**3GPP TSG-RAN WG2 Meeting #123 *R2-2309138***

**Toulouse, France, 21 – 25 August, 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **37.985** | **CR** | **draft** | **rev** | **-** | **Current version:** | **16.1.0** |  |
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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 | **X** | Core Network |  |

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| ***Title:*** | Miscellaneous corrections on TR 37.985 | | | | | | | | | |
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| ***Source to WG:*** | Huawei, HiSilicon (Rapporteur) | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_V2X\_NRSL-Core | | | | |  | ***Date:*** | | | 2023-08-11 |
|  |  | | | |  | |  | | |  |
| ***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 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:*** | | 1. In clause 5.4.2, the reference for how the UE uses resource pool(s) for V2X sidelink communication transmission and reception is incorrect, the details should be found in TS 36.331. 2. In clause 6.5.1, the term of “Uuser” is a typo. 3. In clause 6.5.3 and 6.5.4, the term of SL CG should be aligned with TS 38.331, i.e. sidelink configured grant. 4. In clause 6.5.5, to be more specific, the reference for details of the prioritization between UL transmission and SL transmission can be clause 5.22.1.3.1a in TS 38.321. 5. In clause 6.5.6, the description of using SLRB configurations and the mapping of PC5 QoS profile to SLRB for out of coverage UEs are not complete. | | | | | | | | |
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| ***Summary of change:*** | | 1. In clause 5.4.2, change the reference from “TS 36.300 [17, clauses 5.10.12 and 5.10.13]” to “TS 36.331 [10, 5.10.12 and 5.10.13]”. 2. In clause 6.5.1, correct the typo “Uuser” to “User”. 3. In clause 6.5.3 and 6.5.4, change the term in Figure 6.5.1-1 from “configured sidelink grant” into “sidelink configured grant”. 4. In clause 6.5.5, change the reference from “TS 38.321 [21, clause 5.22.1.3]” into “TS 38.321 [21, clause 5.22.1.3.1a]”. 5. In clause 6.5.6, clarify that for out of coverage UEs, SLRB configurations and the mapping of PC5 QoS profile to SLRB can be pre-configured or be provided via V2X-specific SIB of the cell on the frequency which provides inter-carrier NR sidelink configuration.   **Impact analysis**  Impacted 5G architecture options:  NR SA, NR-DC  Impacted functionality:  Sidelink  Inter-operability:  If the network is implemented according to this CR while the UE is not, there is no inter-operability issue.  If the UE is implemented according to this CR while the network is not, there is no inter-operability issue.  If one UE is implemented according to this CR while the other UE is not, there is no inter-operability issue. | | | | | | | | |
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| ***Consequences if not approved:*** | | 1. There is ambiguity on when UE applies SLRB configurations and the mapping of PC5 QoS profile to SLRB.  2. Typo and incorrect reference still exist, term usage not aligned. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.4.2, 6.5.1, 6.5.3, 6.5.4, 6.5.5 and 6.5.6 | | | | | | | | |
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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:*** | |  | | | | | | | | |

*START OF CHANGES*

5.4.2 Resource pool configuration

When the UE is in network coverage, it may use the resource configurations provided by the eNB via dedicated signalling or system information. When the UE is out of coverage, it may use pre-configured resource pools for V2X sidelink communication. Details of how the resource pools are (pre)configured and how the UE uses them for V2X sidelink communication transmission and reception are specified in TS 36.331 [10, clauses 5.10.12 and 5.10.13].

*NEXT CHANGE*

6.5.1 General

Figure 6.5.1-1 shows the user plane protocol stack for NR sidelink communication. The AS protocol stack of user plane in the PC5 interface consists of SDAP, PDCP, RLC, MAC, and the physical layer as shown below in Figure 6.5.1-1, from TS 38.300 [20, Clause 16.9.2.1].

