**3GPP TSG-RAN2 Meeting #130 *R2-2504721***

**Malta, MT, 19th – 23rd May 2025**

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

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| ***Title:*** | Introduction of additionalSpectrumEmission in SL | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE Corporation, Sanechips, [...] | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_SL\_enh2-Core | | | | |  | ***Date:*** | | | 2025-05-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **A** |  | | | | | ***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 can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | 1. Add the *AdditionalSpectrumEmission*, in accordance with the LS from RAN4(R4-2418075 and R4-2505217). | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. in clause 6.2.2, add *RRCReconfiguration-v15xy-IEs* in *lateNonCriticalExtension*  2. In clause 6.3.1, add *SIB12-IEs-v16xy* in *lateNonCriticalExtension*.  3. In clause 6.3.5, add *SL-FreqConfig-v16xy* and *SL-FreqConfigCommon-v16xy,* add *additionalSpectrumEmission-v18xy* in *SL-FreqConfigExt-v1800* and *SL-FreqConfigCommon-r16*.  4. In clause 9.3, add *SL-FreqConfigCommon-v16xy* in *NR-Sidelink-Preconf* , add *sidelinkPreconfigNR-v16xy* and *lateNonCriticalExtension* in *SL-PreconfigurationNR-r16*.  **Impact analysis**  Impacted functionality:  The supporting of NR V2X communication.  Inter-operability:   1. If Sidelink UE implements this change and network does not, UE can not obtain the additional Spectrum Emission for the prevailing regulative requirements. 2. If network implements this change and Sidelink UE does not, UE can not meet the prevailing regulative requirements. 3. If Sidelink TX UE implements this change, but the Sidelink RX UE is not implemented this change, there is no inter-operability issue. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | 1. Additional emission requirements can not be met for SL UE. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.2, 6.3.1, 6.3.5, 9.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

Start of the change

### 6.2.2 Message definitions

\*\*\*\*\*Irrelevant text omitted\*\*\*\*\*\*

#### – *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 (CONTAINING RRCReconfiguration-v15xy-IEs) OPTIONAL,

nonCriticalExtension RRCReconfiguration-v1530-IEs OPTIONAL

}

-- Late non-critical Rel-15 extensions:

RRCReconfiguration-v15xy-IEs ::= SEQUENCE {

-- Following field is only to be used for late REL-15 extensions

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCReconfiguration-v16xy-IEs OPTIONAL

}

RRCReconfiguration-v16xy-IEs ::= SEQUENCE {

sl-FreqInfoToAddModList-v16xy SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-FreqConfig-v16xy OPTIONAL, -- Need N

nonCriticalExtension SEQUENCE{} OPTIONAL

}

RRCReconfiguration-v1530-IEs ::= SEQUENCE {

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

fullConfig ENUMERATED {true} OPTIONAL, -- Cond FullConfig

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

masterKeyUpdate MasterKeyUpdate OPTIONAL, -- Cond MasterKeyChange

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

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

otherConfig OtherConfig OPTIONAL, -- Need M

nonCriticalExtension RRCReconfiguration-v1540-IEs OPTIONAL

}

RRCReconfiguration-v1540-IEs ::= SEQUENCE {

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

nonCriticalExtension RRCReconfiguration-v1560-IEs OPTIONAL

}

RRCReconfiguration-v1560-IEs ::= SEQUENCE {

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

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

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

nonCriticalExtension RRCReconfiguration-v1610-IEs OPTIONAL

}

RRCReconfiguration-v1610-IEs ::= SEQUENCE {

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

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

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

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

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

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

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

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

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

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

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

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

nonCriticalExtension RRCReconfiguration-v1700-IEs OPTIONAL

}

RRCReconfiguration-v1700-IEs ::= SEQUENCE {

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

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

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

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

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

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

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

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

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

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

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

nonCriticalExtension RRCReconfiguration-v1800-IEs OPTIONAL

}

RRCReconfiguration-v1800-IEs ::= SEQUENCE {

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

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

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

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

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

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

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

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

nonCriticalExtension RRCReconfiguration-v1830-IEs OPTIONAL

}

RRCReconfiguration-v1830-IEs ::= SEQUENCE {

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

nonCriticalExtension SEQUENCE {} OPTIONAL

}

MRDC-SecondaryCellGroupConfig ::= SEQUENCE {

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

mrdc-SecondaryCellGroup CHOICE {

nr-SCG OCTET STRING (CONTAINING RRCReconfiguration),

eutra-SCG OCTET STRING

}

}

BAP-Config-r16 ::= SEQUENCE {

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

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

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

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

...

