**3GPP TSG-RAN WG4 Meeting #94-e R4-2000071**

**Electronic Meeting, Feb.24th – Mar.6th 2020**

**Agenda item:** 7.15 - Support for NavIC Navigation Satellite System for LTE [LCS\_NAVIC-Perf]

**Source:** Moderator (Reliance Jio)

**Title:** Email discussion summary for RAN4#94e\_#74\_LCS\_NAVIC\_RRM

**Document for:** Discussion and Approval

# Introduction

In RAN#85, LCS\_NAVIC work item was approved for A-GNSS suport for NavIC constellation in LTE Release-16. This change request captures the minimum performance requirements expected from GNSS receivers supporting NavIC constellation.

*.*

List of candidate, target of email discussion, for 1st round and 2nd round

* 1st round: Qualcomm, Thales, Broadcomm, Nokia, ZTE, OPPO, APPLE, SAMSUNG, Media-tek, Huawei
* 2nd round: TBA

# Topic #1: GNSS Receiver Peformance for NAVIC

Minimum performance requirements for GNSS receivers supporting NavIC constellation.

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2000071 | Reliance Jio, ISRO | Proposal 1: Minimum performance requirements for GNSS receivers supporting NavIC constellation.  Observation 1: Addition of L5 band only constellation. |

## Open issues summary

### Minimum performance requirements for NAVIC constellation

Issue 1-1: Navic requires 12 sec for the time sync. Hence ‘max-response-time’ in minimum requirements criterion of TS 36.171 needs to be updated.

* Proposals
  + Option 1: ‘max-response-time’ shall be updated for all GNSS
  + Option 2:
* Recommended WF
  + ‘max-response-time’ shall be updated to 40ms to meet 95% success criterion

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Spirent Communications | For all RAN 4 requirements except Nominal Accuracy we have never before defined any requirements for a regional NSS system (only for global systems). Having a regional NSS raises many issues. We will need to discuss how we intend to do this and agree a way forward. I suggest a discussion paper with proposals should be generated …  Once we have an agreed approach, then another paper will be needed that details and justifies the various values proposed for the requirements (2-D accuracy, TTFF and SV levels etc.) |
| Ericsson | Agree with Spirent, we need to have a discussion and justification for the approach and the numbers. |
| Qualcomm | We have the following comments:  (1) The current specification framework of 36.171 supports requirements for global constellations only, as specified in clause 4.7 of TS 36.171. NavIC is a non-global GNSS having regional coverage only. The change in section 4.7 (and at other places) require some correction:  “Minimum performance requirements are defined for each global GNSS constellation (GPS, Galileo, Modernized GPS, GLONASS , BDS and NavIC).”  since NavIC is not a global GNSS constellation.  (2) We agree that NavIC capable receiver require longer response time due to NavIC data structure and L5 signal only; we agree that 40 sec is reasonable. However, we cannot change the existing requirements. Therefore, separate Requirements Tables should be introduced for NavIC. For example:   | System | Success rate | 2-D position error | Max response time | | --- | --- | --- | --- | | ~~All~~NavIC | 95 % | 100 m | 40 s | |

### CRs/TPs comments collection

*Major close-to-finalize WIs and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going WIs, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| XXX | Company A |
| Company B |
|  |
| YYY | Company A |
| Company B |
|  |

## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

|  |  |
| --- | --- |
|  | **Status summary** |
| **Sub-topic#1** | *Tentative agreements:*  *Candidate options:*  *Recommendations for 2nd round:* |

*Recommendations on WF/LS assignment*

|  |  |  |
| --- | --- | --- |
|  | **WF/LS t-doc Title** | **Assigned Company,**  **WF or LS lead** |
| #1 |  |  |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provides recommendation on CRs/TPs Status update*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation** |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

*Moderator tries to summarize discussion status for 2nd round and provided recommendation on CRs/TPs/WFs/LSs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation** |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |