**3GPP TSG-RAN WG2 Meeting #110e R2-200xxx**

**1-12 June 2020**

**Agenda item: 6.2.1**

**Source: Qualcomm Incorporated**

**Title: [AT110-e][501][NR-U] CP Open and ASN.1 Issues (Qualcomm)**

**Document for: Discussion and decision**

# Introduction

This document will capture the open issues and suggested solutions identified during the following email discussion:

* [AT110-e][501][NR-U] CP Open and ASN.1 Issues (Qualcomm)

Scope:

* + - Identify/Summarize all remaining/identified CP and ASN.1 issues

Intended outcome:

* + - Set of proposals to agree by email
    - CR capturing agreements from week1 and then week2

Deadline for providing comments:

* + - Companies input: June 5th
    - Rapporteur proposals: June 6th
    - CR capturing agreements: versions should be provided as soon agreements are made

The open issues in R2-2004799 which were not concluded and proposed to be discussed further are copied here with the comments provided during Post\_109bise-936 email discussion.

A format similar to the one used in ASN.1 discussion was used to enable merging with the list in that discussion. The guidelines for reporting issues are as follows:

**[Issue #]**: U + 3 digits

**[Class]**: Shall be set to value 2 or 3.

1. **Trivial** e.g. editorials, commas, colon, misspelling, missing/ double spaces, italics etc.   
   See procedure for Class 0 and Class 1 issues below.
2. **Minor** e.g. quite straightforward changes e.g. correction/ addition of specification references or sub-clauses.  
   See procedure for Class 0 and Class 1 issues below.
3. **ASN.1 session** **issue** e.g. ASN.1 issue e.g. related to need codes, extensibility, alternative encoding, ASN.1/ guidelines, general protocol (consistency) issue or issue affecting more than one WI
4. **WI session issue i**.e. an issue that is not purely ASN.1 but has some impact on functionality but only affecting a single WI.

# Open issues for NR RRC

| **Issue number** | **Company** | **Subclause** | **IE name** | **Class** | **Description/**  **correction** | **Status** |
| --- | --- | --- | --- | --- | --- | --- |
| U549 | Ericsson | 5.5.4.1 |  | 3 | Clarify that measurement report triggering when a (first) measurement result is available, is only valid for a*reportType* set to *periodical*. For event-triggered measurement reporting, the measurement report would otherwise be triggered even if none of the reporting conditions were fulfilled | [MTK]: We don’t understand the problem. Some more explanation might be useful. Existing RAN2 agreements should not be reverted.  **Ericsson**:  Added the clarification in red.  For event-triggered reporting, the reporting should only be started when a reporting condition is fulfilled and not whenever RSSI measurement results are available.  **Rapporteur: After further checking, agree with Ericsson that the copied text from LAA is not sufficient since LAA only allowed triggerType set to periodical while we do allow event based trigger. LG has also submitted a paper on this (R2-2005699) which suggests another option. Even though LG version is less text, the current repated text is similar to the one for CLI RSSI. If no contrary comments, I’ll use the Ericsson suggestion by adding**  2> if the corresponding *reportConfig* includes *measRSSI-ReportConfig* and if a (first) measurement result is available and if the if *reportType* is set to *periodical*:  **LG:**  Please note that the *measRSSI-ReportConfig* cannot be configured when the reportType is **c*li-Periodical***or***cli-EventTriggered****,* meanwhile the *measRSSI-ReportConfig* can be configured when the reportType is *Periodical*.  According to the suggestion from Ericsson, if the reportType is set to *Periodical* and the *measRSSI-ReportConfig* is configured, the measurement reporting can be initiated when the quantity to be reported becomes available for the NR SpCell (before RSSI sample values are reported from PHY). If the quantity of NR SpCell becomes available before RSSI values are reported, the measurement reporting will be sent without RSSI measurement results. Furthermore, if the *reportAmount* is set to 1, the corresponding measurement will be removed upon the first measurement reporting.  If companies think this is not a big matter, we can go with the Ericsson`s suggestion.  **Nokia:** As generic principle Ericsosn proposal is good. Regarding LG comment a another exception for RSSI reporting can be added. |
| U550 | Ericsson | 5.5.4.1 |  | 3 | Clarify that the report is triggered after the “L1 measurement *period”* (and not “L1 measurement *duration”* which in TS 36.133 is defined by the *rmtc-MeasDuration*). | **Ericsson:**  If not changed, this may cause confusion between the given parameters for triggering RSSI measurement reporting.  **Rapporteur: Needs further discussion since we don’t have the corresponding 38.133 text for NR-U yet.** |

