**3GPP TSG-CT WG1 Meeting #137-e *C1-22XXXX***

**E-meeting, 18th – 26th Aug 2022 revision of C1-224986**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.501** | **CR** | **4619** | **rev** | **1** | **Current version:** | **17.7.1** |  |
|  | | | | | | | | |
| *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 |  |

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| ***Title:*** | Rejection of paging correction | | | | | | | | | |
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| ***Source to WG:*** | Intel | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | MUSIM | | | | |  | ***Date:*** | | | 2022-08-18 |
|  |  | | | |  | |  | | |  |
| ***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)* | |
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| ***Reason for change:*** | | When the UE is using 5GS services with control plane CIoT 5GS optimization TS 24.501 clause 5.6.1.2.2 specifies that for case p) in subclause 5.6.1.1, the UE shall set Request type to "Rejection of paging" in the UE request type IE and Control plane service type to "mobile terminated services".  *“For cases o) and p) in subclause 5.6.1.1, the UE shall not include the Uplink data status IE and the Allowed PDU session status IE in the CONTROL PLANE SERVICE REQUEST message. Further,*  *- for case o) in subclause 5.6.1.1, the UE shall set Request type to "NAS signalling connection release" in the UE request type IE and Control plane service type to "mobile originating request";*  *- for case p) in subclause 5.6.1.1, the UE shall set Request type to "Rejection of paging" in the UE request type IE and Control plane service type to "mobile terminated services"; and ..”*  However, the Control plane service type IE does not define “support mobile terminated services”. Instead it defines "mobile terminating request". | | | | | | | | |
| ***;*** | |  | | | | | | | | |
| ***Summary of change:*** | | Use of "mobile terminating request" instead of "mobile terminated services" | | | | | | | | |
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| ***Consequences if not approved:*** | | MUSIM rejection of paging not working | | | | | | | | |
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| ***Clauses affected:*** | | 5.6.1.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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's revision history:*** | | Revision 1   * Removed Core Network impact * Removed Backward compatibility analyses | | | | | | | | |

\*\*\* First 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), and case b) in subclause 5.6.1.1, the Control plane service type of the CONTROL PLANE SERVICE REQUEST message shall indicate "mobile terminating request". If:

a) the UE only has uplink CIoT user data or SMS to be sent, the UE shall:

1) if the data size is not more than 254 octets and there is no other optional IE to be included in the message:

i) 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; and

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

2) otherwise if the data size is more than 254 octets or there are other optional IEs to be included in the message:

i) for sending CIoT user data, set the Payload container type IE to "CIoT user data container", include the PDU session ID in the PDU session ID IE and include data in the Payload container IE as described in subclause 5.4.5.2.2; and

ii) 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; and

b) the paging request or the notification includes an indication for non-3GPP access type, the UE has at least one PDU session that is not associated with control plane only indication, the Allowed PDU session status IE shall be included in the CONTROL PLANE SERVICE REQUEST message.

NOTE 1: 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 CIoT 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 CIoT user data, SMS or location services message to be sent, the UE shall:

a) if the data size is not more than 254 octets, there is no other optional IE to be included in the CONTROL PLANE SERVICE REQUEST message, and the data being sent is:

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

b) otherwise if the data size is more than 254 octets or there are other optional IEs to be included in the CONTROL PLANE SERVICE REQUEST message, and the data being sent is:

1) CIoT user data, set the Payload container type IE to "CIoT user data container", include the PDU session ID in the PDU session ID IE and include data in the Payload container IE as described in subclause 5.4.5.2.2;

2) 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) 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), and case b) in subclause 5.6.1.1, if the UE has pending user data that is to be sent via the user plane, 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 c) in subclause 5.6.1.1, if the UE is in WB-N1 mode and the CONTROL PLANE SERVICE REQUEST message is triggered by a request for emergency services from the upper layer, the UE shall set the Control plane service type of the CONTROL PLANE SERVICE REQUEST message to "emergency services".

For cases d) and k), if the UE has pending user data that is to be sent via the user plane in subclause 5.6.1.1:

a) and if there exists an emergency PDU session which is indicated in the Uplink data status IE, the UE shall set the Control plane service type of the CONTROL PLANE SERVICE REQUEST message to "emergency services"; or

b) otherwise, the UE shall set the Control plane service type 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.

NOTE 2: For a UE in NB-N1 mode, the Uplink data status IE cannot be used to request the establishment of user-plane resources such that there will be user-plane resources established for a number of PDU sessions that exceeds the UE's maximum number of supported user-plane resources.

For case h) in subclause 5.6.1.1, if the UE is in WB-N1 mode and the UE does not have any PDU session that is associated with control plane only indication, the UE shall send a CONTROL PLANE SERVICE REQUEST message with the Control plane service type set to "emergency services fallback" and without an Uplink data status IE.

For case i) in subclause 5.6.1.1, the Control plane service type of the CONTROL PLANE SERVICE REQUEST message shall indicate "mobile originating request". If the pending message is an UL NAS TRANSPORT message with the Payload container type IE set to:

a) "SMS", "Location services message container", or "CIoT user data container", the UE shall send the CONTROL PLANE SERVICE REQUEST and include the SMS, location services message, or CIoT user data as described in this subclause; or

b) otherwise, the UE shall send the CONTROL PLANE SERVICE REQUEST:

1) without including the CIoT small data container IE and without including the NAS message container IE if the UE has no other optional IE to be sent; or

2) with the NAS message container IE if the UE has an optional IE to be sent as described in this subclause.

For case j) in subclause 5.6.1.1, the Control plane service type of the CONTROL PLANE SERVICE REQUEST message shall indicate "mobile originating request". The UE shall include the Uplink data status IE in the CONTROL PLANE SERVICE REQUEST message indicating the PDU session(s) for which user-plane resources were active prior to receiving the fallback indication, if any.

For cases o) and p) in subclause 5.6.1.1, the UE shall not include the Uplink data status IE and the Allowed PDU session status IE in the CONTROL PLANE SERVICE REQUEST message. Further,

- for case o) in subclause 5.6.1.1, the UE shall set Request type to "NAS signalling connection release" in the UE request type IE and Control plane service type to "mobile originating request";

- for case p) in subclause 5.6.1.1, the UE shall set Request type to "Rejection of paging" in the UE request type IE and Control plane service type to "mobile terminating request"; and

may include its paging restriction preferences in the Paging restriction IE in the CONTROL PLANE SERVICE REQUEST message.

For case m) in clause 5.6.1.1, the Control plane service type of the CONTROL PLANE SERVICE REQUEST message shall indicate "mobile originating request". The UE shall not include the Paging restriction IE in the CONTROL PLANE SERVICE REQUEST message. The UE may include the UE request type IE and set Request type to "NAS signalling connection release" to remove the paging restriction and request the release of the NAS signalling connection at the same time. If the UE requests the release of the NAS signalling connection, the UE shall not include the Uplink data status IE in the SERVICE REQUEST message.

The UE may include the PDU session status IE in the CONTROL PLANE SERVICE REQUEST message to indicate which PDU session(s) associated with the access type the CONTROL PLANE SERVICE REQUEST message is sent over are active in the UE.

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