**3GPP TSG-CT WG1 Meeting #133e-bisC1-220631**

**E-meeting, 17-21 January 2022**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **24.501** | **CR** | **3893** | **rev** | **1** | **Current version:** | **17.5.0** |  |
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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 | **X** | Radio Access Network |  | Core Network |  |

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| ***Title:***  | SA3 requirement for security protected UAS parameters. |
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| ***Source to WG:*** | Qualcomm Incorporated |
| ***Source to TSG:*** | C1 |
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| ***Work item code:*** | ID\_UAS |  | ***Date:*** | 2022-01-10 |
|  |  |  |  |  |
| ***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:*** | TS 33.256 has following requirement:Subclause 5.2.1.1, step 1*1. The UE sends a Registration Request message to the AMF. The UE may provide a CAA-Level UAV ID, and optionally a USS address/IP address, to indicate the request is registering for UAS services. In case the CAA-Level UAV ID and/or USS address/IP address is configured not to be sent in plain text, e.g. the USS address or an IP address not to be exposed in public, the CAA-Level UAV ID, and USS/IP address if available, shall be sent after the NAS security is established.* There are two options feasible to achieve this requirement.1. Sending Registration Request message after NAS security is established e.g., including the message in the SMC complete message.2. Sending Service-level-AA container after registration procedure e.g., including the container in UL NAS Transport messageOption2 cannot be supported because the AMF needs to determine during registration procedure whether UUAA-MM is required and the UE has valid aerial subscription or valid UUAA result based on the recevied UAS parameters.Hence, option 1 is proposed to capture in the specification.For simpler protocol design, it was agreed to provide UAS parameters (e.g., CAA-level UAV ID, USS address) as a non-cleartext, so it shall be sent after the NAS security establishment. |
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| ***Summary of change:*** | CAA-level UAV ID or USS address, if available, are sent to the network as included in the Service-level AA container which is not a clear text IE. |
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| ***Consequences if not approved:*** | Security protection requirement for UAS parameters cannot be supported. |
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| ***Clauses affected:*** | 4.22.2 |
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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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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

4.22.2 Authentication and authorization of UAV

The 5GS supports the USS UAV Authorization and Authentication (UUAA) procedure for a UE supporting UAS services. Depending on operator policy or regulatory requirements, the UUAA-MM procedure can be performed by the UE and the AMF at a registration procedure as specified in subclause 5.5.1 or the UUAA-SM procedure can be performed by the UE and the SMF at a PDU session establishment procedure as specified in subclause 6.4.1. The UE shall support UUAA-MM and UUAA-SM, and the network shall support UUAA-SM and may optionally support UUAA-MM. The UUAA procedure needs to be performed by 5GS with USS successfully before the connectivity for UAS services is established.

During a registration procedure, the UE supporting UAS services provides CAA-level UAV ID to the AMF (see subclause 5.5.1.2), and the AMF may trigger the UUAA-MM procedure. If the UE supporting UAS services does not provide CAA-level UAV ID to the AMF and the network is configured to perform UUAA at registration, the AMF may accept the registration and shall reject PDU session establishment requests for UAS services. If the UE wants to use the UAS services by providing the CAA Level UAV ID later on, then the UE shall first perform UE-initiated de-registration procedure followed by an initial registration to the 5GS including the CAA Level UAV ID in the registration request.

When a UE supporting UAS services requests to establish a PDU session for USS communication, the UAV provides CAA-level UAV ID to the network (see subclause 6.4.1.2), and the SMF may trigger the UUAA-SM procedure. If the UE does not provide CAA-Level UAV ID and the SM subscription for the UE requires the UUAA-SM, the network rejects the UE-requested PDU session establishment procedure for UAS services.

The UE supporting UAS services shall not provide CAA-level UAV ID to the network over non-3gpp access, and the network shall not perform UUAA procedure for non-3gpp access and shall ensure that the UE is not allowed to access any aerial services in non-3GPP access.

A UE supporting UAS services may provide to the network the USS address or USS FQDN during the registration procedure or PDU session establishment procedure so that the network may use the information to discover the USS.

NOTE: The parameters (e.g., CAA-level UAV ID or USS address) sent by a UE supporting UAS services to the network for UAS services are included in the Service-level AA container IE which is a non-cleartext IE.

After successful UUAA procedure, either the AMF or the SMF may initiate re-authentication of the UAV when required by the USS. If UUAA-MM fails during a re-authentication and there are PDU sessions established using UAS services, AMF shall release these PDU sessions and may trigger a network-initiated de-registration procedure based on network policy. If UUAA-SM fails during a re-authentication, the SMF shall release the PDU session related to re-authentication.

If the UUAA is revoked, the PDU session related to UAS services shall be released by the SMF. Based on operator policy, the AMF may decide to keep the UE registered or trigger a de-registration procedure.

\*\*\* End of change \*\*\*