3GPP TSG-RAN WG2 Meeting #109e [R2-200xxx](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2002087.zip)x

Elbonia, Online, 24 February – 6 March 2020

**Agenda item: 4.5**

**Source: RAN2 Vice-chair (offline email discussion rapporteur)**

**Title: Report of [AT109e][202][LTE15] Discuss remaining LTE Rel-15 CRs (RAN2 VC)**

**Document for: Report**

# 1 Scope of the offline email discussion

This document contains the summary of the offline email discussion “**[AT109e][202][LTE15] Discuss remaining LTE Rel-15 CRs (RAN2 VC)**”, as indicated below:

* [AT109e][202][LTE15] Discuss remaining LTE Rel-15 CRs (RAN2 VC)

Scope:

* + - Discuss the CRs [R2-2001139](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001139.zip), [R2-2001156](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001156.zip), [R2-2001157](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001157.zip), [R2-2001508](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001508.zip), [R2-2001347](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001347.zip) and [R2-2001351](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001351.zip) over offline (email) discussion to solicit opinions from companies on the proposals and CR correctness.
    - Handle any CRs from discussion **201** that are deemed require further discussion

Intended outcome:

* + - Whether any of the CRs can be agreed?
    - For CRs that cabn be agreed, final CRs (by CR proponents)
    - Summary of discussions (by email rappporteur)

Deadline for providing comments and for rappporteur inputs:

* + - Companies input: Thursday, Feb. 27th 17:00 CET
    - Rapporteur summary: Friday, Feb. 28th 17:00 CET (one day for rapporteur to make conclusions)
    - Updated CRs from each CR proponent: Monday Mar. 2nd 17:00 CET
    - Comments on CR wording: Tuesday, March 3rd by 17:00 CET (i.e. one day to provide comments to the updated CR)

# 2 LTE legacy CRs in this offline email discussion

## 2.1 [R2-2001139](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001139.zip), “Inclusion of Maximum Number of PDCP SDUs per TTI for DL Categories 22-26“ Nokia, Nokia Shanghai Bell

The CR in the title is discussed in this section. Companies are requested to provide comments in the table below (one row for each new comment to better keep track of the discussion – please don’t edit the previous comments.

|  |  |  |
| --- | --- | --- |
| **Company** | **Do you agree to the intent of the CR?** | **Detailed comments** |
| Ericsson |  | * Date on the cover page needs to be updated * Reason for change can be updated as follows: “In Annex A, Table A-1 provides the maximum values for DL PDCP SDUs per TTI for each (DL) UE category. R2-1813149 provides CR1628, which introduces UE categories that support 1024QAM. The CR was approved in however the table was not updated accordingly.   **Impact analysis**  Impacted functionality: functionality impacted.  Inter-operability:   * If the network is implemented according to the CR and the UE is not the UE may use wrong estimates on PDCP SDU size per TTI leading to limiting capabilities on packets’ size handling.   If the UE is implemented according to the CR and the network is not the NW will use wrong estimates on PDCP SDU size per TTI, leading to limiting capabilities on packets’ size handling. |
| Qualcomm | **Ok, see comments.** | Note sure what “impacted functionalty: functionality impacted” mean.  Also it would be nice to know how the numbers are calculated. Maybe add something in coverpage? |
| Lenovo | **Yes** | We agree with Qualcomm that it would be good to know how the numbers were calculated. If we recall correctly, in the past the numbers were calculated based on the following assumptions:   * For each DL category take the max value as specified in the column “Maximum number of DL-SCH transport block bits received within a TTI” * PDCP SDU size of 1500bytes * Due to the fact that PDCP PDU sizes may be smaller than 1500bytes, take a margin of factor 2 and roundup the result to a reasonable integer value   Based on above, we calculated the following values:   |  |  | | --- | --- | | DL Category 22 | 428 (Nokia: 430) | | DL Category 23 | 479 (Nokia: 480) | | DL Category 24 | 505 (Nokia: 510) | | DL Category 25 | 553 (Nokia: 560) | | DL Category 26 | 589 (Nokia: 590) |   As result, the proposed values look ok, but we can add further margin, e.g. for cat26 (to 600). |