}

MasterKeyUpdate ::= SEQUENCE {

keySetChangeIndicator BOOLEAN,

nextHopChainingCount NextHopChainingCount,

nas-Container OCTET STRING OPTIONAL, -- Cond securityNASC

...

}

OnDemandSIB-Request-r16 ::= SEQUENCE {

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

}

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

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

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

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

...

}

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

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

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

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

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

...

}

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

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

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

}

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

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

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

oneShot-r17 NULL,

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

}

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

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

-- TAG-RRCRECONFIGURATION-STOP

-- ASN1STOP

|  |
| --- |
| *RRCReconfiguration-IEs* field descriptions |
| ***appLayerMeasConfig***  This field is used to configure application layer measurements. This field is absent when the UE is configured to operate with shared spectrum channel access or if *sl-L2RemoteUE-Config-r17* is configured or not released. |
| ***bap-Config***  This field is used to configure the BAP entity for IAB nodes. |
| ***bap-Address***  Indicates the BAP address of an IAB-node. The BAP address of an IAB-node cannot be changed once configured for the cell group to the BAP entity. |
| ***conditionalReconfiguration***  Configuration of candidate target SpCell(s) and execution condition(s) for conditional handover, conditional PSCell addition or conditional PSCell change. The field is absent if any DAPS bearer is configured, if the *sl-L2RemoteUE-Config* or *sl-L2RelayUE-Config* is configured, or if the *RRCReconfiguration* message is contained within *condRRCReconfig*. When the *masterCellGroup* and/or *secondaryCellGroup* includes *ReconfigurationWithSync*, if this field is present, it only includes configurations/fields specific to subsequent CPAC. The *RRCReconfiguration* message contained in *DLInformationTransferMRDC* cannot contain the field *conditionalReconfiguration* for conditional PSCell change or for conditional PSCell addition. The network does not include this field in an *RRCReconfiguration* message contained within a *LTM-Config* IE*.* |
| ***daps-SourceRelease***  Indicates to UE that the source cell part of DAPS operation is to be stopped and the source cell part of DAPS configuration is to be released. |
| ***dedicatedNAS-MessageList***  This field is used to transfer UE specific NAS layer information between the network and the UE. The RRC layer is transparent for each PDU in the list. |
| ***dedicatedPagingDelivery***  This field is used to transfer *Paging* message for the associated L2 U2N Remote UE to the L2 U2N Relay UE in RRC\_CONNECTED. |
| ***dedicatedPosSysInfoDelivery***  This field is used to transfer *SIBPos* to the UE in RRC\_CONNECTED. |
| ***dedicatedSIB1-Delivery***  This field is used to transfer *SIB1* to the UE (including L2 U2N Remote UE). The field has the same values as the corresponding configuration in *servingCellConfigCommon*. |
| ***dedicatedSystemInformationDelivery***  This field is used to transfer *SIB6*, *SIB7*, *SIB8, SIB19, SIB20, SIB21, SIB25* to the UE with an active BWP with no common search space configured or the L2 U2N Remote UE in RRC\_CONNECTED. For UEs in RRC\_CONNECTED (including L2 U2N Remote UE), this field is also used to transfer the SIBs requested on-demand. |
| ***defaultUL-BAP-RoutingID***  This field is used for IAB-node to configure the default uplink Routing ID, which is used by IAB-node during IAB-node bootstrapping*,* migration, IAB-MT RRC resume and IAB-MT RRC re-establishment for *F1-C* and *non-F1* traffic. The *defaultUL-BAP-RoutingID* can be (re-)configured when IAB-node IP address for *F1-C* related traffic changes. This field is mandatory only for IAB-node bootstrapping. |
| ***defaultUL-BH-RLC-Channel***  This field is used for IAB-nodes to configure the default uplink BH RLC channel*,* which is used by IAB-nodeduring IAB-node bootstrapping*,* migration, IAB-MT RRC resume and IAB-MT RRC re-establishment *for F1-C and non-F1 traffic*. The *defaultUL-BH-RLC-Channel* can be (re-)configured when IAB-node IP address for *F1-C* related traffic changes, and the new IP address is anchored at a different IAB-donor-DU. This field is mandatory for IAB-node bootstrapping. If the IAB-MT is operating in EN-DC, the default uplink BH RLC channel is referring to an RLC channel on the SCG; Otherwise, it is referring to an RLC channel either on the MCG or on the SCG depending on whether the MN or the SN configures this field. |
