3GPP TSG-RAN WG2 Meeting #111e R2-2008289

Online, August 17th - 28th *R2-20xxxxx*

**Agenda item: 6.12**

**Source: Nokia**

**Title: Summary of [AT111][104][PRN] Stage 3 Corrections – phase 2**

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

**Document for: Decision**

# 1 Introduction

This document is the summary of the following email discussion

**[AT111e][104][PRN] Stage 3 Corrections (Nokia)**

Updated scope:

  Continue the discussion on change 2c in [R2-2006852](file:///C:\Data\3GPP\Extracts\R2-2006852-CR38304-NPN.docx)

  Discuss whether the flow chart can be modified or a note added to address the issue in [R2-2007841](file:///C:\Data\3GPP\Extracts\R2-2007841%20Correction%20to%2038.304%20on%20any%20cell%20seletion%20in%20NPN.doc)

  Continue the discussion on [R2-2006633](file:///C:\Data\3GPP\Extracts\38331_CR1722_(Rel-16)_R2-2006633%20Correction%20on%20First%20NPN-Identity%20Usage%20for%20SIB%20Validity.docx)

  Continue the discussion on [R2-2007842](file:///C:\Data\3GPP\Extracts\R2-2007842%20Correction%20to%2038.331%20on%20SIB%20validity%20and%20emergency%20services%20for%20NPN.doc)  (other aspects than emergency services)

  Discuss whether there is a selected CAG in automatic and manual selection mode (and then the need for changes in [R2-2006853](file:///C:\Data\3GPP\Extracts\R2-2006853-CR38331-NPN.docx))

  Continue the discussion on the need for the second change in [R2-2007411](file:///C:\Data\3GPP\Extracts\R2-2007411%20-%20ims-EmergencySupport%20interpretation%20and%20clarification%20for%20SNPN.docx)

Updated intended outcome: summary of the offline discussion and agreeable CRs:

Initial intermediate deadline (for companies' feedback): Monday 2020-08-24 12:00 UTC

Initial intermediate deadline (for rapporteur's summary in R2-2008209): Monday 2020-08-24 18:00 UTC

Proposals marked for agreement in R2-2008209 not challenged until Tuesday 2020-08-25 06:00 UTC will be declared as agreed by the session chair (further instructions/deadlines for providing actual CRs will follow).

# 2 Discussion

## 2.1 38.304 corrections

### 2.1.1 [R2-2006852](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_111-e/Docs/R2-2006852.zip) Cell selection and reselection corrections for NPNs (Nokia, Nokia Shanghai Bell)

Conclusions of previous discussions of the paper:

* Change 2d is endorsed
* Continue the discussion on 2c in a follow-up of offline 104

There are two places in the section that specify the UE behavior in SNPN AM with shared spectrum channel access when a SNPN cell that belongs to a SNPN that is not equal to the registered or selected SNPN:

------------ Text 1: ------------

- this cell is a SNPN cell that belongs to a SNPN that is not equal to the registered or selected SNPN of the UE in SNPN access mode,

the UE shall not consider this cell and, for operation in licensed spectrum, other cells on the same frequency as candidates for reselection for a maximum of 300 seconds.

For operation with shared spectrum channel access, when the highest ranked cell or best cell is not a candidate for reselection per the previous paragraph, the UE should continue to consider other cells on the same frequency for cell reselection, however if the second highest ranked cell on this frequency is also not suitable due to one or more of the above reasons, the UE may consider this frequency to be the lowest priority for a maximum of 300 seconds.

------------ Text 2: ------------

For a UE operating in SNPN AM and in shared spectrum channel access, if the highest ranked cell or best cell according to absolute priority reselection rules is a cell which is not suitable due to not broadcasting the registered or selected SNPN ID, the UE shall not consider this cell as candidate for cell reselection but should continue to consider other cells on the same frequency for cell reselection.

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**Q1.1: Do you agree that "Text 2" above is redundant?**

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### 2.1.3 [R2-2007841](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_111-e/Docs/R2-2007841.zip) Correction to 38.304 on any cell seletion in NPN (Huawei, HiSilicon)

Conclusions of previous discussions of the paper:

* Discuss in a follow-up of offline 104 whether the flow chart can be modified or a note added

Figure 5.2.2-1 of TS 38.304 is copied below



**Q1.2: How to document the UE behavior in SNPN AM when "no suitable cell found" (arrows with red text in the figure)?**

* **Option a) Introduce a new state**
* **Option b) Add a clarification to section 5.2.6 and 5.2.7 ("… or suitable cell for any SNPN…")**
* **Option c) No need to document it**
* **Option d) Fix the flow chart**

