**3GPP TSG-RAN WG2 Meeting #113bis-e *R2-210xxxx***

**Online, 12–20 April 2021**

**Agenda item: 5.3.1**

**Source: Samsung**

**Title: Report of [AT113bis-e][003][NR15] MAC (Samsung)**

**Document for: Discussion and Agreement**

# 1 Introduction

This is to report the result of the following email discussion in RAN2#113bis-e Meeting [1].

* [AT113bis-e][003][NR15] MAC (Samsung)

Scope: Treat R2-2102683, R2-2102684, R2-2103848, R2-2104053, R2-2104091, R2-2104092, R2-2103448, R2-2104086,

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

Intended outcome: Report and Agreed-in-principle CRs.

Deadline: Schedule A

# 2 Contact Information

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| Company | Contact: Name (E-mail) |
| Samsung | Jaehyuk JANG (jack.jang@samsung.com) |
| LG | SunYoung LEE (ssunyoung.lee@lge.com) |
| Ericsson | Mats Folke (mats.folke@ericsson.com) |
| Lenovo | Joachim Löhr (jlohr@lenovo.com) |
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# 3 Discussion

## 3.1 Correction to DRX active time criteria with CSI masking

R2-2102683 Correction to DRX active time criteria with CSI masking Qualcomm Incorporated CR Rel-15 38.321 15.12.0 1063 - F NR\_newRAT-Core

R2-2102684 Correction to DRX active time criteria with CSI masking Qualcomm Incorporated CR Rel-16 38.321 16.4.0 1064 - F NR\_newRAT-Core

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| Company | Agree as is; Agree with changes; Disagree | Detailed Comments |
| Samsung | Agree as is (Rel-15)  Rel-16 CR should be Cat.A | We are fine with the change. The error came from Rel-11 LTE text, and can be corrected in NR from Rel-15.  The category of Rel-16 CR should be Cat. A. |
| LG | Disagree | We understood the intention, however the text has been there since Rel-11 and nothing is broken as grants/assignments does not have impact on *drx-onDurationTimer*. |
| Ericsson | Disagree | The current text does not contain any error. A skilled implementor would recognize that there is no need to take grants and assignments into account. |
| Lenovo | Disagree | We have similar view as Ericsson/LG that current text is sufficiently clear and intended behaviour should be well understood |
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**Conclusion:**

**TBD**

## 3.2 Error handling of MAC PDU with invalid order of MAC subPDUs.

R2-2103848 Error handling of invalid MAC PDU formats Apple discussion Rel-15 NR\_newRAT-Core

The discussion paper includes the following proposals and also the curresponding TP for the proposal 1:

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| Proposal 1: RAN2 to specify the intended error behavior in clause 5.13 of TS 38.321.  Proposal 2: RAN2 to discuss the intended behavior including whether it can be up to implementation. |
| When a MAC entity receives a MAC PDU for the MAC entity's C-RNTI or CS-RNTI, or by the configured downlink assignment, containing a MAC CE placed at an invalid order within the MAC PDU, the MAC entity shall at least:  1> discard the received MAC CE and any remaining subPDUs in the MAC PDU. |

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| Company | Do you agree with Proposal 1 in R2-2103848? | Detailed Comments |
| Samsung | No;  can be up to implementation | Even though a transmitter (i.e. either UE or gNB) must follow the procedures as defined in TS 38.321 subclause 6.1.2, the proposed behaviour seems overkill, and to define a new behaviour according to the Proposal 1 would even cause unexpected interoperability issue. Hence, we think it can be left to UE/network implementation. |
| LG | No | The reason of having invalid value checking for error handling is to cope with the case where misalignment between the UE and the NW happens due to e.g., loss of signalling or etc. The bad implementation, i.e., violation of the specification, needs not to be covered by error handling. |
| Ericsson |  | Currently the UE behaviour is not speficied.  Question to Apple: Has this behaviour (incorrect order of MAC sub-PDUs) been seen in field? |
| Lenovo | No | We think that this would be some overspecification which is unnecessary. Agree with LG that we don’t specify error handling for erroneous implementations. |
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**Conclusion:**

**TBD**

## 3.3 Whether to have further clarification on reporting multiplexed CSI on PUCCH in DRX

R2-2104053 Clarification on reporting multiplexed CSI on PUCCH in DRX Huawei, HiSilicon discussion Rel-15 NR\_newRAT-Core

The discussion paper includes the following proposal:

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| Observation 1: Based on the current NOTE in TS 38.321, in DRX non-Active Time, the UE may still report the CSI which is originally configured on a PUCCH resource outside DRX Active Time on PUCCH.  Proposal 1: Clarify that the NOTE relevant to CSI multiplexed with other UCI(s) in subclause 5.7 of TS 38.321 only refers to the case that the UE performs CSI multiplexing in DRX Active Time or in the on-duration period if CSI masking is setup but would report the multiplexed CSI on a PUCCH resource outside DRX Active Time or outside on-duration period if CSI masking is setup. |

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| Company | Do you agree with Observation 1 and Proposal 1 in R2-2104053? | Detailed Comments |
| Samsung | No | From the condition at the beginning of the sentence (i.e. "*If a UE multiplexes a CSI configured on PUCCH with other overlapping UCI(s) according to the procedure specified in TS 38.213 [6] clause 9.2.5*"), sensible implementation would not consider the Case 2 in R2-2104053, and thus no further changes would be needed. |
| LG | No | Considering how CSI-masking works without CSI multiplexing, it could be naturally understood that the case2 in 4053 is not the intended case of the current Note.  If it is assumed that Note lets UE to multiplex CSI/ACK outside the Active Time, it is also questionable what if the multiplexed PUCCH now falls into Active Time. |
| Ericsson | No | It should be obvious that interpretation 1 is the correct one. No need to clarify. |
| Lenovo | No | Don’t see a need for the clarification |
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**Conclusion:**

**TBD**

## 3.4 Clarification on DL HARQ process number

R2-2104091 Clarification on DL HARQ process number Huawei, HiSilicon CR Rel-15 38.321 15.12.0 1092 - F NR\_newRAT-Core

R2-2104092 Clarification on DL HARQ process number Huawei, HiSilicon CR Rel-16 38.321 16.4.0 1093 - A NR\_newRAT-Core

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| Company | Agree as is; Agree with changes; Disagree | Detailed Comments |
| Samsung | Disagree | We do not see any ambiguity with the sentence "*The dedicated broadcast HARQ process is used for BCCH.*", and thus the CR is not needed. |
| LG | Disagree | Due to the text *The dedicated broadcast HARQ process is used for BCCH*, we also think it is clear. |
| Ericsson | Disagree | The interpretation of the text is that there is a set of parallel HARQ processes and there is a dedicated HARQ process for BCCH. No problem and in line with their clarification. |
| Lenovo | Disagree | We don’t see any ambiguity. |
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## 3.5 Correction on Truncated BSR

R2-2103448 Correction on Truncated BSR ASUSTeK CR Rel-16 38.321 16.4.0 1088 - F NR\_newRAT-Core

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| Company | Agree as is; Agree with changes; Disagree | Detailed Comments |
| Samsung | Disagree | RAN2 had discussed the issue (several times), and the current text captures the intention correctly: the text in subclause 5.4.5 is about which LCGs would be included but does not specify the actual order of LCG in the MAC CE, while the text in subclause 6.1.3.1 is about the actual order in the MAC CE. Hence, the CR is not needed. |
| LG | Disagree | The current specification is correct, i.e., LCG to be reported is selected based on the LCG priority whereas the order of inclusion is is ascending order.  RAN2#99 agreement  6. For truncated BSR the LCGs are selected based highest order of priority  RAN2#100 agreement:  => L field for both. Bitmap indicates which LCG has data is available for tructated BSR and for long BSR the bitmap includes all LCG being reported.  => The BS order is in order of LCG index for both cases |
| Ericsson | Disagree | This has been discussed, explained, and dismissed a number of times, as presented by Samsung and LG. |
| Lenmovo | Disagree | Agree with other companies |
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## 3.6 Clarification on SUL switch

R2-2104086 Clarification on SUL switch LG Electronics UK CR Rel-16 38.321 16.4.0 1091 - F TEI16

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| Company | Agree as is; Agree with changes; Disagree | Detailed Comments |
| Samsung | Disagree | We do not see ambiguity, as 'SUL switch' here should be interpreted as both switching from NUL to SUL and switching from SUL to NUL. Hence, the CR is not needed. |
| LG | Agree | Without explicit definition of SUL switch, it seems not clear what SUL switch exactly means. |
| Ericsson | Disagree | There is no ambiguity. The CR is not needed. |
| Lenovo | Disagree | We don’t see any ambiguity. |
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# 4 Conclusion

**TBD**

# 5 References

[1] R2-113bise Chairman notes 2021-04-11.docx