3GPP TSG-RAN WG2 #109bis-e R2-200xxxx

Electronic Meeting, April 20th – 30th 2020

Agenda Item: 6.21

Source: Ericsson

Title: Summary of [Post109bis-e][OdSIBconn] Ondemand SI Open issue

Document for: Discussion, Decision

# 1 Introduction

This document is to kick off the the following email discussion:

* [Post109bis-e][OdSIBconn] On demand SI Open issue (Ericsson)

Scope: RRC CR, taking R2-2003836, R2-2004245 and R2-2004209 into account.

Wanted outcome : endorsed CR 38331

Deadline: Short RRC

# 2 Discussion

In the last email discussion [AT109bis-e][056][OdSIBconn], companies have provided inputs regarding the draftCR submitted in the RAN2#109bis-e meeting. As a rapporteur company, we went through each comment and we left a proposal about how to handle it.

In this continuation of the email discussion, companies are requested to further check the draftCR and provide further inputs in the form of new comments or a reply to the comments previously mentioned in [AT109bis-e][056][OdSIBconn]. For sake of completeness, previous comments and replies from email discussion rapporteur are reported in ANNEX A.

Please, note that in this email discussion, companies are asked to provide input on the draftCR only for what concern the on-demand SIB feature for UE in RRC\_CONNECTED. *Comments regarding the on-demand SI feature for positioning are handled in a separate email discussion*.

## 2.1 Comment on the DraftCR for general on-demand SIB framework (no positioning)

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| General on-demand SIB feature for CONNECTED (i.e., no positioning) | |
| Company | Comments |
| NEC | # looking at v2  Regarding the field description in RRCReconfiguration IE:  ***onDemandSIB-RequestConfig***  If the field is present, is used to indicated that the UE may request SIB(s) on-demand while in RRC\_CONNECTED.  Now onDemandSIB-Request is defined within OnDemandSIB-RequestConfig for enabling/disabling the function, so it should be modified somehow to reflect the agreement above, e.g. as shown below.  ***onDemandSIB-Request***  If the field is present, the UE is allowed to request SIB(s) on-demand while in RRC\_CONNECTED. |
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# ANNEX A Inputs [AT109bis-e][056][OdSIBconn] email discussion

According to this, companies are kindly requested to provide comment on the DraftCR for what concern the general framework of on-demand SIB (i.e., excluding positioning).