| ***flowControlFeedbackType***  This field is only used for IAB-node that support hop-by-hop flow control to configure the type of flow control feedback. Value *perBH-RLC-Channel* indicates that the IAB-node shall provide flow control feedback per BH RLC channel, value *perRoutingID* indicates that the IAB-node shall provide flow control feedback per routing ID, and value *both* indicates that the IAB-node shall provide flow control feedback both per BH RLC channel and per routing ID. |
| ***fullConfig***  Indicates that the full configuration option is applicable for the *RRCReconfiguration* message for intra-system intra-RAT HO. For inter-RAT HO from E-UTRA to NR, *fullConfig* indicates whether or not delta signalling of SDAP/PDCP from source RAT is applicable. This field is absent if any DAPS bearer is configured or when the *RRCReconfiguration* message is transmitted on SRB3, and in an *RRCReconfiguration* message for SCG contained in another *RRCReconfiguration* message (or *RRCConnectionReconfiguration* message, see TS 36.331 [10]) transmitted on SRB1. |
| ***iab-IP-Address***  This field is used to provide the IP address information for IAB-node. |
| ***iab-IP-AddressIndex***  This field is used to identify a configuration of an IP address. |
| ***iab-IP-AddressToAddModList***  List of IP addresses allocated for IAB-node to be added and modified. |
| ***iab-IP-AddressToReleaseList***  List of IP address allocated for IAB-node to be released. |
| ***iab-IP-Usage***  This field is used to indicate the usage of the assigned IP address. If this field is not configured, the assigned IP address is used for all traffic. |
| ***iab-donor-DU-BAP-Address***  This field is used to indicate the BAP address of the IAB-donor-DU where the IP address is anchored. |
| ***keySetChangeIndicator***  Indicates whether UE shall derive a new KgNB. If *reconfigurationWithSync* is included, value *true* indicates that a KgNB key is derived from a KAMF key taken into use through the latest successful NAS SMC procedure, or N2 handover procedure with KAMF change, as described in TS 33.501 [11] for KgNB re-keying. Value *false* indicates that the new KgNB key is obtained from the current KgNB key or from the NH as described in TS 33.501 [11]. |
| ***ltm-Config***  The network does not configure this field in an *RRCReconfiguration* message within an *LTM-Config* IE and *ConditionalReconfiguration* IE. |
| ***masterCellGroup***  Configuration of master cell group. |
| ***mrdc-ReleaseAndAdd***  This field indicates that the current SCG configuration is released and a new SCG is added at the same time. |
| ***mrdc-SecondaryCellGroup***  Includes an RRC message for SCG configuration in NR-DC or NE-DC. For NR-DC (nr-SCG), *mrdc-SecondaryCellGroup* contains the *RRCReconfiguration* message as generated (entirely) by SN gNB. In this version of the specification, the RRC message can only include fields *secondaryCellGroup, otherConfig, conditionalReconfiguration,* *ltm-Config,* *measConfig,* *bap-Config,* *IAB-IP-AddressConfigurationList* and *appLayerMeasConfig*.  For NE-DC (eutra-SCG), *mrdc-SecondaryCellGroup* includes the E-UTRA *RRCConnectionReconfiguration* message as specified in TS 36.331 [10]. In this version of the specification, the E-UTRA RRC message can only include the field *scg-Configuration*. |
| ***mrdc-SecondaryCellGroupConfig***  This field is used to configure and release an SCG in NR-DC and NE-DC. In an *RRCReconfiguration* message within an *LTM-Config* IE associated with the MCG, if this field is present its value can only be set to *release*. |
| ***musim-GapConfig***  Indicates the MUSIM gap configuration and controls setup/release of MUSIM gaps. In this version of the specification, the network does not configure MUSIM gap together preconfigured measurement gap for positioning. For the UE supporting *musim-GapPriorityPreference*, the network can configure MUSIM gap together with concurrent measurement gap. Otherwise, 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. |
| ***sl-FreqInfoToAddModList-v16xy***  If included, it includes the same number of entries, and listed in the same order, as in *sl-FreqInfoToAddModList-r16*. |

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

\*\*\*\*\*Irrelevant text omitted\*\*\*\*\*\*

Next change

### 6.3.1 System information blocks

\*\*\*\*\*Irrelevant text omitted\*\*\*\*\*\*

#### – *SIB12*

SIB12 contains NR sidelink communication/discovery configuration.

