3GPP TSG-RAN WG2 Meeting #121bis-e, R2-230xxxx

17 – 26 April 2023

**Agenda item: 7.24.2**

**Source: Vodafone (Rapporteur)**

**Title: [AT121bis-e][412][POS] GNSS LOS/NLOS information**

**WID/SID: TEI-18**

**Document for: Discussion and Decision**

# 1 Introduction

This document is the report of the following email discussion:

* [AT121bis-e][412][POS] GNSS LOS/NLOS information (Vodafone)

      Scope: Discuss documents R2-2303163 / R2-2303196 / R2-2303200 / R2-2303206 and attempt to bring the CRs to an agreeable condition.

      Intended outcome: Report and agreeable CRs

      Deadline: Friday 2023-04-21 1000 UTC

**Phase 1 deadline of Thursday 2023-04-20 10:00 AM UTC for all company comments.**

Phase 2 deadline of Friday 2023-04-21 10:00 UTC AM for final agreed CRs.

Documents for the discussion:

[1] R2-2303163 GNSS LOS/NLOS assistance information-Follow up Vodafone, Spirent, Ericsson, Telecom Italia discussion Rel-18

[2] R2-2303196 GNSS LOS/NLOS assistance information Vodafone, Spirent, Ericsson, Telecom Italia CR Rel-18 37.355 17.4.0 0436 - B TEI18

[3] R2-2303200 GNSS LOS/NLOS posSIB broadcast assistance information Vodafone, Spirent, Ericsson, Telecom Italia CR Rel-18 38.331 17.4.0 3998 - B TEI18

[4] R2-2303206 GNSS LOS/NLOS posSIB broadcast assistance information Vodafone, Spirent, Ericsson, Telecom Italia CR Rel-18 36.331 17.4.0 4923 - B TEI18

# 2 Contact Points

Respondents to the email discussion are kindly asked to fill in the following table.

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| --- | --- | --- |
| Company | Name | Email Address |
| Vodafone (Rapporteur) | Alexey Kulakov | Alexey Kulakov |
| Ericsson | Fredrik Gunnarsson | fredrik.gunnarsson@ericsson.com |
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# 3 Discussion

Discussion Document in R2-2303163[1] :

**Question 1**: Do you have any technical comments to the scope highlighted in R2-2303163. Please elaborate your opinion.

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| Answers to Question 1 |
| Company | Yes/No | Technical Arguments |
| Ericsson | No | We have no technical arguments against but a few comments:- the document describes in detail how a device can use and benefit from the provided LoS/NLoS information also when it has an uncertain position estimate – referred to the chicken-egg situation at the last meeting- the document also makes clear that the feature does not need a precise position from the device reported- there are also some size assessments madeThereby, we think the questions raised online in Athens have been addressed |
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**Summary 1**: TBD.

**Proposal 1**: TBD.

**Question 2:** Please provide your view on the proposal in R2-2303163: It is proposed to proceed with the definition of stage 3 details to support LOS/NLOS information as described in R2-2303196, R2-2303200, R2-2303206

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| Answers to Question 2 |
| Company | Yes/No | Technical Arguments |
| Ericsson | Yes | We think the motivations in the discussion paper are sound and relevant and are fine to proceed with stage 3 |
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**Summary 2**: TBD.

**Proposal 2**: TBD.

CR in R2-2303196 [2] for 37.355

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| ***Reason for change:*** | The determination of the accuracy is one of the major tasks of GNSS receiver and the increased accuracy is very important especially in the multi-path environment like urban canyon for many use cases. In order to achieve it, the assistance information of Line of Sight (LOS) / Non Line of Sight (NLOS) of satellites of a particular satellite in a given location is required to assist GNSS receiver  |
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| ***Summary of change:*** | The support of assistance information about LOS/NLOS GNSS satellites, corresponding UE capability and the information to request LOS/NLOS GNSS satellites assistance data are introduced  |
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| ***Consequences if not approved:*** | There is no assistance information about LOS/NLOS GNSS satellites provided to the UE |

**Question 3**: Please provide your technical comments to the CR in R2-2303196

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| Answers to Question 3 |
| Company | Yes/No | Technical Arguments |
| Ericsson | Yes | The CR implements the feature correctly |
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**Summary 3**: TBD.

**Proposal 3**: TBD.

CR R2-2303200 [3] for 38.331

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| ***Reason for change:*** | The determination of the accuracy is one of the major tasks of GNSS receiver and the increased accuracy is very important especially in the multi-path environment like urban canyon for many use cases. In order to achieve it, the assistance information of Line of Sight (LOS) / Non Line of Sight (NLOS) of satellites of a particular satellite in a given location is required to assist GNSS receiver.  |
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| ***Summary of change:*** | The support of assistance information about LOS/NLOS GNSS satellites, corresponding UE capability and the information to request LOS/NLOS GNSS satellites assistance data are introduced as two new posSIBs |
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| ***Consequences if not approved:*** | Broadcast of GNSS LoS/NLoS is not possible in NR |

**Question 4**: Please provide your technical comments to the CR in R2-2303200

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| Answers to Question 4 |
| Company | Yes/No | Technical Arguments |
| Ericsson | Yes | The CR implements the feature correctly |
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**Summary 4**: TBD.

**Proposal 4**: TBD.

CR in R2-2303206 [4] proposes the following changes to TS 36.331

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| ***Reason for change:*** | The determination of the accuracy is one of the major tasks of GNSS receiver and the increased accuracy is very important especially in the multi-path environment like urban canyon for many use cases. In order to achieve it, the assistance information of Line of Sight (LOS) / Non Line of Sight (NLOS) of satellites of a particular satellite in a given location is required to assist GNSS receiver.  |
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| ***Summary of change:*** | The support of assistance information about LOS/NLOS GNSS satellites, corresponding UE capability and the information to request LOS/NLOS GNSS satellites assistance data are introduced as two new posSIBs |
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| ***Consequences if not approved:*** | Broadcast of GNSS LoS/NLoS is not possible in LTE |

**Question 5**: Please provide your technical comments to the CR in R2-2303206

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| Answers to Question 5 |
| Company | Yes/No | Technical Arguments |
| Ericsson | Yes | The CR implements the feature correctly |
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**Summary 5**: TBD.

**Proposal 5**: TBD.

# 4 Conclusion

TBD.