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| General on-demand SIB feature for CONNECTED (i.e., no positioning) | |
| Company | Comments |
| Lenovo | 1. 5.2.1: The description below can be updated as shown in red below to include the new OSI in connected functionality. (Note: This issue has been reported during ASN.1 review phase 1 as class0class1 issue #220.)   -    For a UE in RRC\_CONNECTED, the network can provide system information through dedicated signalling using the *RRCReconfiguration* message, e.g. if the UE has an active BWP with no common search space configured to monitor system information or paging, or upon request from UE in RRC\_CONNECTED.  [Ericsson] Done. However, we left out “in RRC\_CONNECTED” because is already mentioned at the beginning of the sentence.   1. DedicatedSIBRequest message: The redundant bracket below needs to be removed.   SIB-ReqInfo-16 ::= ENUMERATED {sib12, sib13, sib14, spare5, spare4, spare3, spare2, spare1}  }  [Ericsson] Done   1. RRCReconfiguration, OnDemandSibRequest-r16: For the prohibit timer the same values as for overheatingIndicationProhibitTimer are defined (in seconds). However, we wonder about the large values of s60, s90, s120, s300, s600. It should be discussed whether such large values are needed and the value range can be reduced to 3 bits. Furthermore, a comma is missing after ENUMERATED {true}.   OnDemandSibRequest-r16 ::= SEQUENCE {  onDemandSIBRequest ENUMERATED {true},  onDemandSIBRequestProhibitTimer ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30, s60, s90, s120, s300, s600, spare3, spare2, spare1}  }  [Ericsson] I think is a good point and we can discuss this during the one-week email discussion. We left an FFS in the draftCR.   1. RRCReconfiguration-IEs field descriptions: In the field description of dedicatedSystemInformationDelivery saying “…to the UE in RRC\_IDLE/RRC\_INACTIVE” is not correct since SIB6/7/8 are actually sent to UE in RRC\_CONNECTED. Therefore, it is better to replace “in RRC\_IDLE and RRC\_INACTIVE” by “if an active BWP with no common search space is configured” as shown below. (Note: This issue has been reported during ASN.1 review phase 1 as class0class1 issue #225.)   This field is used to transfer *SIB6*, *SIB7*, *SIB8* to the UE ~~in RRC\_IDLE and RRC\_INACTIVE~~ if an active BWP with no common search space is configured. For UEs in RRC\_CONNECTED, this field is used to transfer the SIBs requested on-demand.  [Ericsson] Done   1. 7.1.1: Shouldn’t T350 be stopped if running upon reception of RRCRelease?   [Ericsson] Since the timer is related to a message that should be used only by the UE when in CONNECTED, we do not think there should be any misunderstanding on the UE behaviour. However, there is no harm is explicitly stop the timer in the procedural text (i.e., done). |
| MediaTek | 1. Agree with Lenovo about the values of the prohibit timer—we don’t think the longer values are useful.  [Ericsson] Agree with the intention. Regarding the actual values, we can discuss this during the one-week email discussion.  2. In section 5.2.2.3.5, the first level 1 bullet covers the case that the UE is in RRC\_CONNECTED without CSS. However, it then says that the UE shall:  3> acquire the requested SI message(s) corresponding to the requested SIB(s) as defined in sub-clause 5.2.2.3.2.  In 5.2.2.3.2, though, the acquisition procedure is for PDCCH monitoring in the SI window according to searchSpaceOtherSystemInformation, so that section seems not applicable here. Actually, it looks like there should be no UE requirement for acquisition of the requested SI in this case; it depends on the network to deliver the SI by unicast, and the requirements for processing that received SI are already there in the RRCReconfiguration section. So it should be possible just to delete this level 3 bullet.  [Ericsson] We tend to agree with the analysis. For the time being, we deleted the level 3 bullet.  