**3GPP TSG-CT WG1 Meeting #141eC1-232563**

**Online 17– 21 April 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
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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:*** |  | | | | | | | | | |
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| ***Source to WG:*** | , Xiaomi | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
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| ***Work item code:*** | 5G\_\_Ph2 | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | |  |
|  | *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 can be 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:*** | | For the following EN:  Editor's Note: It is FFS how to support the notification of UE when it cannot perform path switch.  It has been addressed by SA2:  *NOTE 3: When the UEs cannot successfully exchange Path Switch Request/Response due to, e.g. the PC5 unicast link suddenly breaks, whether to perform path switching to Uu path is left to UE implementation.*  Since:  a) the condition of initiating this procedure has been specified; and  b) the abnormal case for UE not receiving response has been specified,  the EN can be removed directly.  For the following EN:  Editor's note: It is FFS how to handle the ProSe application(s) that are not included in the negotiated ProSe identifier(s) (i.e. ProSe application(s) that are not acceptable for the target UE to be switched in the path switching procedure).  For the ProSe application(s) that are not included in the negotiated ProSe identifier(s), it means that either the link quality over Uu cannot support the ProSe service for the peer UE, or the ProSe service is not authorized to be switched according to the policy of the peer UE. Hence, the UE should continue using the PC5 communication for those applications until the PC5 link is broken or released.  For the following EN:  Editor's note: How to handle the case that the discoveree UE may be found by the discoverer UE directly (i.e. not via the 5G ProSe UE-to-UE relay UE) is FFS.  When the discoveree UE is triggered by the upper layers to start responding to solicitation, it will only check the user info ID and the relay service code:  *Then, if:*  *a) the relay service code parameter of the received PROSE PC5 DISCOVERY message for UE-to-UE relay discovery solicitation is the same as the relay service code parameter configured as specified in clause 5.2.x for the connectivity service; and*  *b) the target discoveree end UE info parameter of the received PROSE PC5 DISCOVERY message for UE-to-UE relay discovery solicitation is the same as the configured user info ID for the UE-to-UE relay discovery as specified in clause 5.2.x;*  It means that the discoveree UE is able to deocde the message and may treat the discoverer UE as a relay UE, but at last the discoveree UE can be found correctly, so the EN can be removed directly. | | | | | | | | |
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| ***Summary of change:*** | | 1. remove the EN for the notification of UE when it cannot perform path switch;  2. remove the EN for the negotiated ProSe identifier(s) and clarify how to handle the ProSe application(s) that are not included in the negotiated ProSe identifier(s)  3. remove the EN for handling the case that the discoveree UE may be found by the discoverer UE directly  4. wording reshape in 7.7.3.4 | | | | | | | | |
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| ***Consequences if not approved:*** | | Remaining ENs for different procedures | | | | | | | | |
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| ***Clauses affected:*** | | 7.7.3.2, 7.7.3.4, 8a.2.1.3.2.1 | | | | | | | | |
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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 \* \* \* \*

#### 7.7.3.2 Path switching procedure from the direct communication path over PC5 to the direct communication path over Uu initiation by initiating UE

The initiating UE shall meet the following pre-conditions before initiating this procedure for switching the direct communication path over PC5 to the direct communication path over Uu:

a) the initiating UE and the target UE are communicating with each other via the 5G ProSe direct link over PC5 reference point; and

b) the communication mode of the 5G ProSe direct link is set to unicast mode.

In order to initiate the path switching procedure from the direct communication path over PC5 to the direct communication path over Uu, the initiating UE shall create a PROSE PATH SWITCHING REQUEST message. In the PROSE PATH SWITCHING REQUEST message, the initiating UE:

a) shall include the required ProSe identifiers set to the ProSe identifier(s) of the authorized ProSe application(s) for which the communication path switching procedure is to be performed according to the ProSe application to path switching mapping rules as specified in clause 5.2.4; and

b) may include the Uu QoS flow descriptions set to the requested QoS flow description for each ProSe identifier to be used in the communication path over Uu.

NOTE 1: The initiating UE derives the requested QoS flow description(s) based on the PC5 QoS parameters of the PC5 QoS flow(s) between the initiating UE and the target UE.

