**3GPP TSG- Meeting #**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
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| *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)*.* |
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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 |
|  |  |
| ***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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | The number of the active UEs for each mapped 5QI per PLMN ID and for each S-NSSAI per PLMN ID is a valuable measurement for operators to know how many DRBs are running with buffered data per cell, especially in multi-operator RAN sharing scenario. |
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| ***Summary of change:*** | Adding PLMN granularity for number of active UEs measurements. |
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| ***Consequences if not approved:*** | Imcomplete granularity potentially affects the diagnosis of network problems. |
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| ***Clauses affected:*** | 5.1.1.23, A.60 |
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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 change** |

#### 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 calculated per PLMN ID andper QoS level (mapped 5QI or/and QCI in NR option 3) and per supported 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]. The measurement is performed per PLMN ID and per QoS level (mapped 5QI or/and QCI in NR option 3) and per supported S-NSSAI.

d) Each measurement is a single integer value. The number of measurements is equal to the number of PLMNs multiplied by the number of QoS levels or multiplied by the number of supported S-NSSAIs.
[Total No. of measurement instances] x [No. of filter values for all measurements] (DL and UL) ≤ 100.

e) The measurement name has the form DRB.MeanActiveUeDl\_Filter,
Where filter is a combination of *PLMN ID* and *QoS* level and *S-NSSAI*.
Where *PLMN ID* represents the PLMN ID, *QoS* representes the mapped 5QI or/and QCI level, and *SNSSAI* represents 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 calculated per PLMN ID and per QoS level (mapped 5QI or/and QCI in NR option 3) and per supported 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]. The measurement is performed per PLMN ID and per QoS level (mapped 5QI or/and QCI in NR option 3) and per supported S-NSSAI. d) Each measurement is a single integer value. The number of measurements is equal to the number of PLMNs multiplied by the number of QoS levels or multiplied by the number of supported S-NSSAIs.
[Total No. of measurement instances] x [No. of filter values for all measurements] (DL and UL) ≤ 100.

e) The measurement name has the form DRB.MaxActiveUeDl\_Filter,
Where filter is a combination of *PLMN ID* and *QoS* level and *S-NSSAI*.
Where *PLMN ID* represents the PLMN ID, *QoS* representes the mapped 5QI or/and QCI level, and *SNSSAI* represents 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 calculated per PLMN ID and per QoS level (mapped 5QI or/and QCI in NR option 3) and per supported 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]. The measurement is performed per PLMN ID and per QoS level (mapped 5QI or/and QCI in NR option 3) and per supported S-NSSAI. d) Each measurement is a single integer value. The number of measurements is equal to the number of PLMNs multiplied by the number of QoS levels or multiplied by the number of supported S-NSSAIs.
[Total No. of measurement instances] x [No. of filter values for all measurements] (DL and UL) ≤ 100.

e) The measurement name has the form DRB.MeanActiveUeUl\_Filter,
Where filter is a combination of *PLMN ID* and *QoS* level and *S-NSSAI*.
Where *PLMN ID* represents the PLMN ID, *QoS* representes the mapped 5QI or/and QCI level, and *SNSSAI* represents 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 calculated per PLMN ID and per QoS level (mapped 5QI or/and QCI in NR option 3) and per supported 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]. The measurement is performed per PLMN ID and per QoS level (mapped 5QI or/and QCI in NR option 3) and per supported S-NSSAI.

d) Each measurement is a single integer value. The number of measurements is equal to the number of PLMNs multiplied by the number of QoS levels or multiplied by the number of supported S-NSSAIs.
[Total No. of measurement instances] x [No. of filter values for all measurements] (DL and UL) ≤ 100.

e) The measurement name has the form DRB.MaxActiveUeUl\_Filter,
Where filter is a combination of *PLMN ID* and *QoS* level and *S-NSSAI*.
Where *PLMN ID* represents the PLMN ID, *QoS* representes the mapped 5QI or/and QCI level, and *SNSSAI* represents 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** |

# A.60Monitoring of the number of active UEs in NG-RAN

The number of the active UEs per direction in each cell is a valuable measurement for operators to know how many DRBs are running with buffered data per cell and QoS or S-NSSAI basis. For multi-operator RAN sharing scenario, PLMN basis is needed, too. This kind of information can help operators to tune the admission control parameters for the cell and to estimate load in neighbour cells, to ensure that the UEs admitted achieve the target QoS and that capacity is not over-estimated when distributing load between cells and gNBs.

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| **End of changes** |