**3GPP TSG-CT WG1 Meeting #137-eC1-** **225102**

**E-Meeting, 18th – 26th Aug 2022 (was C1-224712)**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **.301** | **CR** | **3768** | **rev** | **1** | **Current version:** | **17.7.0** |  |
|  |
| *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)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network |  | Core Network | **x** |

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|  |
| ***Title:***  | Emergency handling when "Extended wait time" or "Extended wait time CP data" is ignored |
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| ***Source to WG:*** | Apple |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | TEI17 |  | ***Date:*** | 2022-08-22 |
|  |  |  |  |  |
| ***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 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 the “Abnormal case in the UE” the case l) resp. k) when the "Extended wait time" is ignored, and la) resp. ka) when the "Extended wait time CP data" is ignored are excluded from the default abnormal handling in case of a emergency service, as in this case the emergency call should be aborted and either upper layers are informed or a emergency attach is performed. This is however not reflected in the sub-clauses covering the case that the Attach, TAU or Service Request for initiating a PDN connection for emergency bearer services is not accepted by the network. |
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| ***Summary of change:*** | The cases l) resp. k) when the "Extended wait time" is ignored, and la) resp. ka) when the "Extended wait time CP data" is ignored are added to the description in the sub-clauses describing the Attach, TAU or Service Request for initiating a PDN connection for emergency bearer services is not accepted by the network. |
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| ***Consequences if not approved:*** | The Attach, TAU or Service Request triggered by a Emergency Call will be re-attemped unnessecary and in consequence the Emergency Call will be delayed without a realistic chance to succed in the current domain. |
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| ***Clauses affected:*** | 5.5.1.2.6B, 5.5.3.2.5A, 5.6.1.5A |
|  |  |
|  | **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 \* \* \* \*

##### 5.5.1.2.5B Attach for initiating a PDN connection for emergency bearer services not accepted by the network

If the network cannot accept an attach request with attach type not set to "EPS emergency attach" and including a PDN CONNECTIVITY REQUEST message with request type set to "emergency", the UE shall perform the procedures as described in clause 5.5.1.2.5. Then if the UE is in the same selected PLMN where the last attach request was attempted, the UE shall:

a) inform the upper layers of the failure of the procedure; or

NOTE 1: This can result in the upper layers requesting establishment of a CS emergency call (if not already attempted in the CS domain) or other implementation specific mechanisms, e.g. procedures specified in 3GPP TS 24.229 [13D] can result in the emergency call being attempted to another IP-CAN.

b) attempt EPS attach for emergency bearer services including the PDN CONNECTIVITY REQUEST message.

If the network cannot accept an attach request with attach type not set to "EPS emergency attach" and including a PDN CONNECTIVITY REQUEST message with request type set to "handover of emergency bearer services", the UE shall perform the procedures as described in clause 5.5.1.2.5. Then if the UE is in the same selected PLMN or equivalent PLMN where the last attach request was attempted, the UE shall attempt EPS attach for emergency bearer services including the PDN CONNECTIVITY REQUEST message.

If the attach request with attach type not set to "EPS emergency attach" for initiating a PDN connection for emergency bearer services fails due to abnormal case a) in clause 5.5.1.2.6, the UE shall perform the actions as described in clause 5.5.1.2.6 and inform the upper layers of the failure to access the network.

NOTE 2: This can result in the upper layers requesting establishment of a CS emergency call (if not already attempted in the CS domain) or other implementation specific mechanisms, e.g. procedures specified in 3GPP TS 24.229 [13D] can result in the emergency call being attempted to another IP-CAN.

If the attach request with attach type not set to "EPS emergency attach" and including a PDN CONNECTIVITY REQUEST message with request type set to "emergency" fails due to abnormal cases b), c) or d) as well as l) when the "Extended wait time" is ignored, and la) when the "Extended wait time CP data" is ignored in clause 5.5.1.2.6, the UE shall perform the procedures as described in clause 5.5.1.2.6. Then if the UE is in the same selected PLMN where the last attach request was attempted, the UE shall:

a) inform the upper layers of the failure of the procedure; or

NOTE 3: This can result in the upper layers requesting establishment of a CS emergency call (if not already attempted in the CS domain) or other implementation specific mechanisms, e.g. procedures specified in 3GPP TS 24.229 [13D] can result in the emergency call being attempted to another IP-CAN.

b) attempt EPS attach for emergency bearer services including the PDN CONNECTIVITY REQUEST message.

