**3GPP TSG-RAN WG4 Meeting #98-e**R4-2103817

**Electronic Meeting, 25 Jan. – 5 Feb., 2021**

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| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **38.101-4** | **CR** | **DraftCR** | **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 |  |

|  |
| --- |
|  |
| ***Title:***  | CR on NR V2X PSFCH demodulation requirements |
|  |  |
| ***Source to WG:*** | MediaTek Inc. |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | 5G\_V2X\_NRSL-Perf |  | ***Date:*** | 2021-1-14 |
|  |  |  |  |  |
| ***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 canbe 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:*** | Add the new requirements for PSFCH demodulation |
|  |  |
| ***Consequences if not approved:*** | The specification is incomplete. |
|  |  |
| ***Clauses affected:*** | 11.x |
|  |  |
|  | **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

#### 11.5.1.1.1 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 11.5.1.1.1-1.

Table 11.5.1.1.1-1: Test Parameters

|  |  |  |
| --- | --- | --- |
| Parameter | unit | Test 1 |
| Communication resource pool configuration |  | [As specified in Table A.7-2(Configuration #2-V2X)] |
| 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 | Ts | CP/2-12\*64\*Tc |
| Frequency offset | Hz | 600 |
| Antenna configuration |  | 1x2 Low |
| Note 1: First symbol is included. First symbol is used for AGC and not used for demodulation |

The NACK missed detection probability shall not exceed 1% at the SNR given in table 11.5.1.1.1-2.

Table 11.5.1.1.1-2: Minimum requirements

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

#### 11.5.1.1.2 DTX to NACK requirements

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

 $Prob\left(PSFCH DTX\rightarrow NACK bits\right)= \frac{\#(false NACK bits)}{\#\left(PSFCH DTX\right)\*\#(NACK bits)}$

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%.

# A.7 SL reference resource pool configurations

Table A.7-2 V2X sidelink communication resource pool for PSFCH tests (Configuration #2-V2X)

|  |  |
| --- | --- |
| **Information Element** | **value** |
| SL-ResourcePool-r16 | sl-PSFCH-Config-r16 | sl-PSFCH-Period-r16 | Sl1 |
|  |  | sl-PSFCH-RB-Set-r16 | [10] |
|  |  | sl-NumMuxCS-Pair-r16 | n1 |
|  |  | sl-MinTimeGapPSFCH-r16 | [sl2] |
|  |  | sl-PSFCH-HopID-r16 | 0 |
|  |  | sl-PSFCH-CandidateResourceType-r16 | startSubCH |

<< End of Change >>