**3GPP TSG-CT WG1 Meeting #141eC1-232459**

**Online 17– 21 April 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.229** | **CR** | **6590** | **rev** | **-** | **Current version:** | **18.1.1** |  |
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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:*** | Emerg-reg timer change in TS 24.229 | | | | | | | | | |
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| ***Source to WG:*** | MediaTek Inc. | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | IMSProtoc18 | | | | |  | ***Date:*** | | | 2023-03-31 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Recently in TS 24.229 Rel-17, states if the UE supports emerg-reg timer and when the timer expires, the UE may retry registration on a different PCSCF before the UE considers emergency registration to have failed and make an emergency call without registration or do CSFB.  However, emerg-reg timer is configurable between 8 seconds to 20 seconds. Meanwhile, there may not be only one PCSCF can be used. In such case, emergency registration will take more than 20 seconds to accomplished, which causing a bad user experience.  As the UE decides to make an emergency call via the IM CN subsystem, the emerg-reg timer will be started. This time the UE use the first P-CSCF to do the registration. Once the failure criteria are met, we conclude the first try with this P-CSCF has failed. Afterward, if there are more than one P-CSCF can be used, the UE should try the next PCSCF. Likewise, when this try also failed with the second PCSCF, the UE shall try the third PCSCF, if there is any. However, the above-mentioned procedure should be confined within the duration of emerg-reg timer. Once the emerg-reg timer expires, the whole registration procedure will be concluded to has failed. The UE shall move on and attempt an anonymous emergency session or follow the procedure of domain selection. However, in this option, the failure criteria should be defined first. | | | | | | | | |
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| ***Summary of change:*** | | In this change, we extend the duration of emerg-reg timer to guard the whole emergency registration. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Emergency registration procedure can take more than 20 seconds to accomplish once the UE has several P-CSCFs to use. Which might cause inconvenience and bad user experience. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.1.6.1, 7.8 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

\*\*\*\*1st Change\*\*\*\*

#### 5.1.6.1 General

A CS and IM CN subsystem capable UE shall follow the conventions and rules specified in 3GPP TS 22.101 [1A] and 3GPP TS 23.167 [4B] to select the domain for the emergency call attempt. If the CS domain is selected, the UE shall attempt an emergency call setup using appropriate access technology specific procedures.

NOTE 1: For CS systems based on 3GPP TS 24.008 [8], clause B.5 applies.

The UE shall determine, whether it is currently attached to its home operator's network (e.g. HPLMN or subscribed SNPN) or to a different network than its home operator's network (e.g. VPLMN or non-subscribed SNPN) by applying access technology specific procedures described in the access technology specific annexes.

If the IM CN subsystem is selected and the UE is currently attached to its home operator's network (e.g. HPLMN or subscribed SNPN) and the UE is currently registered and the IP-CAN does not define emergency bearers, the UE shall attempt an emergency call as described in subclause 5.1.6.8.4.

If the IM CN subsystem is selected and the UE is currently attached to its home operator's network (e.g. HPLMN or subscribed SNPN) and the UE is currently registered and the IP-CAN defines emergency bearers and the core network has indicated that it supports emergency bearers, the UE shall:

1) perform an initial emergency registration, as described in subclause 5.1.6.2; and

2) attempt an emergency call as described in subclause 5.1.6.8.3.

If the IM CN subsystem is selected and the UE is currently attached to its home operator's network (e.g. HPLMN or subscribed SNPN) and the UE is not currently registered, the UE shall:

1) perform an initial emergency registration, as described in subclause 5.1.6.2; and

2) attempt an emergency call as described in subclause 5.1.6.8.3.

If the IM CN subsystem is selected and the UE is attached to a different network than its home operator's network (e.g. VPLMN or non-subscribed SNPN), the UE shall:

1) perform an initial emergency registration, as described in subclause 5.1.6.2; and

2) attempt an emergency call as described in subclause 5.1.6.8.3.

If the UE supports the emerg-reg timer defined in table 7.8.1, the UE shall start the emerg-reg timer when the UE decides that an emergency call is to be established via the IM CN subsystem. The UE shall stop the timer when the UE determines that an initial emergency registration, as described in subclause 5.1.6.2, is not required or upon receipt of any final SIP response during the initial emergency registration.

