**3GPP TSG- Meeting #**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | **~~2986~~** | **rev** | 2 | **Current version:** |  |  |
|  | | | | | | | | |
| *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 to 38.101-1 Rel-19. Update of PHS requirement [Modified\_MPR] | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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:*** | | The PHS system in Japan is now closed but the DECT service in the same range 1884.5-1915.7 MHz must still be protected.  Modify NS\_05/NS\_05U requirements.  Introduce a bit in the table modified MPR behaviour allowing a UE indicate support of the corresponding NS and A-MPR changes made in the later (Rel-19). | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Clause 6.2.3.4: A-MPR changes TBD  Clauses 6.5.3.2 and 6.5A.3.2: the PHS emission limits applicable for bands other than n1 and for band combinations not including n1 now longer applies, the general spurious emissions limit -30 dBm/MHz would also protect DECT.  Clause 6.5.3.3.4: the PHS emission limits replaced by limits applicable for DECT in the same protected frequency range.  Annex L.1: introduce a bit in the modified MPR behaviour  -- (shall be set by UEs compliant with Rel-19)  -- can be set by UEs compliant with earlier releases back to Rel-16  In this way the NW is also aware of the reduced A-MPR if the bit is set to 1. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | UEs of this release would not be able to indicate support of the modified emission limits that require lower power back-off (A-MPR), which would unnecessarily reduce available UE maximum output power. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.3.4, 6.5.3.2, 6.5.3.3.4, 6.5A.3.2, L.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **x** |  | Test specifications | | | | TS 38.521-1 | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*< start of changes >*

#### 6.2.3.4 A-MPR for NS\_05 and NS\_05U

Table 6.2.3.4-1: A-MPR regions for NS\_05 and NS\_05U (Power Class )

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Channel Bandwidth MHz | Carrier Center Frequency, Fc, MHz | Regions | | | A-MPR |
| RBend \*12\*SCS  MHz | RBstart \*12\*SCS  MHz | LCRB \*12\*SCS  MHz |
| 101 | Fc < 1930.7 | N/A | ≥ 0 | ≥ 1.35\* RBstart\*12\*SCS + 4.32 | A1 |
| N/A | ≤ 1.8 | ≤ 2.16 | A2 |
| 102 | Fc < 1930.7 | ≥ 8.1 | N/A | ≤ 1.35\* RBstart\*12\*SCS + 4.32  ≥ 2.34 | A5 |
| 151 | 1927.5 ≤ Fc < 1932.5 | N/A | ≥ 0 | ≥ 1.2\* RBstart\*12\*SCS + 4.68 | A1 |
| N/A | = 0 | ≤ 3.96 | A3 |
| N/A | > 0  ≤ 3.6 | ≤ 3.96 | A2 |
| 1932.5 ≤ Fc < 1938.2 | N/A | ≤ 0.54 | ≥ 8.28 | A4 |
| N/A | ≤ 1.62 | ≤ 2.16 | A2 |
| 152 | 1927.5 ≤ Fc < 1932.5 | ≥ 12.24 | N/A | ≤ 1.2\* RBstart\*12\*SCS + 4.68  ≥ 2.88 | A5 |
| 1932.5 ≤ Fc < 1938.2 | ≥ 12.24 | N/A | ≤ 8.28  ≥ 2.88 | A5 |
| 201 | Fc < 1945.7 | N/A | ≥ 0 | ≥ 1.5\* RBstart \*12\*SCS + 4.14 | A1 |
| N/A | ≤ 1.8 | < 1.5\* RBstart \*12\*SCS + 4.14  ≤ 5.76 | A3 |
| N/A | > 1.8  ≤ 4.68 | ≤ 5.76 | A2 |
| 202 | Fc < 1945.7 | ≥ 16.2 | N/A | ≤ 1.5\* RBstart \*12\*SCS + 4.14  ≥ 2.88 | A5 |
| NOTE 1: These regions apply to both NS\_05 and NS\_05U.  NOTE 2: These regions only apply to NS\_05U. | | | | | |



