**3GPP TSG-CT WG1 Meeting #130-eC1-21XXXX**

**Electronic meeting, 20-28 May 2021**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.501** | **CR** | **3184** | **rev** | **1** | **Current version:** | **17.2.1** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Clarification of reactivation requested in PDU SESSION RELEASE COMMAND for an MA PDU session | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Mediatek Inc. | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GProtoc17 | | | | |  | ***Date:*** | | | 2021/05/26 |
|  |  | | | |  | |  | | |  |
| ***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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | It is not specified how to properly handle the #39 "reactivation requested" received in PDU SESSION RELEASE COMMAND for MA PDU sessions. …  This can happen, for example, during SSC mode 2 PDU session anchor relocation:  In the 6.3.3.2 *… If the selected SSC mode of the PDU session is "SSC mode 2" and the SMF requests the relocation of SSC mode 2 PDU session anchor with different PDU sessions as specified in 3GPP TS 23.502 [9], the SMF shall include 5GSM cause #39 "reactivation requested".*  In the 23.502 4.3.5.1 Change of SSC mode 2 PDU Session Anchor with different PDU Sessions  *The following procedure is triggered by SMF in order to change the PDU Session Anchor serving a PDU Session of SSC mode 2 for a UE when neither multi-homing nor UL CL applies to the PDU Session. This procedure releases the existing PDU Session associated with an old PDU Session Anchor (i.e. UPF1 in figure 4.3.5.1-1) and immediately establishes a new PDU Session with a new PDU Session Anchor (i.e. UPF2 in figure 4.3.5.1-1) to the same DN.*    *Figure 4.3.5.1-1: Change of SSC mode 2 PSA for a PDU Session*  *…*  *2. The PDU Session Release procedure is initiated as described in clause 4.3.4. The SMF sends an N1 SM Information to the UE via the AMF by invoking Namf\_Communication\_N1N2MessageTransfer as described in Step 3b of clause 4.3.4.2. The PDU Session Release Command message in N1 SM Information contains the PDU Session ID and Cause indicating that a PDU Session re-establishment to the same DN is required.*  *3. Upon reception of PDU Session Release Command with Cause indicating that a PDU Session re-establishment to the same DN is required as sent in step 2, the UE generates a new PDU Session ID and initiates PDU Session Establishment procedure as described in clause 4.3.2.2.*  *…*  The handling is proposed:  When UE receives a PDU SESSION RELEASE COMMAND message includes 5GSM cause #39 "reactivation requested":   * If the PDU is a MA PDU with 2 legs   + 3GPP and Non-3GPP registered to same PLMN     - UE choose one access (3GPP or Non-3GPP) to re-activate the MA PDU session with 2 legs   + 3GPP and Non-3GPP registered to different PLMNs     - UE choose an access to re-activate the MA PDU session frist leg     - then, over another access the UE re-activates second leg * If the PDU is a MA PDU with 1 leg   + UE re-activate the MA PDU session over the access of the lost leg * If the PDU is a single access PDU   + associated with 3GPP access     - UE re-activates the PDU over 3GPP access   + associated with Non-3GPP access   UE re-activates the PDU over Non-3GPP access | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Specify handling of the #39 "reactivation requested" received in PDU SESSION RELEASE COMMAND for MA PDU sessions | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Handling of the #39 "reactivation requested" received in PDU SESSION RELEASE COMMAND for MA PDU sessions is not specified | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.3.3.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \*\*\*

#### 6.3.3.3 Network-requested PDU session release procedure accepted by the UE

Upon receipt of a PDU SESSION RELEASE COMMAND message and a PDU session ID, using the NAS transport procedure as specified in subclause 5.4.5, the UE considers the PDU session as released and the UE shall create a PDU SESSION RELEASE COMPLETE message.

If the PDU SESSION RELEASE COMMAND message contains the PTI value allocated in the UE-requested PDU session release procedure, the UE shall stop the timer T3582. The UE should ensure that the PTI value assigned to this procedure is not released immediately.

NOTE 1: The way to achieve this is implementation dependent. For example, the UE can ensure that the PTI value assigned to this procedure is not released during the time equal to or greater than the default value of timer T3592.

While the PTI value is not released, the UE regards any received PDU SESSION RELEASE COMMAND message with the same PTI value as a network retransmission (see subclause 7.3.1).