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**Figure 6.5.1-1: User plane protocol stack for STCH.**

Figure 6.5.1-2 shows the control plane protocol stack for SCCH for RRC for NR sidelink communication. The AS protocol stack of the control plane for SCCH for RRC in the PC5 interface consists of RRC, PDCP, RLC, MAC and the physical layer as shown below in Figure 6.5.1-2, from TS 38.300 [20, Clause 16.9.2.1].

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**Figure 6.5.1-2: Control plane (PC5-C) protocol stack for SCCH for RRC.**

Figure 6.5.1-3 shows the control plane protocol stack for PC-S. PC5-S is located on top of PDCP, RLC and MAC sublayers, and the physical layer for the control plane in the PC5 interface as shown in Figure 6.5.1-3, from TS 38.300 [20, Clause 16.9.2.1].

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**Figure 6.5.1-3: Control plane (PC5-C) protocol stack for SCCH for PC5-S.**

The AS protocol stack for SBCCH in the PC5 interface consists of RRC, RLC, MAC sublayers, and the physical layer as shown below in Figure 6.5.1-4, from TS 38.300 [20, Clause 16.9.2.1].

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**Figure 6.5.1-4: Control plane protocol stack for SBCCH.**

*NEXT CHANGE*

6.5.3 Mobility management for NR SL transmission/reception

UE can perform NR sidelink transmission and reception during handover and cell reselection. During handover, sidelink transmission and reception are performed based on configuration of the exceptional transmission resource pool or sidelink configured grant Type 1 and reception resource pool of the target cell as provided in the handover command.

Related details are specified in TS 38.331 [17, clause 5.8.8].

6.5.4 Assistance information and SL configured grant configuration

NG-RAN can allocate sidelink resources to UE with two types of sidelink configured grants (Type 1 and Type 2). For the UE performing NR sidelink communication, there can be more than one sidelink configured grant activated at a time on the carrier configured for sidelink transmission.

To provide assistant information for the configuration of configured grant, UE assistance information on traffic pattern can be reported to the network. The periodicity, time offset, message size, QoS info and destination can be included in the reporting message.

*NEXT CHANGE*

6.5.5 Coordination between UL and NR SL transmission

NR-UL/NR-SL prioritization is performed when the following scenarios occur:

- when UL TX overlaps in time domain with SL TX in the shared/same carrier frequency;

- when UL TX and SL TX (in different carrier frequency) share TX chains and power budget;

To support NR-UL/NR-SL prioritization, a separate LCH priority threshold is configured for both NR-UL and NR-SL. For SL data and UL data/SRB, the SL transmission is prioritized if the highest priority value of UL LCH(s) with available data is larger than the UL priority threshold and the highest priority value of SL LCH(s) with available data is lower than the SL priority threshold, otherwise the UL transmission is prioritized. Details of the prioritization between UL transmission and NR sidelink transmission are specified in TS 38.321 [21, clause 5.22.1.3.1a].

The physical layer also provides prioritization and multiplexing rules between NR UL and NR SL when their transmissions would overlap, using rules similar to those from the Uu interface and relying on the priorities of the respective transmissions.

*NEXT CHANGE*

### 6.5.6 QoS mechanism

For NR sidelink communication, per flow based QoS model is used for sidelink unicast, groupcast and broadcast.

For RRC\_CONNECTED UEs, the UE may report the QoS information of the PC5 QoS flow via RRC dedicated signalling for transmission of a new PC5 QoS flow, and the network may provide SLRB configurations and configure the mapping of PC5 QoS flow to SLRB via RRC dedicated signalling, based on the QoS information reported by the UE.

For RRC\_IDLE/INACTIVE UEs, the network may provide SLRB configurations and configure the PC5 QoS profile to SLRB mapping via V2X-specific SIB.

For out of coverage UEs, SLRB configurations and the mapping of PC5 QoS profile to SLRB can be pre-configured or provided via V2X-specific SIB of the cell on the frequency which provides inter-carrier NR sidelink configuration.

END OF CHANGES