If the attach request with attach type not set to "EPS emergency attach" and including a PDN CONNECTIVITY REQUEST message with request type set to "handover of emergency bearer services" fails due to abnormal cases b), c), d) or o) in clause 5.5.1.2.6, the UE shall perform the procedures as described in clause 5.5.1.2.6. Then if the UE is in the same selected PLMN or equivalent PLMN where the last attach request was attempted, the UE shall attempt EPS attach for emergency bearer services including the PDN CONNECTIVITY REQUEST message.

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

##### 5.5.3.2.5A Tracking area updating procedure for initiating a PDN connection for emergency bearer services not accepted by the network

If the tracking area updating request for initiating a PDN connection for emergency bearer services cannot be accepted by the network, the UE shall perform the procedures as described in clause 5.5.3.2.5. Then if the UE is in the same selected PLMN where the last tracking area updating request was attempted, the UE shall:

a) inform the upper layers of the failure of the procedure; or

NOTE 1: This can result in the upper layers establishment of a CS emergency call (if not already attempted in the CS domain) or other implementation specific mechanisms, e.g. procedures specified in 3GPP TS 24.229 [13D] can result in the emergency call being attempted to another IP-CAN.

b) detach locally, if not detached already, attempt EPS attach for emergency bearer services.

If the tracking area updating request for initiating a PDN connection for emergency bearer services fails due to abnormal case a) in clause 5.5.3.2.6, the UE shall perform the actions as described in clause 5.5.3.2.6 and inform the upper layers of the failure to access the network.

NOTE 2: This can result in the upper layers establishment of a CS emergency call (if not already attempted in the CS domain) or other implementation specific mechanisms, e.g. procedures specified in 3GPP TS 24.229 [13D] can result in the emergency call being attempted to another IP-CAN.

If the tracking area updating request for initiating a PDN connection for emergency bearer services fails due to abnormal cases b), c) or d) as well as k) when the "Extended wait time" is ignored, and ka) when the "Extended wait time CP data" is ignored in clause 5.5.3.2.6, the UE shall perform the procedures as described in clause 5.5.3.2.6. Then if the UE is in the same selected PLMN where the last tracking area updating request was attempted, the UE shall:

a) inform the upper layers of the failure of the procedure; or

NOTE 3: This can result in the upper layers establishment of a CS emergency call (if not already attempted in the CS domain) or other implementation specific mechanisms, e.g. procedures specified in 3GPP TS 24.229 [13D] can result in the emergency call being attempted to another IP-CAN.

b) detach locally, if not detached already, attempt EPS attach for emergency bearer services.

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

#### 5.6.1.5A Service request procedure for initiating a PDN connection for emergency bearer services not accepted by the network

If the service request for initiating a PDN connection for emergency bearer services cannot be accepted by the network, the UE shall perform the procedures as described in clause 5.6.1.5. Then if the UE is in the same selected PLMN where the last service request was attempted, the UE shall:

a) inform the upper layers of the failure of the procedure; or

NOTE 1: This can result in the upper layers requesting establishment of a CS emergency call (if not already attempted in the CS domain) or other implementation specific mechanisms, e.g. procedures specified in 3GPP TS 24.229 [13D] can result in the emergency call being attempted to another IP-CAN.

b) detach locally, if not detached already, attempt EPS attach for emergency bearer services.

If the service request for initiating a PDN connection for emergency bearer services fails due to abnormal case a) in clause 5.6.1.6, the UE shall perform the actions as described in clause 5.6.1.6 and inform the upper layers of the failure to access the network.

NOTE 2: This can result in the upper layers requesting establishment of a CS emergency call (if not already attempted in the CS domain) or other implementation specific mechanisms, e.g. procedures specified in 3GPP TS 24.229 [13D] can result in the emergency call being attempted to another IP-CAN.

If the service request for initiating a PDN connection for emergency bearer services fails due to abnormal cases b), c) or e) as well as l) when the "Extended wait time" is ignored, and la) when the "Extended wait time CP data" is ignored in clause 5.6.1.6, the UE shall perform the procedures as described in clause 5.6.1.6. Then if the UE is in the same selected PLMN where the last service request was attempted, the UE shall:

a) inform the upper layers of the failure of the procedure; or

NOTE 3: This can result in the upper layers requesting establishment of a CS emergency call (if not already attempted in the CS domain) or other implementation specific mechanisms, e.g. procedures specified in 3GPP TS 24.229 [13D] can result in the emergency call being attempted to another IP-CAN.

b) detach locally, if not detached already, attempt EPS attach for emergency bearer services.

