**3GPP TSG-RAN RAN2 #124 R2-23xxxxx**

**Chicago, USA, 13 – 17 November, 2023**

**Agenda Item:**  **7.13.7**

**Source: Huawei (email rapporteur)**

**Title:** **Open issue list for RRC running CR for NPN**

**Document for: Discussion and Decision**

# 1 Introduction

Based on the scope of the following email discussion, this paper is to identify open issues that would help CR finalization.

* **[Post123bis][667][R18 SON/MDT] RRC Running CR for Rel-18 for logged MDT enhancements and NPN (Huawei)**

Scope: Use endorsed versions as baselines to continue the running 38.331CR and 36.331 CR for R18 logged MDT enhancements and NPN and list of open issues

Intended outcome: Running CRs baseline for R18 logged MDT enhancements and NPN

Deadline: Friday October 27th, 2023

For the feature of logged MDT enhancements, there should be no open issues and the changes for this feature are stable for now.

For the feature of SONMDT enhancements for NPN, there are still some open issues, and two categories are suggested:

* Issues related to running 38.331 CR, e.g. signalling details, parameter values. For this category, companies can directly make comments in the running CR, or if the issue is controversial, companies can provide suggestions in section 2 in this Tdoc
* Issues that need to be solved for WI completion in RAN2#124 meeting. This Tdoc tries to summarize these issues and to be used for more RAN2 discussions

For the open issue list, please provide your comments by Thursday October 26th 12:00 UTC to allow 24h for the email rapporteur to prepare a summary and update the CR.

Companies providing input to this email discussion are requested to leave contact information below.

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| **Company** | **Delegate name** | **Email address** |
| CATT | Haocheng Wang | wanghaocheng@catt.cn |
| Huawei, HiSilicon | Jun Chen | jun.chen@huawei.com |
| Nokia | Gyuri Wolfner | Gyorgy.wolfner@nokia.com |
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# 2 Running 38.331 CR for R18 SONMDT for NPN

In the RAN2#123bis chair note, RAN2 agreed to introduce some information for SNPN area configuration, and details can be discussed.

2 Include the 3 cases of cell based/TAI based/SNPN list based SNPN related area scopes in the logged MDT configuration and a critical extension (i.e. AreaConfiguration-r18) can be considered in R18. FFS how to optimize the signalling structure to avoid much overhead.

In the latest running 38.331 CR, the CR rapporteur has provided some ASN.1 changes (and changes to procedural text).

**Q1: For SNPN area configuration information in the running 38.331 CR, please companies indicate if the singalling structure can be optimized, and suggested ASN.1 changes.**

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| **Company name** | **Comments** |
| CATT | To satisfy all the RAN3 supported cases **before RAN2#123bis meeting**, we think the CE AreaConfiguration-r18 IE is necessary, especially when the following two branches configured simultaneously:   * NW configures legacy PLMN wide for PN (Inside Area Scope of MDT IE) which is implicitly indicated by “the AreaConfiguration is not configured” in the current TS38.331; * NW configures CAG List for MDT for NPN (Outside Area Scope of MDT IE)”.   Then RAN2 agreed that a critical extension (i.e. AreaConfiguration-r18) can be considered in R18 **during RAN2#123bis meeting**.  But in RAN3#121bis meeting (**at the same time of RAN2#123bis meeting**), RAN3 has made a change on the BLCR to indicate the PLMN Wide IE should not be present together with the outside CAG List for MDT IE.  Therefore based on the updated BLCR by RAN3, we think the NCE of i.e. AreaConfiguration-v18xy can also be used for the extension to cover all the RAN3 required cases.  So now before to discuss the optimization of the area scope CE structure in 38.331, we think two options could be used for the NPN specific area scope extension and we could re-discuss whether CE should be used in 38.331:  **Option 1:** Still use CE AreaConfiguration-r18 IE since CE can indeed improve readability and avoid misunderstandings;  **Option 2:** Revert the agreement made last meeting, and use an NCE AreaConfiguration-v18xy for extension based on the R17 configuration.  For option 1: This option can improve readability to make a ‘clean’ version for R18 PN and NPN area scope configuration, and the legacy fields of areaConfig and interFreqTargetList should also be included in the critical extended IE;  For option 2: Addition of SNPN and PNI-NPN specific area scope can be supported. And the RAN3 limitation in the “Semantics description” column of “ TS38.413 9.3.1.169 MDT Configuration-NR” should be set in the field description in 38.331. |
| Huawei, HiSilicon | Thanks to CATT for the information, especially on RAN3 progress. We are checking the RAN3 BLCRs.  For RAN2, the current running CR is using option 1, and companies can double check other options. |
| Nokia | As a configuration cannot be assigned to a PLMN and to an SNPN, we think that snpn-ConfigIDList-r18 should not be part of the area configuration but should be in the same level as PLMN ID list, i.e., to be an extension of LoggedMeasurementConfiguration. (We also commented this in the draft CR.) |
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# 3 Identified open issues

