**3GPP TSG-SA5 Meeting #162 *S5-253979***

Goteborg, Sweden, 25 - 29 August 2025

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **0** | **CR** |  | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** | Rel-19 CR TS 28.540 Update requirements for reader location and AIoT service area configurations | | | | | | | | | |
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| ***Source to WG:*** | Huawei, China Unicom,Samsung | | | | | | | | | |
| ***Source to TSG:*** | SA5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | AdNRM\_Ph3, TEI19 | | | | |  | ***Date:*** | | | 2025-08-14 |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
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| ***Reason for change:*** | | RAN3 sent a LS (R3-253803) to SA5 for configuration management supporting Ambient IoT, which specifies  “   * *The AIOTF is aware of the supported “A-IoT Areas” of a gNB via OAM.*    + *A new A-IoT Area is represented by an A-IoT Area ID*   + *A-IoT Area ID = PLMN ID +NID (optional) + A-IoT Area Code (OCTET STRING (SIZE(3)))* * *The AIOTF is also aware of the served Reader list of a gNB via OAM.*    + *Each Reader is uniquely identified globally by “Global gNB ID + Reader Index”.*   + *The Reader Index is defined as INTEGER (1..65536, …).* * *The AIOTF may be aware of the location of reader via OAM configuration.*   + *The details of the Reader Location are out the scope of RAN3****.*** * *OAM configures in the AIOTF the mapping relationships among gNBs, readers and A-IoT areas, as needed.*   ” | | | | | | | | |
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| ***Summary of change:*** | | 1. Update requirements for A-IoT 2. Add description for Ambient IoT management | | | | | | | | |
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| ***Consequences if not approved:*** | | Ambient IoT management support is not complete. | | | | | | | | |
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| ***Clauses affected:*** | | 4.X (new), 5.12.1, 5.12.2 | | | | | | | | |
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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 ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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| **1st Change** |

## 4.X Management of Ambient IoT

As defined in TS 23.369[11], Ambient IoT is a service that can be provided by the 5G system to support Ambient power-enabled IoT devices that are powered by energy harvesting, being either battery-less or with limited energy storage capability (e.g. using a capacitor) and the energy is provided through the harvesting of radio waves, light, motion, heat, or any other suitable power source. The 5GS System architecture for AIoT includes core network functions, AIoT Readers and AIoT Devices, where AIoT Reader can be supported by NG-RAN. However, to enable AIoT services such as inventory service and command service, as defined in the TS 23.369[11], it is required to correctly identify the appropriate AIOTF and RAN node instance with A-IoT capability to ensure accurate identification of AIoT devices for correctly triggering various AIoT related operations. This requires an effective mapping between the expected external target area (provided by the Application Function) and the internal target area served by the 5G Core (5GC) and RAN nodes and readers.

The AIoT service operations can work flawlessly with the help of configurations provided by Operations, Administration, and Management (OAM). The NEF can obtain internal area mapping corresponding to the external target area from OAM and use it for further processes like identifying of correct AIOTF with the help of NRF. This ensures that the NEF can accurately identify and interact with the correct internal network segments, leading to targeted service delivery. Management of Ambient IoT includes the configuration for core network functions and NG-RAN with A-IoT capability to support Ambient IoT.

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| **Next Change** |

## 5.12 Requirements for management of Ambient IoT

### 5.12.1 Management of Ambient IoT for NG-RAN

**REQ-AIOT\_NRNRM-1:** The 3GPP management system should support the capability to configure NG-RAN to support AIoT.

**REQ-AIOT\_NRNRM-x:** The 3GPP management system should support the capability to configure gNB reader served A-IoT areas for management of Ambient IoT.

**REQ-AIOT\_NRNRM-y:** The 3GPP management system should support the capability to configure reader location for management of Ambient IoT.

### 5.12.2 Management of Ambient IoT for 5GC

**REQ-AIOT\_5GCNRM-1:** The 3GPP management system should support the capability to configure 5GC Network Functions to support AIoT.

**REQ-AIOT\_5GCNRM-x:** The 3GPP management system should support the capability to configure A-IoT areas, reader location and index for A-IoT capable gNB/reader selection.

**REQ-AIOT\_5GCNRM-y:** The 3GPP management system should support the capability to configure NEF with mapping information between external target area and internal target area for correct identification of AIOTF.