3GPP TSG-RAN WG2 Meeting #112e R2-20xxxx

Online Meeting, 02 – 13 November 2020

**Agenda item: 6.6.2**

**Source: Ericsson (Rapporteur)**

**Title: Offline 604 Positioning RRC proposals**

**WID/SID: NR\_POS-Core - Release 16**

**Document for: Discussion and Decision**

# 1 Introduction

This document is the report of the following email discussion.

* [AT112-e][604][POS] Positioning RRC proposals (Ericsson)

Scope: Discuss and resolve proposals 1 and 2 from R2-2010709.

Intended outcome: Agreeable CR in R2-2010864

Deadline: Tuesday 2020-11-10 1200 UTC

The reference document and the proposals to be discussed are listed below.

[R2-2010709](ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010709.zip) Summary for RRC Corrections for Positioning Ericsson discussion

[Proposal 1 RAN2 to agree the posSIB validity inclusion in RRC and review the CR for posSIB validity check provided in R2-2008806 by email discussion.](#_Toc54681748)

[Proposal 2 RAN2 to provide correction for field description for fields (sfn-Offset and sfn-SSB-Offset) available in SSB-Configuration. The exact changes are captured via email discussion review.](#_Toc54681749)

# 2 PosSIB Validity Check

The CR [R2-2008806](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2008806.zip) provides the changes needed to describe how UE will determine the posSIB validity in RRC. The valueTag and expiration duration are defined in LPP layer however the areaScope and SystemInformationAreaID are part of RRC.

**Question 1**: do you agree with the changes in the CR in [R2-2008806](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2008806.zip) where the posSIB validity has been provided in RRC?

Please use the comments column to provide any suggested changes to the CR or to add explanations/alternatives if you disagree with the CR or any parts of it.

