3GPP TSG-RAN WG4 #112 R4-2414271

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Maastricht, NL

**Agenda item:** 7.14.1

**Source:** Novamint

**Title:** Way Forward to Introduction of LTE FDD new band in 1800–1830 MHz for Canada

**Document for:** Approval

# Introduction

This t-doc provides WF for [112][113] Introduction of LTE FDD new band in 1800–1830 MHz for Canada.

# WF

## Sub-topic 2-4 UE RF requirements

Table 1: UE RF specification impact (TS36.101)

|  |  |
| --- | --- |
| **NR UE Tx/Rx requirement** | **Proposed way forward** |
| 6.2.2 UE maximum output power | 23 ±2 |
| 6.2.3 MPR | No specific requirement needed |
| 6.2.4 A-MPR | No specific requirement needed  Some level of coordination may be needed |
| 6.2.5 Configured transmitted power | No specification impact |
| 6.3.2 Minimum output power | No specification impact |
| 6.3.3 Transmit OFF power | No specification impact |
| 6.3.4 Transmit ON/OFF time mask | No specification impact |
| 6.3.5 Power control | No specification impact |
| 6.5.1 Frequency error | No specification impact |
| 6.5.2.1 EVM | No specification impact |
| 6.5.2.2 Carrier leakage | No specification impact |
| 6.5.2.3 In-band emissions | No specification impact |
| 6.5.2.4 EVM equalizer spectrum flatness | No specification impact |
| 6.6.1 Occupied bandwidth | No specification impact |
| 6.6.2.1 Spectrum emission mask | The 3GPP general specifications are more stringent than the Canadian regulation, therefore the general SEM defined in Table 6.6.2.1.1-1 are adopted  The approach is to go for the more stringent regulation and then the devices will be automatically compliant with the Canadian regulation |
| 6.6.2.2 Additional Spectrum emission mask | No additional SEM required  The 3GPP general specifications are more stringent than the Canadian regulation, therefore the general SEM defined in Table 6.6.2.1.1-1 are adopted |
| 6.6.2.3.1 E-UTRA ACLR | No specification impact |
| 6.6.2.3.2 UTRA ACLR | No specification impact |
| 6.6.3.1 General spurious emissions | No specification impact |
| 6.6.3.2 Spurious UEtoUE co-ex | Agree on the proposed modification to the table with bands in square brackets  Companies are encouraged to verify if bands needs to be added or can be removed |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 111 | E-UTRA Band [4], [5], [7], [12], [13], [14], [17], [24], [26], [27], [29], [30], [38], [41], [53], [54], [66], [70], [71], [85], [103], [106] | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band [2], [25] | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
| E-UTRA Band [48]  NR Band [n77] | FDL\_low | - | FDL\_high | -50 | 1 | 2 |

|  |  |
| --- | --- |
| 6.6.3.3 Additional spurious emissions | No new requirement  The approach is to go for the more stringent regulation and then the devices will be automatically compliant with the Canadian regulation |
| 6.6.4 Transmit intermodulation | No specification impact |
| 7.3.1 Reference sensitivity | Values to be defined at RAN4#112bis  Option 1: Agree on the proposed modification to the table  Option 2: adopt the values specified for band 31  Add the following general note in Table 5.5-1 (Operating Bands):   * Only large form factor UE are targeted for FDD LTE operation and FD-FDD Cat NB and Cat M operation. * Smaller form factor UEs may target HD-FDD cat NB and Cat M operation but may be restricted to channel bandwidths that do not create own band protection issue. |
| 7.4 Max input level | No specification impact |
| 7.5 Adjacent channel selectivity | No specification impact |
| 7.6.1 In-band blocking | New band needs to added into Table 7.6.1.1-2 |
| 7.6.2 Out of band blocking | New band needs to added into Table 7.6.2.1-2 |
| 7.6.3 Narrow band blocking | No specification impact |
| 7.7 Spurious response | No specification impact |
| 7.8 Intermodulation characteristics | No specification impact |

### TS36.101 parameters

#### Section 5.5 Operating bands

**Table 5.5-1 Operating bands**

Add a new row with band 111 and note 19

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 11119 | 1800 MHz | – | 1810 MHz | 1820 MHz | – | 1830 MHz | FDD |

NOTE 19: UEs operating in this band are subject to the following conditions:

* Only large form factor UEs are targeted for FDD LTE operation and FD-FDD Cat NB and Cat M operation.
* Smaller form factor UEs may target HD-FDD cat NB and Cat M operation but may be restricted to channel bandwidths that do not create own band protection issue.

