**3GPP TSG-RAN WG4 Meeting #97-e *R4-2017554***

**Electronic Meeting, 2 - 13 Nov, 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.104** | **CR** | **0250** | **rev** | **1** | **Current version:** | **16.5.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network | **x** | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | CR for 38.104: Introduction of performance requirements for NR HST PRACH under fading channel | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_HST\_Perf | | | | |  | ***Date:*** | | | 2020-11-11 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | 1. RAN4 agree to introduce PRACH requirements of fading channel and the aligned requirements need to be added into the specfication 2. Some of the RX number of antennas erroneously be bold | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. Introduce the PRACH requirements of fading channel 2. Fix bold RX number of antennas | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | PRACH requirements of fading channel are missing | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.4.2.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **x** |  | Test specifications | | | | TS 38.141-1, 38.141-2 | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Revised from R4-2015664 | | | | | | | | |

**<Start of First change>**

#### 8.4.2.3 Minimum requirements for high speed train

The probability of detection shall be equal to or exceed 99% for the SNR levels listed in Tables 8.4.2.3-1 to 8.4.2.3-4

Table 8.4.2.3-1: PRACH missed detection requirements for high speed train, burst format 0, restricted set type A, 1.25 kHz SCS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Number of TX | Number of RX | Propagation conditions and | Frequency offset | SNR (dB) |
| antennas | antennas | correlation matrix (Annex G) |  | Burst format 0 |
| 1 | 2 | AWGN | 625 Hz | -12.0 |
|  |  | AWGN | 1340 Hz | -13.8 |
|  |  | TDLC300-100 Low | 0 Hz | [-6.4] |
|  | 4 | AWGN | 625 Hz | -14.5 |
|  |  | AWGN | 1340 Hz | -16.2 |
|  |  | TDLC300-100 Low | 0 Hz | [-11.9] |
|  | 8 | AWGN | 625 Hz | -16.5 |
|  |  | AWGN | 1340 Hz | -18.4 |
|  |  | TDLC300-100 Low | 0 Hz | [-16.4] |

Table 8.4.2.3-2: PRACH missed detection requirements for high speed train, burst format 0, restricted set type B, 1.25 kHz SCS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Number of TX | Number of RX | Propagation conditions and | Frequency offset | SNR (dB) |
| antennas | antennas | correlation matrix (Annex G) |  | Burst format 0 |
| 1 | 2 | AWGN | 625 Hz | -11.6 |
|  |  | AWGN | 2334 Hz | -13.1 |
|  |  | TDLC300-100 Low | 0 Hz | [-6.1] |
|  | 4 | AWGN | 625 Hz | -14.0 |
|  |  | AWGN | 2334 Hz | -15.4 |
|  |  | TDLC300-100 Low | 0 Hz | [-11.8] |
|  | 8 | AWGN | 625 Hz | -16.3 |
|  |  | AWGN | 2334 Hz | -17.4 |
|  |  | TDLC300-100 Low | 0 Hz | [-16.2] |

Table 8.4.2.3-3: PRACH missed detection requirements for high speed train, 15 kHz SCS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Number of | Number of | Propagation | Frequency | SNR (dB) | | |
| TX antennas | RX antennas | conditions and correlation matrix (Annex G) | offset | Burst format A2 | Burst format B4 | Burst format C2 |
| **1** | 2 | AWGN | 1740 Hz | -11.3 | -14.3 | -11.1 |
|  | 4 | AWGN | 1740 Hz | -13.5 | -16.7 | -13.4 |
|  | 8 | AWGN | 1740 Hz | -15.6 | -18.2 | -15.5 |

Table 8.4.2.3-4: PRACH missed detection requirements for high speed train, 30 kHz SCS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Number of | Number of | Propagation | Frequency | SNR (dB) | | |
| TX antennas | RX antennas | conditions and correlation matrix (Annex G) | offset | Burst format A2 | Burst format B4 | Burst format C2 |
| **1** | 2 | AWGN | 3334 Hz | -11.2 | -14.6 | -11.0 |
|  | 4 | AWGN | 3334 Hz | -13.4 | -16.7 | -13.4 |
|  | 8 | AWGN | 3334 Hz | -15.4 | -18.4 | -15.4 |

**<end of First change>**