**3GPP TSG-CT WG1 Meeting #123-eC1-202324**

**Electronic meeting, 16-24 April 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.501** | **CR** | **2104** | **rev** | **-** | **Current version:** | **16.4.1** |  |
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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 | **X** |

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| ***Title:*** | Network triggered service request procedure over non-3GPP access | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | OPPO, SHARP | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GProtoc16 | | | | |  | ***Date:*** | | | 2020-03-30 |
|  |  | | | |  | |  | | |  |
| ***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 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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | S2-2002446 and S2-2001104, approved at SA#87 and now implemented in 2020-03 version of 23.501 and 23.502.  Based on the following description in subclause 5.19.7.2 in TS 23.501:  If the UE receives a paging request or a NAS notification message from the AMF while the Mobility Management back off timer is running, the UE shall stop the Mobility Management back-off timer and initiate the Service Request procedure or the Mobility Registration Update procedure over 3GPP access and/or non-3GPP access as applicable. Over non-3GPP access, if the UE is in CM-IDLE state when the back-off timer is stopped, it shall initiate the UE-triggered Service Request procedure as soon as it switches back to CM-CONNECTED state.  and subcaluse 4.2.3.3 in TS 23.502:  Alternatively, if the UE is in CM-IDLE state in non-3GPP access with the Mobility Management back-off timer running, upon reception of Paging Message over 3GPP access containing the non-3GPP Access Type, the UE on stopping the back-off timer (for both accesses), shall initiate the UE Triggered Service Request procedure (clause 4.12.4.1) over non-3GPP access if non-3GPP access is available. When the AMF receives a Service Request message from the UE via non-3GPP access, the AMF stops the Paging timer and processes the received Service Request.  NOTE 6: A scenario where the UE is CM-IDLE over non-3GPP access and yet non-3GPP access is available, is when the UE over the non-3GPP access is running the Mobility Management back-off timer and network has released the NAS signalling connection upon service reject.  So stage 3 changes are needed to reflect that:-   * when UE is paged and T3346 is running, and UE is registered to same PLMN over both 3GPP and non-3GPP access, T3346 is stop for both access; * if the page has access type = non-3GPP access, when T3346 is stopped, UE is IDLE over non-3GPP and non-3GPP access is available, the service request over non-3GPP access is triggered   This CR proposes the related Stage 3 changes. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. The case should be added when UE initiates service request over non-3GPP access to repond to paging with non-3GPP access type.  2. Clarification that back-off timer is stopped for both access, if back-off timer is running when paging request is received. | | | | | | | | |
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| ***Consequences if not approved:*** | | 1. The case that UE sends service request over non-3GPP access when T3346 is stopped and non-3GPP access is available is missing  2. DL traffic that is intended for the non-3GPP access will not be delivered over the non-3GPP access. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3.9, 5.6.1.1, 5.6.1.2.1, 5.6.2.2.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \*

### 5.3.9 Handling of NAS level mobility management congestion control

The AMF may detect 5GMM signalling congestion and perform general NAS level congestion control. Under the 5GMM signalling congestion conditions the AMF may reject 5GMM signalling requests from UEs as specified in 3GPP TS 23.501 [8]. The AMF should not reject the following request:

a) requests for emergency services;

b) requests for emergency services fallback;

c) requests from UEs configured for high priority access in selected PLMN; and

d) DEREGISTRATION REQUEST message.

When general NAS level congestion control is active, the AMF may include a value for the mobility management back-off timer T3346 in the reject messages. The UE starts the timer T3346 with the value received in the 5GMM reject messages. To avoid that large numbers of UEs simultaneously initiate deferred requests, the AMF should select the value for the timer T3346 for the rejected UEs so that timeouts are not synchronised.

If the UE is registered in the same PLMN over the 3GPP access and non-3GPP access, and the UE receives the timer T3346 from the AMF, the timer T3346 shall apply to both 3GPP access and non-3GPP access.

