**3GPP TSG-RAN WG2 Meeting #109bis-e R2-20xxxx**

**20-30 April 2020**

**Agenda item: 6.2.1**

**Source: Qualcomm Incorporated**

**Title: [AT109bis-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:

* [AT109bis-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: April 22nd
    - Rapporteur proposals: April 23rd
    - CR capturing agreements: April 27th

The open issues in R2-2002846 are copied here after taking into account the agreements during the first online session on April 20th 2020. The issues which were addressed in CR1528Rev0 and which were recommended to be moved to ASN.1 are not shown here as they are considered complete.

Additional issues come from submitted contributions to RAN2#109bis-e.

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** |
| --- | --- | --- | --- | --- | --- | --- |
| U506 | Samsung | 6.3.2 | MeasObjectNR | 2 | the field rmtc-SubframeOffset-r16 does not have to be optional: it should be mandatory | Open.  **Rapporteur:** This was optional for LAA. However, it was optional for inter-frequency case due to the following statement “For inter-frequency measurements, this field is optional present and if it is not configured, the UE chooses a random value as *rmtc-SubframeOffset* for *measDuration* which shall be selected to be between 0 and the configured *rmtc-Period* with equal probability.”. RAN2 should discuss whether the same applies to NR-U.  [MTK]: This issue needs to be resolved. We are okay with either Samsung’s or rapporteur’s proposal.  [HW] We are fine the the proposal by rapporteur. |
| U510 | Samsung | 6.3.2 | BWP-UplinkDedicated | 2 | The field ‘useInterlacePUCCH-PUSCH-r16’ should be possible to release: can be changed to BOOLEAN with need M. | Open.  **Rapporteur:** It is not clear if waveform change dynamically is feasible or preferable as use of interlaced waveform is usually due to regulation (occupied bandwidth and power) and thus static in a region (at least in a given cell during the connection duration). Will also need RAN1/RAN4 input.  **Nokia:** It would not hurt to have this as optional to ensure it can be released if in some scenario it would be needed. Changing later to optional would be cumbersome.  [HW] We would like to calrify here this parameter is not fur the waveform configuration, but for the UL resource allocation mode. After clarification with RAN1 colleagues, this configuration does not need dynamic change. So we think the previous configuration with need m is OK. |
| U514 | MTK | 6.3.1 | SIB2, SIB4 | 2 | Our understanding is that Q is always needed for measurements on an NR-U cell. However in RRC CR, it appears to be optional (perhaps because it’s not needed for licensed operation).  To make it clear that Q always needs to be uccessfu for an NR-U cell/frequency, perhaps “ssb-PositionQCL-Common-r16” in SIB2, SIB4 and MeasObjectNR should be made **“Cond Mandatory” (mandatory for NR-U)** for NR-U. Without mandatory configuration value of Q, a NR-U UE might not be able to correctly combine measurements from detected SSBs, which would affect RRM. | Open  [MTK]: See comments and explanation in U515. |
| U515 | MTK | 6.3.2 | MeasObjectNR | 2 | Open  **Rapporteur:** According to 38.213, it doesn’t have to be signalled for cell access as below. However, this should be discussed for measobject where the UE does not have to read neighbour MIB. An alternative for measobject is also to have a default value (8) when not signalled.  and is either provided by *ssbPositionQCL-Relationship-r16* or, if *ssbPositionQCL-Relationship-r16* is not provided,obtained from a *MIB* provided by a SS/PBCH block according to Table 4-1. for cell access  [MTK]: We agree with rapporteur’s comments that Q is not needed for cell access. The case we are discussing (U514 and U515) are neighbour cell measurements. As explained in R2-2002719, neighbour cell measurements in shared spectrum is not possible without a value of Q. In this case,we suggest that Q is provided in the neighbor list, so that UE doesnot have to read broadcast information of neighbor cells to perform measurements. Thus, for measurements this Q value should be always provided in neighbor cell list for NR-U.  The rapporteur’s suggestion to have a default value will work but is inefficient as it will delay neighbour cell measurements.  [HW] We tend to agree with MTK’s comment that Q is not needed for initial access. But for measurement it is still needed. We also got to know from our RAN1 colleagues that RAN1 is discussing about default value for this and when the field is not configured the default value is set to 8. Maybe more companies can double check on this. |