Table 6.2.3.4-2: A-MPR for NS\_05 and NS\_05U (Power Class 3)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Modulation/Waveform | | A11 (dB) | A21 (dB) | A31 (dB) | A41 (dB) | A52 (dB) |
|  | | Outer/Inner | Outer/Inner | Outer /Inner | Outer/Inner | Outer/Inner |
| DFT-s-OFDM | Pi/2 BPSK | ≤ 3.5 | ≤ 2 | ≤ 3 | ≤ 2 | ≤ 3.0 |
| QPSK | ≤ 4 | ≤ 3 | ≤ 3.5 | ≤ 3 | ≤ 3.5 |
| 16 QAM | ≤ 5 | ≤ 3 | ≤ 4 | ≤ 3 | ≤ 4.0 |
| 64 QAM | ≤ 5 | ≤ 3.5 | ≤ 4 | ≤ 3 | ≤ 4.0 |
| 256 QAM | ≤ 5 | ≤ 4.5 | ≤ 4.5 | ≤ 4.5 | ≤ 5.0 |
| CP-OFDM | QPSK | ≤ 6 | ≤ 4.5 | ≤ 5.5 | ≤ 4.5 | ≤ 5.0 |
| 16 QAM | ≤ 6 | ≤ 4.5 | ≤ 5.5 | ≤ 4.5 | ≤ 5.0 |
| 64 QAM | ≤ 6 | ≤ 4.5 | ≤ 5.5 | ≤ 4.5 | ≤ 5.0 |
| 256 QAM | ≤ 7 | ≤ 6.5 | ≤ 6.5 | ≤ 6.5 | ≤ 6.5 |
| NOTE 1: These regions apply to both NS\_05 and NS\_05U.  NOTE 2: These regions only apply to NS\_05U. | | | | | | |







Table 6.2.3.4-3: Void

Table 6.2.3.4-4 - Table 6.2.3.4-9: Void



Table 6.2.3.4-10: Void

Table 6.2.3.4-11: A-MPR regions for NS\_05 (Power Class 2)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Channel Bandwidth MHz | Carrier Center Frequency, Fc, MHz | Regions | | | A-MPR |
| RBend \*12\*SCS  MHz | RBstart \*12\*SCS  MHz | LCRB \*12\*SCS  MHz |
| 5 | Fc < 1925 | N/A | ≤ 0.18 | ≥ 3.24 | A1 |
| 10 | Fc < 1930.7 | N/A | ≥ 0 | ≥ 1.35\* RBstart\*12\*SCS + 4.32 | A2 |
| N/A | ≤ 1.8 | ≤ 2.16 | A3 |
| N/A | ≥ 0 | < 1.35\* RBstart\*12\*SCS + 4.32  ≥ 1.2\* RBstart\*12\*SCS + 3.6 | A4 |
| 15 | 1927.5 ≤ Fc < 1932.5 | N/A | ≥ 0 | ≥ 1.2\* RBstart\*12\*SCS + 4.68 | A5 |
| N/A | ≤ 3.6 | ≤ 3.96 | A6 |
| N/A | ≥ 0 | ≤ 1.2\* RBstart \*12\*SCS + 3.96  ≤ RBstart \*12\*SCS + 3.6  ≤ 3.96 | A7 |
| 1932.5 ≤ Fc < 1938.2 | N/A | ≤ 1.8 | ≥ 8.28 | A8 |
| N/A | ≤ 1.62 | ≤ 2.16 | A3 |
| 20 | Fc < 1945.7 | N/A | ≥ 0 | ≥ 1.0\* RBstart \*12\*SCS + 4.14 | A9 |
| N/A | ≤ 4.68 | < 1.0\* RBstart \*12\*SCS + 4.14  ≤ 6.48 | A6 |



Table 6.2.3.4-12: A-MPR for NS\_05 and NS\_05U (Power Class 2)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Modulation /Waveform | | A1 (dB) | A2 (dB) | A3 (dB) | A4 (dB) | A5 (dB) | A6 (dB) | A7 (dB) | A8 (dB) | A9 (dB) |
|  | | Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner |
| DFT-s-OFDM | Pi/2 BPSK | ≤ 3.5 | ≤ 4.5 | ≤ 3.5 | ≤ 3.0 | ≤ 4.5 | ≤ 4.0 | ≤ 3.5 | ≤ 3.5 | ≤ 4.5 |
| QPSK | ≤ 4.0 | ≤ 5.5 | ≤ 4.0 | ≤ 4.0 | ≤ 5.5 | ≤ 4.5 | ≤ 4.0 | ≤ 4.5 | ≤ 5.5 |
| 16 QAM | ≤ 4.5 | ≤ 6.0 | ≤ 4.5 | ≤ 4.5 | ≤ 6.0 | ≤ 5.0 | ≤ 4.5 | ≤ 4.5 | ≤ 6.5 |
| 64 QAM | ≤ 4.5 | ≤ 6.0 | ≤ 4.5 | ≤ 4.5 | ≤ 6.0 | ≤ 5.5 | ≤ 4.5 | ≤ 5.0 | ≤ 6.5 |
| 256 QAM | ≤ 5.5 | ≤ 6.0 | ≤ 5.0 | ≤ 5.0 | ≤ 6.0 | ≤ 5.5 | ≤ 5.5 | ≤ 5.5 | ≤ 6.5 |
| CP-OFDM | QPSK | ≤ 5.5 | ≤ 6.5 | ≤ 6.0 | ≤ 5.5 | ≤ 7.5 | ≤ 6.5 | ≤ 5.5 | ≤ 5.5 | ≤ 7.5 |
| 16 QAM | ≤ 5.5 | ≤ 6.5 | ≤ 6.0 | ≤ 5.5 | ≤ 7.5 | ≤ 6.5 | ≤ 5.5 | ≤ 5.5 | ≤ 7.5 |
| 64 QAM | ≤ 5.5 | ≤ 6.5 | ≤ 6.0 | ≤ 5.5 | ≤ 7.5 | ≤ 6.5 | ≤ 5.5 | ≤ 5.5 | ≤ 7.5 |
| 256 QAM | ≤ 7.5 | ≤ 7.0 | ≤ 7.0 | ≤ 7.0 | ≤ 7.5 | ≤ 7.0 | ≤ 6.5 | ≤ 7.0 | ≤ 7.5 |







