**3GPP TSG-RAN WG2 Meeting #113-eR2-21xxxxx**

**Online, 25th Jan – 5th Feb 2021**

**Agenda item:** 6.10.2

**Source:** vivo, CMCC (Rapporteur)

**Title:** Report of [Offline-805][SONMDT] L2 measurement corrections (vivo, CMCC)

**Document for:** Discussion and Agreement

# 1 Introduction

This is to report the result of the following email discussion at RAN2#113-e meeting [1].

* [AT113-e][805][NR/R17 SON/MDT] L2 measurement corrections (vivo, CMCC)

-     The discussion including R2-2100694.

-     Every change in these documents should be addressed with clear conclusion (i.e., either agreed or not pursued)

-     All the agreed changes will be merged into one CR.

-     Intended outcome: Agreed CR

-     Deadline: Monday 01/02/2021

According to the chair’s guidance, this report will be based on the contribution R2-2100694 [2] and to address each proposed change with clear conclusion. Please provide your comments by Monday 01 Feb 1100 UTC so that we have time to prepare the summary.

# 2 Contact Information

To make it easier to find the correct contact delegate in each company for potential follow-up questions, the rapporteur encourages the delegates who provide input to provide their contact information in this table:

|  |  |
| --- | --- |
| Company | Contact: Name (E-mail) |
| vivo | Wen Ming(ming.wen@vivo.com) |
| Ericsson | Pradeepa Ramachandra (pradeepa.ramachandra@ericsson.com) |
| ZTE | Zhihong Qiu (qiu.zhihong@zte.com.cn) |
| CATT | Erlin Zeng (erlin.zeng@catt.cn) |
| Huawei | Jun Chen (jun.chen@huawei.com) |
| Nokia, Nokia Shanghai Bell | malgorzata.tomala@nokia.com |
| Sharp | ningjuan.chang@cn.sharp-world.com |
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# 3 Discussion

Companies are invited to provide their views/comments on the changes proposed by the CR listed below in the following tables.

R2-2100694 Miscellaneous corrections to TS 38.314 vivo CR Rel-16 38.314 16.2.0 0013 - F NR\_SON\_MDT-Core

## 3.1 On the unit description of D2.3

The contribution [2] claims that D2.3 (average delay UL on F1-U) is measured using the same metric as the average delay DL on F1-U defined in TS 28.552 [2] clause 5.1.3.3.2, the unit of D2.3 should be the same to the average delay DL on F1-U. According to the description in TS 28.552 shown below, the unit of this measurement is microsecond (μs) instead of millisecond (ms).

|  |
| --- |
| **TS 28.552 --- 5.1.3.3.2 Average delay DL on F1-U**d) Each measurement is an integer representing the mean delay in microseconds. The number of measurements is equal to one. If the optional QoS level measurement is perfomed, the number of measurements is equal to the number of mapped 5QIs. |

**Thus the CR in [2] proposed the following change in clause 4.2.1.2.1:**

|  |
| --- |
| The UL packet delay measurements, i.e. D1(UL PDCP packet average delay), D2.1(average over-the-air interface packet delay), D2.2(average RLC packet delay), D2.3(average delay UL on F1-U) and D2.4(average PDCP re-ordering delay), should be measured per DRB per UE. The unit of D1, D2.1, D2.2 and D2.4 is 0.1ms, the unit of D2.3 is 1 μs. |

**Q1: Do you agree the correction on the unit description of D2.3 as given above?**

|  |  |  |
| --- | --- | --- |
| Company | Agree as is;Agree with changes;Disagree | Detailed Comments |
| Ericsson | Agree with changes |  |
| ZTE | Disagree | According to latest 28.552 as attached below, the unit is actually 0.1 ms.---------------------------------------- 28.552 g70-----------------------------------5.1.3.3.2 Average delay DL on F1-Ua) This measurement provides the average (arithmetic mean) GTP packet delay DL on the F1-U interface. The measurement is optionally split into subcounters per QoS level (mapped 5QI or QCI in NR option 3) and subcounters per S-NSSAI.b) DER (n=1)c) This measurement is obtained as: the time when receiving a GTP packet delivery status message from the gNB-DU at the egress GTP termination, minus time when sending the same packet to gNB-DU at the GTP ingress termination, minus feedback delay time in gNB-DU, obtained result is divided by two. Separate counters are optionally maintained for each mapped 5QI (or QCI for option 3) and for each S-NSSAI.d) Each measurement is a real representing the mean delay in 0.1 millisecond. The number of measurements is equal to one. If the optional QoS level measurement is perfomed, the number of measurements is equal to the number of mapped 5QIs. ---------------------------------------- 28.552 g70----------------------------------- |
| CATT | Agree |  |
| vivo | Disagree | It is true that the unit of D2.3 is updated to 0.1ms in the latest 28.552, therefore no need to make such a change in TS 38.314. |
| Huawei, HiSilicon | Disagree | 0.1ms granularity is sufficient for Rel-16. |
| Nokia, Nokia Shanghai Bell | Disagree | We share the same view as ZTE and vivo. Units are in sync |
| Sharp | Disagree | 0.1ms in current spec is correct in our understanding. |
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**Conclusion: Please refer to section 3.4.**

## 3.2 On the parameter description for Packet Uu Loss Rate

The contribution [2] claims that Packet loss rate measurement in the UL per DRB per UE is calculated as number of lost packets per transmitted DRB \* 106 (as defined in TS 28.552), thus the unit for packet loss rate in the DL per DRB per UE should also be number of lost packets per DRB (instead of transmitted packets) \* 106, Integer.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 4.2.1.5.1-2: Parameter description for Packet Uu Loss Rate in the DL per DRB per UE

|  |  |
| --- | --- |
| $$M(T,drbid)$$ | Packet Loss Rate in the DL per DRB per UE. Unit: number of lost packets per transmitted DRB \* 106, Integer.  |
| $$Dloss(T,drbid)$$ | Number of DL packets, of a data radio bearer with DRB Identity = $drbid$, for which at least a part has been transmitted over the air but not positively acknowledged, and it was decided during time period $T$ that no more transmission attempts will be done. If transmission of a packet might continue in another cell, it shall not be included in this count. |
| $$N(T,drbid)$$ | Number of DL packets, of a data radio bearer with DRB Identity = $drbid$, which has been transmitted over the air and positively acknowledged during time period $T$.  |
| $$T$$ | Time Period during which the measurement is performed, Unit: minutes. |
| $$drbid$$ | The identity of the measured DRB. |

 |

**Q2: Do you agree the correction on the parameter description for Packet Uu Loss Rate as given above?**

|  |  |  |
| --- | --- | --- |
| Company | Agree as is;Agree with changes;Disagree | Detailed Comments |
| Ericsson | Disagree (or agree with further changes)  | The proposed change is not correct as this gives the wrong interpretation possibilities. Consider the case when two DRBs were set up for a UE. Then the number of transmitted DRB is 2. So, if there were 100 packets transmitted, then it gives the impression that the unit if (100/2)= 50. We believe the intention of the proposal is to capture ‘per DRB’ component. In that case, we propose further changes.Unit: number of lost packets per transmitted packets per DRB \* 106We are also fine to not modify anything as the first part of the description already includes the ‘per DRB’ part. |
| ZTE | Agree with Ericsson’s clarification |  |
| CATT | Disagree | It has been clearly stated in the spec that the definition of *M(T,drbid)* is Packet Loss Rate in the DL per DRB per UE. Then there should be no ambiguity about the unit. |
| vivo | Agree with Ericsson’s clarification | [Proponent], our intention is to make the text clearer, as the original text ‘number of lost packets per transmitted packets’ might be confusing, we agree with the change proposed by Ericsson, but are also ok to not changing anything if it is the majority view. |
| Huawei, HiSilicon | Agree with Ericsson’s clarification |  |
| Nokia, Nokia Shanghai Bell | Agree with further changes |  |
| Sharp | Disagree  | Current statement in the spec is clear enough. |
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**Conclusion: Please refer to section 3.4.**

