**3GPP TSG-RAN2#114-e R2-21xxxx**

**Electronic meeting, May 19 – 27, 2021**

**Source: ZTE Corporation (rapporteur)**

**Title: Report for offline discussion [AT114-e][021][NR16] RRC I (ZTE)**

**Agenda item:**  **6.1.4.1.1**

**Document for:** **Discussion and Decision**

# Introduction

In this document company views on the following tdocs are collected:

* [AT114-e][021][NR16] RRC I (ZTE)

 Scope: Treat R2-2105516, R2-2105179, R2-2104920, R2-2105925, R2-2105926, R2-2105896, R2-2105186, R2-2105421, R2-2106281, R2-2105964, R2-2105965, R2-2105394,

 Phase 1, determine agreeable parts, Phase 2, for agreeable parts Work on CRs.

 Intended outcome: Report and Agreed CRs.

 Deadline: Schedule A

# Contact details

|  |  |  |
| --- | --- | --- |
| Company | Contact name | Contact email |
| ZTE (rapporteur) | Eswar Vutukuri | eswar.vutukuri@zte.com.cn |
| Ericsson | Antonino Orsino, Ritesh Shreevastav | antonino.orsino@ericsson.com, ritesh.shreevastav@ericsson.com |
| Huawei, HiSilicon | Tao Cai | tao.cai@huawei.com |
| ITRI | Nai-Lun Huang | NellenHuang@itri.org.tw |
| MediaTek | Felix Tsai | Chun-fan.tsai@mediatek.com |
|  |  |  |

# Handling of T310 and T312

In R2-2105516 it is proposed to:

1. Add “stop T310 for the SCG, if running;” in the initiation of SCG failure information procedure as specified in 5.7.3.2.

2. Add “stop T312 for the SCG, if running;” in the initiation of SCG failure information procedure as specified in 5.7.3.2.

3. Add “upon the expiry of T312 in corresponding SpCell” as an additional stopping criterion of T310 in 7.1.1.

The rapporteur would like to point out the following:

* related discussion happened at R2#113bis-e (see offline [005] report in R2-2104633) where the following was noted in chairman’s notes:

|  |
| --- |
| ***R2#113-bis agreement****Upon initiating SCG failure information procedure, if T310/T312 for the PSCell expires before the SCG link is recovered, UE does not trigger another SCG failure information procedure* |

* Related CRs were also submitted to this meeting in R2-2106190 and R2-2106191 (companies are encouraged to also note the discussion in the offline [005] at this meeting hence whilst answering the question below.

Based on the above companies are invited to answer the following:

|  |
| --- |
| Q 1: Considering the above aspects, do you agree with the changes proposed in R2-2105516? |
| Company | Agree/Disagree | Comments if any |
| Ericsson | Disagree | This was already discussed in RAN2#108 and the outcome was that nothing is broken. We prefer to stick to that decision since no problem in the field have been observed so far.From chairman note of RAN2#108 (Reno):[R2-1915352](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_108/Docs/%0DR2-1915352.zip) Stop timer T310 in SCGFailureInformation Ericsson CR Rel-15 38.331 15.7.0 1366 - F NR\_newRAT-Core- Huawei think nothing is broken. Samsung agrees and think the only side effect would be that the UE may send SCG failure a second time, but there is no problem. - LG think this is not needed. - MTK think the CR makes sense but is not important. * Not pursued
 |
| ITRI  | Agree to 1st, 2nd , and 3rd changes (Proponent) | In our understanding, the contribution [R2-1915352](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_108/Docs/%0DR2-1915352.zip) discussed in RAN2#108 aims to change version 15.7.0 of TS 38.331 where there is no T312 (and thus there are on problems caused by e.g. T312 expiry after T310 expiry). The reason for change of [R2-1915352](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_108/Docs/%0DR2-1915352.zip) is to avoid any unnecessary UE operations, e.g. RLM on the SCG, when the SCG failure information procedure is triggered.Different from [R2-1915352](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_108/Docs/%0DR2-1915352.zip), the contribution R2-2105516 aims to change version 16.4.1 of TS 38.331 and discusses the problems caused by T312 (or T310) expiry after T310 (or T312) expiry. That’s the reason why this CR suggests not only stopping T310, if running, but also stopping T312, if running, in 5.7.3.2.The major problem is not sending SCG failure information twice. Before SCG failure information is sent, SCG MAC is reset (in 5.7.3.2) which, as analysed in R2-2105516, may cause the early RLF handling to be terminated.Finally, the third chage is related to T310 in both PCell and PSCell. That is, we think T310 should be stoppted if MCG failure information procedure, connection re-establishment procedure, and SCG failure information procedure are triggerred. In summary, its stopping criterion should include “upon the expiry of T312 in corresponding SpCell.”  |
| MediaTek | No strong view | The correction in general is fine but we also agree that it is not essential. |

