**3GPP TSG-RAN WG2 Meeting #125 R2-2401641**

**Athens, Greece, Feb. 26th – Mar. 1st, 2024**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.355** | **CR** | **0002** | **rev** | **-** | **Current version:** | **18.0.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network | **x** | Core Network | **x** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | CR 38.355 for SLPP capability | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Xiaomi | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_pos\_enh2-Core | | | | |  | ***Date:*** | | | 2024-03 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Update of UE capabilities based on updated RAN1 feature list in R1-2401709. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Capture the following UE capabilities for SLPP according to RAN1 feature list:  41-1-2, 41-1-3, 41-1-4a, 41-1-4b, 41-1-4c, 41-1-5, 41-1-7a, 41-1-7b, 41-1-7c, 41-1-7d, 41-1-7e, 41-1-7f, 41-1-7g, 41-1-8, 41-1-11, 41-1-12, 41-1-13, 41-1-14, 41-1-17, 41-1-19b. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | UE capabilities for SLPP will not be captured. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.3.2, 6.6, 6.7, 6.8, 6.9, 6.10 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

START OF CHANGE

### 6.3.2 UE capability information elements

#### *– ScheduledLocationTimeSupportPerMode*

The IE *ScheduledLocationTimeSupportPerMode* is used by the endpoint to indicate the time bases supported for scheduled location requests for each positioning mode indicated by *PositioningModes*.

-- ASN1START

-- TAG-SCHEDULEDLOCATIONTIMESUPPORTPERMODE-START

ScheduledLocationTimeSupportPerMode ::= SEQUENCE {

utcTime PositioningModes OPTIONAL,

gnssTime SEQUENCE {

posModes PositioningModes,

gnss-TimeIDs GNSS-ID-Bitmap

} OPTIONAL,

nrTime PositioningModes OPTIONAL,

relativeTime PositioningModes OPTIONAL

}

-- TAG-SCHEDULEDLOCATIONTIMESUPPORTPERMODE-STOP

-- ASN1STOP

## 6.6 SLPP PDU Common SL-PRS Methods Contents

#### *– CommonSL-PRS-MethodsIEsProvideCapabilities*

-- ASN1START

-- TAG-COMMONSL-PRS-METHODSIESPROVIDECAPABILITIES-START

CommonSL-PRS-MethodsIEsProvideCapabilities ::= SEQUENCE {

sl-PRS-CapabilityBandList SEQUENCE (SIZE (1..nrMaxBands)) OF SL-PRS-CapabilityPerBand,

...

}

SL-PRS-CapabilityPerBand ::= SEQUENCE {

freqBandIndicatorNR FreqBandIndicatorNR,

--R1 41-1-19 ARP location provision for sidelink as assistance data

sl-PositioningARP-LocationProvision ENUMERATED {supported} OPTIONAL,

--R1 41-1-19a Report of Rx ARP-ID with SL positioning measurements

sl-PositioningMeasReportWithRxARP-ID ENUMERATED {supported} OPTIONAL,

--R1 41-1-19b Report of Tx ARP-ID to LMF or another UE for the transmitted SL PRS

sl-PRS-ReportTxARP-ID ENUMERATED {supported} OPTIONAL,

--R1 41-1-2 Receiving SL-PRS in a shared resource pool

sl-PRS-RxInSharedResourcePool ENUMERATED {supported} OPTIONAL,

--R1 41-1-3 Receiving SL-PRS in a dedicated resource pool

sl-PRS-RxInDedicatedResourcePool ENUMERATED {supported} OPTIONAL,

--R1 41-1-4a Transmitting SL-PRS in a shared resource pool

sl-PRS-TxInSharedResourcePool ENUMERATED {supported} OPTIONAL,

--R1 41-1-4b Transmitting SL-PRS scheme 1 in a dedicated resource pool

sl-PRS-TxScheme1InDedicatedResourcePool ENUMERATED {supported} OPTIONAL,

--R1 41-1-4c Transmitting SL-PRS mode 2 in a dedicated resource pool

sl-PRS-TxScheme2InDedicatedResourcePool ENUMERATED {supported} OPTIONAL,

--R1 41-1-5 SL-PRS congestion control in a dedicated resource pool

sl-PRS-CongestionCtrl ENUMERATED {procTime1,procTime2, procTime3} OPTIONAL,

--R1 41-1-7e SL PRS measurement for SL PRS-RSRP

sl-PRS-RSRP-Meas ENUMERATED {supported} OPTIONAL,

--R1 41-1-7f SL PRS measurement for SL PRS-RSRPP

sl-PRS-RSRPP-Meas ENUMERATED {supported} OPTIONAL,

--R1 41-1-8 Support of random selection in a dedicated resource pool

sl-PRS-TxRandomSelection ENUMERATED {supported} OPTIONAL,

--R1 41-1-11 TDM-based multiplexing of SL-PRS reception from different UEs in the same slot in dedicated resource pool