Conclusion: TBA

Proposal: TBA

## 2.2 [R2-2001156](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001156.zip), [R2-2001157](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001157.zip) “Correction of UE assistance information Samsung Telecommunications

The CR in the title is discussed in this section. Companies are requested to provide comments in the table below (one row for each new comment to better keep track of the discussion – please don’t edit the previous comments.

|  |  |  |
| --- | --- | --- |
| **Company** | **Do you agree to the intent of the CR?** | **Detailed comments** |
| Ericsson | **Yes, but** | We wonder if we can still fix the timer settings in REL-16 for LTE? It is correct, that RAN2 agreed to allow REL-16 UE to (re-)start the timers for other features, than the one that was triggered. But it would be nice to have similar behaviour as in NR from REL-16 we think.  The revision number for REL-15 CR should be 1?  Perhaps consider some re-wording of NOTE 4:  NOTE 4: The UE is recommended to only start or restart the prohibit timer of the feature that was triggered, but the UE may start or restart timers T340, T341, T342, T343, T344 and T345 when it sends the *UEAssistanceInformation* message. |
| Samsung | **Yes** | We are fine to mandate the recommended behaviour from R16 as suggested by Ericsson.  We are also fine to somewhat modify the wording of the node i.e. to start with the recommended behaviour |

Conclusion: TBA

Proposal: TBA

## 2.3 [R2-2001508](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001508.zip), “Correction on the content of RRCConnectionReconfigurationComplete message“ Google

The CR in the title is discussed in this section. Companies are requested to provide comments in the table below (one row for each new comment to better keep track of the discussion – please don’t edit the previous comments.

|  |  |  |
| --- | --- | --- |
| **Company** | **Do you agree to the intent of the CR?** | **Detailed comments** |
| Ericsson | **Yes** | The handling seems to be aligned with the handling we have for the *RRCSetupComplete* message. When the UE constructs the *RRSetupComplete* message it only includes e.g. the RLF report if the UE is connecting to EPC (see section 5.3.3.4 in 36.331). |
| Qualcomm | **Partly** | We understand R15 eLTE does not support SON/MDT reporting. However, not sure why a UE connected to 5GC cannot include flightPathInfoAvailable.  Also, this is LTE RRC CR, is correct to say Impacted 5G architecture options:  Standalone  Other specs affected should be filled. |
| Google | **Yes** | Regarding to Qualcomm’s comments: For the *flightPathInfoAvailable*, this is also aligned with the handling we have for the *RRCSetupComplete* message.  Since this is LTE RRC CR, it is correct that we should not say impatced 5G architecture “standalone”. We will delete the Impacted 5G architecture options.  Regarding to the “Other spec affected”, we have not idea which other specs will be affected. It will be helpful if Qualcomm can provide the reference. |
| Samsung | **Not sure** | We are not sure if there really is a problem. I.e. would an R15 UE connected to 5GC really collect the concerned SON/ MDT information? If not, the UE will anyhow not trigger sending any of these availability indications |

Conclusion: TBA

Proposal: TBA

## 2.4 [R2-2001347](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001347.zip), “The problem of LTE RLC out-of-order delivery configuration“ Samsung AND [R2-2001351](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001351.zip), “CR on RLC OutOfOrderDelivery configuration“ Samsung

The CR in the title is discussed in this section. Companies are requested to provide comments in the table below (one row for each new comment to better keep track of the discussion – please don’t edit the previous comments.

