**3GPP TSG-CT WG1 Meeting #124-eC1-203268**

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

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **24.587** | **CR** | **0053** | **rev** | **1** | **Current version:** | **16.0.0** |  |
|  |
| *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 |  |

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| ***Title:***  | Handling of PC5 unicast link ID update accept |
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| ***Source to WG:*** | vivo |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | eV2XARC |  | ***Date:*** | 2020-05-26 |
|  |  |  |  |  |
| ***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:*** | It needs to specify that the UE shall provide the updated identifiers (i.e. initiating UE’s new layer 2 ID and target UE’s new layer 2 ID if changed) to the lower layers, which enbles the lower layers to transmit PC5 signalling message and PC5 user plane data using the new identifiers.  |
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| ***Summary of change:*** | For the target UE:* upon receipt of the DIRECT LINK IDENTIFIER UPDATE ACK message from initiating UE, the targte UE shall pass the initiating UE’s new Layer 2 ID and the target UE’s new Layer 2 ID if changed along with the PC5 link identifier down to the lower layer. Then the target UE shall use the new layer-2 IDs to transmit PC5 signalling message and PC5 user plane data.

For the initiating UE:* Upon sending the DIRECT LINK IDENTIFIER UPDATE ACK message, the initiating UE shall pass the initiating UE’s new Layer 2 ID and the target UE’s new Layer 2 ID if changed along with the PC5 link identifier down to the lower layer. Then the initiating UE shall use the new layer-2 IDs to transmit PC5 signalling message and PC5 user plane data.
* Add the missing “identifier” in clause 6.1.2.5.7.1 and 6.1.2.5.7.2
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| ***Consequences if not approved:*** | No information for the lower layer to update the old identifiers. |
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| ***Clauses affected:*** | 6.1.2.5.4, 6.1.2.5.5, 6.1.2.5.7.1, 6.1.2.5.7.2 |
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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 \* \* \* \*

##### 6.1.2.5.4 PC5 unicast link identifier update procedure acknowledged by the initiating UE

Upon receipt of the DIRECT LINK IDENTIFIER UPDATE ACCEPT message, the initiating UE shall stop timer T5003 and respond with a DIRECT LINK IDENTIFIER UPDATE ACK message. In this message, the initiating UE:

a) shall include the target UE’s new layer2 ID, if received;

b) shall include the target UE’s new security information, if received;

c) may include the target UE’s new application layer ID, if received; and

d) may include the new IP address/prefix, if received.

After the DIRECT LINK IDENTIFIER UPDATE ACK message is generated, the initiating UE shall pass this message to the lower layers for transmission along with the initiating UE's old Layer-2 ID and the target UE's old Layer-2 ID.

Upon sending the DIRECT LINK IDENTIFIER UPDATE ACK message, the initiating UE shall update the associated PC5 unicast link context with the new identifiers and pass the new layer-2 IDs (i.e. initiating UE’s new Layer 2 ID and target UE’s new Layer 2 ID if changed) along with the PC5 link identifier down to the lower layer. Then the initiating UE shall use the new layer-2 IDs (i.e. initiating UE’s new Layer 2 ID and target UE’s new Layer 2 ID if changed) to transmit the PC5 signalling message and PC5 user plane data.

The initiating UE shall continue to receive traffic with the old layer-2 IDs (i.e. initiating UE’s old layer-2 ID and target UE’s old layer-2 ID) from the target UE until it receives traffic with the new layer-2 IDs (i.e. initiating UE’s new layer-2 ID and target UE’s new layer-2 ID if changed) from the target UE.

\* \* \* Next Change \* \* \* \*

##### 6.1.2.5.5 PC5 unicast link identifier update procedure completion by the target UE

Upon receipt of the DIRECT LINK IDENTIFIER UPDATE ACK message, the target UE shall update the associated PC5 unicast link context with the new identifiers, pass the new layer-2 IDs (i.e. initiating UE’s new Layer 2 ID and target UE’s new Layer 2 ID if changed) down to the lower layer and stop timer T5004. Then the target UE shall use the new layer-2 IDs (i.e. initiating UE’s new Layer 2 ID and target UE’s new Layer 2 ID if changed) to transmit the PC5 signalling message and PC5 user plane data.

\* \* \* Next Change \* \* \* \*

###### 6.1.2.5.7.1 Abnormal cases at the initiating UE

The following abnormal cases can be identified:

a) If timer T5003 expires, the initiating UE shall retransmit the DIRECT LINK IDENTIFIER UPDATE REQUEST message and restart timer T5003. After reaching the maximum number of allowed retransmissions, the initiating UE shall abort the PC5 unicast link identifier update procedure and may notify the upper layer that the target UE is unreachable.

NOTE 1: The maximum number of allowed retransmissions is UE implementation specific.

NOTE 2: After reaching the maximum number of allowed retransmissions, whether the initiating UE releases this PC5 unicast link depends on its implementation.

\* \* \* Next Change \* \* \* \*

###### 6.1.2.5.7.2 Abnormal cases at the target UE

The following abnormal cases can be identified:

a) If timer T5004 expires, the target UE shall retransmit the DIRECT LINK IDENTIFIER UPDATE ACCEPT message and restart timer T5004. After reaching the maximum number of allowed retransmissions, the target UE shall abort the PC5 unicast link identifier update procedure and may notify the upper layer that the initiating UE is unreachable.

NOTE 1: The maximum number of allowed retransmissions is UE implementation specific.

NOTE 2: After reaching the maximum number of allowed retransmissions, whether the target UE releases this PC5 unicast link depends on its implementation.

Editor's note: It is FFS how to handle the collision of initiating UE-requested PC5 unicast link identifier update procedure and target UE-requested PC5 unicast link identifier update procedure for the same PC5 unicast link.

\* \* \* End of changes \* \* \* \*