**3GPP TSG-CT WG1 Meeting #125-eC1-20XXXX**

**Electronic meeting, 20-28 August 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  | **24.193** | **CR** | **0004** | **rev** | **1** | **Current version:** | **16.0.0** |  |
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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:***  | Handling of MA PDU session after an inter-system change from N1 mode to S1 mode |
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| ***Source to WG:*** | MediaTek Inc. |
| ***Source to TSG:*** | C1 |
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| ***Work item code:*** | ATSSS |  | ***Date:*** | 2020-08-27 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***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)Rel-17 (Release 17)* |
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| ***Reason for change:*** | In subclause *4.6**In the network supporting N26 interface:**c) for an inter-system change from N1 mode to S1 mode:**2) if the UE established an MA PDU session over 3GPP access and non-3GPP access,**A) if the MA PDU session is transferred to EPS as a PDN connection, the SMF can initiate the network-requested PDU session release procedure over non-3GPP access as specified in clause 6.3.3.2 of 3GPP TS 24.501 [6]; or**In the network not supporting N26 interface:**a) for an inter-system change from N1 mode to S1 mode, if the UE intends to transfer the MA PDU session to EPS, the UE can follow the procedure as specified in clause 6.1.4.2 of 3GPP TS 24.501 [6] and the network-requested PDU session release procedure over non-3GPP access can be performed to release the MA PDU session in 5GS as specified in clause 6.3.3.2 of 3GPP TS 24.501 [6]; and*The *can* indicates that something is possible, therefore it is possible that the SMF does not initiates the PDU session release procedure over non-3GPP access.For an MA PDU session (e.g., PDU Session ID (PSI) = 5) with UP resources established on both 3GPP access and non-3GPP access and has been assigned an EPS bearer identity (EBI) = 5. Assume the N6 routable PDU address for this MA PDU session is, e.g., IPv4: a.b.c.d.After an inter-system change from N1 mode to S1 mode, the MA PDU session is transferred to EPS as a PDN connection, and the following 2 scearios are possible* case 1: the SMF does not initiate (*can* indicates that something is possible, but not always)the network-requested PDU session release procedure over non-3GPP access; or
* case 2: the SMF initiates the network-requested PDU session release procedure over non-3GPP access but the UE does not receive the message from the network. For example, see 23.502 4.11.2.2

*14. For Non-Roaming case and Roaming with Local Breakout, the PGW-C+SMF initiates release of the PDU Session(s) in 5GS transferred to EPS as specified in clause 4.3.4.2 with the following clarification:**- In step 2, the PGW-C+SMF shall not release IP address/prefix(es) allocated for the PDU Session;**- If UP connection of the PDU Session is not active, step 3b is not executed, thus the steps triggered by step 3b are not executed;* *If UP connection of the PDU Session is active, the SMF invokes the Namf\_Communication\_N1N2MessageTransfer service operation in step 3b without including N1 SM container (PDU Session Release Command);*If the above 2 cases happen, 2 problems occur.* Problem 1: the IPv4: a.b.c.d is shared by one MA PDU session (PSI) = 5 and one PDN connection (EBI) = 5. This
	+ makes the UL packet routing ambiguous on the UE side, and;
	+ makes the DL pakcet routing ambiguous on the network side.
* Problem 2: If inter-system change from S1 mode to N1 mode happen, the PDN connection will be mapped into a PDU session with (PSI) = 5. The (PSI) = 5 is shared by
	+ one MA PDU session with non-3GPP UP resources and
	+ one PDU session over 3GPP access (this PDU is mapped from the PDN connection).

Problem 1 and Problem 2 both are not allowed to happen and thus need to be avoided |
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| ***Summary of change:*** | For an inter-system change from N1 mode to S1 mode, if the UE established an MA PDU session over 3GPP access and non-3GPP access, if the MA PDU session is transferred to EPS as a PDN connection, * the UE local release the non-3GPP access of this MA PDU session no later than S1 mode to N1 mode intersystem change.
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| ***Consequences if not approved:*** | 1. UL packet routing ambiguous on the UE side
2. Single IP address shared by 2 contexts, one MA PDU session and one PDN connection.
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| ***Clauses affected:*** | 4.6 |
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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 ...  |
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| ***Other comments:*** |  |
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| ***This CR's revision history:*** |  |

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

## 4.6 EPS interworking

In this release of specification, with the exception of an MA PDU session established as specified in clause 4.7, the MA PDU session is established in 5GS.

In the network supporting N26 interface:

a) if the UE established an MA PDU session over non-3GPP access only, no EPS bearer identity can be assigned to any QoS flow of the MA PDU session as specified in 3GPP TS 23.502 [3];

b) if the UE established an MA PDU session over 3GPP access and non-3GPP access and the user plane of the MA PDU session over 3GPP access is released, the EPS bearer identity assigned for the MA PDU session can be revoked as specified in 3GPP TS 23.502 [3];

c) for an inter-system change from N1 mode to S1 mode:

1) if the UE established an MA PDU session over 3GPP access only, the UE can follow the procedure as specified in clause 6.1.4.1 of 3GPP TS 24.501 [6]; or

2) if the UE established an MA PDU session over 3GPP access and non-3GPP access,

A) if the MA PDU session is transferred to EPS as a PDN connection, the SMF can initiate the network-requested PDU session release procedure over non-3GPP access as specified in clause 6.3.3.2 of 3GPP TS 24.501 [6]. The UE is not allowed to use this MA PDU session in S1 mode. If the UE does not receive the PDU session release command over non-3GPP access for the MA PDU session when the UE is in S1 mode the UE performs a local release of the MA PDU session and associated user plane resources on the non-3GPP access. Release of the MA PDU session and associated user plane needs to be completed before inter-system change from S1 mode back to N1 mode; or

NOTE: The QoS flow(s) with EBI assigned over non-3GPP access is also transferred to the corresponding PDN connection.

B) if the MA PDU session is not transferred to EPS as a PDN connection and the SMF decides to move the traffic of the MA PDU session from 3GPP access to non-3GPP access, the SMF can initiate the network-requested PDU session modification procedure as specified in clause 6.3.2.2 of 3GPP TS 24.501 [6]; and

d) for an inter-system change from S1 mode to N1 mode, if the UE requests an MA PDU session or the related URSP or UE local configuration does not mandate that the PDU session is established over a single access when transferring the PDN connection to 3GPP access, the PDN connection can be converted by the network to an MA PDU session via the UE-requested PDU session modification procedure (see clause 5.2.5).

In the network not supporting N26 interface:

a) for an inter-system change from N1 mode to S1 mode, if the UE intends to transfer the MA PDU session to EPS, the UE can follow the procedure as specified in clause 6.1.4.2 of 3GPP TS 24.501 [6] and the network-requested PDU session release procedure over non-3GPP access can be performed to release the MA PDU session in 5GS as specified in clause 6.3.3.2 of 3GPP TS 24.501 [6]. The UE is not allowed to use this MA PDU session in S1 mode. If the UE does not receive the PDU session release command over non-3GPP access for the MA PDU session when the UE is in S1 mode the UE performs a local release of the MA PDU session and associated user plane resources on the non-3GPP access. Release of the MA PDU session and associated user plane needs to be completed before inter-system change from S1 mode back to N1 mode; and

b) for an inter-system change from S1 mode to N1 mode, if the related URSP or UE local configuration does not mandate that the PDU session is established over a single access, the UE can initiate the UE-requested PDU session establishment procedure to request an MA PDU session (see clause 5.2.1) or to allow the PDU session to be upgraded to an MA PDU session (see clause 5.2.6) when transferring the PDN connection to 5GS.

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