If UE receives the paging message or notification message when T3346 is running and UE is registered to same PLMN over 3GPP access and non-3GPP access, UE shall stop the timer T3346 for both accesses and initiate the service request procedure as specified in subclause 5.6.1.

If the timer T3346 is running when the UE enters state 5GMM-DEREGISTERED, the UE remains switched on, and the USIM in the UE remains the same, then the timer T3346 is kept running until it expires or it is stopped.

If the UE is switched off when the timer T3346 is running, the UE shall behave as follows when the UE is switched on and the USIM in the UE remains the same:

let t1 be the time remaining for T3346 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 UE enters a new PLMN while timer T3346 is running, and the new PLMN is not equivalent to the PLMN where the UE started timer T3346, the UE shall stop timer T3346 when initiating 5GMM procedures in the new PLMN.

After a change in registration area, if the timer T3346 is running and 5GS update status is 5U1 UPDATED then the UE shall set the 5GS update status to 5U2 NOT UPDATED and enter state 5GMM-REGISTERED.ATTEMPTING-REGISTRATION-UPDATE.

If timer T3346 is running or is deactivated, and the UE is a UE configured for high priority access in selected PLMN, or the UE needs to initiate signalling for emergency services or emergency services fallback, then the UE is allowed to initiate 5GMM procedures.

\* \* \* Second Change \* \* \* \*

#### 5.6.1.1 General

The purpose of the service request procedure is to change the 5GMM mode from 5GMM-IDLE to 5GMM-CONNECTED mode. If the UE is not using 5GS services with control plane CIoT 5GS optimization, this procedure is used to request the establishment of user-plane resources for PDU sessions which are established without user-plane resources. In latter case, the 5GMM mode can be the 5GMM-IDLE mode or the 5GMM-CONNECTED mode if the UE requires to establish user-plane resources for PDU sessions. If the UE is using 5GS services with control plane CIoT 5GS optimization, this procedure can be used for UE initiated transfer of user data via the control plane from 5GMM-IDLE mode.

NOTE 1: The lower layer indicates when the user-plane resources for PDU sessions are successfully established or released.

This procedure is used when:

- the network has downlink signalling pending over 3GPP access and the UE is in 5GMM-IDLE mode over 3GPP access;

- the network has downlink signalling pending over non-3GPP access, the UE is in 5GMM-IDLE mode over non-3GPP access and in 5GMM-IDLE or 5GMM-CONNECTED mode over 3GPP access;

- the UE has uplink signalling pending over 3GPP access and the UE is in 5GMM-IDLE mode over 3GPP access;

- the network has downlink user data pending over 3GPP access and the UE is in 5GMM-IDLE mode over 3GPP access;

- the network has downlink user data pending over non-3GPP access, the UE is in 5GMM-IDLE mode over non-3GPP access and in 5GMM-IDLE or 5GMM-CONNECTED mode over 3GPP access;

- the UE has user data pending over 3GPP access and the UE is in 5GMM-IDLE or 5GMM-CONNECTED mode over 3GPP access;

- the UE has user data pending over non-3GPP access and the UE is in 5GMM-CONNECTED mode over non-3GPP access;

- the UE in 5GMM-IDLE mode over non-3GPP access, receives an indication from the lower layers of non-3GPP access, that the access stratum connection is established between UE and network, unless prevented from doing so because T3346 is running;

- the UE in 5GMM-IDLE or 5GMM-CONNECTED mode over 3GPP access receives a request from the upper layers to perform emergency service fallback and performs emergency services fallback as specified in subclause 4.13.4.2 of 3GPP TS 23.502 [9]; or

- the UE has to request resources for V2X communication over PC5.

This procedure shall not be used for initiating user data transfer or PDU session management related signalling other than for performing UE-requested PDU session release procedure related to a PDU session for LADN when the UE is located outside the LADN service area.