| U612 | Huawei | 6.3.2 | *ConfiguredGrantConfig* | 3 | **CG-COT-SharingList**  **One entry can be used to indicate that their no UL to DL COT sharing for CG** | **Rapporteur: This needs further discussion. Using one row of the table for no sharing is a little strange. One easy option is to have no sharing when the field is not configured. Since the IE is Need R already, this can work. Another option is to have a CHOICE structure. HW in R2-2004991 suggests to use the first row for no sharing but each row is a valid IE.**  Agreement:  For sharing of channel occupancy from UL to DL   * For the value of X, follow the same value range as for O and D with the step size of [14] symbols * The maximum value of O and D is 39 slots * “no COT sharing” is indicated by a specific row in the table, e.g. index 0   **[HW] RAN1 has already made the above agreement.** |
| --- | --- | --- | --- | --- | --- | --- |
| U615 | Ericsson  RIL E251 | 6.3.2 | *intraCellGuardBandUL and intraCellGuardBandDL* | 2 | **[Description]**: intraCellGuardBandDL/UL is only included in ServingCellConfigCommon, i.e. basically for SCells and SCGs only.  The configuration for the PCell/SpCell would only be possible upon Reconfiguration withSync.  **[Proposed Change]**: This field is either added to ServingCellConfig (so that configuration on PCell is supported) or moved to ServingCellConfig (same place for configuration of guard bands for SpCells and SCells) | **[vivo]**  Agree with the issue. Another potential solution can be seen as proposed by RIL#v020:  **[Proposed Change] Add** *intraCellGuardBandUL-r16 and intraCellGuardBandDL-r16* parameters in*servingCellConfigCommonSIB*  **Rapporteur: Agree that this will eliminate a reconfig w/ sync after connection set up to configure the guard bands for PCell. Discuss using ServingCellConfig vs servingCellConfigCommonSIB. The simplest option seems to be to move the current IEs to ServingCellConfig.**  **Nokia:** We agree. This should be in servingCellConfig. Good catch!  **UPDATE NOKIA:** To clarify we should be additionally in the *servingCellConfig* but keeping in SIB is needed to be able to apply GB in initial access.  **[HW] This is currently being discussed in RAN1. RAN2 can wait for RAN1 agreement.** |
| U627 | Huawei,HiSilicon  RIL H547 | 6.3.2 | *ConfiguredGrantConfig* | 3 | **[Description]**  Field description of cg-StartingFullBW-InsideCOT, cg-StartingFullBW-OutsideCOT, cg-StartingPartialBW-InsideCOT and cg-StartingPartialBW-OutsideCOT are not accurate  **[Proposed Change]**  Inside the field description of cg-StartingFullBW-InsideCOT, cg-StartingFullBW-OutsideCOT, cg-StartingPartialBW-InsideCOT and cg-StartingPartialBW-OutsideCOT, istead of indicating the offsets, actually, a set of indice are indicated and people need to look up the table defgined in the 38.214 Table 5.3.1-2 for the exact values. | **Rappporteur: I didn’t find the mentioned Table. 38.214 has the following:**  “…the UE randomly determines a duration of a cyclic prefix extension *Text* to be applied for transmission according to [4, TS 38.211] from a set of values configured by higher layers according to the following rule:  - If the first such UL transmission is within a channel occupancy initiated by the gNB (defined in Clause 4 of [16, TS 37.213]), the set of values is determined by *cg-StartingFullBW-InsideCOT-r16*;  - otherwise, the set of values is determined by *cg-StartingFullBW-OutsideCOT-r16*.”  **[HW] I have copied and pasted the following table from the running CR for 38.214** |
| U628 | Huawwi,HiSilicon | 6.3.2 | *ConfiguredGrantConfig* | 3 | **[Description]**  In NR-U, RV for MAC PDU transmitted on CG can be selected by UE implementation and indicated to the network with UCI. For repetition on CG, the legacy R15 parameter repK-RV is not needed anymore with the UCI indication.  **[Proposed Change]**  Add in the field description repK-RV that the field is not configured when cg-RetransmissionTimer is configured. | **[Ericsson]**  This depends on the outcome of [Post109bis-e#935].  **Rapporteur: I will add this based on the outcome in UP discussion.** |
