**3GPP TSG-RAN WG2 Meeting #110e R2-20xx**

**1-12 June 2020**

**Agenda item: X.X**

**Source: Ericsson**

**Title: [Post109bis-e][943][2s-RA] RRC open issues (Ericsson))**

**Document for: Discussion and decision**

# Introduction

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

* [Post109bis-e][943][2s-RA] RRC open issues (Ericsson)

 Address stage-3 remaining open issues. Capture identified NEW, if any, stage-3 corrections/issues from ASN.1 review.  Issues that have already been discussed and not pursued should not be brought up again.

      Intended outcome: Agreable proposals and CR for 38.331 addressing open issues Deadline: Next Meeting, ASN.1 review schedule

New or open issues in R2-2004288 not concluded and proposed to be discussed are to be addded in this document. As background, companies may include history with comments provided during RAN2#109bis-e.

**🡪 For any remaining WI specific issues that don’t have an associated RIL#, add a RIL comment to the ASN.1 file.**

A format similar to the one used in ASN.1 discussion should then be used here to enable merging. The guidelines for reporting issues for ASN.1 can be found in **R2-2003869 Rel-16 ASN.1 review plan, phase 2.**

**[Issue #]:** “single letter” + 3 digits

**[Class]:** **Shall be set to value 2 or 3.** Purely editorial Class 0/1 is planned to be fixed in the WI-CR.

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/RIL for 2-Step RA NR RRC Phase 2

