**3GPP TSG-SA5 Meeting #130e *S5-202275***

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

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **28.552** | **CR** | **0226** | **rev** | **-** | **Current version:** | **16.5.0** |  |
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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:*** | TS 28.552 editorial correction of TS 28.552 | | | | | | | | | |
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| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_SLICE\_ePA | | | | |  | ***Date:*** | | | 2020-04-07 |
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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:*** | | There are two section numbers of 5.1.1.2 and 5.1.1.3 in TS 28.552. And section 5.1.1.1 and the latter 5.1.1.3 are both belongs to the category of packet delay. | | | | | | | | |
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| ***Summary of change:*** | | .Correct the section numbers and allocat the packet delay between RAN and UPF to section 5.1.1.1 where is to capture packet delay. | | | | | | | | |
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| ***Consequences if not approved:*** | | The section number is not correct. | | | | | | | | |
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| ***Clauses affected:*** | | 5.1.1.1.X (new), 5.1.1.2, 5.1.1.3 | | | | | | | | |
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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 ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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| **1st of Changes** |

#### 5.1.1.1.X DL packet delay between NG-RAN and PSA UPF

##### 5.1.1.1.X.1 Average DL GTP packet delay between PSA UPF and NG-RAN

a) This measurement provides the average DL GTP packet delay between PSA UPF and NG-RAN. This measurement is split into subcounters per 5QI and subcounters per S-NSSAI. This measurement is only applicable to the case the PSA UPF and NG-RAN are time synchronised.

b) DER (n=1).

c) The measurement is obtained by the following method:

The UPF samples the GTP packets for QoS monitoring based on the policy provided by OAM or SMF.

NOTE: The sampling rate may vary for different S-NSSAI and different 5QIs, and the specific sampling rate is up to implementation unless given by the QoS monitoring policy.

For each DL GTP PDU (packet i) encapsulated with QFI, TEID, and QMP indicator for QoS monitoring, the gNB records the following time stamps and information (see 23.501 [4] and 38.415 [31]):

- T1 received in the GTP-U header indicating the local time that the DL GTP PDU was sent by the PSA UPF;

- T2 that the DL GTP PDU was received by NG-RAN;

- The 5QI and S-NSSAI associated to the DL GTP PDU.

The gNB counts the number (N) of DL GTP PDUs encapsulated with QFI, TEID, and QMP indicator for each 5QI and each S-NSSAI respectively, and takes the following calculation for each 5QI and each S-NSSAI:

d) Each measurement is a real representing the average delay in microseconds.

e) GTP.DelayDlPsaUpfNgranMean.*5QI, where 5QI* identifies the 5QI;   
GTP.DelayDlPsaUpfNgranMean.*SNSSAI, where SNSSAI* identifies the S-NSSAI.

f) EP\_N3 (contained by GNBCUUPFunction).

g) Valid for packet switched traffic.

h) 5GS.

##### 5.1.1.1.X.2 Distribution of DL GTP packet delay between PSA UPF and NG-RAN

a) This measurement provides the distribution of DL GTP packet delay between PSA UPF and NG-RAN. This measurement is split into subcounters per 5QI and subcounters per S-NSSAI. This measurement is only applicable to the case the PSA UPF and NG-RAN are time synchronised.

b) DER (n=1).

c) The measurement is obtained by the following method:

The UPF samples the GTP packets for QoS monitoring based on the policy provided by OAM or SMF.

NOTE: The sampling rate may vary for different S-NSSAI and different 5QIs, and the specific sampling rate is up to implementation unless given by the QoS monitoring policy.

For each DL GTP PDU (packet i) encapsulated with QFI, TEID, and QMP indicator for QoS monitoring, the gNB records the following time stamps and information (see 23.501 [4] and 38.415 [31]):

- T1 received in the GTP-U header indicating the local time that the DL GTP PDU was sent by the PSA UPF;

- T2 that the DL GTP PDU was received by NG-RAN;

- The 5QI and S-NSSAI associated to the DL GTP PDU.

