**3GPP TSG-CT WG1 Meeting #124-eC1-20XXXX**

**Electronic meeting, 2-10 June 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  | **24.502** | **CR** | **0140** | **rev** | **1** | **Current version:** | **16.3.0** |  |
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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 | **X** |

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| ***Title:***  | N5CW device registration and IP assignment |
|  |  |
| ***Source to WG:*** | Motorola Mobility, Lenovo |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | 5WWC |  | ***Date:*** | 2020-06-02 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-16 |
|  | *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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | Current description of N5CW device registration over trusted WLAN access network is not complete. It is not clear how the N5CW device registers to the 5GCN and how it is assigned an IP address by the TWLAN. These procedures are described in step 3 and step 20 in subclause 4.12b.2 in TS 23.502:3. The TWIF creates a 5GC Registration Request message on behalf of the N5CW device. The TWIF uses default values to populate the parameters in the Registration Request message, which are the same for all N5CW devices. The Registration type indicates "Initial Registration".20. The TWIF creates a PDU Session Establishment Request message on behalf of the N5CW device and sends this message to AMF. This may be triggered by receiving an IP configuration request (e.g. DHCP Offer/Request) from the N5CW device. The TWIF may use default values to populate the parameters in the PDU Session Establishment Request message, but may also skip some PDU session parameters and let the AMF or the SMF determine these parameters based on the N5CW device subscription information received during the registration procedure. This way, default PDU session parameters can be used per N5CW device. The value of the PDU Session id provided by TWIF in step 20c shall always be the same. It will be a value reserved for the PDU sessions requested by the TWIF and it will be different from the values that can be used by the N5CW device when requesting a PDU session over 3GPP access. This way, the PDU session id provided by the TWIF cannot be the same with the PDU Session Id of any PDU session established by the N5CW device over 3GPP access. |
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| ***Summary of change:*** | The CR refers to TS 24.501 where the registration and PDU session establishment which results in the N5CW device IP assignment, are described. |
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| ***Consequences if not approved:*** | Stage 3 of N5CW device is not complete. |
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| ***Clauses affected:*** | 7.3A.4.2 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS 24.501 CR XXX |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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#### 7.3A.4.2 N5CW device registration over trusted WLAN access network

A trusted WLAN access network (TWAN) includes a trusted WLAN access point (TWAP) and a trusted WLAN interworking function (TWIF) as illustrated in figure 7.3A.4.2-1.

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Figure 7.3A.4.2-1: Trusted WLAN Access Network

The TWAN and an N3CW device initiate an exchange of EAP-Request/Identity message and EAP-Response/Identity message as specified in IETF RFC 3748 [9] for link layer authentication of the UE by the TWAP. In the trusted WLAN access network, the TWAP and the N5CW device exchange EAP-Request/Identity message and EAP-Response/Identity message, encapsulated in the link layer protocol packets i.e. IEEE 802.11/802.1x packets

Upon reception of EAP-Request/Identity message encapsulated in the IEEE 802.11/802.1x packets from the TWAP, the N5CW device shall:

a) construct an EAP-Response/Identity message as described in IETF RFC 3748 [9] containing an NAI as specified in subclause 28.7 of 3GPP TS 23.003 [8] to Request the PLMN with trusted 5G connectivity without NAS signalling capability; and

NOTE 1: The NAI includes the 5G-GUTI assigned to the N5CW device over 3GPP access, if the N5CW device is also a 5G UE and is already registered to 5GCN over 3GPP access.

Editor's note: An NAI for requesting the PLMN with trusted 5G connectivity without NAS signalling capability needs to be specified in subclause 28.7 of 3GPP TS 23.003 [8].

b) transmit the EAP-Response of identity type encapsulated in the link layer protocol packets towards the TWAP.

The TWAP conveys the information provided by the N5CW device to the TWIF which initiates the registration and the PDU session establishment to obtain an IP address, on behalf of the N5CW device to an AMF according to 3GPP TS 24.501 [4].

NOTE 2: The communication protocol between the TWAP and the TWIF is outside of the scope of 3GPP.

An exchange of the EAP request and EAP response as described in IETF RFC 3748 [9] occurs until the N5CW device is authenticated by the 5GCN with the EAP authentication described in 3GPP TS 33.501 [5]. Upon completion of the N5CW device authentication and reception of the EAP-Success by the N5CW device, the N5CW device and the TWAP use the TWAP key to establish access specific layer-2 security 4-way handshake according to IEEE 802.11 [19].

Editor's note: What the EAP method uses to perform this procedure is FFS.

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