**3GPP TSG- Meeting # *R5-255282***

**Bengaluru, India, 25th - 29th August, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.508** | **CR** | **1544** | **rev** | **1** | **Current version:** | **18.9.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network |  | Core Network |  |

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| ***Title:*** | IoT NTN - Test frequencies definition update for bands 254 and bands 255 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Keysight Technologies UK Ltd | | | | | | | | | |
| ***Source to TSG:*** | R5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI18\_Test, IoT\_NTN\_FDD\_LS\_band-UEConTest | | | | |  | ***Date:*** | | | 2025-08-12 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19) Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | According to latest core specs 36.102, operating bands 254 and 255 have certain restrictions to set the channel close to the band edge, some of them depending on the network signalling used. Those restrictions have been captured in 36.521-4. However, test frequencies definitions in 36.508 have not been updated accordingly. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Defined in section 8.1.3.1 the frequency restrictions applicable to band 254 and band 255.  Updated test frequencies definition accordingly in 8.1.3.1.1.254 and 8.1.3.1.1.255 for bands 254 and 255 respectively, creating specific tables per Networking Signalling when restrictions per Networking Signalling apply. | | | | | | | | |
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| ***Consequences if not approved:*** | | Test specification will remain inconsistent and good UEs may fail if tested with current test frequencies definition. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.1.3.1, 8.1.3.1.1.254, 8.1.3.1.1.255 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Revision 1:  -Corrected typos in cover page and in title of new Table 8.1.3.1.1.255-1a. | | | | | | | | |

## <<< START OF CHANGES >>>

#### 8.1.3.1 NB-IoT Test frequencies

NB-IoT is designed to operate in the E-UTRA operating bands 1, 2, 3, 4, 5, 7, 8, 11, 12, 13, 14, 17, 18, 19, 20, 21, 25, 26, 28, 31, 41, 42, 43, 65, 66, 70, 71, 72, 73, 74, 85, 87, 88, 103 and 106 which are defined in Table 5.5-1 in [21]. For satellite access (NTN), NB-IoT is designed to operate in the E-UTRA operating bands 253, 254, 255 and 256 which are defined in Table 5.2-1 in [74]. NB-IoT system operates in HD-FDD and TDD duplex mode or in TDD mode.

The test frequencies are based on the E-UTRA frequency bands defined in the core specifications.

The raster spacing is 100 kHz.

E-UTRA/FDD is designed to operate in paired bands of 3GPP TS 36.101 [27] and TS 36.102 [74]. The reference test frequencies for the RF and Signalling test environment for each of the operating bands are defined in sub clause 8.1.3.1.1.

E-UTRA/TDD is designed to operate in unpaired bands of 3GPP TS 36.101 [27]. The reference test frequencies for the RF and Signalling test environment for each of the operating bands are defined in sub clause 8.1.3.1.2.

USA & Canada emission requirements for specific operating bands are indicated by network signalling value NS\_04 on indicated bands in clause 8.1.3.1.1. The normative reference for this requirement is TS 36.101 [27] clause 5.5F.

For operation in Band 255, only channels positions which guarantee at least 190 kHz guard band from RF channel edge to the lower limit of the band shall be used.

For operation in Band 255 in USA and Canada when NS\_02N is signalled, only channels positions which guarantee at least 90 kHz guard band from RF channel edge to the lower and upper limit of the band shall be used.

For operation in Band 254 in USA and Canada when NS\_03N is signalled, only channels positions which guarantee at least 90 kHz guard band from RF channel edge to the lower and upper limit of the band shall be used.

## <<< Skip unchanged sections >>>

8.1.3.1.1.254 NB-IoT FDD reference test frequencies for operating band 254

Table 8.1.3.1.1.254-1: NB-IoT standalone Test frequencies for operating band 254

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test Frequency ID | NUL | MUL | Frequency of Uplink [MHz] | NDL | MDL | Frequency of Downlink [MHz] |
| Low Range | 261340 | 0 | 1610.1 | 228572 | 0 | 2483.6 |
| Mid Range | 261422 | 0 | 1618.3 | 228654 | 0 | 2491.8 |
| High Range | 261503 | 0 | 1626.4 | 228735 | 0 | 2499.9 |
| NOTE 1: Defined for NB-IoT UL subcarrier spacing 15 kHz. Also applicable for 3.75 kHz UL sub-carrier spacing | | | | | | |

Table 8.1.3.1.1.254-1a: NB-IoT standalone Test frequencies for operating band 254 with NS\_03N

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test Frequency ID | NUL | MUL | Frequency of Uplink [MHz] | NDL | MDL | Frequency of Downlink [MHz] |
| Low Range | 261341 | 0 | 1610.2 | 228573 | 0 | 2483.7 |
| Mid Range | 261422 | 0 | 1618.3 | 228654 | 0 | 2491.8 |
| High Range | 261502 | 0 | 1626.3 | 228734 | 0 | 2499.8 |
| NOTE 1: Defined for NB-IoT UL subcarrier spacing 15 kHz. Also applicable for 3.75 kHz UL sub-carrier spacing | | | | | | |

8.1.3.1.1.255 NB-IoT FDD reference test frequencies for operating band 255

Table 8.1.3.1.1.255-1: NB-IoT standalone Test frequencies for operating band 255

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test Frequency ID | NUL | MUL | Frequency of Uplink [MHz] | NDL | MDL | Frequency of Downlink [MHz] |
| Low Range | 261507 | 0 | 1626.8 | 228739 | 0 | 1525.3 |
| Mid Range | 261674 | 0 | 1643.5 | 228906 | 0 | 1542.0 |
| High Range | 261843 | 0 | 1660.4 | 229075 | 0 | 1558.9 |
| NOTE 1: Defined for NB-IoT UL subcarrier spacing 15 kHz. Also applicable for 3.75 kHz UL sub-carrier spacing | | | | | | |

Table 8.1.3.1.1.255-1a: NB-IoT standalone Test frequencies for operating band 255 with NS\_02N

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test Frequency ID | NUL | MUL | Frequency of Uplink [MHz] | NDL | MDL | Frequency of Downlink [MHz] |
| Low Range | 261506 | 0 | 1626.7 | 228738 | 0 | 1525.2 |
| Mid Range | 261674 | 0 | 1643.5 | 228906 | 0 | 1542.0 |
| High Range | 261842 | 0 | 1660.3 | 229074 | 0 | 1558.8 |
| NOTE 1: Defined for NB-IoT UL subcarrier spacing 15 kHz. Also applicable for 3.75 kHz UL sub-carrier spacing | | | | | | |

## <<< END OF CHANGES >>>