## 3.3 Editorial issues

There are several editorial modifications in [2], they are listed as follows:

1. To align the parameter description with the definition of the L2 measurements by adding ‘per cell’. One of the examples is shown below:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 4.2.1.3.2-2: Parameter description for Mean number of Active UEs in the DL per DRB per cell

|  |  |
| --- | --- |
| $$M(T,drbid,p)$$ | Mean number of Active UEs in the DL per DRB per cell, averaged during time period $T$. Unit: 0.1. |
| $$N(i,drbid)$$ | Number of UEs for which there is data available for transmission for the DL in MAC or RLC protocol layers for a Data Radio Bearer of traffic class at sampling occasion $i$.Data available for transmission includes data for which HARQ transmission has not yet terminated. |
| $$i$$ | Sampling occasion during time period $T$. A sampling occasion shall occur once every $p$ seconds. |
| $$p$$ | Sampling period length. Unit: second. The sampling period shall be at most 0.1 s. |
| $$I(T,p)$$ | Total number of sampling occasions during time period $T$.  |
| $$T$$ | Time Period during which the measurement is performed, Unit: second. |
| $$drbid$$ | The DRBs mapped with the same 5QI for NR SA or mapped with the same QCI for EN-DC. |

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1. Add the reference index to TS 28.552.

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| 4.2.1.6 Other measurements defined in TS 28.552 [2]The granularity for PDCP SDU Data Volume measurement defined in TS 28.552 [2] is per DRB per UE.The granularity for Average UE throughput measurement defined in TS 28.552 [2] is per UE and per DRB per UE.PRB usage measurements are defined in TS 28.552 [2], i.e. DL/UL Total PRB Usage, Distribution of DL/UL Total PRB Usage. M(T), M1(T), P(T) are measured per cell. P(T) is the total available PRBs for this cell. M1(T) is the PRBs used for traffic transmission in this cell. Counting unit for PRB usage measurement is 1 Resource Block x 1 symbol. (1 Resource Block = 12 sub-carrier). |

**Q3: Do you agree the above editorial changes in R2-2100694 [2]?**

|  |  |  |
| --- | --- | --- |
| Company | Agree as is;Agree with changes;Disagree | Detailed Comments |
| Ericsson | Agree  |  |
| ZTE | Agree |  |
| CATT | Agree |  |
| vivo | Agree | [proponent] |
| Huawei, HiSilicon | Agree |  |
| Nokia, Nokia Shanghai Bell | Agree |  |
| Sharp | Agree  |  |
|  |  |  |
|  |  |  |

**Conclusion: Please refer to section 3.4.**

## 3.4 Conclusion

Q1: This change is technically incorrect (the unit of D2.3 is updated to 0.1ms in the latest TS 28.552), thus the correction is not needed.

Q2: The majority (5/7) agrees that the correction could be agreed with the revision change proposed by one company, that is to change ‘number of lost packets per transmitted packets \* 106’ to ‘number of lost packets per transmitted packets per DRB \* 106’.

Q3: All companies agree the editorial changes.

Based on the summary for Q1~Q3, the rapporteur proposes:

1. The CR in R2-2100694 is agreed in the revision R2-2102132 with the following changes:

a) remove the correction to the unit of D2.3;

b) change ‘number of lost packets per transmitted packets \* 106’ to ‘number of lost packets per transmitted packets per DRB \* 106’.

# 4 Conclusion

1. The CR in R2-2100694 is agreed in the revision R2-2102132 with the following changes:

a) remove the correction to the unit of D2.3;

b) change ‘number of lost packets per transmitted packets \* 106’ to ‘number of lost packets per transmitted packets per DRB \* 106’.

# 5 References

[1] R2-113-e SONMDT HuNan 2021-01-25-0730 UTC.docx

[2] R2-2100694, Miscellaneous corrections to TS 38.314, vivo, 3GPP TSG-RAN WG2 Meeting #113 electronic, 25th Jan – 5th Feb 2021