sl-PRS-TDM-Multiplexing ENUMERATED {supported} OPTIONAL,

--R1 41-1-12 Comb-based multiplexing for SL-PRS reception from different UEs in the same slot in dedicated resource pool

sl-PRS-RxCombMultiplexing ENUMERATED {supported} OPTIONAL,

--R1 41-1-13 Reporting the additional paths for SL positioning

sl-PRS-AdditionalPathsReport ENUMERATED {n1,n2,n4,n6,n8} OPTIONAL,

--R1 41-1-14 LoS/NLoS indicator for SL positioning per measurement

sl-PRS-LOS-NLOS-Indication ENUMERATED {hard, hard-soft} OPTIONAL,

--R1 41-1-17 Open loop SL pathloss based power control for SL-PRS and associated PSCCH and SL RSRP report for dedicated resource pool

sl-PathlossBasedOLPC-SL-RSRP-Report ENUMERATED {supported} OPTIONAL,

...

}

-- TAG-COMMONSL-PRS-METHODSIESPROVIDECAPABILITIES-STOP

-- ASN1STOP

|  |
| --- |
| *CommonSL-PRS-MethodsIEsProvideCapabilities* field descriptions |
| ***sl-PathlossBasedOLPC-SL-RSRP-Report***  Indicates whether UE supports Open loop SL pathloss based power control for SL-PRS and associated PSCCH and SL RSRP report for dedicated resource pool for unicast transmissions.  UE supporting this feature shall also support at least one of *sl-PRS-TxScheme1InDedicatedResourcePool* or *sl-PRS-TxScheme2InDedicatedResourcePool*. |
| ***sl-PositioningARP-LocationProvision***  Indicates whether UE supports of ARP location provision for sidelink as assistance data. |
| ***sl-PositioningMeasReportWithARP-ID***  Indicates whether UE supports providing Rx ARP-ID with SL positioning measurements.. |
| ***sl-PRS-AdditionalPathsReport***  Indicates whether UE support of of RSRPP reporting for additional paths.  The value indicates the maximum number of additional detected path timing reporting for K additional paths for SL positioning.  UE supporting this feature shall also support at least one of *sl-PRS-RSTD-Meas*, *sl-RTOA-Meas*, *sl-PRS-RxTxTimeDiffWithoutTxTimeStamp*, *sl-PRS-RxTxTimeDiffWithTxTimeStamp*, *sl-PRS-RSRPP-Meas*, or *sl-AOA-Meas*. |
| ***sl-PRS-CongestionCtrl***  Indicates whether UE supports SL-PRS congestion control in a dedicated resource pool, and is comprised of the following functional components:  - Support reporting SL PRS CBR measurement to gNB when operating in mode 1 and mode 2 (NOTE 1);  - Support adjusting its radio parameters based on SL PRS CBR measurement and SL PRS CRlimit;  - Support processing SL PRS CBR and SL PRS CR within the indicated congestion process time.  The value indicates the supported congestion process time. procTime1 means 2, 2, 4, 8 slots for 15, 30, 60, 120 kHz subcarrier spacing, procTime2 means 2, 4, 8, 16 slots for 15, 30, 60, 120 kHz subcarrier spacing, procTime3 means 3, 6, 12, 24 slots for 15, 30, 60, 120 kHz subcarrier spacing.  UE supporting this feature shall also support *sl-PRS-RxInDedicatedResourcePool*, and at least one of *sl-PRS-TxScheme1InDedicatedResourcePool* or *sl-PRS-TxScheme2InDedicatedResourcePool*.  NOTE 1: It is not required to be supported in a band indicated with only the PC5 interface in 38.101-1 Table 5.2E.1-1. |
| ***sl-PRS-LOS-NLOS-Indication***  Indicates whether UE support of LoS/NLoS indicator for SL positioning per measurement.  The value indicates whether the indicator is hard value or hard+soft value.  UE supporting this feature shall also support at least one of *sl-PRS-RSTD-Meas*, *sl-RTOA-Meas*, *sl-PRS-RxTxTimeDiffWithoutTxTimeStamp*, *sl-PRS-RxTxTimeDiffWithTxTimeStamp*, or *sl-AOA-Meas*. |
| ***sl-PRS-ReportTxARP-ID***  Indicates whether UE supports providing Tx ARP-ID for the transmitted SL PRS. |
| ***sl-PRS-RSRP-Meas***  Indicates whether UE supports SL PRS measurement for SL PRS-RSRP, and is comprised of the following functional components:  - Support SL PRS-RSRP measurement based on SL-PRS;  - Support SL PRS-RSRP measurement reporting.  UE supporting this feature shall also support FG41-1-1. |
