**3GPP TSG-CT WG1 Meeting #134eC1-22abcd1146**

**E-meeting, 17th – 25th February 2022 (was C1-221146)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.501** | **CR** | **3901** | **rev** | **3** | **Current version:** | **17.5.0** |  |
|  | | | | | | | | |
| *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 | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Addition of extended NAS timers via a satellite NG-RAN cell – Alternative A | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson, OPPO, Apple | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GSAT\_ARCH-CT | | | | |  | ***Date:*** | | | 2022-02-10 |
|  |  | | | |  | |  | | |  |
| ***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 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:*** | | As concluded in DP C1-220286 the NAS timers need to be extended for access via a satellite NG-RAN cell. It is proposed to add clauses for 5GMM and 5GSM handling at the UE and the network and to specify values to use in these cases in the timer tables.  It is proposed to extend initial NAS procedure timers with 12s and non-initial NAS procedure timers with 5s  It is proposed to add Editor’s note’s to capture | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Clauses for extended NAS timers at access via a satellite NG-RAN cell are added.  Timer values for access via a satellite NG-RAN cell are defined | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Extended NAS timers at access via a NG-RAN cell are not supported and there is a risk of increased NAS message retransmissions and NAS procedure failures (timeouts) | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.23.x (new), 4.23.y (new), 10.2, 10.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

\* \* \* First Change \* \* \* \*

### 4.23.x 5GS mobility management via a satellite NG-RAN cell

For 5GS mobility management via a satellite NG-RAN cell the UE shall apply the value of the applicable NAS timer indicated in table 10.2.1 for access via a satellite NG-RAN cell.

Editor’s note: It is FFS whether the used Satellite access type can be made available to NAS and whether NAS timers are not extended at use of LEO Satellite access type.

The NAS timer value obtained is used as described in the appropriate procedure subclause of this specification. The NAS timer value shall be calculated at start of a NAS procedure, and shall not be re-calculated until the NAS procedure is completed, restarted or aborted.

The access via a satellite NG-RAN cell by a UE is indicated to the AMF by lower layers and shall be stored by the AMF. When an AMF that supports access via satellite NG-RAN cells performs NAS signalling with a UE via satellite NG-RAN cells, the AMF shall calculate the value of the applicable NAS timer indicated in table 10.2.2 for access via a satellite NG-RAN cell.

The NAS timer value obtained is used as described in the appropriate procedure subclause of this specification. The NAS timer value shall be calculated at start of a NAS procedure and shall not be re-calculated until the NAS procedure is completed, restarted or aborted.

\* \* \* Next Change \* \* \* \*

### 4.23.y 5GS session management via a satellite NG-RAN cell

For 5GS session management via a satellite NG-RAN cell the UE shall apply the value of the applicable NAS timer indicated in table 10.2.1 for access via a satellite NG-RAN cell.

Editor’s note: It is FFS whether the used Satellite access type can be made available to NAS and whether NAS timers are not extended at use of LEO Satellite access type.

The NAS timer value obtained is used as described in the appropriate procedure subclause of this specification. The NAS timer value shall be calculated at start of a NAS procedure, and shall not be re-calculated until the NAS procedure is completed, restarted or aborted.

If the use of extended NAS timer for access via a satellite NG-RAN cell is indicated by the AMF (see 3GPP TS 23.501 [8] and 3GPP TS 23.502 [9]), the SMF shall calculate the value of the applicable NAS timer indicated in table 10.3.2 for access via a satellite NG-RAN cell.

The NAS timer value obtained is used as described in the appropriate procedure subclause of this specification. The NAS timer value shall be calculated at start of a NAS procedure and shall not be re-calculated until the NAS procedure is completed, restarted or aborted.

\* \* \* Next Change \* \* \* \*

## 10.2 Timers of 5GS mobility management

Timers of 5GS mobility management are shown in table 10.2.1 and table 10.2.2.

NOTE: Timers T3324, T3346, T3245 and T3247 are defined in 3GPP TS 24.008 [12]. Timers T3444, T3445, T3447 and T3448 are defined in 3GPP TS 24.301 [15].

