**3GPP TSG-RAN WG4 Meeting # 99-e *R4-2108534***

**Electronic Meeting, May. 19-27, 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.101-4** | **CR** | **-** | **rev** | **-** | **Current version:** | **16.3.0** |  |
|  | | | | | | | | |
| *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:*** | Draft CR for 38.101-4: Introduction of PSFCH decoding capability test for NR V2X | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei,HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | RAN4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_V2X\_NRSL-Perf | | | | |  | ***Date:*** | | | 2021-05-24 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | RAN 4 has agreed to introduce the new test setup for PSFCH decoding capability test at RAN 4 99-e meeting. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Replace the old test setup for V2X PSFCH decoding capability test with the agreed new test setup. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The test setup and requirements will not be aligned with agreemet | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 11.1.9.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS38.521-4 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**----- << Start of Change 1>> -----**

### 11.1.9 PSFCH decoding capability test

#### 11.1.9.1 2RX requirements

##### 11.1.9.1.1 Minimum requirements

The purpose of this test is to verify the maximum number of PSFCHs received by UE per slot in group cast scenario by using ACK/NACK feedback mode. In each slot, a group of UEs transmit PSFCHs is related to one PSSCH which is transmitted by tested UE and occupies all the subchannels to the tested UE randomly from Option a, Option b and Option c with probability of 50%, 25% and 25% respectively.

* Option a: All the UEs in the group transmit ACKs
* Option b: One UE transmit NACK, the rest of UEs transmit ACKs and the subchannel index of the NACK is random per slot.
* Option c: One UE transmit DTX, the rest of UEs transmit ACKs and the subchannel index of the DTX is random per slot.

The minimum requirements are specified in Table 11.1.9.1.1-2 with the test parameters specified in Table 11.1.9.1.1-1

**Table 11.1.9.1.1-1: Test parameters**

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | | Unit | Test 1 |
| HARQ-ACK information | |  | ACK or NACK |
| Source ID of tested UE | |  | 0 |
| Sidelink UE i,  0 ≤ i ≤ N-1(Note 3) | Sidelink transmissions for |  | PSFCH |
| Timing offset (Note 1) | μs | 0 |
| Frequency offset (Note 2) | Hz | 0 |
| Synchronization source |  | GNSS or GNSS-equivalent |
| Propagation Channel |  | Static propagation condition  No external noise sources are applied |
| Antenna configuration |  | 1x2 Low |
| Member ID(Note 4) |  | i |
| PSFCH resource allocation(Note 5) |  | N UEs transmit PSFCHs one by one on each RB with CS pair index 0. i.e. UE 0 transmits PSFCH on RB 0, UE 1 transmits PSFCH on RB 1,…, UE (N-1) transmits PSFCH on RB N-1 |
| PSFCH periodicity | Slots | 1 |
| Note 1: Time offset of received signal by Sidelink UE with respect to GNSS reference timing.  Note 2: Frequency offset of Sidelink UE with respect to GNSS reference frequency.  Note 3: N equals to the number of PSFCH(s) resources that UE can receive in a slot as specified in Clause 4.2.16.1.6 of TS 38.306[14]( IE *psfch-RxNumber*)) .  Note 4: Member ID is an identifier uniquely identifying a member  Note 5: All PSFCHs in a slot are corresponding to one PSSCH that occupies all sub channels. | | | |

**Table 11.1.9.1.1-2: Minimum requirement**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test  Number | Bandwidth (MHz) / Subcarrier spacing(kHz) | Propagation Channel | Reference value | |
| Probability of success detection slot with ACK only | Probability of success detection slot with NACK or DTX |
| 1 | 40 / 30 | Static propagation condition without external noise | 99 | 99 |
| Note 1: The probability of success detection slot with ACK only is the probability that the corresponding PSSCH is not retransmitted when Option a is selected.  Note 2: The probability of success detection slot with NACK or DTX is the probability that the corresponding PSSCH is retransmitted when Option b or option c is selected. | | | | |

**----- << End of Change 1>> -----**

**----- << Start of Change 2>> -----**