| ***sl-PRS-RSRPP-Meas***  Indicates whether UE supports SL PRS measurement for SL PRS-RSRPP, and is comprised of the following functional components:  - Support SL PRS-RSRPP measurement based on SL-PRS;  - Support SL PRS-RSRPP measurement reporting.  UE supporting this feature shall also support FG41-1-1. |
| ***sl-PRS-RxInDedicatedResourcePool***  Indicates whether UE supports receiving SL-PRS in dedicated resource pool and receiving SCI format 1B. |
| ***sl-PRS-RxInSharedResourcePool***  Indicates whether UE supports receiving SL-PRS in shared resource pool and receiving SCI format 2D. |
| ***sl-PRS-RxCombMultiplexing***  Indicates whether UE support of comb-based multiplexing for SL-PRS reception from different UEs in the same slot in dedicated resource pool.  UE supporting this feature shall also support *sl-PRS-RxInDedicatedResourcePool*. |
| ***sl-PRS-TDM-Multiplexing***  Indicates whether UE support of TDM-based multiplexing of SL-PRS reception from different UEs in the same slot in dedicated resource pool.  UE supporting this feature shall also support*sl-PRS-RxInDedicatedResourcePool*. |
| ***sl-PRS-TxRandomSelection***  Indicates whether UE support of random selection in a dedicated resource pool, and is comprised of the following functional components:  - Support transmitting SL-PRS and associated PSCCH using random selection in a dedicated resource pool;  - Support DL pathloss based open loop power control when configured by NR Uu (NOTE 2).  NOTE 1: Configuration by NR Uu is not required to be supported in a band indicated with only the PC5 interface in TS 38.101-1 [11] Table 5.2E.1-1.  NOTE 2: It is not required to be supported in a band indicated with only the PC5 interface in TS 38.101-1 [11] Table 5.2E.1-1. |
| ***sl-PRS-TxInSharedResourcePool***  Indicates whether UE supports Transmitting SL-PRS in a shared resource pool, and is comprised of the following functional components:  - Support transmitting SL-PRS in shared resource pool;  - Support transmitting SCI format 2D;  - Support downlink pathloss based open loop power control.  The supported resource allocation modes are the same as for communication and signaled in *sl-TransmissionMode1-r16* and *sl-TransmissionMode2-r16* defined in TS 38.331 [2]*.*  UE supporting this feature shall also support *sl-TransmissionMode1-r16* or *sl-TransmissionMode2-r16*, and *sl-PRS-RxInSharedResourcePool* defined in TS 38.331 [2]. |
| ***sl-PRS-TxScheme1InDedicatedResourcePool***  Indicates whether UE supports transmitting SL-PRS scheme 1 in a dedicated resource pool, and is comprised of the following functional components:  - Support transmitting SL-PRS and PSCCH within a slot without PSSCH in dedicated resource pool;  - Support transmitting SL-PRS according to the mapping rule between PSCCH and SL-PRS;  - Support transmitting SCI format 1B;  - Support receiving DCI format 3\_2;  - Support downlink pathloss based open loop power control of SL-PRS (NOTE 1).  UE supporting this feature shall also support *sl-PRS-RxInDedicatedResourcePool*.  NOTE 1: It is not required to be supported in a band indicated with only the PC5 interface in TS 38.101-1 [11] Table 5.2E.1-1. |
| ***sl-PRS-TxScheme2InDedicatedResourcePool***  Indicates whether UE supports transmitting SL-PRS scheme 2 in a dedicated resource pool, and is comprised of the following functional components:  - Support transmitting SL-PRS and PSCCH within a slot without PSSCH in dedicated resource pool;  - Support transmitting SL-PRS according to the mapping rule between PSCCH and SL-PRS;  - Support transmitting SCI format 1B.  UE supporting this feature shall also support at least one of *sl-PRS-TxRandomSelection* or FG41-1-10. |

## 6.7 SLPP PDU SL-AoA Contents

#### *– SLPP-PDU-SL-AoA-Contents*

This ASN.1 segment is the start of the SLPP PDU SL-AoA Contents definitions.

