**3GPP TSG-SA5 Meeting #154 *S5-242024d1***

**Changsha, China, 15 -19 April 2024**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **28.552** | **CR** | **0555** | **rev** |  | **Current version:** | **18.6.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Rel-19 CR 28.552 Add measurement for DL packet loss on Uu with delay threshold in RAN | | | | | | | | | |
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| ***Source to WG:*** | China Unicom, China Telecomunication Corp. | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
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| ***Work item code:*** | PM\_KPI\_5G\_Ph4 | | | | |  | ***Date:*** | | | 2024-04-07 |
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| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | There are two measurements on packets loss in clause 4.2.1.5 inTS 38.314. Measurement in 4.2.1.5.1, “Packet Uu Loss Rate in the DL per DRB per UE” , is defined for non-delay critical scenario and measurement in 4.2.1.5.2 , “Packet Uu Loss Rate with delay threshold in the DL per DRB per UE” is for delay critical scenario. In Release 18, “5.1.1.35 DL Packet Loss rate on Uu” is introduced by SA5 in TS 28.552 based on measurement defined in clause 4.2.1.5.1 in TS 38.314. After that, in order to solve the issue that delayed packets are not counted in current measurement in delay critical service, RAN2 has intoduced “4.2.1.5.2 Packet Uu Loss Rate with delay threshold in the DL per DRB per UE” in TS 38.314 as a compensation to the existing packet loss rate measurement. The new measurement is used to define the packet loss rate especially for delay critical service so as to cover all the application scenario.  In order to ensure the packets loss measurements in TS 28.552 cover all the application scenario, it’s improtant to introduce the measurement on DL packet loss rate on Uu with delay threshold to TS 28.552. | | | | | | | | |
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| ***Summary of change:*** | | Add a new measurement on DL packet loss rate with delay threshold on Uu inter face to cover all the application scenario. | | | | | | | | |
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| ***Consequences if not approved:*** | |  | | | | | | | | |
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| ***Clauses affected:*** | | 5.1.1.35 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
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| ***Other comments:*** | |  | | | | | | | | |
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| ***This CR's revision history:*** | |  | | | | | | | | |

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| **1st Change** |

#### 5.1.1.35.x DL Packet Loss rate with delay threshold on Uu

a) This measurement provides the DL Packet (i.e., RLC SDU) Loss rate including any packets not successfully transmitted or packets successfully received but delayed more than a delay threshold that can be used when the resource type of corresponding QoS Flow is Delay-critical GBR (clause 5.7.3.4 in TS 23.501 [4]) on Uu interface for an NR cell. The measurement is split into subcounters per PLMN ID per QoS level (mapped 5QI or QCI in NR option 3) and per supported S-NSSAI.

b) CC.

c) This measurement is obtained based on the following parameters defined in TS 38.314 [29]:

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|  | Number of DL packets, of a data radio bearer with DRB Identity = , for which at least a part has been transmitted over the air but not positively acknowledged, and it was decided during time period 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. |
|  | Number of DL packets, of a data radio bearer with DRB Identity = , for which is transmitted over air interface and positively acknowledged but the DL delay of the RLC SDU is more than corresponding delay threshold during time period T.  The DL delay of a RLC SDU is calculated as defined in clause 5.1.1.1.1 as follows "point in time when the last part of an RLC SDU packet was sent to the UE which was consequently confirmed by reception of HARQ ACK from UE for UM mode or point in time when the last part of an RLC SDU packet was sent to the UE which was consequently confirmed by reception of RLC ACK for AM mode, minus time when corresponding RLC SDU part arriving at MAC layer".  Delay threshold of this measurement can be determined by NW implementation (e.g. configured by OAM). |
|  | Number of DL packets, of a data radio bearer with DRB Identity = , which has been transmitted over the air and positively acknowledged and delayed no more than the corresponding delay threshold during time period .  The delay threshold is as defined in NOTE. |
|  | Time Period during which the measurement is performed, Unit: minutes. |
|  | The identity of the measured DRB. |

The gNB takes the following calculation for each PLMN ID per mapped 5QI and per supported S-NSSAI:

d) Each measurement is an integer value. The number of measurements is equal to the number of PLMNs multiplied by the number of QoS levels or multiplied by the number of supported S-NSSAIs.

e) DRB.PacketLossRateWithDelayThresholdUu.*Filter*,   
Where *Filter* is a combination of PLMN ID and QoS level and S-NSSAI.   
The QoS level represents the mapped 5QI or QCI.

f) NRCellDU

g) Valid for packet switched traffic.

h) 5GS.

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| **End of Change** |