**3GPP TSG-SA5 Meeting #132e *S5-204227rev1***

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

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **32.255** | **CR** | **0242** | **rev** | **1** | **Current version:** | **16.5.0** |  |
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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 |  | Core Network | **x** |

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| ***Title:*** | Add EPC/ePDG interworking procedures | | | | | | | | | |
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| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GIEPC\_CH | | | | |  | ***Date:*** | | | 2020-08-25 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-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:*** | | EPC and 5GS interworking referes to several scenarios mobility procedures between 5GC and EPC in TS 23.501. The interworking with EPC also includes the sceanrio interworking between ePDG connected to EPC and 5GS in clause 4.3.4 of TS 23.501 in release 15. EPC/ePDG interworking with 5GS procedures are missing in TS 32.255. The concequence of missing this description will have issues, for example when EPC/ePDG connection to PWG-C+SMF, the serving node should be provided as ePDG ( rather as SGW) in charging information and CDR.  For purpose to fix this problem, this contribution is to desribe the procedure and how to generate charging information when EPC/ePDG interworking with 5GS. Those may need to add serving network functionality (ePDG) in TS 32.255 and TS 32.291. | | | | | | | | |
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| ***Summary of change:*** | | Following interworking procedures (including required RAT type change and serving node change) are added in TS 32.255   * Handover from EPC/ePDG to 5GS * Handover from 5GS to EPC/ePDG | | | | | | | | |
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| ***Consequences if not approved:*** | | The charging for EPC/ePDG and 5GS interworking scenario is not covered in TS 32.255 and may result in an issue when implements. | | | | | | | | |
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| ***Clauses affected:*** | | 5.2.2.11.x (new), 5.2.2.11.y (new) | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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| **1st Change** |

5.2.2.11.x Handover from EPC/ePDG to 5GS

The following figure 5.2.2.11.x.1 describes a PDU session charging handover from EPC/ePDG to 5GS for non-roaming scenario based on clause 4.11.4.1 Handover from EPC/ePDG to 5GS of TS 23.502 [201].



Figure 5.2.2.11.x.1: PDU session charging handover from EPC/ePDG to 5GS

0. One or more PDN Connections have been established.

1. UE register to 5GC via NG RAN.

2. The UE initiates a UE requested PDU Session Establishment via 3GPP Access and includes the "Existing PDU Session" indication or "Existing Emergency PDU Session" and the PDU Session ID.

2ch-a. PGW-C+SMF sends Charging Data Request [Update] to CHF if required by "RAT type change" trigger.

2ch-b. The CHF updates for this PDU session

2ch-c. The CHF acknowledges by sending Charging Data Response [Update] to the PGW-C+SMF.

3. Step 10-14, in procedure of UE requested PDU Session Establishment.

4. The combined PGW+SMF/UPF initiates a PDN GW initiated Resource Allocation Deactivation to release the EPC and ePDG resources.

5.2.2.11.y Handover from 5GS to EPC/ePDG

The following figure 5.2.2.11.y.1 describes a PDU session charging handover from 5GS to EPC/ePDG based on clause 4.11.4.2 Handover from 5GS to EPC/ePDG in TS 23.502.



Figure 5.2.2.11.y.1: PDU session charging handover from 5GS to EPC/ePDG

1. One or more PDU Sessions have been established between the UE and the SMF/UPF via NG-RAN.
2. UE selects an ePDG.
3. Step A1 in procedure of the UE initiates a Handover Attach procedure.

2ch-a. PGW-C+SMF sends Charging Data Request [Update] to CHF if required by "RAT type change" trigger.

2ch-b. The CHF updates for this PDU session.

2ch-c. The CHF acknowledges by sending Charging Data Response [Update] to the PGW-C+SMF.

1. Step C1, in procedure of the UE initiates a Handover Attach procedure to the release of resources.
2. The combined PGW+SMF/UPF initiates a network requested PDU Session Release via 3GPP access.

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| **End of change** |