3GPP TSG-RAN WG2 Meeting #118 Electronic R2-22XXXXX

Elbonia, 09 – 20 May 2022

**Agenda item: 6.13.4 MDT Corrections**

**Source: Huawei (Rapporteur)**

**Title: Report of [AT118-e][805][SON/MDT] Corrections on TS.38.314 (Huawei)**

**WID/SID: NR\_ENDC\_SON\_MDT\_enh-Core**

**Document for: Discussion and Decision**

# 1 Introduction

This document is the report of the following email discussion:

* **[AT118e][805][SON/MDT] Corrections on TS.38.314 (Huawei)**

Discussion on R2-2205076, R2-2205689 and R2-2204664 and figure out the agreeable changes and provide the CR accordingly

Intended outcome: Agreed 38.314 CR

Deadline: 12:34 UTC, Friday May 20th

It is suggested to have 2 phases:

* Phase 1: collect comments on the relevant contributions. **Deadline: W2 Thursday May 19th 1200 UTC**
* Phase 2: finalize and agree on the CR to TS 38.314 (merge all agreeable changes into a single CR). **Deadline: W2 Friday 20th 12:34 UTC**

# 2 Contact Points

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

|  |  |  |
| --- | --- | --- |
| Company | Name | Email Address |
| ZTE | QIU ZHIHONG | qiu.zhihong@zte.com.cn |
| Qualcomm | Rajeev Kumar | rkum@qti.qualcomm.com |
| CATT | Shijie | shijie@catt.cn |
| Huawei, HiSilicon | Jun Chen | jun.chen@huawei.com |
| Nokia, Nokia Shanghai Bell | Malgorzata Tomala | malgorzata.tomala@nokia.com |
| Ericsson | Ali Parichehreh | ali.parichehreh@ericsson.com |
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# 3 Discussion

**This email discussion is to progress on the following contributions:**

R2-2205076 Corrections on TS.38.314 for the delay measurement for split bearer Huawei, HiSilicon CR Rel-17 38.314 17.0.0 0023 - F NR\_ENDC\_SON\_MDT\_enh-Core

=> Try to discuss offline #805 (Huawei)

R2-2205689 TP on L2 measurements for total RAN delay calculation Ericsson discussion NR\_ENDC\_SON\_MDT\_enh-Core

=> Try to discuss offline #805 (Huawei)

R2-2204664 CR to 38314 on RA preamble measurement ZTE Corporation, Sanechips, CMCC CR Rel-17 38.314 17.0.0 0022 - F NR\_ENDC\_SON\_MDT\_enh-Core

=> Try to discuss offline #805 (Huawei)

## 3.1 Discussion on R2-2205076 (the delay measurement for split bearer)

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| ***Reason for change:*** | At RAN2#113-e meeting, the following agreement was made. But it is missing in latest specifications.  Agreement:  For QoS monitoring related delay reporting to CN, ‘weighted average (consider the number of packets) over MN and SN’ is used to calculate the total delay measurement M6 over MCG/SCG for split bearers WITHOUT PDCP duplication. |
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| ***Summary of change:*** | Add a text in TS 38.314 according to the following agreement:  For QoS monitoring related delay reporting to CN, ‘weighted average (consider the number of packets) over MN and SN’ is used to calculate the total delay measurement M6 over MCG/SCG for split bearers WITHOUT PDCP duplication. |
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| ***Consequences if not approved:*** | One RAN2 agreement is missing in the specification. |