# SNPN corrections

In R2-2105179, it is proposed to:

1. Add SNPN to the field description of *uac-BarringForCommon, UAC-BarringPerPLMN-List, CellIdentity.*
2. For the *UAC-BarringPerPLMN-List/uac-AccessCategory1-SelectionAssistanceInfo/uac-AC1-SelectAssistInfo,* clarified that *“*the 1st entry in the list corresponds to the first PLMN or SNPN across the *plmn-IdentityList* and *npn-IdentityInfoList*, the 2nd entry in the list corresponds to the second PLMN or SNPN across the *plmn-IdentityList* and *npn-IdentityInfoList* and so on.”

*Note:* this wording of the modification is also aligned with that in the field description of Plmn-IdentityIndex in the UAC-BarringPerPLMN-List

|  |
| --- |
| ***UAC-BarringPerPLMN-List* field descriptions** |
| ***plmn-IdentityIndex***Index of the PLMN or SNPN across the *plmn-IdentityList* and *npn-IdentityInfoList* fields included in SIB1. |

Based on the above companies are invited to answer the following:

|  |
| --- |
| Q 2: Do companies agree with the changes proposed in R2-2105179? |
| Company | Agree/Disagree | Comments if any |
| Ericsson | Agree |  |
| MediaTek | Agree |  |

# Correction on reportSlotOffsetList

In R2-2104920 it is proposed to remove the text limiting the applicability of reportSlotOffsetList only to DCI format 0\_0 in the field description of *reportSlotOffsetList.*

|  |
| --- |
| Q 3: Do companies agree with the changes proposed in R2-2104920? |
| Company | Agree/Disagree | Comments if any |
|  |  |  |
|  |  |  |
|  |  |  |

# Changes for NR-U

In R2-2105925 it is proposed to add references to tables 6.3.3.2-3 (38.211) in the field description of msg1-SubcarrierSpacing. Further, since L1151 and L571 are introduced in the shared spectrum, reference to Table 6.3.3.1-2 is also be added.

|  |
| --- |
| Q 4: Do companies agree with the changes proposed in R2-2105925? |
| Company | Agree/Disagree | Comments if any |
| MediaTek | Agree | It seems that this one could just be included in Rapporteur’s CR |
| Ericsson | Agree | Can be included in Rapporteur’s CR. |
|  |  |  |

In R2-2105926 it is proposed to remove the “If ssb-PositionQCL is configured” from the field description of ssb-PositionsInBurst in servingCellConfigCommon, since this part of description is related to unlicensed spectrum where this field is always configured.

|  |
| --- |
| Q 5: Do companies agree with the changes proposed in R2-2105926? |
| Company | Agree/Disagree | Comments if any |
| MediaTek | No strong view | Fine with this change but this is not essential. It does not have any functional change either. We can put this in Rapporteur’s CR if needed. |
| Ericsson | Agree | Can be included in Rapporteur’s CR. |
|  |  |  |

In R2-2105896 and in R2-2105186, the main proposal is to extend the number of cells for search space switching trigger configuration. So, first we will discuss if companies are okay to extend the number of cells as proposed in these.

