**3GPP TSG-RAN5 Meeting #91-e R5-213429**

**Electronic Meeting, 17th – 28th May 2021**

**Title:** LS on Emergency call after Authentication Failure

**Response to:**

**Release:** Release 15

**Work Item:** 5GS\_NR\_LTE-UEConTest

**Source:** TSG RAN WG5

**To:** TSG CT WG1

**Cc:**

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**Attachments:**

**1. Overall Description:**

In TS 24.501 clause 5.4.1.3.7, there is following text:

**[Quote start]**

**For items c, d, e, and f whether or not the UE is registered for emergency services: (Part 1)**

The UE shall stop timer T3520, if the timer is running and the UE enters 5GMM-IDLE mode, e.g. upon detection of a lower layer failure, release of the N1 NAS signalling connection, or as the result of an inter-system change in 5GMM-CONNECTED mode from N1 mode to S1 mode.

The UE shall deem that the network has failed the authentication check or assume that the authentication is not genuine and proceed as described in item g above if any of the following occurs:

- the timer T3520 expires;

- the UE detects any combination of the 5G authentication failures: 5GMM causes #20 "MAC failure", #21 "synch failure", #26 "non-5G authentication unacceptable" or #71 "ngKSI already in use", during three consecutive authentication challenges. The 5G authentication challenges shall be considered as consecutive only, if the 5G authentication challenges causing the second and third 5G authentication failure are received by the UE, while the timer T3520 started after the previous 5G authentication failure is running.

**For items c, d, e, and f: (Part 2)**

Depending on local requirements or operator preference for emergency services, if the UE has an emergency PDU session established or is establishing an emergency PDU session, the AMF need not follow the procedures specified for the

<text skipped here>

If a UE has an emergency PDU session established or is establishing an emergency PDU session when timer T3520 expires, the UE shall not deem that the network has failed the authentication check and not behave as described in item g. Instead the UE shall continue using the current security context, if any, release all non-emergency PDU sessions, if any, by initiating UE-requested PDU session release procedure. If there is an ongoing PDU session establishment procedure, the UE shall release all non-emergency PDU sessions upon completion of the PDU session establishment procedure. The UE shall start any retransmission timers (e.g. T3510, T3517 or T3521) if:

- they were running and stopped when the UE received the AUTHENTICATION REQUEST message and detected an authentication failure;

- the procedures associated with these timers have not yet been completed.

The UE shall behave as if the UE is registered for emergency services.

**[Quote end]**

For easy description, we denote the above text as **(Part 1)** where UE behave as described in item g and **(Part 2)** where UE **not** behave as described in item g, then in following situation:

**Situation 1**: UE has established an Emergency call, then the 5G authentication failure happens, then T3520 expires, then the Emergency call and its corresponding PDU session are released

There is a discussion in RAN5 and several UE behaviour options are discussed:

**Option 1-1**: UE behave as Part 1 since the conditions: 5G authentication failure happens and T3520 expires are fulfilled.

**Option 1-2**: UE behave as Part 2 since the conditions: UE has an emergency PDU session established and 5G authentication failure happens and T3520 expires are fulfilled.

**Option 1-3**: UE firstly behave as Part 2, then after the emergency call and its corresponding PDU session are released, UE behave as Part 1.

**Question 1**: should UE behave as Option 1 or Option 2 or Option 3 or any other behaviours?

There is also a discussion what UE do after the emergency call and its corresponding PDU session are released and two options are as following:

**Option 2-1**: UE will remain on registered for emergency services state so that it can respond quickly if follow up emergency service come up. But this way UE can not get access to normal service.

**Option 2-2**: UE will firstly leave the registered for emergency services state by initiate a De-registration procedure, then initiate a Registration procedure to get access to normal service.

**Question 2**: should UE behave as Option 2-1 or Option 2-2 or any other behaviours?

**2. Actions:**

**To CT WG1 group.**

**ACTION:** RAN5 kindly asks CT WG1 group to answer Question 1 and Question 2 stated above.

**3. Date of Next TSG-RAN WG5 Meetings:**

TSG-RAN5 Meeting#92 16th – 27th August 2021 Electronic Meeting

TSG-RAN5 Meeting#93 08rd – 19th Nov 2021 Electronic Meeting