If the PDU SESSION RELEASE COMMAND message includes 5GSM cause #39 "reactivation requested", then after completion of the network-requested PDU session release procedure:

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

1) established over both 3GPP access and non-3GPP access and the PDU SESSION RELEASE COMMAND does not include the Access type IE, and:

- the UE is registered over both 3GPP access and non-3GPP access in the same PLMN, the UE should re-initiate the UE-requested PDU session establishment procedure as specified in subclause 6.4.1, over which access the UE re-initiates the UE-requested PDU session establishment procedure is UE implementation specific; or

- the UE is registered over both 3GPP access and non-3GPP access in different PLMNs, the UE should re-initiate the UE-requested PDU session establishment procedures as specified in subclause 6.4.1over both accesses, over which access the UE re-initiates the UE-requested PDU session establishment procedure first is UE implementation specific; or

2) established over both 3GPP access and non-3GPP access and the PDU SESSION RELEASE COMMAND includes the Access type IE or established over only single access and the access type indicated in the Access type IE in the PDU SESSION RELEASE COMMAND is the access the user plane resources were established:

- the UE should re-initiate the UE-requested PDU session establishment procedure as specified in subclause 6.4.1 over the access indicated in the Access type IE; or

3) established over only single access and the PDU SESSION RELEASE COMMAND does not include the Access type IE:

- the UE should re-initiate the UE-requested PDU session establishment procedure as specified in subclause 6.4.1 over the access the user plane resources were established; or

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

- the UE should re-initiate the UE-requested PDU session establishment procedures as specified in subclause 6.4.1 over the access the PDU session was associated with;

for the re-initiated UE-requested PDU session establishment procedure(s) the UE should set:

a) the PDU session type to the PDU session type associated with the released PDU session;

b) the SSC mode to the SSC mode associated with the released PDU session;

c) the DNN to the DNN associated with the released PDU session; and

d) the S-NSSAI to the S-NSSAI associated with (if available in roaming scenarios) a mapped S-NSSAI if provided in the UE-requested PDU session establishment procedure of the released PDU session.

NOTE 2: User interaction is necessary in some cases when the UE cannot re-initiate the UE-requested PDU session establishment procedure automatically.

If the PDU SESSION RELEASE COMMAND message is received without the Back-off timer value IE or includes 5GSM cause #39 "reactivation requested", and the UE provided an S-NSSAI during the PDU session establishment, the UE shall stop timer T3585 if it is running for the S-NSSAI of the PDU session. If the UE did not provide an S-NSSAI during the PDU session establishment and the request type was different from "initial emergency request" and different from "existing emergency PDU session", the UE shall stop the timer T3585 associated with no S-NSSAI if it is running. If the PDU SESSION RELEASE COMMAND message was received for an emergency PDU session, the UE shall not stop the timer T3585 associated with no S-NSSAI if it is running. The timer T3585 to be stopped includes the timer T3585 applied for all the PLMNs, if running, and the timer T3585 applied for the registered PLMN, if running.

If the PDU SESSION RELEASE COMMAND message is received without the Back-off timer value IE or includes 5GSM cause #39 "reactivation requested", and the UE provided a DNN during the PDU session establishment, the UE shall stop timer T3396 if it is running for the DNN provided by the UE. If the UE did not provide a DNN during the PDU session establishment and the request type was different from "initial emergency request" and different from "existing emergency PDU session", the UE shall stop the timer T3396 associated with no DNN if it is running. If the PDU SESSION RELEASE COMMAND message was received for an emergency PDU session, the UE shall not stop the timer T3396 associated with no DNN if it is running.

If the PDU SESSION RELEASE COMMAND message is received without the Back-off timer value IE or includes 5GSM cause #39 "reactivation requested", and the UE provided an S-NSSAI and a DNN during the PDU session establishment, the UE shall stop timer T3584 if it is running for the [S-NSSAI of the PDU session, DNN] combination provided by the UE. If the UE did not provide an S-NSSAI during the PDU session establishment, the UE shall stop the timer T3584 associated with [no S-NSSAI, DNN] if it is running. If the UE did not provide a DNN during the PDU session establishment and the request type was different from "initial emergency request" and different from "existing emergency PDU session", the UE shall stop the timer T3584 associated with [S-NSSAI of the PDU session, no DNN] combination, if it is running. If the PDU SESSION RELEASE COMMAND message was received for an emergency PDU session, the UE shall not stop the timer T3584 associated with [S-NSSAI of the PDU session, no DNN] if it is running. If the UE provided neither a DNN nor an S-NSSAI during the PDU session establishment and the request type was different from "initial emergency request" and different from "existing emergency PDU session", the UE shall stop the timer T3584 associated with [no S-NSSAI, no DNN] if it is running. If the PDU SESSION RELEASE COMMAND message was received for an emergency PDU session, the UE shall not stop the timer T3584 associated with [no S-NSSAI, no DNN] if it is running. The timer T3584 to be stopped includes the timer T3584 applied for all the PLMNs, if running, and the timer T3584 applied for the registered PLMN, if running.