Prior to emerg-reg timer expiry and before the final reseponse for the initial emergency registration is received, the UE detects some failures such as:

1) any transport errors, connection loss or noresponse with the existing CSCF;

2) any RAT change request received prior to receiving final response for the initial emergency registration;

3) any SIP transaction timeout received prior to the final response for the initial emergency registration;

4) any SIP 3xx, 4xx (except 401), 5xx or 6xx response received to the emergency REGISTER request;

5) any lower layer failures detected; or

6) any implementation specific failure detected.

then, the UE shall:

1) if the initial REGISTER request for the initial emergency registration has been sent, consider that the emergency registration attempt for this P-CSCF has failed. The UE may retry registration on a different P-CSCF and if the UE has no more available P-CSCFs the UE considers the emergency registration to have failed and applies the procedures related to emergency registration failure that are defined in 3GPP TS 23.167 [4B] subclause 6.1; and

2) if the initial REGISTER request for the initial emergency registration has not been sent:

- if the UE has successfully established an IP-CAN bearer for an emergency session, consider that the emergency registration attempt for this P-CSCF has failed. The UE may retry registration on a different P-CSCF and if the UE has no more available P-CSCFs the UE considers the emergency registration to have failed and applies the procedures related to emergency registration failure that are defined in 3GPP TS 23.167 [4B] subclause 6.1; or

- if the UE has not successfully established an IP-CAN bearer for an emergency session, consider that the attempt to set up the emergency call via the IM CN subsystem has failed, abort any ongoing IP-CAN procedures for the emergency registration, and apply the procedures for domain selection as defined in 3GPP TS 23.167 [4B] clause H.5.

When the emerg-reg timer expires, the UE shall consider the emergency registration to have failed and applies the procedures related to emergency registration failure that are defined in 3GPP TS 23.167 [4B] subclause 6.1.

The UE may support being pre-configured for the Emerg-reg timer using one or more of the following methods:

a) the Timer\_Emerg-reg leaf of the EFIMSConfigData file described in 3GPP TS 31.102 [15C];

b) the Timer\_Emerg-reg leaf of the EFIMSConfigData file described in 3GPP TS 31.103 [15B]; and

c) the Timer\_Emerg-reg leaf of 3GPP TS 24.167 [8G].

If the UE is configured with both the Timer\_Emerg-reg leaf of 3GPP TS 24.167 [8G] and the Timer\_Emerg-reg leaf of the EFIMSConfigData file described in 3GPP TS 31.102 [15C] or 3GPP TS 31.103 [15B], then the Timer\_Emerg-reg leaf of the EFIMSConfigData file shall take precedence.

NOTE 2: Precedence for files configured on both the USIM and ISIM is defined in 3GPP TS 31.103 [15B].

If the IM CN subsystem is selected and the UE has no credentials the UE can make an emergency call without being registered. The UE shall attempt an emergency call as described in subclause 5.1.6.8.2.

An IP-CAN can, dependent on the IP-CAN capabilities, provide local emergency numbers (including information about emergency service categories or information about emergency service URNs) to the UE which has that capability, in order for the UE to recognize these numbers as emergency call.

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

## 7.8 IM CN subsystem timers

Table 7.8.1 shows recommended values for timers specific to the IM CN subsystem.

Table 7.8.1: IM CN subsystem

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Timer | Value to be applied at the UE | Value to be applied at the P-CSCF | Value to be applied at the S-CSCF | Meaning |
| reg-await-auth | not applicable | not applicable | 4 minutes | The timer is used by the S-CSCF during the authentication procedure of the UE for registration. For detailed usage of the timer see subclause 5.4.1.2.  The authentication procedure may take in the worst case as long as 2 times Timer F. The IM CN subsystem value for Timer F is 128 seconds. |
| request-await-auth | not applicable | not applicable | 4 minutes | The timer is used by the S-CSCF during the authentication procedure of the UE for requests different than REGISTER. For detailed usage of the timer see subclause 5.4.3.6.1.  The authentication procedure may take in the worst case as long as 2 times Timer F. The IM CN subsystem value for Timer F is 128 seconds. |
| emerg-reg | Configurable value between 8 seconds and 50 seconds | not applicable | not applicable | The timer is used by the UE to supervise the time from deciding that an emergency service is to be established via the IM CN subsystem until completion of the emergency registration procedure, including any required IP-CAN procedures. For detailed usage of the timer see subclause 5.1.6.1. |
| emerg-request | Configurable value between 5 seconds and 15 seconds | not applicable | not applicable | The timer is used by the UE during initial request for emergency service. For detailed usage of the timer see subclause 5.1.6.8.1. |
| NoVoPS-dereg | Configurable value between 0 seconds and 65535 seconds | not applicable | not applicable | The timer is used by the UE when the UE receives a VoPS not supported indication from the lower layers and indicates the time the UE needs to wait before the UE deregisters from IMS if the UE is configured with a policy to deregister, see subclause B.3.1.0a, L.3.1.0a, U.3.1.0a and W.3.1.0a |
| emerg-non3gpp | Configurable value between 5 seconds and 20 seconds | not applicable | not applicable | The timer is used by the UE to supervise the time for searching usable 3GPP access to setup an emergency call before attempting the emergency call via non-3GPP access.  For detailed usage of the timer see subclauses R.2.2.6.1 and W.2.2.6.1. |

NOTE: The UE and the P-CSCF use the value of the reg-await-auth timer to set the SIP level lifetime of the temporary set of security associations.

\*\*\*\*End of Change\*\*\*\*