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

\* \* \* next sub-clause for information only \* \* \* \*

##### 5.5.1.2.6 Abnormal cases in the UE

The following abnormal cases can be identified:

a) Access barred because of access class barring, EAB, ACDC or NAS signalling connection establishment rejected by the network without "Extended wait time" received from lower layers

 In WB-S1 mode, if access is barred for "originating signalling" (see 3GPP TS 36.331 [22]), the attach procedure shall not be started. The UE stays in the current serving cell and applies the normal cell reselection process. The attach procedure is started as soon as possible, i.e. when access for "originating signalling" is granted on the current cell or when the UE moves to a cell where access for "originating signalling" is granted.

 In NB-S1 mode, if access is barred for "originating signalling" (see 3GPP TS 36.331 [22]), the attach procedure shall not be started. The UE stays in the current serving cell and applies the normal cell reselection process. Further UE behaviour is implementation specific, e.g. the attach procedure is started again after an implementation dependent time.

 In NB-S1 mode, if access is barred for "originating signalling" (see 3GPP TS 36.331 [22]), a request for an exceptional event is received from the upper layers, then the attach procedure shall be started.

NOTE 1: In NB-S1 mode, the EMM layer cannot receive the access barring alleviation indication from the lower layers (see 3GPP TS 36.331 [22]).

 If access is barred because of access class barring for "originating signalling" (see 3GPP TS 36.331 [22]), ACDC is applicable to the request from the upper layers and the UE supports ACDC, then the attach procedure shall be started.

 If access is barred for a certain ACDC category (see 3GPP TS 36.331 [22]), a request with a higher ACDC category is received from the upper layers and the UE supports ACDC, then the attach procedure shall be started.

 If an access request for an uncategorized application is barred due to ACDC (see 3GPP TS 36.331 [22]), a request with a certain ACDC category is received from the upper layers and the UE supports ACDC, then the attach procedure shall be started.

aa) Lower layer failure to establish the RRC connection and:

- the UE is in its HPLMN or in an EHPLMN (if the EHPLMN list is present);

- the attach request is neither for emergency bearer services nor for initiating a PDN connection for emergency bearer services with attach type not set to "EPS emergency attach";

- the UE supports being configured with CustomLLFailureRetry as specified in 3GPP TS 24.368 [15A]); and

- CustomLLFailureRetry leaf is present as specified in 3GPP TS 24.368 [15A]);

 The UE shall abort the attach procedure and wait for a UE implementation specific timer which shall be set to MinRetryTimer or MaxRetryTimer as specified in 3GPP TS 24.368 [15A]. The UE shall not set the UE implementation specific timer to MinRetryTimer for more than MaxMinRetry consecutive attempts as specified in 3GPP TS 24.368 [15A]. After the expiration of the UE implementation specific timer, the UE shall restart the attach procedure, if still needed.

b) Lower layer failure not covered in case aa) or release of the NAS signalling connection without "Extended wait time" and without "Extended wait time CP data" received from lower layers before the ATTACH ACCEPT or ATTACH REJECT message is received

 The attach procedure shall be aborted, and the UE shall proceed as described below.

c) T3410 timeout

 The UE shall abort the attach procedure. The NAS signalling connection, if any, shall be released locally.

NOTE 2: The NAS signalling connection can also be released if the UE deems that the network has failed the authentication check as specified in clause 5.4.2.7.

 The UE shall proceed as described below.

d) ATTACH REJECT, other EMM cause values than those treated in clause 5.5.1.2.5, and cases of EMM cause values #22, #25, #31 and #78, if considered as abnormal cases according to clause 5.5.1.2.5

 Upon reception of the EMM cause #19 "ESM failure", if the UE is not configured for NAS signalling low priority and the ESM cause value received in the PDN CONNECTIVITY REJECT message is not #54 "PDN connection does not exist", the UE may set the attach attempt counter to 5. Subsequently, if the UE needs to retransmit the ATTACH REQUEST message to request PDN connectivity towards a different APN, the UE may stop T3411 or T3402, if running, and send the ATTACH REQUEST message. If the UE needs to attempt EPS attach to request transfer of a PDN connection for emergency bearer services by including a PDN CONNECTIVITY REQUEST message with request type set to "handover of emergency bearer services", the UE shall stop T3411 or T3402, if running, and send the ATTACH REQUEST message.

NOTE 3: When receiving EMM cause #19 "ESM failure", coordination is required between the EMM and ESM sublayers in the UE to determine whether to set the attach attempt counter to 5.

 If the attach request is neither for emergency bearer services nor for initiating a PDN connection for emergency bearer services with attach type not set to "EPS emergency attach", upon reception of the EMM causes #95, #96, #97, #99 and #111 the UE should set the attach attempt counter to 5.