Table 10.2.1: Timers of 5GS mobility management – UE side

| TIMER NUM. | TIMER VALUE | STATE | CAUSE OF START | NORMAL STOP | ON  EXPIRY |
| --- | --- | --- | --- | --- | --- |
| T3502 | Default 12 min.  NOTE 1 | 5GMM-DEREGISTERED 5GMM-REGISTERED | At registration failure and the attempt counter is equal to 5 | Transmission of REGISTRATION REQUEST message | Initiation of the registration procedure, if still required |
| T3510 | 15s  NOTE 7  NOTE 8  In WB-N1/CE mode, 85s  For access via a satellite NG-RAN cell, 27s | 5GMM-REGISTERED-INITIATED | Transmission of REGISTRATION REQUEST message | REGISTRATION ACCEPT message received or REGISTRATION REJECT message received | Start T3511 or T3502 as specified in subclause 5.5.1.2.7 if T3510 expired during registration procedure for initial registration.  Start T3511 or T3502 as specified in subclause 5.5.1.3.7 if T3510 expired during the registration procedure for mobility and periodic registration update |
| T3511 | 10s | 5GMM-DEREGISTERED.ATTEMPTING-REGISTRATION  5GMM-REGISTERED.ATTEMPTING-REGISTRATION-UPDATE  5GMM-REGISTERED.NORMAL-SERVICE or 5GMM-REGISTERED.NON-ALLOWED-SERVICE | At registration failure due to lower layer failure, T3510 timeout or registration rejected with other 5GMM cause values than those treated in subclause 5.5.1.2.5 for initial registration or subclause 5.5.1.3.5 for mobility and periodic registration | Transmission of REGISTRATION REQUEST message  5GMM-CONNECTED mode entered (NOTE 5) | Retransmission of the REGISTRATION REQUEST, if still required |
| T3512 | Default 54 min  NOTE 1  NOTE 2 | 5GMM-REGISTERED | In 5GMM-REGISTERED, when 5GMM-CONNECTED mode is left and if the NW does not indicate support for strictly periodic registration timer as specified in subclause 5.3.7.  If the network indicates support for strictly periodic registration timer, T3512 is started after the successful completion of registration update procedure. T3512 is restarted if it expires in 5GMM-CONNECTED mode as specified in subclause 5.3.7. | When entering state 5GMM-DEREGISTERED  When entering 5GMM-CONNECTED mode if the NW does not indicate support for strictly periodic registration timer as specified in subclause 5.3.7. | In 5GMM-IDLE mode, Initiation of the periodic registration procedure if the UE is not registered for emergency services.  In 5GMM-CONNECTED mode, restart the timer T3512.  Locally deregister if the UE is registered for emergency services |
| T3516 | 30s  NOTE 7  NOTE 8  In WB-N1/CE mode, 48s For access via a satellite NG-RAN cell, 35s | 5GMM-REGISTERED-INITIATED  5GMM-REGISTERED  5GMM-DEREGISTERED-INITIATED  5GMM-SERVICE-REQUEST-INITIATED | RAND and RES\* stored as a result of an 5G authentication challenge | SECURITY MODE COMMAND received  SERVICE REJECT received  REGISTRATION ACCEPT received  AUTHENTICATION REJECT received  AUTHENTICATION FAILURE sent  5GMM-DEREGISTERED, 5GMM-NULL or  5GMM-IDLE mode entered | Delete the stored RAND and RES\* |
| T3517 | (a) 5s for case h) in subclause 5.6.1.1; or  (b) 15s for cases other than h) in subclause 5.6.1.1  NOTE 7  NOTE 8  NOTE 10  In WB-N1/CE mode, 61s For access via a satellite NG-RAN cell, 27s | 5GMM-SERVICE-REQUEST-INITIATED | Transmission of SERVICE REQUEST message, or CONTROL PLANE SERVICE REQUEST message | (a) Indication from the lower layers that the UE has changed to S1 mode or E-UTRA connected to 5GCN for case h) in subclause 5.6.1.1; or  (b) SERVICE ACCEPT message received, or  SERVICE REJECT message received for cases other than h) in subclause 5.6.1.1  see subclause 5.6.1.4.2 | Abort the procedure |
| T3519 | 60s  NOTE 7  NOTE 8  In WB-N1/CE mode, 90s For access via a satellite NG-RAN cell, 65s | 5GMM-REGISTERED-INITIATED  5GMM-REGISTERED  5GMM-DEREGISTERED-INITIATED  5GMM-SERVICE-REQUEST-INITIATED (NOTE 6) | Transmission of IDENTITY RESPONSE message, REGISTRATION REQUEST message, or DEREGISTRATION REQUEST message with freshly generated SUCI | REGISTRATION ACCEPT message with new 5G-GUTI received  CONFIGURATION UPDATE COMMAND message with new 5G-GUTI received DEREGISTRATION ACCEPT message | Delete stored SUCI |
