**3GPP TSG-CT WG1 Meeting #141eC1-23XXXX**

**Online 17– 21 April 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
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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:*** | Handling last registered SNPN | | | | | | | | | |
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| ***Source to WG:*** | Samsung | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GProtoc18 | | | | |  | ***Date:*** | | | 2023-04-10 |
|  |  | | | |  | |  | | |  |
| ***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 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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
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| ***Reason for change:*** | | Following aspects are not clear for SNPN although they are clear for PLMN.   1. If the MS can, as an alternate option choose to register in a subscribed SNPN than ythe last registered SNPN or its equivalent SNPN. 2. Whether to allow manual network selection if the UE has a PDU session for emergency services in an SNPN. | | | | | | | | |
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| ***Summary of change:*** | | Added corresponding clauses for SNPN, for below 2 clauses.   1. As an alternative option, if the MS is in automatic network selection mode and it finds coverage of a subscribed SNPN, the MS may register to that subscribed SNPN and not return to the registered SNPN or equivalent SNPN. 2. If the UE has a PDU session for emergency services manual network selection shall not be performed in SNPN. | | | | | | | | |
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| ***Consequences if not approved:*** | | 1. No possibility to choose a subscribed SNPN over registered SNPN. 2. Emergency call impact in SNPNs due to manual selection. | | | | | | | | |
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| ***Clauses affected:*** | | 4.9.3.1.0, 4.9.3.1.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

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##### 4.9.3.1.0 General

At switch on, following recovery from lack of coverage, or when the MS starts operating in the SNPN access operation mode over 3GPP access, the MS selects the registered SNPN or an equivalent SNPN (if it is available) using NG-RAN access technology and if necessary (in the case of recovery from lack of coverage, see clause 4.5.2) attempts to perform an LR.

NOTE 1: The MS in automatic SNPN selection mode can end the SNPN search procedure once the registered SNPN or an equivalent SNPN is found on NG-RAN access technology.

NOTE 2: An MS in automatic SNPN selection mode can use location information to determine which SNPNs can be available in its present location.

If successful registration is achieved, the MS indicates the selected SNPN.

If there is no registered SNPN, or registration is not possible due to the SNPN and all equivalent SNPNs, if any, being unavailable or registration failure, unless the MS needs to select an SNPN for onboarding services in SNPN, the MS follows the procedure in clause 4.9.3.1.1 or clause 4.9.3.1.2 depending on its SNPN selection mode. If the MS needs to select an SNPN for onboarding services in SNPN, the MS follows the procedure in clause 4.9.3.1.3 or clause 4.9.3.1.4 depending on its SNPN selection mode for onboarding services in SNPN. At switch on, the MS shall use the SNPN selection mode and the SNPN selection mode for onboarding services in SNPN that were used before switching off.

NOTE 3: If successful registration is achieved, then the current serving SNPN becomes the registered SNPN and the MS does not store the previous registered SNPN for later use.

If registration is not possible on recovery from lack of coverage due to the registered SNPN and all equivalent SNPNs, if any, being unavailable, an MS may, optionally, continue looking for the registered SNPN or an equivalent SNPN for an implementation dependent time.

NOTE 4: An MS registered to an SNPN should behave as described above only if one or more PDU sessions are currently active.

EXCEPTION: As an alternative option to this, if the MS is in automatic SNPN selection mode and it finds coverage of a subscribed SNPN (for the selected entry of "list of subscriber data"), the MS may register to that SNPN and not return to the registered SNPN or equivalent SNPN.

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##### 4.9.3.1.2 Manual SNPN selection mode procedure

The MS indicates to the user any available SNPNs which meet the criteria specified in bullets a) and b). If the MS does not support access to an SNPN using credentials from a credentials holder, this includes SNPNs in the list of "permanently forbidden SNPNs", and the list of "temporarily forbidden SNPNs". The MS may indicate to the user whether the available SNPNs are present in the list of "temporarily forbidden SNPNs" or the list of "permanently forbidden SNPNs". If the MS supports access to an SNPN using credentials from a credentials holder, this includes SNPNs in the lists of "permanently forbidden SNPNs", and the lists of "temporarily forbidden SNPNs" associated with each entry of the "list of subscriber data" or the PLMN subscription. If the MS supports equivalent SNPNs, this includes SNPNs in the lists of "permanently forbidden SNPNs", and the lists of "temporarily forbidden SNPNs" associated with each entry of the "list of subscriber data". The MS may indicate to the user whether the available SNPNs are present in a list of "temporarily forbidden SNPNs" or a list of "permanently forbidden SNPNs" for an entry of the "list of subscriber data" or the PLMN subscription.

