**3GPP TSG-RAN WG2 Meeting #110-e draft\_R2-20xxxxx**

**Electronic, 1-12 June 2020**

**Agenda item: 6.18.3**

**Source: Qualcomm (38.304 Rapporteur)**

**Title: Offline discussion 105: PRN - 38304 CR finalization**

**WID/SID: NG\_RAN\_PRN-Core - Release 16**

**Document for: Discussion and Decision**

# 1 Introduction

This document serves two purposes:

* **[AT110e][105][PRN] 38.304 CR (Qualcomm)**
* Final scope:  update the 38.304 CR with all meeting agreements and taking into account the LS from SA1 in [R2-2005739](file:///C:\Data\3GPP\RAN2\Docs\R2-2005739.zip).
* Final intended outcome: Agreed 38.304 CR
* Deadline for companies' feedback on the revised CR:  Thursday 2020-06-11 10:00 UTC
* Deadline for final version of the 38.304 CR in R2-2005798:  Friday 2020-06-12 10:00 UTC

The following agreements were made in R2-110e that impact the running PRN 38.304 CR, and the CR changes are summarized. The draft CR is available in the folder for [105][PRN] offline discussion.

Agreements via email (from [105][PRN]):

1. No change is needed for inter-RAT case with selection to CAG cells on NR. 🡨 No action
2. Change “registered SNPN” to “registered or selected SNPN” in the case of highest ranked cell or best not allowed. 🡨 Refer Section 5.2.4.4
3. Change “cellReservedForFutureUse IE is not indicated as “true” ” to “not “true” for future use” in Section 5.3.1. 🡨 Refer Section 5.3.1
4. Add a clarification about shared spectrum in SNPN case in Section 5.1.2.2, allowing the UE to search for multiple cells on the same frequency. 🡨 Used text from section 5.1.1.2 and repeated it in Section 5.1.2.2.

Agreements online:

1. Keep SNPN in the following sentence in Section 4.1 “For the selected PLMN/SNPN, associated RAT(s) may be set, as specified in TS 23.122 [9].” 🡨 No action
2. Current 38.304 text (“PLMN is broadcast by the cell with no associated CAG-IDs…” in suitable cell definition) is sufficiently clear and no need for change. 🡨 No action
3. There is no need to add a definition of NPN-capable, and current text is adequate. 🡨 No action
4. No change needed to existing text regarding emergency calling restrictions for UEs that are not NPN-capable. 🡨 No action
5. During manual CAG selection, along-with the PLMN-ID and associated CAG ID, the UE AS shall report operator policy indicator in the SIB, if present, to UE NAS (i.e. indicator of whether operator allows a user to manually select a CAG-ID supported by the CAG cell but outside the UE’s allowed CAG list). 🡨 Refer Sections 4.2 and 5.1.1.2.
6. For the case of shared spectrum and forbidden TA, UE follows the behaviour in 38.304v16.0.0 🡨 Refer Section 5.2.4.4

Agreements online:

1. RAN2 assumes that the manually selected CAG ID has no impact to cell reselection. (This requires no change in the existing draft CRs.)
2. RAN2 assumes that the UE shall select a cell supporting the manually selected CAG ID provided by NAS for initial cell selection. The relevant changes should be added to the running 38.304 CR. 🡨 Rapporteur view is that no action is needed in 38.304
3. RAN2 assumes that the CAG ID is never added to the RRCResumeComplete. (This assumption is to be captured in the running RRC CR.)
4. No additional specification is needed for SIB10.
5. On demand SI in connected is not supported for SIB10
6. Use the changes in Proposal 7 in R2-2005794 to address Z102 (TP from QC)
7. Not agree in the proposal of RIL B200.
8. Only cells supporting CAG(s), including CAG only cells and shared CAG cells, may be listed in the new CAG PCI lists (can come back to this if we find some issues)
9. Include SIB10 in SI-SchedulingInfo using valueTags as for any other SIB (except SIB6,7,8) as proposed in Annex 2 of R2-2004690