| T3520 | 15s  NOTE 7  NOTE 8  In WB-N1/CE mode, 33s For access via a satellite NG-RAN cell, 20s | 5GMM-REGISTERED-INITIATED  5GMM-REGISTERED  5GMM-DEREGISTERED-INITIATED  5GMM-SERVICE-REQUEST-INITIATED | Transmission of AUTHENTICATION FAILURE message with any of the 5GMM cause #20, #21, #26 or #71  Transmission of AUTHENTICATION RESPONSE message with an EAP-response message after detection of an error as described in subclause 5.4.1.2.2.4 | AUTHENTICATION REQUEST message received or AUTHENTICATION REJECT message received  or  SECURITY MODE COMMAND message received  when entering 5GMM-IDLE mode  indication of transmission failure of AUTHENTICATION FAILURE message from lower layers | On first expiry during a 5G AKA based primary authentication and key agreement procedure, the UE should consider the network as false and follow item g of subclause 5.4.1.3.7, if the UE is not registered for emergency services.  On first expiry during a 5G AKA based primary authentication and key agreement procedure, the UE will follow subclause 5.4.1.3.7 under "For items c, d, e and f:", if the UE is registered for emergency services.  On first expiry during an EAP based primary authentication and key agreement procedure, the UE should consider the network as false and follow item e of subclause 5.4.1.2.4.5, if the UE is not registered for emergency services.  On first expiry during an EAP based primary authentication and key agreement procedure, the UE will follow subclause 5.4.1.2.4.5 under "For item e:", if the UE is registered for emergency services |
| T3521 | 15s  NOTE 7  NOTE 8  In WB-N1/CE mode, 45s For access via a satellite NG-RAN cell, 27s | 5GMM-DEREGISTERED-INITIATED | Transmission of DEREGISTRATION REQUEST message when de-registration procedure is not due to a "switch off" | DEREGISTRATION ACCEPT message received | Retransmission of DEREGISTRATION REQUEST message |
| T3525 | Default 60s  NOTE 3  NOTE 7  NOTE 8  In WB-N1/CE mode, default 120s  For access via a satellite NG-RAN cell, default 72s | 5GMM-REGISTERED.NORMAL-SERVICE or 5GMM-REGISTERED.NON-ALLOWED-SERVICE | T3517 expires and service request attempt counter is greater than or equal to 5 | When entering state other than 5GMM-REGISTERED.NORMAL-SERVICE state or 5GMM-REGISTERED.NON-ALLOWED-SERVICE,  or  UE camped on a new PLMN other than the PLMN on which timer started,  or  User-plane resources established with the network | The UE may initiate service request procedure |
| T3540 | 10s  NOTE 7 (applicable to case f) in subclause 5.3.1.3)  NOTE 8  In WB-N1/CE mode, 34s (applicable to case f) in subclause 5.3.1.3)  NOTE 11  For access via a satellite NG-RAN cell, default 22s (applicable to case f) in subclause 5.3.1.3) | 5GMM-DEREGISTERED  5GMM-REGISTERED | REGISTRATION REJECT message or DEREGISTRATION REQUEST message received with any of the 5GMM cause #3, #6, #7, #11, #12, #13, #15, #27, #31, #62, #72, #73, #74, #75 or #76  SERVICE REJECT message received with any of the 5GMM cause #3, #6, #7, #11, #12, #13, #15, #27, #72, #73, #74, #75 or #76.  REGISTRATION ACCEPT message received as described in subclause 5.3.1.3 case b) and case h)  SERVICE ACCEPT message received as described in subclause 5.3.1.3 case f)  AUTHENTICATION REJECT message received | N1 NAS signalling connection released  PDU sessions have been set up except for the case the UE has set Request type to "NAS signalling connection release" in the UE request type IE in the REGISTRATION REQUEST message as described in subclause 5.3.1.3 case b)  Other use cases see subclause 5.3.1.3 | Release the NAS signalling connection for the cases a), b), f) and g) as described in subclause 5.3.1.3 |