As noted in R2-2105896, current 38.331 only allows for switching trigger configuration of 4 elements, while RAN1’s intention was to allow 16 elements. Considering that this an NBC change, the first question is whether companies want to align this ambiguity in Rel-16 as proposed by the proponents.

|  |
| --- |
| Q 6: Are companies okay to accept the NBC change to align the RAN2 specs to the RAN1 intention to have up to 16 elements for switching trigger? |
| Company | Agree/Disagree | Comments if any |
| MediaTek | See comment | We agree to extend the number but it is not necessary to be a NBC change. |
| Ericsson | Agree | Proponent of R2-2105896. The number needs to be extended according to the LS from RAN1. We could accept an NBC change and no UE capability.  |
|  |  |  |

The next question is whether we need a new UE capability for this:

|  |
| --- |
| Q 7: Do we need to define a new UE capability to extend the list size? Yes (define new capability)/No(don’t define new capability)/No-changes (disagree with change – see Q6) |
| Company | Yes / No / No- changes | Comments if any |
| MediaTek | Prefer yes | But we can follow majority. If most companies think there is no real NR-U implementation now. Make this conditional mandatory to original feature is fine.  |
| Ericsson | Yes / No | We would be fine both with and without a UE capability. |
|  |  |  |

Finally, we will collect general views on the changes proposed in R2-2105896 and in R2-2105186 any comments on the actual changes so that a CR can be created in case there is willingness to agree such change.

|  |
| --- |
| Q 8: Assuming we go ahead with the change, do companies have any comments to the actual changes proposed in R2-2105896 and R2-2105186?  |
| Company | Detailed comments on changes proposed in R2-2105896 and R2-2105186 |
| MediaTek | Looks fine in general. |
| Ericsson | Proponent of R2-2105896 and issue raiser. The change in R2-2105186 is not correct as the field needs to be dummified and the list extended according to our proposal in R2-2105896. |

# CGI reporting for SNPN

In R2-2106281 it is mentioned that in case of NPN-only cell, the *cellReservedForOtherUse* included in SIB1 is set to “true” and the PLMN Identities in the *plmn-IdentityInfoList* in SIB1 shall be considered as invalid. However, according to the current CGI reporting procedure, the UE reports the *plmn-IdentityInfoList* regardless of the value of the *cellReservedForOtherUse* for the concerned cell. As a result, the gNB cannot identify whether the *plmn-IdentityInfoList* received in the CGI reporting is valid (in case of non-NPN-only cell) or not (in case of NPN-only cell), and is consequently unable to judge correctly whether the concerned cell is an NPN-only cell.

In R2-2105421, it was first proposed to confirm that UE not supporting nr-CGI-Reporting-NPN shall report the obtained PLMN-IdentityInfoList IE from the indicated NR cell as part of CGI reporting procedure irrespective of the value of cellReservedForOtherUse IE.

|  |
| --- |
| Q 9: Do companies agree that UE not supporting nr-CGI-Reporting-NPN shall report the obtained PLMN-IdentityInfoList IE from the indicated NR cell as part of CGI reporting procedure irrespective of the value of cellReservedForOtherUse IE?  |
| Company | Agree / Disagree  | Comments if any |
| Ericsson | Agree | Yes, this is in line with what legacy (Rel-15) UEs already do. |
| MediaTek | Agree | We cannot change Legacy UE behavior anyway.  |
| Huawei, HiSilicon | See comments | The answer of this Question depends on which solution if finally selected. If Solution A in R2-2106281 or solution in R2-2105421 is finally agreed, it doesn’t make much sense to discuss this issue as anyway the UE will report the PLMN list as long as the PLMN list is obtained as in the current Spec, irrespective of the UE’s capability of nr-CGI-Reporting-NPN. The solution is just to add something more on top of that. If Solution B in R2-2106281 is finally adopted, it is worth facing this question, as it intends to change the conditions on when the UE shall report PLMN identity list. Intuitively, It sounds reasonable for a UE capable of NPN related CGI reporting to indicate whether the cell indicated is further an NPN*-only* cell or not, via the presence of PLMN identity list as in Solution B. |
|  |  |  |