| U629 | Nokia  Not listed as RIL listed as noticed too late for ASN.1 review | 6.3.2 | *ra-ResponseWindow-r16* | 3 | **[Description]**  New values for response window currently added in -r16 version requiring to repeat all the legacy values. This wastes bits and regularly we try to use -v16xy extensions in this kind of cases – see e.g. . prach-ConfigurationIndex coding  **[Proposed Change]**  change the coding to v16xy including only new values sl60 and sl160.  ra-ResponseWindow-v16xy ENUMERATED { sl60, sl160} OPTIONAL, -- Need R. | **[Ericsson]**  The value range of *ra-ResponseWindow-r16* depends on the intention how/when it issupposed to be used.  **[Samsung]**  We agree with Ericssson that the issue should be discussed together with R2-2004622.  **[LG]**  We agree with Ericssson.  **Nokia:** Fine and if no changes based on R2-2004622 is agreed then I assume everyone agrees this coding is intended.  [HW] Agree with E//. THere is no need to include the legacy values. |
| U651 | Nokia (R2-2004839) | 6.3.2 | *PDCCH-Config* | 3 | Add in the field description of *searchSpaceSwitchingGroupList* the following:  A serving cell can only belong to one *searchSpaceSwitchingGroup.* | **Rapporteur: This is reasonable; I will add the text if no counter comments are received.**  **[HW] Reasonable** |
| U652 | ZTE (R2-2004615) | 6.3.2 | *LogicalChannelConfig* | 3 | It should be clarified that the *allowedCG-List* is not applicable to configured grant on shared spectrum (see the TP above for MAC and RRC) | **Rapporteur: When the agreement on not using LCP restriction for retransmissions on NR-U CG was taken, the understanding was that the restriction was valid only for the first transmission. It would be good to hear from other companies.**  **[Spreadtrum]:**  We agree with rapporteur. We only agreed that the LCP restriction for retransmissions on a different CG configuration is not needed in RAN2 #109e. |
| U653 | Samsung  RIL S053 | 6.3.2 | *BWP-UplinkCommon* | 2 | useInterlacePUCCH-PUSCH  [Description]: With ENUMATED with Need M, the field cannot be releaed once it is configured.  [Proposed Change]: The field can be changed to BOOLEAN with Need M, so that the field can be released.  [Comments]: Nokia (Tero): Agree, alternative is to use Need R (which is more typical for single-value ENUMERATED in NR RRC). | **Rapporteur: I will change to Need R** |
| U654 | Samsung  RIL S054 | 6.3.2 | *ConfiguredGrantConfig* | 3 | **[Description]**: For better readability, the parameters for NR-U can be grouped by defining a new IE.  **[Proposed Change]**: To define a new IE (i.e. list of SEQUENCE) for NR-U fields. In addition, for delta signalling, the new IE can be SetupRelease with Need M.  **[Comments]**: Nokia (Tero): Agree with the Samsung comment – an IE would make the configuration more maintainable. | **Rapporteur: I think we shouldn’t group all of them together since their functionalities are different and some are new versions of legacy IEs and they can also be configured independently.**  **We can group *cg-StartingFullBW-InsideCOT* and other starting offset IEs (i.e. partial BW and outside COT combinations).**  **[HW] We prefer to have the discussion in a more general setting, i.e., under the Class2 discussion since the proposed solution may not be singular to only NRU. But in general, we think this is a change in the paradigm in ASN.1 since previous, the fields are groupd inside an IE based on funcitonality, while the proposal from SS seems to think that the fields can also be grouped with features/WIs.** |
| U655 | Samsung  RIL S055 | 6.3.2 | *ControlResourceSet* | 3 | rb-Offset-r16  [RIL]: S055 [Delegate]: Samsung (Jaehyuk) [WI]: NR-U [Class]: 2 [Status]: ConcAgree WI-CR [TDoc]: None [Proposed Conclusion]:  [Description]: Need code should be Need R, according to RAN1 description (TS 38.213: zero is used if it is not provided) | **Rapporteur: Since usage of “zero” is captured in the field description, other companies previously suggested to use “Need S” which I followed. It will be good to check against other similar IEs in RRC.** |
| U656 | Nokia  RIL N005 | 6.2.2 | *MIB* | 3 | ***subCarrierSpacingCommon***    **[Description]**: The definition of “shared spectrum channel access” is quite vague: Does it refer to certain frequency bands or something else? Where is this defined? How does UE know this before receiving the MIB?  **[Proposed Change]**: Add a reference to whichever specification defines the “shared spectrum channel acess”. | **Rapporteur: Which bands are for shared spectrum or unlicensed are decided by regulations and captured in RAN4 specifications. In stage-2 and here, we only refer to TS 37.213 which define operation with shared spectrum channel access. We can add this definition of shared spectrum in 38.331 clause 3.1 in RRC if necessary.**  Nokia: This would be necessary. So please add reference to whichever specification defines shared channel access.  **[HW] Agree with Rap** |