NOTE 3: If the PDU SESSION RELEASE COMMAND message is received without the Back-off timer value IE or includes 5GSM cause #39 "reactivation requested" for a PDU session, the UE provided a DNN (or no DNN) and an S-NSSAI (or no S-NSSAI) when the PDU session is established, timer T3396 associated with the DNN (or no DNN, if no DNN was provided by the UE) is running, and timer T3584 associated with the DNN (or no DNN, if no DNN was provided by the UE) and the S-NSSAI of the PDU session (or no S-NSSAI, if no S-NSSAI was provided by the UE) is running, then the UE stops both the timer T3396 and the timer T3584.

NOTE 4: If the PDU SESSION RELEASE COMMAND message is received without the Back-off timer value IE or includes 5GSM cause #39 "reactivation requested" for a PDU session, the UE provided a DNN (or no DNN) and an S-NSSAI of the PDU session (or no S-NSSAI) when the PDU session is established, timer T3585 associated with the S-NSSAI of the PDU session (or no S-NSSAI, if no S-NSSAI was provided by the UE) is running, and timer T3584 associated with the DNN (or no DNN, if no DNN was provided by the UE) and the S-NSSAI of the PDU session (or no S-NSSAI, if no S-NSSAI was provided by the UE) is running, then the UE stops both the timer T3585 and the timer T3584.

If the PDU SESSION RELEASE COMMAND message includes 5GSM cause #26 "insufficient resources" and the Back-off timer value IE, the UE shall ignore the 5GSM congestion re-attempt indicator IE provided by the network, if any, and the UE shall take different actions depending on the timer value received for timer T3396 in the Back-off timer value:

a) If the timer value indicates neither zero nor deactivated and a DNN was provided during the PDU session establishment, the UE shall stop timer T3396 associated with the corresponding DNN, if it is running. If the timer value indicates neither zero nor deactivated and no DNN was provided during the PDU session establishment and the request type was different from "initial emergency request" and different from "existing emergency PDU session", the UE shall stop timer T3396 associated with no DNN if it is running. The UE shall then start timer T3396 with the value provided in the Back-off timer value IE and:

1) shall not send a PDU SESSION ESTABLISHMENT REQUEST message or PDU SESSION MODIFICATION REQUEST message with exception of those identified in subclause 6.4.2.1, for the same DNN that was sent by the UE, until timer T3396 expires or timer T3396 is stopped; and

2) shall not send a PDU SESSION ESTABLISHMENT REQUEST message without an DNN and with request type different from "initial emergency request" and different from "existing emergency PDU session", or a PDU SESSION MODIFICATION REQUEST message with exception of those identified in subclause 6.4.2.1, for a non-emergency PDU session established without an DNN provided by the UE, if no DNN was provided during the PDU session establishment and the request type was different from "initial emergency request" and different from "existing emergency PDU session", until timer T3396 expires or timer T3396 is stopped.

The UE shall not stop timer T3396 upon a PLMN change or inter-system change;

b) if the timer value indicates that this timer is deactivated and a DNN was provided during the PDU session establishment, the UE shall stop timer T3396 associated with the corresponding DNN, if it is running. If the timer value indicates that this timer is deactivated and no DNN was provided during the PDU session establishment and the request type was different from "initial emergency request" and different from "existing emergency PDU session", the UE shall stop timer T3396 associated with no DNN if it is running. The UE:

1) shall not send a PDU SESSION ESTABLISHMENT REQUEST message or PDU SESSION MODIFICATION REQUEST message with exception of those identified in subclause 6.4.2.1, for the same DNN until the UE is switched off, the USIM is removed, the entry in the "list of subscriber data" for the current SNPN is updated, or the UE receives a PDU SESSION MODIFICATION COMMAND message for the same DNN from the network, or a PDU SESSION RELEASE COMMAND message without the Back-off timer value IE or including 5GSM cause #39 "reactivation requested" for the same DNN from the network; and

2) shall not send a PDU SESSION ESTABLISHMENT REQUEST message without an DNN and with request type different from "initial emergency request" and different from "existing emergency PDU session", or a PDU SESSION MODIFICATION REQUEST message with exception of those identified in subclause 6.4.2.1, for a non-emergency PDU session established without an DNN provided by the UE, if no DNN was provided during the PDU session establishment and the request type was different from "initial emergency request" and different from "existing emergency PDU session", until the UE is switched off, the USIM is removed, the entry in the "list of subscriber data" for the current SNPN is updated, or the UE receives a PDU SESSION MODIFICATION COMMAND message for a non-emergency PDU session established without an DNN provided by the UE, or a PDU SESSION RELEASE COMMAND message without the Back-off timer value IE or including 5GSM cause #39 "reactivation requested" for a non-emergency PDU session established without an DNN provided by the UE.

