**3GPP TSG-SA5 Meeting #132e *S5-204206***

**e-meeting 17th 28th August 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  | 28.552 | **CR** | 0255 | **rev** | 1 | **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:***  | ADD EPS fallback handover related Measurement |
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| ***Source to WG:*** |  ZTE |
| ***Source to TSG:*** | S5 |
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| ***Work item code:*** | ePM\_KPI\_5G |  | ***Date:*** | 2020/8/3 |
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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:*** | Under the constraints of UE and network coverage, EPS fallback is an important means to guarantee voice continuity. The measurement related to EPS fallback is helpful for evaluating voice continuity and for the operator's network planning and optimization.Restricted by the UE capability and network configuration, the EPS fallback supports the modes of handover and redirection. |
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| ***Summary of change:*** | Add EPS fallback handover related Measurement |
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| ***Consequences if not approved:*** | The measurement of voice-related indicators is incomplete. |
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| ***Clauses affected:*** | 5.1.1.6.3.X,5.1.1.6.3.Y,5.1.1.6.3.Z,5.1.1.6.3.A,5.1.1.6.3.B,A.x |
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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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| ***This CR's revision history:*** |  |

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| **1st modified section** |

###### 5.1.1.6.3.X Number of requested preparations for EPS fallback handovers

a) This measurement provides the number of EPS fallback preparations requested by the source gNB for the outgoing handovers from 5GS to EPS.

b) CC

c) Transmission of HANDOVER REQUIRED message containing the “Handover Type” IE set to “5GStoEPS” by the gNB-CU to the AMF after the source gNodeB sends the AMF a PDU Session modification response in which “PDUSessionResourceModifyUnsuccessfulTransfer” carries the failure cause "IMS voice EPS fallback or RAT fallback triggered" (see 3GPP TS 38.413 [11]) .

d) A single integer value.

e) MM.HoOut5gsToEpsFallbackPrepReq.

f) NRCellCU.

g) Valid for packet switched traffic.

h) 5GS.

###### 5.1.1.6.3.Y Number of successful preparations for EPS fallback handovers

a) This measurement provides the number of successful EPS fallback preparations received by the source gNB for the outgoing handovers from 5GS to EPS.

b) CC

c) Receipt of HANDOVER COMMAND message by the gNB-CU from the AMF,after the source gNodeB sends the AMF a PDU Session modification response in which “PDUSessionResourceModifyUnsuccessfulTransfer” carries the failure cause "IMS voice EPS fallback or RAT fallback triggered" (see 3GPP TS 38.413 [11]), for informing that the resources have been successfully prepared at the target E-Utran Cell for the EPS fallback handover from 5GS and EPS (see 3GPP TS 38.413 [11]).

d) A single integer value.

e) MM.HoOut5gsToEpsFallbackPrepSucc.

f) NRCellCU.

g) Valid for packet switched traffic.

h) 5GS.

###### 5.1.1.6.3.Z Number of failed preparations for EPS fallback handovers

a) This measurement provides the number of failed preparations received by the source gNB for the outgoing handovers from 5GS to EPS. This measurement is split into subcounters per failure cause.

b) CC

c) Receipt of HANDOVER PREPARATION FAILURE message by the gNB-CU from the AMF after the source gNodeB sends the AMF a PDU Session modification response in which “PDUSessionResourceModifyUnsuccessfulTransfer” carries the failure cause "IMS voice EPS fallback or RAT fallback triggered", for informing that the preparation of resources have been failed at the target E-Utran Cell for the handover from 5GS and EPS. Each received HANDOVER PREPARATION FAILURE message increments the relevant subcounter per failure cause by 1 (see 3GPP TS 38.413 [11]).

d) Each subcounter is an integer value.

e) MM.HoOut5gsToEpsFallbackPrepFail.*cause*

 Where *cause* identifies the failure cause of the handover preparations.

f) NRCellCU.

g) Valid for packet switched traffic.

h) 5GS.

###### 5.1.1.6.3.A Number of successful executions for EPS fallback handovers

a) This measurement provides the number of successful EPS fallback executions at the source gNB for handovers from 5GS to EPS.

b) CC

c) Receipt of UE CONTEXT RELEASE COMMAND message by the gNB-CU from AMF following a successful handover from 5GS to EPS,after the source gNodeB sends the AMF a PDU Session modification response in which “PDUSessionResourceModifyUnsuccessfulTransfer” carries the failure cause "IMS voice EPS fallback or RAT fallback triggered"(see 3GPP TS 38.413 [11]).

d) A single integer value.

e) MM.HoOutExe5gsToEpsFallbackSucc.

f) NRCellCU.

g) Valid for packet switched traffic.

h) 5GS.

###### 5.1.1.6.3.B Number of failed executions for EPS fallback handovers

a) This measurement provides the number of failed EPS fallback executions at the source gNB for handovers from 5GS to EPS. This measurement is split into subcounters per failure cause.

b) CC

c) Receipt of UE CONTEXT RELEASE COMMAND at the source gNB-CU from AMF indicating an unsuccessful handover from 5GS to EPS,after the source gNodeB sends the AMF a PDU Session modification response in which “PDUSessionResourceModifyUnsuccessfulTransfer” carries the failure cause "IMS voice EPS fallback or RAT fallback triggered". Each received message increments the relevant subcounter per failure cause by 1 (see 3GPP TS 38.413 [11]).

d) Each subcounter is an integer value.

e) MM.HoOutExe5gsToEpsFallbackFail.*cause.*

Where *cause* identifies the failure cause in the UE CONTEXT RELEASE COMMAND message.

f) NRCellCU.

g) Valid for packet switched traffic.

h) 5GS.

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| **Next modified section** |

# A.x Use case of EPS fallback monitor

Under the constraints of UE and network coverage, EPS fallback is an important means to guarantee voice continuity. Restricted by the UE capability and network configuration, the EPS fallback supports the modes of handover and redirection.The measurement related to EPS fallback is helpful for evaluating voice continuity and for the operator's network planning and optimization.

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| **End of modifications** |