3GPP TSG-RAN WG2 Meeting #121 R2-23xxxxx

Athens, Greece, Feb 27th – Mar 3rd , 2023

**Agenda item: 5.3.3**

**Source: Ericsson**

**Title: [AT121][402][POS] GNSS-SSR-OrbitCorrections (Ericsson)**

**WID/SID: NR\_pos-Core**

**Document for: Discussion and Agreement**

# 1 Introduction

This document is to kick off the following offline discussion:

* [AT121][402][POS] GNSS-SSR-OrbitCorrections (Ericsson)

 Scope: Discuss P7 and P7-1 from the Rel-15/16 positioning summary and attempt to conclude on an agreeable CR.

 Intended outcome: Agreeable CRs

 Deadline: Wednesday 2023-03-01 1900 EET

# 2 Contact Information

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

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| --- | --- |
| Company | Contact: Name (E-mail) |
| Ericsson | fredrik.gunnarsson@ericsson.com |
| CATT | lijianxiang@catt.cn |
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# 3 References

1. [R2-2301431](file:///C%3A%5C%5CUsers%5C%5Cmtk16923%5C%5CDocuments%5C%5C3GPP%20Meetings%5C%5C202302-03%20-%20RAN2_121%2C%20Athens%5C%5CExtracts%5C%5CR2-2301431%20Orbit%20and%20Tropo.docx%22%20%5Co%20%22C%3AUsersmtk16923Documents3GPP%20Meetings202302-03%20-%20RAN2_121%2C%20AthensExtractsR2-2301431%20Orbit%20and%20Tropo.docx) Adding GNSS Types in GNSS-SSR-OrbitCorrections to clarify SSR clock correction signal reference and clarification of GNSS Troposperic Delay Correction Ericsson CR Rel-16 37.355 16.9.0 0410 - F NR\_pos-Core
2. [R2-2301433](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202302-03%20-%20RAN2_121%2C%20Athens%5CExtracts%5CR2-2301433%20Orbit%20and%20Tropo.docx) Adding GNSS Types in GNSS-SSR-OrbitCorrections to clarify SSR clock correction signal reference and clarification of GNSS Troposperic Delay Correction Ericsson CR Rel-17 37.355 17.3.0 0412 - A NR\_pos-Core
3. R2-23xxxxx Clarifying Galileo NAV message in the GNSS Navigation model to clarify SSR clock correction signal reference and clarification of GNSS Troposperic Delay Correction Ericsson Draft CR Rel-16 37.355 16.9.0 0410 1 F NR\_pos-Core
4. R2-23xxxxx Clarifying Galileo NAV message in the GNSS Navigation model to clarify SSR clock correction signal reference and clarification of GNSS Troposperic Delay Correction Ericsson Draft CR Rel-17 37.355 17.3.0 0412 1 A NR\_pos-Core

# Discussion

## 4.1. Clarification of the SSR clock correction for Galileo

In [1,2], the suggestion is to clarify the reference to the SSR clock corrections for Galileo based on a changed notere the SSR Orbit Corrections. However, the online discussion instead converged towards a needed change in the GNSS Navigation model for Galileo, where the IOD reference in table “GNSS to iod Bit String(11) relation” is given for Galileo in general without specifying I/NAV or F/NAV.

The proposed change is to clarify that the IOD refers to Galileo I/NAV, and this is implemented in the Draft CRs for Rel 16 [3] and Rel 17 [4].

**Q1: Do you agree with the change in [3,4] w.r.t the GNSS Navigation Model？**

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| Company |  Yes/ No | Comments |
| Ericsson |  | From further offline discussions, we have identified two more essential corrections:* Define that the cloick model I/NAV is provided for Galileo in case only one clock model is provided
* Specify which IOD that should be considered for BDS for orbit corrections, which have implication for which clock that is corrected by the SSR clock corrections

Updated draft CRs are uploaded to the draft folder, tagged “-v2” |
| CATT | No | The BDS should not be involved here. The NOTE 2 should not be updated:NOTE 2: In the cases that *gnss-ID* indicates 'gps', 'qzss' or ‘bds’, the *iod* refers to the NAV broadcast ephemeris (GPS L1 C/A, QZSS QZS-L1 or BDS B1C/B2a, respectively, in table GNSS to iod Bit String(11) relation in IE *GNSS‑NavigationModel).* |
| Qualcomm | partly | The change to the Table 'GNSS to iod Bit String(11) relation' looks O.K.The change to the *stanModelID* field is NBC (and also not needed). Existing UEs will not follow this interpretation. If there is a need to indicate the clock model (e.g., because SSR corrections are also provided), the server should include the *stanModelID* field.On BDS IOD in *GNSS-SSR-OrbitCorrections*, a clarification is needed. If it is common understanding that B1C/B2a is the reference for the SSR orbit corrections (which seems sensible) this change looks O.K. |
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## 4.2. Field description with clarification of applicability of tropo data

The Draft CRs [3,4] provides a clarifying sentence about tropo data applicability and a field description for tropospheric data with a Note clarifying that tropo provided for one GNSS is applicable for all GNSS.

**Q2: Do you agree with the change in [3,4] w.r.t tropospheric corrections?**

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| Company |  Yes/No | Comments |
| Qualcomm | No | As commented online, this is NBC (and not a correction anyhow). A UE will normally not look into the IEs of other, potentially not-supported GNSSs to check whether the tropo parameter are provided or not. |
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# 5 Conclusion

**To be added**