|  |  |  |
| --- | --- | --- |
| **Company** | **Do you agree to the intent of the discussion document and the CR?** | **Detailed comments** |
| LG | **Yes, but** | In our understanding, the out-of-order delivery function can be used if the t-Reordering is configured to the PDCP entity. Thus, we propose as following text.  Indicates that out-of-order delivery from RLC to PDCP is configured for this RLC entity as specified in TS 36.322 [7]. E-UTRAN sets this field to TRUE only when the associated PDCP entity is configured with *t-Reordering*. |
| Ericsson | **No** | RLC reordering without duplication was discussed, agreed and implemented as part of the HRLLC WI and it shouldn’t be removed now. The network will ensure that the configuration of reordering in different layers wotk together. |
| Qualcomm | **No** | The specs are ok as they are now. There is no “problem” as such. No correction is necessary. |
| Samsung |  | We are fine with LG’s suggestion since no problem would be foreseen if t-reordering is configured.  Regarding Ericsson’s comment, the problem would be still there even if the current specification was implemented regardless of PDCP duplication. We are not trying to remove something we already agreed.  Note that the current RRC specification allows RLC out-of-order delivery for all the cases.We don’t think that UE implementaion should consider RLC out-of-order delivery for normal DRBs associated with the PDCP entity not configured with t-reordering, which can cause error cases.  If the network ensures that the configuration of reordering in different layers wotks together, it should be clarified in RRC specification to make UE implementation clear.  Regarding QC’s comment, Note that NR PDCP uses t-reordering always for all types of radio bearer since RLC out-of-order delivery is mandatory.  However, LTE PDCP does not use t-reordering for normal DRBs but RLC out-of-order delivery is configurable for normal DRBs, which causes error cases, .e.g. data loss and PDCP out-of-order delivery problem.  We agree that RLC out-of-orderd delivery can be independent of PDCP duplication. However, it cannot be independent of t-reordering since it can cause error cases.  Even if we trust eNB, the RRC specification is now allowing error cases. That's why we would like to do clarification.  We are not trying to restrict network implementation.  By LG's suggestion, the clarification makes the network implementation and UE implemenation do the right thing. |
| Apple | **No** | ***rlc-OutOfOrderDelivery*** can also be configured for EN-DC split bearer, and it should not be limited in the PDCP duplication case.  In NR, t-reordering is also possible to be set to infinity. Therefore, correct NW implementation is expected. |
| Samsung |  | Regarding Apple’s comment, Note that EN-DC split bearer always uses NR PDCP with t-reordering. Hence, there is no issue for that. We are talking about LTE PDCP.  For LTE split bearer case, the PDCP always uses t-reordering and thus there is no issue as well.  In NR, if t-reordering is set to infinity, there would be no data loss and no PDCP out-of-order problem and this case is in general for SRB. |

Conclusion: TBA

Proposal: TBA

# 3 Conclusions

**Conclusions:**

TBA – list of conclusions for each CR.

**Agreed CRs:**

TBA – list of agreed CRs (with Tdoc numbers).

# 4 List of referenced documents

[1] [R2-2001139](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001139.zip), “Inclusion of Maximum Number of PDCP SDUs per TTI for DL Categories 22-26“ Nokia, Nokia Shanghai Bell CR Rel-15 36.306 15.7.0 1736 - F LTE\_1024QAM\_DL-Core, TEI15

[2] [R2-2001156](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001156.zip), “Correction of UE assistance information Samsung Telecommunications“ CR Rel-15 36.331 15.8.0 4210 - F TEI15, NR\_newRAT-Core

[3] [R2-2001157](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001157.zip), “Correction of UE assistance information“ Samsung Telecommunications CR Rel-16 36.331 15.8.0 4164 2 A TEI15, NR\_newRAT-Core R2-1916490

[4] [R2-2001508](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001508.zip), “Correction on the content of RRCConnectionReconfigurationComplete message “ Google Inc. CR Rel-15 36.331 15.8.0 4224 - F LTE\_5GCN\_connect-Core

[5] [R2-2001347](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001347.zip), “The problem of LTE RLC out-of-order delivery configuration“ Samsung discussion LTE\_HRLLC

[6] [R2-2001351](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2001351.zip), “CR on RLC OutOfOrderDelivery configuration“ Samsung CR Rel-15 36.331 15.8.0 4217 - F LTE\_HRLLC