At RAN2#123bis, some open issues were identified, and here is a summary:

**Open issue#1: MHI, CEF, RA report enhancements for NPN**

=> Consider MHI, CEF and RA report enhancements for NPN networks in Rel-18. Similar conclusions should be reached rapidly and repetitive discussions should be avoided.

Based on companies’ contributions, RAN2#124 can continue discussing solution details and hopefully can agree on some proposals later. After that, the NPN related stage-3 changes may be updated.

**Open issue#2: OOC details for NPN**

=> Consider to introduce enhancements for OOC analysis involving NPN network.

Based on companies’ contributions, RAN2#124 can continue discussing possible enhancements. After that, the NPN related stage-3 changes may be updated.

**Open issue#3: SNPN id details for RLF/HOF report (considering ESNPN)**

FFS: Waiting for RAN3 related progress: Proposal 2: RAN2 to discuss whether ESNPN can be applied to RLF/HOF report besides the Logged MDT:

- Option 1: Limit RLF/HOF record and report to the registered SNPN, one nid is enough;

- Option 2: ESNPN is supported for RLF/HOF report, and separate nid(s) may need in the RLF/HOF report to identify the other part of SNPN IDs for different usage, together with the different PLMN ID part in e.g. previousPCellId-r16, failedPCellId-r16, reconnectCellId-r16 and reestablishmentCellId-r16.

For issue#3, RAN2 can firstly check the latest RAN3 progress, and then discuss options. After that, the NPN related stage-3 changes may be updated.

**Open issue#4: RAN2 impacts due to the scenario of UE mobility among different SNPNs (i.e. ESNPN)**

Based on the following minutes from RAN2#123bis meeting, for the scenario of UE mobility among different SNPNs (i.e. ESNPN), RAN2 has identified some options, but more discussions are needed at RAN2#124 (based on companies’ contributions). After that, the NPN related stage-3 changes may be updated.

R2-2311527 Offline report of [At123bis][654][R18 SON/MDT] RAN2 decision on SONMDT for NPN (Huawei)

=> Noted and the issues can be discussed next meeting.

**Q2: Do companies agree that RAN2#124 can focus on open issue#1, 2, 3, 4 listed above? (detailed technical discussion can be provided in company Tdoc to RAN2#124)**

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| **Company name** | **Y/N** | **Comments (if any)** |
| CATT | Yes, but | For Open issue#1, whether to introduce NPN enhancement for MHI could be further discussed, since in RAN3 it is agreed that the similar use case of UHI for NPN is not pursued in R18. |
| Huawei, HiSilicon | Yes, comments | For open issue #1 and #2, as stated above, we think if conclusions can not be reached efficiently, the enhancement will not be pursued in Rel-18. So we think the interested companies can provide concrete proposals for each enhancement. And if companies could also provide TP for the proposals, it will help the discussions and also the CR rapporteur a lot.  In addition, RAN3 progress can be also taken into account (like CATT mentioned above).  For open issue #3, option 1 and option 2 are focusing on the nid information. As pointed out by some companies during RAN2#123bis meeting, in RLF report, the CGI information is not relevant to NPN, i.e. in *CGI-Info-Logging-r16*, the IE *plmn-Identity* is the first PLMN entry of plmn-IdentityList (in SIB1) in the instance of *PLMN-IdentityInfoList* that contained the reported cellIdentity.  So it may not be enough to only include nid (one solution is to include both PLMN id and nid together to indicate one SNPN). This issue can be also discussed at RAN2#124 meeting. |
| Nokia | YES #1,#2  Comment on #3, #4 | Issue#3 and #4: Whether there is a need to add NID whenever UE reports NCGI or TAI of an SNPN is discussed in RAN3. We think that RAN2 should wait for outcome of RAN3, no need to discuss it in RAN2. |
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**Q3: Do you think that anything essential related to NPN for WI completion is missed? Please elaborate on the missing issues if any.**

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| **Company name** | **Open issue** | **Comments** |
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# 3 Conclusion

[To be added]