**3GPP TSG-CT3 Meeting #130 *C3-234484***

**Xiamen, China, 9th Oct 2023 – 13th Oct 2023 revision of C3-234200**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **29.255** | **CR** | **0029** | **rev** | **1** | **Current version:** | **18.1.0** |  |
|  | | | | | | | | |
| *For* [***HELP***](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:*** | Include support for authorization of direct C2 communication over PC5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | UAS\_Ph2 | | | | |  | ***Date:*** | | | 2023-09-29 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | As per TS 23.256, clause 5.4.3.1  If the UAV is capable of 3GPP network connection and is served by a PLMN, the UAV performs the Direct C2 Communication authorization either as part of the UUAA-MM procedure in 5GS described in clause 5.2.2 or as part of the UUAA-SM procedure described in clause 5.2.5. | | | | | | | | |
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| ***Summary of change:*** | | Clause 4.2.2.2.2 description is updated to include that Direct C2 communication over PC5 authorisation is also supported by the procedures defined. | | | | | | | | |
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| ***Consequences if not approved:*** | | Incomplete stage-2 requirements coverage. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.2.2.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 does not impact any Open API in this specifications. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* \* Start of changes \* \* \* \*

##### 4.2.2.2.2 Authentication and Authorization of the UAV

The Naf\_Authentication\_AuthenticateAuthorize service operation is invoked by an NF Service Consumer (e.g. an NEF (UAS-NF)) towards the USS, when UUAA-MM is done during 5GS registration, UUAA-SM is done during PDU session establishment, or for authorization for C2 communication over Uu interface or Direct C2 communication over PC5 interface (see TS 23.256 [14]).

The NF Service Consumer (e.g. the NEF (UAS-NF)) shall send the authentication message to USS by sending the HTTP POST request towards the "request-auth" resource as shown in Figure 4.2.2.2.2-1.



Figure 4.2.2.2.2-1: AuthenticateAuthorize Service Operation

1. The NF Service Consumer shall send a POST request to the resource with a UAVAuthInfo object in the request body. The UAVAuthInfo data type shall include:

- "gpsi" attribute that carries the GPSI (in the format of External Identifier) of the UAV;

- "serviceLevelId" attribute that carries the Service Level Device Identity of the UAV;

The UAVAuthInfo data type may include

- "uavLocInfo" attribute that provides the UAV location;

- "notifyUri" attribute that provides the notification URI to receive notifications related to reauthentication, reauthorization or revocation triggered by the USS, which shall be present in the initial request;

- "notifyCorrId" attribute that represents the notification correlation ID and this attribute shall be present when the "notifyUri" attribute is provided;

- "authMsg" attribute that contains the authentication message based on the authentication method used, which is present in the intermediate round-trip messages and not in initial request. This attribute is deprecated; the attribute "authContainer" should be used instead.

- "AuthContainer" data type that contains the AA related data provided by the UE (see TS 23.256 [14]). This attribute deprecates "authMsg" attribute and may contain:

- "authMsgType" attribute that indicates the type of the AA message payload;

- "authMsgPayload" attribute that carries the AA message payload;

NOTE 1: The "authResult" attribute will not be present within the AuthContainer data type, when included within the request sent to USS.

In case of UUAA-SM procedure, the UAVAuthInfo data type may also include:

- "ipAddr" attribute that carries the IP Address associated with the PDU session; and

- "pei" attribute that carries the PEI of the UAV.

2a. If the HTTP request message from the NF service consumer is accepted, the USS shall respond with "200 OK" status code with the message body containing the UAVAuthResponse data type in the response body, which shall include "gpsi" attribute.

If the USS triggers more intermediate round-trip messages, the UAVAuthResponse data shall include a "authMsg" attribute that contains the authentication message or authorization data.

Otherwise, the UAVAuthResponse data type shall contain the "authResult" attribute. If the UAV is authenticated successfully, the USS shall set the "authResult" attribute to "AUTH\_SUCCESS". The "authMsg" and "authResult" attributes are deprecated; the "authContainer" attribute should be used instead. The UAVAuthResponse data type shall include the "authContainer" data type that may include:

- AA message payload type within "authMsgType" attribute;

- AA message payload containing the configuration information within "authMsgPayload" attribute;

- AA result within "authResult" attribute, which is set to either "AUTH\_SUCCESS" in case of successful AA procedure or to "AUTH\_FAIL" in case of failed AA procedure in the final response of the AA procedure.

NOTE 2: The absence of "authResult" attribute within "AuthContainer" data type indicates that the AA procedure is ongoing.

- The "serviceLevelId" attribute containing a new Service Level Device Identity as the authorized Service Level Device Identity to the UAV.

The UAVAuthResponse data type may also include:

- the DN authorization profile index within the "authProfIndex" attribute;

- the DN authorized Session-AMBR within the "authSessAmbr" attribute.

2b. If the USS cannot successfully fulfil the received HTTP POST request due to an internal error or an error in the HTTP POST request, the USS shall send the HTTP error response as specified in clause 5.1.7.

If the UAV authentication is failed, the USS shall reject the request with an HTTP "403 Forbidden" response message including the "cause" attribute of the ProblemDetailsAuthenticateAuthorize data structure set to "FAILED\_AUTH". The USS shall also include an indication of "uasResRelInd" attribute in the ProblemDetailsAuthenticateAuthorize data type to indicate if an UAS service related network resource can be released or not, during re-authentication failure, when the service operation is used during Re-authentication procedure.

If the USS determines the received HTTP POST request needs to be redirected, the USS shall send an HTTP redirect response as specified in clause 5.2.10 of TS 29.122 [16].

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