**3GPP TSG-SA5 Meeting #141-e  *S5-221450rev3***

**e-meeting, 17th Jan 2022 - 26th Jan 2022**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  | **28.552** | **CR** | **0360** | **rev** | **-** | **Current version:** | **17.5.0** |  |
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| *For* [***HELP***](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 | **X** |

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| ***Title:***  | Rel-17 CR TS 28.552 Adding new packets based performance measurements |
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| ***Source to WG:*** | Harman GmbH |
| ***Source to TSG:*** | SA5 |
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| ***Work item code:*** | ePM\_KPI\_5G |  | ***Date:*** | 2022-01-07 |
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| ***Category:*** | **B** |  | ***Release:*** | Rel-17 |
|  | *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 canbe 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:*** | These performance measurements are introduced for obtaining packet success rate for non-split gNB for Uu interface and for obtaining DL GTP packets loss for N3 interface. It also introduces packet success rate as a PM which is required for Reliability KPI’s accurate calculation in TS 28.554. |
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| ***Summary of change:*** | One PM related to packets over N3 interface and one related to packets over Uu interface are introduced for facilitating operators to monitor packet success rate and loss rate and to use these further for calculating Reliability KPI in their 5G network. |
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| ***Consequences if not approved:*** | Packet success rate based measurement will not happen over Uu and GTP packets loss measurement will not happen in DL for N3 and Reliability KPI can not be calculated. Inaccurate measurement in DL over N3 will continue.Also corresponding per S-NSSAI measurement will not be possible. |
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| ***Clauses affected:*** | Clause no. 5.1.1,new clause 5.1.1.33 5.4.1.2 and 5.1.2 and new clause 5.1.2.2 |
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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 28.554 CR ...  |
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| ***Other comments:*** |  |
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| ***This CR's revision history:*** |  |

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| **First change** |

5.1.1 Performance measurements valid for all gNB deployment scenarios

5.1.1.32 SINR measurement

a) This measurement provides the distribution of SS-SINR received by gNB from UEs in the cell. The periodical UE measurement reports towards all of the UEs need to be triggered by gNB in the measured New Radio cell (See in TS 38.331[20]).

b) CC.

c) This measurement is obtained by incrementing the appropriate measurement bin using measured quantity value (See Table 10.1.16.1-1 in TS 38.133 [35]) when a SINR value is reported by a UE when *sinr* is used for *MeasQuantityResults* IE that is in *resultsSSB-Cell* IE within the *measResult* IE as configured by *MeasurementReport* configurations as defined in TS 38.331 [20].

d) A set of integer.

e) MR.NRScSSSINR.BinX

where X represents the range of Measured quantity SS-SINR value (-23 to 40 dB)

NOTE: Number of bins and the range for each bin is left to implementation.

f) NRCellCU

g) Valid for packet switched traffic

h) 5GS

5.1.1.33 Incoming GTP Data Packet Loss in gNB over N3

a) This measurement provides the number of GTP data packets which are not successfully received at gNB over N3 after being sent by UPF. It is a measure of the incoming GTP data packet loss per N3 interface. The measurement is split into subcounters per QoS level (5QI) and subcounters per supported S-NSSAI.

b) CC.

c) This measurement is obtained by a counter: Number of missing incoming GTP sequence numbers (TS 29.281 [42]) among all GTP packets delivered by a UPF to a gNB per N3 interface. The separate subcounter can be maintained for each 5QI or for each GTP tunnel identified by TEID or for each supported S-NSSAI

d) Each measurement is an integer value representing the lost GTP packets.. If the QoS level measurement is perfomed, the measurements are equal to the number of 5QIs. If the optional S-NSSAI subcounter measurements are performed, the number of measurements is equal to the number of supported S-NSSAIs.

e) The measurement name has the form GTP.InDataPktPacketLossN3gNB or GTP.InDataPktPacketLossN3gNB.QoSwhere QoS identifies the target quality of service class or GTP.InDataPktPacketLossN3gNB.*SNSSAI*, where *SNSSAI* identifies the S-NSSAI.

f) EP\_NgU (contained by GNBCUUPFunction)

g) Valid for packet switched traffic.

 h) 5GS.

 i) One usage of this measurement is for performance assurance within integrity area (user plane connection quality) and for reliability KPI.

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| **Next change** |

5.1.2 Performance measurements valid only for non-split gNB deployment scenario

5.1.2.1 PDCP Data Volume

5.1.2.2 Packet Success Rate

5.1.2.2.1 UL PDCP SDU Success Rate

a) This measurement provides the fraction of PDCP SDU packets which are successfully received at gNB. It is a measure of the UL packet delivery success including any packet success in the air interface and in the gNB. Only user-plane traffic (DTCH) and only PDCP SDUs that have entered PDCP (and given a PDCP sequence number) are considered. The measurement is optionally split into subcounters per QoS level (mapped 5QI or QCI in NR option 3), and subcounters per supported S-NSSAI.

b) SI.

c) This measurement is obtained as: Number of successfully received UL PDCP sequence numbers, representing packets that are successfully delivered to higher layers, of a data radio bearer, divided by Total number of UL PDCP sequence numbers of a bearer, starting from the sequence number of the first packet delivered by UE PDCP to gNB until the sequence number of the last packet. Separate counters are optionally maintained for mapped 5QI (or QCI for NR option 3) and per supported S-NSSAI.

d) Each measurement is an integer value representing the success rate. The number of measurements is equal to one. If the optional QoS and S-NSSAI level measurements are performed, the measurements are equal to the number of mapped 5QIs or the number of supported S-NSSAIs.

e) The measurement name has the form DRB.PacketSuccessRateUlgNBUu and optionally DRB.PacketSuccessRateUlgNBUu.*QOS* where *QOS* identifies the target quality of service class, and DRB.PacketSuccessRateUlgNBUu.*SNSSAI* where *SNSSAI* identifies the S-NSSAI.

f) NRCellCU

g) Valid for packet switched traffic.

h) 5GS.

i) One usage of this measurement is for performance assurance within integrity area (user plane connection quality) and for reliability KPI.

Note : NRCellCU in non-split NG-RAN deployment scenarios represents NRCell.

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| **End of change** |