*SIB12* information element

-- ASN1START

-- TAG-SIB12-START

SIB12-r16 ::= SEQUENCE {

segmentNumber-r16 INTEGER (0..63),

segmentType-r16 ENUMERATED {notLastSegment, lastSegment},

segmentContainer-r16 OCTET STRING

}

SIB12-IEs-r16 ::= SEQUENCE {

sl-ConfigCommonNR-r16 SL-ConfigCommonNR-r16,

lateNonCriticalExtension OCTET STRING (CONTAINING SIB12-IEs-v16xy) OPTIONAL,

...,

[[

sl-DRX-ConfigCommonGC-BC-r17 SL-DRX-ConfigGC-BC-r17 OPTIONAL, -- Need R

sl-DiscConfigCommon-r17 SL-DiscConfigCommon-r17 OPTIONAL, -- Need R

sl-L2U2N-Relay-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

sl-NonRelayDiscovery-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

sl-L3U2N-RelayDiscovery-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

sl-TimersAndConstantsRemoteUE-r17 UE-TimersAndConstantsRemoteUE-r17 OPTIONAL -- Need R

]],

[[

sl-FreqInfoListSizeExt-v1800 SEQUENCE (SIZE (1..maxNrofFreqSL-1-r18)) OF SL-FreqConfigCommon-r16 OPTIONAL, -- Need R

sl-RLC-BearerConfigListSizeExt-v1800 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-RLC-BearerConfig-r16 OPTIONAL, -- Need R

sl-SyncFreqList-r18 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-Freq-Id-r16 OPTIONAL, -- Need R

sl-SyncTxMultiFreq-r18 ENUMERATED {true} OPTIONAL, -- Need S

sl-MaxTransPowerCA-r18 P-Max OPTIONAL, -- Need R

sl-DiscConfigCommon-v1800 SL-DiscConfigCommon-v1800 OPTIONAL, -- Need R

sl-L2-U2U-Relay-r18 ENUMERATED {enabled} OPTIONAL, -- Need R

sl-L3-U2U-RelayDiscovery-r18 ENUMERATED {enabled} OPTIONAL, -- Need R

t400-U2U-r18 ENUMERATED {ms200, ms400, ms600, ms800, ms1200, ms2000, ms3000, ms4000} OPTIONAL -- Need R

]],

[[

sl-DiscConfigCommon-v1840 SL-DiscConfigCommon-v1840 OPTIONAL -- Need R

]]

}

-- Late non-critical Rel-16 extensions:

SIB12-IEs-v16xy ::= SEQUENCE {

sl-FreqInfoList-v16xy SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-FreqConfigCommon-v16xy OPTIONAL, -- Need R

nonCriticalExtension SEQUENCE{} OPTIONAL

}

SL-ConfigCommonNR-r16 ::= SEQUENCE {

sl-FreqInfoList-r16 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-FreqConfigCommon-r16 OPTIONAL, -- Need R

sl-UE-SelectedConfig-r16 SL-UE-SelectedConfig-r16 OPTIONAL, -- Need R

sl-NR-AnchorCarrierFreqList-r16 SL-NR-AnchorCarrierFreqList-r16 OPTIONAL, -- Need R

sl-EUTRA-AnchorCarrierFreqList-r16 SL-EUTRA-AnchorCarrierFreqList-r16 OPTIONAL, -- Need R

sl-RadioBearerConfigList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SL-RadioBearerConfig-r16 OPTIONAL, -- Need R

sl-RLC-BearerConfigList-r16 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-RLC-BearerConfig-r16 OPTIONAL, -- Need R

sl-MeasConfigCommon-r16 SL-MeasConfigCommon-r16 OPTIONAL, -- Need R

sl-CSI-Acquisition-r16 ENUMERATED {enabled} OPTIONAL, -- Need R

sl-OffsetDFN-r16 INTEGER (1..1000) OPTIONAL, -- Need R

t400-r16 ENUMERATED {ms100, ms200, ms300, ms400, ms600, ms1000, ms1500, ms2000} OPTIONAL, -- Need R

sl-MaxNumConsecutiveDTX-r16 ENUMERATED {n1, n2, n3, n4, n6, n8, n16, n32} OPTIONAL, -- Need R

sl-SSB-PriorityNR-r16 INTEGER (1..8) OPTIONAL -- Need R

}

SL-NR-AnchorCarrierFreqList-r16 ::= SEQUENCE (SIZE (1..maxFreqSL-NR-r16)) OF ARFCN-ValueNR