| 5GMM-REGISTERED | CONFIGURATION UPDATE COMMAND message received as described in subclause 5.3.1.3 case e) and h)  SERVICE ACCEPT message received as described in subclause 5.3.1.3 case i) | N1 NAS signalling connection released Other use cases see subclause 5.3.1.3 | Release the NAS signalling connection for the case e) and perform a new registration procedure as described in subclause 5.5.1.3.2  Release the NAS signalling connection for the case h) and i) as described in subclause 5.3.1.3 |
| 5GMM-DEREGISTERED  5GMM-DEREGISTERED.NORMAL-SERVICE  5GMM-REGISTERED.NON-ALLOWED-SERVICE | REGISTRATION REJECT message received with the 5GMM cause #9 or #10  SERVICE REJECT message received with the 5GMM cause #9, #10 or #28 | Release the NAS signalling connection for the cases c) and d) as described in subclause 5.3.1.3 and initiation of the registration procedure as specified in subclause 5.5.1.2.2 or 5.5.1.3.2 |
| Non-3GPP de-registration timer | Default 54 min.  NOTE 1  NOTE 2  NOTE 4 | All 5GMM state over non-3GPP access except 5GMM-DEREGISTERED over non-3GPP access | Entering 5GMM-IDLE mode over non-3GPP access | N1 NAS signalling connection over non-3GPP access established or when entering state 5GMM-DEREGISTERED over non-3GPP access | Implicitly de-register the UE for non-3GPP access on 1st expiry |
| T3526 | NOTE 9 | 5GMM-DEREGISTERED 5GMM-REGISTERED | Rejected S-NSSAI with rejection cause "maximum number of UEs per network slice reached" received. | None | Remove the S-NSSAI in the rejected NSSAI for the maximum number of UEs reached associated with the T3526 timer. |
| NOTE 1: The value of this timer is provided by the network operator during the registration procedure.  NOTE 2: The default value of this timer is used if the network does not indicate a value in the REGISTRATION ACCEPT message and the UE does not have a stored value for this timer.  NOTE 3: The value of this timer is UE implementation specific, with a minimum value of 60 seconds if not in NB-N1 mode and if not in WB-N1/CE mode.  NOTE 4: If the T3346 value received in the mobility management messages is greater than the value of the non-3GPP de-registration timer, the UE sets the non-3GPP de-registration timer value to be 4 minutes greater than the value of timer T3346.  NOTE 5: The conditions for which this applies are described in subclause 5.5.1.3.7.  NOTE 6: The conditions for which this applies to the 5GMM-SERVICE-REQUEST-INITIATED state are described in subclause 5.4.1.3.7 case c) and case d).  NOTE 7: In NB-N1 mode, the timer value shall be calculated as described in subclause 4.17.  NOTE 8: In WB-N1 mode, if the UE supports CE mode B and operates in either CE mode A or CE mode B, then the timer value is as described in this table for the case of WB-N1/CE mode (see subclause 4.19).  NOTE 9: The value of this timer is provided by the network operator during the registration procedure or the generic UE configuration update procedure along with the rejected S-NSSAI with rejection cause "maximum number of UEs per network slice reached". The default value of this timer is implementation specific with a minimum value of 12 minutes and used if the network does not provide a value in the REGISTRATION ACCEPT message, the REGISTRATION REJECT message, or the CONFIGURATION UPDATE COMMAND message along with the rejected S-NSSAI with rejection cause "maximum number of UEs per network slice reached".  NOTE 10: Based on implementation, the timer may be set to a value between 250ms and 15s when the MUSIM-capable UE indicates "NAS signalling connection release" in the UE request type IE of the SERVICE REQUEST message or CONTROL PLANE SERVICE REQUEST message.  NOTE 11: Based on implementation, the timer may be set to a value between 250ms and 10s when the MUSIM capable UE not in NB-N1 mode or WB-N1 mode indicated "NAS signalling connection release" or "Rejection of paging" in the UE request type IE of the SERVICE REQUEST message or CONTROL PLANE SERVICE REQUEST message; or indicated "NAS signalling connection release" in the UE request type IE of the REGISTRATION REQUEST message. | | | | | |