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| Answers to Question 1 | | |
| Company | Yes/No | Comments |
| Intel | Yes |  |
| Huawei, HiSilicon (Yinghao) | No | We don’t this should be done in the RRC spec for the following reasons:  1/ In the RRC spec, the valueTag and ExpirationTime are not defined. For RRC spec, posSIB are OCTET STRINGs that are defined in the upper layer.    Hence, from modeling perspective, putting posSIB validity procedure in RRC spec is not reasonable.  2/ In the RRC spec, requirement for posSIB are from upper layer. So, if the request is already from upper layer, why the validity check should be performed in the RRC?    For us, this is a legacy issue that has already been existing in R15. We prefer not to address this or if this is the intention from all the other companies, address it in the LPP spec. |
| CATT | Yes | posSIB validity based on area scope is introduced in R16. It is not a legacy issue.  The requirement for posSIB are from upper layer doesn’t mean that the posSIB validity should not happen in RRC. We do not see the logical consequence of request and check.  The requirement for posSIB comes from higher layer because higher layer needs AD data in posSIB.  Considering the area scope in SIB1 which should not be transferred to higher layer, the posSIB validity in RRC makes sense.  Majority (5 companies within 7 companies' replies) preferred to capture posSIB validity in RRC in R2-2008268 in last meeting. |
| vivo | Yes |  |
| Xiaomi | Yes |  |
| Qualcomm | Yes | In Rel-15 we have only the value tag and the expiration time. Those two fields are described in the LPP field description and they imply the corresponding UE behaviour. However, the area scope is an addition in Rel-16 and should be clarified.  However, from the text in 5.2.2.2.1 it may be difficult (for "non-positioning people") to understand that the value tag and expiration time are defined in LPP ASN.1. Maybe we could make it more explicit:  If the UE stores the acquired posSIB, then the UE shall store the associated *areaScope*, if present, the *cellIdentity*, the *systemInformationAreaID*, if present, the *valueTag*, if provided in *assistanceDataSIB-Element*, and the *expirationTime* if provided in *assistanceDataSIB-Element*. The UE may use a valid stored version of the SI except *MIB*, *SIB1*, *SIB6*, *SIB7* or *SIB8* e.g. after cell re-selection, upon return from out of coverage or after the reception of SI change indication. The *valueTag* and *expirationTime* for posSIB is optionally provided in *assistanceDataSIB-Element*, as specified in TS 37.355 [49].  I think this may avoid some confusion of the RRC value tag and LPP value tag. Also, the value tag is not provided in "LPP signalling" (its just defined in LPP). |
| Nokia | Yes | First, we agree with the changes proposed by Qualcomm. Just saying the *valueTag* and *expirationTime* are optionally provided in LPP signalling implies these values are provided via dedicated LPP signalling. So, clarifying that it is from the *assistanceDataSIB-Element* is good.  Then, the *assistanceDataSIB-Element* IE, as described in 7.4.1 in 37.355, is a broadcast information element which are encoded as 'basic production' for other purposes than encoding the IE within an LPP message. So, referring to a field in the *assistanceDataSIB-Element* IE when used in an RRC message, seems OK to us. Anyway, what is described in the CR is the UE behaviour and UE does have access to *valueTag* and *expirationTime* after decoding the *assistanceDataSIB-Element*.  The paragraph at the top which starts with “When the UE acquires a *MIB* or a *SIB1* or an SI message in a serving cell as described in…” seem too long with multiple conditions making it too complex to read. Can we structure it something like the following:  When the UE acquires a *MIB* or a *SIB1* or an SI message in a serving cell as described in clause 5.2.2.3, the UE shall:   1. if the UE stores the acquired SIB;   2> store the associated *areaScope*, if present, the first *PLMN-Identity* in the *PLMN-IdentityInfoList* for non-NPN-only cells or the first NPN identity (SNPN identity in case of SNPN, or PNI-NPN identity in case of PNI-NPN) in the *NPN-IdentityInfoList* for NPN-only cells, the *cellIdentity*, the *systemInformationAreaID*, if present, and the *valueTag*, if present, as indicated in the *si-SchedulingInfo* for the SIB.   1. If the UE stores the acquired posSIB;   2> store the associated *areaScope*, if present, the *cellIdentity*, the *systemInformationAreaID*, if present, the *valueTag*, if provided, and the *expirationTime* if provided.   1. The UE may use a valid stored version of the SI except MIB, SIB1, SIB6, SIB7 or SIB8…. |
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# 3 sfn-SSB-Offset, sfn-Offset, sfn0-offset

[R2-2008807](ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2008807.zip), [R2-2008808](ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2008808.zip), [R2-2010071](ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010071.zip), [R2-2010270](ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010071.zip) provides CR for correction of field description for SSB-Configuration related to fields: sfn-Offset and sfn-SSB-Offset and sequence sfn0-offset.

The CR [R2-2010991](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010991.zip) in consolidates the changes and provides a merged version.

**Question 2**: do you agree with the changes in the CR in [R2-2010991](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010991.zip)?

Please use the comments column to provide any suggested changes to the CR or to add explanations if you disagree with the CR or any parts of it.

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| Answers to Question 3 | | |
| Company | Yes/No | Comments |
| Intel | Yes |  |
| Huawei, HiSIlicon (Yinghao) | Yes |  |
| CATT | Yes |  |
| vivo | Yes |  |
| Xiaomi | Yes |  |
| Qualcomm | Yes | I think this  "Indicates the SFN offset of the transmitted SSB related to the start of the SSB period."  should be  "Indicates the SFN offset of the transmitted SSB relative to the start of the SSB period." |
| Nokia | No | We understand, the *sfn-Offset* and *integerSubframeOffset* are the frame-level and subframe-level offsets for sfn0-Offset. So, we should add a field definition for *integerSubframeOffset* and clarify that *sfn-Offset* and *integerSubframeOffset* are the frame level and subframe level offsets to represent sfn0-Offset. This is what I got from our RAN1 delegate but if this is not correct, then we need to a confirmation from RAN1 if RAN2 interpretation is correct or not. |
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# 4 Conclusion

Based on the discussion in the previous sections we propose the following:

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