**3GPP TSG-SA3 Meeting #104-e *S3-212598***

**e-meeting, 16 - 27 August 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **33.501** | **CR** | **1159** | **rev** | **1** | **Current version:** | **17.2.1** |  |
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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 | **X** | Radio Access Network |  | Core Network | **X** |

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| ***Title:***  | Clarification on Kausf storage in multi-NAS connection |
|  |  |
| ***Source to WG:*** | Huawei, HiSilicon |
| ***Source to TSG:*** | S3 |
|  |  |
| ***Work item code:*** | TEI17 |  | ***Date:*** | 2021-08-16 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | If UE receives more than one authentication requests via different access types simultaneously and when the 5G-AKA is used in both accesses, then the currernt mechanism may lead to the misalignment of KAUSF storage at the UE side and the Network side. Because, processing the authentication challenges of 5G-AKA authentication method in sequence can only gurantee the network side sotres the KAUSF in sequence, i.e. the KAUSF corresponding to the second authentication request will be finally stored and used in the future. However, there is no mechanism to make sure that the UE will receive the NAS SMC message with the same sequence as handling the two authentication requests. When the UE receives the NAS SMC message corresponding to the second authentication request first, then the UE will finally store the KAUSF corresponding to the first authentication request. |
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| ***Summary of change:*** | Propose to use UDM based solution to address the key misalignment. |
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| ***Consequences if not approved:*** | The KAUSF may be stored differently at UE side and the network side. |
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| ***Clauses affected:*** | 6.4.2.1 |
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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 ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

\*\*\*\*\*\*\*\*\*\*\* Start of Change\*\*\*\*\*\*\*\*\*\*\*

#### 6.4.2.1 Multiple active NAS connections with different PLMNs

TS 23.501 [2] has a scenario when the UE is registered to a VPLMN's serving network via 3GPP access and to another VPLMN's or HPLMN's serving network via non-3GPP access at the same time. When the UE is registered in one PLMN's serving network over a certain type of access (e.g. 3GPP) and is registered to another PLMN's serving network over another type of access (e.g. non-3GPP), then the UE has two active NAS connections with different AMF's in different PLMNs. As described in clause 6.3.2.1, the UE shall independently maintain and use two different 5G security contexts, one per PLMN serving network. The 5G security context maintained by the UE shall contain the full set of 5G parameters, including NAS context parameters for 3GPP and non-3GPP access types per PLMN. In case of connection to two different PLMNs, it is necessary to maintain a complete 5G NAS security context for each PLMN independently, each with all associated parameters (such as two pairs of NAS COUNTs, i.e. one pair for 3GPP access and one pair for non-3GPP access).

Each security context shall be established separately via a successful primary authentication procedure with the Home PLMN.

All the NAS and AS security mechanisms defined for single registration mode are applicable independently on each access using the corresponding 5G security context.

\*\*\*\*\*\*\*\*\*\*\* End of Change\*\*\*\*\*\*\*\*\*\*\*