The timer T3396 remains deactivated upon a PLMN change or inter-system change; and

c) if the timer value indicates zero, the UE:

1) shall stop timer T3396 associated with the corresponding DNN, if running, and may send a PDU SESSION ESTABLISHMENT REQUEST message or PDU SESSION MODIFICATION REQUEST message for the same DNN; and

2) if no DNN was provided during the PDU session establishment and the request type was different from "initial emergency request" and different from "existing emergency PDU session", the UE shall stop timer T3396 associated with no DNN, if running, and may send a PDU SESSION ESTABLISHMENT REQUEST message without a DNN, or a PDU SESSION MODIFICATION REQUEST message without an DNN provided by the UE.

If the PDU SESSION RELEASE COMMAND message includes 5GSM cause #26 "insufficient resources" and the Back-off timer value IE is not included, then the UE may send a PDU SESSION ESTABLISHMENT REQUEST message or PDU SESSION MODIFICATION REQUEST message for the same DNN or without a DNN.

When the timer T3396 is running or the timer is deactivated, the UE is allowed to initiate a PDU session establishment procedure for emergency services.

If the timer T3396 is running when the UE enters state 5GMM-DEREGISTERED, the UE remains switched on, and the USIM in the UE (if any) remains the same and the entry in the "list of subscriber data" for the SNPN to which timer T3396 is associated (if any) is not updated, then timer T3396 is kept running until it expires or it is stopped.

If the UE is switched off when the timer T3396 is running, and if the USIM in the UE (if any) remains the same and the entry in the "list of subscriber data" for the SNPN to which timer T3396 is associated (if any) is not updated when the UE is switched on, the UE shall behave as follows:

- let t1 be the time remaining for T3396 timeout at switch off and let t be the time elapsed between switch off and switch on. If t1 is greater than t, then the timer shall be restarted with the value t1 – t. If t1 is equal to or less than t, then the timer need not be restarted. If the UE is not capable of determining t, then the UE shall restart the timer with the value t1.

If the 5GSM cause value is #39 "reactivation requested", the UE shall ignore the Back-off timer value IE and Re-attempt indicator IE provided by the network, if any.

If the 5GSM cause value is #67 "insufficient resources for specific slice and DNN" and the Back-off timer value IE is included, the UE shall take different actions depending on the timer value received for timer T3584 in the Back-off timer value:

a) If the timer value indicates neither zero nor deactivated, and both an S-NSSAI and a DNN were provided by the UE during the PDU session establishment the UE shall stop timer T3584 associated with the [S-NSSAI of the PDU session, DNN] combination, if it is running. If the timer value indicates neither zero nor deactivated, an S-NSSAI and no DNN was provided during the PDU session establishment and the request type was different from "initial emergency request" and different from "existing emergency PDU session", the UE shall stop timer T3584 associated with [S-NSSAI of the PDU session, no DNN] combination, if it is running. If the timer value indicates neither zero nor deactivated, no S-NSSAI and a DNN was provided during the PDU session establishment, the UE shall stop timer T3584 associated with the [no S-NSSAI, DNN] combination, if it is running. If the timer value indicates neither zero nor deactivated and neither S-NSSAI nor DNN was provided during the PDU session establishment and the request type was different from "initial emergency request" and different from "existing emergency PDU session", the UE shall stop timer T3584 associated with the [no S-NSSAI, no DNN] combination, if it is running. The timer T3584 to be stopped includes the timer T3584 applied for all the PLMNs, if running, and the timer T3584 applied for the registered PLMN, if running. The UE shall then start timer T3584 with the value provided in the Back-off timer value IE.

1) The UE shall not send another PDU SESSION ESTABLISHMENT REQUEST message with request type different from "initial emergency request" and different from "existing emergency PDU session", or PDU SESSION MODIFICATION REQUEST message with the exception of those identified in subclause 6.4.2.1, for the [S-NSSAI of the PDU session, DNN] combination, until timer T3584 expires or timer T3584 is stopped;

2) shall not send another PDU SESSION ESTABLISHMENT REQUEST message with request type different from "initial emergency request" and different from "existing emergency PDU session", or another PDU SESSION MODIFICATION REQUEST message with the exception of those identified in subclause 6.4.2.1, for the [S-NSSAI of the PDU session, no DNN] combination, if no DNN was provided during the PDU session establishment, until timer T3584 expires or timer T3584 is stopped;

3) shall not send another PDU SESSION ESTABLISHMENT REQUEST message, or another PDU SESSION MODIFICATION REQUEST message with the exception of those identified in subclause 6.4.2.1, for the same [no S-NSSAI, DNN] combination, if no S-NSSAI was provided during the PDU session establishment, until timer T3584 expires or timer T3584 is stopped; and

4) shall not send another PDU SESSION ESTABLISHMENT REQUEST message with request type different from "initial emergency request" and different from "existing emergency PDU session", or another PDU SESSION MODIFICATION REQUEST message with the exception of those identified in subclause 6.4.2.1, for the same [no S-NSSAI, no DNN] combination, if neither S-NSSAI nor DNN was provided during the PDU session establishment, until timer T3584 expires or timer T3584 is stopped.

