**3GPP SA WG2 Meeting #164**

**Maastricht, NL, 19-23 August 2024 *(was S2-2407550)***

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** | **1** | **Current version:** | **18.6.0** |  |
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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 |  | Radio Access Network |  | Core Network | **x** |

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|  |
| ***Title:***  | Support for SMS over NAS in Disaster Roaming |
|  |  |
| ***Source to WG:*** | Qualcomm Incorporated |
| ***Source to TSG:*** | SA2 |
|  |  |
| ***Work item code:*** | MINT,TEI18 |  | ***Date:*** | 2024-08-19 |
|  |  |  |  |  |
| ***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 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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | The text description for Disaster Roaming in clause 5.40 of TS 23.501 is not explaining the support (or no support) for SMS over NAS. SMS over NAS requires in order to be supported: 1. UE to indicate "SMS supported" in NAS registration
2. AMF to retrieve the SMS subscription of the UE from UDM
3. AMF to discover SMSF in VPLMN and store its address in UE context
4. SMSF to register to UDM of the UE

 For 1) there is no restriction in current specifications for UE to indicate “SMS supported” if the Registration is for Disaster Roaming so the UE will include it if it supports SMS over NASFor 2) Disaster Roaming the AMF may provide the Disaster Roaming service indication to UDM as specified in clause 4.2.2.2.2 of TS 23.502 and the UDM can be configured with Disaster Condition via OAM based on operator policy and the request by the government agencies. Based on this local configuration and/or the Disaster Roaming service indication, the UDM can provide the subscription data for a Disaster Roaming service to the AMF.Using this indication from AMF can "guide" the UDM to provide the SMS subscription so registration to SMSF can work even if normally the HPLMN does not have support for SMS over NAS. For 3) and 4) the UDM can correlate the Disaster Roaming service indication with what it receives later in step 7a-7c of TS 23.502 cl. 4.13.3.1 from SMSF and provide the SMS Management Subscription Data to SMSF.From the above analysis it is concluded that SMS over NAS can be supported in Disaster Roaming situation using existing procedures. It is therefore worth clarifying this aspect to avoid ambiguity in specifications.  |
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| ***Summary of change:*** | Clarify that SMS over NAS can be supported in Disaster Roaming |
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| ***Consequences if not approved:*** | Ambiguous specification text |
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| ***Clauses affected:*** | 5.40.1, 5.40.4 |
|  |  |
|  | **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:*** |  |

>>>>BEGINNING OF CHANGES<<<<

## 5.40 Support of Disaster Roaming with Minimization of Service Interruption

### 5.40.1 General

Subject to operator policy and national/regional regulations, 5GS provides Disaster Roaming service for the UEs from PLMN(s) with Disaster Condition. The UE shall attempt Disaster Roaming only if:

- there is no available PLMN which is allowable (see TS 23.122 [17]);

- the UE is not in RM-REGISTERED and CM-CONNECTED state over non-3GPP access connected to 5GCN;

- the UE cannot get service over non-3GPP access through ePDG;

- the UE supports Disaster Roaming service;

- the UE has been configured by the HPLMN with an indication of whether Disaster roaming is enabled in the UE set to "disaster roaming is enabled in the UE" as specified in clause 5.40.2; and

- a PLMN without Disaster Condition is able to accept Disaster Inbound Roamers from the PLMN with Disaster Condition.

In this Release of the specification, the Disaster Condition only applies to NG-RAN nodes, which means the rest of the network functions except one or more NG-RAN nodes of the PLMN with Disaster Condition can be assumed to be operational.

>>>> NEXT CHANGES<<<<

### 5.40.4 Registration for Disaster Roaming service

For a UE to receive Disaster Roaming service from a PLMN providing Disaster Roaming service, the UE sends a NAS Registration Request message with Registration Type value "Disaster Roaming Initial Registration" or "Disaster Roaming Mobility Registration Update":

- When the AMF in the PLMN providing Disaster Roaming service receives a NAS Registration Request with Registration Type set to "Disaster Roaming Initial Registration" or "Disaster Roaming Mobility Registration Update";

- the AMF controls if the UE is allowed to access Disaster Roaming service in the area with Disaster Condition as specified in clause 4.2.2.2.2 of TS 23.502 [3];

- the AMF may provide the Disaster Roaming service indication to AUSF and UDM as specified in clause 4.2.2.2.2 of TS 23.502 [3] and TS 33.501 [29]. The AMF may provide the Disaster Roaming service indication to SMF as specified in clause 4.3.2 of TS 23.502 [3].

NOTE 1: The AUSF and the UDM are configured with Disaster Condition via OAM based on operator policy and the request by the government agencies. Based on this local configuration and/or the Disaster Roaming service indication, the AUSF can execute authentication of the UE, and the UDM can provides the subscription data for a Disaster Roaming service to the AMF and/or the SMF.

To support the Disaster Roaming service, the PLMN providing Disaster Roaming service is configured to support communication with the network entities in the HPLMN of the UE, i.e. configurations related to roaming interfaces for communication between serving PLMN and HPLMN shall be deployed in the affected entities. This communication between the PLMNs need only be enabled during the Disaster Condition.

The Disaster Roaming service is limited to the impacted geographic area with Disaster Condition. The NG-RAN nodes and AMF in the PLMN providing Disaster Roaming service are configured with the area information, i.e. a list of TAIs which can be formulated by the PLMN providing the Disaster Roaming service based on the geographic area with Disaster Condition in the other PLMN(s).

The AMF in the PLMN providing Disaster Roaming service provides the mobility restriction list to the NG-RAN as specified in clause 5.3.4.1.1 considering the area with Disaster Condition, and also indicating that EPC is not an allowed core network.

NOTE 2: From the perspective of emergency services, a UE is following procedures as described in clause 4.24 of TS 24.501 [47] when registered for Disaster Roaming service.

NOTE 3: When the UE is registered for Disaster Roaming service, SMS over NAS can be supported with the procedures as described in clause 4.13.3.1 of TS 23.502 [3] based on subscription data.

>>>>END OF CHANGES<<<<