Meanwhile the second proposal in R2-2105421 is that “UE supporting nr-CGI-Reporting-NPN reports the cellReservedForOtherUse IE as part of CGI reporting procedure if the concerned cell is NPN-only cell”

|  |
| --- |
| Q 10: Do companies agree that UE supporting nr-CGI-Reporting-NPN reports the cellReservedForOtherUse IE as part of CGI reporting procedure if the concerned cell is NPN-only cell?  |
| Company | Agree / Disagree  | Comments if any |
| Ericsson | Agree | Another possibility, which was already discussed in Rel-16, is to set the first PLMN ID in the PLMN identity list to a known dummy value in NPN only cells and use this information to determine if the cell is NPN only. The benefit of this approach is that it also works for legacy UEs. However, since it difficult to agree on what this dummy PLMN ID should be it might be better to also report the *cellReservedForOtherUse* flag as part of the CGI reporting. |
| MediaTek | See Comment | We prefer solution A below. The only difference is to have a new UE capability for that. |
| Huawei, HiSilicon | Partially agree, with comment | This solution in R2-2105421 is basically in a similar logic as Solution A in R2-2106281. The main difference is that this solution does not introduce a new UE capability but relies on the existing capability of nr-CGI-Reporting-NPN. However, there could be a problem of relying on the existing capability that, for a UE with this existing capability, the gNB, when receiving the CGI reporting from this UE, still cannot differentiate whether the UE is a new UE already implementing this change and thus really setting this *cellReservedForOtherUse* flag in the CGI reporting, or it is an old UE not implementing this change and thus being unable to set this *cellReservedForOtherUse* flag at all. This means, there is some confusion to the NW left-over by this solution, and this problem is exactly the motivation why a new capability is proposed in R2-2105421.From our perspective, if RAN2 decides to settle this issue, we prefer a solution that can solve the problem more thoroughly as in Solution A below. |
|  |  |  |

Then, to solve the above issue, in R2-2105421, it suggested that RAN2 should discuss whether additional capability bit is needed or not, and two solutions from the UE capability perspective are proposed in R2-2106281:

Solution A:

- Introduce a new UE capability that indicates that the UE supports to report the cellReservedForOtherUse.

- UE with this new capability reports the cellReservedForOtherUse in CGI reporting procedure.

Solution B:

- Introduce a new UE capability that indicates that the UE supports not to report the plmn-IdentityInfoList in case of NPN-only cell.

- UE with this new capability does not report the plmn-IdentityInfoList in case of NPN-only cell in CGI reporting procedure.

|  |
| --- |
| Q 11: Do companies agree with the above solutions, if so, which one?  |
| Company | Solution A / Solution B /None (no changes) | Comments if any |
| Ericsson | None | Reporting *cellReservedForOtherUse* should be mandatory for UEs supporting nr-CGI-Reporting-NPN, i.e. there is no need for a separate capability. |
| MediaTek | Solution A | We think that it is not necessary to bind reporting of *cellReservedForOtherUse* to NPN functionality. This flag could be used for other feature if necessary in the future. A separate capability is a clean solution. If necessary, we could make this capability conditional mandatory if the UE support *nr-CGI-Reporting-NPN*. |
| Huawei, HiSilicon(Proponent) | Solution A preferable;Solution B, acceptable. | Based on our comments to Q10, we prefer Solution A as a comparatively thorough solution. It is also OK for us to go with solution B, if this is the majority’s preference. We care more about solving the issue itself than which specific solution to be adopted. |
|  |  |  |

