**3GPP TSG-RAN WG4 Meeting # 99-e R4-21xxxxx**

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.101-4** | **CR** | **-** | **rev** | **-** | **Current version:** | **16.4.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Draft CR for 38.101-4: Introduce PSBCH performance requirements for NR V2X | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | CATT, GOHIGH | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The SNR value for PSBCH performance requirements is not stable.  The note for the last symbol of PSBCH is not correct. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Remove the square bracket for SNR value for PSBCH requirements  Change the note for PSBCH FRC to indicate the last symbol of PSBCH slot is gap and shall not be used for PSBCH transmission. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The PSBCH performance requirement would not be stable.  Confusion on the last symbol of PSBCH slot. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 11.1.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.521-4 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

## *<Start of Change 1>*

## 11.1.4 PSBCH demodulation requirements

#### 11.1.4.1 2Rx requirements

##### 11.1.4.1.1 Minimum requirements

The purpose of the requirements in this subclause is to verify the PSBCH demodulation performance with a single active link.

The minimum requirements are specified in Table 11.1.4.1.1-2 with the test parameters specified in Table 11.1.4.1.1-1. The Sidelink UE 1 is synchronized to SLSS as synchronization reference.

Table 11.1.4.1.1-1: Test Parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | | Unit | Test 1 |
| Active cell(s) | |  | None |
| Sidelink UE 1 | Sidelink Transmissions |  | SLSS+PSBCH (Note 3) |
| slssid |  | 0 |
| Time offset (Note 1) | μs | 0 |
| Frequency offset (Note 2) | Hz | 0 |
| Synchronization source |  | SLSS |
| Antenna configuration |  | 1x2 Low |
| Note 1: Time offset of Sidelink UE receive signal with respect to GNSS reference timing.  Note 2: Frequency offset of Sidelink UE received signal with respect to GNSS reference frequency.  Note 3: PSBCH transmits together with corresponding SLSS in the same slot. | | | |

Table 11.1.4.1.1-2: Minimum performance

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test number | Bandwidth (MHz) / Subcarrier spacing (kHz) | PSBCH Reference channel | Propagation condition | Reference value | |
| Probability of missed PSBCH (%) | SNR (dB) |
| 1 | 20 / 30 | R.PSBCH.2-1 | TDLA30-180 | 1 | -0.4 |

## *<End of Change 1>*

## *<Start of Change 2>*

## A.6.4 Reference measurement for PSBCH performance requirements

A.6.4.1 Reference measurement channels for SCS 15 kHz FR1

A.6.4.2 Reference measurement channels for SCS 30 kHz FR1

Table A.6.4.2-1: PSBCH Reference Channel

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Value |
| Reference channel |  | R.PSBCH.2-1 |
| Channel bandwidth | MHz | 20 |
| Allocated resource blocks |  | 11 |
| CP-OFDM Symbols per slot (see Note 1) |  | 8 |
| Modulation |  | QPSK |
| Transport Block Size (without CRC) | Bits | 32 |
| Transport block CRC | Bits | 24 |
| Binary Channel Bits | Bits | 1782 |
| Note 1: PSBCH transmissions are rate-matched for 9 CP-OFDM symbols per slot. The first symbol is used for AGC and the last symbol is gap and shall not be used for PSBCH transmission as per TS 38.211. | | |

## *<End of Change 2>*