-- ASN1START

-- TAG-SLPP-PDU-SL-AOA-CONTENTS-START

SLPP-PDU-SL-AoA-Contents DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

LCS-GCS-Translation,

LOS-NLOS-Indicator,

PositioningModes,

SL-TimeStamp,

SL-TimingQuality,

maxNrOfSLTxUEs,

ScheduledLocationTimeSupportPerMode,

nrMaxBandsFROM

SLPP-PDU-Definitions;

-- TAG-SLPP-PDU-SL-A0A-CONTENTS-STOP

-- ASN1STOP

#### *–* *SL-AoA-ProvideCapabilities*

The IE *SL-AOA-ProvideCapabilities* is used to indicate the support of SL-AOA and to provide SL-AOA positioning capabilities.

-- ASN1START

-- TAG-SL-AOA-PROVIDECAPABILITIES-START

SL-AoA-ProvideCapabilities ::= SEQUENCE {

applicationLayerID OCTET STRING,

positioningModes PositioningModes,

tenMsUnitResponseTime PositioningModes OPTIONAL,

periodicalReporting PositioningModes OPTIONAL,

scheduledLocationRequestSupported ScheduledLocationTimeSupportPerMode OPTIONAL,

sl-AOA-CapabilityBandList SEQUENCE (SIZE (1..nrMaxBands)) OF SL-AOA-CapabilityPerBand,

...

}

SL-AOA-CapabilityPerBand ::= SEQUENCE {

--R1 41-1-7g SL PRS measurement for SL AOA

sl-AOA-Meas BITSTRING {gcs,lcsWithTranslation,lcsWithoutTranslation} OPTIONAL,

...

}

-- TAG-SL-AOA-PROVIDECAPABILITIES-STOP

-- ASN1STOP

|  |
| --- |
| *SL-AoA-ProvideCapabilities* field descriptions |
| ***periodicalReporting***  This field, if present, specifies the positioning modes for which the UE supports *periodicalReporting*. This is represented by a bit string, with a one value at the bit position means *periodicalReporting* for the positioning mode is supported; a zero value means not supported. If this field is absent, the UE does not support *periodicalReporting* in *CommonIEsRequestLocationInformation*. |
| ***positioningModes***  This field specifies the SL-AoA mode(s) supported by the UE. |
| ***scheduledLocationRequestSupported***  This field, if present, specifies the positioning modes for which the UE supports scheduled location requests, i.e., supports the IE *ScheduledLocationTime* in IE *CommonIEsRequestLocationInformation* and the time base(s) supported for the scheduled location time for each positioning mode. If this field is absent, the UE does not support scheduled location requests. |
| ***sl-AOA-Meas***  Indicates whether UE supports SL PRS measurement for SL-AOA, and is comprised of the following functional components:  - Support SL AOA measurement based on SL-PRS;  - Support SL AOA measurement reporting types.  The value indicates the supported SL AOA measurement reporting types. The left most bit in the bitmap corresponds to GCS, the next bit in the bitmap corresponds to LCS with translation, the right most bit in the bitmap corresponds to LCS without translation. A bit in the bitmap is set to 1 if the corresponding type is supported by the UE.  UE supporting this feature shall also support FG41-1-1. |
| ***tenMsUnitResponseTime***  This field, if present, specifies the positioning modes for which the UE supports the enumerated value '*ten-milli-seconds*' in the IE *ResponseTime* in IE *CommonIEsRequestLocationInformation*. This is represented by a bit string, with a one value at the bit position means '*ten-milli-seconds*' response time unit for the positioning mode is supported; a zero value means not supported. If this field is absent, the UE does not support '*ten-milli-seconds*' response time unit in *CommonIEsRequestLocationInformation*. |

## 6.8 SLPP PDU SL-RTT Contents

#### *– SLPP-PDU-SL-RTT-Contents*

This ASN.1 segment is the start of the SLPP PDU SL-RTT Contents definitions.