The UE shall not stop timer T3584 upon a PLMN change or inter-system change;

b) if the timer value indicates that this timer is deactivated:

1) if both S-NSSAI and DNN were provided by the UE during the PDU session establishment, the UE shall stop timer T3584 associated with the [S-NSSAI of the PDU session, DNN] combination (including the timer T3584 applied for all the PLMNs, if running, and the timer T3584 applied for the registered PLMN, if running), if it is running. The UE shall not send another PDU SESSION ESTABLISHMENT REQUEST message with request type different from "initial emergency request" and different from "existing emergency PDU session", or PDU SESSION MODIFICATION REQUEST message with exception of those identified in subclause 6.4.2.1, for the [S-NSSAI of the PDU session, DNN] combination that was sent by the UE, until the UE is switched off, the USIM is removed, the entry in the "list of subscriber data" for the current SNPN is updated, or the UE receives a PDU SESSION MODIFICATION COMMAND message for the [S-NSSAI of the PDU session, DNN] combination from the network or a PDU SESSION RELEASE COMMAND message without the Back-off timer value IE or including 5GSM cause #39 "reactivation requested" for the [S-NSSAI of the PDU session, DNN] combination from the network;

2) if an S-NSSAI was provided but a DNN was not provided by the UE during the PDU session establishment, the UE shall stop timer T3584 associated with the [S-NSSAI of the PDU session, no DNN] combination (including the timer T3584 applied for all the PLMNs, if running, and the timer T3584 applied for the registered PLMN, if running), if it is running. The UE shall not send a PDU SESSION ESTABLISHMENT REQUEST message with request type different from "initial emergency request" and different from "existing emergency PDU session", or a PDU SESSION MODIFICATION REQUEST message with exception of those identified in subclause 6.4.2.1, for the [S-NSSAI of the PDU session, no DNN] combination, if no DNN was provided during the PDU session establishment, until the UE is switched off, the USIM is removed, the entry in the "list of subscriber data" for the current SNPN is updated, or the UE receives an PDU SESSION MODIFICATION COMMAND message for a non-emergency PDU session established for the [S-NSSAI of the PDU session, no DNN] combination from the network or a PDU SESSION RELEASE COMMAND message without the Back-off timer value IE or including 5GSM cause #39 "reactivation requested" for a non-emergency PDU session established for the [S-NSSAI of the PDU session, no DNN] combination from the network;

3) if an S-NSSAI was not provided but a DNN was provided by the UE during the PDU session establishment, the UE shall stop timer T3584 associated with the [no S-NSSAI, DNN] combination (including the timer T3584 applied for all the PLMNs, if running, and the timer T3584 applied for the registered PLMN, if running), if it is running. The UE shall not send a PDU SESSION ESTABLISHMENT REQUEST message, or a PDU SESSION MODIFICATION REQUEST message with exception of those identified in subclause 6.4.2.1, for the [no S-NSSAI, DNN], if no S-NSSAI was provided during the PDU session establishment, until the UE is switched off, the USIM is removed, the entry in the "list of subscriber data" for the current SNPN is updated, or the UE receives an PDU SESSION MODIFICATION COMMAND message for the [no S-NSSAI, DNN] combination from the network or a PDU SESSION RELEASE COMMAND message without the Back-off timer value IE or including 5GSM cause #39 "reactivation requested" for the same [no S-NSSAI, DNN] combination from the network; and

4) if neither S-NSSAI nor DNN were provided by the UE during the PDU session establishment, the UE shall stop timer T3584 associated with the [no S-NSSAI, no DNN] combination (including the timer T3584 applied for all the PLMNs, if running, and the timer T3584 applied for the registered PLMN, if running), if it is running. The UE shall not send a PDU SESSION ESTABLISHMENT REQUEST message with request type different from "initial emergency request" and different from "existing emergency PDU session", or a PDU SESSION MODIFICATION REQUEST message with exception of those identified in subclause 6.4.2.1, for the [no S-NSSAI, no DNN] combination, if neither S-NSSAI nor DNN was provided during the PDU session establishment, until the UE is switched off, the USIM is removed, the entry in the "list of subscriber data" for the current SNPN is updated, or the UE receives an PDU SESSION MODIFICATION COMMAND message for a non-emergency PDU session established for the [no S-NSSAI, no DNN] combination from the network or a PDU SESSION RELEASE COMMAND message without the Back-off timer value IE or including 5GSM cause #39 "reactivation requested" for a non-emergency PDU session established for the [no S-NSSAI, no DNN] combination from the network.