Table 6.2.3.4-13: Void

#### 6.2.3.5 A-MPR for NS\_40

*< text omitted >*

#### 6.5.3.2 Spurious emissions for UE co-existence

This clause specifies the requirements for NR bands for coexistence with protected bands. Unless otherwise stated, the spurious emission for UE co-existence apply for the frequency ranges that are more than FOOB (MHz) in Table 6.5.3.1-1 from the edge of the channel bandwidth.

Table 6.5.3.2-1: Requirements for spurious emissions for UE co-existence

| NR Band | Spurious emission for UE co-existence | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Protected band | Frequency range (MHz) | | | Maximum Level (dBm) | MBW (MHz) | NOTE |
| n1, n84 | E-UTRA Band 1, 5, 7, 8, 11, 18, 19, 20, 21, 22, 26, 27, 28, 31, 32, 38, 40, 41, 42, 43, 44, 45, 50, 51, 52, 65, 67, 68, 69, 72, 73, 74, 75, 76  NR Band n78, n79, n100, n104, n105, n109 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | E-UTRA Band 3 | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
|  | E-UTRA Band 34 | FDL\_low | - | FDL\_high | -50 | 1 | 15, 47 |
|  | Frequency range | 1880 | - | 1895 | -40 | 1 | 15, 27 |
|  | Frequency range | 1895 | - | 1915 | -15.5 | 5 | 15, 26, 27 |
|  | Frequency range | 1915 | - | 1920 | +1.6 | 5 | 15, 26, 27 |
| n2 | E-UTRA Band 4, 5, 7, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 38, 41, 42, 50, 51, 53, 54, 66, 70, 71, 74, 85, 103, 106  NR Band n105 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 2, 25 | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
|  | E-UTRA Band 43, 48  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| n3, n80 | E-UTRA Band 1, 5, 7, 8, 20, 26, 27, 28, 31, 32, 33, 34, 38, 39, 40, 41, 43, 44, 45, 50, 51, 65, 67, 68, 69, 72, 73,74, 75, 76  NR Band n79, n100, n101, n105 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 3 | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
|  | E-UTRA Band 11, 18, 19, 21 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 22, 42, 52  NR Band n77, n78, n104 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  |  |  |  |  |  |  |  |
| n5, n89 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 18, 19, 24, 25, 28, 29, 30, 31, 34, 38, 40, 42, 43, 45, 48, 50, 51, 65, 66, 70, 71, 73, 74, 85, 103, 106  NR Band n79, n105, n109 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 41, 52, 53, 54  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | E-UTRA Band 11, 21 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 26 | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
|  |  |  |  |  |  |  |  |
| n7 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 20, 22, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 40, 42, 43, 50, 51, 52, 65, 66, 67, 68, 71, 72, 74, 75, 76, 85, 103,  NR Band n77, n78, n100, n101, n105, n109 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n79 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | Frequency range | 2570 | - | 2575 | +1.6 | 5 | 15, 21, 26 |
|  | Frequency range | 2575 | - | 2595 | -15.5 | 5 | 15, 21, 26 |
|  | Frequency range | 2595 | - | 2620 | -40 | 1 | 15, 21 |
| n8, n81, n93, n94 | E-UTRA Band 1, 20, 28, 31, 32, 33, 34, 38, 39, 40, 45, 50, 51, 54, 65, 67, 68, 69, 72, 73, 74, 75, 76  NR Band n101, n104, n105, n109 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA band 3, 7, 22, 41, 42, 43, 52  NR Band n77, n78, n79 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | E-UTRA 8 | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
|  | E-UTRA Band 11, 21 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| n12 | E-UTRA Band 2, 5, 13, 14, 17, 24, 25, 26, 27, 30, 41, 53, 54, 70, 71, 74, 103, 106 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 4, 48, 50, 51, 66  NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | E-UTRA Band 12, 85 | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
| n13 | E-UTRA Band 2, 4, 5, 12, 13, 17, 25, 26, 27, 29, 41, 48, 50, 51, 53, 54, 66, 70, 71, 74, 85, 106 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 14, 103 | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
|  | E-UTRA Band 24, 30  NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | Frequency range | 769 | - | 775 | -35 | 0.00625 | 15 |
|  | Frequency range | 799 | - | 805 | -35 | 0.00625 | 11, 15 |
| n14 | E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 23, 24, 25, 26, 27, 29, 30, 41, 48, 53, 54, 66, 70, 71, 85, 103, 106 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | Frequency range | 769 | - | 775 | -35 | 0.00625 | 12, 15 |
|  | Frequency range | 799 | - | 805 | -35 | 0.00625 | 11, 12, 15 |