Table 10.2.2: Timers of 5GS mobility management – AMF side

| TIMER NUM. | | TIMER VALUE | | STATE | | CAUSE OF START | | NORMAL STOP | | ON  EXPIRY | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T3513  NOTE 7  NOTE 9 | | NOTE 4 | | 5GMM-REGISTERED | | Paging procedure initiated | | Paging procedure completed as specified in subclause 5.6.2.2.1 | | Network dependent | |
| T3522  NOTE 6  NOTE 8 | | 6s  In WB-N1/CE mode, 24s  For access via a satellite NG-RAN cell, 11s | | 5GMM-DEREGISTERED-INITIATED | | Transmission of DEREGISTRATION REQUEST message | | DEREGISTRATION ACCEPT message received | | Retransmission of DEREGISTRATION REQUEST message | |
| T3550  NOTE 6  NOTE 8 | | 6s  In WB-N1/CE mode, 18s  For access via a satellite NG-RAN cell, 11s | | 5GMM-COMMON-PROCEDURE-INITIATED | | Transmission of REGISTRATION ACCEPT message as specified in subclause 5.5.1.2.4 and 5.5.1.3.4 | | REGISTRATION COMPLETE message received | | Retransmission of REGISTRATION ACCEPT message | |
| T3555  NOTE 6  NOTE 8 | | 6s  In WB-N1/CE mode, 24s  For access via a satellite NG-RAN cell, 11s | | 5GMM-REGISTERED | | Transmission of CONFIGURATION UPDATE COMMAND message with "acknowledgement requested" set in the Acknowledgement bit of the Configuration update indication IE | | CONFIGURATION UPDATE COMPLETE message received | | Retransmission of CONFIGURATION UPDATE COMMAND message | |
| T3560  NOTE 6  NOTE 8 | | 6s  In WB-N1/CE mode, 24s  For access via a satellite NG-RAN cell, 11s | | 5GMM-COMMON-PROCEDURE-INITIATED | | Transmission of AUTHENTICATION REQUEST message  Transmission of SECURITY MODE COMMAND message | | AUTHENTICATION RESPONSE message received  AUTHENTICATION FAILURE message received  SECURITY MODE COMPLETE message received  SECURITY MODE REJECT message received | | Retransmission of AUTHENTICATION REQUEST message or SECURITY MODE COMMAND message | |
| T3565  NOTE 6  NOTE 8 | | 6s  In WB-N1/CE mode, 24s For access via a satellite NG-RAN cell, 11s | | 5GMM-REGISTERED | | Transmission of NOTIFICATION message | | SERVICE REQUEST message received  CONTROL PLANE SERVICE REQUEST message received  NOTIFICATION RESPONSE message received  REGISTRATION REQUEST  Message received  DEREGISTRATION REQUEST message received  NGAP UE context resume request message as specified in 3GPP TS 38.413 [31] received | | Retransmission of NOTIFICATION message | |
| T3570  NOTE 6  NOTE 8 | | 6s  In WB-N1/CE mode, 24s  For access via a satellite NG-RAN cell, 11s | | 5GMM-COMMON-PROCEDURE-INITIATED | | Transmission of IDENTITY REQUEST message | | IDENTITY RESPONSE message received | | Retransmission of IDENTITY REQUEST message | |
| T3575  NOTE 6  NOTE 8 | | 15s  In WB-N1/CE mode, 60s  For access via a satellite NG-RAN cell, 27s | | 5GMM-REGISTERED | | Transmission of NETWORK SLICE-SPECIFIC AUTHENTICATION COMMAND message | | NETWORK SLICE-SPECIFIC AUTHENTICATION COMPLETE message received | | Retransmission of NETWORK SLICE-SPECIFIC AUTHENTICATION COMMAND message | |
| Active timer | | NOTE 10 | | All except 5GMM-DEREGISTERED | | Entering 5GMM-IDLE mode after indicating MICO mode activation to the UE with an active timer value. | | N1 NAS signalling  connection established | | Activate MICO mode for the UE. | |
| Implicit de-registration timer | | NOTE 2 | | All except 5GMM-DEREGISTERED | | The mobile reachable timer expires while the network is in 5GMM-IDLE mode  Entering 5GMM-IDLE mode over 3GPP access if the MICO mode is activated and strictly periodic monitoring timer is not running  The strictly periodic monitoring timer expires while the network is in 5GMM-IDLE mode | | N1 NAS signalling connection established | | Implicitly de-register the UE on 1st expiry | |
