**3GPP TSG-SA5 Meeting #129e *S5-201332rev1***

**e-meeting, 24 February – 4 March 2020**

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| *CR-Form-v11.4* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **28.552** | **CR** | 0195 | **rev** | **1** | **Current version:** | **16.4.0** |  |
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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:*** | Modify Packet Delay measurements | | | | | | | | | |
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| ***Source to WG:*** | ZTE | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_SLICE\_ePA | | | | |  | ***Date:*** | | | 2020/2/10 |
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| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
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| ***Reason for change:*** | | 1. The RLC SDU delay is measured by RLC layer, if RLC SDU split into segments schedule to MAC layer, the delay between first segment and last second segment will be missed.  2. In non-split gNB deployment scenario, operator still needs to monitor the total delay RLC layer to UE HARQ ACK and RLC ACK (AM mode). | | | | | | | | |
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| ***Summary of change:*** | | Modify Average delay DL air-interface measurement name and definition | | | | | | | | |
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| ***Consequences if not approved:*** | | Delay of Average delay DL air-interface is not accuracy. | | | | | | | | |
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| ***Clauses affected:*** | | 5.1.1.1.1,5.1.1.1.2 | | | | | | | | |
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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 ... CR ... | | |
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| ***Other comments:*** | |  | | | | | | | | |

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| **1st modified section** |

# 5 Performance measurements for 5G Network Functions

## 5.1 Performance measurements for gNB

### 5.1.1 Performance measurements valid for all gNB deployment scenarios

#### 5.1.1.1 Packet Delay

##### 5.1.1.1.1 Average delay of DL RLC SDU in DU

a) This measurement provides the average (arithmetic mean) time it takes to get a response back on a HARQ transmission in the downlink direction. 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: sum of (time when the last part of an RLC SDU packet was received by the UE according to received HARQ feedback information for UM mode or time when the last part of an RLC SDU packet was received by the UE according to received RLC ACK for AM mode, minus time on arrival of the same packet at the RLC ingress F1-U termination) divided by total number of RLC SDUs transmitted to UE successfully. Separate counters are optionally maintained for each mapped 5QI (or QCI for option 3) and for each S-NSSAI.

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 subcounters and S-NSSAI subcounters are perfomed, the number of measurements is equal to the sum of number of mapped 5QIs and the number of S-NSSAIs.

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

f) NRCellDU

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).

##### 5.1.1.1.2 Distribution of delay DL RLC SDU in DU

a) This measurement provides the distribution of the time it takes to get a response back on a HARQ transmission in the downlink direction. The measurement is split into subcounters per QoS level (mapped 5QI or QCI in NR option 3) and subcunters per S-NSSAI.

b) DER (n=1)

c) This measurement is obtained by 1) calculating the DL delay for an RLC SDU packet by: the time when the last part of an RLC SDU packet was received by the UE according to received HARQ feedback information, minus the time when time on arrival of the same packet at the RLC ingress F1-U termination; and 2) incrementing the corresponding bin with the delay range where the result of 1) falls into by 1 for the subcounters per QoS level (mapped 5QI or QCI in NR option 3) and subcunters per S-NSSAI. .

d) Each measurement is an integer representing the number of RLC SDU packets measured with the delay within the range of the bin.

e) DRB.AirIfDelayDist.*Bin*.*QOS,* where *QOS* identifies the target quality of service class, and *Bin* indicates a delay range which is vendor specific;  
DRB.AirIfDelayDist.*Bin*.*SNSSAI,* where *SNSSAI* identifies the S-NSSAI, and *Bin* indicates a delay range which is vendor specific.

f) NRCellDU

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).

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| **End of modifications** |