**3GPP TSG-SA5 Meeting #129-e *S5-201313***

**Online, 24th Feb 2020 - 4th Mar 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **28.552** | **CR** | **0193** | **rev** | **-** | **Current version:** | **16.4.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Update the latency related measurements | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | HUAWEI TECHNOLOGIES Co. Ltd. | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_SLICE\_ePA | | | | |  | ***Date:*** | | | 2020-02-14 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | Delay is of great importance for 5G network due to the emergence of diverse services,e.g., URLLC services. The average delay and the distribution of delay of DL air-interface are captured in TS 28.552. The description of the measure of DL air-interface in this two measurement are a little bit different which should be aligned. In addition, the descriptions of start point time and end point time are not clear eough which may leads confusion when performing the delay counting. The CR rewords the defintions of DL air-interface delay related measurements. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The DL air-interface delay related measurements are updated. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The DL air-interface delay of the 5G network will not be correctly 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 to get a reponse 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 (point in time when the last part of an RLC SDU packet was sent to UE which was consequently confirmed by reception of HARQ ACK from UE, 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 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

|  |
| --- |
| **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 to get a reponse 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: point in the time when the last part of an RLC SDU packet was sent to UE which was consequently confirmed by reception of HARQ ACK from UE, 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** |