| n18 | E-UTRA Band 1, 3, 11, 21, 34, 40, 42, 65  NR Band n79 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | Frequency range | 758 | - | 799 | -50 | 1 |  |
|  | Frequency range | 799 | - | 803 | -40 | 1 |  |
|  | Frequency range | 860 | - | 890 | -40 | 1 |  |
|  | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
|  | Frequency range | 2545 | - | 2575 | -50 | 1 |  |
|  | Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| n20, n82, n91, n92 | E-UTRA Band 1, 3, 7, 8, 22, 31, 32, 33, 34, 40, 43, 50, 51, 65, 67, 68, 72, 74, 75, 76  NR Band n100, n101, n104, n109 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 20 | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
|  | E-UTRA Band 38, 42, 52, 69  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | Frequency range | 758 | - | 788 | -50 | 1 |  |
| n24, n99 | E-UTRA Band 2, 4, 5, 10, 12, 13, 14, 17, 24, 25, 26, 29, 30, 41, 48, 66, 70, 71, 85, 103, 106 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| n25 | E-UTRA Band 4, 5, 7, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 38, 41, 42, 53, 54, 66, 70, 71, 85, 103, 106  NR Band n105 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 2 | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
|  | E-UTRA Band 25 | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
|  | E-UTRA Band 43, 48  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| n26 | E-UTRA Band 1, 2, 3, 4, 5, 7, 11, 12, 13, 14, 17, 18, 19, 21, 24, 25, 29, 30, 31, 34, 39, 40, 42, 43, 48, 50, 51, 65, 66, 70, 71, 73, 74, 85, 103, 106 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 41, 53, 54  NR Band n77, n78, n79 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | E-UTRA Band 26 | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
|  | Frequency range | 703 | - | 79948 | -50 | 1 |  |
|  | Frequency range | 79948 | - | 803 | -40 | 1 | 15 |
|  | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| n28, n83 | E-UTRA Band 1, 4, 22, 32, 42, 43, 50, 51, 65, 66, 74, 75, 76  NR Band n77, n78, n100, n101, n109 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | E-UTRA Band 1 | FDL\_low | - | FDL\_high | -50 | 1 | 19, 25 |
|  | E-UTRA Band 2, 3, 5, 7, 8, 18, 19, 20, 25, 26, 27, 31, 34, 38, 39, 40, 41, 52, 71, 72, 73  NR Band n79, n105 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 11, 21 | FDL\_low | - | FDL\_high | -50 | 1 | 19, 24 |
|  | Frequency range | 470 | - | 694 | -42 | 8 | 15, 35 |
|  | Frequency range | 470 | - | 710 | -26.2 | 6 | 34 |
|  | Frequency range | 662 | - | 694 | -26.2 | 6 | 15 |
|  | Frequency range | 758 | - | 773 | -32 | 1 | 15 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| n30 | E-UTRA Band 2, 4, 5, 7, 12, 13, 14, 17, 24, 25, 26, 27, 29, 30, 38, 41, 48, 53, 54, 66, 70, 71, 85, 103, 106  NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| n31 | E-UTRA Band 1, 5, 7, 8, 20, 22, 26, 27, 28, 31, 32, 33, 34, 38, 40, 42, 43, 50, 51, 52, 65, 67, 68, 69, 74, 75, 76, 87, 88  NR Band n100, n101 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 3 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | Frequency range | 470 | - | 694 | -42 | 8 |  |
| n34 | E-UTRA Band 1, 3, 7, 8, 11, 18, 19, 20, 21, 22, 26, 28, 31, 32, 33, 38, 39, 40, 41, 42, 43, 44, 45, 50, 51, 52, 65, 67, 69, 72, 74, 75, 76  NR Band n78, n79, n100, n101, n105, n109 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
|  | NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  |  |  |  |  |  |  |  |
| n38 | E-UTRA Band 1, 2, 3, 4, 5, 8, 12, 13, 14, 17, 20, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 40, 42, 43, 50, 51, 52, 65, 66, 67, 68, 71, 72, 74, 75, 76, 85, 103  NR Band n100, n101, n109 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n77, n78, n79 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | Frequency range | 2620 | - | 2645 | -15.5 | 5 | 15, 22, 26 |
|  | Frequency range | 2645 | - | 2690 | -40 | 1 | 15, 22 |
| n39, n98 | E-UTRA Band 1, 8, 22, 26, 28, 34, 40, 41, 42, 44, 45, 50, 51, 52, 74  NR Band n79, n105 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | Frequency range | 1805 | - | 1855 | -40 | 1 | 33 |
|  | Frequency range | 1855 | - | 1880 | -15.5 | 5 | 15, 26, 33 |
| n40, n97 | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 22, 26, 27, 28, 31, 32, 33, 34, 38, 39, 41, 42, 43, 44, 45, 50, 51, 52, 65, 67, 68, 69, 72, 74, 75, 76  NR Band n77, n78, n100, n101, n105, n109 | FDL\_low | - | FDL\_high | -50 | 1 | 44 |
|  | NR Band n79 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  |  |  |  |  |  |  |  |
