**3GPP TSG-CT WG1 Meeting #131-eC1-21xxxx**

**Electronic meeting, 19 Aug – 27 Aug 2021**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.122** | **CR** | **0766** | **rev** | **1** | **Current version:** | **17.3.0** |  |
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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 | **X** | Radio Access Network |  | Core Network |  |

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| ***Title:*** | Re-enable SNPN access mode after emergency call is finished | | | | | | | | | |
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| ***Source to WG:*** | LG Electronics, InterDigital, Samsung, Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eNPN | | | | |  | ***Date:*** | | | 2021-08-12 |
|  |  | | | |  | |  | | |  |
| ***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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16) Rel-17. (Release 17)* | |
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| ***Reason for change:*** | | If the MS needs to make an emergency call, the MS supports accessing a PLMN and there is no available SNPN supporting emergency services, the MS shall stop operating in SNPN access mode and attempt to camp on a cell of a PLMN so that emergency calls can be made.  However, there is not mentioned behavior after finishing emergency call.  According to the specification, the MS operating in SNPN access mode shall perform the SNPN selection procedure. The MS not operating in SNPN access mode shall not perform the SNPN selection procedure and perform a PLMN selection.  If emergency call is finished, the UE will stay in limited mode to search possible cell in a PLMN not SNPN. Because the MS does not enable SNPN access mode after finishing emergency call.  In this case, because the MS was orignally enabled SNPN access mode, the MS has to re-enable SNPN access mode after finishing emergency call. | | | | | | | | |
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| ***Summary of change:*** | | After finishing emergency call, the MS has to re-enable SNPN access mode. | | | | | | | | |
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| ***Consequences if not approved:*** | | In case that the MS which has previously enabled SNPN access mode finishes an emergency call in PLMN, the UE can no loger perform a SNPN selection procedure. | | | | | | | | |
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| ***Clauses affected:*** | | 3.5, 4.9.4 | | | | | | | | |
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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:*** | | 1. Add this statement in 3.5 No suitable cell (Limited service state) section 2. Wording change | | | | | | | | |

\*\*\* First change \*\*\*

## 3.5 No suitable cell (limited service state)

There are a number of situations in which the MS is unable to obtain normal service from a PLMN or SNPN. These include:

a) Failure to find a suitable cell of the selected PLMN or of the selected SNPN;

b) No SIM in the MS or the "list of subscriber data" with no valid entry;

c) A "PLMN not allowed", "Requested service option not authorized in this PLMN" or "Serving network not authorized" response in case of PLMN or a "Temporarily not authorized for this SNPN" or "Permanently not authorized for this SNPN" response in case of SNPN when an LR is received;

d) An "illegal MS" or "illegal ME" response when an LR is received (Any SIM or the corresponding entry of the "list of subscriber data" in the ME is then considered "invalid");

e) An "IMSI unknown in HLR" response when an LR is received (Any SIM in the ME is then considered "invalid" for non-GPRS services);

f) A "GPRS services not allowed" response when an LR of a GPRS MS attached to GPRS services only is received (The cell selection state of GPRS MSs attached to GPRS and non-GPRS depends on the outcome of the location updating), or an "EPS services not allowed" response is received when an EPS attach, tracking area update or service request is performed, or a "5GS services not allowed" response is received when a registration or service request is performed;

g) Power saving mode (PSM) is activated (see 3GPP TS 23.682 [27A]); or

h) Mobile initiated connection only (MICO) mode is activated (see 3GPP TS 23.501 [62] and 3GPP TS 23.502 [63]).

i) MS supporting CAG is camped on a CAG cell belonging to a PLMN, the CAG-ID of the CAG cell is not manually selected by the user and none of the CAG-ID(s) of the CAG cell are present in the "Allowed CAG list" associated with that PLMN in the "CAG information list";

j) MS supporting CAG is camped on a non-CAG cell belonging to a PLMN, the PLMN ID of the non-CAG cell without a CAG-ID is not manually selected by the user and the UE is configured with "indication that the MS is only allowed to access 5GS via CAG cells" for that PLMN in the "CAG information list"; and

k) MS supporting CAG is camped on a CAG cell belonging to a PLMN, the CAG-ID of the CAG cell is not manually selected by the user and the "CAG information list" does not contain an entry for the PLMN (e.g. because the UE is not (pre-)configured with a "CAG information list").

(In automatic PLMN selection mode, items a, c and f would normally cause a new PLMN selection, but even in this case, the situation may arise when no PLMNs are available and allowable for use).

(In automatic SNPN selection mode, items a, c, d, and f would normally cause a new SNPN selection if there are two or more entries in the "list of subscriber data", but even in this case, the situation may arise when no SNPNs are available and allowable for use).

For the items a to f, if the MS does not operate in SNPN access mode, the MS attempts to camp on an acceptable cell, irrespective of its PLMN identity, so that emergency calls or access to RLOS can be made if necessary, with the exception that an MS operating in NB-S1 mode, shall never attempt to make emergency calls or to access RLOS. When in the limited service state with a valid SIM, the MS shall search for available and allowable PLMNs in the manner described in clause 4.4.3.1 and when indicated in the SIM also as described in clause 4.4.3.4. For an MS that is not in eCall only mode, with the exception of performing GPRS attach or EPS attach for emergency bearer services, performing an initial registration for emergency services, or performing EPS attach for access to RLOS, no LR requests are made until a valid SIM is present and either a suitable cell is found or a manual network reselection is performed. For an MS in eCall only mode, no LR requests are made except for performing EPS attach for emergency bearer services or an initial registration for emergency services. When performing GPRS attach or EPS attach for emergency bearer services, an initial registration for emergency services, or performing EPS attach for access to RLOS, the PLMN of the current serving cell is considered as the selected PLMN for the duration the MS is attached for emergency bearer services, registered for emergency services, or attached for access to RLOS. In the limited service state the presence of the MS need not be known to the PLMN on whose cell it has camped.

