**3GPP TSG-CT WG1 Meeting #137-eC1-22xxxx**

**E-Meeting, 18th – 26th August 2022was C1-225090**

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| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **24.555** | **CR** | **0020** | **rev** | **1** | **Current version:** | **17.1.0** |  |
|  |
| *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:***  | FQDN of 5G DDNMF in HPLMN in UE policies for 5G ProSe direct discovery |
|  |  |
| ***Source to WG:*** | ZTE |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | 5G\_ProSe |  | ***Date:*** | 2022-08-18 |
|  |  |  |  |  |
| ***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 canbe 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)* |
|  |  |
| ***Reason for change:*** | Following quoted texts from 23.304,"*The 5G DDNMF of HPLMN is discovered through interaction with the Domain Name Service function. The FQDN of a 5G DDNMF in the Home PLMN may either be pre-configured on the UE or provisioned by the network or self-constructed by the UE, e.g. derived from PLMN ID of the HPLMN. The IP address of a 5G DDNMF in the Home PLMN may also be provisioned to the UE*." specifies the requirement that network may provide the FQDN of 5G DDNMF in HPLMN to the UE.In order to fulfil this requirement, it proposes to add FQDN of 5G DDNMF in HPLMN in the UE policies for 5G ProSe direct discovery. |
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| ***Summary of change:*** | Add HPLMN 5G DDNMF FQDN in UE policies for 5G ProSe direct discovery. |
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| ***Consequences if not approved:*** | Stage 2 requirement is not implemented. |
|  |  |
| ***Clauses affected:*** | 5.3.2 |
|  |  |
|  | **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 \* \* \* \*

### 5.3.2 Information elements coding

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| 0 | 0 | 0 | 0 | ProSeP info type = {UE policies for 5G ProSe direct discovery} | octet k |
| Spare |
| Length of ProSeP info contents | octet k+1octet k+2 |
| Validity timer | octet k+3octet k+7 |
| Served by NG-RAN | octet k+8octet o1 |
| Not served by NG-RAN | octet o1+1octet o2 |
| ProSe direct discovery UE ID | octet o2+1octet o2+3 |
| Group member discovery parameters | octet o2+4octet o3 |
| ProSe identifiers | octet o3+1octet o4 |
| ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rules  | octet o4+1octet l |
| Spare | H5DFI | octet l+1 |
| HPLMN 5G DDNMF FQDN | octet (l+2)\*octet m\* |

Figure 5.3.2.1: ProSeP Info = {UE policies for 5G ProSe direct discovery}

Table 5.3.2.1: ProSeP Info = {UE policies for 5G ProSe direct discovery}

|  |
| --- |
| ProSeP info type (bit 1 to 4 of octet k) shall be set to "0001" (UE policies for 5G ProSe direct discovery) |
| Length of ProSeP info contents (octets k+1 to k+2) indicates the length of ProSeP info contents. |
| Validity timer (octet k+3 to k+7):The validity timer field provides the expiration time of validity of the UE policies for 5G ProSe direct discovery. The validity timer field is a binary coded representation of a UTC time, in seconds since midnight UTC of January 1, 1970 (not counting leap seconds). |
| Served by NG-RAN (octet k+8 to o1):The served by NG-RAN field is coded according to figure 5.3.2.2 and table 5.3.2.2, and contains configuration parameters for 5G ProSe direct discovery when the UE is served by NG-RAN. |
| Not served by NG-RAN (octet o1+1 to o2):The not served by NG-RAN field is coded according to figure 5.3.2.6 and table 5.3.2.6, and contains configuration parameters for 5G ProSe direct discovery when the UE is not served by NG-RAN. |
| ProSe Direct Discovery UE ID (octet o2+1 to o2+3):The ProSe Direct Discovery UE ID is a 24-bit long bit string. |
| Group member discovery parameters (octet o2+4 to o3):The group member discovery parameters field is coded according to figure 5.3.2.12 and table 5.3.2.12 and contains group member discovery parameters. |
| ProSe identifiers (octet o3+1 to o4):The ProSe identifiers field is coded according to figure 5.3.2.14 and table 5.3.2.14 and contains ProSe identifiers. |
| ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rules (octet o4+1 to o5):The ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rules field is coded according to figure 5.3.2.15 and table 5.3.2.15 and contains ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rules. |
| If the length of ProSeP info contents field is bigger than indicated in figure 5.3.2.1, receiving entity shall ignore any superfluous octets located at the end of the ProSeP info contents. |
| HPLMN 5G DDNMF FQDN indicator (H5DFI) (octet l+1 bit 1):Bit**1**0 HPLMN 5G DDNMF FQDN is absent1 HPLMN 5G DDNMF FQDN is present |
|  |
| HLMN 5G DDNMF FQDN (octet l+1 to octet m):The HPLMN 5G DDNMF FQDN field is coded according to figure 5.3.2.x and table 5.3.2.x and contains the FQDN of the 5G DDNMF in HPLMN. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of served by NG-RAN contents | octet k+8octet k+9 |
| Authorization for direct discovery info 1 | octet k+10octet o50 |
| Authorization for direct discovery info 2 | octet o50+1octet o51 |
| … | octet o51+1octet o52 |
| Authorization for direct discovery info n | octet o52+1octet o1 |

