**3GPP TSG-RAN WG2 Meeting #117-e *R2-2xxxxxx***

**Online, 21 February – 03 March 2022**

**Agenda item: 5.3 User Plane corrections**

**Source: Huawei, HiSilicon**

**Title: Report of [AT117-e][025][NR15] User-plane Corrections**

**Document for: Discussion and decision**

1. Introduction

This document is to report the outcome of the following email discussion at RAN2#117-e Meeting:

* [AT117-e][025][NR15] User-plane Corrections (Huawei)

Scope: Treat R2-2202109, R2-2203129, R2-2203130, R2-2203241, R2-2203242, R2-2203240, R2-2202552, R2-2202553, R2-2203239, R2-2202194. Ph1 Determine agreeable parts. P2 agree CRs for agreeable parts.

Intended outcome: Report, Agreed CRs.

Deadline: Schedule 1

Discussions with Deadline **Schedule 1**:

A **first round** with **Deadline for comments W1 Thur Feb 24th 1200 UTC** to settle scope what is agreeable etc

A Final round with **Final deadline W2 Wed March 2nd 1200 UTC** to settle details / agree CRs etc.

2. Contact Information

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| **Company** | **Contact: Name (E-mail)** |
| **Qualcomm** | **Linhai He (linhaihe@qti.qualcomm.com)** |
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3. Phase 1 discussion

## 3.1 Initial state of elements controlled by MAC CE

[1] R2-2202109 Reply LS on initial state of elements controlled by MAC CEs (R1-2112860, Contact: Huawei) LS in Rel-15 To:RAN2 Cc:RAN4

[2] R2-2203129 Clarification on the initial state of elements controlled by MAC CE (based on LS R1-2112860, Contact: Huawei) Huawei, HiSilicon CR Rel-15 38.321 15.12.0 1208 - F NR\_newRAT-Core, TEI16

[3] R2-2203130 Clarification on the initial state of elements controlled by MAC CE (based on LS R1-2112860, Contact: Huawei) Huawei, HiSilicon CR Rel-16 38.321 16.7.0 1209 - F NR\_newRAT-Core, TEI16

[4] R2-2203241 Correction to 38.321 on the term of the handover in handling of MAC CE ZTE Corporation,Sanechips CR Rel-16 38.321 16.7.0 1212 - F NR\_newRAT-Core

[5] R2-2203242 Discussion on Initial State of Elements Controled by MAC CEs ZTE Corporation,Sanechips discussion Rel-15 NR\_newRAT-Core

[6] R2-2203240 Correction to 38.321 on the term of the handover in handling of MAC CE ZTE Corporation,Sanechips CR Rel-15 38.321 15.12.0 1211 - F NR\_newRAT-Core

The issue of initial state of elements controlled by MAC CE was discussed in RAN2#116 and a LS was approved to ask RAN1 views on RAN2 identified questions, and RAN1 has provided their anwers in [1].

[2][3][4][5][6] all discussed this issue and also provided the corresponding R15 and R16 corrections but with different understandings on some particular questions. Therefore, as the rapporteur, we would like to first understand company’s views on these questions, respectively.

**Q1-1**: Do you agree that “the initial deactivation when using handover is applied for both PCell change and PSCell change/addition” based on RAN1 answer to question 1 as follows?

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| 1. Whether the initial deactivation when using handover should be applied for both PCell change and PSCell change/addition of DC?   [RAN1 answer]: Initial state of deactivation is applied for both PCell change and PSCell change/addition in the case of DC. |

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| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes |  |
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**Q1-2**: If your answer to Q1-1 is “Yes”, do you agree that handover” should be corrected to “reconfiguration with sync” as in [2][3][4][6]?

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| **Company** | **Agree as is/**  **Agree with change/**  **No change needed** | **Comments** |
| Qualcomm | Agree with [2][3] with a minor change | For the spatial relation of PUCCH resource, it seems clearer without “initially”, since the TP includes both initial configuration and reconfiguration. |
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**Q2-1**: Do you agree that “initial deactivation when using configuration should be applied for both “initial configuration by RRC” and “reconfiguration by RRC” based on RAN1 answer to question 2 as follows?

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| 1. Whether the initial deactivation when using configuration should be applied for both “initial configuration by RRC” and “reconfiguration by RRC”?   [RAN1 answer]: Initial state of deactivation is applied for “initial configuration by RRC”, and is applied for “reconfiguration by RRC” with PCell change and PSCell change/addition in the case of DC or when the corresponding elements are newly added or modified by the reconfiguration message (unimpacted elements should maintain their previous state). |

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| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes with comment | We think RAN1’s reply indicates both   1. RRC initial configuration and RRC reconfiguration (or simply RRC configuration); 2. 2 RRC reconfiguration with sync |
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**Q2-2**: If your answer to Q2-1 is “Yes”, do you agree that “upon configuration” should be corrected to “upon RRC (re-)configuration” as in [2][3]?

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| **Company** | **Agree as is/**  **Agree with change/**  **No change needed** | **Comments** |
| Qualcomm | Agree as is in [2][3] |  |
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**Q3-1**: Do you agree that “UE behavior relevant to (Enhanced) PUCCH spatial relation Activation/Deactivation MAC CE should be aligned with the other MAC CEs” based on RAN1 answer to question 3 as follows?

