**3GPP TSG-CT WG1 Meeting #132-eC1-215xxx**

**E-meeting, 11-15 October 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.122** | **CR** | **0792** | **rev** | **1** | **Current version:** | **17.4.0** |  |
|  | | | | | | | | |
| *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:*** | Initiation of location registration for MINT | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | MINT | | | | |  | ***Date:*** | | | 2021-09-27 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Accroding to 24.501 5.5.1.3.2, UE may perform registration update procedure to regitser to PLMN offering disaster roaming  zg) when the UE supporting MINT needs to perform the registration procedure for mobility and periodic registration update to register to the PLMN offering disaster roaming.  This needs to be update in 23.122 where the location registration cases are specified. | | | | | | | | |
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| ***Summary of change:*** | | Added clarification that the UE supporting MINT initiates location registration in PLMN that offers disaster roaming. | | | | | | | | |
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| ***Consequences if not approved:*** | | Inconsistency between specifications | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.5.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \*

### 4.5.2 Initiation of Location Registration

An LR request indicating Normal Updating is made when, in idle mode,

- the MS changes cell while the update status is "NOT UPDATED"; (for MS capable of GPRS and non-GPRS services when at least one of both update statuses is "NOT UPDATED")

- the MS detects that it has entered a new registration area, i.e., when the received registration area identity differs from the one stored in the MS, and the LAI, TAI or PLMN identity is not contained in any of the lists of "forbidden location areas for roaming", "forbidden tracking areas for roaming", "5GS forbidden tracking areas for roaming", "forbidden location areas for regional provision of service", "forbidden tracking areas for regional provision of service", "5GS forbidden tracking areas for regional provision of service", "forbidden PLMNs for GPRS service" or "forbidden PLMNs" respectively, while being in one of the following update statuses:

- UPDATED;

- NOT UPDATED;

- ROAMING NOT ALLOWED.

- the MS detects that it has entered a new registration area, i.e., when the received registration area identity differs from the one stored in the MS, and the MS is attached for access to RLOS;

- the MS detects that it has entered a registration area that has the same identity as the one stored in the MS, while the update status is "ROAMING NOT ALLOWED", and the LAI, TAI or PLMN identity is not contained in any of the lists of "forbidden location areas for roaming", "forbidden tracking areas for roaming", "5GS forbidden tracking areas for roaming", "forbidden location areas for regional provision of service", "forbidden tracking areas for regional provision of service", "5GS forbidden tracking areas for regional provision of service", "forbidden PLMNs for GPRS service" or "forbidden PLMNs" respectively.

- the Periodic Location Updating Timer expires while the non-GPRS update status is "NOT UPDATED" (triggers Location Updating);

- the Periodic Routing Area Update timer expires while the GPRS update status is "NOT UPDATED" (triggers Routing Area Update);

- the Periodic Tracking Area Update timer expires while the EPS update status is "NOT UPDATED" (triggers Tracking Area Update);

- the Periodic Registration Update timer expires while the 5GS update status is "NOT UPDATED" (triggers mobility and periodic registration update procedure);

- a manual network reselection has been performed, an acceptable cell of the selected PLMN or the selected SNPN is present, and the MS is not in the update status "UPDATED" on the selected PLMN or the selected SNPN; or

- emergency bearer services over packet services are requested by upper layers.

An MS which is attached for PS services other than RLOS and enters a new PLMN shall perform a routing area update or a tracking area update or an MS which is registered via NG-RAN and enters a new PLMN or SNPN shall perform a registration update if the following conditions are fulfilled:

a) if the MS:

1) does not operate in SNPN access mode, is in S1 mode or N1 mode and the currently stored TAI list does not contain the TAI of the current serving cell; or

2) operates in SNPN access mode;

b) the LAI, TAI or PLMN identity of the current serving cell is not contained in any of the lists "forbidden location areas for roaming", "forbidden tracking areas for roaming", "5GS forbidden tracking areas for roaming", "forbidden location areas for regional provision of service", "forbidden tracking areas for regional provision of service", "5GS forbidden tracking areas for regional provision of service", "forbidden PLMNs for GPRS service" or "forbidden PLMNs", or the MS has a PDN connection for emergency bearer services, or the MS has a PDU session for emergency services;

c) the current update state is different from "Idle, No IMSI"; and

1) the MS is configured to perform the attach procedure with IMSI at PLMN change (see "AttachWithIMSI" leaf of the NAS configuration MO in 3GPP TS 24.368 [50] or USIM file NASCONFIG in 3GPP TS 31.102 [40]) and the new PLMN is the registered PLMN or an equivalent PLMN; or

2) the MS is not configured to perform the attach procedure with IMSI at PLMN change.

An MS which is attached for access to RLOS and enters a new PLMN shall perform tracking area update if the following condition is fulfilled:

- the currently stored TAI list does not contain the TAI of the current serving cell.

If the new PLMN the MS has entered is neither the registered PLMN nor an equivalent PLMN, an MS which is attached for PS services and configured to perform the attach procedure with IMSI at PLMN change (see "AttachWithIMSI" leaf of the NAS configuration MO in 3GPP TS 24.368 [50] or USIM file NASCONFIG in 3GPP TS 31.102 [40]) shall perform an attach procedure using IMSI as mobile identity.

An LR request indicating Periodic Location Updating is made when, in idle mode, the Periodic Location Updating timer expires while the non-GPRS update status is "UPDATED".

An LR request indicating Periodic Routing Area Update is made when the Periodic Routing Area Update timer expires while the GPRS update status is "UPDATED", except when the MS is attached for emergency bearer services.

An LR request indicating Periodic Tracking Area Update is made when the Periodic Tracking Area Update timer expires while the EPS update status is "UPDATED", except when the MS is attached for emergency bearer services.

An LR request indicating Periodic Registration Updating is made when the periodic registration timer expires while the 5GS update status is "UPDATED", except when the MS is registered for emergency services.

An LR request indicating IMSI attach is made when the MS is activated in the same location area in which it was deactivated while the non-GPRS update status is "UPDATED", and the system information indicates that IMSI attach/detach shall be used.

A GPRS attach is made by a GPRS MS when activated and capable of services which require registration. A GPRS attach may only be performed if the selected PLMN is not contained in the list of "forbidden PLMNs for GPRS service". Depending on system information about GPRS network operation mode MSs operating in MS operation mode A or B perform combined or non-combined location registration procedures. When the combined routing area update or GPRS attach is accepted with indication "MSC not reachable" or is not answered the MS performs also the corresponding location updating procedure or falls back to a GPRS only MS. When the combined routing area update or GPRS attach is rejected with cause "GPRS not allowed" the GPRS update status is "ROAMING NOT ALLOWED" and the MS performs the corresponding location updating procedure.

An LR request indicating Disaster Roaming Registration Updating is made when the MS supporting MINT needs to register to the PLMN offering disaster roaming for the first time.

Furthermore, an LR request indicating Normal Location Updating is also made when the response to an outgoing request shows that the MS is unknown in the VLR or SGSN, respectively.

Table 2 in clause 5 summarizes the events in each state that trigger a new LR request. The actions that may be taken while being in the various states are also outlined in table 2.

A GPRS MS which is both IMSI attached for GPRS and non-GPRS services and which is capable of simultaneous operation of GPRS and non-GPRS services shall perform Routing Area Update in connected mode when it has entered a new routing area which is not part of a LA contained in the list of "forbidden location areas for roaming" or "forbidden location areas for regional provision of service".