3GPP TSG-RAN WG2 Meeting #118-e ***R2-22xxxxx***

Electronic Meeting, May 9 – 20, 2022

**Agenda item:** 6.11.1 / 6.11.2.8

**Source:** Qualcomm Incorporated

**Title:** [AT118-e][624][POS] 37355 positioning CR (Qualcomm)

**Document for:**  Discussion

# 1. Introduction

This document summarizes the following email discussion:

* [AT118-e][624][POS] 37355 positioning CR (Qualcomm)

Scope: Review and update the rapporteur CR (R2-2205829), taking into account decisions of this meeting. Discussion should coordinate with the handling of agenda item summaries.

Intended outcome: Agreeable CR in R2-2206247

Deadline: Tuesday 2022-05-17 1800 UTC

##### References:

[1] R2-2205828, "Summary of LPP Updates and Open Issues".

[2] R2-2205829, "LPP Updates".

[3] R2-2206326, "Rel-17 LPP RIL".

[4] R2-2206327, "Rel-17 LPP ASN1 Review File".

[5] R2-2206328, "LPP Updates and ASN.1 Review".

# 2. Discussion

Please provide your comments on "**Update\_of\_R2-2206328\_(draft CR 37355 LPP Updates).docx**" located in the same folder as this discussion document in the Table below.