In NB-N1 mode, this procedure shall not be used to request the establishment of user-plane resources:

a) for more than two PDU sessions if there is currently:

1) no user-plane resources established for the UE;

2) user-plane resources established for one PDU session; or

b) for additional PDU sessions, if the UE already has user-plane resources established for two PDU sessions.

The service request procedure is initiated by the UE, however, it can be triggered by the network by means of:

- the paging procedure (see subclause 5.6.2) for the transfer of downlink signalling or user data pending over 3GPP access to a UE in 5GMM-IDLE mode over 3GPP access;

- the paging procedure (see subclause 5.6.2) for the transfer of downlink signalling or user data pending over non-3GPP access to a UE in 5GMM-IDLE mode over 3GPP access and in 5GMM-IDLE mode over non-3GPP access;

- the notification procedure (see subclause 5.6.3) for the transfer of downlink signalling or user data pending over non-3GPP access to a UE in 5GMM-CONNECTED mode over 3GPP access and in 5GMM-IDLE mode over non-3GPP access; or

- the notification procedure (see subclause 5.6.3) for the transfer of downlink signalling or user data pending over 3GPP access to a UE in 5GMM-IDLE mode over 3GPP access and in 5GMM-CONNECTED mode over non-3GPP access.

NOTE 2: In case the UE is in 5GMM-IDLE mode over 3GPP access and in 5GMM-CONNECTED mode over non-3GPP access and downlink signalling or user data pending over 3GPP access needs to be transferred, the AMF can trigger either the notification procedure or the paging procedure based on implementation.

The UE shall invoke the service request procedure when:

a) the UE, in 5GMM-IDLE mode over 3GPP access, receives a paging request from the network;

b) the UE, in 5GMM-CONNECTED mode over 3GPP access, receives a notification from the network with access type indicating non-3GPP access;

c) the UE, in 5GMM-IDLE mode over 3GPP access, has uplink signalling pending (except in case i);

d) the UE, in 5GMM-IDLE mode over 3GPP access, has uplink user data pending (except in case j);

e) the UE, in 5GMM-CONNECTED mode or in 5GMM-CONNECTED mode with RRC inactive indication, has user data pending due to no user-plane resources established for PDU session(s) used for user data transport;

f) the UE in 5GMM-IDLE mode over non-3GPP access, receives an indication from the lower layers of non-3GPP access, that the access stratum connection is established between UE and network;

g) the UE, in 5GMM-IDLE mode over 3GPP access, receives a notification from the network with access type indicating 3GPP access when the UE is in 5GMM-CONNECTED mode over non-3GPP access;

h) the UE, in 5GMM-IDLE, 5GMM-CONNECTED mode over 3GPP access, or 5GMM-CONNECTED mode with RRC inactive indication, receives a request from the upper layers to perform emergency service fallback and performs emergency services fallback as specified in subclause 4.13.4.2 of 3GPP TS 23.502 [9];

i) the UE, in 5GMM-CONNECTED mode over 3GPP access or in 5GMM-CONNECTED mode with RRC inactive indication, receives a fallback indication from the lower layers (see subclauses 5.3.1.2 and 5.3.1.4) and the UE has a pending NAS procedure other than a registration, service request, or de-registration procedure;

j) the UE, in 5GMM-CONNECTED mode over 3GPP access or in 5GMM-CONNECTED mode with RRC inactive indication, receives a fallback indication from the lower layers (see subclauses 53.1.2 and 5.3.1.4) and the UE has pending uplink user data for PDU session(s) with user-plane resources already established but no pending NAS procedure;

k) the UE, in 5GMM-CONNECTED mode and has a NAS signalling connection only, is using 5GS services with control plane CIoT 5GS optimization and has pending user data to be sent via user-plane resources; or

l) the UE in 5GMM-IDLE mode over 3GPP access has to request resources for V2X communication over PC5 (see 3GPP TS 23.287 [6C]).

If one of the above criteria to invoke the service request procedure is fulfilled, then the service request procedure shall only be initiated by the UE when the following conditions are fulfilled:

- its 5GS update status is 5U1 UPDATED, and the TAI of the current serving cell is included in the TAI list; and

- no 5GMM specific procedure is ongoing.

