**3GPP TSG-CT WG1 Meeting #132-eC1-21XXXX**

**E-meeting, 11-15 October 2021**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.501** | **CR** | **3641** | **rev** | **1** | **Current version:** | **17.4.1** |  |
|  | | | | | | | | |
| *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 | **X** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | C2 aviation payload | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Lenovo, Motorola Mobility | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | ID-UAS | | | | |  | ***Date:*** | | | 2021-10-11 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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:*** | | TS 23.256 requires a C2 aviation payload IE with a number of parameters be created. This IE is used for C2 authroization of the UAV by the USS. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | C2 aviation payload IE is created as a new parameter IE for the service-level-AA container contents. Furthermore C2 aviation payload is defined in a new subclause. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | C2 authorization of the UAV cannot be performed by the USS. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 9.11.2.10, 9.11.2.XX(new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

>>>>>>>>>> Next change <<<<<<<<<<

#### 9.11.2.10 Service-level-AA container

The purpose of the Service-level-AA container information element is to transfer upper layer information for authentication and authorization between the UE and the network.

The Service-level-AA container information element is coded as shown in figure 9.11.2.10.1, figure 9.11.2.10.2, figure 9.11.2.10.3, figure 9.11.2.10.4 and table 9.11.2.10.1.

The Service-level-AA container is a type 6 information element with a minimum length of 6 octets and a maximum length of 65538 octets.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | |
| Service-level-AA container IEI | | | | | | | | | | octet 1 |
| Length of Service-level-AA container contents | | | | | | | | | | octet 2 |
|  | | | | | | | | | | octet 3 |
|  | | | | | | | | | | octet 4 |
| Service-level-AA container contents | | | | | | | | | |  |
|  | | | | | | | | | | octet n |

Figure 9.11.2.10.1: Service-level-AA container information element

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  | |
| Service-level-AA parameter 1 | | | | | | | | | octet 4  octet x1 | |
| Service-level-AA parameter 2 | | | | | | | | | octet x1+1\*  octet x2\* | |
| …… | | | | | | | | | … | |
| Service-level-AA parameter n | | | | | | | | | octet xi +1\*  octet n\* | |

Figure 9.11.2.10.2: Service-level-AA container contents

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  | |
| Type of service-level-AA parameter | | | | | | | | | octet xi +1 | |
| Length of service-level-AA parameter | | | | | | | | | octet xi +2 | |
| Value of service-level-AA parameter | | | | | | | | | octet xi +3  octet n | |

Figure 9.11.2.10.3: Service-level-AA parameter (when the type of service-level-AA parameter field contains an IEI of a type 4 information element as specified in 3GPP TS 24.007 [11])

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  | |
| Type of service-level-AA parameter | | | | | | | | | octet xi +1 | |
| Length of service-level-AA parameter | | | | | | | | | octet xi +2  octet xi +3 | |
| Value of service-level-AA parameter | | | | | | | | | octet xi +4  octet n | |

Figure 9.11.2.10.4: Service-level-AA parameter (when the type of service-level-AA parameter field contains an IEI of a type 6 information element as specified in 3GPP TS 24.007 [11])

Editor's note: Format of Service-level-AA parameter with Type of service-level-AA parameter set to a value between 0x80 and 0xFF is FFS.

Table 9.11.2.10.1: Service-level-AA container information element

|  |  |  |
| --- | --- | --- |
| Service-level-AA container contents (octet 4 to octet n); max value of 65535 octets | | |
|  | | |
| The error handlings for service-level-AA parameters specified in subclauses 7.6.1, 7.6.3 and 7.7.1 shall apply to the service-level-AA parameters included in the Service-level-AA container contents. | | |
| Service-level-AA parameters  Type of service-level-AA parameter (octet xi +1)  This field contains the IEI of the service-level-AA parameter. | | |
|  | | |
| Length of service-level-AA parameter  This field indicates binary coded length of the value of the service-level-AA parameter. | | |
| Value of service-level-AA parameter  This field contains the value of the service-level-AA parameter with the value part of the referred information element based on following service-level-AA parameter reference.  The receiving entity shall ignore service-level-AA parameter with type of service-level-AA parameter field containing an unknown IEI. | | |
| IEI (hexadecimal) | Service-level-AA parameter name | Service-level-AA parameter reference |
| 10 | Service-level device ID | Service-level device ID (see subclause 9.11.2.11) |
| 20 | Service-level-AA server address | Service-level-AA server address (see subclause 9.11.2.12) |
| 30 | Service-level-AA response | Service-level-AA response (see subclause 9.11.2.14) |
| 70 | Service-level-AA payload | Service-level-AA payload (see subclause 9.11.2.13) |
| XX | C2 aviation payload | C2 aviation payload (see subclause 9.11.2.XX) |

