**3GPP TSG-SA5 Meeting #154 *S5-241801***

**Changsha, Hunan Province, China, 15th Apr 2024 - 19th Apr 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **28.554** | **CR** | **0187** | **rev** | **-** | **Current version:** | **18.5.0** |  |
|  | | | | | | | | |
| *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:*** | Rel-19 CR TS 28.554 Reliability KPI in RAN with time constraint over Uplink air-interface | | | | | | | | | |
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| ***Source to WG:*** | Samsung R&D Institute UK | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | PM\_KPI\_5G\_Ph4 | | | | |  | ***Date:*** | | | 2024-04-07 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
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| ***Reason for change:*** | | Being Ultra-Reliable is a typical characteristic of a URLLC service, thus reliability is an important performance metric for a network/subnetwork that provides URLLC service. As for 5G network, it is the radio network, mainly the air interface that restricts the reliability and latency performance. So the requirements for performance management of radio sub-network providing URLLC services becomes important implying that the OAM system should have the capability of measuring reliability based on a specific time constraint (an allowed delay threshold in other words) in NG-RAN.  Since the existing measurements and KPIs in RAN, particularly over air-interface, can’t provide the reliability assessment based on a time constraint imposed by URLLC service, hence a new solution is required to be defined for same. | | | | | | | | |
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| ***Summary of change:*** | | Reliability KPI in RAN with time constraint over Uplink air-interface(Uu) is defined | | | | | | | | |
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| ***Consequences if not approved:*** | | Reliability KPI based on time constraint over Uu interface in a 5G network cannot be calculated for delay cricitcal URLLC services. URLLC service management will not be properly taking place. | | | | | | | | |
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| ***Clauses affected:*** | | 6.8.1.X | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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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| **First Change** |

6.8.1.X Reliability KPI in RAN with time constraint over Uplink air-interface(Uu)

a) RelPktsTCUL\_Uu

b) This KPI describes the packet transmission reliability considering a time constraint/delay threshold (as required for a service) in uplink over the air (Uu) interface in RAN. It is the percentage of MAC SDU packets/transport blocks that are transmitted over the air interface in uplink and successfully received within the required time constraint/delay threshold out of the total MAC SDU packets/transport blocks that are transmitted over air interface in uplink. It is a percentage value (%). This KPI can optionally be split into per QoS level (mapped 5QI or QCI in NR option 3) and per S-NSSAI.

c) Below is the equation for Reliability KPI in RAN with a time constraint/delay threshold in UL over Uu Interface.

RelPktsTCUL\_Uu = [DRB.AirIfDelayDistUL.Bin\_Filter ÷ I(T)] × 100 , where

I(T) is Total number of UL MAC SDUs and is as defined in Table 4.2.1.2.2-2 in TS 38.314 [12].

DRB.AirIfDelayDistUL.Bin\_Filter is as defined in TS 28.552 [6], clause 5.1.1.1.X.

d) NRCellDU

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| **End of Changes** |