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| **Company** | **Answer** | **Comment** |
| Huawei | Option b or d | We think Option b is the simplest. The flow chart does not prevent SNPN UE from entering *any cell selection* (as indicated in the arrows with red text). Also, there’s a sentence in 5.2.7, also indicating *any cell selection* state does not exclude SNPN UE:   |  | | --- | | 5.2.7 Any Cell Selection state …  The UE, which is not camped on any cell, shall stay in this state. |   With Option b, the misalignment can be fixed:   |  | | --- | | 5.2.6 Selection of cell at transition to RRC\_IDLE or RRC\_INACTIVE state …  When returning to RRC\_IDLE state after UE moved to RRC\_CONNECTED state from *camped on any cell* state, UE shall attempt to camp on an acceptable cell according to *redirectedCarrierInfo*, if included in the *RRCRelease* message. If the UE cannot find an acceptable cell, the UE is allowed to camp on any acceptable cell of the indicated RAT. If the *RRCRelease* message does not contain *redirectedCarrierInfo* UE shall attempt to select an acceptable cell on an NR frequency. If no acceptable cell is found according to the above, the UE shall continue to search for an acceptable cell of any PLMN or a suitable cell of any SNPN in state *any cell selection*. 5.2.7 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 or a suitable cell of any SNPN 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. |   We are also glad to accept Option d if some easy change can fix the issue. |
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## 2.2 38.331 (RRC) corrections

### 2.2.1 [R2-2006633](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_111-e/Docs/R2-2006633.zip) Correction on First NPN-Identity Usage for SIB Validity (CATT)

* Initially discussed in offline 104
* Discuss the CR online together with [R2-2006853](file:///C:\Data\3GPP\Extracts\R2-2006853-CR38331-NPN.docx)
* Continue the discussion as part of the follow-up of offline 104

**Q2.1: Do you agree with the changes proposed in the CR:**

1. **Change “NPN-Identity” to “NPN identity” which is not an IE structure but only represents the first NPN ID in the list in section 5.2.2.2.1?**
2. **Remove “and reported by UE at establishment” from the description of the maxNPN definition?**
3. **Change the objects in the field description to really “field names” but not “IE names”. Remove the IE description of “NID” and “NPN-IdentityInfo”?**
4. **Other editorial changes proposed in the CR?**

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| **Company** | **Q2.1a** | **Q2.1b** | **Q2.1c** | **Q2.1d** | **Comment** |
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### 2.2.2 [R2-2007842](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_111-e/Docs/R2-2007842.zip) Correction to 38.331 on SIB validity and emergency services for NPN (Huawei, HiSilicon)

* Initially discussed in offline 104
* Discuss this CR online together with [R2-2007411](file:///C:\Data\3GPP\Extracts\R2-2007411%20-%20ims-EmergencySupport%20interpretation%20and%20clarification%20for%20SNPN.docx)
* Continue the discussion on other aspects than emergency services as part of the follow-up of offline 104

Conclusions of previous discussions of the paper:

* Continue the discussion on other aspects than emergency services as part of the follow-up of offline 104

**Q1.2a: Do you agree to Change “*NPN-Identity*” to “NPN identity” in clause 5.2.2.2.1?**

**Q1.2b: Do you agree to remove the reference to TS 23.501 for NPN identity in clause 5.2.2.2.1?**

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| **Company** | **Answer to Q1.2a** | **Answer to Q1.2b** | **Comment** |
| Huawei | Yes | Yes | Regarding Q1.2b, we would like to add some further explanation on why the reference should be removed:  There is no definition of “PNI-NPN identity” in SA2 spec. According to TS 23.501, a PNI-NPN can be deployed as a slice or a DNN, and CAG is an optional feature. In other words, PNI-NPN is not necessarily associated to CAG from SA2 perspective:   |  | | --- | | 5.30.3.1 General Public Network Integrated NPNs are NPNs made available via PLMNs e.g. by means of dedicated DNNs, or by one (or more) Network Slice instances allocated for the NPN. The existing network slicing functionalities apply as described in clause 5.15. When a PNI-NPN is made available via a PLMN, then the UE shall have a subscription for the PLMN in order to access PNI-NPN.  NOTE 1: Annex D provides additional consideration to consider when supporting Non-Public Network as a Network Slice of a PLMN.  As network slicing does not enable the possibility to prevent UEs from trying to access the network in areas where the UE is not allowed to use the Network Slice allocated for the NPN, Closed Access Groups may optionally be used to apply access control. |   From RAN2 point of view, the concept of “PNI-NPN identity” (consisting of PLMN ID + CAG ID) is needed to identify a PNI-NPN. If a PNI-NPN does not have CAG, it is invisible from RAN2’s viewpoint.  As a result, when describing PNI-NPN identity, the reference to SA2 spec should be removed. |
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### 2.2.3 [R2-2006853](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_111-e/Docs/R2-2006853.zip) Corrections for PNI-NPN related parameter selection (Nokia, Nokia Shanghai Bell)