>>>>>>>>>> Next change <<<<<<<<<<

#### 9.11.2.XX C2 aviation payload

The purpose of the C2 aviation payload information element is to exchange the information regarding C2 pairing authorization and flight authorization, between the UAV and the USS.

The C2 aviation payload information element is coded as shown in figure 9.11.2.XX.1, figure 9.11.2.XX.2, figure 9.11.2.XX.3 and table 9.11.2.XX.1.

The C2aviation payload is a type 6 information element with a minimum length of 6 octets and a maximum length of 65538 octets.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | |
| C2 aviation payload IEI | | | | | | | | | | octet 1 |
| Length of C2 aviation payload contents | | | | | | | | | | octet 2 |
|  | | | | | | | | | | octet 3 |
|  | | | | | | | | | | octet 4 |
| C2 aviation payload contents | | | | | | | | | |  |
|  | | | | | | | | | | octet n |

Figure 9.11.2.XX.1: C2 aviation payload information element

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  | |
| C2 aviation payload parameter 1 | | | | | | | | | octet 4  octet x1 | |
| C2 aviation payload parameter 2 | | | | | | | | | octet x1+1\*  octet x2\* | |
| …… | | | | | | | | | … | |
| C2 aviation payload parameter n | | | | | | | | | octet xi +1\*  octet n\* | |

Figure 9.11.2.XX.2: C2 aviation payload contents

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |  | |
| Type of C2 aviation payload parameter | | | | | | | | | octet xi +1 | |
| Length of C2 aviation payload parameter | | | | | | | | | octet xi +2 | |
| Value of C2 aviation payload parameter | | | | | | | | | octet xi +3  octet n | |

Figure 9.11.2.XX.3: C2 aviation payload parameter is a type 4 information element

Table 9.11.2.XX.1: C2 aviation payload information element

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| C2 aviation payload (octet 4 to octet n); max value of 65535 octets | | | | | | | | | |
|  | | | | | | | | | |
| Type of C2 aviation payload parameter (octet xi +1): | | | | | | | | | |
| Bits | | | | | | | | | |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** |  |  |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |  | UAV-C pairing information |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |  | Flight authorization information |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |  | C2 authorization result |
| 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |  | C2 session security information |
| All other values are spare. | | | | | | | | | |
| The receiving entity shall ignore C2 aviation payload parameter with type of C2 aviation payload parameter field containing an unknown IEI. | | | | | | | | | |
|  | | | | | | | | | |
| If the type of C2 aviation payload parameter indicates UAV-C pairing information, then the field for the value of C2 aviation payload parameter contains identification information of UAV-C to pair. The UAV-C pairing information is encoded as UTF-8 string. | | | | | | | | | |
|  | | | | | | | | | |
| If the type C2 aviation payload parameter indicates flight authorization information, then the field for the value of C2 aviation payload parameter contains UAV flight authorization information. The flight authorization information is encoded as UTF-8 string. | | | | | | | | | |
|  | | | | | | | | | |
| If the type of the C2 aviation payload parameter indicates C2 authorization result, then the field of the value of C2 aviation payload parameter contains: | | | | | | | | | |
| Bits | | | | | | | | | |
| **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** |  |  |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | C2 authorization failed |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |  | C2 authorization succeeded |
| All other values are spare. | | | | | | | | | |
| The UAV shall consider any other value for C2 authorization result field as a failure for C2 authorization. | | | | | | | | | |
|  | | | | | | | | | |
| If the type of the C2 aviation payload parameter indicates C2 session security information, then the field of the value of C2 aviation payload parameter contains information for secure communications with the USS, The C2 session security information is encoded as UTF-8 string. | | | | | | | | | |
|  | | | | | | | | | |

>>>>>>>>>> End of changes <<<<<<<<<<