**3GPP TSG-SA5 Meeting #137eS5-213111**

 **10 - 15 May 2021**

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| *CR-Form-v11.4* |
| **CHANGE REQUEST** |
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|  | **32.425** | **CR** | **0201** | **rev** | **-** | **Current version:** | **17.0.0** |  |
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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:***  | Add new measurement related to number of the normally released calls (QCI1 E-RAB) initiated by MME in RLF detected conditions. |
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| ***Source to WG:*** | Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | S5 |
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| ***Work item code:*** | 5G\_SLICE\_ePA |  | ***Date:*** | 2021-04-30 |
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| ***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:*** | The QCI1 E-RABs normally released on reception of the E-RAB Release Command message from MME with the RLF detected in the last predefined time interval (typical for scenario when Radio Link Failure occurs for the UE in source cell and RRC Connection Re-establishment attempt fails and UE does a new RRC Connection in a new cell when QCI1 E-RAB is re-established however, when MME realizes that it already has the same UE Context but from the source cell (it has not been released yet), the UE context from the source cell may be normally released by the MME) are recommended to be monitored via dedicated measurement as may help operator to further optimize the network from retainability and QoS perspective. It is because in such a case the end user may perceive it as not a drop but as a gap in provided services which may present a room for optimization from QoS perspective. |
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| ***Summary of change:*** | Addition of new measurement: Number of the normally released calls (QCI1 E-RAB) in RLF detected conditions. |
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| ***Consequences if not approved:*** | Customer is not aware of all sources degrading the retainability which prevents him to fully optimize the network. |
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| ***Clauses affected:*** | 4.2.2.x (new), A.2  |
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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:*** |  |

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| **1st Modified Section** |

#### 4.2.2.x Number of Normally Released Calls (QCI1 E-RAB) initiated by MME in RLF Detected Conditions

1. This measurement provides the number of the normally released calls (QCI1 E-RAB) initiated by MME in RLF detected conditions.

b) CC

c) The measurement is triggered on reception of E-RAB Release Command for QCI1 with “Cause” equal to “Normal Release” from MME in case RLF was detected (can be identified via running RLF timer) on eNB side for the QCI1 E-RAB within the last predefined time interval (e.g. 1 second).

d) Each measurement is an integer value.

e) The measurement name has the form QCI1ERAB.NormalCallRLF.

f) Cell

g) Valid for packet switched traffic

h) EPS

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| **End of Modified Section** |

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| **2nd Modified Section** |

# A2 Monitor of E-RAB release

E-RAB is the key and limited resource for E-UTRAN to deliver services. The release of the E-RAB needs to be monitored as:

- an abnormal release of the E-RAB will cause the call(/session) drop, which directly impacts the QoS delivered by the networks, and the satisfaction degree of the end user;

- a successfully released E-RAB can be used to setup other requested calls(/sessions). The E-RAB failed to be released will still occupy the limited resource and hence it can not be used to admit other requested calls(/sessions).

From a retainability measurement aspect, E-RABs do not need to be released because they are inactive, they can be kept to give fast access when new data arrives.

To define (from an E-RAB release measurement point of view) if an E-RAB is considered active or not, the E-RABs can be divided into two groups:

* 1. Continuous flow, E-RABs that are always considered active, i.e. independent of if there is ongoing traffic or not at the moment. Examples: VoIP sessions, Real-time sessions, Live streaming sessions.
	2. Bursty flow, E-RABs that are only considered active when there is data in UL/DL buffer.
	Example: Web sessions.

How to decide for a particular QCI if the E-RAB is of type bursty flow or continuous flow is outside the scope of this document.

The specific reason causing the abnormal and failed release of the E-RAB is required in order to find out the problem and ascertain the solutions. And due to different priority and tolerance for different service type with different OoS level in the networks, the monitor needs to be opened on each service type with OoS level.

The E-RAB can be released by E-RAB Release procedure (See 3GPP TS 36.413[9]) , UE Context Release procedure (See 3GPP TS 36.413[9] and 3GPP TS 36.423[10]) procedure, Reset procedure(See 3GPP TS 36.413[9]) either initiated by eNodeB or MM, Path Switch procedure (See 3GPP TS 36.413[9]) and Intra-eNB HO procedure (See 3GPP TS 36.331[8])E.

So performance measurements related to E-RAB Release (See 3GPP TS 36.413[9]) and UE Context Release (See 3GPP TS 36.413[9]) procedure for each service type with QoS level are necessary to support the monitor of E-RAB release.

It shall be noted that from quality point of view E-RAB drop or UE context drop of the same values maybe perceived differently by end user especially for VoIP services depending on the duration of the dropped call comparing to intended call duration when call would not be dropped. Having the E-RAB drop ratio of 90 % in two cells but in first cell there is a call that was dropped but its duration was 99% of intended call duration comparing to a dropped call with 40% of of intended call duration will for sure be perceived differently by end user. In the first case the end user with high probability will not follow with additional call request while in the second the end user with high probability will dial a second call to the same called party.

Therefore as an extended monitoring especially for VoIP sessions observation of the “Distribution of Normally Released Call (QCI1 E-RAB) Duration” and “Distribution of Normally Released Call (QCI1 E-RAB) Duration” and corresponding mean normally and abnormally released call (QCI1 E-RAB) duration measurements is recommended.

The QCI1 E-RABs normally released on reception of the E-RAB Release Command message from MME with the RLF detected on eNB side in the last predefined time interval are recommended to be monitored via dedicated measurement as may help operator to optimize the network from retainability perspective. It is because in such a case the end user may perceive it as not a drop but as a gap in provided services which may present a room for optimization from QoS perspective.

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| **End of Modified Section** |