**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 |  |

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| --- |
|  |
| ***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.X PSFCH demodulation requirements

11.X.1 NACK missed detection requirements

11.X.1.1 General

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.X.1.1-1.

Table 11.X.1.1-1: Test Parameters

|  |  |  |
| --- | --- | --- |
| Parameter | unit | Test 1 |
| Communication resource pool configuration |  | [As specified in Table A.X-X(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 |
| Note 1: First symbol is included. First symbol is used for AGC and not used for demodulation |

11.X.1.2 Minimum requirements

The NACK missed detection probability shall not exceed 1% at the SNR given in table 11.X.1.2.1.

Table 11.X.1.2-1: 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.X.2 DTX to NACK requirements

11.X.2.1 General

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

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

where:

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

- #(ACK/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.X.1.1-1.

# A.y V2X reference resource pool configurations

Table A.y-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 >>