**3GPP TSG-CT WG1 Meeting #131-eC1-214149**

**E-meeting, 19-27 August 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.502** | **CR** | **0194** | **rev** | **-** | **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:*** | N3IWF selection for emergency services | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Qualcomm Incorporated,Nokia, Nokia Sanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GProtoc17 | | | | |  | ***Date:*** | | | 2021-07-30 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **C** |  | | | | | ***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:*** | | SA2 has agreed a CR#2848 to 23.502 in S2-2104548, finalizing the emergency N3IWF selection procedure. The stage 3 aspects of of the N3IWF selection for emergency services have not been specified yet. | | | | | | | | |
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| ***Summary of change:*** | | Specify the procedure for N3IWF selection for emergency services. | | | | | | | | |
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| ***Consequences if not approved:*** | | Emergency services not supported over untrusted non-3GPP access. | | | | | | | | |
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| ***Clauses affected:*** | | 7.2.4, 7.2.x (new), 7.2.x.1 (new), 7.2.x.2 (new), 7.2.x.3 (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

\*\*\*\* irst change \*\*\*\*

### 7.2.1 General

The UE performs N3AN node selection procedure based on the N3AN node configuration information provisioned to the UE by the HPLMN, based on the UE's knowledge of the country the UE is located in and the PLMN the UE is registered to via 3GPP access and based on the list of "forbidden PLMNs for non-3GPP access to 5GCN".

Subclauses 7.2.1, 7.2.2, 7.2.3, 7.2.4 and 7.2.X are applicable to a UE selecting an N3AN node in a PLMN. For a UE accessing PLMN services via an SNPN, restrictions on N3IWF FQDN are specified in subclause 4.3.2.

Subclause 7.2.5 is applicable to a UE selecting an N3AN node in an SNPN.

\*\*\*\* next change \*\*\*\*

### 7.2.3 Determination of the country the UE is located in

If the UE cannot determine whether it is located in the home country or in a visited country, as required by the N3AN node selection procedure, the UE shall stop the N3AN node selection. Once the UE determines the country the UE is located in, the UE shall proceed with N3AN node selection as specified in subclause 7.2.4 for non-emergency services and as specified in subclause 7.2.4x for emergency services.

NOTE: It is out of scope of the present specification to define how the UE determines whether it is located in the home country or in a visited country or in a location that does not belong to any country. When the UE is in coverage of a 3GPP RAT, it can, for example, use the information derived from the available PLMN(s). In this case, the UE can match the MCC of the PLMN to which a cell belongs, broadcast on the BCCH of the 3GPP access, against the UE's IMSI to determine if they belong to the same country, as defined in 3GPP TS 23.122 [13]. If the UE is not in coverage of a 3GPP RAT, the UE can use other techniques, including user-provided location.

\*\*\*\* next change \*\*\*\*

### 7.2.4 N3AN node selection for non-emergency services

\*\*\*\* next change \*\*\*\*

### 7.2.X N3AN node selection for emergency services

#### 7.2.X.1 General

If the UE is connected to an N3IWF that is in the same country as the country in which the UE is currently in and the AMF has previously indicated support for emergency services over non-3GPP access (see 3GPP TS 24.501 [4]), the UE shall use the existing N3IWF connection for emergency services. Otherwise, the UE shall perform the IKEv2 deletion procedure for the existing N3IWF connection and initiate N3AN node selection procedure for emergency services as described below.

When the UE supports connectivity with N3IWF but does not support connectivity with ePDG, the UE shall perform the procedure in subclause 7.2.X.2 for selecting an N3IWF for emergency services.

When the UE supports connectivity with N3IWF and ePDG, the UE shall perform the procedure in subclause 7.2.X.3 for selecting either an N3IWF or an ePDG for emergency services.

#### 7.2.X.2 UE procedure when the UE only supports connectivity with N3IWF

If the UE is in the home country, the UE shall follow the procedure in subclause 7.2.4.3 bullet a).

If the UE is in a visited country, the UE shall perform the DNS NAPTR query using Visited Country Emergency N3IWF FQDN as specified in 3GPP TS 23.003 [8] via the non-3GPP access network to determine PLMNs in the visited country that support emergency services in non-3GPP access via N3IWF. If the DNS response contains one or more records, the UE shall select a PLMN included in the DNS response that has highest PLMN priority (see 3GPP TS 24.526 [17]) in the N3AN node selection information, excluding any PLMN in the list of "forbidden PLMNs for non-3GPP access to 5GCN". The UE shall construct an N3IWF FQDN based on the FQDN format of the selected PLMN's N3AN node selection information entry in the N3AN node selection information using the PLMN ID of the selected PLMN as specified in 3GPP TS 23.003 [8]. If none of the PLMNs included in the DNS response figures in the N3AN node selection information or the N3AN node selection information is not provisioned, the UE shall select any of the PLMNs included in the DNS response and shall construct an N3IWF FQDN based on the Operator Identifier based N3IWF FQDN format.

If the emergency registration procedure has failed for all attempted PLMNs, or the DNS response in the visited country does not contain any record, the UE shall abort the procedure.

NOTE: The UE can notifiy the user that an emergency session cannot be established.

#### 7.2.X.3 UE procedure when the UE supports connectivity with N3IWF and ePDG

If the UE is in the home country, the UE shall follow the steps in subclause 7.2.4.4.2 bullet a), except that:

- in bullet a)1)i), if the emergency registration fails, the UE shall attempt to select an ePDG in the home country using the steps under bullet a)1)ii); and

- in bullet a)1)ii):

- Emergency ePDG FQDN shall be used instead of home ePDG identifier; and

- If the emergency registration fails, the UE shall attempt to select an N3IWF in the home country using the steps under bullet a)1)i).

If the UE is in a visited country, the UE shall perform the DNS NAPTR query using Visited Country Emergency N3IWF FQDN and Visited Country Emergency FQDN as specified in 3GPP TS 23.003 [8] via the non-3GPP access network to determine PLMNs in the visited country that support emergency services in non-3GPP access via N3IWF or ePDG. If the DNS response contains one or more records, the UE shall select a PLMN included in the DNS response that has highest PLMN priority (see 3GPP TS 24.526 [17]) in the N3AN node selection information.

- If the N3AN node selection information for the PLMN is available the UE selects first an N3IWF or ePDG based on the the preference parameter in the selected PLMN's N3AN node selection information entry of the N3AN node selection information. If N3IWF is preferred, the UE constructs the N3IWF FQDN based on the FQDN format of the selected PLMN's N3AN node selection information entry in the N3AN node selection information using the PLMN ID of the selected PLMN as specified in 3GPP TS 23.003 [8]. If ePDG is preferred, the UE constructs either the Tracking/Location Area Identity based Emergency ePDG FQDN or the Operator Identifier based Emergency ePDG FQDN as indicated by the FQDN format in the N3AN node selection information for the selected PLMN.

- If the N3AN node selection information is not available, the UE shall follow the procedure in subclause 7.2.X.2, except that, instead of aborting the procedure in case of a failure, the UE shall perform the procedure for ePDG selection for emergency services specified in 3GPP TS 24.302 [7], by constructing the Operator Identifier based Emergency ePDG FQDN.

If the emergency registration procedure has failed for all attempted PLMNs, the UE shall abort the procedure.

\*\*\*\* No more changes \*\*\*\*