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

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

**Agenda item: 8.11.6**

**Source: Ericsson**

**Title: [AT117-e][602][POS] NavIC running CRs (Ericsson/Huawei)**

**WID/SID: NR\_pos\_enh-Core - Release 17**

**Document for: Discussion and Agreement**

# 1 Introduction

This document is to kick off the following email discussion:

* [AT117-e][602][POS] NavIC running CRs (Ericsson/Huawei)

      Scope: Review the following CRs, collect comments, and update if necessary:

* R2-2202607 (NavIC introduction to 38.305)
* R2-2203710 (NavIC introduction to 38.331)

      Intended outcome: Endorsable CRs

      Deadline:  Friday 2022-02-25 1000 UTC

In this email discussion the following contributions related with A-GNSS enhancements, posSIB additions RRC impacts and stage 2 TS 38.305 impacts,

1. [R2-2203710](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_117-e/Docs/R2-2203710.zip) Impacts of NavIC in NR RRC Ericsson discussion Rel-17
2. [R2-2202607](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_114-e/Docs/R2-2202607.zip) Draft running CR for stage2 spec for NavIC in R17 positioning Huawei, Hisilicon draftCR Rel-17 38.305 16.6.0 B NR\_pos\_enh-Core

# 2 Contact Information

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

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| Company | Contact: Name (E-mail) |
| CATT | Jianxiang Li (lijianxiang@catt.cn) |
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# 3 Discussion

## 3.1 Impacts of NavIC in NR RRC

[R2-2203710](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_117-e/Docs/R2-2203710.zip) provides the solution related with the support of NavIC in NR RRC protocol. The following two SIBs are suggested to be added in the PosSystemInformation-r16-IEs, PosSI-SchedulingInfo and DedicatedSIBRequest:

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| *posSibType2-24* | *NavIC-DifferentialCorrections* |
| *posSibType2-25* | *NavIC-GridModelParameter* |

The changes impacting RRC is primarily to add the NavIC SIBs for broadcast.

**Question 1**: Please provide your views on adding the above NavIC posSIBs in RRC protocol.

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| Company | Comments |
| CATT | For IE *DedicatedSIBRequest* and *PosSI-SchedulingInfo,* the posSIB should be named as posSibType2-24 and posSibType2-25, not including ‘-v17xy’.  After posSibType2-25-v17xy and before the bracket, there should only be one space.  posSibType5-1, posSibType6-1, posSibType6-2, posSibType6-3,..., posSibType2-24-v17xy,  posSibType2-25-v17xy }  For IE *PosSystemInformation-r16-IEs,* the posSIB should be named as posSibType2-24-r17 and posSibType2-25-r17, not including ‘-v17xy’.  [[  posSib2-24-v17xy SIBpos-r16,  posSib2-25-v17xy SIBpos-r16  ]] |
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## 3.2 Impacts of NavIC in TS 38.305

[R2-2202607](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_114-e/Docs/R2-2202607.zip) provides the solution related with the support of NavIC in TS 38.305. The contribution captures the following spec impacts:

1. IRNSS Signal-In-Space (SPS) Interface Control Document (ICD) for standard positioning service version 1.1 as the reference file is added into section 2 as reference.
2. The abbreviation of NavIC is added into section 3.2.
3. NavIC is included into Regional navigation satellite systems for GNSS positioning methods. The following sections that are affected by the introduction of NavIC are pointed out and the summarized modified part:

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| Section name | Impact description |
| 4.3.2 Network-assisted GNSS methods | Navigation with Indian Constellation (NavIC) is added as one of the regional navigation satellite systems. |
| 8.1.1 General | NavIC is added as one of the supported GNSSs of the TS 38.305. |
| 8.1.2.1.3 Ionospheric Models | NavIC is added as one of the GNSSs which need Ionospheric Model assistance. |
| 8.1.2.1.5 GNSS-GNSS Time Offsets | NavIC is added as one of the GNSSs which need GNSS-GNSS Time Offsets assistance. |
| 8.1.3.3.1 LMF initiated Location Information Transfer Procedure | NavIC is added as one of the positioning methods. |

The changes impacting stage 2 spec is primarily to support NavIC in Rel-17 positioning.

**Question 2**: Please provide your views on adding the above NavIC impacted corrections in TS 38.305.

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| Company | Comments |
| CATT | The reference file for NavIC should not be inserted between [35] and [36]. It should be added as the last reference file after [41].  For clauses 8.1.2.1.3 and 8.1.2.1.4, the ‘and’ before BDS should be deleted.  8.1.2.1.3 Ionospheric Models  Ionospheric Model assistance provides the GNSS receiver with parameters to model the propagation delay of the GNSS signals through the ionosphere. Ionospheric Model parameters as specified by GPS [5], Galileo [8], QZSS [10], BDS [20] [34], and NavIC [xx] may be provided.  8.1.2.1.5 GNSS-GNSS Time Offsets  GNSS-GNSS Time Offsets assistance provides the GNSS receiver with parameters to correlate GNSS time (where the specific GNSS is indicated by a GNSS-1 ID) of one GNSS with other GNSS time (where the specific GNSS is indicated by a GNSS-2 ID). GNSS-GNSS Time Offsets parameters as specified by GPS [5], Galileo [8], GLONASS [9], QZSS [10], BDS [20] [34], and NavIC [xx] may be provided. |
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## 3.3 Any other comments

**Question 3**: please provide any additional comment; e.g. any additional impacts foreseen

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# 4 Conclusion