**3GPP TSG-SA5 Meeting #130e *S5-202045***

**e-meeting 20-28 April 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **28.552** | **CR** | **0211** | **rev** | **-** | **Current version:** | **16.5.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | TS 28.552 update the measurements related to the delay of DL air-interface | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_SLICE\_ePA | | | | |  | ***Date:*** | | | 2020-04-07 |
|  |  | | | |  | |  | | |  |
| ***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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The end time point to calculate the average delay DL air-interface in TS 28.552 is the “last part of an RLC SDU packet was received by the UE”, however, the gNB is not able to aware of this time point. So the current definition is not correct.  Besides, the precision of the packet delay is not aligned with RAN2. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Correct the definition of the average delay DL air-interface. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The measurement of average delay DL air-interface can not be measured. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.1.1.1.1, 5.1.1.1.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

|  |
| --- |
| **1st of Changes** |

##### 5.1.1.1.1 Average delay DL air-interface

a) This measurement provides the average (arithmetic mean) time it takes for packet transmission over the air-interface 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 (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) 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 0.1 millisecond. 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

|  |
| --- |
| **2nd of Changes** |

##### 5.1.1.1.2 Distribution of delay DL air-interface

a) This measurement provides the distribution of the time it takes for packet transmission over the air-interface 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: point in the time when the last part of an RLC SDU packet was sent to the UE which was consequently confirmed by reception of HARQ ACK 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 the time when corresponding RLC SDU part arriving at MAC layer; 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. If the RLC SDU needs retransmission (for Acknowledged Mode) the delay will still include only one contribution (the original one) to this measurement.

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).

|  |
| --- |
| **End of Change** |