**3GPP TSG- Meeting #7 *6510***

**, , – , 2024**

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| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **31** | **CR** | **4879** | **rev** | **-** | **Current version:** |  |  |
|  |
| *For* [***HELP***](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:***  | Corrections on SL positioning in TS 38.331 |
|  |  |
| ***Source to WG:*** |  |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** | 06 |
|  |  |  |  |  |
| ***Category:*** |  |  | ***Release:*** |  |
|  | *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:*** | 1. The size of *sl-CBR-RangeDedicatedSL-PRS-RP-List* should be upto 8, instead of 7, because the maximum number of CBR ranges for SL positioning is 8 according to RRC parameter list in R2-2400020.

|  |
| --- |
| AgreementIn Scheme 2, with regards to the congestion control for SL PRS: • The maximum number of CBR ranges for SL positioning is 8 |

The change on this asn.1 issue can be non-compatible, considering the extension of this list is not easy and v18.2.0 is the early state of Rel-18. sl-CBR-RangeDedicatedSL-PRS-RP-List-r18 SEQUENCE (SIZE (1..maxCBR-ConfigDedSL-PRS-1-r18)) OF SL-CBR-LevelsDedicatedSL-PRS-RP-r18 OPTIONAL, -- Need MMeanwhile the IE *SL-CBR-CommonTxDedicatedSL-PRS-RP-List-r18* is not extensible which would face the extensible issue in the future. So the extension marker can be added in this CR. 2. The size of *SL-CBR-LevelsDedicatedSL-PRS-RP* and *sl-PRS-TxConfigIndexList* should be upto 16, instead of 15 which has a similar issue as above. Meanwhile 0 as size of *SL-CBR-LevelsDedicatedSL-PRS-RP* is not meaningful since *sl-CBR-RangeDedicatedSL-PRS-RP-List* is optional. So the size of these IEs should be updated. 3. *sl-PosFreqInfoList* is included in SIB23 and *sl-FreqInfoList* is included in SIB12 but these two IEs are quoted wrongly within SIB23 or SIB12 in many places. So the cites should be corrected to align with the coresponding SIB. 4. SomeIEs for SL communication are reused for sidelink positioning. The description of these IEs should also include positioning functionality. |
|  |  |
| ***Summary of change:*** | #1. The non-compatible update on *sl-CBR-RangeDedicatedSL-PRS-RP-List-r18* is changed from SEQUENCE (SIZE (1..maxCBR-ConfigDedSL-PRS-1-r18)) to SEQUENCE (SIZE (1..maxCBR-ConfigDedSL-PRS-r18)).#2. The non-compatible update on *SL-CBR-LevelsDedicatedSL-PRS-RP-r18* and *sl-PRS-TxConfigIndexList-r18* is changed from SEQUENCE (SIZE (0..maxCBR-LevelDedSL-PRS-1-r18)) to SEQUENCE (SIZE (1..maxCBR-LevelDedSL-PRS-r18)).#3. Updates of *sl-PosFreqInfoList* within SIB23 and the IE name within SIB12 to align with the asn.1 data structure.#4. Add ‘positioning’ funcationality in the description of some legacy IEs for SL communication which also work for SL positioning in Rel-18.#5. Editorial updates.#6. The definitions of *maxCBR-ConfigDedSL-PRS-r18* and *maxCBR-LevelDedSL-PRS-r18* are added in Multiplicity and type constraint definitions according to change #1 and #2.  **Impact analysis:**Impacted 5G architecture options:SA, NSAImpacted functionality:SL positioningInter-operability:1. If the network is implemented according to the CR and the UE is not, the UE is not able to interpret correct *sl-CBR-RangeDedicatedSL-PRS-RP-List/SL-CBR-LevelsDedicatedSL-PRS-RP/sl-PRS-TxConfigIndexList* up to 8/16/16.
2. If the UE is implemented according to the CR and the network is not, the network is not able to provide maximum number of CBR ranges or maximum number of CBR levels for dedicated SL PRS resource pool.

