3GPP TSG-RAN WG2 Meeting #119 Electronic R2-220xxxx

Elbonia, 17 – 26 August 2022

**Agenda item: 5.1.2**

**Source: Nokia (Rapporteur)**

**Title:** **[****309][R15/16 UP] CRs on UP (Nokia)**

**Document for: Discussion and Decision**

# 1 Introduction

This document is the report of the following email discussion:

* [AT119-e][309][R15/16 UP] CRs on UP (Nokia)

UP open issues and agreeable CRs capturing agreed corrections

Deadline: Monday Aug 22nd, 1000, UTC

[R2-2207896](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207896.zip) Clarification on BFD while SCell is deactivated Nokia, Nokia Shanghai Bell CR Rel-16 38.321 16.9.0 1347 - F NR\_eMIMO-Core

[R2-2207897](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207897.zip) Clarification on BFD while SCell is deactivated Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.1.0 1348 - A NR\_eMIMO-Core

[R2-2207898](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207898.zip) Clarification on the matching TB size for 2-step RA Nokia, Nokia Shanghai Bell CR Rel-16 38.321 16.9.0 1349 - F NR\_2step\_RACH-Core

[R2-2207899](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207899.zip) Clarification on the matching TB size for 2-step RA Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.1.0 1350 - A NR\_2step\_RACH-Core

[R2-2208024](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2208024.zip) Clarification on configuredGrantTimer and cg-RetransmissionTimer Nokia, Nokia Shanghai Bell CR Rel-16 38.321 16.9.0 1362 - F TEI16, NR\_unlic-Core

[R2-2208025](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2208025.zip) Clarification on configuredGrantTimer and cg-RetransmissionTimer Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.1.0 1363 - A TEI16, NR\_unlic-Core, NR\_SmallData\_INACTIVE-Core

[R2-2208254](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2208254.zip) Correction on RA Resource Selection in Rel-15 vivo CR Rel-15 38.321 15.13.0 1373 - F NR\_newRAT-Core

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[R2-2208263](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2208263.zip) Correction on RA Resource Selection in Rel-17 vivo CR Rel-17 38.321 17.1.0 1376 - A NR\_newRAT-Core, NR\_2step\_RACH-Core

# 2 Contact Points

Respondents to the email discussion are kindly asked to fill in the following table.

|  |  |  |
| --- | --- | --- |
| Company | Name | Email Address |
| Nokia (Rapporteur) | SunYoung LEE | sunyoung.lee@nokia.com |
| Samsung | Sangkyu Baek | sangkyu.baek@samsung.com |
| Qualcomm | Linhai He | linhaihe@qti.qualcomm.com |
| LGE | Gyeong-Cheol LEE | gyeongcheol.lee@lge.com |
| Huawei, HiSilicon | Chong Lou | louchong@huawei.com |
| CATT | Pierre Bertrand | pierrebertrand@catt.cn |
| vivo | Yitao Mo (Stephen) | yitao.mo@vivo.com |
| Lenovo | Joachim Löhr | jlohr@lenovo.com |
| OPPO | SHI Cong | shicong@oppo.com |
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# 3 Discussion

## 3.1 BFD while SCell is deactivated

[R2-2207896](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207896.zip) Clarification on BFD while SCell is deactivated Nokia, Nokia Shanghai Bell CR Rel-16 38.321 16.9.0 1347 - F NR\_eMIMO-Core

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It is proposed to clarify that BFD is performed only while the SCell is activated so that UE does not unnecessarily perform BFD/BFR and send BFR MAC CE while the SCell is deactivated.

**Question 1**: Do companies agree with the issue? If yes, are the proposed changes fine?

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| --- | --- | --- |
| Answers to Question 1 | | |
| Company | Agree with the issue? (Yes/No) | If yes, are the proposed changes fine or are there any suggestion for improvement? If no, why? |
| Samsung | No | The source of confusion is that PHY may send beam failure instance indication. This is what RAN1 spec should capture. MAC spec only captures only beam failure recovery for which the current MAC spec is clear. |
| Qualcomm | No | There is no issue, because it is already specified in the RAN4 spec that UE is not required to perform BFD measurements for a deactivated SCell. See clause 8.5.1 in TS 38.133. |
| LG | No | In MAC specification, “Beam failure is detected by counting beam failure instance indication from the lower layers to the MAC entity.” Thus, if beam failure instance indication is not received from PHY, the MAC entity will not detect beam failure. If any clarification is needed, it should be specified in RAN1 specification. |
| Huawei, HiSilicon | No | Agree with above comments |
| CATT | No | Same view as above |
| vivo | No | In 38.133 section 8.5.1, it is stated that **UE is not required to perform beam failure detection outside the active DL BWP**. For an SCell which is deactivated (where no BWP is active), it is quite clear that the RAN4 spec has clarified the intended UE behavior. In this sense, we don’t see the necessity to have repeated clarification in the MAC spec. |
| Lenovo | No | Agree with Qualcomm |
| OPPO | No | Agree that RAN4 has clarified that UE is not required to perform beam failure detection. |
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**Summary 1**: TBD.