SL-EUTRA-AnchorCarrierFreqList-r16 ::= SEQUENCE (SIZE (1..maxFreqSL-EUTRA-r16)) OF ARFCN-ValueEUTRA

SL-DiscConfigCommon-r17 ::= SEQUENCE {

sl-RelayUE-ConfigCommon-r17 SL-RelayUE-Config-r17,

sl-RemoteUE-ConfigCommon-r17 SL-RemoteUE-Config-r17

}

SL-DiscConfigCommon-v1800 ::= SEQUENCE {

sl-RelayUE-ConfigCommonU2U-r18 SL-RelayUE-ConfigU2U-r18,

sl-RemoteUE-ConfigCommonU2U-r18 SL-RemoteUE-ConfigU2U-r18

}

SL-DiscConfigCommon-v1840 ::= SEQUENCE {

sl-RelayUE-ConfigCommonU2U-v1840 SL-RelayUE-ConfigU2U-v1840,

sl-RemoteUE-ConfigCommonU2U-v1840 SL-RemoteUE-ConfigU2U-v1830

}

-- TAG-SIB12-STOP

-- ASN1STOP

| *SIB12* field descriptions |
| --- |
| ***segmentContainer***  This field includes a segment of the encoded *SIB12-IEs*. The size of the included segment in this container should be small enough that the SIB message size is less than or equal to the maximum size of a NR SI, i.e. 2976 bits when SIB12 is broadcast. |
| ***segmentNumber***  This field identifies the sequence number of a segment of *SIB12-IEs*. A segment number of zero corresponds to the first segment, A segment number of one corresponds to the second segment, and so on. |
| ***segmentType***  This field indicates whether the included segment is the last segment or not. |
| ***sl-CSI-Acquisition***  This field indicates whether CSI reporting is enabled in sidelink unicast. If not set, SL CSI reporting is disabled. |
| ***sl-DRX-ConfigCommonGC-BC***  This field indicates the sidelink DRX configuration for groupcast and broadcast communication, as specified in TS 38.321 [3]. This field, if present, also indicates the gNB is capable of sidelink DRX. |
| ***sl-EUTRA-AnchorCarrierFreqList***  This field indicates the EUTRA anchor carrier frequency list, which can provide the NR sidelink communication configurations. |
| ***sl-FreqInfoList, sl-FreqInfoListSizeExt***  This field indicates the NR sidelink communication/discovery configuration on some carrier frequency (ies). In this release, only one entry can be configured in *sl-FreqInfoList*. More entries can be configured in *sl-FreqInfoListSizeExt*. |
| ***sl-L2U2N-Relay***  This field indicates the support of NR sidelink Layer-2 U2N relay operation. |
| ***sl-L2-U2U-Relay***  This field indicates the support of NR sidelink Layer-2 U2U relay operation. |
| ***sl-L3U2N-RelayDiscovery***  This field indicates the support of L3 U2N relay AS-layer capability, i.e. NR sidelink L3 U2N relay discovery. |
| ***sl-L3-U2U-RelayDiscovery***  This field indicates the support of L3 U2U relay AS-layer capability, i.e. NR sidelink L3 U2U relay discovery. |
| ***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-MaxTransPowerCA***  The maximum total transmit power to be used by the UE across all sidelink carriers. |
| ***sl-MeasConfigCommon***  This field indicates the measurement configurations (e.g. RSRP) for NR sidelink communication. |
| ***sl-NonRelayDiscovery***  This field indicates the support of NR sidelink non-relay discovery. |
| ***sl-NR-AnchorCarrierFreqList***  This field indicates the NR anchor carrier frequency list, which can provide the NR sidelink communication/discovery configurations. |
| ***sl-OffsetDFN***  Indicates the timing offset for the UE to determine DFN timing when GNSS is used for timing reference. Value 1 corresponds to 0.001 milliseconds, value 2 corresponds to 0.002 milliseconds, and so on. |
| ***sl-RadioBearerConfigList***  This field indicates one or multiple sidelink radio bearer configurations. |
| ***sl-RLC-BearerConfigList, sl-RLC-BearerConfigListSizeExt***  This field indicates one or multiple sidelink RLC bearer configurations. For L2 U2U operation, *sl-RLC-BearerConfigList* also indicates the PC5 Relay RLC Channel configurations. |
| ***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. For *SL-Freq-Id-r16*, 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-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. |
| ***t400***  Indicates the value for timer T400 as described in clause 7.1. Value *ms100* corresponds to 100 ms, value *ms200* corresponds to 200 ms and so on. |
| ***t400-U2U***  Indicates the value for timer T400 to be applied for end-to-end PC5 connection in sidelink U2U relay operation as described in clause 7.1. Value *ms200* corresponds to 200 ms, value *ms400* corresponds to 400 ms and so on. |
| ***sl-FreqInfoList-v16xy***  If included, it includes the same number of entries, and listed in the same order, as in *sl-FreqInfoList-r16*. |