| U528 | Ericsson | 6.3.2 | ***ra-ResponseWindow*** | 3 | ***ra-ResponseWindow***  Msg2 (RAR) window length in number of slots. The network configures a value lower than or equal to 10 ms when ra-ResponseWindow (without suffix) is configured and 40 ms when ra-ResponseWindow-r16 is configured (see TS 38.321 [3], clause 5.1.4). UE ignores the field if included in *SCellConfig*. If *ra-ResponseWindow-r16* is signalled, the UE shall ignore the *ra-ResponseWindow* (without suffix).  - The new parameter has been introduced exactly for extending the RAR window. Therefore, we propose to make the value range dependent on the used parameter version rather than link it to the spectrum | Open  [MTK]: The current description text is correct and therefore the suggested change is not needed.  [HW] we are fine with the current spec. The wording of shared/licensed spectru has been used in the spec quite a lot and there is no confusion for that. |
| U538 | Ericsson | 6.3.2 | SearchSpace | 3 | Search space switching has to be configured also for Type-3 CSS. Currently only defined for USS. freqMonitorLocations is not limited to USS, either. | Open.  **Rapporteur:** Problem is valid so we need to move these IEs from USS to make it applicable to both USS and CSS. Suggested option is to put searchSpaceGroupIdList-r16 and freqMonitorLocations-r16 in SearchSpace-v16xy. RRC rapporteur is fine with this and he will take care of this once the agreement is reached here.  **Nokia**: TYPE-3 CSS is configured UE-specifically. So it does not seems logical to configure this search space group switching for such a SS. For frequencyMonitoringLocations, there is no restriction at the moment, but there has been discussions in RAN1 to limit this to UE specific SS-sets, since I suppose you do not want to redesign pdcch-ConfigCommon. So probably best to check with RAN1 for both type3 CSS and frequency monitor locationso.  [HW] This is based on the RAN1 agreement. HW has a similar comment. |
| U544 | Ericsson | 6.3.2 | *ServingCellConfigCommon, ServingCellConfigCommonSIB* | 3 | The issue is that Q can be defined in MIB (no field name), in ssb-PositionQCL-Common, and ssb-PositionQCL, depending on what the gNB provides in its system information or in the measurement object, which would make the field description unnecessarily complex. Therefore, referring to the Information Element instead of the field could make sense, maybe something like “k > Q, where Q is the configured value for SSB-PositionQCL-Relationship.” | Open  [MTK]: It is not clear why we need this change. Looking into the current specifications it seems clear.  [HW] It is “field description” rather than “IE descrtiption” prefer to keep th current text. |
| U548 | Ericsson | 6.3.2 | *ReportConfigNR* | 3 | Add to the field description of ***measRSSI-ReportConfig*** that “the UE shall ignore the rsType, reportQuantityCell and maxReportCells for this reportConfigNR when configured with measRSSI-ReportConfig” | Open  **Nokia:** Not sure why this would be needed. If procedural text does not behave actions for UE for these fields in case RSSI reporting is configured then fields are “ignored” by default i.e no additional text is needed |
| U549 | Ericsson | 5.5.4.1 |  | 3 | Clarify that measurement report triggering 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 | Open  [MTK]: We don’t understand the problem. Some more explanation might be useful. Existing RAN2 agreements should not be reverted. |
| 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*). | Open |
| U551 | Ericsson | 6.3.2 |  | 3 | Move *ssb-PositionQCL-Common* from *MeasObjectNR* to *SSB-ConfigMobility* | Open  **Rapporteur:** RAN1 agreement was to use *MeasObjectNR*  [MTK]: We prefer to keep RAN1 agreement.  **Nokia:** we are ok both ways. No behavioural change. But location proposed by ericsson makes sense  [HW] SSB-ConfigMobility is within MeasObjectNR? Not sure what is wrong.  About the setupRelease stuecutre, we wonder why we need this |
| U552 | Ericsson | 6.3.2 |  | 3 | Move cell specific Qfrom *MeasObjectNR* to *SSB-ConfigMobility* and use a Setup/Release structure | Open  **Rapporteur:** RAN1 agreement was to use *MeasObjectNR*  [MTK]: We prefer to keep RAN1 agreement  **Nokia:** see U551 comment and additionally we think that existing addmod/remove structure is corresponding with existing cell specific parameter configuration i.e. we do not need see for setup/release structure.  [HW] SSB-ConfigMobility is within MeasObjectNR? Not sure what is wrong.  About the setupRelease stuecutre, we wonder why we need this |
| U553 | Ericsson |  |  | 3 | Introduce a new timer to react to consistent LBT failure after RRC release with redirection in Rel-16. The new timer is started upon reception of RRC release with redirection and stopped upon entering RRC connected. Upon expiry of the timer, the carrier frequency indicated by redirectedCarrierInfo is down-prioritised. | Open  **Rapporteur:** There is a parallel discussion in UP. This proposal was copied here since it can be introduced independent of LBT recovery.  [MTK]: We prefer to discuss it in single forum (in UP discussion).  **Nokia:** discuss in U-plane |