The timer T3584 remains deactivated upon a PLMN change or inter-system change; and

c) if the timer value indicates zero:

1) if both S-NSSAI and DNN were provided by the UE during the PDU session establishment, the UE shall stop timer T3584 associated with the [S-NSSAI of the PDU session, DNN] combination (including the timer T3584 applied for all the PLMNs, if running, and the timer T3584 applied for the registered PLMN, if running), if running, and may send another PDU SESSION ESTABLISHMENT REQUEST message or PDU SESSION MODIFICATION REQUEST message for the [S-NSSAI of the PDU session, DNN] combination;

2) if an S-NSSAI was provided but a DNN was not provided by the UE during the PDU session establishment, the UE shall stop timer T3584 associated with the [S-NSSAI of the PDU session, no DNN] combination (including the timer T3584 applied for all the PLMNs, if running, and the timer T3584 applied for the registered PLMN, if running), if it is running. The UE may send another PDU SESSION ESTABLISHMENT REQUEST message or PDU SESSION MODIFICATION REQUEST message for the [S-NSSAI of the PDU session, no DNN] combination if the request type was different from "initial emergency request" and different from "existing emergency PDU session";

3) if an S-NSSAI was not provided but a DNN was provided by the UE during the PDU session establishment, the UE shall stop timer T3584 associated with the [no S-NSSAI, DNN] combination (including the timer T3584 applied for all the PLMNs, if running, and the timer T3584 applied for the registered PLMN, if running), if it is running. The UE may send another PDU SESSION ESTABLISHMENT REQUEST message, or PDU SESSION MODIFICATION REQUEST message for the [no S-NSSAI, DNN] combination; and

4) if neither S-NSSAI nor DNN were provided by the UE during the PDU session establishment, the UE shall stop timer T3584 associated with the [no S-NSSAI, no DNN] combination (including the timer T3584 applied for all the PLMNs, if running, and the timer T3584 applied for the registered PLMN, if running), if it is running. The UE may send another PDU SESSION ESTABLISHMENT REQUEST message, or PDU SESSION MODIFICATION REQUEST message for the [no S-NSSAI, no DNN] combination if the request type was different from "initial emergency request" and different from "existing emergency PDU session".

If the 5GSM congestion re-attempt indicator IE set to "The back-off timer is applied in all PLMNs" is included in the PDU SESSION RELEASE COMMAND message with the 5GSM cause value #67 "insufficient resources for specific slice and DNN", then the UE shall apply the timer T3584 for all the PLMNs. Otherwise, the UE shall apply the timer T3584 for the registered PLMN.

If the 5GSM cause value is #67 "insufficient resources for specific slice and DNN" and the Back-off timer value IE is not included, then the UE may send another PDU SESSION ESTABLISHMENT REQUEST message or PDU SESSION MODIFICATION REQUEST message for the same [S-NSSAI, DNN] combination.

When the timer T3584 is running or the timer is deactivated, the UE is allowed to initiate a PDU session establishment procedure for emergency services.

If the timer T3584 is running when the UE enters state 5GMM-DEREGISTERED, the UE remains switched on, and the USIM in the UE (if any) remains the same and the entry in the "list of subscriber data" for the SNPN to which timer T3584 is associated (if any) is not updated, then timer T3584 is kept running until it expires or it is stopped.

If the UE is switched off when the timer T3584 is running, and if the USIM in the UE (if any) remains the same and the entry in the "list of subscriber data" for the SNPN to which timer T3584 is associated (if any) is not updated when the UE is switched on, the UE shall behave as follows:

- let t1 be the time remaining for T3584 timeout at switch off and let t be the time elapsed between switch off and switch on. If t1 is greater than t, then the timer shall be restarted with the value t1 – t. If t1 is equal to or less than t, then the timer need not be restarted. If the UE is not capable of determining t, then the UE shall restart the timer with the value t1.

