**3GPP TSG-CT WG1 Meeting #122-eC1-20xyz**

**Electronic meeting,-20-28 February 2020 (Rev of C1-200672)**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **24.501** | **CR** | **1982** | **rev** | **1** | **Current version:** | **16.3.0** |  |
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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:***  | Clarification of control plane service request message options |
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| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | 5G\_CIoT |  | ***Date:*** | 2020-02-17 |
|  |  |  |  |  |
| ***Category:*** | **C** |  | ***Release:*** | Rel-16 |
|  | *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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | What options that are possible for the UE using the CONTROL PLANE SERVICE REQUEST message is unclear with the current specification and needs to be clarified.The control plane service request addresses specific optimization use cases to send a single CIoT user data container or a CIoT small data container or a SMS or a location services message container but not multiples of any combination as the benefits are not obvious. And to avoid redundant mechanisms in 5GS, multiple pending payloads in the UE should only be sent with the NAS transport procedure where multiple payloads is supported.It is proposed to clarify what options that are allowed with the CPSR message. |
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| ***Summary of change:*** | Which options that are not allowed with the CONTROL PLANE SERVICE REQUEST is clarified.Adding SMS in the Payload container IE for case a). |
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| ***Consequences if not approved:*** | Unclear specification |
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| ***Clauses affected:*** | 5.6.1.2.2, 8.2.30.2, 8.2.30.3, 8.2.30.4 |
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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:*** | Rev 1: Major rework of the changes with additonal upates to three subclauses. |

\*\*\*\*\* Next change \*\*\*\*\*

##### 5.6.1.2.2 UE is using 5GS services with control plane CIoT 5GS optimization

The UE shall send a CONTROL PLANE SERVICE REQUEST message, start T3517 and enter the state 5GMM-SERVICE-REQUEST-INITIATED.

For case a in subclause 5.6.1.1, the Control plane service type of the CONTROL PLANE SERVICE REQUEST message shall indicate "mobile terminating request". If the UE only has uplink CIoT user data or SMS to be sent and:

a) determines that the CIoT small data container IE shall be used according to subclause 8.2.30.2, the UE shall:

1) for sending CIoT user data, set the Data type field to "control plane user data", include the PDU session ID, data, and Downlink data expected (DDX) (if available), in the CIoT small data container IE; or

2) for sending SMS, set the Data type field to "SMS", include SMS in the CIoT small data container IE; or

b) otherwise, the UE shall:

1) for sending CIoT user data, set the Payload container type IE to "CIoT user data container", include CIoT user data in the Payload container IE as described in subclause 5.4.5.2.2; or

2) for sending SMS, set the Payload container type IE to "SMS" and include data in the Payload container IE as described in subclause 5.4.5.2.2.

NOTE: The term DDX used in the present document corresponds to the term NAS RAI used in 3GPP TS 23.502 [9].

For case c, and case d if the UE has pending user data that is to be sent via the control plane in subclause 5.6.1.1, the UE shall set the Control plane service type of the CONTROL PLANE SERVICE REQUEST message to "mobile originating request". If the UE has only uplink user data or SMS or location services message to be sent and:

a) determines that the CIoT small data container IE shall be used according to subclause 8.2.30.2, the UE shall:

1) for sending CIoT user data, set the Data type field to "control plane user data", include the PDU session ID, data, and Downlink data expected (DDX) (if available), in the CIoT small data container IE;

2) for sending location services message, set the Data type field to "Location services message container" and Downlink data expected (DDX), if available, in the CIoT small data container IE, and:

i) if routing information is provided by upper layers:

A) set the length of additional information field in the CIoT small data container IE to the length of routing information provided by upper layer location services application (see subclause 9.11.3.67), and set the additional information field in the CIoT small data container IE to the routing information provided by upper layer location services application (see subclause 9.11.3.67); or

B) otherwise set the length of additional information field in the CIoT small data container IE to zero. In this case the Additional information field of the CIoT small data container IE shall not be included; and

ii) set the Data contents field of the CIoT small data container IE to the location services message payload; or

3) for sending SMS, set the Data type field to "SMS", include SMS in the CIoT small data container IE; or

b) otherwise the UE shall:

1) for sending CIoT user data, set the Payload container type IE to "CIoT user data container", include data in the Payload container IE as described in subclause 5.4.5.2.2;

2) for sending location services message, set the Payload container type IE to "Location services message container", include data in the Payload container IE as described in subclause 5.4.5.2.2. If the upper layer location services application provides the routing information set the Additional information IE to the routing information as described in subclause 5.4.5.2.2; or

3) for sending SMS, set the Payload container type IE to "SMS" and include data in the Payload container IE as described in subclause 5.4.5.2.2.

For case a, if the UE has pending user data that is to be sent via the user plane in subclause 5.6.1.1, the UE shall set the Control plane service type of the CONTROL PLANE SERVICE REQUEST message to "mobile terminating request". The UE shall include the Uplink data status IE in the CONTROL PLANE SERVICE REQUEST message to indicate which PDU session(s) have pending user data to be sent via user-plane resources.

For case d, if the UE has pending user data that is to be sent via the user plane in subclause 5.6.1.1, the UE shall set the Control plane service type of the CONTROL PLANE SERVICE REQUEST message to "mobile originating request". The UE shall include the Uplink data status IE in the CONTROL PLANE SERVICE REQUEST message to indicate which PDU session(s) have pending user data to be sent via user-plane resources.

\*\*\*\*\* Next change \*\*\*\*\*

#### 8.2.30.2 CIoT small data container

This IE shall be included if the UE needs to send uplink CIoT user data that is not more than 254 bytes or SMS or location services message, and there is no other optional IE to be sent.

NOTE: When the UE determines to use the CIoT small data container IE to send uplink data in this message, there is no other optional IEs in this message.

#### 8.2.30.3 Payload container type

This IE shall be included and set to "CIoT user data container" or "Location services message container" or "SMS" if the UE includes the Payload container IE.

\*\*\*\*\* Next change \*\*\*\*\*

#### 8.2.30.4 Payload container

This IE shall be included if the UE needs to send uplink CIoT user data or SMS or location services message.

\*\*\*\*\* Next change \*\*\*\*\*