3. In section 5.2.2.3.5, in the second level 2 bullet (not changed in this CR), the field value „broadcasting“ is incorrectly typed as „Broadcasting“.  [Ericsson] Fixed  4. In section 5.2.2.4.2, the first added level 3 bullet says „if onDemandSibRequest is set to true and timer T350 is not running:“, but then the requirement underneath it says „start or restart timer T350“. We can’t restart it if it’s not running, so the highlighted part seems spurious. The same issue occurs later in this section (at the end of the changes where T350 is mentioned again).  [Ericsson] Done  5. „SIB“ is an acronym, so onDemandSibRequestConfig should be onDemandSIB-RequestConfig throughout  6. Similarly, OnDemandSibRequest-r16 should be OnDemandSIB-Request-r16  [Ericsson] Done 5, 6  7. In the definition of onDemandSibRequest-r16, the field onDemandSIBRequest is useless; it encodes to zero bits and the information that on-demand SIB request is allowed is already conveyed by this structure being present. So the field can be deleted.  [Ericsson] Done. We update also the field description to reflect this.  8. onDemandSIBRequestProhibitTimer needs a hyphen: onDemandSIB-RequestProhibitTimer  [Ericsson] Done  9. Section B.1: RRCSystemInfoRequest appears twice in the table with identical information—the second addition seems a mistake  [Ericsson] Done |
| NEC | 1. value range for prohibit timer  To comments from Lenovo and MediaTek, from network point of view, we want to keep at least s60 and hopefully also some more longer values. If you want to reduce the size (which is generally good), we would like to suggest removing s0dot5 and adding s60. This is because the prohibit timer is basically useful or necessary in a problematic case (e.g. cell overloading) and the situation may be kept relatively longer period.  [Ericsson] We left an FFS and we can discuss this aspect during the one-week email discussion.  2. general question for prohibit timer  Although this is related to positioning, let me ask for clarification. There are two prohibit timers now, i.e. one for positioning SIB and the other for other SIBs. For the latter, RAN2 agreed to difine it „per UE“. On the other hand, we understood the timer for positioning SIB was already agreed before. It would be good to confirm the motivation to have those two timers separately. For instance, it is because the positioning needs a special handling (i.e. technically it is necessary) or this way makes specificaton simpler (i.e. two independent SetupRelease structures can be used)?  [Ericsson] Our understanding is that you may have two different values for SIBs and posSIBs and this is because the UE may have different requirements in acquiring them. |
| ZTE | 1. In 5.2.2.3.5 and 5.2.2.4.2, the description about configuration of search space for other system information is a little bit redundant. The description about SIB validity is not fully consistent with that in 5.2.2.1.   Suggest to change into the following:  ---------------------------------------------------- 5.2.2.3.5 Request for on demand system information in RRC\_CONNECTED  1. if the UE is in RRC\_CONNECTED with an active BWP not configured with *searchSpaceOtherSystemInformation* and the UE has not stored a valid version of a SIB, in accordance with sub-clause 5.2.2.2.1, of one or several required SIB(s) or posSIB(s), in accordance with sub-clause 5.2.2.1 or according to the request from upper layers:   ----------------------------------------------------  ---------------------------------------------------- 5.2.2.4.2 Actions upon reception of the *SIB1* 2> else if the UE has an active BWP configured with *searchSpaceOtherSystemInformation* and the UE has not stored a valid version of a SIB, in accordance with sub-clause 5.2.2.2.1, of one or several required SIB(s) or posSIB(s), in accordance with sub-clause 5.2.2.1 or according to the request from upper layers:  ----------------------------------------------------  [Ericsson] For the sake of clarity, we would like to keep the current text. For people that are into this topic, it may not sound that obvious that searchSpaceOtherSystemInformation is a “common search space”. We see no harm in keeping it.   1. Based on the current description in 5.2.2.3.5, it seems that UE will initiate transmission of two separate *DedicatedSIBRequest* message to request SIB(s) and posSIB(s), respectively. We suggest to either add a NOTE saying “*UE may request for SIB and/or posSIB(s) via the same DedicatedSIBRequest message”* or change the description into the following:   ---------------------------------------------------- 5.2.2.3.5 Request for on demand system information in RRC\_CONNECTED 2> for the SI message(s) that, according to the *si-SchedulingInfo* or the *posSI-SchedulingInfo* in the stored SIB1, contain at least one required SIB or posSIB and for which *si-BroadcastStatus* is set to *Broadcasting*:  3> acquire the SI message(s) as defined in sub-clause 5.2.2.3.2;  2> for the SI message(s) that, according to the *si-SchedulingInfo* or the *posSI-SchedulingInfo* in the stored SIB1, contain at least one required SIB or posSIB and for which *si-BroadcastStatus* is set to *notBroadcasting*:  3> initiate transmission of the *DedicatedSIBRequest* message in accordance with 5.2.2.3.6;  3> acquire the requested SI message(s) corresponding to the requested SIB(s) or posSIB(s) as defined in sub-clause 5.2.2.3.2.  ----------------------------------------------------  [Ericsson] A note has been added as it has less impact on the spec and the preference is to keep positioning text separated.   1. We do not understand why we have separate indications showing allowance of on demand SI request in connected for SIB and posSIB: onDemandPosSibRequestConfig-r16 & onDemandSibRequestConfig-r16. And why we have separate timer (T350 and T351)? Did we make any agreement about that. In our understanding, one common indication and timer will be sufficient.   [Ericsson] Our understanding is that you may have two different values for SIBs and posSIBs and this is because the UE may have different requirements in acquiring them.   1. We do not think the *dedicatedPosSysInfoDelivery-r16* field is needed in *RRCReconfiguration* message. The positioning system Information blocks are still conveyed to UE via *SystemInformation* message. The existing *dedicatedSystemInformationDelivery* field (copied below) is sufficient to covey the positioning SIBs to UE.   dedicatedSystemInformationDelivery OCTET STRING (CONTAINING SystemInformation) OPTIONAL, -- Need N  [Ericsson] We think that both solution may work. However, we think that is good to discuss this in the one-week email discussion.   1. There is no need to introduce the *rrcPosSystemInfoRequest-r16* in *RRCSystemInfoRequest* message because the positioning system Information blocks are still conveyed to UE via *SystemInformation* message and the SI request in idle and inactive state is made per SI message. There is no need to change the ASN.1. The field description for *requested-SI-List* can be updated to cover the positioning SIBs.   [Ericsson] We think that both solution may work. However, we think that is good to discuss this in the one-week email discussion. |
| CATT | 5.2.2.3.5 Request for on demand system information in RRC\_CONNECTED  3> acquire the requested SI message(s) corresponding to the requested SIB(s) as defined in sub-clause 5.2.2.3.2.  **Comment#1:** This part “3>...” can be replaced as  3> acquire the requested SI message(s) corresponding to receive RRCReconfiguration meesage.  Because this is aligned with the modification in 5.3.5.3.  [Ericsson] We do not think that this is needed as the acquisition upon the reception of the RRCReconfiguration is already covered in 5.3.5.3. |
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## ANNEX A.1 Previous comments from Part 1 of [AT109bis-e][056][OdSIBconn]

