**3GPP TSG-RAN WG4 Meeting #95-e R4-2007213**

**Electronic Meeting, 25 May – 5 June , 2020**

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| *CR-Form-v11.4* |
| **CHANGE REQUEST** |
|  |
|  | **36.104** | **CR** | **4897** | **rev** | **1** | **Current version:** | **15.8.0** |  |
|  |
| *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: Updates to FeNB-IoT NPRACH TDD performance requirements in TS 36.104 (Rel-15) |
|  |  |
| ***Source to WG:*** | Huawei, HiSilicon |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | NB\_IOTenh2 |  | ***Date:*** | 2020-05-27 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-15 |
|  | *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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | The FeNB-IOT NPRACH TDD performance requirements are wrong.-The NPRACH missed detection requirements for TDD in Table 8.5.3.2.1-2 are wrong. |
|  |  |
| ***Summary of change:*** | According to the simulation results of each company,we update the probability of detection for FeNB-IOT NPRACH TDD shall be equal to or exceed 99% for the SNR levels listed in Table 8.5.3.2.1-2.-Add the STD from ideal results to companies’ averaged values with impairments as the final FeNB-IoT NPRACH TDD format0 and format1 performance requirements. |
|  |  |
| ***Consequences if not approved:*** | We can not verify the performance of FeNB-IOT NPRACH TDD correctly. |
|  |  |
| ***Clauses affected:*** | Clause 8.5.3.2.1 |
|  |  |
|  | **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:*** |  |

*<Start of change>*

##### 8.5.3.2.1 Minimum requirements

The probability of detection shall be equal to or exceed 99% for the SNR levels listed in table 8.5.3.2.1-1.

Table 8.5.3.2.1-1: NPRACH missed detection requirements for FDD

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Number of TX antennas | Number of RX antennas | Repetition number | Propagation conditions and correlation matrix (Annex B) | Frequency offset | SNR[dB] |
| Preamble format 0 | Preamble format 1 | Preamble format 2 |
| 1 | 2 | 8 | AWGN | 0 | -2.1 | -2.1 | -1.0 |
| EPA1 Low | 200 Hz | 6.1 | 6.1 | 9.0 |
| 32 | AWGN | 0 | -6.8 | -6.8 | -5.1 |
| EPA1 Low | 200 Hz | 0.5 | 0.5 | 2.2 |

Table 8.5.3.2.1-2: NPRACH missed detection requirements for TDD

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Number of TX antennas | Number of RX antennas | Repetition number | Propagation conditions and correlation matrix (Annex B) | Frequency offset | SNR[dB] |
| Preamble format 0 | Preamble format 1 | Preamble format 0-a | Preamble format 1-a |
| 1 | 2 | 8 | AWGN | 0 |  5.6 | 2.5 | 4.0 | 1.0 |
| EPA1 Low | 200 Hz | 14.7 | 10.1 | 13.7 | 9.0 |
| 32 | AWGN | 0 | 0.9 | -2.2 | -0.7 | -3.6 |
| EPA1 Low | 200 Hz | 9.8 | 4.3 | 10.0 | 2.5 |

*<End of change>*