* Initially discussed in offline 104
* Discuss the CR online focusing on: 1) how to handle the "selected PNI-NPN" 2) how UE should handle the case when a cell is shared between a PLMN and PNI-NPNs of that PLMN
* Huawei thinks that for SIB1 and UAC the current text is clear; on the selected CAG ID: this is always selected by NAS layer; current text is clear.
* ZTE thinks that most companies don't see the need for this CR and what is not clear can be left to UE implementation.
* Nokia would like to have some clarification on where the UE behaviour is clarified for the UAC case. Huawei thinks the current text says that the UE will select the UAC params corresponding to the selected PNI-NPN. Nokia thinks there is no selected PNI-NPN. Huawei thinks there is a selected CAG in automatic and manual selection mode.
* Discuss as part of the follow-up of offline 104 whether there is a selected CAG in automatic and manual selection mode

Conclusions of previous discussions of the paper:

* Discuss as part of the follow-up of offline 104 whether there is a selected CAG in automatic and manual selection mode

According to clause 3.8 of TS 23.122 CAG selection happens in the following way

"If a PLMN is selected as described in subclause 4.4.3.1.1 and there exists an entry in the "CAG information list" which includes a PLMN ID corresponding to the identity of the selected PLMN and an "Allowed CAG list" containing a CAG-ID broadcast by the cell on which the MS is camping, then the MS shall consider the CAG-ID as the selected CAG-ID. In this case, if the "Allowed CAG list" contains more than one CAG-IDs broadcast by the cell on which the MS is camping, the MS shall select one of those CAG-IDs based on MS implementation.

If a PLMN is selected as described in subclause 4.4.3.1.2, the selected CAG-ID is determined according to subclause 4.4.3.1.2.

The NAS shall provide the AS with a "CAG information list", if available. If the contents of the "CAG information list" have changed, the NAS shall provide an updated "CAG information list" to the AS."

**Q2.3a: How to use "selected PNI-NPN" term in 38.331?**

* **Option a): Avoid the use the "selected PNI-NPN" term except for manual CAG ID selection case**
* **Option b): Use the "selected PNI-NPN" term and assume that AS selects the CAG ID in similar way as NAS (*"Allowed CAG list" containing a CAG-ID broadcast by the cell on which the MS is camping, then the MS shall consider the CAG-ID as the selected CAG-ID. In this case, if the "Allowed CAG list" contains more than one CAG-IDs broadcast by the cell on which the MS is camping, the MS shall select one of those CAG-IDs based on MS implementation*)**

**Q2.3b: When the selected/registered PLMN ID is listed in the *plmn-IdentityList* and in the *npn-IdentityInfoList* (i.e. the cell is shared between a PLMN and PNI-NPNs of that PLMN) then which TA and Cell ID should be reported to upper layers by AS**

* **Option a): Up-to UE implementation**
* **Option b): If there is a selected CAG-ID (*"Allowed CAG list" containing one or more CAG-IDs broadcast by the cell*) then report the TA and Cell ID form the *npn-IdentityInfoList*.**
* **Option c): If CAG-only indication is not set then up-to UE implementation (Option a); if CAG-only indication is set then Option b).**

**Q2.3c: When the selected/registered PLMN ID is listed in the *plmn-IdentityList* and in the *npn-IdentityInfoList* (i.e. the cell is shared between a PLMN and PNI-NPNs of that PLMN) then which network ID the UE should refer to in *RRCSetupComplete* and in *RRCResumeComplete* messages?**

* **Option a): Up-to UE implementation**
* **Option b): If there is a selected CAG-ID (*"Allowed CAG list" containing one or more CAG-IDs broadcast by the cell*) then refer to network ID from the *npn-IdentityInfoList*.**
* **Option c): If CAG-only indication is not set then up-to UE implementation (Option a); if CAG-only indication is set then Option b).**

**Q2.3d: When the selected/registered PLMN ID is listed in the *plmn-IdentityList* and in the *npn-IdentityInfoList* (i.e. the cell is shared between a PLMN and PNI-NPNs of that PLMN) then which UAC parameters should AS apply?**

* **Option a): Up-to UE implementation**
* **Option b): If there is a selected CAG-ID ("*Allowed CAG list" containing one or more CAG-ID broadcast by the cell*) then use the UAC parameters broadcast for the PNI-NPNs of the selected/registered PLMN by the cell.**
* **Option c): If CAG-only indication is not set then up-to UE implementation (Option a); if CAG-only indication is set then Option b).**

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| **Company** | **Q2.3a** | **Q2.3b** | **Q2.3c** | **Q2.3d** | **Comment** |
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### 2.2.4 [R2-2007411](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_111-e/Docs/R2-2007411.zip) ims-EmergencySupport interpretation and clarification for SNPN (Ericsson)

Conclusions of previous discussions of the paper:

* Continue the discussion on the need for the second change (to be merged in a WI CR for 38.331 if agreed)

**Q2.4: Do you agree that it should be documented in 38.331 that the UE in SNPN AM ignores *ims-EmergencySupport* in SIB1 in Rel-16?**

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# 3 Conclusions

## 3.1 Proposed agreements without further discussion

## 3.2 Issues that require further discussion