**3GPP TSG-CT WG1 Meeting #134eC1-223894**

**E-meeting, 12-20 May 2022**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.501** | **CR** | **4233** | **rev** | **2** | **Current version:** | **17.6.1** |  |
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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:*** | Clarify that S1 mode is not supported for MINT | | | | | | | | | |
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| ***Source to WG:*** | Huawei, HiSilicon, Samsung | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | MINT | | | | |  | ***Date:*** | | | 2022-03-30 |
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| ***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 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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | MINT is a 5G feature and is not supported in 4G. So the interworking between N1 mode and S1 mode is not supported and so the UE shall not indicate S1 mode supported and other S1 mode related parameters while doing registration for disaster roaming services. | | | | | | | | |
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| ***Summary of change:*** | | Clarify that the S1 mode bit shall not be set to S1 mode supported and UE shall not include the S1 mode releated parameters when the UE is performing registration procedure for disaster roaming serivices so that NW can avoid doing the actions need to support N1 mode to S1 mode change. If the UE receives a request from upper layers to establish emergency services then the UE shall perform a mobility update to indicate the S1 mode support. Also the general section is updated to clarify that when a UE is registered for disaster roaming services , IWK with EPS is not supported.  Changes in rev 2 ( compared to the agreed version rev 1):  Change 1:  Added a condition that the UE that is registered for disaster roaming shall indicate the support for S1 mode to the network when there is a need to trigger MRU due to emergency services.  *If case xx) is the reason for initiating the registration procedure for mobility and periodic registration update and if the UE supports S1 mode, the UE shall:*  *- set the S1 mode bit to "S1 mode supported" in the 5GMM capability IE of the REGISTRATION REQUEST message; and*  *- include the S1 UE network capability IE in the REGISTRATION REQUEST message;*  Change 2:  Added a condition that the UE that is not registered for disaster roaming indicates S1 mode support to the UE. This is to prevent the cases where a UE that is registered for disaster roaming services needs to do an MRU (e.g capability change) shall not overwrite the S1 mode support bit to ‘supported’ wrongly.  *If the UE which is not registered for disaster roaming services indicates "mobility registration updating" in the 5GS registration type IE and the UE supports S1 mode, the UE shall:*  *- set the S1 mode bit to "S1 mode supported" in the 5GMM capability IE of the REGISTRATION REQUEST message;*  *- include the S1 UE network capability IE in the REGISTRATION REQUEST message; and* | | | | | | | | |
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| ***Consequences if not approved:*** | | Wrong informtion from UE causing additional actions from the NW. | | | | | | | | |
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| ***Clauses affected:*** | | 4.24, 5.5.1.2.2, 5.5.1.3.2 | | | | | | | | |
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|  | | **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 \* \* \* \*

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## 4.24 Minimization of service interruption

The UE and the network may support Minimization of service interruption (MINT). MINT aims to enable a UE to obtain service from a PLMN offering disaster roaming service when a disaster condition applies to the UE's determined PLMN with disaster condition.

If the UE supports MINT, the indication of whether disaster roaming is enabled in the UE, the indication of 'applicability of "lists of PLMN(s) to be used in disaster condition" provided by a VPLMN', the one or more "list of PLMN(s) to be used in disaster condition", disaster roaming wait range and disaster return wait range provisioned by the network, if available, are stored in the non-volatile memory in the ME as specified in annex C and are kept when the UE enters 5GMM-DEREGISTERED state. Annex C specifies condition under which the indication of whether disaster roaming is enabled in the UE, the indication of 'applicability of "lists of PLMN(s) to be used in disaster condition" provided by a VPLMN', the one or more "lists of PLMN(s) to be used in disaster condition", disaster roaming wait range and disaster return wait range stored in the ME are deleted.

Upon selecting a PLMN for disaster roaming as specified in 3GPP TS 23.122 [6]:

a) if the UE does not have a stored disaster roaming wait range, the UE shall perform a registration procedure for disaster roaming services on the selected PLMN as described in clause 5.5.1; and

b) if the UE has a stored disaster roaming wait range, the UE shall generate a random number within the disaster roaming wait range and start a timer with the generated random number. While the timer is running, the UE shall not initiate registration on the selected PLMN. Upon expiration of the timer, the UE shall perform a registration procedure for disaster roaming services as described in clause 5.5.1 if still camped on the selected PLMN.

The timer started with a generated random number within the disaster roaming wait range is stopped and the UE shall perform a PLMN selection as described in 3GPP TS 23.122 [5], if:

a) the UE has successfully registered over non-3GPP access on another PLMN;

b) the UE has successfully registered with an allowable PLMN; or

c) an NG-RAN cell selected for camping of the selected PLMN broadcasts neither the disaster related indication nor a "list of one or more PLMN(s) with disaster condition for which disaster roaming is offered by the available PLMN" including the determined PLMN with Disaster Condition (see 3GPP TS 23.122 [5]).

Upon determining that a disaster condition has ended and that the UE shall perform PLMN selection as specified in 3GPP TS 23.122 [6]:

a) if the UE does not have a stored disaster return wait range, the UE shall perform a registration procedure on the selected PLMN; and

b) if the UE has a stored disaster return wait range, the UE shall generate a random number within the disaster return wait range and start a timer with the generated random number value. While the timer is running, the UE shall not initiate registration on the selected PLMN. Upon expiration of the timer, the UE shall perform a registration procedure if still camped on the selected PLMN.

When the AMF assigns a registration area to the UE registered for disaster roaming services, the AMF shall only include TAIs covering the area with the disaster condition.

When the AMF determines that the disaster condition has ended and the UE which is registered for disaster roaming services has an emergency PDU session, the AMF shall initiate the generic UE configuration update procedure to indicate that the UE is registered for emergency services as described in subclause 5.4.4.2.

Interworking with EPS is not supported for UEs that are registered for disaster roaming services exept for Emergency PDU sessions. The UE shall not perform cell re-selection to LTE cells while registered for disaster roaming services.

Upon inter-system change from N1 mode to S1 mode a UE which is registered for disaster roaming services shall perform a local release of all non-emergency PDU sessions associated with 3GPP access and shall behave as if the UE is registered for emergency services.

\* \* \* next Change \* \* \* \*

\* \* \* next Change \* \* \* \*

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