-- ASN1START

-- TAG-SLPP-PDU-SL-RTT-CONTENTS-START

SLPP-PDU-SL-RTT-CONTENTS DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

LCS-GCS-Translation,

LOS-NLOS-Indicator,

PositioningModes,

SL-TimeStamp,

SL-TimingQuality,

maxNrOfSLTxUEs,

ScheduledLocationTimeSupportPerMode,

nrMaxBands

FROM

SLPP-PDU-Definitions;

-- TAG-SLPP-PDU-SL-RTT-CONTENTS-STOP

-- ASN1STOP

#### *–* *SL-RTT-ProvideCapabilities*

The IE SL-RTT-ProvideCapabilities is used to indicate the support of SL-RTT and to provide SL-RTT positioning capabilities.

-- ASN1START

-- TAG-SL-RTT-PROVIDECAPABILITIES-START

SL-RTT-ProvideCapabilities ::= SEQUENCE {

applicationLayerID OCTET STRING,

positioningModes PositioningModes,

tenMsUnitResponseTime PositioningModes OPTIONAL,

periodicalReporting PositioningModes OPTIONAL,

scheduledLocationRequestSupported ScheduledLocationTimeSupportPerMode OPTIONAL,

sl-RTT-CapabilityBandList SEQUENCE (SIZE (1..nrMaxBands)) OF SL-RTT-CapabilityPerBand,

...

}

SL-RTT-CapabilityPerBand ::= SEQUENCE {

--R1 41-1-7c SL PRS measurement for UE Rx–Tx time difference without Tx time stamp

sl-PRS-RxTxTimeDiffWithoutTxTimeStamp ENUMERATED {n1,n2,n3,n4} OPTIONAL,

--R1 41-1-7d SL PRS measurement for UE Rx–Tx time difference with Tx time stamp

sl-PRS-RxTxTimeDiffWithTxTimeStamp SEQUENCE {

numOfMeasForSameSL-PRS ENUMERATED {n1,n2,n3,n4},

maxMeasReportingForDiffSL-PRS ENUMERATED {n1,n2,n3,n4}

} OPTIONAL,

...

}

-- TAG-SL-RTT-PROVIDECAPABILITIES-STOP

-- ASN1STOP

|  |
| --- |
| *SL-RTT-ProvideCapabilities* field descriptions |
| ***periodicalReporting***  This field, if present, specifies the positioning modes for which the UE supports *periodicalReporting*. This is represented by a bit string, with a one value at the bit position means *periodicalReporting* for the positioning mode is supported; a zero value means not supported. If this field is absent, the UE does not support *periodicalReporting* in *CommonIEsRequestLocationInformation*. |
| ***positioningModes***  This field specifies the SL-RTT mode(s) supported by the UE. |
| ***scheduledLocationRequestSupported***  This field, if present, specifies the positioning modes for which the UE supports scheduled location requests, i.e., supports the IE *ScheduledLocationTime* in IE *CommonIEsRequestLocationInformation* and the time base(s) supported for the scheduled location time for each positioning mode. If this field is absent, the UE does not support scheduled location requests. |
| ***sl-PRS-RxTxTimeDiffWithoutTxTimeStamp***  Indicates whether UE supports SL PRS measurement for UE Rx–Tx time difference without Tx time stamp, and is comprised of the following functional components:  - Support UE Rx–Tx time difference measurement based on SL PRS;  - Support UE Rx–Tx time difference measurement reporting without Tx time stamp.  The value indicates the supported maximum number of Rx-Tx measurement reporting for different SL-PRS reception for the same pair of UEs.  UE supporting this feature shall also support FG41-1-1, and at least one of *sl-PRS-TxInSharedResourcePool*, *sl-PRS-TxScheme1InDedicatedResourcePool* or *sl-PRS-TxScheme2InDedicatedResourcePool*. |
| ***sl-PRS-RxTxTimeDiffWithTxTimeStamp***  Indicates whether UE supports SL PRS measurement for UE Rx–Tx time difference with Tx time stamp, and is comprised of the following functional components:  - Support UE Rx–Tx time difference measurement based on SL PRS;  - Support UE Rx–Tx time difference measurement reporting with Tx time stamp;  This field comprises the following sub-fields:  - *numOfMeasForSameSL-PRS*: indicates the reported number of Rx-Tx measurements for the same SL-PRS transmission (or reception) and different SL-PRS reception (or transmission) for the same pair of UEs;  - *maxMeasReportingForDiffSL-PRS*: indicates the supported maximum number of Rx-Tx measurement reporting for different SL-PRS reception for the same pair of UEs.  UE supporting this feature shall also support FG41-1-1, and at least one of *sl-PRS-TxInSharedResourcePool*, *sl-PRS-TxScheme1InDedicatedResourcePool* or *sl-PRS-TxScheme2InDedicatedResourcePool*. |
| ***tenMsUnitResponseTime***  This field, if present, specifies the positioning modes for which the UE supports the enumerated value '*ten-milli-seconds*' in the IE *ResponseTime* in IE *CommonIEsRequestLocationInformation*. This is represented by a bit string, with a one value at the bit position means '*ten-milli-seconds*' response time unit for the positioning mode is supported; a zero value means not supported. If this field is absent, the UE does not support '*ten-milli-seconds*' response time unit in *CommonIEsRequestLocationInformation*. |