**Section 5.5E Operating bands for UE category 0, UE category M1 and M2 and UE category 1bis**

add band 111 for cat 0, M1, M2 and 1bis with note 1

UE category 0 is designed to operate in the E-UTRA operating bands 2, 3, 4, 5, 8, 13, 20, 25, 26 and 28 and 1111 in both half duplex FDD mode and full-duplex FDD mode and in bands 39, 40 and 41 in TDD mode. The E-UTRA bands are defined in Table 5.5-1.

UE category M1 and M2 is designed to operate in the E-UTRA operating bands 1, 2, 3, 4, 5, 7, 8, 11, 12, 13, 14, 18, 19, 20, 21, 24, 25, 26, 27, 28, 31, 54, 66, 71, 72, 73, 74, 85, 87, 88, 106 and 1111 in both half duplex FDD mode and full-duplex FDD mode, and in bands 39, 40, 41, 42, 43 and 48 in TDD mode. The E-UTRA bands are defined in Table 5.5-1.

UE category 1bis is designed to operate in the E-UTRA operating bands 1, 2, 3, 4, 5, 7, 8, 12, 13, 18, 20, 26, 28, 31, 66, 72 and 1111 in full duplex FDD mode and in bands 34, 39, 40 and 41 in TDD mode. The E-UTRA bands are defined in Table 5.5-1

NOTE 1: UEs operating in this band are subject to the following conditions:

* Only large form factor UEs are targeted for FDD LTE operation and FD-FDD Cat NB and Cat M operation.
* Smaller form factor UEs may target HD-FDD cat NB and Cat M operation but may be restricted to channel bandwidths that do not create own band protection issue.

**Section 5.5F Operating bands for category NB1 and NB2**

add band 111 for cat NB1 and NB2

Category NB1 and NB2 are 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, 24, 25, 26, 28, 31, 41, 42, 43, 48, 54, 65, 66, 70, 71, 72, 73, 74, 85, 87, 88, 103, 106 and 111 which are defined in Table 5.5-1. Category NB1 and NB2 are designed to operate in the NR operating bands n1, n2, n3, n5, n7, n8, n12, n14, n18, n20, n24, n25, n26, n28, n31, n41, n54, n65, n66, n70, n71, n72, n74, n90.

#### Section 5.7.4 TX–RX frequency separation

**Table 5.7.4-1 Default UE TX-RX frequency separation**

Add band 111

|  |  |
| --- | --- |
| 111 | 20 MHz |

#### Section 6.2.2 UE maximum output power

**Table 6.2.2-1 UE Power Class**

Add band 111

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 111 |  |  |  |  | 23 | ±2 |  |  |

**Table 6.2.2E-1 UE Power Class**

Add band 111

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 111 |  |  | 23 | ±2 |  |  |  |  |

**Table 6.2.2F-1 UE Power Class**

Add band 111

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 111 | 23 | ±2 |  |  |  |  |

#### Section 6.6.3.2 Spurious emission band UE co-existence

**Table 6.6.3.2-1 Requirements**

Agree on the proposed modification to the table with bands in square brackets

Companies are encouraged to verify if bands needs to be added or can be removed

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 111 | E-UTRA Band [4], [5], [7], [12], [13], [14], [17], [24], [26], [27], [29], [30], [38], [41], [53], [54], [66], [70], [71], [85], [103], [106] | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band [2], [25] | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
| E-UTRA Band [48]  NR Band [n77] | FDL\_low | - | FDL\_high | -50 | 1 | 2 |

#### Section 7.3.1 Minimum requirements (QPSK)

**Table 7.3.1-1 Reference sensitivity QPSK PREFSENS**

Values to be defined at RAN4#112bis

Option 1: Agree on the proposed modification to the table

Option 2: adopt the values specified for band 31

**Table 7.3.1E-1A Reference sensitivity for FDD and TDD UE category 0 QPSK PREFSENS**

Values to be defined at RAN4#112bis

Option 1: Agree on the proposed modification to the table

Option 2: adopt the values specified for band 31

**Table 7.3.1E-1B Reference sensitivity for FDD and TDD UE category 0 QPSK PREFSENS**

Values to be defined at RAN4#112bis

Option 1: Agree on the proposed modification to the table

Option 2: adopt the values specified for band 31

**Table 7.3.1E-2 FDD and TDD UE category 0 Uplink configuration for reference sensitivity**

Add band 111

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 111 | -99.2 | -96.2 | -94.5 | -91.5 |  |  | FDD |

**Table 7.3.1E-3 Reference sensitivity for FDD and TDD UE category M1 QPSK PREFSENS**

Values to be defined at RAN4#112bis

Option 1: Agree on the proposed modification to the table

Option 2: adopt the values specified for band 31

Add the note

NOTE: UEs operating in this band are subject to the following conditions:

* Only large form factor UEs are targeted for FDD LTE operation and FD-FDD Cat NB and Cat M operation.
* Smaller form factor UEs may target HD-FDD cat NB and Cat M operation but may be restricted to channel bandwidths that do not create own band protection issue.