| n41 | E-UTRA Band 1, 2, 3, 4, 5, 8, 12, 13, 14, 17, 24, 25, 26, 27, 28, 29, 30, 34, 39, 42, 44, 45, 48, 50, 51, 52, 54, 65, 66, 70, 71, 73, 74, 85, 103, 106  NR Band n77, n78, n105 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 40 | FDL\_low | - | FDL\_high | -40 | 1 |  |
|  | NR Band n79 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | E-UTRA Band 11, 18, 19, 21 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
|  | Frequency range | 2530 | - | 2535 | -25 | 1 | 49 |
|  | Frequency range | 2505 | - | 2530 | -30 | 1 | 49 |
| n47 | E-UTRA Band 1, 3, 5, 7, 8, 22, 26, 28, 34, 39, 40, 41, 42, 44, 45, 65, 68, 72, 73, 75, 76 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n71, n77, n78, n79, n105, n109 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| n48 | E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 29, 30, 41, 50, 51, 53, 54, 66, 70, 71, 74, 85, 103, 106 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| n50 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 17, 20, 26, 28, 29, 31, 34, 38, 39, 40, 41, 42, 43, 48, 65, 66, 67, 68, 103  NR Band n100, n101, n105 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| n51 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 17, 20, 26, 28, 29, 31, 34, 38, 39, 40, 41, 42, 43, 48, 52, 65, 66, 67, 68, 85, 103  NR Band n100, n101, n105 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| n53 | E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 29, 30, 48, 54, 66, 70, 71, 85, 103, 106  NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| n54 | E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 29, 30, 48, 50, 51, 53, 66, 70, 71, 85, 103, 106 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR NTN Band n255, n256 |  |  |  |  |  |  |
|  | NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| n65 | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 22, 26, 27, 28, 31, 32, 38, 40, 41, 42, 43, 50, 51, 65, 68, 69, 72, 74, 75, 76  NR Band n78, n79, n100, n105 n109 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | E-UTRA Band 34 | FDL\_low | - | FDL\_high | -50 | 1 | 43 |
|  | Frequency range | 1900 | - | 1915 | -15.5 | 5 | 15, 26, 27 |
|  | Frequency range | 1915 | - | 1920 | +1.6 | 5 | 15, 26, 27 |
| n66, n86 | E-UTRA Band 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 27, 28, 29, 30, 38, 41, 43, 50, 51, 53, 66, 70, 71, 74, 85, 103, 106  NR Band n105 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 42, 48  NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| n70 | E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 29, 30, 41, 47, 48, 66, 70, 71, 85, 103, 106 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| n71 | E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 28, 30, 38, 48, 53, 54, 66, 85, 103, 106 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 2, 7, 25, 41, 70  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | E-UTRA Band 29 | FDL\_low | - | FDL\_high | -38 | 1 | 15 |
|  | E-UTRA Band 71 | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
| n72 | E-UTRA Band 1, 7, 20, 22, 28, 31, 32, 33, 34, 38, 42, 43, 47, 52, 65, 68, 72, 87, 88  NR Band n100, n101 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 3, 8, 40 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | Frequency range | 470 | - | 694 | -42 | 8 |  |
| n74 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 17, 18, 19, 20, 26, 28, 29, 31, 34, 38, 39, 40, 41, 42, 43, 48, 52, 65, 66, 67, 68, 85  NR Band n77, n78, n100, n101, n103, n105 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n79 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  |  |  |  |  |  |  |  |
|  | Frequency range | 1400 | - | 1427 | -32 | 27 | 15, 41 |
|  | Frequency range | 1475 | - | 1488 | -28 | 1 | 15, 42 |
|  | Frequency range | 1475 | - | 1488 | -50 | 1 | 15, 45 |
|  | Frequency range | 1475.9 | - | 1510.9 | -35 | 1 | 15, 46 |
|  | Frequency range | 1488 | - | 1518 | -50 | 1 | 15 |
| n77 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 11, 12, 13, 14, 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, 29, 30, 34, 39, 40, 41, 53, 54, 65, 66, 70, 71, 74, 85, 103  NR Band n100, n101, n105 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n104 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  |  |  |  |  |  |  |  |
| n78 | E-UTRA Band 1, 2, 3, 5, 7, 8, 11, 18, 19, 20, 21, 25, 26, 28, 32, 34, 38, 39, 40, 41, 50, 65, 66, 67, 70, 71, 74, 75, 76  NR Band n100, n101, n105, n109 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n104 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  |  |  |  |  |  |  |  |