 The UE shall proceed as described below.

e) Change of cell into a new tracking area

 If a cell change into a new tracking area occurs before the attach procedure is completed, the attach procedure shall be aborted and re-initiated immediately. If a tracking area border is crossed when the ATTACH ACCEPT message has been received but before an ATTACH COMPLETE message is sent, the attach procedure shall be re-initiated. If a GUTI was allocated during the attach procedure, this GUTI shall be used in the attach procedure.

f) Mobile originated detach required

 The attach procedure shall be aborted, and the UE initiated detach procedure shall be performed.

g) Detach procedure collision

 If the UE receives a DETACH REQUEST message from the network in state EMM-REGISTERED-INITIATED and the detach type indicates "re-attach not required" and no EMM cause IE, or "re-attach not required" and the EMM cause value is not #2 "IMSI unknown in HSS", the detach procedure shall be progressed and the attach procedure shall be aborted. If the UE receives a DETACH REQUEST message from the network in state EMM-REGISTERED-INITIATED and the detach type indicates "re-attach required", the detach procedure shall be progressed and the UE shall locally release the NAS signalling connection, before re-initiating the attach procedure. Otherwise the attach procedure shall be progressed and the DETACH REQUEST message shall be ignored.

h) Transmission failure of ATTACH REQUEST message indication from lower layers

 The UE shall restart the attach procedure immediately.

i) Transmission failure of ATTACH COMPLETE message indication from lower layers

 If the current TAI is not in the TAI list, the UE shall restart the attach procedure.

 If the current TAI is still in the TAI list, it is up to the UE implementation how to re-run the ongoing procedure. The EMM sublayer notifies the ESM sublayer that the ESM message in the ESM message container IE of the ATTACH COMPLETE has failed to be transmitted.

j) If EMM-REGISTERED without PDN connection is not supported by the UE or the MME, and the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message combined with the ATTACH ACCEPT is not accepted by the UE due to failure in the UE ESM sublayer, then the UE shall initiate the detach procedure by sending a DETACH REQUEST message to the network. Further UE behaviour is implementation specific.

 If EMM-REGISTERED without PDN connection is supported by the UE and the MME, and the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message combined with the ATTACH ACCEPT is not accepted by the UE due to failure in the UE ESM sublayer, then the UE shall either send an ATTACH COMPLETE message together with an ACTIVATE DEFAULT EPS BEARER CONTEXT REJECT contained in the ESM message container information element to the network or initiate the detach procedure by sending a DETACH REQUEST message. Further UE behaviour is implementation specific.

k) Indication from the lower layers that an S101 mode to S1 mode handover has been cancelled (S101 mode only)

 The UE shall abort the attach procedure and enter state EMM-DEREGISTERED.NO-CELL-AVAILABLE.

l) "Extended wait time" from the lower layers

 If the ATTACH REQUEST message contained the low priority indicator set to "MS is configured for NAS signalling low priority", the UE shall start timer T3346 with the "Extended wait time" value and reset the attach attempt counter.

 If the ATTACH REQUEST message did not contain the low priority indicator set to "MS is configured for NAS signalling low priority", the UE is operating in NB-S1 mode and the UE is not a UE configured to use AC11 – 15 in selected PLMN, then the UE shall start timer T3346 with the "Extended wait time" value and reset the attach attempt counter.

 In other cases the UE shall ignore the "Extended wait time".

 The UE shall abort the attach procedure, stay in the current serving cell, change the state to EMM-DEREGISTERED.ATTEMPTING-TO-ATTACH and apply the normal cell reselection process.

 The UE shall proceed as described below.

la) "Extended wait time CP data" from the lower layers

 If the UE is operating in NB-S1 mode, the UE shall start the timer T3346 with the "Extended wait time CP data" value and reset the attach attempt counter.

 In other cases the UE shall ignore the "Extended wait time CP data".

 The UE shall abort the attach procedure, stay in the current serving cell, change the state to EMM-DEREGISTERED.ATTEMPTING-TO-ATTACH and apply the normal cell reselection process.