**Table 7.3.1E-4 Reference sensitivity for HD-FDD UE category M1 QPSK PREFSENS**

Values to be defined at RAN4#112bis

Option 1: Agree on the proposed modification to the table

Option 2: adopt the values specified for band 31

Add the note

NOTE: UEs operating in this band are subject to the following conditions:

* Only large form factor UEs are targeted for FDD LTE operation and FD-FDD Cat NB and Cat M operation.
* Smaller form factor UEs may target HD-FDD cat NB and Cat M operation but may be restricted to channel bandwidths that do not create own band protection issue.

**Table 7.3.1E-5 FDD and TDD UE category M1 Uplink configuration for reference sensitivity**

Add band 111

|  |  |  |
| --- | --- | --- |
| 111 | 61 | FDD and HD-FDD |

**Table 7.3.1E-6 Reference sensitivity for FDD and TDD UE category 1bis QPSK PREFSENS**

Values to be defined at RAN4#112bis

Option 1: Agree on the proposed modification to the table

Option 2: adopt the values specified for band 31

**Table 7.3.1E-7 FDD and TDD UE category 1bis Uplink configuration for reference sensitivity**

Add band 111

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 111 | 6 | 15 | 25 | 50 |  |  | FDD |

**Table 7.3.1E-8 Reference sensitivity for FDD /TDD UE category M2 QPSK PREFSENS**

Values to be defined at RAN4#112bis

Option 1: Agree on the proposed modification to the table

Option 2: adopt the values specified for band 31

Add the note

NOTE: UEs operating in this band are subject to the following conditions:

* Only large form factor UEs are targeted for FDD LTE operation and FD-FDD Cat NB and Cat M operation.
* Smaller form factor UEs may target HD-FDD cat NB and Cat M operation but may be restricted to channel bandwidths that do not create own band protection issue.

**Table 7.3.1E-9 Reference sensitivity for HD-FDD category M2 QPSK PREFSENS**

Values to be defined at RAN4#112bis

Option 1: Agree on the proposed modification to the table

Option 2: adopt the values specified for band 31

Add the note

NOTE: UEs operating in this band are subject to the following conditions:

* Only large form factor UEs are targeted for FDD LTE operation and FD-FDD Cat NB and Cat M operation.
* Smaller form factor UEs may target HD-FDD cat NB and Cat M operation but may be restricted to channel bandwidths that do not create own band protection issue.

**Table 7.3.1E-10 FDD/HD-FDD and TDD UE category M2 Uplink configuration for reference sensitivity**

Add band 111

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 111 | 6 | 15 | 24 | 24 |  |  | FDD/HD-FDD |

#### Section 7.6.1.1 In-band blocking Minimum requirements

**Table 7.6.1.1-2 In-band blocking**

Add band 111

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA band | Parameter | Unit | Case 1 | Case 2 | Case 3 | Case 4 | Case 5 | Case 6 |
| PInterferer | dBm | -56 | -44 | Void | Void | -38 | -15 |
| FInterferer (offset) | MHz | =-BW/2 – FIoffset,case 1  &  =+BW/2 + FIoffset,case 1 | ≤-BW/2 – FIoffset,case 2  &  ≥+BW/2 + FIoffset,case 2 | -BW/2 - 11 |  |
| 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 19, 20, 21, 22, 23,  25, 26, 27, 28, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 48, 50, 51, 52, 53, 54, 65, 66, 68, 70, 72, 73, 74, 85, 87, 88, 106, 111 | FInterferer | MHz | (NOTE 2) | FDL\_low – 15  to  FDL\_high + 15 |  |  |

#### Section 7.6.2.1 Out-of-band blocking Minimum requirements

**Table 7.6.2.1-2 Out of band blocking**

Add band 111

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| E-UTRA band | Parameter | Units | Frequency | | | |
| Range 1 | Range 2 | Range 3 | Range 4 |
| PInterferer | dBm | -44 | -30 | -15 | -15 |
| 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42 (NOTE 2), 43 (NOTE 2), 44, 45, 48 (NOTE 2), 50, 51, 52 (NOTE 6), 539, 54, 65, 66, 68, 70, 71, 72, 73, 74, 85, 87, 88, 106, 111 | FInterferer (CW) | MHz | FDL\_low -15 to  FDL\_low -60 | FDL\_low -60 to  FDL\_low -85 | FDL\_low -85 to  1 MHz | - |
| FDL\_high +15 to  FDL\_high + 60 | FDL\_high +60 to  FDL\_high +85 | FDL\_high +85 to  +12750 MHz | - |