|  |
| --- |
| Q 12: Assuming we go ahead with the change, do companies have any comments to the actual changes proposed in R2-2105421 and/or R2-2106281?  |
| Company | Detailed comments on changes proposed in R2-2105421 and/or R2-2106281 |
| MediaTek | Regrading to the solution A in R2-2106281, the following if-else structure may have to change further. The last else if (no SIB1) should started first and all the other level 4> bullets should be inside the else part of no SIB1. This seems to be a bug while introducing *nr-CGI-Reporting-NPN*. 4> if *plmn-IdentityInfoList* of the *cgi-Info* for the concerned cell has been obtained:5> include the *plmn-IdentityInfoList* including *plmn-IdentityList*, *trackingAreaCode* (if available), *ranac* (if available), *cellIdentity* and *cellReservedForOperatorUse* for each entry of the *plmn-IdentityInfoList*;5> include *frequencyBandList* if available;4> if *nr-CGI-Reporting-NPN* is supported by the UE and *npn-IdentityInfoList* of the *cgi-Info* for the concerned cell has been obtained:5> include the *npn-IdentityInfoList* including *npn-IdentityList*, *trackingAreaCode*, *ranac* (if available), *cellIdentity* and *cellReservedForOperatorUse* for each entry of the *npn-IdentityInfoList*;4> if *nr-CGI-Reporting-ForOtherUse* is supported by the UE and *cellReservedForOtherUse* of the *cgi-Info* for the concerned cell has been obtained:5> include *cellReservedForOtherUse* if available;4> else if *MIB* indicates the *SIB1* is not broadcast:5> include the *noSIB1* including the *ssb-SubcarrierOffset* and *pdcch-ConfigSIB1* obtained from *MIB* of the concerned cell;The proposed Pseudo code belowIF MIB indicates no SIB{ Include no SIB1}else{ If PLMN available 🡪 Include the *plmn-IdentityInfoList* If npn-IdentityInfoList available and UE supports 🡪 include this field If *nr-CGI-Reporting-ForOtherUse* available and UE supports 🡪 include this filed}  |
| Huawei, HiSilicon | For Solutions B, we’d like to make some small adjustments as follows to our draft CR proposed in R2-2106281. The changed part intends to describe the case that the cell is NOT an NPN-only cell. |
|  |  |

# posSI scheduling Correction

In R2-2105964, the issue with SI start offset requirements are discussed and in R2-2105965 it is proposed to add a new field to provide the configurable start position of the SI and update the SI acquisition procedure to take the field into account while calculating the offset.

|  |
| --- |
| Q 13: Do companies agree with the changes proposed in R2-2105965? |
| Company | Agree/Disagree | Comments if any |
| Huawei, HiSilicon | Disagree | The proposed changes are non-backwards compatible and are not correction, but rather an optimization targeted at some specific configuration. Since the issue can be avoided by using another network configuration, we do not think it is acceptable to introduce an NBC change, especially at this stage. We can discuss whether introducing more flexibility for SI scheduling is beneficial in future. |
| MediaTek | Disagree | The proposed change a huge NBC and impact other R16 features that introduced new SIB (e.g. DCCA, NPN, V2X). It is not preferred to have this kind of change at this stage. Regarding to the issue, it could be solved by mapping multiple posSIB (which is small) to single SI message. So, the motivation is not so strong in our view. We do agree the proposed method provide better scheduling flexibility, but it is too late to have this kind of fundamental change. |
| Ericsson | Agree | For Positioning, the current solution has an error; it uses a hardcoded parameter of 80ms which was copied from LTE. In LTE, SIB1 was transmitted with 80ms periodicity; however, in NR; the shortest periodicity can also be 160ms or higher.3> determine the number *m* which corresponds to the number of SI messages with an associated *si-Periodicity* of 8 radio frames (80 ms), configured by *schedulingInfoList* in *SIB1*;Hence, this needs to be corrected. One way is to correct by replacing 80ms with shortest periodicity 3> determine the number *m* which corresponds to the number of SI messages with an associated *si-Periodicity* with shortest *si-Periodicity*, configured by *schedulingInfoList* in SIB1;As explained in the discussion paper R2-2105964; this correction can help but as we need to anyway need to do the correction so why not have a solution which is more future proof. So, if in future more positioning SIs or NR SIs are added; NW can provide an explicit start position.To answer to MTK; there are nearly 40 posSIBs and the number will further increase. Some of the posSIBs are huge up to 8000 bits that they need to be segmented. Thus, it is not possible always to squeeze multiple SIBs to SI but in fact a SIB needs to be segmented.To answer to Huawei: At least for positioning, we need to do the correction of replacing the hardcoded with shortest Periodicity. |
|  |  |  |

# Introduction of ssb-PositionQCL-Common and ssb-PositionQCL in inter-node messages

In R2-2105394, the following proposals are made:

**Proposal 1: RAN2 is kindly asked to introduce ssb-PositionQCL-Common in MeasTiming in MeasurementTimingConfiguration.**

• It is conditionally present, in the same way as the ssb-PositionQCL-Common in SIB2, SIB4 and MeasObjectNR.

