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

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

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.101-4** | **CR** | **DraftCR** | **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)*.* | | | | | | | | |
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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 PSFCH demodulation requirements | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | MediaTek Inc. | | | | | | | | | |
| ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The V2X PSFCH demodulation requirements are missing | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Change contets in comparison to endoresed big CR R4-2106161   * Modify the timing offset unit * Add the notes for timing offset and Frequency offset * Updated and remove [ ] for SNR requirement | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The specification is incomplete. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 11.x, A.7 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 >>

11.1.5 PSFCH demodulation requirements

#### 11.1.5.1 2Rx requirements

##### 11.1.5.1.1 Minimum requirements

11.1.5.1.1.1 NACK missed detection requirements

The NACK missed detection probability is the probability of not detecting an NACK when an NACK was sent. The test parameters are configured in table 11.1.5.1.1.1-1.

Table 11.1.5.1.1.1-1: Test Parameters

|  |  |  |
| --- | --- | --- |
| Parameter | unit | Test 1 |
| Allocated resource blocks | RB | 1 |
| The number of PSFCH symbols (Note 1) | symbol | 2 |
| Number of information bits | bit | 1 |
| Synchronization source |  | GNSS |
| Timing offset (Note 2) | us | CP/2-12\*64\*Tc |
| Frequency offset (Note 3) | Hz | 600 |
| PSFCH resource period | Slots | 1 |
| Antenna configuration |  | 1x2 Low |
| Note 1: First symbol is included. First symbol is used for AGC and not used for demodulation  Note 2: Time offset of sidelink UE receive signal with respect to GNSS referring timing.  Note 3: Frequency offset of sidelink UE receive signal with respect to GNSS reference frequency. | | |

The NACK missed detection probability shall not exceed 1% at the SNR given in table 11.1.5.1.1.1-2.

Table 11.1.5.1.1.1-2: Minimum requirements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test num.** | **Bandwidth (MHz) / Subcarrier spacing (kHz)** | **Propagation condition** | **Reference value** | |
| **NACK missed detection probability (%)** | **SNR (dB)** |
| 1 | 20 / 30 | TDLA30-180 | 1 | 9.5 |

11.1.5.1.1.2 DTX to NACK requirements

The DTX to NACK probability, i.e. the probability that NACK is detected when nothing was sent:

where:

- #(false NACK bits) denotes the number of detected NACK bits.

- #(NACK bits) denotes the number of encoded bits per slot

- #(PSFCH DTX) denotes the number of DTX occasions

The test parameters are configured in table 11.5.1.1.1-1.

The DTX to NACK probability shall not exceed 1%.

<< End of Change >>