| Mobile reachable timer | | NOTE 1 | | All except 5GMM-DEREGISTERED | | Entering 5GMM-IDLE mode | | N1 NAS signalling connection established | | Network dependent, but typically paging is halted on 1st expiry, and start implicit de-registration timer, if the UE is not registered for emergency services.  Implicitly de-register the UE which is registered for emergency services | |
| Non-3GPP implicit de-registration timer | | NOTE 3 | | All except 5GMM-DEREGISTERED | | Entering 5GMM-IDLE mode over non-3GPP access | | N1 NAS signalling connection over non-3GPP access established | | Implicitly de-register the UE for non-3GPP access on 1s expiry | |
| Strictly periodic monitoring timer | | NOTE 5 | | All except 5GMM-DEREGISTERED | | At the successful completion of registration update procedure if strictly periodic registration timer indication is supported as specified in subclause 5.3.7. | | Entering 5GMM-DEREGISTERED. | | In 5GMM-IDLE mode, start implicit de-registration timer as specified in subclause 5.3.7.  In 5GMM-CONNECTED mode, Strictly periodic monitoring timer is started again as specified in subclause 5.3.7. | |
| Timer for onboarding services | | NOTE 11 | | 5GMM-REGISTERED | | At the successful completion of registration for onboarding services in SNPN or initial registration for the UE which the subscription is only for configuration of SNPN subscription parameters in PLMN via the user plane. | | DEREGISTRATION REQUEST message received. | | Network-initiated de-registration procedure performed | |
| NOTE 1: The default value of this timer is 4 minutes greater than the value of timer T3512. If the UE is registered for emergency services, the value of this timer is set equal to the value of timer T3512. If the T3346 value provided in the mobility management messages is greater than the value of the timer T3512, the AMF sets the mobile reachable timer and the implicit de-registration timer such that the sum of the timer values is greater than the value of timer T3346.  NOTE 2: The value of this timer is network dependent. If MICO is activated, the default value of this timer is 4 minutes greater than the value of timer T3512.  NOTE 3: The value of this timer is network dependent. The default value of this timer is 4 minutes greater than the non-3GPP de-registration timer. If the T3346 value provided in the mobility management messages is greater than the value of the non-3GPP de-registration timer, the AMF sets the non-3GPP implicit de-registration timer value to be 8 minutes greater than the value of timer T3346.  NOTE 4: The value of this timer is network dependent.  NOTE 5: The value of this timer is the same as the value of timer T3512.  NOTE 6: In NB-N1 mode, the timer value shall be calculated as described in subclause 4.17.  NOTE 7: In NB-N1 mode, the timer value shall be calculated by using an NAS timer value which is network dependent.  NOTE 8: In WB-N1 mode, if the UE supports CE mode B and operates in either CE mode A or CE mode B, then the timer value is as described in this table for the case of WB-N1/CE mode (see subclause 4.19).  NOTE 9: In WB-N1 mode, if the UE supports CE mode B, then the timer value shall be calculated by using an NAS timer value which value is network dependent.  NOTE 10: If the AMF includes timer T3324 in the REGISTRATION ACCEPT message and if the UE is not registered for emergency services, the value of this timer is equal to the value of timer T3324.  NOTE 11: The value of this timer needs to be large enough to allow a UE to complete the configuration of one or more entries of the "list of subscriber data" and considering that configuration of SNPN subscription parameters in PLMN via the user plane or onboarding services in SNPN involves third party entities outside of the operator's network. | | | | | | | | | | | |