| **ID** | **Class**  | **IE name** | **Subclause** | **Description** | **Correction** | **Comments** |
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| O911 | 2 | *MsgA-ConfigCommon* | 6.3.2 | Field name: msgA-PUSCH-ConfigAccording to RAN1 CR, msgA-PUSCH-config can be absent for non-initial UL BWP and the corresponding parameters provided on initial UL BWP can be reused. However, RAN2 has agreed to specify that msgA PRACH and payload should be either absent or present at the same time and the structure has been changed correspondingly. As a result, msgA-PUSCH-config will always be present once 2-step RA is configured and the behaviour defined in RAN1 spec will never happen. Misalignment between specs.38.213 CR A UE determines time resources and frequency resources for PUSCH occasions in an active UL BWP from *msgA-PUSCH-config* for the active UL BWP. If the active UL BWP is not the initial UL BWP and *msgA-PUSCH-config* is not provided for the active UL BWP, the UE uses the *msgA-PUSCH-config* provided for the initial UL BWP. 38.331 CRMsgA-ConfigCommon-r16 ::= SEQUENCE { rach-ConfigCommonTwoStepRA-r16 RACH-ConfigCommonTwoStepRA-r16, msgA-PUSCH-Config-r16 MsgA-PUSCH-Config-r16} | Proposed CR:MsgA-ConfigCommon-r16 ::= SEQUENCE { rach-ConfigCommonTwoStepRA-r16 RACH-ConfigCommonTwoStepRA-r16, msgA-PUSCH-Config-r16 MsgA-PUSCH-Config-r16—OPTIOANL,--Cond initialBWPConfig}***msgA-PUSCH-Config***Configuration of cell-specific MsgA PUSCH parameters which the UE uses for contention-based MsgA PUSCH transmission of this BWP. If the field is not configured for the selected UL BWP, the UE shall use the MsgA PUSCH configuration of initial UL BWP. |  |
| O912 | 2 | *MsgA-PUSCH-Config* | 6.3.2 | Field name: msgA-PUSCH-ResourceGroupAIf O911 is agreed, msgA-PUSCH-Config is defined as ‘OPTIOANL Cond InitialBWPConfig’ and UE behavior is specified when this field is absent. The conditional presence code for msgA-PUSCH-ResourceGroupA and the descriptions regarding reusing the PUSCH configuration in initial UL BWP can be removed since they are included in msgA-PUSCH-Config.  | MsgA-PUSCH-Config-r16 ::= SEQUENCE {  msgA-PUSCH-ResourceGroupA-r16 MsgA-PUSCH-Resource-r16  msgA-PUSCH-ResourceGroupB-r16 MsgA-PUSCH-Resource-r16 OPTIONAL, -- Cond GroupBConfigured msgA-TransmformPrecoder-r16 ENUMERATED {enabled, disabled} OPTIONAL, -- Need R msgA-DataScramblingIndex-r16 INTEGER (0..1023) OPTIONAL, -- Need S msgA-DeltaPreamble-r16 INTEGER (-1..6) OPTIONAL -- Need R}***msgA-PUSCH-ResourceGroupA***MsgA PUSCH resources that the UE shall use when performing MsgA transmission using preambles group A. ***msgA-PUSCH-ResourceGroupB***MsgA PUSCH resources that the UE shall use when performing MsgA transmission using preambles group B.  |  |
| O913 | 2 | *MsgA-PUSCH-Config* | 6.3.2 | Field name: *msgA-TransmformPrecoder*Agreement: msgA-TransmformPrecoder and msgA-DeltaPreamble-r16 are changed to Optional Need R.As UE bahaviour when msgA-TransmformPrecoder is absent /not configured is specified in RAN1 spec, it is agreed to change the field to Optional Need R in last meeting. Correspondingly, the sentence ‘If the parameter is not configured, the UE shall follow the parameter msg3-TransformPrecoder of 4-step type RA for the configured BWP for msgA PUSCH if 4-step type RA is configured (i.e if the msg3-Transform-Precoderis included then it shall be enabled, else disabled’ should be removed from field description. | ***msgA-TransformPrecoder***Enables or disables the transform precoder for MsgA transmission (see clause 6.1.3 of TS 38.214 [19]). |  |
| O914 | 2 | *MsgA-PUSCH-Config* | 6.3.2 | Field name: *msgA-PUSCH-TimeDomainAllocation*Agreement: Time domain resource allocation can also be provided through PUSCH-Config if provided (CFRA); 2) Clarification for the absence of PUSCH-TimeDomainAllocation.#1*MsgA-PUSCH-TimeDomainAllocation* is optional present with need code S, but UE behaviour is not specified when the field is absent in current CR. We think this field should be mandatory present as there is no default value defined in RAN1/RAN2 specs. #2 We should further check whether TDRA list provided in PUSCH-Config can be used for CFRA. If it is supported, we should further clarify which one to choose when TDRA lists are available in both PUSCH-Config and PUSCH-ConfigCommon. But we think whether the TDRA List in PUSCH-Config can be used depends on whether the resource pool for CFRA is common or dedicated. If it is common, TDRA list in PUSCH-ConfigCommon should be applied for time alignment among UEs. We can keep it like this and fix it if needed after we have concesus on PRU allocation for CFRA. | Change msgA-PUSCH-TimeDomainAllocation to be mandatory present. Remove the ‘OPTIONAL Need S’ code.MsgA-PUSCH-Resource-r16 ::= SEQUENCE { msgA-PUSCH-TimeDomainAllocation-r16 INTEGER (1..maxNrofUL-Allocations)  startSymbolAndLengthMsgA-PO-r16 INTEGER (0..127) OPTIONAL, -- Need S |  |
| O915 | 2 | *MsgA-PUSCH-Config* | 6.3.2 | Field name: *startSymbolAndLengthMsgA-PO*If O914 is agreed to change *MsgA-PUSCH-TimeDomainAllocation* as a mandatory present field, we should clarify which one to follow when both *MsgA-PUSCH-TimeDomainAllocation* and *startSymbolAndLengthMsgA-PO* are available. Propose to speciy that UE shall ignore the value in *MsgA-PUSCH-TimeDomainAllocation* when *startSymbolAndLengthMsgA-PO* is configured. |

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| ***startSymbolAndLengthMsgA-PO***An index giving valid combinations of start symbol, length and mapping type as start and length indicator (SLIV) for the first msgA PUSCH occasion, for RRC\_CONNECTED UEs in non-initial BWP as described in TS 38.214 [19] clause 6.1.2. The network configures the field so that the allocation does not cross the slot boundary. The number of occupied symbols excludes the guard period. If the field is absent, the UE shall use the value in *msgA-PUSCH-TimeDomainAllocation* (see TS 38.213 [13], clause 8.1A). Otherwise, the UE shall ignore the value in *msgA-PUSCH-TimeDomainAllocation.* |

Specify that UE shall ignore msgA-PUSCH-TimeDomainAllocation when startSymbolAndLengthMsgA-PO is configured. |  |
| O916 | 2 | *RACH-ConfigCommonTwoStepRA* | 6.3.2 | Field name: *msgA-SubcarrierSpacing*The field description of *msgA-SubcarrierSpacing* is inconsistent with its conditionl presence code *2StepOnlyL139*. It is ambiguous when *msgA-SubcarrierSpacing* should be mandatory present according to the text highlighted.