**Question 1: Do companies agree with R2-2205076? Any comments?**

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| Company | Yes/No | Comments |
| ZTE | Yes | We also needs to include the following agreements made for the case PDCP duplication is on:  7 For QoS monitoring related delay reporting to CN, the minimum value between two legs is defined as the total delay measurement M6 over MCG/SCG for split bearers WITH PDCP duplication. |
| Qualcomm | Yes | Agree with ZTE |
| CATT | Yes |  |
| Huawei, HiSilicon | Yes | Proponent.  We checked the text mentioned by ZTE, and it was agreed at RAN2#113-e meeting. We are ok to capture it in TS 38.314. |
| Nokia | Yes | Agree this has been missing agreement |
| Ericsson | Yes but see the comment | In general we agree with the intention here, but we think a more detailed specification is needed on how the RAN node calculate the weighted average or take the minimum values to calculate the total RAN delay.  We think the following formulas can be specified in detail as part of 38.413 spec.  **Scenario-1 : When PDCP duplication is not enabled for the entire duration of M6 measurement period (weighted average)**  According to the following agreement:  For QoS monitoring related delay reporting to CN, ‘**weighted average** (consider the number of packets) over MN and SN’ is used to calculate the total delay measurement M6 over MCG/SCG for split bearers WITHOUT PDCP duplication.  The above agreement can be mapped to the following Equation (1)  **Scenario-2 : When PDCP duplication is enabled for the entire duration of M6 measurement period (minimum value)**  According to the following agreement:  For QoS monitoring related delay reporting to CN, the **minimum value** between two legs is defined as the total delay measurement M6 over MCG/SCG for split bearers WITH PDCP duplication.  The above agreement to measure the delay for **duplicated PDCP packets** is mapped to the Equation (2).  In addition we can have a third scenario in which the PDCP duplication is enabled per PDCP PDU packet  **Scenario-3: When PDCP duplication is enabled for part of the duration of M6 measurement period and for the rest of the duration it is not enabled.**    We think Equation (1) (2) and (3) are need to be specified to avoid different networks implement the total RAN delay differently which may lead to misleading analysis by the core network.  As (1) and (2) have already been agreed in RAN2, we believe it is good to capture the formulas as agreed rather than using the text based formulation. This would mean that we need to introduce such measurements in 4.2.1.2 so that all the delay related measurements are captured there. Thus, we believe, we can agree on the intention but the CR can be postponed for the next meeting. |
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**Summary:**

6/6 companies say Yes. 1 company indicates that one previous RAN2 agreement is also missing, and some companies agree. 1 company indicates that the intention is ok but some details (e.g. formulas) should be considered, and thus the CR can be postponed.

It is the rapporteur’s understanding that there are two ways: (1) just copy/paste the RAN2 agreements into the TS 38.314, and leave details to network implementation; (2) as Ericsson commented, some details are needed in order to avoid confusions.

It is suggested to go with Ericsson’s suggestion.

**Proposal 1: The previous RAN2 agreements should be captured in TS 38.314, and detailed changes are postponed to the next RAN2 meeting:**

* **For QoS monitoring related delay reporting to CN, ‘weighted average (consider the number of packets) over MN and SN’ is used to calculate the total delay measurement M6 over MCG/SCG for split bearers WITHOUT PDCP duplication.**
* **For QoS monitoring related delay reporting to CN, the minimum value between two legs is defined as the total delay measurement M6 over MCG/SCG for split bearers WITH PDCP duplication.**

## 3.2 Discussion on R2-2205689 (L2 measurements for total RAN delay calculation)

In RAN3#115e meeting, for M6 measurements, discussions regarding forwarding additional information, namely Number of packets sent through MN and SN and number of duplicated packets towards TCE, for the case when PDCP duplication is switched within a delay measurement period for a split DRB in DC scenario was discussed. The below text captures the agreement taken by RAN3:

RAN3 to agree to support Solution 2a

Where solution 2a in this discussion was:

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| * Solution 2: Sending individual delay components to TCE   + 2a: sending further detailed measurements to TCE for M6 calculation     - Number of PDCP PDUs sent via MN or SN within a measurement period, when PDCP duplication is enabled.     - Number of PDCP PDUs sent over MN within a measurement period, when the PDCP duplication is not enabled.     - Number of PDCP PDUs sent over SN within a measurement period, when the PDCP duplication is not enabled. |

In R2-220331, Ericsson proposed the same in RAN2 and provided with detailed explanations and formulae supporting the proposal.

In this contribution R2-2205689, some proposals are made, and a TP is attached in the last section of the paper.