\* \* \* Next Change \* \* \* \*

## 10.3 Timers of 5GS session management

Timers of 5GS session management are shown in table 10.3.1 and table 10.3.2.

NOTE: Timer T3396 is defined in 3GPP TS 24.008 [12].

Table 10.3.1: Timers of 5GS session management – UE side

| TIMER NUM. | TIMER VALUE | STATE | CAUSE OF START | NORMAL STOP | ON  THE 1st, 2nd, 3rd, 4th EXPIRY (NOTE 1) |
| --- | --- | --- | --- | --- | --- |
| T3580  NOTE 4  NOTE 5 | 16s  In WB-N1/CE mode, 24s  For access via a satellite NG-RAN cell, 21s | PDU SESSION ACTIVE PENDING | Transmission of PDU SESSION ESTABLISHMENT REQUEST message | PDU SESSION ESTABLISHMENT ACCEPT message received or  PDU SESSION ESTABLISHMENT REJECT message received or  PDU SESSION ESTABLISHMENT REQUEST received in a DL NAS TRANSPORT message with 5GMM cause #22, #28, #65. #67, #69, #90, #91 or #92 | Retransmission of PDU SESSION ESTABLISHMENT REQUEST message |
| T3581  NOTE 4  NOTE 5 | 16s  In WB-N1/CE mode, 24s  For access via a satellite NG-RAN cell, 21s | PDU SESSION MODIFICATION PENDING | Transmission of PDU SESSION MODIFICATION REQUEST message | PDU SESSION MODIFICATION COMMAND message with the same PTI is received or PDU SESSION MODIFICATION REJECT message received or  PDU SESSION MODIFICATION REQUEST received in a DL NAS TRANSPORT message with 5GMM cause #22, #28. #67, #69, or #90 | Retransmission of PDU SESSION MODIFICATION REQUEST message |
| T3582  NOTE 4  NOTE 5 | 16s  In WB-N1/CE mode, 24s  For access via a satellite NG-RAN cell, 21s | PDU SESSION INACTIVE PENDING | Transmission of PDU SESSION RELEASE REQUEST message | PDU SESSION RELEASE COMMAND message with the same PTI is received or PDU SESSION RELEASE REJECT message received | Retransmission of PDU SESSION RELEASE REQUEST message |
| T3583 | Default 1 min.  NOTE 2 | PDU SESSION ACTIVE | UE creates or updates a derived QoS rule | UE deletes the derived QoS rule (see subclause 6.2.5.1.4.5) | On 1st expiry: Deletion of the derived QoS rule |
| T3584 | NOTE 3 | PDU SESSION ACTIVE PENDING  PDU SESSION MODIFICATION PENDING  PDU SESSION ACTIVE or PDU SESSION INACTIVE PENDING | PDU SESSION ESTABLISHMENT REJECT, PDU SESSION MODIFICATION REJECT, or PDU SESSION RELEASE COMMAND received with 5GSM cause #67 and with a timer value for T3584  PDU SESSION ESTABLISHMENT REQUEST, or PDU SESSION MODIFICATION REQUEST received in a DL NAS TRANSPORT message with 5GMM cause #67 and with a timer value for T3584 (see subclause 5.4.5.3.3) | PDU SESSION RELEASE COMMAND (see NOTE 6) or PDU SESSION MODIFICATION COMMAND or PDU SESSION AUTHENTICATION COMMAND or DEREGISTRATION REQUEST with the re-registration type "re-registration required" | None |
| T3585 | NOTE 3 | PDU SESSION ACTIVE PENDING  PDU SESSION MODIFICATION PENDING  PDU SESSION ACTIVE or PDU SESSION INACTIVE PENDING | PDU SESSION ESTABLISHMENT REJECT, PDU SESSION MODIFICATION REJECT, or PDU SESSION RELEASE COMMAND received with 5GSM cause #69 and with a timer value for T3585  PDU SESSION ESTABLISHMENT REQUEST, or PDU SESSION MODIFICATION REQUEST received in a DL NAS TRANSPORT message with 5GMM cause #69 and with a timer value for T3585(see subclause 5.4.5.3.3) | PDU SESSION RELEASE COMMAND (see NOTE 6) or PDU SESSION MODIFICATION COMMAND or PDU SESSION AUTHENTICATION COMMAND or DEREGISTRATION REQUEST with the re-registration type "re-registration required" | None |
| Back-off timer |  |  | defined in 3GPP TS 24.008 [12] |  |  |
| T3586 NOTE 4  NOTE 5 | 8s  In WB-N1/CE mode, 16s  For access via a satellite NG-RAN cell, 13s | PDU SESSION ACTIVE | REMOTE UE REPORT sent | REMOTE UE REPORT RESPONSE received | Retransmission of REMOTE UE REPORT |
| NOTE 1: Typically, the procedures are aborted on the fifth expiry of the relevant timer. Exceptions are described in the corresponding procedure description.  NOTE 2: The network may provide the value of this timer applicable to the derived QoS rules of a specific PDU session as RQ timer value in the PDU SESSION ESTABLISHMENT ACCEPT message and PDU SESSION MODIFICATION COMMAND message. The maximum value of the timer is 30 min. If the network indicates a value greater than the maximum value, then the UE shall use the maximum value.  NOTE 3: The value of this timer is provided by the network.  NOTE 4: In NB-N1 mode, then the timer value shall be calculated as described in subclause 4.18.  NOTE 5: In WB-N1 mode, if the UE supports CE mode B and operates in either CE mode A or CE mode B, then the timer value is as described in this table for the case of WB-N1/CE mode (see subclause 4.20).  NOTE 6: If the PDU SESSION RELEASE COMMAND message includes the Back-off timer value IE where the timer value indicates neither zero nor deactivated and the 5GSM cause is not #39, the UE then starts the timer with the value provided in the Back-off timer value IE after stopping the existing timer (see subclause 6.3.3.3). | | | | | |