 This CR is considered mandatory to support the impacted functionality for both network and UE. |
|  |  |
| ***Consequences if not approved:*** | Not support the maximum number of CBR ranges and maximum number of CBR levels for SL positioning and not fix the spotted issues for sidelink positioning in RRC. |
|  |  |
| ***Clauses affected:*** | 6 5.8.18, 6.2.2, 6.3.2, 6.3.3, 6.3.5, 6.4  |
|  |  |
|  | **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 CHANGE*

### 5.8.18 NR sidelink positioning

#### 5.8.18.1 General

The purpose of this procedure is to perform NR sidelink positioning as specified in TS 38.305 [73].

#### 5.8.18.2 NR sidelink positioning measurement

A UE capable of NR sidelink positioning that is configured by upper layers for performing SL-PRS measurement:

1> if the conditions for NR sidelink positioning operation as defined in 5.8.2 are met:

2> if the frequency used for NR sidelink positioning is included in *sl-FreqInfoToAddModList* in *RRCReconfiguration* message or *sl-FreqInfoList* included in *SIB12* and/or *sl-PosFreqInfoList* included in *SIB23*:

3> if the UE is configured with *sl-RxPool* and/or *sl-PRS-RxPool* included in *RRCReconfiguration* message with *reconfigurationWithSync* (i.e. handover):

4> configure lower layers to monitor sidelink control information and the corresponding SL-PRS using the pool(s) of resources indicated by *sl-RxPool* and/or *sl-PRS-RxPool*;

3> else if the cell chosen for NR sidelink positioning provides *SIB12* and/or *SIB23*:

4> configure lower layers to monitor sidelink control information and the corresponding SL-PRS using the pool(s) of resources indicated by *sl-RxPool* in *SIB12* and/or *sl-PRS-RxPool in SIB23*;

2> else:

3> configure lower layers to monitor sidelink control information and the corresponding SL-PRS using the pool(s) of resources that were preconfigured by *sl-RxPool* and/or *sl-PRS-RxPool* in *SL-PreconfigurationNR*, asdefined in clause 9.3.

#### 5.8.18.3 NR sidelink positioning transmission

A UE capable of NR sidelink positioning that is configured by upper layers to transmit SL-PRS shall:

1> if the conditions for NR sidelink positioning operation as defined in 5.8.2 are met:

2> if the frequency used for NR sidelink positioning is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message or includedin *sl-PosConfigCommonNR* within *SIB23* or includedin *sl-FreqInfoList or sl-FreqInfoListSizeExt* within *SIB12*:

3> if the UE is in RRC\_CONNECTED and uses the frequency included in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message:

4> if the UE is configured with *sl-ScheduledConfig*:

5> if T310 for MCG or T311 is running; and if *sl-PRS-TxPoolExceptional* or *sl-TxPoolExceptional* is included in *sl-PosFreqInfoList or sl-FreqInfoList* for the concerned frequency in *SIB23* or *SIB12* or included in *sl-ConfigDedicatedNR* in *RRCReconfiguration*; or

5> if T301 is running and the cell on which the UE initiated RRC connection re-establishment provides *SIB23* or *SIB12* including *sl-PRS-TxPoolExceptional* or *sl-TxPoolExceptional* for the concerned frequency; or

5> if T304 for MCG is running and the UE is configured with *sl-PRS-TxPoolExceptional* or *sl-TxPoolExceptional* included in *sl-ConfigDedicatedNR* for the concerned frequency in *RRCReconfiguration*:

6> configure lower layers to perform the sidelink resource allocation scheme 2 based on random selection using the resource pool indicated by *sl-PRS-TxPoolExceptional* or *sl-TxPoolExceptional* as defined in TS 38.321 [3];

5> else:

6> configure lower layers to perform the sidelink resource allocation scheme 1 for NR sidelink positioning;

5> if T311 is running, configure the lower layers to release the resources indicated by *rrc-ConfiguredSidelinkGrant* (if any);

4> if the UE is configured with *sl-UE-SelectedConfig*:

5> if a result of full sensing, if selected and is allowed by *sl-PosAllowedResourceSelectionConfig*, on the resources configured in *sl-PRS-TxPoolSelectedNormal* or by *sl-AllowedResourceSelectionConfig*, on the resources configured in *sl-TxPoolSelectedNormal* for the concerned frequency included in *sl-ConfigDedicatedNR* within *RRCReconfiguration* is not available in accordance with TS 38.214 [19];

6> if *sl-TxPoolExceptional* or *sl-PRS-TxPoolExceptional* for the concerned frequency is included in RRCReconfiguration; or

6> if the PCell provides *SIB12* and/or *SIB23* including *sl-TxPoolExceptional* or *sl-PRS-TxPoolExceptional* in *sl-FreqInfoList* or *sl-PosFreqInfoList* for the concerned frequency:

7> configure lower layers to perform the sidelink resource allocation scheme 2 based on random selection using the pool of resources indicated by *sl-TxPoolExceptional* or *sl-PRS-TxPoolExceptional* as defined in TS 38.321 [3];

5> else, if the *sl-PRS-TxPoolSelectedNormal* or *sl-TxPoolSelectedNormal* for the concerned frequency is included in the *sl-ConfigDedicatedNR* within *RRCReconfiguration*:

6> configure lower layers to perform the sidelink resource allocation scheme 2 based on resource selection operation according to *sl-PosAllowedResourceSelectionConfig* (as defined in TS 38.321 [3] and TS 38.214 [19]) using the pools of resources indicated by *sl-PRS-TxPoolSelectedNormal* for the concerned frequency, or based on resource selection operation according to *sl-AllowedResourceSelectionConfig* (as defined in TS 38.321 [3] and TS 38.214 [19]) using the pools of resources indicated by *sl-TxPoolSelectedNormal* for the concerned frequency;

3> else:

4> if the cell chosen for NR sidelink positioning transmission provides *SIB23* or *SIB12*:

5> if *SIB23* includes *sl-PRS-TxPoolSelectedNormal* for the concerned frequency,and a result of full sensing, if selected and is allowed by *sl-PosAllowedResourceSelectionConfig*, on the resources configured in the *sl-PRS-TxPoolSelectedNormal* is available in accordance with TS 38.214 [19] or random selection, if allowed by *sl-PosAllowedResourceSelectionConfig*, is selected:

6> configure lower layers to perform the sidelink resource allocation scheme 2 based on resource selection operation according to *sl-PosAllowedResourceSelectionConfig* using the pools of resources indicated by *sl-PosTxPoolSelectedNormal* for the concerned frequency as defined in TS 38.321 [3];

5> if *SIB12* includes *sl-TxPoolSelectedNormal* for the concerned frequency,and a result of full sensing, if selected and is allowed by *sl-AllowedResourceSelectionConfig*, on the resources configured in the *sl-TxPoolSelectedNormal* is available in accordance with TS 38.214 [19] or random selection, if allowed by *sl-AllowedResourceSelectionConfig*, is selected:

6> configure lower layers to perform the sidelink resource allocation scheme 2 based on resource selection operation according to *sl-AllowedResourceSelectionConfig* using the pools of resources indicated by *sl-TxPoolSelectedNormal* for the concerned frequency as defined in TS 38.321 [3];

5> else if *SIB23* includes *sl-PRS-TxPoolExceptional* or *SIB12* includes *sl-TxPoolExceptional* for the concerned frequency:

6> from the moment the UE initiates RRC connection establishment or RRC connection resume, until receiving an *RRCReconfiguration* including *sl-ConfigDedicatedNR*, or receiving an *RRCRelease* or an *RRCReject*; or

6> if a result of full sensing, if selected and is allowed by *sl-PosAllowedResourceSelectionConfig*, on the resources configured in *sl-PRS-TxPoolSelectedNormal* orif selected and is allowed by *sl-AllowedResourceSelectionConfig*, on the resources configured in *sl-TxPoolSelectedNormal* for the concerned frequency in *SIB12* and/or *SIB23* is not available in accordance with TS 38.214 [19]:

7> configure lower layers to perform the sidelink resource allocation scheme 2 based on random selection (as defined in TS 38.321 [3]) using the pool of resources indicated by *sl-PRS-TxPoolExceptional* or *sl-TxPoolExceptional* for the concerned frequency;

2> else:

3> configure lower layers to perform the sidelink resource allocation scheme 2 based on resource selection operation according to *sl-PosAllowedResourceSelectionConfig* (as defined in TS 38.321 [3] and TS 38.214 [19]) using the pools of resources indicated by *sl-PRS-TxPoolSelectedNormal or sl-TxPoolSelectedNormal* in *SL-PreconfigurationNR* for the concerned frequency.