| n79 | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 21, 28, 34, 38, 39, 40, 41, 42, 65, 74  NR Band n105 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| n85 | E-UTRA Band 2, 5, 13, 14, 17, 24, 25, 26, 27, 30, 41, 53, 54, 70, 71, 74, 103, 106 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 4, 48, 50, 51, 66  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | E-UTRA Band 12, 85 | FDL\_low | - | FDL\_high | -50 | 1 | 15 |
| n95 | E-UTRA Band 1, 3, 5, 8, 28, 39, 40, 41  NR Band n78, n79 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
|  | NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  |  |  |  |  |  |  |  |
| n100 | E-UTRA Band 1, 3, 8, 20, 28, 31, 32, 33, 34, 38, 40, 43, 50, 51, 52, 65, 67, 68, 69, 72, 74, 75, 76  NR Band n101, n105, n109 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 7, 22, 42  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | Frequency range | 758 | - | 788 | -50 | 1 |  |
| n101 | E-UTRA Band 1, 3, 8, 20, 22, 28, 31, 32, 38, 40, 50, 51, 52, 65, 67, 68, 69, 72, 74, 75, 76  NR Band n100, n109 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 7, 42, 43  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | Frequency range | 758 | - | 788 | -50 | 1 |  |
| n104 | E-UTRA Band 1, 3, 7, 8, 20 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| n105 | E-UTRA Band 1, 3, 4, 5, 8, 11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 38, 39, 40, 43, 50, 51, 65, 66, 72, 73, 74, 75, 76  NR Band n79, n100, n109 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 2, 7, 22, 25, 34, 41, 42, 52  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  |  |  |  |  |  |  |  |
| n106 | E-UTRA Band 2, 4, 12, 13, 14, 23, 24, 25, 30, 53, 54, 66, 70, 71, 85, 103, 106 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 41, 48,  NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | E-UTRA Band 5, 26 | FDL\_low | - | FDL\_high | -30 | 1 |  |
| n109 | E-UTRA Band 22, 32, 42, 43, 65, 75, 76,  NR Band n78, n100, n101 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | E-UTRA Band 1 | FDL\_low | - | FDL\_high | -50 | 1 | 19, 25 |
|  | E-UTRA Band 3, 7, 8, 20, 38,40 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | Frequency range | 662 | - | 694 | -26.2 | 6 | 15 |
|  | Frequency range | 758 | - | 773 | -32 | 1 | 15 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
| NOTE 1: FDL\_low and FDL\_high refer to each frequency band specified in Table 5.2-1 in TS 38.101-1 or Table 5.5-1 in TS 36.101  NOTE 2: As exceptions, measurements with a level up to the applicable requirements defined in Table 6.5.3.1-2 are permitted for each assigned NR carrier used in the measurement due to 2nd, 3rd, 4th or 5th harmonic spurious emissions. Due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2 MHz + N x LCRB x RBsize kHz), where N is 2, 3, 4, 5 for the 2nd, 3rd, 4th or 5th harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval.  NOTE 3: 15 kHz SCS is assumed when RB is mentioned in the note when channel bandwidth is less than or equal to 50 MHz, lowest SCS is assumed when channel bandwidth is larger than 50 MHz. The transmission bandwidth in terms of RB position and range is not limited to 15 kHz SCS and shall scale with SCS accordingly.  NOTE 4: Void  NOTE 5: For non-synchronised TDD operation to meet these requirements some restriction will be needed for either the operating band or protected band  NOTE 6: N/A  NOTE 7: Void  NOTE 8: Void.  NOTE 9: Void  NOTE 10: Void  NOTE 11: Void  NOTE 12: The emissions measurement shall be sufficiently power averaged to ensure a standard deviation < 0.5 dB  NOTE 13: Void  NOTE 14: Void  NOTE 15: These requirements also apply for the frequency ranges that are less than FOOB (MHz) in Table 6.5.3.1-1 from the edge of the channel bandwidth.  NOTE 16: Void  NOTE 17: Void  NOTE 18: Void  NOTE 19: Applicable when the assigned NR carrier is confined within 718 MHz and 748 MHz and when the channel bandwidth used is 5 or 10 MHz. Applicable when the assigned NR carrier is confined within 715 MHz and 718 MHz and when the channel bandwidth used is 3 MHz.  NOTE 20: Void  NOTE 21: This requirement is applicable for any channel bandwidths up to 20MHz within the range 2500 - 2570 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 2560.5 - 2562.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 2552 - 2560 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.  NOTE 22: This requirement is applicable for power class 3 UE for any channel bandwidths up to 20 MHz. For channel bandwidth within the range 2570 - 2615 MHz with the following restriction: for carriers of 15 MHz bandwidth when the carrier centre frequency is within the range 2605.5 - 2607.5 MHz and for carriers of 20 MHz bandwidth when the carrier centre frequency is within the range 2597 - 2605 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB. For carriers overlapping the frequency range 2615 - 2620 MHz the requirement applies with the maximum output power configured to +19 dBm in the IE P-Max.  