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| **Conditional Presence** | **Explanation** |
| *2StepOnlyL139* | The field is mandatory present if *prach-RootSequenceIndex* L=139 and no 4-step random access type is configured, otherwise the field is absent, Need S. |

 ***msgA-SubcarrierSpacing***Subcarrier spacing of PRACH (see TS 38.211 [16], clause 5.3.2). Only the values 15 or 30 kHz (FR1), and 60 or 120 kHz (FR2) are applicable. The field is only present in case of 2-step only BWP, otherwise the UE applies the SCS as derived from the *msgA-PRACH-ConfigurationIndex* in *RACH-ConfigGenericTwoStepRA* in the configured BWP (see tables Table 6.3.3.1-1 and Table 6.3.3.2-2, TS 38.211 [16]). The value also applies to contention free 2-step random access type (*RACH-ConfigDedicated*). This field is only configured for the case of separate ROs between 2-step and 4-step type random access. | Propose to change the field description and conditional presence code as follows:***msgA-SubcarrierSpacing***Subcarrier spacing of PRACH (see TS 38.211 [16], clause 5.3.2). Only the values 15 or 30 kHz (FR1), and 60 or 120 kHz (FR2) are applicable. If the field is absent, the UE applies the SCS as derived from the *msgA-PRACH-ConfigurationIndex* in *RACH-ConfigGenericTwoStepRA* in the configured BWP (see tables Table 6.3.3.1-1 and Table 6.3.3.2-2, TS 38.211 [16]). The value also applies to contention free 2-step random access type (*RACH-ConfigDedicated*). The network is not expected to configure *msgA-SubcarrierSpacing* within this field for case of shared RO between 2-step and 4-step type random access.

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| **Conditional Presence** | **Explanation** |
| *2StepL139* | The field is mandatory present if *prach-RootSequenceIndex* L=139 and no 4-step random access type is configured or 2-step RA and 4-step RA separate ROs, otherwise the field is absent, Need S. |

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| O917 | 2 | *RACH-ConfigCommonTwoStepRA* | 6.3.2 | Field name: *2StepSUL*Agreement: Merge the two IEs “msgA-RSRP-Threshold-r16” and “msgA-RSRP-ThresholdSUL-r16” into using a single msgA-RSRP-Threshold-r16Remove redundant parameter msgA-RSRP-ThresholdSSB-SUL.msgA-RSRP-ThresholdSUL-r16 and msgA-RSRP-ThresholdSSB-SUL are agreed to be removed. The conditional presence code for these two parameters should be removed correspondingly. | Remove field description of 2StepSUL