| U554 | Huawei | 6.3.2 | *ConfiguredGrantConfig* | 3 | For CG-PUSCH and DG-PUSCH without slot aggregation, HARQ-ACK for the associated TB is valid if a first symbol of the PDCCH reception is after a last symbol of the PUSCH transmission, or of any repetition of the PUSCH transmission, by a number of symbols provided by cg-minDFIDelay-r16. For DG with slot aggregation, HARQ-ACK is valid if first symbol of the PDCCH reception is after a last symbol of the PUSCH transmission in a first slot from the multiple slots by cg-minDFI-Delay if the value of the HARQ-ACK information is ACK and after a last symbol of the PUSCH transmission in a last slot from the multiple slots, if value of the HARQ-ACK information is NACK. (see TS 38.213 [13], clause 10.3).. |  |
| U555 | Qualcomm | 5.7.3.5 |  | 3 | Add the *failureType* as *scg-lbtFailure* in this section. It was put in 5.7.3.3 which is for EN-DC by mistake. Note that 5.7.3.3 will still be used due to the RAN2#109bis-e agreement to introduce SCG failure reporting for EN-DC |  |
| U556 | Huawei | 6.3.2 | *ConfiguredGrantConfig* | 3 | Wrong name "n-cg-DFIDelay-r16" and The explanation is not accurate. need to consider for slot aggretation for both CG and DG. For CG DFI delay for a CG PUSCH: HARQ-ACK for the associated TB is valid if a first symbol of the PDCCH reception is after a last symbol of the PUSCH transmission, or of any repetition of the PUSCH transmission, by a number of symbols provided by cg-minDFIDelay-r16. For DG - DFI delay for a DG PUSCH: Same as CG PUSCH expect for slot aggregation; \* cg-minDFIDelay-r16 after a last symbol of the PUSCH transmission in a first slot from the multiple slots if value of the HARQ-ACK information is ACK. \* cg-minDFIDelay-r16 after a last symbol of the PUSCH transmission in a last slot from the multiple slots, if value of the HARQ-ACK information is NACK | **Rapporteur:** This was H225 in ASN.1 RIL.  Name change was agreed by RAN2 email discussion to be compatible with ASN.1 convention. |
| U557 | Samsung | 6.3.2 | *MeasObjectNR* | 3 | Since the field rmtc-SubframeOffset-r16 starts with 0, it should always be present, and no reason to make it optional (which takes additional bit)) | **Rapporteur:** This was S052 in ASN.1 RIL.  This also affects RRC procedural text as well as RAN1 spec since the UE selects a random occasion when this IE is configured. Note that this is same behavior as LAA.  [HW] This is also mentioned above. In the RRC spec, we have the following text.  The UE shall setup the RSSI measurement timing configuration (RMTC) in accordance with the received *rmtc-Periodicity*, *rmtc-SubframeOffset* if configured otherwise determined by the UE randomly, i.e. the first symbol of each RMTC occasion occurs at first symbol of an SFN and subframe of the PCell meeting the following condition: |
| U558 | Vivo | 6.3.2 | *MeasObjectNR* | 3 | We think betaOffsetCG-UCI-r16 should also can be configured dynamically. We propose to discuss and clarify whether the current CR of TS 38.331 is aligned with RAN1’s understanding or not | **Rapporteur:** This was V011 in ASN.1 RIL.  We should check this with RAN1. 38.213 is not clear. I’ll add it to open issue list.  [HW] Not sure how betaOffsetCG-UCI is realted to measObjectNR? |
| U559 | ZTE | 6.3.2 | *ServingCellConfigCommon* | 3 | This field (ChannelAccessMode) should have been UE specific. So, perhaps this should be added to servingCellConfig) | **Rapporteur:** This was Z015 in ASN.1 RIL  It was explicitly stated in RAN1 parameter list Add in SIB1 and ServingCellConfigCommon”. This parameter should be per cell (per region or country in reality).  [HW] Agree with Rapp |
|  | Nokia | 6.3.2 | *IntraCellGuardBand* | 3 | Agreement in online week 1 RAN2#109ebis: 8: For signalling of intra-cell guard bands, an explicit IE is used for “default” case and no guard bands are used if signaling is absent.  This contradicst with RAN1 decision explicitly and should be reverted based on RAN1 input i.e. if no GB is signaled then UE applies default GB as defined by RAN4  Coding can be done e.g. in this way:  IntraCellGuardBand-r16 ::= SEQUENCE (SIZE (1..ffsValue)) OF GuardBand-r16 -- FFS upper size 4, assuming 100Mhz cell  GuardBand-r16 ::= SEQUENCE {  startCRB-r16 INTEGER (0..ffsValue), --FFS upper range 275  nrofCRBs-r16 INTEGER (0..ffsValue)  } |  |
|  | Nokia | 6.3.2 | *searchSpaceGroupIdList-r16* | 2 | There is nothing critically wrong with coding but it seems bit weird that coding allows searchspace to be included in both groups which basically means same thing as not configuring it to belong to any groups (as then UE will monitor search space always)  Thus it would seems better from coding and bit saving perspective just to configure searchSpace to be included in one group. So probably easiest is to change ASN.1 to following: searchSpaceGroupIdList-r16 INTEGER (1..2) OPTIONAL  renaming field could be considred as well to remove “list” as the length of the “list” is 1 with proposed coding.. | [HW] Or we can change the need code to need S and absence means no group is configured/ the search space is configured under both groups, if we consider optimizing on the signaling. But probably we will need to tell RAN1 if this has been captured somewhere in RAN1 spec. |

# 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. |
| 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. |
|  |  |  |  |  |  |  |