NOTE 23: Void  NOTE 24: As exceptions, measurements with a level up to the applicable requirement of -38 dBm/MHz is permitted for each assigned NR carrier used in the measurement due to 2nd harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.3.1-1) for which the 2nd harmonic totally or partially overlaps the measurement bandwidth (MBW).  NOTE 25: As exceptions, measurements with a level up to the applicable requirement of -36 dBm/MHz is permitted for each assigned NR carrier used in the measurement due to 3rd harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.3.1-1) for which the 3rd harmonic totally or partially overlaps the measurement bandwidth (MBW).  NOTE 26: For these adjacent bands, the emission limit could imply risk of harmful interference to UE(s) operating in the protected operating band.  NOTE 27: This requirement is applicable for power class 3 and channel bandwidths up to 20 MHz within the range 1920 - 1980 MHz with the following restriction: for carriers of 15 MHz bandwidth when the carrier centre frequency is within the range 1927.5 - 1929.5 MHz and for carriers of 20 MHz bandwidth when the carrier centre frequency is within the range 1930 - 1938 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.  NOTE 28: Void  NOTE 29: Void  NOTE 30: Void  NOTE 31: Void  NOTE 32: Void  NOTE 33: This requirement is only applicable for carriers with bandwidth up to 20MHz and confined within 1885-1920 MHz (requirement for carriers with at least 1RB confined within 1880 - 1885 MHz is not specified). This requirement applies for an uplink transmission bandwidth less than or equal to 54 RB for carriers of 15 MHz bandwidth when carrier center frequency is within the range 1892.5 - 1894.5 MHz and for carriers of 20 MHz bandwidth when carrier center frequency is within the range 1895 - 1903 MHz. The above restriction is applicable to only power class 3 UEs.  NOTE 34: This requirement is applicable for 5 and 10 MHz NR channel bandwidth allocated within 718-728 MHz. For carriers of 10 MHz bandwidth, this requirement applies for an uplink transmission bandwidth less than or equal to 30 RB with RBstart > 1 and RBstart < 48. Applicable when the assigned NR carrier is confined within 715 MHz and 718 MHz and when the channel bandwidth used is 3 MHz.  NOTE 35: This requirement is applicable in the case of a 10 MHz NR carrier confined within 703 MHz and 733 MHz, otherwise the requirement of -25 dBm with a measurement bandwidth of 8 MHz applies.  NOTE 36: Void  NOTE 37: Void  NOTE 38: Void  NOTE 39: Void  NOTE 40: Void  NOTE 41: Applicable for cases and when the lower edge of the assigned NR UL channel bandwidth frequency is greater than or equal to 1427 MHz + the channel BW assigned for 5 and 10 MHz bandwidth, and when the lower edge of the assigned NR UL channel bandwidth frequency is greater than or equal to 1440 MHz for 15 and 20 MHz bandwidth. This requirement shall be verified with UE transmission power configured as high as possible but no higher than 15 dBm.  NOTE 42: Applicable when upper edge of the assigned NR UL channel bandwidth frequency is more than 1460 MHz and less than or equal to 1470 MHz for 5 MHz bandwidth, and when the upper edge of the assigned NR UL channel bandwidth frequency is more than 1460 MHz and less than or equal to 1465 MHz for 10 MHz bandwidth.  NOTE 43: This requirement is applicable for UE which is operating in power class 3 and NR channel bandwidths up to 20MHz within frequency range 1920-1980 MHz.  NOTE 44: As exceptions, for 90 and 100 MHz channel bandwidth, -40 dBm/MHz is applicable in the frequency range of 2496 – 2505 MHz.  NOTE 45: Applicable when upper edge of the assigned NR UL channel bandwidth frequency is equal to or less than 1460 MHz.  NOTE 46: Applicable for 5 MHz bandwidth and when the NR carrier is within 1447.9 – 1462.9 MHz.  NOTE 47: This requirement is applicable for power class 3 and channel bandwidths up to 20MHz.  NOTE 48: For 20MHz channel bandwidth this value is changed to 794MHz.  NOTE 49: Applicable when contained within 2545 – 2575 MHz in Japan. Channel bandwidth shall be confined so that there is at least BWChannel separation between 2535 MHz and lower BWChannel edge in the current release. With this BWChannel placement the requirement is covered by general SEM and the spurious emission limits. | | | | | | | |

