**3GPP TSG-WG SA2 Meeting #148E e-meeting  *S2-2108699r03***

**Elbonia, Nov 15-19, 2021 (revision of S2-210xxxx)**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.256** | **CR** | **0040** | **rev** | **-** | **Current version:** | **17.0.0** |  |
|  | | | | | | | | |
| *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:*** | Correction on UAS NF discovery and UAS NF functionality | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | SA2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | ID\_UAS | | | | |  | ***Date:*** | | | 2021-12-08 |
|  |  | | | |  | |  | | |  |
| ***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 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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | 1. During the dicsussion of UAS NF/NEF discovery in the last meeting, it was believed that the USS address is transparent to AMF/SMF and the UE provided USS address should not be used to discover UAS NF/NEF.   However, in current text of TS 23.356, when UE provides a USS address, it shall be used to discover a specific USS. Then, when there are multiple UAS NF/NEFs serving USSs, we can clarify that the UE provided USS address (i.e., a public address) can be accessed by any UAS NF/NEF. By this way, there is no need to assocaite the USS address with UAS NF/NEFs in the NRF and AMF/SMF does not need to know this address.   1. The UAS NF functionaility clause should be updated to cover re-authentication/re-authorization, presence monitoring and obtaining list of Aerial UEs in a georaphic area. | | | | | | | | |
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| ***Summary of change:*** | | 1. Clarify that the UE provided USS address (i.e., a public address) is accessible to any UAS NF/NEF. 2. Update and complete UAS NF functionality. | | | | | | | | |
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| ***Consequences if not approved:*** | | Not clear how USS address is used.  Incomplete UAS NF functionality. | | | | | | | | |
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| ***Clauses affected:*** | | 4.3.2, 4.4.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

\* \* \* \* First change \* \* \* \*

### 4.3.2 UAS NF

The UAS Network Function is supported by the NEF or SCEF+NEF and used for external exposure of services to the USS. The UAS-NF makes use of existing NEF/SCEF exposure services for UAV authentication/authorization, for UAV flight authorization, for UAV-UAVC pairing authorization, and related re-authentication/re-authorization and revocation; for remote identification, location reporting, presence monitoring, obtaining list of Aerial UEs in a geographic area, and control of QoS/traffic filtering for C2 communication.

The UAS NF may coordinate with the USS to assist CAA-Level UAV ID assignment.

A dedicated NEF may be deployed to provide only the UAS NF functionality, i.e. to support the UAS specific features/APIs and the NEF features/APIs that are specified for capability exposure towards the USS.

For external exposure of services related to specific UAV(s), the UAS NF resides in the VPLMN, in order to interface with country specific USS(es).

When CAPIF is supported by the UAS NF, the UAS NF supports the CAPIF API provider domain functions as specified in TS 23.222 [4].

To support re-authentication/re-authorization and revocation request by USS, the UAS NF stores information as to whether the re-authentication/re-authorization and revocation is towards an AMF or SMF/SMF+PGW-C and the address of the serving AMF or SMF/SMF+PGW-C.

UAS NF stores the result of UUAA-MM procedures and the result of UUAA-SM procedures.

UAS NF may store the UAV Location Events such as move in/move out which could trigger ~~and associate with~~ a connectivity revocation indication provided by USS ~~for~~ during the presence monitoring.

\* \* \* \* Second change \* \* \* \*

### 4.4.2 USS Discovery

There may be multiple USS(es) serving UASs in a country, and no direct association is expected between the 3GPP network serving a UAS and the USS providing services to the UAS. The association between a UAV and a USS is outside the scope of SA WG2 and is not related to the UAV subscription with the mobile operator.

In order to enable the interaction between the 3GPP network and the USS serving a UAS, the 3GPP network needs to discover the correct USS serving a specific UAV. This is required either during 5GS registration (when the UUAA is performed during 5GS registration), or during PDU session/PDN connection establishment.

It is assumed that mechanisms for resolution of CAA Level UAV ID to the USS serving the corresponding UAV, defined outside 3GPP, and available to entities outside the 3GPP system (e.g. the TPAE), are used in the 3GPP system to discover the USS for the UAV.

Optionally, the UAV may also provide to the 3GPP system, in addition to the CAA-level UAV ID, the USS address or USS FQDN in order to discover the USS for the UAV.

When the UAV provides the USS Address separately from the CAA-Level UAV ID in UUAA-MM or UUAA-SM, the USS Address shall be used to discover the USS. The USS address, when available, isused by the UAS NF in addition to CAA-Level UAV ID to discover a specific USS.

NOTE X: a USS, of which the address is provided by the UE, is assumed accessible to any UAS NF/NEF in the 3GPP network.

\* \* \* \* End of changes \* \* \* \*