**3GPP TSG-CT WG1 Meeting #138-eC1-22XXXX**

**E-Meeting, 10th – 14th October 2022**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **24.302** | **CR** | **0731** | **rev** | **2** | **Current version:** | **17.6.0** |  |
|  |
| *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:***  | Connectivity for NSWO authentication |
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| ***Source to WG:*** | Lenvo, Nokia, Nokia Shanghi Bell |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | NSWO\_5G |  | ***Date:*** | 2022-10-10 |
|  |  |  |  |  |
| ***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 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)* |
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| ***Reason for change:*** | Clause 6.3.12b in TS 23,501 defines a new list of PLMNs advertized by a discovered WLAN which can be used by the UE with the HPLMN listed in the new list of PLMNs to connect to use the 5G NSWO authentication procedure defined in TS 33.501. This new list of PLMNs is necessary as described in S2-2206732, since otherwise it would be impossible for the UE to determine for the UE whether it initiates the Authentication and Key Agreement procedure specified in TS 33.402 or the NSWO authentication procedure specified in TS 33.501.Currecnt text in clause H.2.4.2 is too broad and covers connection by the WLAN and should be limited to AAA connectivity to EPC.  |
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| ***Summary of change:*** | Added and identity and definition of a new information element for the list of PLMNs with AAA connectivity to a 5GC.As the current text in clause H.2.4.2 is too broad and covers connection by the WLAN, it is proposed to limit it to AAA connectivity to EPC.**Backward compatibility analysis on the UE:**The PLMN List with AAA connectivity to 5GC is not backward compatible to 3GPP TS 24.302 V17.6.0. A UE not having implemented this List of PLMN with AAA connectivity to 5GC, cannot determine how to initiate the NSWO authentication procedure specified in TS 33.501.Limiting the PLMN List IE to AAA connectivity to EPC is backward compatible. A UE not having implemented this List of PLMN with AAA connectivity to 5GC can determine how to initiate the Authentication and Key Agreement procedure specified in TS 33.402 **Backward compatibility analysis on the WLAN:**The PLMN List with AAA connectivity to 5GC is not backward compatible to 3GPP TS 24.302 V17.6.0. A WLAN not having implemented this List of PLMN with AAA connectivity to 5GC, cannot allocate NSWOF for the UE to perform the NSWO authentication procedure specified in TS 33.501.Limiting the PLMN List IE to AAA connectivity to EPC is backward compatible. A WLAN not having implemented this List of PLMN with AAA connectivity to 5GC can determine how to route the UE's request for the Authentication and Key Agreement procedure specified in TS 33.402  |
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| ***Consequences if not approved:*** | The UE with NSWO capability cannot identify PLMNs for connecting to NSWOF to perform 5G NSWO authentication procedure defined in TS 33.501. |
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| ***Clauses affected:*** | 3.2, H.2.4.1,H.4.2.4, H.2.4.X (new) |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  |  |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  |  |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  |  |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