Figure 5.3.2.2: Served by NG-RAN

Table 5.3.2.2: Served by NG-RAN

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| --- |
| Authorization for direct discovery info:The authorization for direct discovery info field is coded according to figure 5.3.2.3 and table 5.3.2.3. |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of authorization for direct discovery info contents | octet o50+1octet o50+2 |
| 0spare | 0spare | 0spare | 0spare | 0spare | Role | Model | DDT | octet o50+3 |
| Authorized PLMN info | octet o50+4octet o51 |

Figure 5.3.2.3: Authorization for direct discovery info

Table 5.3.2.3: Authorization for direct discovery info

|  |
| --- |
| Direct discovery type (DDT) (octet o50+3 bit 1):Bit **1**0 Open1 Restricted |
| Model (octet o50+3 bit 2):Bit **2**0 A1 B |
| If Model bit is set to "A", Role (octet o50+3 bit 3):Bit **3**0 Announcing1 Monitoring |
| If Model bit is set to "B", Role (octet o50+3 bit 3):Bit **3**0 Discoverer1 Discoveree |
| Authorized PLMN info (octet o50+4 to o51):The authorized PLMN info field is coded according to figure 5.3.2.4 and table 5.3.2.4. |
| If the length of authorization for direct discovery info field is bigger than indicated in figure 5.3.2.3, receiving entity shall ignore any superfluous octets located at the end of the authorization for direct discovery info. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of authorized PLMN info contents | octet o50+4octet o50+5 |
| Authorized PLMN 1 | octet (o50+6)\*octet (o50+8)\* |
| Authorized PLMN 2 | octet (o50+9)\*octet (o50+11)\* |
| ... | octet (o50+12)\*octet o150\* |
| Authorized PLMN n | octet (o150+1)\*octet o51\* |

Figure 5.3.2.4: Authorized PLMN info

Table 5.3.2.4: Authorized PLMN

|  |
| --- |
| Authorized PLMN:The authorized PLMN field is coded according to figure 5.3.2.5 and table 5.3.2.5. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| MCC digit 2 | MCC digit 1 | octet o50+6 |
| MNC digit 3 | MCC digit 3 | octet o50+7 |
| MNC digit 2 | MNC digit 1 | octet o50+8 |

Figure 5.3.2.5: PLMN ID

Table 5.3.2.5: PLMN ID

|  |
| --- |
| Mobile country code (MCC) (octet o50+5, octet o50+6 bit 1 to 4):The MCC field is coded as in ITU-T Recommendation E.212 [5], annex A. |
| Mobile network code (MNC) (octet o50+6 bit 5 to 8, octet o50+7):The coding of MNC field is the responsibility of each administration but BCD coding shall be used. The MNC shall consist of 2 or 3 digits. If a network operator decides to use only two digits in the MNC, MNC digit 3 shall be coded as "1111". |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of not served by NG-RAN contents | octet o1+1octet o1+2 |
| 0Spare | 0Spare | 0Spare | 0Spare | 0Spare | 0Spare | 0Spare | PDNNI | octet o1+3 |
| NR radio parameters per geographical area list | octet (o1+4)\*octet o10\* |
| Default PC5 DRX configuration | octet (o10+1)\*octet o2\* |