If the 5GSM cause value is #69 "insufficient resources for specific slice" and the Back-off timer value IE is included, the UE shall take different actions depending on the timer value received for timer T3585 in the Back-off timer value:

a) If the timer value indicates neither zero nor deactivated and an S-NSSAI was provided during the PDU session establishment, the UE shall stop timer T3585 associated with the S-NSSAI of the PDU session, if it is running. If the timer value indicates neither zero nor deactivated and no S-NSSAI was provided during the PDU session establishment and the request type was different from "initial emergency request" and different from "existing emergency PDU session", the UE shall stop timer T3585 associated with no S-NSSAI if it is running. The timer T3585 to be stopped includes the timer T3585 applied for all the PLMNs, if running, and the timer T3585 applied for the registered PLMN, if running. The UE shall then start timer T3585 with the value provided in the Back-off timer value IE and:

1) if an S-NSSAI was provided by the UE during the PDU session establishment, the UE shall not send another PDU SESSION ESTABLISHMENT REQUEST message, or PDU SESSION MODIFICATION REQUEST message with exception of those identified in subclause 6.4.2.1, for the S-NSSAI of the PDU session, until timer T3585 expires or timer T3585 is stopped; and

2) if the request type was different from "initial emergency request" and from "existing emergency PDU session", and an S-NSSAI was not provided by the UE during the PDU session establishment, the UE shall not send another PDU SESSION ESTABLISHMENT REQUEST message without an S-NSSAI and with request type different from "initial emergency request" and different from "existing emergency PDU session", or another PDU SESSION MODIFICATION REQUEST message with exception of those identified in subclause 6.4.2.1, for a non-emergency PDU session established without an S-NSSAI provided by the UE, until timer T3585 expires or timer T3585 is stopped.

The UE shall not stop timer T3585 upon a PLMN change or inter-system change;

b) if the timer value indicates that this timer is deactivated and an S-NSSAI was provided during the PDU session establishment, the UE shall stop timer T3585 associated with the S-NSSAI of the PDU session, if it is running. If the timer value indicates that this timer is deactivated and no S-NSSAI was provided during the PDU session establishment and the request type was different from "initial emergency request" and different from "existing emergency PDU session", the UE shall stop timer T3585 associated with no S-NSSAI if it is running. The timer T3585 to be stopped includes the timer T3585 applied for all the PLMNs, if running, and the timer T3585 applied for the registered PLMN, if running. In addition:

1) if an S-NSSAI was provided by the UE during the PDU session establishment, the UE shall not send another PDU SESSION ESTABLISHMENT REQUEST, or PDU SESSION MODIFICATION REQUEST with exception of those identified in subclause 6.4.2.1, for the S-NSSAI of the PDU session until the UE is switched off, the USIM is removed, the entry in the "list of subscriber data" for the current SNPN is updated,or a PDU SESSION RELEASE COMMAND message without the Back-off timer value IE or including 5GSM cause #39 "reactivation requested" for the S-NSSAI of the PDU session from the network; and

2) if the request type was different from "initial emergency request" and from "existing emergency PDU session", and an S-NSSAI was not provided by the UE during the PDU session establishment, the UE shall not send another PDU SESSION ESTABLISHMENT REQUEST message without an S-NSSAI and with request type different from "initial emergency request" and different from "existing emergency PDU session", or another PDU SESSION MODIFICATION REQUEST message with exception of those identified in subclause 6.4.2.1, for a non-emergency PDU session established without an S-NSSAI provided by the UE, , until the UE is switched off, the USIM is removed, the entry in the "list of subscriber data" for the current SNPN is updated, or a PDU SESSION RELEASE COMMAND message without the Back-off timer value IE or including 5GSM cause #39 "reactivation requested" for a non-emergency PDU session established without an S-NSSAI provided by the UE.

The timer T3585 remains deactivated upon a PLMN change or inter-system change; and

c) if the timer value indicates zero:

1) if an S-NSSAI was provided by the UE during the PDU session establishment, the UE shall stop timer T3585 associated with the S-NSSAI of the PDU session (including the timer T3585 applied for all the PLMNs, if running, and the timer T3585 applied for the registered PLMN, if running), if running, and may send another PDU SESSION ESTABLISHMENT REQUEST, or PDU SESSION MODIFICATION REQUEST message for the S-NSSAI of the PDU session; and

2) if no S-NSSAI was provided during the PDU session establishment and the request type was different from "initial emergency request" and different from "existing emergency PDU session", the UE shall stop timer T3585 associated with no S-NSSAI (including the timer T3585 applied for all the PLMNs, if running, and the timer T3585 applied for the registered PLMN, if running), if running, and may send another PDU SESSION ESTABLISHMENT REQUEST message without an S-NSSAI, or another PDU SESSION MODIFICATION REQUEST message without an S-NSSAI provided by the UE.

If the 5GSM congestion re-attempt indicator IE set to "The back-off timer is applied in all PLMNs" is included in the PDU SESSION RELEASE COMMAND message with the 5GSM cause value #69 "insufficient resources for specific slice", then the UE shall apply the timer T3585 for all the PLMNs. Otherwise, the UE shall apply the timer T3585 for the registered PLMN.

If the 5GSM cause value is #69 "insufficient resources for specific slice" and the Back-off timer value IE is not included, then the UE may send another PDU SESSION ESTABLISHMENT REQUEST message or PDU SESSION MODIFICATION REQUEST message for the same S-NSSAI or without an S-NSSAI.

