**3GPP TSG-RAN WG4 Meeting #100-e R4-2114895**

**Electronic Meeting, 17-28 August 2021**

**Title: [Draft] LS on NB-IoT testing issues**

**Reply To:**

**Release:** Rel-14

**Work Item:** TEI-14

**Source:** RAN WG4

**To:** RAN WG5, PTCRB, CTIA CPWG

**Cc:**

**Contact Person:**

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**Attachments:**

**1. Background information:**

In August of 2020 RAN4 sent an LS to the FCC asking for guidance on NB-IoT testing issues near the edges of bands [1]. RAN4 received indirect feedback from the FCC on NB-IoT testing in [2]. RAN4 subsequently agreed CRs to solve the NB-IoT testing issue in Rel-14 [3], Rel-15 [4], Rel-16 [15] and Rel-17 [16]. The changes are summarized in the following table for NB-IoT operation in the USA, and especially that the lowest 100 kHz of Band 12 and Band 13 are not excluded for NB-IoT operation in the USA:

**Table 5.5F-1 E-UTRA operating bands for NB-IoT in the USA**

|  |  |  |  |
| --- | --- | --- | --- |
| **E‑UTRA Operating Band** | **Uplink (UL) operating bandBS receiveUE transmit** | **Downlink (DL) operating bandBS transmit UE receive** | **Duplex Mode** |
| **FUL\_low – FUL\_high** | **FDL\_low – FDL\_high** |
| 2 | 1850.1 MHz | – | 1909.9 MHz | 1930.1 MHz | – | 1989.9 MHz | FDD |
| 4 | 1710.1 MHz | – | 1754.9 MHz  | 2110.1 MHz | – | 2154.9 MHz | FDD |
| 5 | 824.1 MHz | – | 848.9 MHz | 869.1 MHz | – | 893.9MHz | FDD |
| 12 | 699 MHz | – | 715.9 MHz | 729 MHz | – | 745.9 MHz | FDD |
| 13 | 777 MHz | – | 786.9 MHz | 746 MHz | – | 755.9 MHz | FDD |
| 17 | 704.1 MHz | – | 715.9 MHz | 734.1 MHz | – | 745.9 MHz | FDD |
| 25 | 1850.1 MHz | – | 1914.9 MHz | 1930.1 MHz | – | 1994.9 MHz | FDD |
| 26 | 814.1 MHz | – | 848.9 MHz | 859.1 MHz | – | 893.9 MHz | FDD |
| 66 | 1710.1 MHz | – | 1779.9 MHz  | 2110.1 MHz | – | 2199.0 MHz | FDD4 |
| 71 | 663.1 MHz | – | 697.9 MHz  | 617.1 MHz | – | 651.9 MHz | FDD |
| 85 | 698.1 MHz | – | 715.9 MHz | 728.1 MHz | – | 745.9 MHz | FDD |

Please note that 2199.0 MHz for B66 is an error. It should be 2179.9 MHz. This is being corrected.

In 36.101 the NB-IoT restriction for operation in the USA is tied to NS\_04 signalling, but our understanding is that FCC certification does not use NS signalling. Therefore NB-IoT UEs shall not operate in the 100 kHz at the edge of the band when operating in the USA or/and tested for FCC compliance even when NS\_04 is not signalled.

1. **Summary**

TS 36.101 has been updated to exclude 100 kHz at the edge of NB-IoT bands for operation in the USA, except for the lower edge of Band 12 and Band 13 which are not excluded.

1. **Actions:**

**To** **RAN5, PTCRB and CTIA CPWG,**

**ACTION:** RAN4 kindly asks RAN5, PTCRB and CPWG to take the above into consideration for NB-IoT testing.

1. **References:**
2. [R4-2011913](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2011913.zip), “LS on NB-IoT testing issues,” RAN4
3. [R4-2107330](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_98bis_e/Docs/R4-2107330.zip), “NB-IoT Testing,” T-Mobile USA, Qualcomm
4. [R4-2108012](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108012.zip), “CR for 36.101: Introduction of NS Signalling for NB-IoT in the USA,” T-Mobile USA, Qualcomm
5. [R4-2111484](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111484.zip), “Mirror CR for 36.101: Introduction of NS Signalling for NB-IoT in the USA,” T-Mobile USA, Qualcomm
6. [R4-2111485](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111485.zip), “Mirror CR for 36.101: Introduction of NS Signalling for NB-IoT in the USA,” T-Mobile USA, Qualcomm
7. [R4-2111486](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111486.zip), “Mirror CR for 36.101: Introduction of NS Signalling for NB-IoT in the USA,” T-Mobile USA, Qualcomm
8. **Date of Next TSG-RAN WG4 Meetings:**

TSG-RAN4 #101-e 1-12 November 2021 Online

TSG-RAN4 #102 21-25 February 2022 Athens, Greece?