**3GPP TSG-RAN WG4 Meeting #95-e *R4-2008594***

**Online, 25th May – 05th June, 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **0805** | **rev** | **1** | **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:*** | DraftCR on PSBCH-RSRP accuracy requirements for NR V2X | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_V2X\_NRSL-Core | | | | |  | ***Date:*** | | | 2020-05-15 |
|  |  | | | |  | |  | | |  |
| ***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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Based on the endorsed draftCR [R4-2005317], the PSBCH-RSRP accuracy requirements are introduced for NR V2X. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. To define PSBCH-RSRP accuracy requirements | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The PSBCH-RSRP accuracy requirements will be missing for NR V2X. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 10.4, 10.4.1, 10.4.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS38.533 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

<Start of Change 1>

## 10.4 V2X measurements

### 10.4.1 Introduction

The requirements in this section are applicable for a UE capable of V2X sidelink communication.

The accuracy requirements in this clause are:

- applicable for AWGN radio propagation conditions,

- assume independent interference (noise) at each receiver antenna port.

### 10.4.2 Intra-frequency PSBCH-RSRP accuracy requirements for FR1

#### 10.4.2.1 PSBCH-RSRP Absolute Accuracy

The requirements for absolute accuracy of PSBCH-RSRP in this clause apply to a V2X synchronization source on the same frequency as that of the own V2X UE performing the measurement in FR1.

The accuracy requirements in Table 10.4.2.1-1 are valid under the following conditions:

- Demodulation reference signals are transmitted from one port.

- Conditions defined in 38.101-1 Clause x.x for reference sensitivity are fulfilled.

- Conditions for PSBCH-RSRP measurements are fulfilled according to Annex B.4.2 for a corresponding Band for each relevant PSBCH-DMRS.

**Table 10.4.2.1-1: Intra-frequency PSBCH-RSRP absolute accuracy in FR1**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Accuracy** | | **Conditions** | | | | | | |
| **Normal condition** | **Extreme condition** | **Ês/Iot Note 3** | **Io Note 1 range** | | | | | |
| **NR operating band groups Note 2** | **Minimum Io** | | | | **Maximum Io** |
| **dB** | **dB** | **dB** |  | **dBm / SCSSL** | | | **dBm/BWChannel** | **dBm/BWChannel** |
| **SCSSL = 15 kHz** | **SCSSL = 30 kHz** | **SCSSL = 60 kHz** |
| ±4.5 | ±9 | ≥-6 | [NR\_TDD\_FR1\_A] | [-121] | [-118] | [-115] | N/A | -70 |
| [NR\_TDD\_FR1\_I] | [-117] | [-114] | [-111] | N/A | -70 |
| ±8 | ±11 | ≥-6 | [NR\_TDD\_FR1\_A,  NR\_TDD\_FR1\_I] | N/A | N/A | N/A | -70 | -50 |
| NOTE 1: Io is assumed to have constant EPRE across the bandwidth.  NOTE 2: NR V2X operating band groups in FR1 are as defined in clause 3.5.2.  NOTE 3: Ês/Iot for a SyncRef UE is the Ês/Iot of PSBCH-DMRS. | | | | | | | | |

#### 10.4.2.2 PSBCH-RSRP Relative Accuracy

The relative accuracy of PSBCH-RSRP is defined as the PSBCH-RSRP measured from one V2X synchronization source compared to the PSBCH-RSRP measured from another V2X synchronization source on the same frequency in FR1.

The accuracy requirements in Table 10.4.2.2-1 are valid under the following conditions:

- Demodulation reference signals are transmitted from one port.

- Conditions defined in 38.101-1 Clause x.x for reference sensitivity are fulfilled.

- Conditions for PSBCH-RSRP accuracy measurements are fulfilled according to Annex B.4.2 for a corresponding Band for each relevant PSBCH-DMRS.

**Table 10.4.2.2-1: Intra-frequency PSBCH-RSRP relative accuracy in FR1**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Accuracy** | | **Conditions** | | | | | | |
| **Normal condition** | **Extreme condition** | **Ês/Iot Note 3** | **Io Note 1 range** | | | | | |
| **NR operating band groups Note 2** | **Minimum Io** | | | | **Maximum Io** |
| **dB** | **dB** | **dB** |  | **dBm / SCSSL** | | | **dBm/BWChannel** | **dBm/BWChannel** |
| **SCSSL = 15 kHz** | **SCSSL = 30 kHz** | **SCSSL = 60 kHz** |
| ±2 | ±3 | ≥-3 | [NR\_TDD\_FR1\_A] | [-121] | [-118] | [-115] | N/A | -50 |
| [NR\_TDD\_FR1\_I] | [-117] | [-114] | [-111] | N/A | -50 |
| ±3 | ±3 | ≥-6 | Note 4 | Note 4 | Note 4 | Note 4 | N/A | Note 4 |
| NOTE 1: Io is assumed to have constant EPRE across the bandwidth.  NOTE 2: NR V2X operating band groups in FR1 are as defined in clause 3.5.2.  NOTE 3: Ês/Iot for a SyncRef UE is the Ês/Iot of PSBCH-DMRS.  NOTE 4: The same bands and the same Io conditions for each band apply for this requirement as for the corresponding highest accuracy requirement. | | | | | | | | |

<End of Change 1>