a) SNPNs identified by an SNPN identity in an entry of the "list of subscriber data" in the ME, if any. The order in which those SNPNs are indicated is MS implementation specific;

b) if the MS supports access to an SNPN using credentials from a credentials holder, for the SNPNs which broadcast the indication that access using credentials from a credentials holder is supported:

1) each SNPN which is identified by an SNPN identity contained in one of the user controlled prioritized lists of preferred SNPNs configured in the ME. SNPNs included in the same list are indicated in the order in which they are included in the list. Prioritization between the different lists is MS implementation specific;

2) each SNPN which is identified by an SNPN identity contained in one of the credentials holder controlled prioritized lists of preferred SNPNs configured in the ME. SNPNs included in the same list are indicated in the order in which they are included in the list. Prioritization between the different lists is MS implementation specific;

3) each SNPN which broadcasts a GIN contained in one of the credentials holder controlled prioritized lists of GINs configured in the ME. SNPNs broadcasting a GIN included in the same list are indicated in the order in which the GIN is included in the list. Prioritization between the different lists is MS implementation specific. If more than one SNPN broadcast the same GIN, the order in which those SNPNs are indicated is MS implementation specific; and

4) each SNPN 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 and which does not broadcast a GIN which is included in one of the credentials holder controlled prioritized lists of GINs configured in the ME. The order in which those SNPNs are indicated is MS implementation specific.

For each of the SNPNs indicated to the user, the MS shall forward a human-readable network name along with the SNPN identity to the upper layers if the system information broadcasted for the SNPN includes the human-readable network name for the SNPN.

The MS shall limit its search for the SNPN to the NG-RAN access technology.

If the UE has a PDU session for emergency services manual SNPN selection shall not be performed.

The user may select an SNPN and the MS then initiates registration on this SNPN using the NG-RAN access technology, the subscriber identifier and the credentials from the selected entry of the "list of subscriber data" or from USIM, if the PLMN subscription is selected, determined as follows:

- for bullet a) above, the entry of the "list of subscriber data", with the SNPN identity matching the selected SNPN (this may take place at any time during the presentation of SNPNs), shall be considered as selected;

- for bullet b-1) above:

i) the entry of the "list of subscriber data" which contains the user controlled prioritized lists of preferred SNPNs that includes the SNPN identity of the selected SNPN shall be considered as selected, if the user controlled prioritized list of preferred SNPNs that includes the SNPN identity of the selected SNPN is included in the entry of the "list of subscriber data"; or

- the PLMN subscription shall be considered as selected, if the user controlled prioritized list of preferred SNPNs associated with the PLMN subscription includes the SNPN identity of the selected SNPN;

- for bullet b-2) above:

i) the entry of the "list of subscriber data" which contains the credentials holder controlled prioritized list of preferred SNPNs that includes the SNPN identity of the selected SNPN shall be considered as selected, if the credentials holder controlled prioritized list of preferred SNPNs that includes the SNPN identity of the selected SNPN is included in the entry of the "list of subscriber data"; or

ii) the PLMN subscription shall be considered as selected, if the credentials holder controlled prioritized list of preferred SNPNs associated with the PLMN subscription includes the SNPN identity of the selected SNPN;

- for bullet b-3) above:

i) the entry of the "list of subscriber data" which contains the credentials holder controlled prioritized list of GINs that includes the GIN broadcast by the selected SNPN shall be considered as selected, if the credentials holder controlled prioritized list of GINs that includes the GIN broadcast by the selected SNPN is included in the entry of the "list of subscriber data"; or

ii) the PLMN subscription shall be considered as selected, if the credentials holder controlled prioritized list of GINs associated with the PLMN subscription includes the GIN broadcast by the selected SNPN; and

- for bullet b-4) above, the entry of the "list of subscriber data" or the PLMN subscription shall be selected by MS implementation specific means.

NOTE1: If the SNPN identity of the selected SNPN is included in more than one of the following: one or more user controlled prioritized list(s) of preferred SNPNs configured in the ME, one or more credentials holder controlled prioritized list(s) of preferred SNPNs configured in the ME or the list of SNPNs which are broadcasting a GIN included in one or more credentials holder controlled prioritized list(s) of GINs configured in the ME, which subscription is selected is MS implementation specific.

Once the MS has registered on an SNPN selected by the user, the MS shall not automatically register on a different SNPN unless:

a) the user selects automatic SNPN selection mode;

b) the user initiates an emergency call while the MS is in limited service state and either the SNPN does not broadcast the indication of support of emergency calls in limited service state or the registration request for emergency services is rejected by the network; or

c) the new SNPN is declared as an equivalent SNPN by the registered SNPN.

NOTE 2: If case b) occurs, the MS can provide an indication to the upper layers that the MS has exited manual network SNPN selection mode.

If the user does not select an SNPN, the selected SNPN shall be the one that was selected either automatically or manually before the SNPN selection procedure started. If no such SNPN was selected or that SNPN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

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