 The UE shall proceed as described below.

m) Timer T3346 is running

 The UE shall not start the attach procedure unless:

- the UE is a UE configured to use AC11 – 15 in selected PLMN;

- the UE needs to attach for emergency bearer services;

- the UE in NB-S1 mode is requested by the upper layer to transmit user data related to an exceptional event and

i) the UE is allowed to use exception data reporting (see the ExceptionDataReportingAllowed leaf of the NAS configuration MO in 3GPP TS 24.368 [15A] or the USIM file EFNASCONFIG in 3GPP TS 31.102 [17]); and

ii) timer T3346 was not started when NAS signalling connection was established with RRC establishment cause set to "MO exception data"; or

- the UE needs to attach without the NAS signalling low priority indication and if the timer T3346 was started due to rejection of a NAS request message (e.g. ATTACH REQUEST, TRACKING AREA UPDATE REQUEST or EXTENDED SERVICE REQUEST) which contained the low priority indicator set to "MS is configured for NAS signalling low priority".

 The UE stays in the current serving cell and applies the normal cell reselection process.

NOTE 4: It is considered an abnormal case if the UE needs to initiate an attach procedure while timer T3346 is running independent on whether timer T3346 was started due to an abnormal case or a non successful case.

 The UE shall proceed as described below.

n) If EMM-REGISTERED without PDN connection is supported by the UE and the MME, an ESM DUMMY MESSAGE is included in the ESM message container information element of the ATTACH REQUEST message and the UE receives the ATTACH ACCEPT message combined with a PDN CONNECTIVITY REJECT message, the UE shall send an ATTACH COMPLETE message together with an ESM DUMMY MESSAGE contained in the ESM message container information element to the network. Further UE behaviour is implementation specific.

o) Timer T3447 is running

 The UE shall not start the attach procedure unless:

- the UE is a UE configured to use AC11 – 15 in selected PLMN;

- the UE attempts to attach for emergency bearer services; or

- the UE attempts to attach without PDN connection request.

 The UE stays in the current serving cell and applies the normal cell reselection process. The attach request procedure is started, if still necessary, when timer T3447 expires.

For the cases b, c, d, l, la and m:

- Timer T3410 shall be stopped if still running.

- For the cases b, c, d, l when the "Extended wait time" is ignored, and la when the "Extended wait time CP data" is ignored, if the attach request is neither for emergency bearer services nor for initiating a PDN connection for emergency bearer services with attach type not set to "EPS emergency attach", the attach attempt counter shall be incremented, unless it was already set to 5.

- If the attach attempt counter is less than 5:

- for the cases l, la and m, the attach procedure is started, if still necessary, when timer T3346 expires or is stopped;

- for the cases b, c, d, l when the "Extended wait time" is ignored, and la when the "Extended wait time CP data" is ignore, if the attach request is neither for emergency bearer services nor for initiating a PDN connection for emergency bearer services with attach type not set to "EPS emergency attach", timer T3411 is started and the state is changed to EMM-DEREGISTERED.ATTEMPTING-TO-ATTACH. When timer T3411 expires the attach procedure shall be restarted, if still required by ESM sublayer.

- If the attach attempt counter is equal to 5:

- the UE shall delete any GUTI, TAI list, last visited registered TAI, list of equivalent PLMNs and KSI, shall set the update status to EU2 NOT UPDATED, and shall start timer T3402. The state is changed to EMM-DEREGISTERED.ATTEMPTING-TO-ATTACH or optionally to EMM-DEREGISTERED.PLMN-SEARCH in order to perform a PLMN selection according to 3GPP TS 23.122 [6]; and

- if A/Gb mode, Iu mode or N1 mode is supported by the UE:

- if A/Gb mode or Iu mode is supported by the UE, the UE shall in addition handle the GMM parameters GMM state, GPRS update status, P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number as specified in 3GPP TS 24.008 [13] for the abnormal case when a normal attach procedure fails and the attach attempt counter is equal to 5;

- if the UE is operating in single-registration mode, the UE shall in addition handle the 5GMM parameters 5GMM state, 5GS update status, 5G-GUTI, last visited registered TAI, TAI list and ngKSI as specified in 3GPP TS 24.501 [54] for the abnormal case when an initial registration procedure performed over 3GPP access fails and the registration attempt counter is equal to 5; and

- the UE shall attempt to select GERAN, UTRAN or NG-RAN radio access technology and proceed with appropriate GMM or 5GMM specific procedures. Additionally, if the UE selects GERAN or UTRAN radio access technology, the UE may disable the E-UTRA capability as specified in clause 4.5. If No E-UTRA Disabling In 5GS is enabled at the UE (see 3GPP TS 24.368 [50] or 3GPP TS 31.102 [17]) and the UE selects NG-RAN radio access technology, it shall not disable the E-UTRA capability; otherwise, the UE may disable the E-UTRA capability as specified in clause 4.5.

NOTE 5: Whether the UE requests RRC to treat the active E-UTRA cell as barred (see 3GPP TS 36.304 [21]) is left to the UE implementation.