• The TP in the Appendix can be considered.

**Proposal 2: RAN2 is kindly asked to send LS to RAN3 for updating description of ssb-PositionsInBurst (SSB Positions In Burst) and introducing ssb-PositionQCL in“Served Cell Information NR”, “Served NR Cell Information” and “Served Cell Information”.**

• The description of “SSB Positions In Burst” (ssb-PositionsInBurst) should be updated to be aligned with ssb-PositionsInBurst in ServingCellConfigCommon in Rel-16 TS 38.331.

• ssb-PositionQCL is conditionally present, in the same way as the ssb-PositionQCL in ServingCellConfigCommon.

|  |
| --- |
| Q 14: Do companies agree to introduce ssb-PositionQCL-Common in MeasTiming in MeasurementTimingConfiguration and if yes, do you agree that it should be conditionally present (similar to ssb-PositionQCL-Common in SIB2, SIB4 and MeasObjectNR)? |
| Company | Agree/Disagree | Comments if any |
| Ericsson | Disagree | The neighbour node would normally have the same value configured for the same frequency. Also, such configuration is anyhow done via O&M, so no X2/Xn update is needed. |
|  |  |  |
|  |  |  |

|  |
| --- |
| Q 15: Based on the above is an LS to RAN3 needed? |
| Company | LS needed /LS not needed | Comments if any (e.g. on the detailed contents of such LS) |
| Ericsson | LS not needed |  |
|  |  |  |
|  |  |  |

# Conclusions and proposals

TBD

# References

1. R2-2105516 Correction on T310 and T312 ITRI CR Rel-16 38.331 16.4.1 2630 - F NR\_newRAT-Core
2. R2-2105179 Miscellaneous Corrections to the SNPN ZTE Corporation, Sanechips, Samsung CR Rel-16 38.331 16.4.1 2605 - F NG\_RAN\_PRN-Core
3. R2-2104920 Correction on reportSlotOffsetList Qualcomm Incorporated CR Rel-16 38.331 16.4.1 2590 - F NR\_L1enh\_URLLC-Core
4. R2-2105925 Correction on description of msg1-SubcarrierSpacing in RACH-ConfigCommon ZTE Corporation, Sanechips CR Rel-16 38.331 16.4.1 2652 - F NR\_unlic-Core
5. R2-2105926 Correction on description of ssb-PositionsInBurst in ServingCellConfigCommon ZTE Corporation, Sanechips CR Rel-16 38.331 16.4.1 2653 - F NR\_unlic-Core
6. R2-2105896 Extending number of cells for search space switching trigger configuration Ericsson discussion NR\_unlic-Core
7. R2-2105186 Correction on switchTriggerToAddModList-r16 and switchTriggerToReleaseList-r16 Huawei, HiSilicon CR Rel-16 38.331 16.4.1 2607 - F NR\_unlic-Core
8. R2-2105421 Discussion on CGI reporting for NPN-only cell Samsung Electronics Co., Ltd discussion NG\_RAN\_PRN-Core
9. R2-2106281 Discussion on CGI report for NPN-only cell Huawei, CMCC, China Telecom, HiSilicon discussion Rel-16
10. R2-2105964 Discussion on SI start offset requirements Ericsson, Verizon discussion Rel-16 38.331 NR\_pos-Core
11. R2-2105965 Correction of SI Scheduling Ericsson, Verizon CR Rel-16 38.331 16.4.1 2658 - F NR\_pos-Core
12. R2-2105394 Introduction of ssb-PositionQCL-Common and ssb-PositionQCL in inter-node messages Fujitsu discussion Rel-16 NR\_unlic-Core