For the items a, c, d and f, if the MS operates in SNPN access mode and the MS has a valid entry in the "list of subscriber data", the MS shall search for available and allowable SNPNs in the manner described in clause 4.9.3.1. For the item b, if the MS operates in SNPN access mode, the MS attempts to camp on an acceptable cell so that emergency calls can be made if supported and necessary. When in the limited service state, with the exception of performing an initial registration for emergency services, no LR requests are made until a valid entry of the "list of subscriber data" is present and either a suitable cell is found or a manual network reselection is performed. In the limited service state, the presence of the MS need not be known to the SNPN on whose cell it has camped. If the MS needs to make an emergency call, the MS supports accessing a PLMN, and there is no available SNPN supporting emergency services, the MS shall stop operating in SNPN access mode. After an emergency call is released, the MS may re-enable operating in SNPN access mode and perform SNPN selection.

Editor's note: It is FFS whether all acceptable cells in SNPN support emergency calls.

There are also other conditions under which only emergency calls or access to RLOS may be made if the MS does not operate in SNPN access mode. These are shown in table 2 in clause 5. ProSe direct communication and ProSe direct discovery for public safety use can be initiated if necessary (see 3GPP TS 24.334 [51]) when in the limited service state due to items a) or c) or f). V2X communication over PC5 can be initiated if necessary (see 3GPP TS 24.386 [59]) when in the limited service state due to items a) or c) or f).

\*\*\*\*\*Next change \*\*\*\*\*

### 4.9.4 Abnormal cases

If:

a) the MS does not support access to an SNPN using credentials from a credentials holder and:

1) the "list of subscriber data" is empty; or

2) for each entry of the "list of subscriber data", such that an SNPN with the SNPN identity of the entry is available:

i) there has been an authentication failure for the subscriber identifier of the entry on the SNPN; or

ii) the MS has received an "illegal ME" or "illegal UE" response to an LR request for the subscriber identifier of entry on the SNPN; or

b) the MS supports access to an SNPN using credentials from a credentials holder and:

1) the "list of subscriber data" is empty and:

i) the MS is not provisioned with SNPN selection parameters associated with the PLMN subscription;

ii) the MS does not have a USIM; or

iii) both of the above; or

2) for each entry of the "list of subscriber data", such that an SNPN with the SNPN identity of the subscribed SNPN of the entry is available:

i) there has been an authentication failure for the subscriber identifier of the entry on the SNPN; or

ii) the MS has received an "illegal ME" or "illegal UE" response to an LR request for the subscriber identifier of entry on the SNPN;

and:

i) the MS is not provisioned with SNPN selection parameters associated with the PLMN subscription;

ii) the MS does not have a USIM; or

iii) both of the above; or

3) for each available SNPN which broadcasts an indication that access using credentials from a credentials holder is supported and:

i) is identified by an SNPN identity contained in one of the user controlled prioritized lists of preferred SNPNs configured in the ME;

ii) is identified by an SNPN identity contained in one of the credentials holder controlled prioritized lists of preferred SNPNs configured in the ME;

iii) broadcasts a GIN contained in one of the credentials holder controlled prioritized lists of GINs configured in the ME; or

iv) is identified by an SNPN identity which is included neither in the SNPN selection parameters of the entries of the "list of subscriber data" nor in the SNPN selection parameters associated with the PLMN subscription, which does not broadcast a GIN which is included in one of the credentials holder controlled prioritized lists of GINs configured in the ME and which broadcasts an indication that the SNPN allows registration attempts from MSs that are not explicitly configured to select the SNPN;

the following applies:

i) there has been an authentication failure in the SNPN; or

ii) the MS has received an "illegal ME" or "illegal UE" response to an LR request from the SNPN;

then effectively there is no selected SNPN ("No SIM" state). In these cases, the states of the cell selection process are such that the "list of subscriber data" (if any) or the PLMN subscription (if any) is not used. Except when performing an initial registration for emergency services to an SNPN, no further attempts at registration on any SNPN are made until the MS is switched off and on again, or an entry of the "list of subscriber data" with the SNPN identity of the SNPN is updated or the USIM is inserted. When performing an initial registration for emergency services, the SNPN of the current serving cell is temporarily considered as the selected SNPN. If the MS needs to make an emergency call, the MS supports accessing a PLMN and there is no available SNPN supporting emergency services, the MS shall stop operating in SNPN access mode and attempt to camp on a cell of a PLMN so that emergency calls can be made. After an emergency call is released, the MS may re-enable operating in SNPN access mode and perform SNPN selection.

Editor's note: Before the MS performs an initial registration for emergency services to an SNPN, it is FFS whether additional information is needed in the MS to determine that the SNPN supports emergency services.

When in automatic SNPN selection mode and the MS is in the "not updated" state with one or more suitable cells to camp on; then after the maximum allowed unsuccessful LR requests (controlled by the specific attempt counters) the MS may continue (or start if it is not running) the user reselection procedure in clause 4.9.3.2 1.

\*\*\*\*\* End of Changes \*\*\*\*\*