The UE shall not invoke the service request procedure when the UE is in the state 5GMM-SERVICE-REQUEST-INITIATED.



Figure 5.6.1.1.1: Service Request procedure (Part 1)



Figure 5.6.1.1.2: Service Request procedure (Part 2)

A service request attempt counter is used to limit the number of service request attempts and no response from the network. The service request attempt counter shall be incremented as specified in subclause 5.6.1.7.

The service request attempt counter shall be reset when:

- a registration procedure for mobility and periodic registration update is successfully completed;

- a service request procedure is successfully completed; or

- a service request procedure is rejected as specified in subclause 5.6.1.5 or subclause 5.3.20.

\* \* \* Third Change \* \* \* \*

##### 5.6.1.2.1 UE is not using 5GS services with control plane CIoT 5GS optimization

The UE initiates the service request procedure by sending a SERVICE REQUEST message to the AMF and starts timer T3517.

If the UE is sending the SERVICE REQUEST message from 5GMM-IDLE mode and the UE needs to send non-cleartext IEs, the UE shall send the SERVICE REQUEST message including the NAS message container IE as described in subclause 4.4.6.

For cases a), b), and g) in subclause 5.6.1.1, the service type IE in the SERVICE REQUEST message shall be set to "mobile terminated services".

For cases c), d), e), f), i) and j) in subclause 5.6.1.1, if the UE is a UE configured for high priority access in selected PLMN, the service type IE in the SERVICE REQUEST message shall be set to "high priority access".

For case a) in subclause 5.6.1.1:

a) if the paging request includes an indication for non-3GPP access type,

1) if timer T3346 is running and non-3GPP is available, the UE shall stop timer T3346 and send the SERVICE REQUEST message over non-3GPP access; or

2) otherwise, the Allowed PDU session status IE shall be included in the SERVICE REQUEST message sent over 3GPP access. If the UE has established the PDU session(s) associated with the S-NSSAI(s) which are included in the allowed NSSAI for 3GPP access, the UE shall indicate the PDU session(s) for which the UE allows the user-plane resources to be re-established over 3GPP access in the Allowed PDU session status IE. Otherwise, the UE shall not indicate any PDU session(s) in the Allowed PDU session status IE;

b) if the UE has uplink user data pending to be sent over 3GPP access or non-3GPP access, the Uplink data status IE shall be included in the SERVICE REQUEST message to indicate the PDU session(s) for which the UE has pending user data to be sent; or

c) otherwise, the Uplink data status IE shall not be included in the SERVICE REQUEST message.

For case b) in subclause 5.6.1.1:

a) the Allowed PDU session status IE shall be included in the SERVICE REQUEST message. If the UE has the PDU session(s) associated with the S-NSSAI(s) which are included in the allowed NSSAI for 3GPP access, the UE shall indicate the PDU session(s) for which the UE allows the user-plane resources to be re-established over 3GPP access in the Allowed PDU session status IE. Otherwise, the UE shall not indicate any PDU session(s) in the Allowed PDU session status IE;

b) if the UE has uplink user data pending to be sent over 3GPP access, the Uplink data status IE shall be included in the SERVICE REQUEST message to indicate the PDU session(s) for which the UE has pending user data to be sent;

c) otherwise, the Uplink data status IE shall not be included in the SERVICE REQUEST message.

When the Allowed PDU session status IE is included in the SERVICE REQUEST message, the UE shall indicate that a PDU session is not allowed to be transferred to the 3GPP access if the 3GPP PS data off UE status is "activated" for the corresponding PDU session and the UE is not using the PDU session to send uplink IP packets for any of the 3GPP PS data off exempt services (see subclause 6.2.10).