## 6.9 SLPP PDU SL-TDOA Contents

#### *– SLPP-PDU-**SL-TDOA-Contents*

This ASN.1 segment is the start of the SLPP PDU SL-TDOA Contents definitions.

-- ASN1START

-- TAG-SLPP-PDU-SL-TDOA-CONTENTS-START

SLPP-PDU-SL-TDOA-CONTENTS DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

LCS-GCS-Translation,

LOS-NLOS-Indicator,

PositioningModes,

SL-RTD-Info,

SL-TimeStamp,

SL-TimingQuality,

maxNrOfSLTxUEs,

ScheduledLocationTimeSupportPerMode,

nrMaxBands

FROM

SLPP-PDU-Definitions;

-- TAG-SLPP-PDU-SL-TDOA-CONTENTS-STOP

-- ASN1STOP

#### *–* *SL-TDOA-ProvideCapabilities*

The IE *SL-TDOA-ProvideCapabilities* is used to indicate the support of SL-TDOA and to provide SL-TDOA positioning capabilities.

-- ASN1START

-- TAG-SL-TDOA-PROVIDECAPABILITIES-START

SL-TDOA-ProvideCapabilities ::= SEQUENCE {

applicationLayerID OCTET STRING,

positioningModes PositioningModes,

tenMsUnitResponseTime PositioningModes OPTIONAL,

periodicalReporting PositioningModes OPTIONAL,

scheduledLocationRequestSupported ScheduledLocationTimeSupportPerMode OPTIONAL,

sl-TDOA-CapabilityBandList SEQUENCE (SIZE (1..nrMaxBands)) OF SL-TDOA-CapabilityPerBand,

...

}

SL-TDOA-CapabilityPerBand ::= SEQUENCE {

--R1 41-1-7a SL PRS measurement for SL-RSTD

sl-PRS-RSTD-Meas ENUMERATED {n1,n2,n3,n4} OPTIONAL,

...

}

-- TAG-SL-TDOA-PROVIDECAPABILITIES-STOP

-- ASN1STOP

|  |
| --- |
| *SL-TDOA-ProvideCapabilities* field descriptions |
| ***periodicalReporting***  This field, if present, specifies the positioning modes for which the UE supports *periodicalReporting*. This is represented by a bit string, with a one value at the bit position means *periodicalReporting* for the positioning mode is supported; a zero value means not supported. If this field is absent, the UE does not support *periodicalReporting* in *CommonIEsRequestLocationInformation*. |
| ***positioningModes***  This field specifies the SL-TDOA mode(s) supported by the UE. |
| ***scheduledLocationRequestSupported***  This field, if present, specifies the positioning modes for which the UE supports scheduled location requests, i.e., supports the IE *ScheduledLocationTime* in IE *CommonIEsRequestLocationInformation* and the time base(s) supported for the scheduled location time for each positioning mode. If this field is absent, the UE does not support scheduled location requests. |
| ***sl-PRS-RSTD-Meas***  Indicates whether UE supports SL PRS measurement for SL-RSTD, and is comprised of the following functional components:  - Support SL RSTD measurement based on SL-PRS;  - Support SL RSTD measurement reporting;  The value indicates the supported maximum number of SL RSTD measurement reporting for different SL-PRS reception for the same pair of UEs.  UE supporting this feature shall also support FG41-1-1. |
| ***tenMsUnitResponseTime***  This field, if present, specifies the positioning modes for which the UE supports the enumerated value '*ten-milli-seconds*' in the IE *ResponseTime* in IE *CommonIEsRequestLocationInformation*. This is represented by a bit string, with a one value at the bit position means '*ten-milli-seconds*' response time unit for the positioning mode is supported; a zero value means not supported. If this field is absent, the UE does not support '*ten-milli-seconds*' response time unit in *CommonIEsRequestLocationInformation*. |