When the timer T3585 is running or the timer is deactivated, the UE is allowed to initiate a PDU session establishment procedure for emergency services.

If the timer T3585 is running when the UE enters state 5GMM-DEREGISTERED, the UE remains switched on, and the USIM in the UE (if any) remains the same and the entry in the "list of subscriber data" for the SNPN to which timer T3585 is associated (if any) is not updated, then timer T3585 is kept running until it expires or it is stopped.

If the UE is switched off when the timer T3585 is running, and if the USIM in the UE (if any) remains the same and the entry in the "list of subscriber data" for the SNPN to which timer T3585 is associated (if any) is not updated when the UE is switched on, the UE shall behave as follows:

- let t1 be the time remaining for T3585 timeout at switch off and let t be the time elapsed between switch off and switch on. If t1 is greater than t, then the timer shall be restarted with the value t1 – t. If t1 is equal to or less than t, then the timer need not be restarted. If the UE is not capable of determining t, then the UE shall restart the timer with the value t1.

NOTE 5: As described in this subclause, upon PLMN change or inter-system change, the UE does not stop the timer T3584 or T3585. This means the timer T3584 or T3585 can still be running or be deactivated for the given 5GSM procedure, the PLMN, the S-NSSAI and optionally the DNN combination when the UE returns to the PLMN or when it performs inter-system change back from S1 mode to N1 mode. Thus the UE can still be prevented from sending another PDU SESSION ESTABLISHMENT REQUEST or PDU SESSION MODIFICATION REQUEST message in the PLMN for the same S-NSSAI and optionally the same DNN.

Upon PLMN change, if T3584 is running or is deactivated for an S-NSSAI, a DNN, and old PLMN, but T3584 is not running and is not deactivated for the S-NSSAI, the DNN, and new PLMN, then the UE is allowed to send a PDU SESSION ESTABLISHMENT REQUEST message for the same S-NSSAI and the same DNN in the new PLMN.

Upon PLMN change, if T3585 is running or is deactivated for an S-NSSAI and old PLMN, but T3585 is not running and is not deactivated for the S-NSSAI and new PLMN, then the UE is allowed to send a PDU SESSION ESTABLISHMENT REQUEST message for the same S-NSSAI in the new PLMN.

If the PDU SESSION RELEASE COMMAND message includes 5GSM cause #29 "user authentication or authorization failed "and the Back-off timer value IE, the UE shall behave as follows:

a) if the timer value indicates neither zero nor deactivated and a DNN was provided during the PDU session establishment, the UE shall start the back-off timer with the value provided in the Back-off timer value IE for the PDU session establishment procedure and [PLMN, DNN] combination. The UE shall not send another PDU SESSION ESTABLISHMENT REQUEST message for the same DNN in the current PLMN, until the back-off timer expires, the UE is switched off, the USIM is removed, or the entry in the "list of subscriber data" for the current SNPN is updated; and

b) if the timer value indicates that this timer is deactivated and a DNN was provided during the PDU session establishment, the UE shall not send another PDU SESSION ESTABLISHMENT REQUEST message for the same DNN in the current PLMN, until the UE is switched off, the USIM is removed, or the entry in the "list of subscriber data" for the current SNPN is updated;

c) if the timer value indicates zero, the UE may send another PDU SESSION ESTABLISHMENT REQUEST message for the same combination of [PLMN, DNN] in the current PLMN.

The UE shall not stop any back-off timer:

a) upon a PLMN change;

b) upon an inter-system change; or

c) upon registration over another access type.

For MA PDU session, upon receipt of the PDU SESSION RELEASE COMMAND, the UE shall behave as follows:

a) if the PDU SESSION RELEASE COMMAND includes the Access type IE and the MA PDU session has user-plane resources established on both 3GPP access and non-3GPP access, the UE shall consider the user-plane resources on the access indicated in the Access type IE as released and shall create a PDU SESSION RELEASE COMPLETE message;

b) if the PDU SESSION RELEASE COMMAND includes the Access type IE and the PDU session and has user-plane resources established on only the access indicated in the Access type IE, the UE shall consider the MA PDU session as released and shall create a PDU SESSION RELEASE COMPLETE message; and

c) if the PDU SESSION RELEASE COMMAND does not include the Access type IE, the UE shall consider the MA PDU session as released and shall create a PDU SESSION RELEASE COMPLETE message.

The UE shall transport the PDU SESSION RELEASE COMPLETE message and the PDU session ID, using the NAS transport procedure as specified in subclause 5.4.5.

Upon receipt of a PDU SESSION RELEASE COMPLETE message, the SMF shall stop timer T3592 and shall consider the PDU session as released.

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