**3GPP TSG-RAN WG4 Meeting #98-e *R4-*** ***2103816***

**E-meeting, 25th January – 5th February 2021**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.101-4** | **CR** | **-** | **rev** | **-** | **Current version:** | **16.3.0** |  |
|  | | | | | | | | |
| *For* [***HELP***](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 on NR V2X Single Link PSCCH requirements | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Intel Corporation | | | | | | | | | |
| ***Source to TSG:*** | RAN4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_V2X\_NRSL-Perf | | | | |  | ***Date:*** | | | 2021-01-15 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | Definition of NR V2X Single Link PSCCH requirements | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | * Added NR V2X Single Link PSCCH requirements * Added PSCCH RMC | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | NR V2X Single Link PSCCH requirements are not defined | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 11.1.3 (new section), Annex A.6.3 (new section) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.521-4 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**START OF CHANGE**

11.1.3 PSCCH demodulation requirements

#### 11.1.3.1 2Rx requirements

##### 11.1.3.1.1 Minimum requirements

The purpose of the requirements in this subclause is to verify the PSCCH for V2X demodulation performance with a single active PSSCH link.

The minimum requirements are specified in Table 11.1.3.1.1-2 with the test parameters specified in Table 11.1.3.1.1-1. In this test scenario, GNSS or GNSS-equivalent synchronization source is used and Sidelink UE 1 transmits PSCCH and PSSCH.

Table 11.1.3.1.1-1: Test Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | | Unit | Test 1 |
| Communication resource pool configuration | |  | TBA |
| Active cell(s) | |  | None |
| Sidelink UE 1 | Sidelink Transmissions |  | PSCCH+PSSCH |
| Timing offset (Note 1) |  | CP/2-12\*64\*Tc |
| Frequency offset (Note 2) | Hz | +600 |
| Synchronization |  | GNSS or GNSS-equivalent |
| Antenna configuration |  | 1x2 Low |
| PSSCH RMC |  | TBA |
| NOTE 1: Time offset of Sidelink UE receive signal with respect to GNSS reference timing.  NOTE 2: Frequency offset of Sidelink UE with respect to GNSS reference frequency.  NOTE 3: OCC index i for PSCCH DMRS is randomly selected from {0, 1, 2} for each PSCCH transmission. | | | |

Table 11.1.3.1.1-2: Minimum performance

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test number | PSCCH Reference channel | Bandwidth (MHz) / Subcarrier spacing (kHz) | Propagation condition | Reference value | |
| Probability of missed PSCCH (%) | SNR (dB) of PSCCH |
| 1 | R.PSCCH.2-1.1 | 20 / 30 | TDLA30-1400 | 1 | TBA |

A.6 SL reference measurement channels

## A.6.3 Reference measurement channels for PSCCH performance requirements

A.6.3.1 Reference measurement channels for SCS 15 kHz FR1

A.6.3.2 Reference measurement channels for SCS 30 kHz FR1

Table A.6.1.2-1: Fixed reference measurement channel for PSCCH performance requirement

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Value |
| Reference channel |  | R.PSCCH.2-1.1 |
| Allocated resource blocks |  | 10 |
| OFDM Symbols per slot (Note 2) |  | 2 |
| Modulation |  | QPSK |
| Payload (without CRC) | Bits | 26 |
| CRC | Bits | 24 |
| SCI Format |  | 1-A |
| Binary Channel Bits | Bits | 180 |
| NOTE 1: The first OFDM symbol of a PSSCH and its associated PSCCH is duplicated as described in clauses 8.3.1.5 and 8.3.2.3 of TS 38.211. This symbol is used for AGC and not used for demodulation.  NOTE 2: First OFDM symbol is not included. | | |

**END OF CHANGE**