| U657 | Intel  RIL I806 | 6.3.2 | *PUCCH-Config* | 3 | *dl-DataToUL-ACK-r16*  *[RIL]: I806 [Delegate]: Intel (Sudeep) [WI]: NR-U [Class]: 2 [Status]: ToDo [TDoc]: None [Proposed Conclusion]:*  *[Description]: No mechanism to release the field and next field.*  *[Proposed Change]: Use SetupRelease* | **Rapporteur: Note that legacy dl-DataToUL-ACK also uses Need M so not sure why we need to have different behavior for Rel-16 one.**  **[Intel] In some cases, it was noticed too late for Rel-15 to correct – so it is not always a good indication of what to do. The question is whether there is a need to be able to release the dl-DataToUL-ACK-r16 by a Rel-16 network. The comment is also for the subsequent field** *dl-DCI-triggered-UL-ChannelAccess-CPextList-r16* **may also require SetRelease structure.**  **[HW] We share the same view as Intel that this should be corrected. In the last meeting, the following agreement has been made regarding the issue of SEQUENCE with need M.**  R2-2003628 [H005] Discussion on delta signaling without AddModList Huawei, HiSilicon discussion Rel-16 Late  DISCUSSION  - Ericsson and Intel thin indeed M shold be avoided for elements in list.   * Follow the R15 principle that we will avoid using Need M within lists without an AddMod structure. |
| U658 | Intel  RIL I807 | 6.3.2 | *PUSCH-Config* | 3 | *ul-dci-triggered-UL-ChannelAccess-CPext-CAPC-List-r16*  *[RIL]: I807 [Delegate]: Intel (Sudeep) [WI]: NR-U [Class]: 2 [Status]: ToDo [TDoc]: None [Proposed Conclusion]:*  *[Description]: No mechancism to release the field*  *[Proposed Change]: Use SetupRelease* | **Rapporteur: I will change to SetupRelease**  **[HW] Same as above** |
| U659 | Intel  RIL I813 | 6.3.2 | *ServingCellConfig* | 3 | *channelAccessConfig-r16*  *RIL]: I813 [Delegate]: Intel (Sudeep) [WI]: NR-U [Class]:2 [Status]: ToDo [TDoc]: None [Proposed Conclusion]:*  *[Description]: No mechancism to release the field*  *[Proposed Change]: Use SetupRelease* | **Rapporteur: I will change to SetupRelease**  **[HW] Same as above** |
| U660 | Intel  RIL I814 | 6.3.2 | *ServingCellConfigCommon* | 3 | *discoveryBurstWindowLength-r16*  ***[RIL]****: I814* ***[Delegate]****: Intel (Sudeep)* ***[WI]****: NR-U* ***[Class]****:2* ***[Status]****: ToDo* ***[TDoc]****: None* ***[Proposed Conclusion]****:*  ***[Description]****: Even if this is ConfigCommon, Need R should be used to allow release.*  ***[Proposed Change]****: Change to Need R.* | **Rapporteur: DRS length can not be released for NR-U; it is essential part of the operation.**  **[Intel] This field together with the** *channelAccessMode-r16* **should be Need R since servingCellConfigCommon can be used for handover from NR-U to NR licensed.**  **Nokia:** Good point from Intel. Probably more sanity check is needed to ensure HO from NR-U to NR works so that no NR-U parameters hang.  **[HW] Same view as Intel.** |
| U661 | Ericsson  RIL E257 | 6.3.2 | *PUCCH-Config* | 3 | dl-DCI-triggered-UL-ChannelAccess-CPextList-r16  ***[RIL]****: E257* ***[Delegate]****: Ericsson (Cecilia)* ***[WI]****: NR-U* ***[Class]****: 2* ***[Status]: DiscMeet [TDoc]****: TBD* ***[Proposed Conclusion]****:*  ***[Description]****: The field description is too long and lists all parameters in the field name.*  *“DL-DCI triggered UL” corresponds to DCI format 1-1 and can be aligned with other names in PUCCH-Config which refer to “DCI-Format-1-X”*  ***[Proposed Change]****: change name to “channelAccessConfigListForDCI-Format1-1-r16” or preferably “channelAccessConfigListForDCI-1-1-r16”* | **Rapporteur: Agree the current IE is too long; I will change to**  ***ul-AccessConfigListForDCI-1-1-r16* which is more compatible with the existing IEs.** |