For case c) in subclause 5.6.1.1, the Uplink data status IE shall not be included in the SERVICE REQUEST message except if the UE has one or more active always-on PDU sessions associated with the access type over which the SERVICE REQUEST message is sent. If the UE is not a UE configured for high priority access in selected PLMN and:

a) if the SERVICE REQUEST message is triggered by a request for emergency services from the upper layer, the UE shall set the service type IE in the SERVICE REQUEST message to "emergency services"; or

b) otherwise, the UE shall set the service type IE to "signalling".

When the UE is in a non-allowed area or is not in an allowed area as specified in subclause 5.3.5 and:

a) if the uplink signalling pending is to indicate a change of 3GPP PS data off UE status for a PDU session, the UE shall set the service type IE in the SERVICE REQUEST message to "elevated signalling", and shall not include the Uplink data status IE in the SERVICE REQUEST message even if the UE has one or more active always-on PDU sessions associated with the access type over which the SERVICE REQUEST message is sent; or

b) otherwise, the UE shall not initiate service request procedure except for emergency services, high priority access or responding to paging or notification.

For cases d) and e) in subclause 5.6.1.1, the Uplink data status IE shall be included in the SERVICE REQUEST message to indicate the PDU session(s) the UE has pending user data to be sent. If the UE is not a UE configured for high priority access in selected PLMN:

a) if there exists an emergency PDU session which is indicated in the Uplink data status IE the service type IE in the SERVICE REQUEST message shall be set to "emergency services"; or

b) otherwise, the service type IE in the SERVICE REQUEST message shall be set to "data".

NOTE 1: For a UE in NB-N1 mode, the Uplink data status IE cannot be used to request the establishment of user-plane resources such that there will be user-plane resources established for more than two PDU sessions.

For case f) in subclause 5.6.1.1:

a) if the UE has uplink user data pending to be sent, the Uplink data status IE shall be included in the SERVICE REQUEST message to indicate the PDU session(s) the UE has pending user data to be sent. If the UE is not a UE configured for high priority access in selected PLMN, the service type IE in the SERVICE REQUEST message shall be set to "data";

b) otherwise, if the UE is not a UE configured for high priority access in selected PLMN, the service type IE in the SERVICE REQUEST message shall be set to "signalling".

For case g) in subclause 5.6.1.1, if the UE has uplink user data pending to be sent, the Uplink data status IE shall be included in the SERVICE REQUEST message to indicate the PDU session(s) the UE has pending user data to be sent.

For case h) in subclause 5.6.1.1, the UE shall send a SERVICE REQUEST message with service type set to "emergency services fallback".

For case i) in subclause 5.6.1.1, if the UE is not configured for high priority access in selected PLMN, the UE shall set the Service type IE in the SERVICE REQUEST message as follows:

a) if the pending message is an UL NAS TRANSPORT message with the Request type IE set to "initial emergency request" or "existing emergency PDU session", the UE shall set the Service type IE in the SERVICE REQUEST message to "emergency services"; or

b) otherwise, the UE shall set the Service type IE in the SERVICE REQUEST message to "signalling".

For case j) in subclause 5.6.1.1:

a) the UE shall include the Uplink data status IE in the SERVICE REQUEST message indicating the PDU session(s) for which user-plane resources were active prior to receiving the fallback indication, if any; and

b) if the UE is not a UE configured for high priority access in selected PLMN, the UE shall set the Service type IE in the SERVICE REQUEST message as follows:

1) if there is an emergency PDU session which is indicated in the Uplink data status IE, the UE shall set the Service type IE in the SERVICE REQUEST message to "emergency services"; or

2) if there is no emergency PDU session which is indicated in the Uplink data status IE, the UE shall set the Service type IE in the SERVICE REQUEST message to "data".

The UE shall include a valid 5G-S-TMSI in the 5G-S-TMSI IE of the SERVICE REQUEST message.

If the UE has one or more active always-on PDU sessions associated with the access type over which the SERVICE REQUEST message is sent and the user-plane resources for these PDU sessions are not established, the UE shall include the Uplink data status IE in the SERVICE REQUEST message and indicate that the UE has pending user data to be sent for those PDU sessions.