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| --- | --- | --- | --- |
| Company | LPP Section / IE | RIL# (if applicable) | Comments |
| Huawei, HiSilicon | 6.4.3 |  | NR-DL-PRS-ExpectedLOS-NLOS-AssistancePerTRP-r17 ::= SEQUENCE {  dl-PRS-ID-r17 INTEGER (0..255),  nr-PhysCellID-r17 NR-PhysCellID-r16 OPTIONAL, -- Need ON  nr-CellGlobalID-r17 NCGI-r15 OPTIONAL, -- Need ON  nr-ARFCN-r17 ARFCN-ValueNR-r15 OPTIONAL, -- Need ON  nr-los-nlos-indicator-r17 CHOICE {  perTrp-r17 LOS-NLOS-Indicator-r17,  perResource-r17 SEQUENCE (SIZE (1..nrMaxSetsPerTrpPerFreqLayer-r16)) OF  NR-DL-PRS-ExpectedLOS-NLOS-AssistancePerResource-r17  } OPTIONAL, -- Cond Mandatory  ...  }  NR-DL-PRS-ExpectedLOS-NLOS-AssistancePerResource-r17 ::=  SEQUENCE (SIZE (1..nrMaxResourcesPerSet-r16)) OF  LOS-NLOS-Indicator-r17  -- ASN1STOP   | Conditional presence | Explanation | | --- | --- | | *Mandatory* | The field is mandatory present in this Release of the specification. |   Not sure why we need this conditional presence tag. if it is mandatory in this release, we only need to make it mandatory? |
| Huawei, HiSilicon | 6.5.10.3 |  | – *NR-DL-TDOA-ProvideLocationInformation* The IE *NR-DL-TDOA-ProvideLocationInformation* is used by the target device to provide NR DL-TDOA location measurements to the location server. It may also be used to provide NR DL-TDOA positioning specific error reason.  -- ASN1START  NR-DL-TDOA-ProvideLocationInformation-r16 ::= SEQUENCE {  nr-DL-TDOA-SignalMeasurementInformation-r16  NR-DL-TDOA-SignalMeasurementInformation-r16  OPTIONAL,  nr-dl-tdoa-LocationInformation-r16 NR-DL-TDOA-LocationInformation-r16  OPTIONAL,  nr-DL-TDOA-Error-r16 NR-DL-TDOA-Error-r16 OPTIONAL,  ...,  [[  nr-DL-TDOA-SignalMeasurementInstances-r17  SEQUENCE (SIZE (1..maxMeasInstances-r17)) OF  NR-DL-TDOA-SignalMeasurementInformation-r16  OPTIONAL,  nr-DL-TDOA-LocationInformationInstances-r17  SEQUENCE (SIZE (1..maxMeasInstances-r17)) OF  NR-DL-TDOA-LocationInformation-r16  OPTIONAL  ]]  }  it should be clarified when the fields nr-DL-TDOA-SignalMeasurementInstances-r17 and nr-DL-TDOA-LocationInformationInstances-r17 are present, the r16 fields should be absent. |
| CATT | 6.4.3  – Area-ID-CellList |  | The idea of camped/connected cell in the updated LPP doesn’t work smoothly. When the camped/connected cell doesn’t support DL-PRS (for some reason), but the neighbour cells support DL-PRS. Usually, LMF still may configure the DL-PRS of the neighbour cells which support DL-PRS without this camped/connected cell. Positioning still work smoothly in this scenario. In this case, the camped/connected cell which does not support DL-PRS will not be the reference cell in LMF.  But if we take the camped/connected cell id in the areaID-Celllist which indicates the valid DL-PRS cells, it won’t work smoothly. UE won’t take the cell8/6/5 as valid DL-PRS when the connected cell3 is not in the cell list. But obviously cell3 won’t be in the valid cell list because it doesn't support DL-PRS. So CATT suggest to fix this issue at this meeting or delete the cell list in asn.1 and think it over at the next meeting, considering NBC issue introduced at this meeting. |
| Ericsson | 6.4.3 | E601 | Regarding the field elevationList-r17 of the IE NR-TRP-BeamAntennaInfoPerTRP-r17  elevationList-r17 SEQUENCE (SIZE(1..1801)) OF ElevationElement-R17,  The range is up to 1801. It is unclear if it has to be up to 1801 or it was a typo. |
| Ericsson | 6.4.3 | E602 | The field name scheduledLocationRequest-r17 of IE A-GNSS-ProvideCapabilities  The name scheduledLocationRequest-r17 is misleading while providing capability; this should be termed scheduledLocationRequestSupported-r17 |
| Ericsson | 6.4.3 | E603/E604 | This issue is further described in R2-2205813.  Add associated-DL-PRS-ID-r17 to NR-TRP-BeamAntennaInfoPerTRP  NR-TRP-BeamAntennaInfoPerTRP-r17 ::= SEQUENCE {  dl-PRS-ID-r17 INTEGER (0..255),  nr-PhysCellID-r17 NR-PhysCellID-r16 OPTIONAL, -- Need ON  nr-CellGlobalID-r17 NCGI-r15 OPTIONAL, -- Need ON  nr-ARFCN-r17 ARFCN-ValueNR-r15 OPTIONAL, -- Need ON  associated-DL-PRS-ID-r17 INTEGER (0..255) OPTIONAL, -- Need OP  lcs-GCS-TranslationParameter-r17 LCS-GCS-TranslationParameter-r16 OPTIONAL, -- Need OP  nr-TRP-BeamAntennaAngles-r17 NR-TRP-BeamAntennaAngles-r17,  ...  }    With the following field description  ***associated-DL-PRS-ID***  *This field specifies the dl-PRS-ID of the associated TRP from which the beam antenna information and parameters for LCS to GCS translation are adopted. If the field is omitted, the beam antenna information is provided via the nr-TRP-BeamAntennaAngles field and the LCS to GCS translation parameter is provided via the lcs-GCS-TranslationParameter. If the field is present, the field nr-TRP-BeamAntennaAngles shall be absent.*  and adjustment of field description:  ***nr-TRP-BeamAntennaAngles***  This field provides the relative power between DL-PRS Resources per angle per TRP. If this field is absent and the field *associated-DL-PRS-ID* is present, the *nr-TRP-BeamAntennaAngles* for this TRP are obtained from the *nr-TRP-BeamAntennaAngles of the associated TRP.* |
| Ericsson | 6.4.3 | E603/E604 | This issue is further described in R2-2205813.  There was an incorrect correction earlier that has been overlooked regarding the associated-DL-PRS-ID of the NR-DL-PRS-BeamInfoPerTRP-r16  It shall be possible to configure a TRP-specific antenna orientation via the GCS-LCS-transformation also when there is an association to a TRP ID  Therefore, the field descriptions of PRS-BeamInfoPerTRP-r16 shall be changed into:  ***associated-DL-PRS-ID***  This field specifies the *dl-PRS-ID* of the associated TRP from which the beam information and parameters for LCS to GCS translation are adopted. If the field is omitted, the beam information is provided via the *dl-prs-BeamInfoSet* field and the LCS to GCS translation parameter is provided via the *lcs-GCS-TranslationParameter*. If the field is present, the field *dl-PRS-BeamInfoSet* shall be absent.  ***lcs-GCS-TranslationParameter***  This field provides the angles α (bearing angle), β (downtilt angle) and γ (slant angle) for the translation of a Local Coordinate System (LCS) to a Global Coordinate System (GCS) as defined in TR 38.901 [44]. If this field is absent, the *dl-PRS-Azimuth* and *dl-PRS-Elevation* are provided in a GCS.  ***dl-PRS-BeamInfoSet***  This field provides the DL-PRS beam information for each DL-PRS Resource of the DL-PRS Resource Set associated with this TRP. If this field is absent and the field *associated-DL-PRS-ID* is present, the *dl-PRS-BeamInfoSet* for this TRP are obtained from the *dl-PRS-BeamInfoSet* of the associated TRP. |
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