### A.1.1 Introduction of on-demand SIB in CONNECTED with positioning ([R2-2003787](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003787))

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| Company | Comments |
| MediaTek | We find a few detailed issues with this CR as follows:   * Section 5.2.2.3.3a refers to RRCPosSystemInfoRequest as if it were a separate message, which it isn’t (it’s a critical extension of RRCSystemInfoRequest). So this section should talk about initiating transmission of the RRCSystemInfoRequest for positioning, rather than initiating transmission of the RRCPosSystemInfoRequest „message“. * Similarly, section 5.2.2.3.4a should be merged into section 5.2.2.3.4. * Section 5.2.2.3.6 has a grammatical problem: It should say „include requestedSIB-List in the onDemandSIB-RequestList to indicate the requested SIB(s)“ (and mutatis mutandis for posSIBs). * In section 5.2.2.4.2, the posSIB requirements talk about „required posSIB(s), in accordance with sub-clause 5.2.2.1“, but there are no posSIB requirements in 5.2.2.1; it’s not actually clear that there should be any requirements on acquiring posSIBs in response to receiving SIB1, as opposed to in response to receiving a positioning request from upper layers. * In the field description table for the message DedicatedSIBRequest, the description for requested-posSIB-List is missing its field name. * Per the ASN.1 conventions, the field name should be requestedPosSIB-List (without the first hyphen). * In RRCReconfiguration-v1600-IEs, the OCTET STRING should just contain SystemInformation; there is no PosSystemInformation message. * In PosSI-SchedulingInfo, the conditional MSG-1 is not defined (should be cloned from SI-SchedulingInfo). * In PosSI-SchedulingInfo, it seems wrong for posSI-BroadcastStatus to be OPTIONAL. What does it mean for it to be absent? This field is mandatory in SchedulingInfo for regular SI. |
| Nokia | The instructions for this email discussion says “Treat papers under 6.21, by treating R2-2003204, R2-2003203 and taking into account comments”. Why is this R2-2003787 and ASN.1 class 2 issues (section 2.4) part of this email discussion? The background on R2-2003787 is not described this discussion document and the CR cover for R2-2003787 is not clear as to which Tdoc containing the last agreed running CR for OSI for positioning was used to implement on top of 38.331 v16.0.0. |
| Samsung | We need more time to look into the details of the positioning CR but some general comments. We noticed procedural text is duplicated for the positioning aspects which makes the bulky. Since the functionality is similar for OSI request from IDLE/INACTIVE (i.e. SI message level) while for connected OSI request for regular SIBs is on SIB level while for positioning it is SI message level. Apart from this all the functionality in terms of info in SIB1 for regular SIBs is duplicated for positioning SIBs. With this background it would be desirable to merge procedural text if possible. We will provide details comments on the CR later. |
| Huawei,HiSilicon | We prefer tdoc R2-2003637 to be the baseline for introducing on-demand SI in CONNECTED mode for positioning, because this CR includes quite a lot of corrections that are not only applicable for OdSIB in connected for positioning, but also for the general OdSIB procedures |
| Lenovo | After first review the following issues were spotted:   * Cover page: WI code “NR\_unlic-Core” can be removed. My understanding is that OSI in connected does not need to be supported for NR-U. * 5.2.2.3.3a (Request for on demand Positioning system information): shouldn’t SI request in RRC IDLE/INACTIVE supported on supplementary uplink as well? * Constant “maxPosSIB-Message” is not defined in 6.4. Furthermore, it may be better renamed to “maxPosSIB”. * We have not agreed yet to support SIB12, SIB13, SIB14, and SIB10 may need to be supported as well, see my comment to the feature summary document. * RRCPosSystemInfoRequest is missing in the table in B.1. |
| CATT | 5.2.2.3.3a Request for on demand Positioning system information 2> if acknowledgement for *RRCPosSystemInfoRequest* IE~~message~~ is received from lower layers: Comments #1: “Message” should be changed into “IE” because RRCPosSystemInfoRequest is not a message. 5.2.2.3.5 Request for on demand system information in RRC\_CONNECTED The UE shall:   1. if the UE is in RRC\_CONNECTED with an active BWP not configured with common search space configured with the field *searchSpaceOtherSystemInformation* and the UE has not stored a valid version of a SIB or the UE has received a positioning request from higher layer,  Comments #2: Added positioning request from higher layer condition.5.2.2.4.2 Actions upon reception of the *SIB1* 3> if the UE has not stored a valid version of a posSIB, in accordance with sub-clause 5.2.2.2.1, of one or several required posSIB(s), in accordance with sub-clause 5.2.2.1:  Comments #3: The validity of posSIB is not mentioned in 5.2.2.2.1 while there is no posSIB validity. We share the same view of MTK’s. |
| ZTE | Agree with Nokia this CR is a little bit out of the scope of this email discussion but we are also interested in it. We would like to have more time to check all the details inside. |

