**3GPP TSG-CT WG1 Meeting #133e-bisC1-22XXXX**

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

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.501** | **CR** | **3861** | **rev** | **1** | **Current version:** | **17.5.0** |  |
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| *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 | **X** | Radio Access Network |  | Core Network |  |

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| ***Title:*** | Clarification on maximum number of PDU sessions has been reached | | | | | | | | | |
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| ***Source to WG:*** | Mediatek Inc. | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | ATSSS\_Ph2 | | | | |  | ***Date:*** | | | 2022-01-17 |
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| ***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:*** | | In 24.501 6.4.1.5 Handling the maximum number of established PDU sessions  *…If during a UE-requested PDU session establishment procedure the 5GSM sublayer in the* ***UE receives an indication*** *that the 5GSM message was not forwarded because the* ***PLMN's maximum number of PDU sessions has been reached****, then the* ***UE determines the PLMN's maximum number of PDU sessions*** *as the* ***number of active PDU sessions*** *it has….*  In 24.193 5.3.1 UE establishing a PDN connection as a user-plane resource of an MA PDU session to be established  *…****Upon*** *receipt of an* ***ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST*** *message of a default EPS bearer context activation procedure as a response to the PDN CONNECTIVITY REQUEST message as specified in 3GPP TS 24.301 [10], the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message containing the extended protocol configuration options IE with the ATSSS response with the length of two octets PCO parameter:*  *a) the UE shall consider that the MA PDU session is established…*  *7)* ***state of the PDU session*** *shall be set to* ***PDU SESSION ACTIVE****;…*  Thus we know that "an MA PDU session with only PDN leg" is **counted** in the number of active PDU sessions even it **does not have 5G user plane resources**.  It is proposed:  For an MA PDU session with only PDN leg:  - this kind of ACTIVE PDU session is counted in the ***number of active PDU sessions*** when the ***UE determines the PLMN's maximum number of PDU sessions***:  - ex: if UE needs to determine ***number of active PDU sessions*** when the UE has the following ***ACTIVE*** PDU sessions:  1) PDU session 1 associated with 3GPP access of PLMN1  2) PDU session 2 associated with 3GPP access of PLMN1  3) "MA PDU session with only PDN leg" of PLMN1  Because the "MA PDU session with only PDN leg" is counted in the ***ACTIVE*** PDU sessions thus the ***number of active PDU sessions*** determined by the UE is 3  - If the UE needs to release a PDU session in order to get a vacancy to request an emergency PDU session, the UE can choose "an MA PDU session with only PDN leg" to release. | | | | | | | | |
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| ***Summary of change:*** | | Handling of "maximum number of PDU sessions has been reached when the UE has an MA PDU with PDN leg" is defined | | | | | | | | |
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| ***Consequences if not approved:*** | | Handling of "maximum number of PDU sessions has been reached when the UE has an MA PDU with PDN leg" is not defined | | | | | | | | |
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| ***Clauses affected:*** | | 6.4.1.5 | | | | | | | | |
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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:*** | |  | | | | | | | | |

\*\*\*\*\* change \*\*\*\*\*

#### 6.4.1.5 Handling the maximum number of established PDU sessions

The maximum number of PDU sessions which a UE can establish in a PLMN is limited by whichever is the lowest of: the maximum number of PDU session IDs allowed by the protocol (as specified in 3GPP TS 24.007 [11] subclause 11.2.3.1b), the PLMN's maximum number of PDU sessions and the UE's implementation-specific maximum number of PDU sessions.

If during a UE-requested PDU session establishment procedure the 5GSM sublayer in the UE receives an indication that the 5GSM message was not forwarded because the PLMN's maximum number of PDU sessions has been reached, then the UE determines the PLMN's maximum number of PDU sessions as the number of active PDU sessions it has.

NOTE 1: In some situations, when attempting to establish multiple PDU sessions, the number of active PDU sessions that the UE has when 5GMM cause #65 is received is not equal to the maximum number of PDU sessions reached in the network.

NOTE 2: When the network supports emergency services, it is not expected that 5GMM cause #65 is returned by the network when the UE requests an emergency PDU session.

NOTE 3: There is only one maximum number of PDU sessions for a PLMN regardless of which access the PDU session exists in.

NOTE X: An MA PDU session which (only) has a PDN connection established as a user-plane resource is counted as an active PDU session when determining the PLMN's maximum number of PDU sessions.

The PLMN's maximum number of PDU sessions applies to the PLMN in which the 5GMM cause #65 "maximum number of PDU sessions reached" is received. When the UE is switched off, when the USIM is removed, or the entry in the "list of subscriber data" for the current SNPN is updated, the UE shall clear all previous determinations representing PLMN's maximum number of PDU sessions. Upon successful registration with a new PLMN, the UE may clear previous determinations representing any PLMN's maximum number(s) of PDU sessions.

If the maximum number of established PDU sessions is reached at the UE and the upper layers of the UE request connectivity to a DNN the UE shall not send a PDU SESSION ESTABLISHMENT REQUEST message unless an established PDU session is released. If the UE needs to release an established PDU session, choosing which PDU session to release is implementation specific, however the UE shall not release the emergency PDU session.

If the UE needs to release a PDU session in order to request an emergency PDU session, it shall either perform a local release of a PDU session or release a PDU session via explicit signalling. If the UE performs a local release, the UE shall:

a) if the PDU session is an MA PDU session:

1) perform a registration procedure for mobility and periodic registration update to indicate PDU session status to the network over each access that user plane resources have been established; and

2) perform a normal and periodic tracking area updating to indicate EPS bearer context status to the network as specified in clause 5.5.3.2.2 of 3GPP TS 24.301 [15] when a PDN connection has been established as a user plance resource; or

b) if the PDU session is a single access PDU session

1) perform a registration procedure for mobility and periodic registration update to indicate PDU session status to the network over the access the PDU session is associated with.

\*\*\*\*\* end of change \*\*\*\*\*