If the UE has one or more active PDU sessions which are not accepted by the network as always-on PDU sessions and no uplink user data pending to be sent for those PDU sessions, the UE shall not include those PDU sessions in the Uplink data status IE in the SERVICE REQUEST message.

The Uplink data status IE may be included in the SERVICE REQUEST message to indicate which PDU session(s) associated with the access type the SERVICE REQUEST message is sent over have pending user data to be sent.

The PDU session status information element may be included in the SERVICE REQUEST message to indicate the PDU session(s) available in the UE associated with the access type the SERVICE REQUEST message is sent over.

If the SERVICE REQUEST message includes a NAS message container IE, the AMF shall process the SERVICE REQUEST message that is obtained from the NAS message container IE as described in subclause 4.4.6.

If the UE has an emergency PDU session over the non-current access, it shall not initiate the SERVICE REQUEST message with the service type IE set to "emergency services" over the current access, unless the SERVICE REQUEST message has to be initiated to perform handover of an existing emergency PDU session from the non-current access to the current access.

NOTE 2: Transfer of an existing emergency PDU session between 3GPP access and non-3GPP access is needed e.g. if the UE determines that the current access is no longer available.

\* \* \* Fourth Change \* \* \* \*

##### 5.6.2.2.1 General

The network shall initiate the paging procedure for 5GS services when NAS signalling messages or user data is pending to be sent to the UE in 5GMM-IDLE mode over 3GPP access (see example in figure 5.6.2.2.1.1).



Figure 5.6.2.2.1.1: Paging procedure

To initiate the procedure the 5GMM entity in the AMF requests the lower layer to start paging and shall start timer T3513.

If downlink signalling or user data is pending to be sent over non-3GPP access, the 5GMM entity in the AMF shall indicate to the lower layer that the paging is associated to non-3GPP access.

The 5GMM entity in the AMF may provide the lower layer with the "allowed CAG list" and an "indication that the UE is only allowed to access 5GS via CAG cells" for the current PLMN, if available. If there is an active emergency PDU session, the 5GMM entity in the AMF shall not provide the lower layer with the "allowed CAG list" and an "indication that the UE is only allowed to access 5GS via CAG cells" for the current PLMN, even if available, to the lower layer.

Upon reception of a paging indication, the UE shall stop the timer T3346, if running, and:

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

1) a service request procedure over 3GPP access or non-3GPP access to respond to the paging as specified in subclauses 5.6.1; or

2) a registration procedure for mobility and periodic registration update over 3GPP access to respond to the paging as specified in subclauses 5.5.1.3.2,

and additionally if the UE is in the 5GMM-IDLE mode with suspend indication, resume the suspended N1 NAS signalling connection to the AMF as specified in subclause 5.3.1.5; or

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

1) initiate a service request procedure as specified in subclause 5.6.1.2.2 if 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 subclauses 5.5.1.3.2; or

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

NOTE: If the UE is in the 5GMM-IDLE mode without suspend indication and has an uplink user data to be sent to the network using control plane CIoT 5GS optimization when receiving the paging indication, the UE can piggyback the uplink user data during the service request procedure initiated to respond to the paging, as specified in subclause 5.6.1.2.2.

The network shall stop timer T3513 for the paging procedure when an integrity-protected response is received from the UE and successfully integrity checked by the network or when the 5GMM entity in the AMF receives an indication from the lower layer that it has received the NGAP UE context resume request message as specified in 3GPP TS 38.413 [31]. If the response received is not integrity protected, or the integrity check is unsuccessful, timer T3513 for the paging procedure shall be kept running.

Upon expiry of timer T3513, the network may reinitiate paging.

If the network, while waiting for a response to the paging sent without paging priority, receives downlink signalling or downlink data associated with priority user-plane resources for PDU sessions, the network shall stop timer T3513, and then initiate the paging procedure with paging priority.

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