**3GPP TSG-CT WG1 Meeting #131-eC1-21XXXX**

**E-meeting, 19-27 August 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  | **24.501** | **CR** | **3350** | **rev** | **1** | **Current version:** | **17.3.1** |  |
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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:***  | NOTIFICATION RESPONSE message indicating failure |
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| ***Source to WG:*** | Mediatek Inc., Intel, Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | MUSIM |  | ***Date:*** | 2021/08/25 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | In 23.502 4.2.3.3 Network Triggered Service Request*… If the UE is in* ***CM-IDLE*** *state in* ***3GPP access*** *and in* ***CM-CONNECTED*** *state in* ***non-3GPP access****, upon reception of NAS* ***Notification message*** *over* ***non-3GPP access*** *identifying the 3GPP access type, the UE shall initiate the UE triggered Service Request procedure (clause 4.2.3.2) over the 3GPP access when 3GPP access is available. The UE in MUSIM mode may not be able to trigger Service Request procedure (clause 4.2.3.2) over the 3GPP access to response the NAS Notification, e.g. due to UE implementation constraints. If the AMF does not receive the Service Request message before Notification timer expires, the AMF may either page the UE through 3GPP access or notify the SMF that the UE was not able to re-activate the PDU Session….*In stage 2 only the **NOTIFICATION message** is defined thus the NW can only rely on the *Notification timer* to guard the response of UE. However, in stage 3 an additional **NOTIFICATION RESPONSE message** is defined. The **NOTIFICATION RESPONSE message** is used to notify the NW that the UE is not able to respond over 3GPP access and can be used for this caseIn 24.501 sc 5.6.3.3 … *Upon reception of NOTIFICATION RESPONSE message, the AMF shall stop timer T3565 and should notify the SMF that the UE is unreachable*…..With the **NOTIFICATION RESPONSE message** the NW does not need to wait for T3565 (6 ~ 24 seconds) timer expiry to know the UE is not able to respond over 3GPP access, and the NW does not need to waste resource to further *page the UE* but just need to *notify the SMF that the UE is unreachable* immediately. In some scenarios the user experience can be improved, e.g., the MO side can know the MT side is not able to answer without waiting too long (T3565 timer expiry + paging no response). |
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| ***Summary of change:*** | NOTIFICATION RESPONSE message used to indicate to the network that the UE is not able to respond due to activities on another USIM |
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| ***Consequences if not approved:*** | When a UE is not able to respond over 3GPP access, NW need to wait T3565 seconds to know. The NW may also trigger an unnecessary paging after T3565 expiry. |
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| ***Clauses affected:*** | 5.6.3.2 |
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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 \*\*\*

#### 5.6.3.2 Notification procedure initiation

The network shall initiate the notification procedure by sending the NOTIFICATION message to the UE and start timer T3565 (see example in figure 5.6.3.2.1).

For case a) in subclause 5.6.3.1, the NOTIFICATION message is sent from the network to the UE via 3GPP access with access type indicating non-3GPP access.

For case b) in subclause 5.6.3.1, the NOTIFICATION message is sent from the network to the UE via non-3GPP access with access type indicating 3GPP access when the UE is not in MICO mode.



Figure 5.6.3.2.1: Notification procedure

Upon reception of a NOTIFICATION message, the UE shall stop the timer T3346, if running.

For case a) in subclause 5.6.3.1, upon reception of NOTIFICATION message, the UE shall initiate a service request procedure over 3GPP access as specified in subclauses 5.6.1.

NOTE: For a UE in NB-NI mode, if there is DL user data pending for a PDU session associated with non-3GPP access then the AMF notifies the SMF that reactivation of user plane resources cannot be performed if the number of PDU sessions that currently has user-plane resources established equals to the UE's maximum number of supported user-plane resources.

For case b) in subclause 5.6.3.1, upon reception of NOTIFICATION message:

a) if control plane CIoT 5GS optimization is not used by the UE, the UE shall:

1) initiate a service request procedure over 3GPP access as specified in subclause 5.6.1.2.1, if the UE is in 5GMM-REGISTERED.NORMAL-SERVICE or 5GMM-REGISTERED.NON-ALLOWED-SERVICE (as described in subclause 5.3.5.2) state over 3GPP access or 5GMM-REGISTERED.NON-ALLOWED-SERVICE state (see subclause 5.3.5.2), and the UE is in the 5GMM-IDLE mode without suspend indication;

2) initiate a registration procedure for mobility and periodic registration update over 3GPP access as specified in subclause 5.5.1.3.2, if the UE is in 5GMM-REGISTERED.ATTEMPTING-REGISTRATION-UPDATE state over 3GPP access; or

3) proceed as specified in subclause 5.3.1.5 if the UE is in the 5GMM-IDLE mode with suspend indication;

b) if control plane CIoT 5GS optimization is used by the UE, the UE shall:

1) initiate a service request procedure over 3GPP access as specified in subclause 5.6.1.2.2, if the UE is in 5GMM-REGISTERED.NORMAL-SERVICE or 5GMM-REGISTERED.NON-ALLOWED-SERVICE (as described in subclause 5.3.5.2)state and the UE is in the 5GMM-IDLE mode without suspend indication;

2) initiate a registration procedure for mobility and periodic registration update over 3GPP access as specified in subclause 5.5.1.3.2, if the UE is in 5GMM-REGISTERED.ATTEMPTING-REGISTRATION-UPDATE state; or

3) proceed as specified in subclause 5.3.1.5 if the UE is in the 5GMM-IDLE mode with suspend indication; or

c) if:

1) the UE is in 5GMM-REGISTERED.NO-CELL-AVAILABLE state, 5GMM-REGISTERED.PLMN-SEARCH state, 5GMM-REGISTERED.LIMITED-SERVICE state or 5GMM-REGISTERED.UPDATE-NEEDED state over 3GPP access; or

2) the MUSIM capable UE is not able to respond the NOTIFICATION message as specified in case a) and b) above, e.g., due to UE implementation constraints;

 the UE shall respond with NOTIFICATION RESPONSE message indicating failure to re-establish the user-plane resources of PDU sessions and may include the PDU session status information element to indicate:

1) the single access PDU session(s) not in 5GSM state PDU SESSION INACTIVEin the UE associated with the 3GPP access type; and

2) the MA PDU session(s) not in 5GSM state PDU SESSION INACTIVE in the UE and having user plane resources established associated with the 3GPP access type.

Upon reception of NOTIFICATION message:

 For case b) in subclause 5.6.3.1, if the UE is in 5GMM-REGISTERED.NO-CELL-AVAILABLE state or 5GMM-REGISTERED.PLMN-SEARCH state and a local release was performed in the UE for the single access PDU sessions associated with the 3GPP access or for user plane resources on the 3GPP access of MA PDU sessions;

then the UE shall respond with NOTIFICATION RESPONSE message indicating with the PDU session status information element that:

- the local release of its single access PDU sessions associated with the 3GPP access was performed; and

- the local release of its 3GPP access user plane resources of MA PDU sessions was performed.

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