### TS36.307 parameters

#### Annex A Frequency arrangement for overlapping operating bands

**Table A-1 Overlapping bands (multi-band environments) for each E-UTRA band**

Add band 111 overlapping with band 3

|  |  |  |
| --- | --- | --- |
| 111 | 3, 9 | FDD |

## Sub-topic 2-5 BS RF requirements UE

### TS36.104 parameters

#### Section 5.5 Operating bands

add band 111

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, 24, 25, 26, 28, 31, 41 (in certain regions), 42, 43, 48, 54, 65, 66, 70, 71, 72, 73, 74, 85, 87, 88, 103, 106, 111 which are defined in Table 5.5-1.

#### Section 6.6.3.1 Minimum requirements for Wide Area BS (Category A)

add band 111

For E-UTRA BS operating in Bands 1, 2, 3, 4, 7, 9, 10, 11, 21, 22, 23, 24, 25, 30, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 45, 48, 50, 52, 54, 65, 66, 69, 70, 74, 75, 111 emissions shall not exceed the maximum levels specified in Tables 6.6.3.1-4 to 6.6.3.1-6:

#### Section 6.6.3.2.1 Category B requirements (Option 1)

Since the band is for Canada, do not add this requirement

#### Section 6.6.4.3.1 Additional spurious emissions requirements

**Table 6.6.4.3.1-1 BS Spurious emissions limits for E-UTRA BS for co-existence with systems operating in other frequency bands**

Add band 111

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| UTRA FDD Band III or  E-UTRA Band 3 or NR Band n3 | 1805 - 1880 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 3, 9 or 111. |
| 1710 - 1785 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 3, since it is already covered by the requirement in clause 6.6.4.2.  For E-UTRA BS operating in band 9, it applies for 1710 MHz to 1749.9 MHz and 1784.9 MHz to 1785 MHz, while the rest is covered in clause 6.6.4.2. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| E-UTRA Band 111 | 1820 – 1830 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 3 or 111.  This requirement does not apply to NR BS operating in Band n3. |
| 1800 – 1810 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 111, since it is already covered by the requirement in clause 6.6.4.2. |

#### Section 6.6.4.4.1 Co-location with other base stations

**Table 6.6.4.4.1-1 BS Spurious emissions limits for Wide Area BS co-located with another BS**

Add band 111

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| WA E-UTRA Band 111 | 1800 – 1810 MHz | -96 dBm | 100 kHz |  |

**Table 6.6.4.4.1-2 BS Spurious emissions limits for Local Area BS co-located with another BS**

Add band 111

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| LA E-UTRA Band 111 | 1800 – 1810 MHz | -88 dBm | 100 kHz |  |

**Table 6.6.4.4.1-3 BS Spurious emissions limits for Medium range BS co-located with another BS**

Add band 111

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| MR E-UTRA Band 111 | 1800 – 1810 MHz | -91 dBm | 100 kHz |  |

#### Section 7.6.1.1 General blocking requirement

**Table 7.6.1.1-1 Blocking performance requirement for Wide Area BS for E-UTRA**

Add band 111

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8, 26, 28, 111 | (FUL\_low -20) | to | (FUL\_high +10) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1  (FUL\_high +10) | to  to | (FUL\_low -20)  12750 | -15 | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |

**Table 7.6.1.1-1a Blocking performance requirement for Local Area BS for E-UTRA**

Add band 111

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8, 26, 28, 111 | (FUL\_low -20) | to | (FUL\_high +10) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1  (FUL\_high +10) | to  to | (FUL\_low -20)  12750 | -15 | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |

**Table 7.6.1.1-1c Blocking performance requirement for Medium Range BS for E-UTRA**

Add band 111

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8, 26, 28, 111 | (FUL\_low -20) | to | (FUL\_high +10) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1  (FUL\_high +10) | to  to | (FUL\_low -20)  12750 | -15 | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |

**Table 7.6.1.1-3 Blocking performance requirement for Wide Area BS for NB-IoT standalone operation**

Add band 111

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8, 26, 28, 111 | (FUL\_low -20) | to | (FUL\_high +10) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1  (FUL\_high +10) | to  to | (FUL\_low -20)  12750 | -15 (Note 2) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |

**Table 7.6.1.1-3a Blocking performance requirement for Local Area BS for NB-IoT standalone operation**

Add band 111

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8, 26, 28, 111 | (FUL\_low -20) | to | (FUL\_high +10) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1  (FUL\_high +10) | to  to | (FUL\_low -20)  12750 | -15 (Note 2) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |

**Table 7.6.1.1-3c Blocking performance requirement for Medium Range BS for NB-IoT standalone operation**

Add band 111

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8, 26, 28, 111 | (FUL\_low -20) | to | (FUL\_high +10) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1  (FUL\_high +10) | to  to | (FUL\_low -20)  12750 | -15 (Note 2) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |

**Table 7.6.1.1-5 Blocking performance requirement for Wide Area BS for E-UTRA with NB-IoT in-band/guard band operation**

Add band 111

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8, 26, 28, 111 | (FUL\_low -20) | to | (FUL\_high +10) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1  (FUL\_high +10) | to  to | (FUL\_low -20)  12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |

**Table 7.6.1.1-5a Blocking performance requirement for Local Area BS for E-UTRA with NB-IoT in-band/guard band operation**

Add band 111

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8, 26, 28, 111 | (FUL\_low -20) | to | (FUL\_high +10) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1  (FUL\_high +10) | to  to | (FUL\_low -20)  12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |

**Table 7.6.1.1-5c Blocking performance requirement for Medium Range BS for E-UTRA with NB-IoT in-band/guard band operation**

Add band 111

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8, 26, 28, 111 | (FUL\_low -20) | to | (FUL\_high +10) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1  (FUL\_high +10) | to  to | (FUL\_low -20)  12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |

#### Section 7.6.2.1 Co-location with other base stations

**Table 7.6.2.1-1 Blocking performance requirement for E-UTRA and NB-IoT Wide Area BS when co-located with BS in other frequency bands**

Add band 111

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| WA E-UTRA Band 111 | 1820 – 1830 | +16\*\* | PREFSENS + 6dB\* | CW carrier |

**Table 7.6.2.1-2 Blocking performance requirement for E-UTRA and NB-IoT Local Area BS when co-located with BS in other frequency bands**

Add band 111

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| LA E-UTRA band 111 | 1820 – 1830 | -6\*\* | PREFSENS + 6dB\* | CW carrier |

**Table 7.6.2.1-3 Blocking performance requirement for E-UTRA and NB-IoT Medium Range BS when co-located with BS in other frequency bands**

Add band 111

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| MR E-UTRA Band 111 | 1820 – 1830 | +8\*\* | PREFSENS + 6dB\* | CW carrier |

### TS37.104 parameters

#### Section 4.5 Operating bands and Band Categories

**Table 4.5-1 Paired bands in NR, E-UTRA, UTRA and GSM/EDGE**

Add band 111

| MSR Band number | Supported RATs and Band Numbers | | | | | Uplink (UL)  BS receive,  UE transmit  (MHz) | Downlink (DL)  BS transmit,  UE receive  (MHz) | BC | Notes |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NR | E-UTRA | NB-IoT | UTRA | GSM/EDGE |  |
| 111 |  | 111 | X |  |  | 1800 – 1810 | 1820 – 1830 | 1 |  |

#### Other Sections

Come back after agreement on BS RF parameters

### TS37.105, 38.106, 38.174 parameters

Come back after agreement on BS RF parameters

## Sub-topic 2-6 RRM requirements

### TS36.133 parameters

Come back after agreement on UE RF parameters

## Sub-topic 2-7 CR responsibility

|  |  |
| --- | --- |
| **Specification** | **Proposed company for formal CR** |
| 36.101 | Novamint |
| 36.133 | Novamint |
| 38.106 | Novamint |
| 38.115-1 | Novamint |
| 38.174 | Novamint |
| 38.176-1 | Novamint |
| 38.176-2 | Novamint |
| 36.104 | Novamint |
| 36.141 | Novamint |
| 37.104 | Novamint |
| 37.141 | Novamint |
| 38.104 | Novamint |
| 38.141-1 | Novamint |
| 38.141-2 | Novamint |
| 37.105 | Novamint |
| 37.145-1 | Novamint |
| 37.145-2 | Novamint |
| 36.307 | Novamint |

# Reference

1. RP-241649, “New WID: Introduction of LTE FDD band in 1800 – 1830 MHz for Canada,” Novamint, Sequans, Semtech, Telit, Ubiik
2. R4-2411032, “Regulation for LTE FDD new band in 1800–1830 MHz for Canada,” Novamint, Ubiik