NOTE 1: The back-off timer is used to describe a logical model of the required UE behaviour. This model does not imply any specific implementation, e.g. as a timer of timestamp.

NOTE 2: Reference to back-off timer in this section can either refer to use of timer T3396 or to use of a different packet system specific timer within the UE. Whether the UE uses T3396 as a back-off timer or it uses different packet system specific timers as back-off timers is left up to UE implementation.

Table 10.3.2: Timers of 5GS session management – SMF side

| TIMER NUM. | TIMER VALUE | STATE | CAUSE OF START | NORMAL STOP | ON  THE 1st, 2nd, 3rd, 4th EXPIRY (NOTE 1) |
| --- | --- | --- | --- | --- | --- |
| T3590  NOTE 3  NOTE 4 | 15s  In WB-N1/CE mode, 23s  For access via a satellite NG-RAN cell, 21s | PROCEDURE TRANSACTION PENDING | Transmission of PDU SESSION AUTHENTICATION COMMAND message | PDU SESSION AUTHENTICATION COMPLETE message received | Retransmission of PDU SESSION AUTHENTICATION COMMAND message |
| T3591  NOTE 3  NOTE 4 | 16s  In WB-N1/CE mode, 24s  For access via a satellite NG-RAN cell, 22s | PDU SESSION MODIFICATION PENDING | Transmission of PDU SESSION MODIFICATION COMMAND message | PDU SESSION MODIFICATION COMPLETE message received or PDU SESSION MODIFICATION COMMAND REJECT message received | Retransmission of PDU SESSION MODIFICATION COMMAND message |
| T3592  NOTE 3  NOTE 4 | 16s  In WB-N1/CE mode, 24s  For access via a satellite NG-RAN cell, 22s | PDU SESSION INACTIVE PENDING | Transmission of PDU SESSION RELEASE COMMAND message | PDU SESSION RELEASE COMPLETE message received or  N1 SM delivery skipped indication received | Retransmission of PDU SESSION RELEASE COMMAND message |
| T3593  NOTE 3  NOTE 4 | Default  60s  (NOTE 2) | PDU SESSION MODIFICATION PENDING | Reception of PDU SESSION MODIFICATION COMPLETE message for transmitted PDU SESSION MODIFICATION COMMAND message where the PDU SESSION MODIFICATION COMMAND message included 5GSM cause #39 | PDU SESSION RELEASE REQUEST message received | Network-requested PDU session release procedure performed |
| NOTE 1: Typically, the procedures are aborted on the fifth expiry of the relevant timer. Exceptions are described in the corresponding procedure description.  NOTE 2: If the PDU Session Address Lifetime value is sent to the UE in the PDU SESSION MODIFICATION COMMAND message then timer T3593 shall be started with the same value, otherwise it shall use a default value.  NOTE 3: In NB-N1 mode, the timer value shall be calculated as described in subclause 4.18.  NOTE 4: In WB-N1 mode, if the UE supports CE mode B and operates in either CE mode A or CE mode B, then the timer value is as described in this table for the case of WB-N1/CE mode (see subclause 4.20). | | | | | |

\* \* \* End of Changes \* \* \* \*