**3GPP TSG-SA3 Meeting #124 S3-253802**

**Wuhan, China, 13 – 17 October 2025**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **33.369** | **CR** |  | **rev** | 1 | **Current version:** | **19.0.0** |  |
|  | | | | | | | | |
| *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 |  | Core Network | **X** |

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| ***Title:*** | Recovery procedure clarification | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Lenovo | | | | | | | | | |
| ***Source to TSG:*** | S3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | AmbientIoT-SEC | | | | |  | ***Date:*** | | | 2025-29-09 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | This contribution proposes a clarification of the recovery procedure. | | | | | | | | |
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| ***Summary of change:*** | | This contribution proposes to provide more clarification. | | | | | | | | |
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| ***Consequences if not approved:*** | | Recovery procedure remains unclarified. | | | | | | | | |
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| ***Clauses affected:*** | | 5.4.3, 5.4.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 1st CHANGE \*\*\*\*\***

### 5.4.3 Procedure for AIoT Device identifier protection with Temp ID update during Individual inventory

For the protection of AIoT device permanent identifier during the inventory procedure with AIoT device identifier described in clause 5.2.2, the following changes shall apply:

- In step 1, AIOTF shall retrieve a T-ID in addition to the RANDAIOT\_n from ADM. The ADM shall, based on T-ID handling type stored in the AIoT device profile, either fetch the stored T-ID in the AIoT device profile or generate the T-ID as specified in Annex B.1. If the ADM generates a T-ID of type stored, it shall also store it in the AIoT device profile.

- In step 2, 3 and 4, the T-ID shall be used as a device identification information.

- In step 2 and 3 the AIOTF includes indication of type of T-ID handling. T-ID can be either concealed type or stored type. The concealed type can be based on either the stored T-ID or the permanent identifier. If needed the handling also indicates whether the stored T-ID type shall be updated with or without a command. NG-RAN includes the T-ID handling in the paging message.

- In step 4, the AIoT device, based on the T-ID handling indication in the paging message, generates the T-ID in the same way as the ADM did in step 1. The AIoT device determines it needs to reply to the NG-RAN if the generated T-ID matches with the received T-ID. In case the stored T-ID update shall be done without a command, the AIoT Device generates a new Temp\_ID\_n+1 as specified in Annex B.1 and stores the new Temp ID\_n+1.

- In step 5 and 6, a device identification information is not included in the D2R message and Inventory Report message.

- In step 7, the AIoT device permanent identifier is used as a device identification information. AIOTF requests the ADM to derive a new T-ID as specified in Annex B.1 and to store it in the AIoT Device profile.

NOTE 1: The AIOTF identifies the AIoT device by checking the received RESAIoT parameter. Therefore, the device identification information is not needed in the D2R message and Inventory Report message.

NOTE 2: In case of concealed T-ID type, every AIoT devices that receive an Inventory Request with T-ID need to perform a T-ID matching by generating a T-ID based on the KAIoT\_root and check if the generated T-ID is matched with the received T-ID. It is assumed that the AIoT device that receive the Inventory Request has enough energy to perform this T-ID matching in addition to the Inventory procedure specified in clause 5.2.2.

NOTE 3: In case of stored T-ID type, the stored T-IDs on the device side and network side can get out-of synch. The handling of such situation is described in clause

### 5.4.4 Out-of-Synch detection and Resynchronization of T-ID

In case the network does not receive an Inventory Response from a AIoT Device after an Individual Inventory Request, then it can indicate that the AIoT Device and network is out-of-synch with the TIDs. The out-of-synch can happen if e.g.:

- The Inventory Response or Command Response from the Device was lost during transmission due to radio link issues e.g. interference, range, etc. in that case the AIoT Device would generate the T-ID\_n+1, but the ADM would not generate the T-ID\_n+1 or know that the device has received the T-ID\_n+1 as it did not get any response.

- Something went wrong during the Inventory procedure e.g. the AIoT Device managed to write to the NVM but not send the inventory response or command response or the AIoT Device sent the inventory response or command response but was not able to write to the NVM.

This means that the ADM either has a T-ID that is older or newer than the T-ID in the AIoT Device. They can never be more than one off.

T-ID sequence recovery is possible if the network performs Individual Inventory with both T-ID\_n-1 or T-ID\_n+1. When the AIOTF indicates T-ID sequence recovery to the ADM, the ADM provides the additional T-ID(s) of the AIoT device permanent ID to the AIOTF.When the AIoT device responds to the network, the network adjusts the sequence, and both are in synch again.

Alternatively, the network can use concealed T-ID type using the permanent identifier and then send a command to provide a new T-ID to the device which it stores in the device.

**\*\*\*\*\* END OF 1st CHANGE \*\*\*\*\***