### 6.3.5 Sidelink information elements

\*\*\*\*\*Irrelevant text omitted\*\*\*\*\*\*

#### – *SL-FreqConfig*

The IE *SL-FreqConfig* specifies the dedicated configuration information on one particular carrier frequency for NR sidelink communication/positioning.

*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-FreqConfig-v16xy ::= SEQUENCE {

additionalSpectrumEmission-v16xy AdditionalSpectrumEmission OPTIONAL -- Need M

}

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

...,

[[

additionalSpectrumEmission-v18xy AdditionalSpectrumEmission-r18 OPTIONAL -- Need M

]]

}

-- 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). |
| ***additionalSpectrumEmission-v16xy***  Provides the *additionalSpectrumEmission* values as defined in TS 38.101-1 [15], clause 6.2E.3.1. |
| ***additionalSpectrumEmission-v18xy***  Provides the *additionalSpectrumEmission* values as defined in TS 38.101-1 [15], clause 6.2E.3F.1. |

|  |  |
| --- | --- |
| 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/positioning.

*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

]],

[[

additionalSpectrumEmission-v18xy AdditionalSpectrumEmission-r18 OPTIONAL -- Need R

]]

}

SL-FreqConfigCommon-v16xy ::= SEQUENCE {

additionalSpectrumEmission-v16xy AdditionalSpectrumEmission OPTIONAL -- Need R

}

-- 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). |
| ***additionalSpectrumEmission-v16xy***  Provides the *additionalSpectrumEmission* values as defined in TS 38.101-1 [15], clause 6.2E.3.1. |
| ***additionalSpectrumEmission-v18xy***  Provides the *additionalSpectrumEmission* values as defined in TS 38.101-1 [15], clause 6.2E.3F.1. |

|  |  |
| --- | --- |
| 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. |

\*\*\*\*\*Irrelevant text omitted\*\*\*\*\*\*

Next change

## 9.3 Sidelink pre-configured parameters

This ASN.1 segment is the start of the NR definitions of pre-configured sidelink parameters.

#### – *NR-Sidelink-Preconf*

-- ASN1START

-- TAG-NR-SIDELINK-PRECONF-DEFINITIONS-START

NR-Sidelink-Preconf DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

SL-RelayUE-ConfigU2U-r18,

SL-RemoteUE-ConfigU2U-r18,

SL-RelayUE-ConfigU2U-v1840,

SL-RemoteUE-ConfigU2U-v1830,

SL-RemoteUE-Config-r17,

SL-DRX-ConfigGC-BC-r17,

SL-Freq-Id-r16,

maxNrofFreqSL-1-r18,

SL-FreqConfigCommon-r16,

SL-RadioBearerConfig-r16,

SL-RLC-BearerConfig-r16,

SL-EUTRA-AnchorCarrierFreqList-r16,

SL-NR-AnchorCarrierFreqList-r16,

SL-MeasConfigCommon-r16,

SL-UE-SelectedConfig-r16,

TDD-UL-DL-ConfigCommon,

maxNrofFreqSL-r16,

maxNrofSLRB-r16,

maxSL-LCID-r16,

SL-FreqConfigCommon-v16xy

FROM NR-RRC-Definitions;

-- TAG-NR-SIDELINK-PRECONF-DEFINITIONS-STOP

-- ASN1STOP

#### – *SL-PreconfigurationNR*

The IE *SL-PreconfigurationNR* includes the sidelink pre-configured parameters used for NR sidelink communication. Need codes or conditions specified for subfields in *SL-PreconfigurationNR* do not apply.