Figure 5.3.2.6: Not served by NG-RAN

Table 5.3.2.6: Not served by NG-RAN

|  |
| --- |
| 5G ProSe direct discovery when not served by NG-RAN indicator (PDNNI) (octet o1+3 bit 1):The PDNNI bit indicates whether the UE is authorized to perform 5G ProSe direct discovery when not served by NG-RAN.Bit**1**0 Not authorized1 Authorized |
| NR radio parameters per geographical area list (octet o1+4 to o2):If PNNI bit is set to "Authorized", the NR radio parameters per geographical area list field is present otherwise the NR radio parameters per geographical area list field is absent. It is coded according to figure 5.3.2.7 and table 5.3.2.7.Default PC5 DRX configuration (octet o10+1 to o2):If PDNNI bit is set to "Authorized", the default PC5 DRX configuration is present otherwise the default PC5 DRX configuration is absent. It is coded according to figure 5.3.2.11a and table 5.3.2.11a. |
| If the length of not served by NG-RAN contents field is bigger than indicated in figure 5.3.2.6, receiving entity shall ignore any superfluous octets located at the end of the not served by NG-RAN contents. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of radio parameters per geographical area list contents | octet o1+4octet o1+5 |
| Radio parameters per geographical area info 1 | octet (o1+6)\*octet o6\* |
| Radio parameters per geographical area info 2 | octet (o6+1)\*octet o7\* |
| ... | octet (o7+1)\*octet o8\* |
| Radio parameters per geographical area info n | octet (o8+1)\*octet o10\* |

Figure 5.3.2.7: Radio parameters per geographical area list

Table 5.3.2.7: Radio parameters per geographical area list

|  |
| --- |
| Radio parameters per geographical area info:The radio parameters per geographical area info field is coded according to figure 5.3.2.8 and table 5.3.2.8. |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of radio parameters per geographical area contents | octet o6+1octet o6+2 |
| Geographical area | octet o6+3octet o9 |
| Radio parameters | octet o9+1octet o7-1 |
| MI | 0Spare | 0Spare | 0Spare | 0Spare | 0Spare | 0Spare | 0Spare | octet o7 |

Figure 5.3.2.8: Radio parameters per geographical area info

Table 5.3.2.8: Radio parameters per geographical area info

|  |
| --- |
| Geographical area (octet o6+3 to o9):The geographical area field is coded according to figure 5.3.2.9 and table 5.3.2.9. |
| Radio parameters (octet o9 to o7-1):The radio parameters field is coded according to figure 5.3.2.11 and table 5.3.2.11, applicable in the geographical area indicated by the geographical area field when not served by NG-RAN. |
| Managed indicator (MI) (octet o7 bit 8):The managed indicator indicates how the radio parameters indicated in the radio parameters field in the geographical area indicated by the geographical area field are managed.Bit**8**0 Non-operator managed1 Operator managed |
| If the length of radio parameters per geographical area contents field is bigger than indicated in figure 5.3.2.8, receiving entity shall ignore any superfluous octets located at the end of the radio parameters per geographical area contents. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of geographical area contents | octet o6+3octet o6+4 |
| Coordinate 1 | octet (o6+5)\*octet (o6+10)\* |
| Coordinate 2 | octet (o6+11)\*octet (o6+16)\* |
| ... | octet (o6+17)\*octet (o6-2+6\*n)\* |
| Coordinate n | octet (o6-1+6\*n)\*octet (o6+4+6\*n)\* = octet o9\* |

Figure 5.3.2.9: Geographical area

Table 5.3.2.9: Geographical area

|  |
| --- |
| Coordinate:The coordinate field is coded according to figure 5.3.2.10 and table 5.3.2.10. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Latitude | octet o6+11octet o6+13 |
| Longitude | octet o6+14octet o6+17 |

Figure 5.3.2.10: Coordinate area

Table 5.3.2.10: Coordinate area

|  |
| --- |
| Latitude:The latitude field is coded according to clause 6.1 of 3GPP TS 23.032 [6]. |
| Longitude:The longitude field is coded according to clause 6.1 of 3GPP TS 23.032 [6]. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of radio parameters contents | octet o9+1octet o9+2 |
| Radio parameters contents | octet o9+3octet o7-1 |

Figure 5.3.2.11: Radio parameters

Table 5.3.2.11: Radio parameters

|  |
| --- |
| Radio parameters contents:Radio parameters are defined as *SL-PreconfigurationNR* in clause 9.3 of 3GPP TS 38.331 [7]. |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of default PC5 DRX configuration contents | octet o10+1octet o10+2 |
| Default PC5 DRX configuration contents | octet o10+3octet o2 |

Figure 5.3.2.11a: Default PC5 DRX configuration

Table 5.3.2.11a: Default PC5 DRX configuration

|  |
| --- |
| Default PC5 DRX configuration contents:The default PC5 DRX configuration field is coded as *sl-DefaultDRX-GC-BC-r17* in clause 6.3.5 of 3GPP TS 38.331 [7]. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of groupcast parameters contents | octet o2+4octet o2+5 |
| Application layer group info 1 | octet (o2+6)\*octet o51\* |
| Application layer group info 2 | octet (o51+1)\*octet o52\* |
| … | octet (o52+1)\*octet o53\* |
| Application layer group info n | octet (o53+1)\*octet o3\* |