## 6.10 SLPP PDU SL-TOA Contents

#### *– SLPP-PDU-SL-TOA-Contents*

This ASN.1 segment is the start of the SLPP PDU SL-TOA Contents definitions.

-- ASN1START

-- TAG-SLPP-PDU-SL-TOA-CONTENTS-START

SLPP-PDU-SL-TOA-CONTENTS DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

LCS-GCS-Translation,

LOS-NLOS-Indicator,

PositioningModes,

SL-RTD-Info,

SL-TimeStamp,

SL-TimingQuality,

maxNrOfSLTxUEs,

ScheduledLocationTimeSupportPerMode,

nrMaxBands

FROM

SLPP-PDU-Definitions;

-- TAG-SLPP-PDU-SL-TOA-CONTENTS-STOP

-- ASN1STOP

#### *– SL-TOA-ProvideCapabilities*

The IE *SL-TOA-ProvideCapabilities* is used to indicate the support of SL-TOA and to provide SL-TOA positioning capabilities.

-- ASN1START

-- TAG-SL-TOA-PROVIDECAPABILITIES-START

SL-TOA-ProvideCapabilities ::= SEQUENCE {

applicationLayerID OCTET STRING,

positioningModes PositioningModes,

tenMsUnitResponseTime PositioningModes OPTIONAL,

periodicalReporting PositioningModes OPTIONAL,

scheduledLocationRequestSupported ScheduledLocationTimeSupportPerMode OPTIONAL,

sl-TOA-CapabilityBandList SEQUENCE (SIZE (1..nrMaxBands)) OF SL-TOA-CapabilityPerBand,

...

}

SL-TOA-CapabilityPerBand ::= SEQUENCE {

--R1 41-1-7b SL PRS measurement for SL RTOA

sl-RTOA-Meas ENUMERATED {n1,n2,n3,n4} OPTIONAL,

...

}

-- TAG-SL-TOA-PROVIDECAPABILITIES-STOP

-- ASN1STOP

|  |
| --- |
| *SL-TOA-ProvideCapabilities* field descriptions |
| ***periodicalReporting***  This field, if present, specifies the positioning modes for which the UE supports *periodicalReporting*. This is represented by a bit string, with a one value at the bit position means *periodicalReporting* for the positioning mode is supported; a zero value means not supported. If this field is absent, the UE does not support *periodicalReporting* in *CommonIEsRequestLocationInformation*. |
| ***positioningModes***  This field specifies the SL-TOA mode(s) supported by the UE. |
| ***scheduledLocationRequestSupported***  This field, if present, specifies the positioning modes for which the UE supports scheduled location requests, i.e., supports the IE *ScheduledLocationTime* in IE *CommonIEsRequestLocationInformation* and the time base(s) supported for the scheduled location time for each positioning mode. If this field is absent, the UE does not support scheduled location requests. |
| ***sl-RTOA-Meas***  Indicates whether UE supports SL PRS measurement for SL-RTOA, and is comprised of the following functional components:  - Support SL RTOA measurement based on SL-PRS;  - Support SL RTOA measurement reporting.  The value indicates the supported maximum number of SL RTOA measurement reporting for different SL-PRS reception for the same pair of UEs.  UE supporting this feature shall also support FG41-1-1. |
| ***tenMsUnitResponseTime***  This field, if present, specifies the positioning modes for which the UE supports the enumerated value '*ten-milli-seconds*' in the IE *ResponseTime* in IE *CommonIEsRequestLocationInformation*. This is represented by a bit string, with a one value at the bit position means '*ten-milli-seconds*' response time unit for the positioning mode is supported; a zero value means not supported. If this field is absent, the UE does not support '*ten-milli-seconds*' response time unit in *CommonIEsRequestLocationInformation*. |

End of the change