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| 1. Whether the UE behavior relevant to (Enhanced) PUCCH spatial relation Activation/Deactivation MAC CE should be aligned with the other MAC CEs?   [RAN1 answer]: RAN1 assumed the UE behavior relevant to (Enhanced) PUCCH spatial relation Activation/Deactivation MAC CE is aligned with other MAC CEs, i.e., initial state of deactivation is applied for configured candidate spatial relations. So, nothing is to be aligned from RAN1 perspective. Whether or not to reflect this in the specification for (Enhanced) PUCCH spatial relation Activation/Deactivation MAC CE is up to RAN2. From RAN1 perspective, either is OK. |

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| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes |  |
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**Q3-2**: If your answer to Q3-1 is “Yes”, do you agree that “the UE behavior relevant to (Enhanced) PUCCH spatial relation Activation/Deactivation MAC CE should be corrected in order to align with other MAC CEs” as in [2][3]?

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| **Company** | **Agree as is/**  **Agree with change/**  **No change needed** | **Comments** |
| Qualcomm | Agree as is in [2][3] |  |
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**Summary: TBD**

## 3.2 DRX RTT timer with UL skipping

[7] R2-2202552 Clarification on the DRX RTT Timer operation with UL skipping configuration Apple CR Rel-15 38.321 15.12.0 1195 - F NR\_newRAT-Core

[8] R2-2202553 Clarification on the DRX RTT Timer operation with UL skipping configuration Apple CR Rel-16 38.321 16.7.0 1196 - A NR\_newRAT-Core

[7][8] think the following MAC text is ambiguous whether the UE should start the UL HARQ RTT timer if the UL transmission is skipped,

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| *2> if the PDCCH indicates a UL transmission:*  *3> start the drx-HARQ-RTT-TimerUL for the corresponding HARQ process in the first symbol after the end of the first transmission (within a bundle) of the corresponding PUSCH transmission;* |

and propose to further enhance the current MAC text by adding “actual” before “corresponding PUSCH transmission” to clearly indicate that the UE should not start the UL HARQ RTT timer if the UL transmission is skipped.

**Q4-1**. Companies are asked to provide your views on above issue:

* Option A: the UE shall not start the UL HARQ RTT timer when UL transmission is skipped
* Option B: the UE shall start the UL HARQ RTT timer when UL transmission is skipped
* Option C: the UE behaviour is not specified (i.e. up to UE implementation)

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| **Company** | **Option A/B/C** | **Comments** |
| Qualcomm | See comment | We support the intention of the CR. But in practice the proposed change probably would not make much difference if DRX inactivity timer is still re-/started by a new UL grant even if it is skipped, because DRX inactivity timer usually is much longer than a typical HARQ process. |
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**Q4-2**. If you answer to Q4-1 is “Option A”, do you agree the text proposal in [7][8] to the current MAC spec?

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| **Company** | **Agree as is/**  **Agree with change/**  **No change needed** | **Comments** |
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**Summary: TBD**

## 3.3 Abnormal handling of UL retransmission

[9] R2-2203239 Discussion on An Abnormal Case for Retransmission ZTE Corporation,OPPO, Sanechips discussion Rel-15 NR\_newRAT-Core

[9] discusses the case that the UE receives a UL grant for retransmission with a different TBS from the previous transmission, i.e. the TBS doesn’t match the size of MAC PDU stored in the HARQ buffer, and proposes to discuss the UE behaviour in this case.

**Q5**: Companies are asked to provide your views on the above issue:

* Option A: the UE shall ignore the UL grant
* Option B: the UE shall consider the UL grant for a new transmission, and then generate a MAC PDU for it
* Option C: the UE behaviour is not specified (i.e. up to UE implementation)

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| **Company** | **Option A/B/C** | **Comments** |
| Qualcomm | Option C | We think it is an error case and hence its handling should be up to UE implementation. |
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**Summary: TBD**

## 3.4 Handling of discardOnPDCP

[10] R2-2202194 Discussion on handling of discardOnPDCP OPPO discussion Rel-15 NR\_newRAT-Core

[10] proposes an interesting issue of SRB discard at UE receiving side when upper layers request a PDCP SDU discard (e.g. PDCP data recovery for intra-CU inter-DU handover), and thinks the PDCP receiving window at the UE side may get stuck if there is any stored PDCP PDU for SRB but discarded and the value of t-Reordering is set to “infinity”.

**Q6-1**: Companies are asked to provide your views on the above issue:

* Option A: There are no stored PDCP PDUs at UE RX buffer at the time of receiving *discardOnPDCP* (i.e. interpretation-1 in [10]), and no change to the specification
* Option B: There might be stored PDUs at UE RX buffer at the time of receiving *discardOnPDCP* (i.e. interpretation-2 in [10]), and to discuss in Phase 2 the UE behaviour in this case
* Option C: Others (please indicate the details if any)

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| **Company** | **Option A/B/C** | **Comments** |
| Qualcomm | Option B |  |
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**Summary: TBD**

4. Phase 2 discussion

**TBD**

1. Conclusion

**TBD**