The gNB 1) takes the following calculation for each DL GTP PDU (packet i) encapsulated with QFI, TEID, and QMP indicator for each 5QI and each S-NSSAI respectively, and 2) increment the corresponding bin with the delay range where the result of 1) falls into by 1 for the subcounters per 5QI and subcounters per S-NSSAI.

d) Each measurement is an integer representing the number of GTP PDUs measured with the delay within the range of the bin.

e) GTP.DelayDlPsaUpfNgranDist.*5QI*.*Bin,* Where *Bin* indicates a delay range which is vendor specific, and *5QI* identifies the 5QI;   
GTP.DelayDlPsaUpfNgranDist.*SNSSAI.bin,* Where *Bin* indicates a delay range which is vendor specific, and *SNSSAI* identifies the S-NSSAI.

f) EP\_N3 (contained by GNBCUUPFunction).

g) Valid for packet switched traffic.

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| h) 5GS.**2th of Changes** |

##### 5.1.1.23 Number of Active UEs

##### 5.1.1.23.1 Number of Active UEs in the DL per cell

a) This measurement provides the mean number of active DRBs for UEs in an NRCellDU. The measurement is optionally split into subcounters per QoS level (mapped 5QI or/and QCI in NR option 3) and subcounters per S-NSSAI.

b) DER (n=1).

c) This measurement is defined according to measurement "Mean number of Active UEs in the DL per QoS level per cell" in TS 38.314 [29]. Separate counters are optionally maintained for each mapped 5QI (or/and QCI for option 3) and for each S-NSSAI.

d) The number of measurements is equal to one. If the optional QoS level measurement is perfomed, the number of measurements is equal to the number of mapped 5QIs (or/and number of QCI for option 3), and the number of S-NSSAIs.

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

##### 5.1.1.23.2 Max number of Active UEs in the DL per cell

a) This measurement provides the max number of active DRBs for UEs in an NRCellDU. The measurement is optionally split into subcounters per QoS level (mapped 5QI or/and QCI in NR option 3) and subcounters per S-NSSAI.

b) DER (n=1).

c) This measurement is defined according to measurement "Max number of Active UEs in the DL per QoS level per cell" in TS 38.314 [29]. Separate counters are optionally maintained for each mapped 5QI (or/and QCI for option 3) and for each S-NSSAI.

d) The number of measurements is equal to one. If the optional QoS level measurement is perfomed, the number of measurements is equal to the number of mapped 5QIs (or/and number of QCI for option 3), and the number of S-NSSAIs.

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

##### 5.1.1.23.3 Number of Active UEs in the UL per cell

a) This measurement provides the mean number of active DRBs for UEs in an NRCellDU. The measurement is optionally split into subcounters per QoS level (mapped 5QI or/and QCI in NR option 3) and subcounters per S-NSSAI.

b) DER (n=1)

c) This measurement is defined according to measurement "Mean number of Active UEs in the UL per QoS level per cell" in TS 38.314 [29]. Separate counters are optionally maintained for each mapped 5QI (or/and QCI for option 3) and for each S-NSSAI.

d) The number of measurements is equal to one. If the optional QoS level measurement is perfomed, the number of measurements is equal to the number of mapped 5QIs (or/and number of QCI for option 3), and the number of S-NSSAIs.

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

##### 5.1.1.23.4 Max number of Active UEs in the UL per cell

a) This measurement provides the max number of active DRBs for UEs in an NRCellDU. The measurement is optionally split into subcounters per QoS level (mapped 5QI or/and QCI in NR option 3) and subcounters per S-NSSAI.

b) DER (n=1)

c) This measurement is defined according to in RAN specification [x], measurement "Max number of Active UEs in the UL per QoS level per cell" in TS 38.314 [29]. Separate counters are optionally maintained for each mapped 5QI (or/and QCI for option 3) and for each S-NSSAI.

d) The number of measurements is equal to one. If the optional QoS level measurement is perfomed, the number of measurements is equal to the number of mapped 5QIs (or/and number of QCI for option 3), and the number of S-NSSAIs.

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