3GPP TSG-RAN WG2 #117-e R2-22xxxxx

Online Meeting, Feb 21st – March 3rd, 2022

Agenda Item: 6.3.3

Source: Ericsson

Title: Report for LPP Corrections for Positioning

Document for: Discussion, Decision

# Introduction

The below papers have been submitted in the LPP AI 6.3.3 which requires input from companies to identify the support for the corrections.

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| [**R2-2202224**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_117-e/Docs/R2-2202224.zip) | Addition of missing need code for the BDS TGD2 parameter | Lenovo, Motorola Mobility |
| [**R2-2203275**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_117-e/Docs/R2-2203275.zip) | Correction of reference TRP for DL-AoD and Multi-RTT measurement report | Qualcomm Incorporated |
| [**R2-2203277**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_117-e/Docs/R2-2203277.zip) | Correction to NR-DL-PRS-ResourcesCapability field description | Qualcomm Incorporated |
| [**R2-2203531**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_117-e/Docs/R2-2203531.zip) | Introducing new high accuracy GAD shape with scalable uncertaintyRevision of [**R2-2203367**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_117-e/Docs/R2-2203367.zip) | Ericsson, T-Mobile USA, Qualcomm Incorporated |
| **[R2-2203368](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_117-e/Docs/R2-2203368.zip)** | Clarification on LPP segmentation | Ericsson |

* [AT117-e][626][POS] Agenda item 6.3.3 (Ericsson)

      Scope: Treat documents R2-2202224, R2-2203275, R2-2203277, R2-2203531, and R2-2203368 and conclude on the CRs.

      Intended outcome: Agreed CRs (without CB)

      Deadline:  Wednesday 2022-03-02 1000 UTC

#  Contact Information

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# Discussion

## [R2-2202224](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_117-e/Docs/R2-2202224.zip) Missing Need Code

The CR adds the below Need code which was missing.

[[ bdsTgd2-r16 INTEGER (-512..511) OPTIONAL -- Need ON

]]

Question 1: Do Companies Agree with the CR?

|  |  |  |
| --- | --- | --- |
| Company | Change is fine Yes/No | Comments |
| Huawei, HiSilicon | Yes |  |
| ZTE | Yes |  |
| Qualcomm | Yes |  |
| CATT | Yes |  |
| Xiaomi | Yes |  |
| vivo | Yes |  |
| Apple | Yes |  |
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## [R2-2203275](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_117-e/Docs/R2-2203275.zip) Correction of Reference TRP

The CR removes mentioning of the reference TRP as the first TRP in the measurement report for DL-AOD and multi-RTT citing the reference TRP does not exist for these positioning methods.

A part of CR is shown below.

The IE *NR-DL-AoD-SignalMeasurementInformation* is used by the target device to provide NR DL-AoD measurements to the location server.

Question 2: Do Companies Agree with the CR?

|  |  |  |
| --- | --- | --- |
| Company | Change is fine Yes/No | Comments |
| Huawei, HiSilicon | Yes | Reference TRP is only for RSTD measurement |
| ZTE | Yes |  |
| Qualcomm | Yes (proponent) |  |
| CATT | Yes |  |
| Xiaomi | Yes |  |
| vivo | Yes |  |
| Apple | Yes |  |
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## [R2-2203277](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_117-e/Docs/R2-2203277.zip) Correction of NR-DL-PRS-ResourcesCapability

The CR provides correction to the field description of NR-DL-PRS-ResourcesCapability.

A part of CR is shown below.

***maxNrOfDL-PRS-ResourcesPerPositioningFrequencylayer***

Indicates the maximum number of DL-PRS resources per positioning frequency layer. Value 6 is only applicable to FR1 bands.

Question 3: Do Companies Agree with the CR?

|  |  |  |
| --- | --- | --- |
| Company | Change is fine Yes/No | Comments |
| Huawei, HiSilicon | Yes |  |
| ZTE | Yes |  |
| Qualcomm | Yes (proponent) |  |
| CATT | Yes |  |
| Xiaomi | Yes |  |
| vivo | Yes |  |
| Apple | Yes |  |
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## [R2-2203531](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_117-e/Docs/R2-2203531.zip) Correction of GAP Shape

The CR provides reference and LPP extension of to two new GAP shapes which have been added by SA2 for improving the location estimate using high accurate scalable GAD shapes for regulatory requirement. It uses a BOOLEAN value to indicate whether HA was represented using default or extended uncertainty range.

Question 4: Do Companies Agree with the CR?

|  |  |  |
| --- | --- | --- |
| Company | Change is fine Yes/No | Comments |
| Huawei, HiSilicon | No | This should be first discussed and agreed in SA2 |
| ZTE | Yes |  |
| Qualcomm | Yes | The additional GAD shapes have been added to Rel-16 23.032 and seems needed for some emergency services. |
| CATT | Yes |  |
| Xiaomi | Yes |  |
| vivo | See comments | Fine with the intention but more clarification is needed as the CR seems over-interpreted based on SA spec.1. Whether the scalable uncertainty mechanism is essential depends on the validity of the issue, i.e., the horizontal uncertainty is above 46.4 m and vertical location is of high accuracy. In our understanding, the range of High Accuracy extended uncertainty (0.00778 m to 200 m) can cover that of High Accuracy Uncertainty (0.006 m to 46.49129 m). I’m not sure whether my understanding is correct and share similar view with HW as the mechanism is not straightforward.
2. If the scalable uncertainty mechanism is needed, the corresponding field description shall be added about new indications, ha-HorizontalExtendedRangeUsed and ha-VerticalExtendedRangeUsed.
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| Apple |  | Agree with Huawei and vivo that more clarification from SA2 are needed |
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## [R2-2203275](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_117-e/Docs/R2-2203275.zip) LPP Segmentation

The CR provides/clarifies the reason and reference as why LPP segmentation was introduced.

Question 2: Do Companies Agree with the CR?

|  |  |  |
| --- | --- | --- |
| Company | Change is fine Yes/No | Comments |
| Huawei, HiSIlicon | No | The previous CR is not wrong that the size of the LPP PDU should not exceed the limit in the lower layer.  |
| ZTE | No | Agree with HW that the size of LPP PDU that can be delivered should be restricted by lower layer rather than NAS layer |
| Qualcomm | No | The current specification is correct. The message size is limited by "lower layers", not by NAS layer. Indeed, the reference 24.501 clause 7.2.2 just points to TS 38.323, which defines the limit of the "lower layers". |
| CATT | No | Agree with HW and QC, the maximum size of the LPP PDU is limited by the PDCP SDU size. |
| Xiaomi | No | Agree with QC. |
| vivo | No | Agree with HW and QC. |
| Apple | No |  |
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# Conclusion

Based on the discussion in section 2 we propose the following:

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# References

[1] AI 6.3.3