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| Conditional Presence | Explanation |
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| O918 | 2 | *RACH-ConfigCommonTwoStepRA* | 6.3.2 | Field name: *GroupB-ConfiguredTwoStepRA*#1 In our understanding, if preamble group B is configured, all three parameters included in *GroupB-ConfiguredTwoStepRA* should be mandatory present. Remove ‘OPTIONAL Cond GroupBConfig’ for *numberofRA-PreamblesGroupA.*#2 *GroupB-ConfiguredTwoStepRA* can be optional present and released by UE if it is absent.  | GroupB-ConfiguredTwoStepRA-r16 ::= SEQUENCE { ra-MsgA-SizeGroupA ENUMERATED {b56, b144, b208, b256, b282, b480, b640, b800, b1000, b72, spare6, spare5, spare4, spare3, spare2, spare1}  messagePowerOffsetGroupB ENUMERATED {minusinfinity, dB0, dB5, dB8, dB10, dB12, dB15, dB18}  numberofRA-PreamblesGroupA INTEGER (1..64) } OPTIONAL, Cond R |  |
| S 505 | 2 | MsgA-PUSCH-Config-r16 | 6.3.2 | Field Name: msgA-PUSCH-ResourceGroupB-r16Field Description: MsgA PUSCH resources that the UE shall use when performing MsgA transmission using preambles group B. If field is not configured for the selected UL BWP, the UE shall use the MsgA PUSCH configuration for group B when performing MsgA transmission using group B.1. According to endorsed CR (R2-2004288), the field msgA-PUSCH-ResourceGroupB-r16 is mandatory present if group B is configured. So the highlighted text does not make sense and should be removed.2. According to endorsed CR (R2-2004288), If msgA-PUSCH-ResourceGroupA-r16 is not configrued in non intial BWP, UE uses the corresponding configuration from initial BWP. It is not clear why the same is not allowed for msgA-PUSCH-ResourceGroupB-r16.  | ***Changes if Comment #2 is NOT agreed******msgA-PUSCH-ResourceGroupB***MsgA PUSCH resources that the UE shall use when performing MsgA transmission using preambles group B. ***Changes if Comment #2 is agreed******msgA-PUSCH-ResourceGroupB***MsgA PUSCH resources that the UE shall use when performing MsgA transmission using preambles group B. If group B is configured for the selected UL BWP and this field is not configured for the selected UL BWP, the UE shall use the MsgA PUSCH configuration for group B of initial UL BWPmsgA-PUSCH-ResourceGroupB-r16 MsgA-PUSCH-Resource-r16 OPTIONAL, -- Cond InitialBWPConfig. |  |
| S 506 | 3 | RACH-ConfigGenericTwoStepRA-r16 | 6.3.2 | RAN2 Agreement: msgA-TransMax is configured for 2 step CFRA in rachConfigDedicated and that the UE is not allowed to switch to 4-step RACH if this is not configured in rachConfigDedicatedmsgA-TransMax is included in RACH-ConfigGenericTwoStepRA. So according to endorsed CR (R2-2004288), msgA-TransMax can only be configured if network wants to configure separate PRACH occasions for 2 step CFRA as RACH-ConfigGenericTwoStepRA is included in RACH-ConfigDedicated only in that case. According to agreement, Network should be able to configure msgA-TransMax for 2 step CFRA in rachConfigDedicated irrespetive of whether separate RACH occasions for 2 step CFRA are configured or not.  | Remove parameter ' msgA-TransMax-r16' from RACH-ConfigGenericTwoStepRA and include in RACH-ConfigCommonTwoStepRA-r16.Also add msgA-TransMax in rachConfigDedicated (as shown below)CFRA-TwoStep-r16 ::= SEQUENCE { occasionsTwoStepRA-r16 SEQUENCE { rach-ConfigGenericTwoStepRA-r16 RACH-ConfigGenericTwoStepRA-r16, ssb-PerRACH-OccasionTwoStepRA-r16 ENUMERATED {oneEighth, oneFourth, oneHalf, one,  two, four, eight, sixteen} OPTIONAL -- Cond SSB-CFRA } OPTIONAL, -- Need S msgA-CFRA-PUSCH-r16 MsgA-PUSCH-Resource-r16,msgA-TransMax-r16 ENUMERATED {n1, n2, n4, n6, n8, n10, n20, n50, n100, n200} OPTIONAL, -- Need SresourcesTwoStep-r16 CHOICE { ssb SEQUENCE { ssb-ResourceList SEQUENCE (SIZE(1..maxRA-SSB-Resources)) OF CFRA-SSB-Resource, ra-ssb-OccasionMaskIndex INTEGER (0..15) }, csirs SEQUENCE { csirs-ResourceList SEQUENCE (SIZE(1..maxRA-CSIRS-Resources)) OF CFRA-CSIRS-Resource, rsrp-ThresholdCSI-RS RSRP-Range } }, ...} |  |

# 3 Conclusion

# Conclusion

**EASY AGREEMENTS**

**Proposal 1: (Issue U506 and U557) Extend RSSI/CO measurements to inter-frequency (as in LTE LAA). The IE *rmtc-SubframeOffset-r16* is Optional for inter-frequency (as in LTE LAA).**

