserved by the decoded EUTRA SCI and EUTRA PSSCH RSRP in the associated data resource is above the threshold defined by IE *sl-NRPSSCH-EUTRA-ThresRSRP-List*. Value 0 corresponds to minus infinity dBm, value 1 corresponds to -128dBm, value 2 corresponds to -126dBm, value n corresponds to (-128 + (n-1)\*2) dBm and so on, value 66 corresponds to infinity dBm.

*SL-Thres-RSRP-List* information element

-- ASN1START

-- TAG-SL-THRES-RSRP-LIST-START

SL-Thres-RSRP-List-r16 ::= SEQUENCE (SIZE (64)) OF SL-Thres-RSRP-r16

SL-Thres-RSRP-r16 ::= INTEGER (0..66)

-- TAG-SL-THRES-RSRP-LIST-STOP

-- ASN1STOP

#### – *SL-TxPower*

The IE *SL-TxPower* is used to limit the UE's sidelink transmission power on a carrier frequency. The unit is dBm. Value minusinfinity corresponds to –infinity.

*SL-TxPower* information element

-- ASN1START

-- TAG-SL-TXPOWER-START

SL-TxPower-r16 ::= CHOICE{

 minusinfinity-r16 NULL,

 txPower-r16 INTEGER (-30..33)

}

-- TAG-SL-TXPOWER-STOP

-- ASN1STOP

#### – *SL-TypeTxSync*

The IE *SL-TypeTxSync* indicates the synchronization reference type.

*SL-TypeTxSync* information element

-- ASN1START

-- TAG-SL-TYPETXSYNC-START

SL-TypeTxSync-r16 ::= ENUMERATED {gnss, gnbEnb, ue}

-- TAG-SL-TYPETXSYNC-STOP

-- ASN1STOP

#### – *SL-UE-SelectedConfig*

IE *SL-UE-SelectedConfig* specifies sidelink communication configurations used for UE autonomous resource selection.

*SL-UE-SelectedConfig* information element

-- ASN1START

-- TAG-SL-UE-SELECTEDCONFIG-START

SL-UE-SelectedConfig-r16 ::= SEQUENCE {

 sl-PSSCH-TxConfigList-r16 SL-PSSCH-TxConfigList-r16 OPTIONAL, -- Cond SIB12

 sl-ProbResourceKeep-r16 ENUMERATED {v0, v0dot2, v0dot4, v0dot6, v0dot8} OPTIONAL, -- Need R

 sl-ReselectAfter-r16 ENUMERATED {n1, n2, n3, n4, n5, n6, n7, n8, n9} OPTIONAL, -- Need R

 sl-CBR-CommonTxConfigList-r16 SL-CBR-CommonTxConfigList-r16 OPTIONAL, -- Need R

 ul-PrioritizationThres-r16 INTEGER (1..16) OPTIONAL, -- Need R

 sl-PrioritizationThres-r16 INTEGER (1..8) OPTIONAL, -- Need R

 ...,

 [[

 sl-CBR-CommonTxDedicatedSL-PRS-RP-List-r18 SL-CBR-CommonTxDedicatedSL-PRS-RP-List-r18 OPTIONAL -- Cond notSIB12

 ]]

}

-- TAG-SL-UE-SELECTEDCONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *SL-UE-SelectedConfig* field descriptions |
| ***sl-PrioritizationThres***Indicates the SL priority threshold, which is used to determine whether SL TX is prioritized over UL TX, as specified in TS 38.321 [3]. Network does not configure the *sl-PrioritizationThres* and the *ul-PrioritizationThres* to the UE separately. |
| ***sl-ProbResourceKeep***Indicates the probability with which the UE keeps the current resource when the resource reselection counter reaches zero for sensing based UE autonomous resource selection (see TS 38.321 [3]). |
| ***sl-PSSCH-TxConfigList***Indicates PSSCH TX parameters such as MCS, sub-channel number, retransmission number, associated to different UE absolute speeds and different synchronization reference types for UE autonomous resource selection. |
| ***sl-ReselectAfter***Indicates the number of consecutive skipped transmissions before triggering resource reselection for sidelink communication (see TS 38.321 [3]). |
| ***ul-PrioritizationThres***Indicates the UL priority threshold, which is used to determine whether SL TX is prioritized over UL TX, as specified in TS 38.321 [3]. Network does not configure the *sl-PrioritizationThres* and the *ul-PrioritizationThres* to the UE separately. |

|  |  |
| --- | --- |
| Conditional Presence | Explanation |
| *SIB12* | This field is optional present if included within *SIB12*, need R. Otherwise, the field is absent. |
| *notSIB12* | The field is absent in *SIB12*. Otherwise, it is optional present, Need R |

#### – *SL-ZoneConfig*

The IE *SL-ZoneConfig* is used to configure the zone ID related parameters.

*SL-ZoneConfig* information element

-- ASN1START

-- TAG-SL-ZONECONFIG-START

SL-ZoneConfig-r16 ::= SEQUENCE {

 sl-ZoneLength-r16 ENUMERATED { m5, m10, m20, m30, m40, m50, spare2, spare1},

 ...

}

-- TAG-SL-ZONECONFIG-STOP

-- ASN1STOP

|  |
| --- |
| *SL-ZoneConfig* field descriptions |
| ***sl-ZoneLength***Indicates the length of each geographic zone. |

#### – *SLRB-Uu-ConfigIndex*

The IE *SLRB-Uu-ConfigIndex* is used to identify a sidelink DRB configuration from the network side, or to indicate an end-to-end sidelink DRB by L2 U2U Relay UE in *SidelinkUEInformation* message.

*SLRB-Uu-ConfigIndex* information element

-- ASN1START

-- TAG-SLRB-UU-CONFIGINDEX-START

SLRB-Uu-ConfigIndex-r16 ::= INTEGER (1..maxNrofSLRB-r16)

-- TAG-SLRB-UU-CONFIGINDEX-STOP

-- ASN1STOP