*SL-PreconfigurationNR* information elements

-- ASN1START

-- TAG-SL-PRECONFIGURATIONNR-START

SL-PreconfigurationNR-r16 ::= SEQUENCE {

sidelinkPreconfigNR-r16 SidelinkPreconfigNR-r16,

...,

[[

sidelinkPreconfigNR-v16xy SidelinkPreconfigNR-v16xy,

lateNonCriticalExtension OCTET STRING OPTIONAL

]]

}

SidelinkPreconfigNR-r16 ::= SEQUENCE {

sl-PreconfigFreqInfoList-r16 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-FreqConfigCommon-r16 OPTIONAL,

sl-PreconfigNR-AnchorCarrierFreqList-r16 SL-NR-AnchorCarrierFreqList-r16 OPTIONAL,

sl-PreconfigEUTRA-AnchorCarrierFreqList-r16 SL-EUTRA-AnchorCarrierFreqList-r16 OPTIONAL,

sl-RadioBearerPreConfigList-r16 SEQUENCE (SIZE (1..maxNrofSLRB-r16)) OF SL-RadioBearerConfig-r16 OPTIONAL,

sl-RLC-BearerPreConfigList-r16 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-RLC-BearerConfig-r16 OPTIONAL,

sl-MeasPreConfig-r16 SL-MeasConfigCommon-r16 OPTIONAL,

sl-OffsetDFN-r16 INTEGER (1..1000) OPTIONAL,

t400-r16 ENUMERATED{ms100, ms200, ms300, ms400, ms600, ms1000, ms1500, ms2000} OPTIONAL,

sl-MaxNumConsecutiveDTX-r16 ENUMERATED {n1, n2, n3, n4, n6, n8, n16, n32} OPTIONAL,

sl-SSB-PriorityNR-r16 INTEGER (1..8) OPTIONAL,

sl-PreconfigGeneral-r16 SL-PreconfigGeneral-r16 OPTIONAL,

sl-UE-SelectedPreConfig-r16 SL-UE-SelectedConfig-r16 OPTIONAL,

sl-CSI-Acquisition-r16 ENUMERATED {enabled} OPTIONAL,

sl-RoHC-Profiles-r16 SL-RoHC-Profiles-r16 OPTIONAL,

sl-MaxCID-r16 INTEGER (1..16383) DEFAULT 15,

...,

[[

sl-DRX-PreConfigGC-BC-r17 SL-DRX-ConfigGC-BC-r17 OPTIONAL,

sl-TxProfileList-r17 SL-TxProfileList-r17 OPTIONAL,

sl-PreconfigDiscConfig-r17 SL-RemoteUE-Config-r17 OPTIONAL

]],

[[

sl-PreconfigFreqInfoListSizeExt-v1800 SEQUENCE (SIZE (1..maxNrofFreqSL-1-r18)) OF SL-FreqConfigCommon-r16 OPTIONAL,

sl-RLC-BearerConfigListSizeExt-v1800 SEQUENCE (SIZE (1..maxSL-LCID-r16)) OF SL-RLC-BearerConfig-r16 OPTIONAL,

sl-SyncFreqList-r18 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-Freq-Id-r16 OPTIONAL,

sl-SyncTxMultiFreq-r18 ENUMERATED {true} OPTIONAL,

sl-PreconfigDiscConfig-v1800 SL-PreconfigDiscConfig-v1800 OPTIONAL,

sl-PosPreconfigFreqInfoList-r18 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-FreqConfigCommon-r16 OPTIONAL

]],

[[

t400-U2U-r18 ENUMERATED {ms200, ms400, ms600, ms800, ms1200, ms2000, ms3000, ms4000} OPTIONAL

]],

[[

sl-PreconfigDiscConfig-v1840 SL-PreconfigDiscConfig-v1840 OPTIONAL

]]

}

SidelinkPreconfigNR-v16xy ::= SEQUENCE {

sl-PreconfigFreqInfoList-v16xy SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-FreqConfigCommon-v16xy OPTIONAL,

...

}

SL-TxProfileList-r17 ::= SEQUENCE (SIZE (1..256)) OF SL-TxProfile-r17

SL-TxProfile-r17 ::= ENUMERATED {drx-Compatible, drx-Incompatible, spare6, spare5, spare4, spare3,spare2, spare1}

SL-PreconfigGeneral-r16 ::= SEQUENCE {

sl-TDD-Configuration-r16 TDD-UL-DL-ConfigCommon OPTIONAL,

reservedBits-r16 BIT STRING (SIZE (2)) OPTIONAL,

...