**Proposal 1**: TBD.

## 3.2 Matching TB size for 2-step RA

[R2-2207898](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207898.zip) Clarification on the matching TB size for 2-step RA Nokia, Nokia Shanghai Bell CR Rel-16 38.321 16.9.0 1349 - F NR\_2step\_RACH-Core

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It is proposed to replace 'corresponds to' by 'matches with' because the intention is to check whether the TB size of two TBs are of the same or not.

**Question 2**: Do companies agree with the issue? If yes, are the proposed changes fine?

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| Answers to Question 2 | | |
| Company | Yes/No | If yes, are the proposed changes fine or are there any suggestion for improvement? If no, why? |
| Samsung | Yes/No | Not essential, but ok to clarify. No strong view |
| Qualcomm | Neutral | If majority of companies want to change the wording, maybe it can be included in the next rapporteur’s CR. |
| LG | Yes |  |
| Huawei, HiSilicon | No | Not essential, we don’t see any room for misunderstanding on the current wording. |
| CATT | Yes | OK to clarify. |
| vivo |  | No strong view. |
| Lenovo |  | Fine to go with the proposed change. But no strong view. |
| OPPO | No | No issue to use the current wording |
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**Summary 2**: TBD.

**Proposal 2**: TBD.

## 3.3 configuredGrantTimer and cg-RetransmissionTimer

[R2-2208024](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2208024.zip) Clarification on configuredGrantTimer and cg-RetransmissionTimer Nokia, Nokia Shanghai Bell CR Rel-16 38.321 16.9.0 1362 - F TEI16, NR\_unlic-Core

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It is explained that the current spec is not clear whether the MAC checks whether the *configuredGrantTimer*/*cg-RetransmissionTimer* is running at the time of PUSCH transmission or at the time when the MAC processes the UL grant. It is proposed to clearly specify that the MAC checks whether the timer is running at the time of corresponding PUSCH transmission, i.e., regardless of when the UE starts processing of the UL grant.

**Question 3**: Do companies agree with the issue? If yes, are the proposed changes fine?

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| Answers to Question 3 | | |
| Company | Yes/No | If yes, are the proposed changes fine or are there any suggestion for improvement? If no, why? |
| Samsung | No | Even in Rel-15, UE checks if *configuredGrantTimer* is running immediately before the MAC delivers configuration grant information to the HARQ entity. This is not a Rel-16 specific issue. There is no other way to interpret the current text even if the proposed changes are correct. In our view, the proposed changes are not essential so not needed. |
| Qualcomm | See comment | We agree that the current spec text is a bit vague and there is room for potential misunderstanding. But we doubt there would be a UE implementation which uses the state of timer at the time of UL grant processing instead of at start of PUSCH Tx when checking the condition.  For R16, since in theory the proposed change is an NBC (if we are not mistaken), make no change to the spec. For R17, we are fine with adopting the proposed change to eliminate the potential ambiguity. |
| LGE | No | The *configuredGrantTimer* is configured as a number of periodicity.  When the *configuredGrantTimer* is set to N, the correct UE behaviour is that new transmission using the CG should be blocked by this running *configuredGrantTimer* only for N\*periodicity. However, if the MAC determines whether *configuredGrantTimer* is running at the time when the MAC processes the UL grant, this would block new transmission for (N+1)\*periodicity and this is different from the original intention. Thus, we think that if the MAC specification is correctly implemented, this already should be based on at the time of PUSCH transmission without this clarification. |
| Huawei, HiSilicon | No | It is obvious that the UE check the CG timer for each CG occasion from the spec, but the time point to check is total up to UE implementation. We tend to believe there is no ambiguity for sensible UE implementation in the field. |
| CATT | No | In our understanding, MAC spec is implementation agnostic and we agree with LGE’s argument. |
| vivo | No | Basically, the internal processing timeline can be left to UE implementation. |
| Lenovo | No | Agree with LG |
| OPPO | No | The timer will stop right before the N+1 CG occasion, our understanding is the N+1 CG occasion can be used for transmission. Whether UE checks the timer at the transmission or at the preparation, it’s up to UE implementation. |
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**Summary 3**: TBD.