## A.1.2 ASN.1 class 2 Review issues

According to the agenda item 6.0.1, the following RILs have been added concerning the on-demand SIB procedure (i.e., including positioning).

On-demand SI in Connected

[R2-2003634](file:///D:/Documents/3GPP/tsg_ran/WG2/TSGR2_109bis-e/Docs/R2-2003634.zip) [H207][H208][H209][H211][H218] DraftCR for on-demand SI request for positioning in RRC\_CONNECTED Huawei, HiSilicon draftCR Rel-16 38.331 16.0.0 NR\_pos-Core Late

[R2-2003635](file:///D:/Documents/3GPP/tsg_ran/WG2/TSGR2_109bis-e/Docs/R2-2003635.zip) [H221] DraftCR for DedicatedSIB-Request Huawei, HiSilicon draftCR Rel-16 38.331 16.0.0 NR\_pos-Core Late

[R2-2003636](file:///D:/Documents/3GPP/tsg_ran/WG2/TSGR2_109bis-e/Docs/R2-2003636.zip) [H215][H216][H217][H219] DraftCR for Actions upon reception of the SIB1 Huawei, HiSilicon draftCR Rel-16 38.331 16.0.0 NR\_pos-Core Late

[R2-2003637](file:///D:/Documents/3GPP/tsg_ran/WG2/TSGR2_109bis-e/Docs/R2-2003637.zip) [H222] DraftCR for on-demand SI request for positioning in RRC\_CONNECTED Huawei, HiSilicon draftCR Rel-16 38.331 16.0.0 NR\_pos-Core Late

For what concern these contributions, the tdocs R2-2003634, R2-2003635, and R2-2003636 have been already addressed in the latest version of the Draft CR that has been submitted in this meeting (i.e., in R2-2003787). However, companies may provide additional comments on this three CRs.

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| R2-2003634, R2-2003635, and R2-2003636 | | |
| Company | Tdoc | Comments |
| Samsung | R2-2003634 | The below text in 5.2.2.3.5 need to be restored:  2> for the SI message(s) that, according to the *si-SchedulingInfo* in the stored SIB1, contain at least one required SIB and for which *si-BroadcastStatus* is set to *Broadcasting*:  3> acquire the SI message(s) as defined in sub-clause 5.2.2.3.2; |
| Samsung | R2-2002626 | The cross-referencing of the subclauses is not correct. See below yellow highlight:  2> else if the UE has an active BWP configured with common search space configured by *SearchSpaceOtherSystemInformation* and the UE has not stored a valid version of a SIB, in accordance with sub-clause 5.2.2.2.1, of one or several required SIB(s), in accordance with sub-clause 5.2.2.1:  3> for the SI message(s) that, according to the *si-SchedulingInfo*, contain at least one required SIB and for which *si-BroadcastStatus* is set to *broadcasting*:  4> acquire the SI message(s) corresponding to the requested SIB(s) as defined in sub-clause 5.2.2.3.2;  3> for the SI message(s) that, according to the *si-SchedulingInfo*, contain at least one required SIB and for which *si-BroadcastStatus* is set to *notBroadcasting*:  4> trigger a request to acquire the required SIB(s) as defined in sub-clause 5.2.2.3.5; |
| Lenovo | R2-2003635 | The list of supported Rel-16 SIBs is not complete as SIB10 (HRNN) for NPN should be supported as well.  The values of SIB-ReqInfo-16 can be simplified by “sib10”, “sib11” etc. Furthermore, we need to discuss whether to add extension marker in the ENUMERATED type. In general, extension markers should be added when otherwise extension is cumbersome. |
| Intel | R2-2003634 | Once the revision marks are gone in the final specs, the following is a bit difficult to read:  “with an active BWP not configured with common search space configured with the field *searchSpaceOtherSystemInformation*”  Can it be simplified for example as:  “if the active BWP does not have a common search space configured by *searchSpaceOtherSystemInformation*” |
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For the tdoc R2-2003637, instead, a further checking is needed since this Draft CR it was not implemented on top of the CR that I provided. Therefore, we would like to ask company to double check this contribution and provide comment on what should be implemented with respect to the Draft CR currently submitted in R2-2003787.

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| R2-2003637 | |
| Company | Comments |
| MediaTek | Adding „request from higher layer for posSIB“ to section 5.2.2.3.5 seems needed, and we slightly prefer this tdoc’s construction of section 5.2.2.3.6, as the version of 5.2.2.3.6 in R2-2003787 could be read to suggest that the procedure is either for SIBs or posSIBs (not both). |
| Samsung | We prefer the general approach suggested in the draft CR to implement the procedural text related to positioning OSI i.e. our earlier comment on the rapporteur CR was to avoid duplicate sub clauses and consider the approach in this draft CR |
| Huawei | Same view as MTK and SS |
| CATT | We think R2-2003637 on demand SI for positioning in Connected mode looks good in principle.  The text proposal in R2-2003637 can be merged into R2-2003787. |
| Intel | Agree with others that this draft CR R2-2003637 captures well the positioning SIBs handling. |
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# Conclusion

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

# References

[1]