**3GPP TSG- Meeting # *rev1***

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
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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:***  |  |
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| ***Source to WG:*** |  |
| ***Source to TSG:*** | S5 |
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| ***Work item code:*** |  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** |  |  | ***Release:*** |  |
|  | *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-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:*** | The measurement use multiple colors that not is allowed. |
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| ***Summary of change:*** |  The equation colors in 5.1.1.3.1 and 5.1.1.3.3 today “black and blue” (see the 28.552 document), it is now corrected. An editorial change. |
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| ***Consequences if not approved:*** | The document will have multiple colors, |
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| ***Clauses affected:*** | 5.1.1.3.1, 5.1.1.3.3 |
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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:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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| **1st modified section** |

#### 5.1.1.3 UE throughput

##### 5.1.1.3.1 Average DL UE throughput in gNB

a) This measurement provides the average UE throughput in downlink. This measurement is intended for data bursts that are large enough to require transmissions to be split across multiple slots. The UE data volume refers to the total volume scheduled for each UE regardless if using only primary- or also supplemental aggregated carriers. 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) DER(N=1)

c) This measurement is obtained according to the following formula based on the "ThpVolDl" and "ThpTimeDl" defined below. Separate counters are maintained for each mapped 5QI (or QCI for option 3) and for each supported S-NSSAI.

If , ×1000 [kbit/s]

If , 0 [kbit/s]

For small data bursts, where all buffered data is included in one initial HARQ transmission, , otherwise 

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| ThpTimeDl | The time to transmit a data burst excluding the data transmitted in the slot when the buffer is emptied. A sample of "ThpTimeDl" for each time the DL buffer for one DataRadioBearer (DRB) is emptied. |
|  | The point in time after T2 when data up until the second last piece of data in the transmitted data burst which emptied the RLC SDU available for transmission for the particular DRB was successfully transmitted, as acknowledged by the UE.  |
|  | The point in time when the first transmission begins after a RLC SDU becomes available for transmission, where previously no RLC SDUs were available for transmission for the particular DRB. |
|  | The RLC level volume of a data burst, excluding the data transmitted in the slot when the buffer is emptied. A sample for ThpVolDl is the data volume, counted on RLC SDU level, in kbit successfully transmitted (acknowledged by UE) in DL for one DRB during a sample of ThpTimeDl. (It shall exclude the volume of the last piece of data emptying the buffer). |

d) Each measurement is a real value representing the throughput in kbit per second. The number of measurements is equal to one. If the optional QoS level subcounter and S-NSSAI subcounter measurements are performed, the number of measurements is equal to the number of mapped 5QIs and the number of supported S-NSSAIs.

e) The measurement name has the form
DRB.UEThpDl, or optionally DRB.UEThpDl.*QOS,* where *QOS* identifies the target quality of service class, and DRB.UEThpDl.*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).

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| ***Next change*** |

##### 5.1.1.3.3 Average UL UE throughput in gNB

a) This measurement provides the average UE throughput in uplink. This measurement is intended for data bursts that are large enough to require transmissions to be split across multiple slots. The UE data volume refers to the total volume scheduled for each UE regardless if using only primary- or also supplemental aggregated carriers. 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) DER(N=1)

c) This measurement is obtained according to the following formula based on the "ThpVolUl" and "ThpTimeUl" defined below. Separate counters are maintained for each mapped 5QI (or QCI for option 3) and for each supported S-NSSAI.

If , ×1000 [kbit/s]

If , 0 [kbit/s]

For small data bursts, where all buffered data is included in one initial HARQ transmission otherwise:



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| ThpTimeUl | The time to transmit a data burst excluding the data transmitted in the slot when the buffer is emptied. A sample of "ThpTimeUl" for each time the UL buffer for one DataRadioBearer (DRB) is emptied. |
|  | The point in time when the data up until the second last piece of data in data burst has been successfully received for a particular DRB  |
|  | The point in time when transmission is started for the first data in data burst for a particular DRB. |
|  | The RLC level volume of a data burst, excluding the data transmitted in the slot when the buffer is emptied. A sample for ThpVolUl is the data volume counted on RLC SDU level in kbit received in UL for one DRB during a sample of ThpTimeUl, (It shall exclude the volume of the last piece of data emptying the buffer). |

d) Each measurement is a real value representing the throughput in kbit per second. The number of measurements is equal to one. If the optional QoS level subcounter and S-NSSAI subcounter measurements are performed, the number of measurements is equal to the number of mapped 5QIs and the number of supported S-NSSAIs.

e) The measurement name has the form
DRB.UEThpUl, or optionally DRB.UEThpUl.*QOS,* where *QOS* identifies the target quality of service class and DRB.UEThpUl.*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).

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| ***End of changes*** |