}

SL-RoHC-Profiles-r16 ::= SEQUENCE {

profile0x0001-r16 BOOLEAN,

profile0x0002-r16 BOOLEAN,

profile0x0003-r16 BOOLEAN,

profile0x0004-r16 BOOLEAN,

profile0x0006-r16 BOOLEAN,

profile0x0101-r16 BOOLEAN,

profile0x0102-r16 BOOLEAN,

profile0x0103-r16 BOOLEAN,

profile0x0104-r16 BOOLEAN

}

SL-PreconfigDiscConfig-v1800 ::= SEQUENCE {

sl-RelayUE-PreconfigU2U-r18 SL-RelayUE-ConfigU2U-r18,

sl-RemoteUE-PreconfigU2U-r18 SL-RemoteUE-ConfigU2U-r18

}

SL-PreconfigDiscConfig-v1840 ::= SEQUENCE {

sl-RelayUE-PreconfigU2U-v1840 SL-RelayUE-ConfigU2U-v1840,

sl-RemoteUE-PreconfigU2U-v1840 SL-RemoteUE-ConfigU2U-v1830

}

-- TAG-SL-PRECONFIGURATIONNR-STOP

-- ASN1STOP

| *SL-PreconfigurationNR* field descriptions |
| --- |
| ***sl-DRX-PreConfig-GC-BC***  This field indicates the sidelink DRX configuration for groupcast and broadcast communication, as specified in TS 38.321 [3]. |
| ***sl-OffsetDFN***  Indicates the timing offset for the UE to determine DFN timing when GNSS is used for timing reference. Value 1 corresponds to 0.001 milliseconds, value 2 corresponds to 0.002 milliseconds, and so on. If the field is absent, no offset is applied. |
| ***sl-PosPreconfigFreqInfoList***  This field indicates the NR sidelink positioning carrier frequencies of SL-PRS dedicated resource pool for SL-PRS transmission and reception. In this release, only one entry of *SL-FreqConfigCommon* is included in the list. |
| ***sl-PreconfigDiscConfig***  This field indicates the configuration for discovery message transmission used by NR sidelink U2N Remote UE, used by NR sidelink U2U Relay UE or used by NR sidelink U2U Remote UE. |
| ***sl-PreconfigEUTRA-AnchorCarrierFreqList***  This field indicates the EUTRA anchor carrier frequency list, which can provide the NR sidelink communication configuration. |
| ***sl-PreconfigFreqInfoList, sl-PreconfigFreqInfoListSizeExt***  This field indicates the NR sidelink communication and/ or NR sidelink discovery configuration some carrier frequency(ies). In this release, only one *SL-FreqConfig* can be configured in *sl-PreconfigFreqInfoList*. More entries of SL-FreqConfig can be configured in *sl-PreconfigFreqInfoListSizeExt*.. |
| ***sl-PreconfigNR-AnchorCarrierFreqList***  This field indicates the NR anchor carrier frequency list, which can provide the NR sidelink communication configuration. |
| ***sl-RadioBearerPreConfigList***  This field indicates one or multiple sidelink radio bearer configurations. |
| ***sl-RLC-BearerPreConfigList, sl-RLC-BearerPreConfigListSizeExt***  This field indicates one or multiple sidelink RLC bearer configurations. |
| ***sl-RoHC-Profiles***  This field indicates the supported RoHC profiles for NR sidelink communications. |
| ***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. For *SL-Freq-Id-r16*, the value 1 corresponds to the frequency of first entry in *sl-PreconfigFreqInfoList*, the value 2 corresponds to the frequency of first entry in *sl-PreconfigFreqInfoListSizeExt*, the value 3 corresponds to the frequency of second entry in *sl-PreconfigFreqInfoListSizeExt* and so on. |
| ***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-TxProfileList***  List of one or multiple Tx profiles, indicating the compatibility of supporting SL DRX as specified in TS 38.321 [3]. Value *drx-Compatible* means SL DRX is supported, and value *drx-Incompatible* means SL DRX is not supported. It is up to the UE implementation whether/how to apply this field. |
| ***t400***  Indicates the value for timer T400 as described in clause 7.1. Value *ms100* corresponds to 100 ms, value *ms200* corresponds to 200 ms and so on. |
| ***t400-U2U***  Indicates the value for timer T400 to be applied for end-to-end PC5 connection in sidelink U2U relay operation as described in clause 7.1. Value *ms200* corresponds to 200 ms, value *ms400* corresponds to 400 ms and so on. |
| ***sl-PreconfigFreqInfoList-v16xy***  If included, it includes the same number of entries, and listed in the same order, as in *sl-PreconfigFreqInfoList-r16*. |

#### – *End of NR-Sidelink-Preconf*

-- ASN1START

END

-- ASN1STOP

End of the change