**Proposal 2: (Issue U510) Keep the ASN.1 for *useInterlacePUCCH-PUSCH-r16* as ENUMERATED {true} with Need M. No changes to the 38.331 is needed.**

**Proposal 3: (Issue U515) The IE for signaling of Q in measurement object is kept Optional. It is added to the field description that the UE applies default value 8 when not signaled.**

**Proposal 4: (Issue U528) No changes to the field description of *ra-ResponseWindow* is needed.**

**Proposal 5: (Issue U538) Move the IEs *searchSpaceGroupIdList-r16* and *freqMonitorLocations-r16* from *SearchSpace* to *SearchSpace-v16xy* in order to allow search space switching for Type-3 CSS.**

**Proposal 6: (Issue U544) No changes are made to the field description of *ssb-PositionInBurst.***

**Proposal 6b: If Proposal 6 is not agreed, introduce the following changes in order to address U544:**

* For *ServingCellConfigCommon, a*dd “If *ssb-PositionQCL* is configured”in the field description of *ssb-PositionsInBurst* before *“*the UE expects that a bit at position k > *ssb-PositionQCL* is 0”
* For *ServingCellConfigCommonSIB*, modify field description of *ssb-PositionsInBurst* as follows: “The UE assumes that a bit at position k > is 0, where is obtained from MIB as specified in TS 38.213 [13], clause 4.1”

**Proposal 7: (Issue U548) No changes are made to the field description of *measRSSI-ReportConfig***

**Proposal 8: (Issue U555) Introduce text for setting *failureType* as *scg-lbtFailure* in 5.7.3.5 (corresponding to NR-NRU DC)**

**Proposal 9: (Issue 558) No changes are made to *betaOffsetCG-UCI-r16* IE.**

**Proposal 10: (Issue 559) The IE *ChannelAccessMode* is kept in *ServingCellConfigCommon* without any changes.**

**Proposal 11: (Issue 561) No changes are made to the structure of IE *searchSpaceGroupIdList-r16.***

**Proposal 12: Agree to the editorial changes suggested in:**

U563: Change “neighbour” to “this serving cell” for field description of *ssb-PositionQCL* in *ServingCellConfigCommon*

U564: Change semistatic to semiStatic

**NEEDS ONLINE DISCUSSION**

**Proposal 13: (Issue U549) It should be clarified that the “when a (first) measurement result is available” for RSSI reporting in 5.5.4.1 is only applicable to *reportType* set to *periodical*.**

**Proposal 14: (Issue U551) Move *ssb-PositionQCL-Common* from *MeasObjectNR* to sub-element *SSB-ConfigMobility* within *MeasObjectNR.***

**Proposal 15: (Issue U552) Movecell specific Qfrom *MeasObjectNR* to sub-element *SSB-ConfigMobility* within *MeasObjectNR*. However, do not change the structure, i.e. keep the list.**

**Proposal 16: (Issue 540) Change the text for RSSI reporting as follows:** “the UE measures and reports on~~any~~ the defined measurement bandwidth and configured time domain measurement resources on the indicated frequency.”

**Proposal 17: (U801) Putfrequency specific Q values in the *MeasObjectNR* for E-UTRAN, include *ssb-PositionQCL-CommonNR* in the existing IE *RS-ConfigSSB-NR-r15***

**Proposal 18: (U802) Per-cell Q value can be broadcasted in LTE SIB24 for NR-U neighbour cells.**

**CHANGING PREVIOUS AGREEMENTS**

**Proposal 19: (Issue 560) The UE applies default guard band when signalling is absent; no guard band is signalled by an explicit IE.**

**NEEDS FURTHER DISCUSSION**

The following issues are related to aligning RAN2 and other group specs or there was no feedback or there was no clear majority so should be kept open for further discussion.

**Proposal 20: Further discuss the following issues until next RAN2 meeting:**

U550: L1 measurement period vs duration

U554, U556: field description for *cg-minDFIDelay*

U562: Change the minimum size of multi-TTI PUSCH table (allow list with single entry)

U567: CAPC determination when DCI 0\_0 is used.