After the PROSE PATH SWITCHING REQUEST message is generated, the initiating UE shall pass this message to the lower layers for transmission along with the source layer-2 ID and destination layer-2 ID used in the existing 5G ProSe direct link with the target UE and start timer T5aaa. The initiating UE shall not send a new PROSE PATH SWITCHING REQUEST message to the same target UE while timer T5aaa is running.



Figure 7.7.3.2.1: Path switching procedure from the direct communication path over PC5 to the direct communication path over Uu

Upon receipt of the PROSE PATH SWITCHING REQUEST message, the target UE:

a) may perform either of the following:

1) initiate the UE-requested PDU session establishment procedure as specified in clause 6.4.1 of 3GPP TS 24.501 [11] to establish a PDU session to be used for the direct communication path over Uu; or

2) initiate the UE-requested PDU session modification procedure as specified in clause 6.4.2 of 3GPP TS 24.501 [11] to modify a PDU session to be used for the direct communication path over Uu with the Requested QoS flow descriptions IE set to the QoS flow descriptions received in the PROSE PATH SWITCHING REQUEST message; and

Editor's note: It is FFS whether the UE needs to perform UE-requested PDU session establishment/modification procedure before accept the PROSE PATH SWITCHING REQUEST message.

b) shall determine if there are at least one ProSe application(s) that are able to perform the path switching procedure from the direct communication path over PC5 to the direct communication path over Uu in the PROSE PATH SWITCHING REQUEST message with the following considerations:

1) the ProSe application(s) that are not authorized to perform communication path switching procedure according to the ProSe application to path switching mapping rules as specified in clause 5.2.4 shall not be considered as be able to perform the path switching procedure from the direct communication path over PC5 to the direct communication path over Uu; and

2) other criteria (e.g. availability of direct communication path over Uu, result of bullet a), etc.) may be taken into consideration in addition to the ProSe application to path switching mapping rules as specified in clause 5.2.4.

NOTE 2: What other criteria are considered in the target UE side is left to UE implementations.

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

#### 7.7.3.4 Path switching procedure from the direct communication path over PC5 to the direct communication path over Uu completion by the initiating UE

Upon receipt of the PROSE PATH SWITCHING ACCEPT message, the initiating UE:

a) shall stop timer T5aaa; and

b) may perform either of the following:

1) initiate the UE-requested PDU session establishment procedure as specified in clause 6.4.1 of 3GPP TS 24.501 [11] to establish a PDU session to be used for the direct communication path over Uu; or

2) initiate the UE-requested PDU session modification procedure as specified in clause 6.4.2 of 3GPP TS 24.501 [11] to modify a PDU session to be used for the direct communication path over Uu with the Requested QoS flow descriptions IE set to the QoS flow descriptions sent in the PROSE PATH SWITCHING REQUEST message.

The initiating UE shall then transmit the data traffic of the negotiated ProSe application(s) with the target UE using the direct communication path over Uu. For the ProSe application(s) that the initiating UE requested but are not included in the negotiated ProSe identifier(s) IE, the initiating UE continues to use the direct communication path over PC5 for those applications until the 5G ProSe direct link is released.

When the data traffic is successfully transmitted via the direct communication path over Uu, the initiating UE or the target UE may initiate a 5G ProSe direct link release procedure as specified in clause 7.2.6 if there are no more ProSe applications over the existing 5G ProSe direct link between the initiating UE and the target UE.

NOTE: The UE is allowed to maintain the existing 5G ProSe direct link in order to e.g. switch back from the direct communication path over Uu after the completion of the path switching procedure from the direct communication path over PC5 to the direct communication path over Uu.

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

###### 8a.2.1.3.2.1 General

The purpose of the discoverer end UE procedure for UE-to-UE Relay discovery is:

a) to enable a ProSe-enabled UE to solicit proximity of a connectivity service provided by a UE-to-UE relay, upon a request from upper layers; or

b) to enable a ProSe-enabled UE to measure the PROSE PC5 DISCOVERY message signal strength between the ProSe-enabled UE and the 5G ProSe UE-to-UE Relay UE(s) for relay selection/reselection.

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