**3GPP TSG-SA5 Meeting #132-e *S5-204116***

**Online, 17th Aug 2020 - 28th Aug 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **28.552** | **CR** | **0245** | **rev** | **-** | **Current version:** | **16.6.0** |  |
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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 | **x** |

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| ***Title:***  |  |
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| ***Source to WG:*** | China Telecom Corporation Ltd., Intel |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | ePM\_KPI\_5G |  | ***Date:*** | 2020-08-06 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-17 |
|  | *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:*** | Whether or not the RRC connection setup is successful has direct impact to the user’s experience. As mentioned in use case A.34, the statistics of specific reasons causing the failures are helpful to find out the problems and derive the solutions. Therefore, measurements for failed RRC establishment are needed. |
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| ***Summary of change:*** | Adding measurements for failed RRC establishment. |
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| ***Consequences if not approved:*** | Imcomplete measurements cannot support the corresponding use case of RRC connection setup failure analysis. |
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| ***Clauses affected:*** | 5.1.1.15.X (new), A.34 |
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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** |

#### 5.1.1.15 RRC connection establishment related measurements

##### 5.1.1.15.X Failed RRC connection establishments

a) This measurement provides the number of failed RRC establishments, this measurmenet is split into subcounters per failure cause.

b) CC

c) On transmission of *RRCReject* message from the gNB to UE or the expected *RRCSetupComplete* message was not received by the gNB from UE after the *RRCSetup message* (see TS 38.331 [20]). Each *RRCReject* message transmitted from gNB to UE is added to the subcounter for the cause ‘*NetworkReject*’; Each expected *RRCSetupComplete* message unreceived by the gNB after the *RRCSetup message* is added to the subcounter for cause ‘*NoReply*’; and each failed RRC connection establishment caused by the other reasons is added to measurement cause ‘*Other*’.

d) Each measurement is an integer value.

e) RRC.ConnEstabFailCause.*NetworkReject*RRC.ConnEstabFailCause.*NoReply*RRC.ConnEstabFailCause.*Other*

f) NRCellCU.

g) Valid for packet switched traffic.

h) 5GS

i) One usage of this performance measurements is for performance assurance within accessibility area.

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| **Next change** |

# A.34 Monitoring of RRC connection setup in NG-RAN

RRC connection setup is one of most important step to start delivering services by the networks to users, (see 3GPP TS 38.331 [20]).

Whether or not the RRC connection is successfully setup has direct impact to the user experience. A failed RRC connection setup may cause service failure or failure in updating tracking area information for an end user. So, the performance related to the RRC connection setup for the gNB needs to be monitored. This can be achieved by the calculation of RRC connection setup success (or failure) rate (number of successful (or failed) / number of attempt) which gives a direct view to evaluate the RRC connection setup performance, and the analysis of the specific reason causing the failure to find out the problem and ascertain the solutions.

Since the intended service is not yet know when establishing the RRC connection, it is not possible to do separation between QoS classes or S-NSSAIs.

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| **End of changes** |