NOTE: Void.

NOTE 1: The UE continues to use resources configured in *rrc-ConfiguredSidelinkGrant* (while T310 is running) until it is released (i.e. until T310 has expired). The UE does not use sidelink configured grant type 2 resources while T310 is running.

NOTE 2: In case of RRC reconfiguration with sync, the UE uses resources configured in *rrc-ConfiguredSidelinkGrant* (while T304 on the MCG is running) if provided by the target cell.

NOTE 3: It is up to UE implementation to determine, in accordance with TS 38.321[3], which resource pool to use if multiple resource pools are configured, and which resource allocation scheme is used in the AS based on UE capability (for a UE in RRC\_IDLE/RRC\_INACTIVE) and the allowed resource schemes *sl-AllowedResourceSelectionConfig* in the resource pool configuration.

*NEXT CHANGE*

### 6.2.2 Message definitions

\*\*\*\*\*\*\*\*\*\*\*\*\*skip the unchanged parts\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### – *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

\*\*\*\*\*\*\*\*\*\*\*\*\*skip the unchanged parts\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

| *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-PosFreqInfoList* broadcast in *SIB23*, the value 2 corresponds to the frequency of second entry in *sl-PosFreqInfoList* 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. |

\*\*\*\*\*\*\*\*\*\*\*\*\*skip the unchanged parts\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

| *SL-PosTxResourceReq* field descriptions |
| --- |
| ***sl-CapabilityInformationSidelink***Includes the *UECapabilityInformationSidelink* message (which can be also included in *ueCapabilityInformationSidelink* 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-PosFreqInfoList* broadcast in *SIB23*, the value 2 corresponds to the frequency of second entry in *sl-PosFreqInfoList* 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-PosTxInterestedFreqList*, i.e. one for each carrier frequency included in *sl-PosTxInterestedFreqList*. |
| ***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. |

*NEXT CHANGE*

### 6.3.2 Radio resource control information elements

\*\*\*\*\*\*\*\*\*\*\*\*\*skip the unchanged parts\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### – *MeasResults*

The IE *MeasResults* covers measured results for intra-frequency, inter-frequency, inter-RAT mobility and measured results for NR sidelink communication/discovery/positioning.

\*\*\*\*\*\*\*\*\*\*\*\*\*skip the unchanged parts\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