# 2 Comments on implementation of changes

## 2.1 Operator policy indicator (Agreement Online-5)

In AS procedures for Table 4.2-1, the following change is proposed

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| **To support manual CAG selection, perform the following:**  Search for cells broadcasting a CAG-ID.  Read the HRNN (if broadcast) for each CAG-ID if a cell broadcasting a CAG-ID is found.  Report CAG-ID(s) of found cell(s) broadcasting a CAG ID together with the associated manual CAG selection indicator, HRNN and PLMNto NAS.  On selection of a CAG by NAS, select any acceptable or suitable cell belonging to the selected CAG and give an indication to NAS that access is possible (for the registration procedure) |

In Section 5.1.1.2, the following change is proposed

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| To support manual CAG selection, the UE shall upon request by NAS report available CAG ID(s) together with their manual CAG selection indicator, HRNN (if broadcast) and PLMN(s) to the NAS. If NAS has selected a CAG and provided this selection to AS, the UE shall search for an acceptable or suitable cell belonging to the selected CAG to camp on. |

**Q2.1 Please provide any concerns on the above proposal:**

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| **Company** | **Concerns** | **Alternate proposal** |
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## 2.2 Camping decision following manual selection

For the following RAN2 decision, the rapporteur understanding is that 38.304 changes are not needed.

* RAN2 assumes that the UE shall select a cell supporting the manually selected CAG ID provided by NAS for initial cell selection. The relevant changes should be added to the running 38.304 CR.

Please see the following language about this in Table 4.2-1

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| **To support manual CAG selection, perform the following:**  Search for cells broadcasting a CAG-ID.  Read the HRNN (if broadcast) for each CAG-ID if a cell broadcasting a CAG-ID is found.  Report CAG-ID(s) of found cell(s) broadcasting a CAG ID together with the associated HRNN and PLMN to NAS.  On selection of a CAG by NAS, select any acceptable or suitable cell belonging to the selected CAG and give an indication to NAS that access is possible (for the registration procedure) |

In Section 5.1.1.2, it describes:

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| To support manual CAG selection, the UE shall upon request by NAS report available CAG ID(s) together with their HRNN (if broadcast) and PLMN(s) to the NAS. If NAS has selected a CAG and provided this selection to AS, the UE shall search for an acceptable or suitable cell belonging to the selected CAG to camp on. |

Rapporteur view:

The text highlighted above captures the UE behaviour. Given that some time may elapse between the user being presented with the CAG list on the phone screen and the user making a selection, it is hard to guarantee that the “UE shall select a cell supporting the manually selected CAG ID”.

**Q2.2 Please provide company views on need for 38.304 text change to capture the RAN2 agreement “RAN2 assumes that the UE shall select a cell supporting the manually selected CAG ID provided by NAS for initial cell selection.” (Rapporteur understanding is that changes are not needed).**

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| **Company** | **38.304 change needed** | **Text proposal (if answering yes).** |
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## 2.3 Comments on other changes

Please comment below on any other changes in the running CR.

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| **Company** | **Change of interest** | **Comment** |
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# 3. SA1 LS on PWS in SNPN

SA1 says in LS R2-2005739 that:

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| SA1 thanks RAN2 for the LS on CMAS/ETWS and emergency services for SNPNs. In response to the questions from RAN2, SA1 provides the following:  - There are no SA1 service requirements related to the support of PWS by SNPNs in Rel-16.  - SA1 plans to further discuss adding service requirements for the support of PWS by SNPNs from Rel-17 onward. |

It should also be noted that it is already agreed that SNPNs do not provide emergency call support (S2-2000066)

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| **RAN2 question:** RAN2 respectfully asks SA2 to confirm that, for Rel-16, emergency services are not supported in SNPNs.  **SA2 reply:** SA2 confirms that in Rel-16 emergency services are not supported in SNPNs. |

From the above two inputs (SA1/SA2), it can be concluded that SNPN cells do not offer emergency calling or CMAS/ETWS support. Rapporteur analysis of the existing specification is provided in Section 3.1.

Companies are requested to review the moderator analysis and answer the following questions.

**Question 3a: Do you agree that SNPN-only cells do not offer emergency calling or CMAS/ETWS support in Rel-16 ?**

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| **Company** | **Agree** | **Comments** |
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**Question 3b: Is there a need to capture any restriction in 38.304 regarding SNPN support for emergency calling and CMAS/ETWS?**

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| **Company** | **Agree** | **Comments** |
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**Question 3c: If yes for 2.3b, should the definition of acceptable cell be modified to exclude SNPN-only cells?**

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| **Company** | **Agree** | **If not agreeing, please provide alternative changes** |
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**Question 3d: Is there a need to inform CT1 of the changes in RAN2 spec**

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| **Company** | **Agree** | **Comments** |
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### 3.1 Background information and rapporteur proposal.