AAA Authentication, Authorization and Accounting

ACL Access Control List

AKA Authentication and Key Agreement

ANDSF Access Network Discovery and Selection Function

ANDSF-SN Access Network Discovery and Selection Function Server Name

ANID Access Network Identity

ANQP Access Network Query Protocol

APN Access Point Name

DHCP Dynamic Host Configuration Protocol

DM Device Management

DNS Domain Name System

DSCP Differentiated Services Code Point

DSMIPv6 Dual-Stack MIPv6

eAN/PCF Evolved Access Network Packet Control Function

EAP Extensible Authentication Protocol

EPC Evolved Packet Core

ePDG Evolved Packet Data Gateway

EPS Evolved Packet System

ERP EAP Re-authentication Protocol

ESP Encapsulating Security Payload

FQDN Fully Qualified Domain Name

GAA Generic Authentication Architecture

GBA Generic Bootstrapping Architecture

HA Home Agent

H-ANDSF Home-ANDSF

HRPD High Rate Packet Data

HSGW HRPD Serving Gateway

IEEE Institute of Electrical and Electronics Engineers

IFOM IP Flow Mobility

IKEv2 Internet Key Exchange version 2

IARP Inter-APN Routing Policy

IPMS IP Mobility Mode Selection

ISMP Inter-system Mobility Policy

ISRP Inter-system Routing Policy

IANA Internet Assigned Numbers Authority

I-WLAN Interworking – WLAN

MAPCON Multi Access PDN Connectivity

MCM Multi-connection mode

MO Management Object

NAI Network Access Identifier

NAP Network Access Provider

NBIFOM Network-Based IP Flow Mobility

NBM Network based mobility management

NSP Network Service Provider

NSSAI Network Slice Selection Assistance Information

NSWO Non-Seamless WLAN Offload

NSWOF Non-Seamless WLAN Offload Function

OMA Open Mobile Alliance

OPI Offload Preference Indicator

PCO Protocol Configuration Options

P-GW PDN Gateway

PDU Protocol Data Unit

PSPL Preferred Service Provider List

QoS Quality of Service

SCM Single-connection mode

S-GW Serving Gateway

S-NSSAI Single NSSAI

SPI Security Parameters Index

TFT Traffic Flow Template

TSCM Transparent single-connection mode

UE User Equipment

UICC Universal Integrated Circuit Card

V-ANDSF Visited-ANDSF

W-APN WLAN APN

WiMAX Worldwide Interoperability for Microwave Access

WLAN Wireless Local Area Network

WLANSP WLAN Selection Policy

WLCP WLAN Control Protocol

WMF WiMAX Forum

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### H.2.4.1 Information Element Identity (IEI)

Indicates the information element identity. The following values for IEI are defined in this version of the specification:

00000000 PLMN List

00000001 PLMN List with S2a connectivity

00000010 PLMN List with trusted 5G connectivity

00000011 PLMN List with trusted 5G connectivity-without-NAS

00000100 PLMN List with AAA connectivity to 5GC

00000101

 To

11111111 Reserved

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

### H.2.4.2 PLMN List IE

The PLMN List information element is used by the WLAN to indicate the PLMNs deploying the AAA function, with which the WLAN supports AAA connectivity to EPC. The format of the PLMN List information element coded according to 3GPP TS 24.007 [48] clause 11.2.2.1 is shown in figure H.2.4.2-1.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |  |
| PLMN List IEI | octet 1 |
| Length of PLMN List value contents | octet 2 |
| Number of PLMNs | octet 3 |
| PLMN information, PLMN 1 | octet 4octet 5octet 6 |
|  |  |
| PLMN information, PLMN N | octet N+1octet N+2octet N+3 |

Figure H.2.4.2-1: *PLMN List* information element

The "Number of PLMNs" (octet 3) contains the number of PLMN information items in the list. Bit 7 of octet 3 is the most significant bit and bit 0 of octet 3 the least significant bit.

The format of the PLMN information item according to 3GPP TS 24.007 [48] clause 11.2.2.1 is shown in figure H.2.4.2-2:

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |  |
| MCC digit 2 | MCC digit 1 | octet X |
| MNC digit 3 | MCC digit 3 | octet X+1 |
| MNC digit 2 | MNC digit 1 | octet X+2 |

Figure H.2.4.2-2: *PLMN information* item of the PLMN List IE

Table H.2.4.2-1 shows the coding of the MCC and MNC in the PLMN information item.

Table H.2.4.2-1: *PLMN information* item of PLMN List IE

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| **MCC**, Mobile country code (octet X, octet X+1 bits 1 to 4)The MCC field is coded as in ITU-T Rec. E212 [63], Annex A. **MNC**, Mobile network code (octet X+2, octet X+1 bits 5 to 8).The coding of this field is the responsibility of each administrationbutBCDcodingshall be used. The MNC shall consist of 2 or 3 digits. For PCS 1900 for North America, Federal Regulation mandates that a 3-digit MNC shall be used. However a network operator may decide to use only two digits in the MNC over the radio interface. In this case, bits 5 to 8 of octet X+1 shall be coded as "1111". Mobile equipment shall accept MNC coded in such a way. |

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### H.2.4.X PLMN List with AAA connectivity to 5GC IE

The PLMN List with AAA connectivity to 5GC information element is used by the WLAN to indicate the PLMNs deploying NSWOF, with which the WLAN supports AAA connectivity to 5GC and is able to perform 5G NSWO procedures as specified in annex S of 3GPP TS 33.501 [78].

The format of the PLMN List with AAA connectivity to 5GC information element is identical to the format of the PLMN List information element defined in clause H.2.4.2.

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* END OF CHANGES \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***