| *MeasResults* field descriptions |
| --- |
| ***coarseLocationInfo***This field indicates the coarse location information reported by the UE. This field is coded as the *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 |
| ***excessDelay***Indicates the ratio of packets in UL per DRB exceeding the configured delay threshold among the UL PDCP SDUs, according to the UL PDCP Excess Packet Delay per DRB mapping table, as defined in TS 38.314 [53], Table 4.3.1.e-1. |
| ***measId***Identifies the measurement identity for which the reporting is being performed. |
| ***measQuantityResults***The value sinr is not included when it is used for *LogMeasReport-r16*. |
| ***measResultCellListSFTD-NR***SFTD measurement results between the PCell and the NR neighbour cell(s) in NR standalone. |
| ***measResultCLI***CLI measurement results. |
| ***measResultEUTRA***Measured results of an E-UTRA cell. |
| ***measResultForRSSI***Includes measured RSSI result in dBm (see TS 38.215 [9]) and *channelOccupancy* which is the percentage of samples when the RSSI was above the configured *channelOccupancyThreshold* for the associated *reportConfig*. |
| ***measResultListEUTRA***List of measured results for the maximum number of reported best cells for an E-UTRA measurement identity. |
| ***measResultListNR***List of measured results for the maximum number of reported best cells for an NR measurement identity. |
| ***measResultListUTRA-FDD***List of measured results for the maximum number of reported best cells for a UTRA-FDD measurement identity. |
| ***measResultNR***Measured results of an NR cell. |
| ***measResultServFreqListEUTRA-SCG***Measured results of the E-UTRA SCG serving frequencies: the measurement result of PSCell and each SCell, if any, and of the best neighbouring cell on each E-UTRA SCG serving frequency. |
| ***measResultServFreqListNR-SCG***Measured results of the NR SCG serving frequencies: the measurement result of PSCell and each SCell, if any, and of the best neighbouring cell on each NR SCG serving frequency. |
| ***measResultServingMOList***Measured results of measured cells with reference signals indicated in the serving cell measurement objects including measurement results of SpCell, configured SCell(s) and best neighbouring cell within measured cells with reference signals indicated in on each serving cell measurement object. If the sending of the *MeasurementReport* message is triggered by a measurement configured by the field *sl-ConfigDedicatedForNR* received within an E-UTRA *RRCConnectionReconfiguration* message (i.e. CBR measurements), this field is not applicable and its contents is ignored by the network. |
| ***measResultSFTD-EUTRA***SFTD measurement results between the PCell and the E-UTRA PScell in NE-DC. |
| ***measResultSFTD-NR***SFTD measurement results between the PCell and the NR PScell in NR-DC. |
| ***measResultsSL***CBR measurements results for NR sidelink communication/discovery/positioning. |
| ***measResultUTRA-FDD***Measured result of a UTRA-FDD cell. |
| ***sl-MeasResultsCandRelay***Measurement result(s) of candiate L2 U2N relay UE(s). |
| ***sl-MeasResultServingRelay***Measurement result of serving L2 U2N relay UE. |

*NEXT CHANGE*

### 6.3.3 UE capability information elements

\*\*\*\*\*\*\*\*\*\*\*\*\*skip the unchanged parts\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### – *SidelinkParameters*

The IE *SidelinkParameters* is used to convey capabilities related to NR and V2X sidelink communications/positioning.

*NEXT CHANGE*

### 6.3.5 Sidelink information elements

\*\*\*\*\*\*\*\*\*\*\*\*\*skip the unchanged parts\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### – *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-RangeDedicatedSL-PRS-RP-List*, 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-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 (1..maxCBR-LevelDedSL-PRS-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-LevelsDedicatedSL-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-LevelsDedicatedSL-PRS-RP*. For the first entry of *SL-CBR-LevelsDedicatedSL-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. |

*NEXT CHANGE*

#### – *SL-FreqConfig*

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

*NEXT CHANGE*

#### – *SL-FreqConfigCommon*

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

*NEXT CHANGE*

#### – *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-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-RangeDedicatedSL-PRS-RP-List* . |
| ***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. |

*NEXT CHANGE*

#### – *SL-UE-SelectedConfig*

IE *SL-UE-SelectedConfig* specifies sidelink communication/positioning configurations used for UE autonomous resource selection.

*NEXT CHANGE*

## 6.4 RRC multiplicity and type constraint values

### – Multiplicity and type constraint definitions

-- ASN1START

-- TAG-MULTIPLICITY-AND-TYPE-CONSTRAINT-DEFINITIONS-START

\*\*\*\*\*\*\*\*\*\*\*\*\*skip the unchanged parts\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

maxCBR-ConfigDedSL-PRS-r18 INTEGER ::= 8 -- Maximum number of CBR ranges for dedicated SL PRS resource pool

maxCBR-ConfigDedSL-PRS-1-r18 INTEGER ::= 7 -- Maximum number of CBR ranges for dedicated SL PRS resource pool minus 1

maxCBR-LevelDedSL-PRS-r18 INTEGER ::= 16 -- Maximum number of CBR levels for dedicated SL PRS resource pool

maxCBR-LevelDedSL-PRS-1-r18 INTEGER ::= 15 -- Maximum number of CBR levels for dedicated SL PRS resource pool minus 1

-- TAG-MULTIPLICITY-AND-TYPE-CONSTRAINT-DEFINITIONS-STOP

-- ASN1STOP

*END OF CHANGE*