| U662 | Ericsson  RIL E258 | 6.3.2 | *PUSCH-Config* | 3 | ***[RIL]****: E258* ***[Delegate]****: Ericsson (Cecilia)* ***[WI]****: NR-U* ***[Class]****: 2* ***[Status]: DiscMeet2 [TDoc]****: TBD* ***[Proposed Conclusion]****:*  ***[Description]****: The field description is too long and lists all parameters in the field name.*  *“UL-DCI triggered UL” corresponds to DCI format 0-1 and can be more generic and aligned with other names in PUSCH-Config which all refer to “DCI-Format-0-X”*  ***[Proposed Change]****: change name to “channelAccessConfigListForDCI-Format0-1-r16” or preferably “channelAccessConfigListForDCI-0-1-r16”* | **Rapporteur: Agree the current IE is too long; I will change to**  ***ul-AccessConfigListForDCI-0-1-r16* which is more compatible with the existing IEs.** |
| U663 | Samsung  (S058) | 5.3.10.3 |  | 3 | upon indication of consistent uplink LBT failures from MCG MAC while T304 is running, consider T304 as expired and perform the operation as specified in 5.3.5.8.3 | **Rapporteur: This is to expedite recovery when UL LBT failures happen instead of waiting T304 to expire.**  **[Samsung]:**  If LBT failure is detected while T 304 is running, early recovery is triggered in current RRC CR as well as proposed in S058. The difference is as follows   * Latest RRC CR applies RLF recovery procedure upon detection of LBT failure while T304 is running. In this case Re-estabslishment request upon cell selection will include C-RNTI assigned by target cell, cell ID of target cell and short MAC-I generated based on target cell’s security key, here target cell is the cell to which UE was attempting handover.   + Issue1: Since the handover is not completed to the target cell, context fetch from this target cell by a cell selected for re-establishment will fail.   + Issue 2: During RLF recovery procedure, fast MCG failure recovery procedre is applied in R16. During handover this does not make any sense as in response to receving MCG failure information via SCG, network will initiate handover or connection release. Connection re-estabslihment is better as HO was already triggered * S058 proposed to apply handover failure procedure. In this case UE will first fallback to source cell configuration and then send Re-estabslishment request upon cell selection. Re-estabslishment request will include C-RNTI, cell ID and short MAC I based on source cell.   To take care of issues 1 and 2, **EITHER** we have to modify RLF procedure to a) fallback to source cell configuration if RLF (because of LBT failure) was detected during handover and b) to not apply fast MCG failure recovery procedre if RLF (because of LBT failure) was detected during handover. **OR** apply the HO failure procedure if LBT failure was detcted during handover. Applying HO failure procedure seems simple.  **[LG]**  Agree with Samsung. If the LBT failure indicaiton is received while T304 is running, the UE should do as if T304 expires.  [Intel]  This can be applied to general RLF for target cell when DAPS is configured. Hence we think this should be discussed in eMOB WI and should not be decided here.  **Nokia:** Please note that this is discussed also in the U-plane email discussion which seems to be bit more generic handling DAPS/CHO etc. so probably better to keep discussion in one place = U-plane email discussion. But generally there are multiple ways to work with this. In our view target node handling in case of CAPS/CHO etc. should always be similar to regular HO. Source node (especially DAPS) can be different naturally.  **[Spreadtrum]**  We agree with Samsung. It is simple to consider T304 timer as expired upon consistent UL LBT failure.  In DAPS, when DAPS HO fails (T304), UE will not trigger the RRC connection re-establishment if the source link has not been released. However, when the target link fails, the UE will trigger the RRC connection re-establishment. It is better to consider T304 timer as expired upon consistent UL LBT failure in DAPS considering interruption time reduction. And then we can have the same solution for these two scenarios.  [HW] Can wait for the result of the discussion in UP |
| U664 | Intel  (I818) | 6.3.2 | *ServingCellConfigCommonSIB* | 3 | **[RIL]**: I818 **[Delegate]**: Intel (Sudeep) **[WI]**:NR-U **[Class]**: 2 **[Status]**: DiscMail **[TDoc]**: None **[Proposed Conclusion]**:  **[Description]**: SIB fields should use Need R. And next field.  **[Proposed Change]**: Use Need R.  **[Comments]**: | **Rapporteur: This RIL was for channelAccessMode and discoveryBurstWindowLength which were both Need M. I will change to Need R.** |