Figure 5.3.2.12: Groupcast parameters

Table 5.3.2.12: Groupcast parameters

|  |
| --- |
| Application layer group info:The application layer group info field is coded according to figure 5.3.2.13 and table 5.3.2.13. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of application layer group info contents | octet o51+1octet o51+2 |
| Application layer group identifier | octet o51+3octet o151 |
| ProSe layer-2 group identifier | octet o151+1octet o151+3 |
| User info ID | octet o151+4octet (o151+9) = octet o52 |

Figure 5.3.2.13: Application layer group info

Table 5.3.2.13: Application layer group info

|  |
| --- |
| Application layer group identifier (octet o51+3 to o151):The first octet of application layer group identifier field is the length of application group identifier. The value of application group identifier field is a bit string. The format of application group identifier parameter is out of scope of this specification. |
| ProSe layer-2 group identifier (octet o151+1 to o151+3) |
| The ProSe layer-2 group identifier field is a binary coded layer-2 identifier. |
| User info ID (octet o151+4 to o52) |
| The value of the User info ID parameter is a 48-bit long bit string. The format of the User info ID parameter is out of scope of this specification. |
| If the length of application layer group info contents field is bigger than indicated in figure 5.3.2.13, receiving entity shall ignore any superfluous octets located at the end of the application layer group info contents. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of ProSe identifiers contents | octet o3+1octet o3+2 |
| ProSe identifier 1 | octet (o3+3)\*octet o31\* |
| ProSe identifier 2 | octet (o31+1)\*octet o32\* |
| ... | octet (o32+1)\*octet o33\* |
| ProSe identifier n | octet (o33+1)\*octet o34\* = octet o4\* |

Figure 5.3.2.14: ProSe identifiers

Table 5.3.2.14: ProSe identifiers

|  |
| --- |
| ProSe identifier:The ProSe identifier field contains a sequence of a sixteen octet OS Id field, a one octet OS App Id length field, and an OS App Id field. The OS Id field shall be transmitted first. The OS Id field contains a Universally Unique IDentifier (UUID) as specified in IETF RFC 4122 [12]. |
| NOTE: Further definition of the format of OS App ID is beyond the scope of this specification. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rules contents | octet o4+1octet o4+2 |
| ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rule 1 | octet (o4+3)\*octet o54\* |
| ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rule 2 | octet (o54+1)\*octet o55\* |
| ... | octet (o55+1)\*octet o56\* |
| ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rule n | octet (o56+1)\*octet l\* |

Figure 5.3.2.15: ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rules

Table 5.3.2.15: ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rules

|  |
| --- |
| ProSe identifier to destination layer-2 ID for broadcast mapping rule:The ProSe identifier to destination layer-2 ID for broadcast mapping rule field is coded according to figure 5.3.2.16 and table 5.3.2.16. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rule contents | octet o54+1octet o54+2 |
| ProSe identifiers | octet o54+3octet o154 |
| Destination layer-2 ID for initial discovery signalling | octet o154+1octet (o154+3) = octet o55 |

Figure 5.3.2.16: ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rule

Table 5.3.2.16: ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rule

|  |
| --- |
| ProSe identifiers (octet o54+3 to o154):The ProSe identifiers field is coded according to figure 5.3.2.14 and table 5.3.2.14. |
| Destination layer-2 ID for initial discovery signalling (octet o154+1 to o55):The destination layer-2 ID for initial discovery signalling field is a binary coded layer-2 identifier. |
| If the length of ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rule contents field is bigger than indicated in figure 5.3.2.16, receiving entity shall ignore any superfluous octets located at the end of the ProSe identifier to default destination layer-2 ID for initial discovery signalling mapping rule contents. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of HPLMN 5G DDNMF FQDN | octet l+1 |
| HPLMN 5G DDNMF FQDN | octet l+2octet m |

Figure 5.3.2.x: HPLMN 5G DDNMF FQDN

Table 5.3.2.x: HPLMN 5G DDNMF FQDN

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| --- |
| HPLMN 5G DDNMF FQDN (octet l+2 to octet m):HPLMN 5G DDNMF FQDN field is coded as defined in clause 28.3.x in 3GPP TS 23.003 [10]. |

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