**3GPP TSG-CT WG1 Meeting #141eC1-23xxxx**

**Online 17– 21 April 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** | RRC Establishment cause when RSC is dedicated for Emergency for layer-2 relay | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_ProSe\_Ph2 | | | | |  | ***Date:*** | | | 2023-04-06 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | As specified in clause 5.6.1.1 of TS 24.501:  *The UE shall invoke the service request procedure when:*  *(…)*  *n) the UE in 5GMM-IDLE mode over 3GPP access*  *- has to request resources for 5G ProSe direct discovery over PC5 or 5G ProSe direct communication over PC5 (see 3GPP TS 23.304 [6E]); or*  *- acts as a 5G ProSe layer-2 UE-to-network relay UE and receives a trigger from lower layers to establish the NAS signalling connection (see 3GPP TS 23.304 [6E]);*  Now, stage-2 spec TS 23.304 has specified what is the RRC Establishment cause that shall be used for that case, when the PC5 connection is triggered for an Emergency RRC, see clause 6.5.2.1.2 from TS 23.304 which states (due to the agreed CR S2-2303868):  *The 5G ProSe Layer-2 UE-to-Network Relay may only relay data/signalling for the 5G ProSe Layer-2 Remote UE(s) when the 5G ProSe Layer-2 UE-to-Network Relay is in CM-CONNECTED state. If the 5G ProSe Layer-2 UE-to-Network Relay is in CM\_IDLE state and receives a connection request from the 5G ProSe Layer-2 Remote UE for relaying, the 5G ProSe Layer-2 UE-to-Network Relay shall trigger Service Request procedure to enter CM\_CONNECTED state before relaying the 5G ProSe Layer-2 Remote UEs traffic. If the 5G ProSe Layer-2 UE-to-Network Relay in RRC\_IDLE receives a connection request from the 5G ProSe Layer-2 Remote UE using emergency RSC, then 5G ProSe Layer-2 UE-to-Network Relay sets the establishment cause to "emergency".*  The above requirement needs to be captured into stage-3 spec. Since the RRC Establishment cause for layer-2 UE-to-network relay UE is determined by lower layers (RRC), hence it is lower layer responsibility to set the RRC Establishment cause correctly at this case (where it is expected to be set to "Emergency"). | | | | | | | | |
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| ***Summary of change:*** | | Specifying that, the RRC Establishment cause for layer-2 UE-to-network relay UE that relays an emergency RSC is taken care by lower layer, where the corresponding NOTE is updated to reflect that. | | | | | | | | |
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| ***Consequences if not approved:*** | | No clarity how the proper RRC Establishment cause for emergency layer-2 relaying is set, and stage-2 requirements are not implemented. | | | | | | | | |
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| ***Clauses affected:*** | | 4.5.6 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \*\*\*\*\*

### 4.5.6 Mapping between access categories/access identities and RRC establishment cause

When 5GMM requests the establishment of a NAS-signalling connection, the RRC establishment cause used by the UE shall be selected according to one or more access identities (see subclauses 4.5.2 and 4.5.2A) and the determined access category by checking the rules specified in table 4.5.6.1 and table 4.5.6.2. If the access attempt matches more than one rule, the RRC establishment cause of the lowest rule number shall be used. If the determined access category is an operator-defined access category, then the RRC establishment cause used by the UE shall be selected according to table 4.5.6.1 and table 4.5.6.2 based on one or more access identities (see subclauses 4.5.2 and 4.5.2A) and the standardized access category determined for the operator-defined access category as described in subclause 4.5.3.

NOTE 1: Following an RRC release with redirection, the lower layers can set the RRC establishment cause to "mps‑PriorityAccess" in the case of redirection to an NR cell connected to 5GCN (see 3GPP TS 38.331 [30]) or to "highPriorityAccess" in the case of redirection to an E‑UTRA cell connected to 5GCN (see 3GPP TS 36.331 [25A]), if the network indicates to the UE during RRC connection release with redirection that the UE has an active MPS session.

NOTE 2: In case of the UE is acting as a 5G ProSe layer-2 UE-to-network relay UE, it is possible for the lower layer to decide an applicable RRC establishment cause according to the request from the 5G ProSe layer-2 remote UE, including the case when the request from the 5G ProSe layer-2 remote UE is for emergency services, as specified in 3GPP TS 38.331 [30].

Table 4.5.6.1: Mapping table for access identities/access categories and RRC establishment cause when establishing N1 NAS signalling connection via NR connected to 5GCN

|  |  |  |  |
| --- | --- | --- | --- |
| Rule # | Access identities | Access categories | RRC establishment cause is set to |
| 1 | 1 | Any category | mps-PriorityAccess |
| 2 | 2 | Any category | mcs-PriorityAccess |
| 3 | 11, 15 | Any category | highPriorityAccess |
| 4 | 12,13,14, | Any category | highPriorityAccess |
| 5 | 0 | 0 (= MT\_acc) | mt-Access |
| 1 (= delay tolerant) | Not applicable (NOTE 1) |
| 2 (= emergency) | emergency |
| 3 (= MO\_sig) | mo-Signalling |
| 4 (= MO MMTel voice) | mo-VoiceCall |
| 5 (= MO MMTel video) | mo-VideoCall |
| 6 (= MO SMS and SMSoIP) | mo-SMS |
| 7 (= MO\_data) | mo-Data |
| 9 (= MO IMS registration related signalling) | mo-Data |
| NOTE 1: A UE using access category 1 for the access barring check will determine a second access category in the range 3 to 7 that is to be used for determination of the RRC establishment cause. See subclause 4.5.2, table 4.5.2.2, NOTE 6.  NOTE 2: See subclause 4.5.2, table 4.5.2.1 for use of the access identities of 0, 1, 2, and 11-15. | | | |

Table 4.5.6.2: Mapping table for access identities/access categories and RRC establishment cause when establishing N1 NAS signalling connection via E-UTRA connected to 5GCN

|  |  |  |  |
| --- | --- | --- | --- |
| Rule # | Access identities | Access categories | RRC establishment cause is set to |
| 1 | 1 | Any category | highPriorityAccess |
| 2 | 2 | Any category | highPriorityAccess |
| 3 | 11, 15 | Any category | highPriorityAccess |
| 4 | 12,13,14, | Any category | highPriorityAccess |
| 5 | 0 | 0 (= MT\_acc) | mt-Access |
| 1 (= delay tolerant) | Not applicable (NOTE 1) |
| 2 (= emergency) | emergency |
| 3 (= MO\_sig) | mo-Signalling |
| 4 (= MO MMTel voice) | mo-VoiceCall |
| 5 (= MO MMTel video) | mo-VoiceCall |
| 6 (= MO SMS and SMSoIP) | mo-Data |
| 7 (= MO\_data) | mo-Data |
| 9 (= MO IMS registration related signalling) | mo-Data |
| 10 (= MO exception data) | mo-ExceptionData (NOTE 3) |
| NOTE 1: A UE using access category 1 for the access barring check will determine a second access category in the range 3 to 7 that is to be used for determination of the RRC establishment cause. See subclause 4.5.2, table 4.5.2.2, NOTE 6.  NOTE 2: See subclause 4.5.2, table 4.5.2.1 for use of the access identities of 0, 1, 2, and 11-15.  NOTE 3: This applies to the UE in NB-N1 mode. | | | |

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