Please see the following four quotations from 38.304 and 23.122, which lead to the following conclusions

1. Acceptable cell definition does not exclude SNPNs
2. Any cell selection state only mentions PLMNs (i.e. it excludes SNPNs)
3. CT1 spec mentioned the possibility of UE in SNPN AM camping on an acceptable cell

To improve specification, clarify, rapporteur proposal is to:

* Modify the acceptable cell definition to exclude SNPN-only cells
* Inform CT1 that camping in limited service state should not be considered for SNPNs

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| **(38.304) acceptable cell:**  An "acceptable cell" is a cell on which the UE may camp to obtain limited service (originate emergency calls and receive ETWS and CMAS notifications). Such a cell shall fulfil the following requirements, which is the minimum set of requirements to initiate an emergency call and to receive ETWS and CMAS notification in an NR network:  - The cell is not barred, see clause 5.3.1;  - The cell selection criteria are fulfilled, see clause 5.2.3.2. |

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| 5.2.7 (38.304) Any Cell Selection state This state is applicable for RRC\_IDLE and RRC\_INACTIVE state. In this state, the UE shall perform cell selection process to find a suitable cell. If the cell selection process fails to find a suitable cell after a complete scan of all RATs and all frequency bands supported by the UE, the UE shall attempt to find an acceptable cell of any PLMN to camp on, trying all RATs that are supported by the UE and searching first for a high-quality cell, as defined in clause 5.1.1.2.  The UE, which is not camped on any cell, shall stay in this state. |

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| 4.9.3.1.1 (23.122) Automatic SNPN selection mode procedure The MS selects another SNPN, if available, allowable, and identified by an SNPN identity in an entry of the "list of subscriber data" in the ME. If more than one SNPN are available, allowable, and each of them is identified by an SNPN identity in an entry of the "list of subscriber data" in the ME, the MS shall select one of those SNPNs in MS implementation specific order.  The MS shall limit its search for the SNPN to the NG-RAN access technology.  Once the MS selects the SNPN, the MS attempts registrations on the selected SNPN using the NG-RAN access technology, the subscriber identifier and the credentials from an entry of the "list of subscriber data" with the SNPN identity matching the selected SNPN.  If successful registration is achieved, the MS indicates the selected SNPN.  If registration cannot be achieved because no SNPNs are available, allowable, and identified by an SNPN identity in an entry of the "list of subscriber data" in the ME, the MS indicates "no service" to the user, waits until a new SNPN is available, allowable, and identified by an SNPN identity in an entry of the "list of subscriber data" in the ME and then repeats the procedure.  If there were one or more SNPNs which were available, allowable, and identified by an SNPN identity in an entry of the "list of subscriber data" in the ME but an LR failure made registration on those SNPNs unsuccessful, the MS selects one of those SNPNs again and enters a limited service state. |

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| 4.9.3.1.2 Manual SNPN selection mode procedure The MS indicates to the user one or more SNPNs, which are available and each of them is identified by an SNPN identity in an entry of the "list of subscriber data" in the ME. Additionally, for each of the indicated SNPNs, the MS may optionally display a human readable name for the SNPN. This includes SNPNs in the list of "permanently forbidden SNPNs", and the list of "temporarily forbidden SNPNs". The order in which those SNPNs are indicated is MS implementation specific.  Editor's note [Vertical\_LAN; CR#0503]: Obtaining human-readable name for SNPN is FFS  The MS shall limit its search for the SNPN to the NG-RAN access technology.  The user may select his desired SNPN and the MS then initiates registration on this SNPN using the NG-RAN access technology, the subscriber identifier and the credentials from an entry of the "list of subscriber data", with the SNPN identity matching the selected SNPN (this may take place at any time during the presentation of SNPNs).  Once the MS has registered on an SNPN selected by the user, the MS shall not automatically register on a different SNPN unless the user selects automatic SNPN selection mode.  NOTE: Emergency services are not supported in SNPN access mode.  If the user does not select an SNPN, the selected SNPN shall be the one that was selected before the SNPN selection procedure started. If no such SNPN was selected or that SNPN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state. |