**3GPP TSG-RAN WG4 Meeting # 107 R4-23XXXXX**

**Incheon, KR, May 22nd – May 26th , 2023**

**Agenda item:** 9.7.8

**Source:** Moderator (MediaTek)

**Title:** Topic summary for [107][329] IoT\_NTN\_Demod\_Part1

**Document for:** Information

# Introduction

This summary covers the contributions submitted under the agenda 9.7.7 and 9.7.7.1 for IoT-NTN UE demodulation requirements.

Previous WFs for information:

* R4-2220278, WF on IoT-NTN UE demodulation and CQI reporting requirements, MediaTek
* R4-2302932, WF on IoT-NTN UE demodulation and CQI reporting requirements, MediaTek
* R4-2305960 WF on IoT-NTN UE demodulation requirements, MediaTek

# Topic #1: Demodulation requirements for IoT-NTN

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2307055 | Lockheed Martin | Simulation results |
| R4-2307436 | Qualcomm Incorporated | Simulation results |
| R4-2308424 | Ericsson | Proposal: Confirm the NPDCCH repetition level for NPDSCH test 2 is set to 128. |
| R4-2308894 | Huawei, HiSilicon | Observation 1: NPDCCH performance with repetition factor 128 is not low enough.  Proposal 1: Select NPDCCH repetition factor 256 for NPDSCH test 2. |
| R4-2308896 | Huawei, HiSilicon | Simulation results |

## Open issues summary

**Issue 1: NPDCCH repetition factor in NPDSCH test 2**

* Proposals
  + Option 1 (Ericsson): 128
  + Option 2 (Huawei): 256
* Recommended WF
  + TBD

**Moderator:** In NB-IoT PDSCH requirements, the noise levels apply to NPDSCH and NPDCCH are different. According to the Note 1 and Note 2 in Table 8.3.1.1.1.1-1 (R4-2305961), the SNR for NPDCCH is 6dB higher than the SNR for NPDSCH.

**Table 8.3.1.1.1.1-1: Test Parameters for NPDSCH under Standalone**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Unit** | | **Test 1, 2** |
| at antenna port |  | dBm/15kHz | -93 (Note 1) |
|  | dBm/15kHz | -99 (Note 2) |
| NPDCCH repetition number | | subframe | 32 for Test 1; 128 for Test 2. |
| (*npdcch-NumRepetitions-r13*) | | subframe | 64 for Test 1; 256 for Test 2. |
| (*nPDCCH-startSF-USS-r13*) | |  | 1.5 |
| Note 1: This noise is applied to all subframes from the end of the NPDCCH to the end of the following NPDSCH transmission.  Note 2: This noise is applied to all subframes from the end of the NPDSCH to the end of the following NPDCCH transmission. | | | |

**Issue 2: Simulation results update**

* The simulation results are captured in the following link. Companies are encouraged to fill in or update the results.

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_107/Inbox/Drafts/%5B107%5D%5B329%5D%20IoT_NTN_Demod_Part1/simulation%20results/draft%20R4-23xxxxx%20Summary%20of%20simulation%20results%20for%20IoT-NTN%20UE%20demodulation%20requirements.xlsx>

# Topic #2: CRs

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2307116 | MediaTek | Draft CR on IoT-NTN demodulation performance requirements |
| R4-2308895 | Huawei, HiSilicon | Draft CR on IOT NTN demodulation performance requirements (TS36.102, Rel-18) |

## Open issues summary

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2307116 (MediaTek) | Title: Draft CR on IoT-NTN demodulation performance requirements |
|  |
|  |
|  |
| R4-2308895 (Huawei, HiSilicon) | Title: Draft CR on IOT NTN demodulation performance requirements (TS36.102, Rel-18) |
| **Moderator:** The draft CR R4-2305176 is the same as the draft CR R4-2305964 agreed in RAN4#106-bis-e. The agreed draft CR R4-2305964 has been merged into the Big CR R4-2305961 endorsed in RAN4#106-bis-e. Therefore, we do not need to discuss this draft CR. |
|  |
|  |