**3GPP TSG-CT WG1 Meeting #123-eC1-20abcd**

**Electronic meeting, 16-24 April 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **24.587** | **CR** | **0036** | **rev** | **1** | **Current version:** | **16.0.0** |  |
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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:***  | Correction on conditions to initiate a PC5 unciast link establishment procedure |
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| ***Source to WG:*** | Huawei, HiSilicon |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | eV2XARC |  | ***Date:*** | 2020-03-28 |
|  |  |  |  |  |
| ***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:*** | In subclause 6.1.2.2.2, one of the pre-conditions UE needs to meet before initiating a PC5 unciast link establishment procedure is described as follows:*e) there is no existing PC5 unicast link for the pair of peer application layer IDs and the network layer protocol of this PC5 unicast link are identical to those required by the upper layer in the initiating UE for this V2X service.*This pre-condition is confusing as it firstly states there is no existing PC5 unicast link for the pair of peer application layer IDs, and then which link does *this PC5 unicast link* emerged in the latter part refer to.In TS 23.287 subclause 5.2.1.4, it has following description:*- A PC5 unicast link supports V2X communication using a single network layer protocol e.g. IP or non-IP.*Therefore, the correct understanding is that if there is no existing PC5 unicast link for the pair of peer application layer IDs, the UE can initiate the link establishment procedure, or if there is an existing PC5 unicast link for the pair of peer application layer IDs but with different network layer protocols, the UE can also initiate the link establishment procedure.  |
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| ***Summary of change:*** | Divide the pre-condition into two separate conditions: one is no existing PC5 unicast link for the pair of peer application layer IDs, another one is there is an existing PC5 unicast link for the pair of peer application layer IDs but with different network layer protocol. |
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| ***Consequences if not approved:*** | Non.-implementable condition in the UE |
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| ***Clauses affected:*** | 6.1.2.2.2 |
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|  | **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 \* \* \* \*

##### 6.1.2.2.2 PC5 unicast link establishment procedure initiation by initiating UE

Editor’s note: This section needs to be revisited after SA3 have determined the full set of security requirements for unicast link establishment.

The initiating UE shall meet the following pre-conditions before initiating this procedure:

a) a request from upper layers to transmit the packet for V2X service over PC5;

b) the link layer identifier for the initiating UE (i.e. layer 2 ID used for unicast communication) is available (e.g. pre-configured or self-assigned);

c) the link layer identifier for the unicast initial signaling (i.e. destination layer 2 ID used for unicast initial signaling) is available to the initiating UE (e.g. pre-configured, obtained as specified in clause 5.2.3 or known via prior V2X communication);

d) the initiating UE is either authorised for V2X communication over PC5 in NR in the serving PLMN, or has a valid authorization for V2X communication over PC5 in NR when not served by E-UTRAN and not served by NR; and

e) there is no existing PC5 unicast link for the pair of peer application layer IDs, or there is an existing PC5 unicast link for the pair of peer application layer IDs and the network layer protocol of the existing PC5 unicast link is not identical to the network layer protocol required by the upper layer in the initiating UE for this V2X service.

In order to initiate the PC5 unicast link establishment procedure, the initiating UE shall create a DIRECT LINK ESTABLISHMENT REQUEST message. The initiating UE:

a) shall include the source user info set to the initiating UE’s application layer ID received from upper layers;

b) shall include the V2X service identifier received from upper layer;

c) may include the target user info set to the target UE’s application layer ID if received from upper layers; and

d) shall include the security establishment information.

Editor’s note: The parameters in the security establishment information will be defined by SA3.

After the DIRECT LINK ESTABLISHMENT REQUEST message is generated, the initiating UE shall pass this message to the lower layers for transmission along with the initiating UE's Layer 2 ID for unicast communication and the destination layer 2 ID used for unicast initial signaling, and start timer T5000. The UE shall not send a new DIRECT LINK ESTABLISHMENT REQUEST message to the same target UE identified by the same application layer ID while timer T5000 is running.



Figure 6.1.2.2.2: PC5 unicast link establishment procedure