**Proposal 3**: TBD.

## 3.4 RA Resource Selection

[R2-2208254](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2208254.zip) Correction on RA Resource Selection in Rel-15 vivo CR Rel-15 38.321 15.13.0 1373 - F NR\_newRAT-Core

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It is explained that, during RA procedure, the MAC does not deliver the selected SSB/CSI-RS to the PHY, which results in degraded performance of UL transmission. It is proposed to clarify that the MAC indicates the selected SSB/CSI-RS to the PHY.

**Question 4**: Do companies agree with the issue? If yes, are the proposed changes fine?

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| Answers to Question 4 | | |
| Company | Yes/No | If yes, are the proposed changes fine or are there any suggestion for improvement? If no, why? |
| Samsung | No | It is already assumed that this information is already sent to PHY layer. MAC does not capture all relevant cross-layer interaction. No room for misunderstanding. |
| Qualcomm | No | Same view as Samsung. It is not needed, as there is no room for misunderstanding. |
| LGE | No | In section 5.1.3, when the MAC instructs the selected PRACH occasion to the PHY as shown below yellow highlight, we think that the MAC already deliver the selected SSB/CSI-RS information to the PHY because the PRACH occasion is associated with the selected SSB or CSI-RS.  1> instruct the physical layer to transmit the Random Access Preamble using the selected PRACH occasion, corresponding RA-RNTI (if available), PREAMBLE\_INDEX, and PREAMBLE\_RECEIVED\_TARGET\_POWER. |
| Huawei, HiSilicon | No | Agree with above comments. |
| CATT | No | Agree with above comments. If really any clarification would be needed, 38.213 could just refer to MAC spec when mentioning “the PRACH occasions are associated with the selected SS/PBCH block index”. But that is up to RAN1. |
| vivo | Yes |  |
| Lenovo | No |  |
| OPPO | No | No room for ambiguity, and MAC does not need to capture all cross-layer interaction. |
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**Summary 4**: TBD.

**Proposal 4**: TBD.

## 3.5 RLC Polling

[R2-2206980](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2206980.zip) Retransmission SDU choice under double-no condition When T-PollRetransmit expiration PML discussion

It is explained that, when AM RLC entity needs to send polling after t-PollRetransmit expiry, the AM RLC entity may choose the RLC SDU with the highest SN among the RLC SDUs submitted to lower layer for retransmission or any RLC SDU which has not been positively acked for retransmission, which may further results in retransmission delay or unnecessary RRC connection re-establishment. It is proposed that [P1] the AM RLC entity chooses the SDU with the smallest SN (i.e. tx\_next\_ack) for retransmission among the SDUs that have not been positively acknowledged, and further proposed that [P2] the AM RLC entity chooses the SDUs with the largest SN and the TX\_Next\_Ack SN in turn if t-PollRetransmit expires continuously.

**Question 5**: Do companies agree with the issue? If yes, are the proposals (both P1 and P2) fine?

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| Answers to Question 4 | | |
| Company | Yes/No | Technical comments |
| Huawei, HiSilicon | No | [To offline rapp] The title of subsection is incorrect, so it is very likely to miss this question when filling the document. I have now corrected it.  We tend to believe the issue mentioned in this contribution is rare case, i.e. the UE encounters an unexpected large RLC SN which implies quite a few RLC PDU have been all missed before. Even this is the case, the UE will start T-reassembly and RLC SR will be triggered upon expiry, so we don't see an issue. If the concern is the the delay of RLC SR, we also believe it can be well handled by proper NW implementation, e.g. a short T-reassembly, and no change to the RLC spec is needed. |
| LGE | No | We don’t see the issue on the assumed situation in this CR.  When the receving side of AM RLC entity receives an RLC SDU including poll in the assumed scenario in the CR, the STATUS report may not be triggered righ away but the *t-reassembly* timer should be started by the condition “- if RX\_Next\_Highest> RX\_Next +1; or”. Then when *t-reassembly* timer expires, RX\_Highest\_Status is updated to the SN of the first RLC SDU with SN >= RX\_Next\_Status\_Trigger for which not all bytes have been received and the STATUS report is triggered and sent to the transmitting side of AM RLC entity. So, the current RLC spec may not perform unnecessary RRC connection re-establishment as address in this CR and no change on SDU choice for retransmission is needed. |
| OPPO | No | Agree with Huawei. |
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**Summary 5**: TBD.

**Proposal 5**: TBD.

# 4 Conclusion

TBD.