# Open issues for LTE RRC

| **Issue number** | **Company** | **Subclause** | **IE name** | **Class** | **Description/**  **correction** | **Status** |
| --- | --- | --- | --- | --- | --- | --- |
| U801 | Ericsson | 6.3.5 | MeasObjectNR | 3 | In order to providefrequency specific Q values in the *MeasObjectNR* for E-UTRAN, include *ssb-PositionQCL-CommonNR* in the existing IE *RS-ConfigSSB-NR-r15* | Open.  [MTK]: We prefer to keep the IE structure common between NR and LTE.  **Ericsson:**  Same argument as above.  *ssb-PositionQCL-CommonNR* should be grouped together with other SSB related measurement configurations.  We made acorresponding proposal also for NR.  **Nokia:** We agree with Ericsson (and in fact we thought this was agreed already last meeting 😊 ) |
| U802 | Ericsson | 6.3.1 | SIB24 | 3 | Per-cell Q value can be broadcasted in LTE SIB24 for NR-U neighbour cells. | Open  **Rapporteur:** In NR RRC, a common Q value per frequency is signalled in SIB4 for inter-frequency. LTE SIB24 is for NR (inter-frequency) and the current signalling is per-frequency.  [MTK]: We prefer to keep Q value per frequency.  **Ericsson:**  In SIB4, this can also be signaled for inter-frequency neighbor cells according to RAN1 agreements, and this is captured in 38.331, v16.0.0, in *InterFreqNeighCellInfo*.  RAN1 agreements:  • Support signaling of a common Q value per frequency by broadcast RRC signaling (SIBx) and/or dedicated RRC signaling (measObjectNR) from the serving cell.  • Support signaling from the serving cell of a Q value for a listed neighbour cell.  **Nokia:** We agree with Ericsson (and in fact we thought this was agreed already last meeting 😊 ) |
|  |  |  |  |  |  |  |

# Conclusion