[Proposal 1 Calculation of number of packets sent through MN and SN per UE per DRB, and number of duplicated packets are introduced as new L2 measurements in 38.314.](#_Toc101790164)

[Proposal 2 RAN2 is kindly requested to accept the annexed TP capturing the agreed measurement counters per UE for split DRBs required for total RAN delay calculation at the TCE/OAM.](#_Toc101790165)

[Proposal 3 Duplication information for M6 measurements in case of split bearer, i.e., number of packets sent through MN and SN, and number of duplicated packets are measured for M5 and M7 measurements. Thus, the newly introduced measurement counters in 38.314 are also applicable for M5 and M7.](#_Toc101790166)

**Question 2: Do companies agree with P1, P2, and P3 in R2-2205689? Any comments?**

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| --- | --- | --- |
| Company | Yes/No | Comments |
| ZTE | Partially | Fine with P1/P2 which is agreed by RAN3. Not P3 since we have not agreed to enhance M5/7, and if NW wants to use it it can be done by implementation. |
| Qualcomm | Partially | Same view as ZTE (Fine with P1/P2, not fine with P3). QoS monitoring for M5 and M7 was not agreed in rel-17. |
| CATT | Partially | Same view as ZTE. We have agreed in RAN2 that indication of duplication status is beneficial to be included for M5/M7 measurement in split bearer, and no RAN3 agreement on this. |
| Huawei, HiSilicon | Yes to P1, P2 | We have similar views as ZTE. |
| Nokia | Yes to P1 and P2 | We agree to follow RAN3 decision stricly |
| Ericsson | Yes to P1, P2 and P3 | But we are fine if all companies want to postpone the measurements for M5 and M7. |
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**Summary:**

6/6 companies agree on P1 and P2, and 2/6 companies agree on P3.

So P1 and P2 are agreeable, P3 is postponed.

**Question 3: If Yes to Q2, do companies have comments regarding the attached TP in R2-2205689?**

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| Company | Comments |
| Huawei, HiSilicon | We note that the attached TP is mentioning “for OAM performance observability.” for new KPIs. We understand that these KPIs are from the incoming RAN3 LS (as below), and the LS is about MDT, so the purpose of the new KPIs should be “QoS verfication of MDT”.  [R2-2204498](file:///C:\Users\mtk65284\Documents\3GPP\tsg_ran\WG2_RL2\TSGR2_118-e\Docs\R2-2204498.zip) Reply LS on MDT M6 calculation for split bearers in MR-DC (R3-222868; contact: Ericsson) RAN3 LS in Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core To:RAN2, SA5 |
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**Summary:**

1 company provides some comments on the TP, and it can be addressed during CR discussions.

## 3.3 Discussion on R2-2204664 (RA preamble measurement)

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| ***Reason for change:*** | In RAN2#116-e meeting, following agreements are achieved:  ***Agreements:***  *1 Support counting the number of received random access preamble per cell/per SSB separately for 2step RA and 4step RA type.*  But currently the agreed measurements are not captured in specs. |
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| ***Summary of change:*** | Add the number of received random access preamble per cell/per SSB separately for 2step RA and 4step RA type in subclause 4.2.1 |
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| ***Consequences if not approved:*** | Specs is not aligned with agreements, and RA preamble measurement per RA type cannot be supported. |

**Question 4: Do companies agree with R2-2204664? Any comments?**

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| --- | --- | --- |
| Company | Yes/No | Comments |
| ZTE | Yes | Proponent. This has been agreed. An update, the agreement was taken in RAN2#113 not in RAN2#116 |
| Qualcomm | Yes |  |
| CATT | Yes |  |
| Huawei, HiSilicon | Yes |  |
| Ericsson | Yes | But we think maybe only 2-step RA related counter is enough to be added. 4-step related statistics can be extracted by subtracting the 2-step related counter from legacy/existing counter. But we are fine with the proposed CR as well. |
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**Summary:**

5/5 companies say Yes.

# 4 Conclusion

Based on the companies’ comments, the following proposal is made:

**Proposal 1: The previous RAN2 agreements should be captured in TS 38.314, and detailed changes are postponed to the next RAN2 meeting:**

* **For QoS monitoring related delay reporting to CN, ‘weighted average (consider the number of packets) over MN and SN’ is used to calculate the total delay measurement M6 over MCG/SCG for split bearers WITHOUT PDCP duplication.**
* **For QoS monitoring related delay reporting to CN, the minimum value between two legs is defined as the total delay measurement M6 over MCG/SCG for split bearers WITH PDCP duplication.**

For P3 in R2-2205689, it is just noted and the interested companies can check offline first.

Other proposals are agreeable and they can directly go into CR discussions (without additional proposals).