NOTE: To simplify Table 6.5.3.2-1, E-UTRA band numbers are listed for bands which are specified only for E-UTRA operation or both E-UTRA and NR operation. NR band numbers are listed for bands which are specified only for NR operation.

#### 6.5.3.3 Additional spurious emissions

*< text omitted >*

##### 6.5.3.3.4 Requirement for network signalling values "NS\_05" and “NS\_05U”

When "NS\_05" or “NS\_05U” is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5.3.3.4-1. This requirement also applies for the frequency ranges that are less than FOOB (MHz) in Table 6.5.3.1-1 from the edge of the channel bandwidth.Table 6.5.3.3.4-1: Additional requirements for "NS\_05" and “NS\_05U”

|  |  |  |
| --- | --- | --- |
| Frequency range  (MHz) | Channel bandwidth (MHz) /  Spectrum emission limit  (dBm) | Measurement bandwidth |
| 5 |
| 1884.5 ≤ f ≤ 1910 | -30 | 1 MHz |
| 1910 ≤ f ≤ 1915.7 | -25 |
|  | | |
| Frequency range  (MHz) | Channel bandwidth (MHz) /  Spectrum emission limit  (dBm) | Measurement bandwidth |
| 10, 15, 20 |
| 1884.5 ≤ f ≤ 1906.6 | -30 | 1 MHz |
| 1906.6 ≤ f ≤ 1915.7 | -25 |



##### 6.5.3.3.5 Requirement for network signalling values "NS\_43" and “NS\_43U”

*< text omitted >*

#### 6.5A.3.2 Spurious emissions for UE co-existence

##### 6.5A.3.2.0 General

Unless otherwise stated, the spurious emission for UE co-existence apply for the frequency ranges that are more than FOOB (MHz) in Table 6.5.3.1-1 from the edge of the channel bandwidth configured on each component carrier.

##### 6.5A.3.2.1 Spurious emissions for UE co-existence for intra-band contiguous CA

This clause specifies the requirements for the specified intra-band contiguous carrier aggregation configurations for coexistence with protected bands, the requirements in Table 6.5A.3.2.1-1 apply. For power class 2 intra-band contiguous carrier aggregation, the spurious emissions is measured as the sum from both UE transmit antenna connectors when UE indicates support for *dualPA-Architecture* IE.

NOTE: For measurement conditions at the edge of each frequency range, the lowest frequency of the measurement position in each frequency range should be set at the lowest boundary of the frequency range plus MBW/2. The highest frequency of the measurement position in each frequency range should be set at the highest boundary of the frequency range minus MBW/2. MBW denotes the measurement bandwidth defined for the protected band.

Table 6.5A.3.2.1-1: Requirements for uplink intra-band contiguous carrier aggregation

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA combination | Spurious emission | | | | | | |
|  | Protected Band | Frequency range (MHz) | | | Maximum Level (dBm) | MBW (MHz) | NOTE |
| CA\_n3 | E-UTRA Band 1, 5, 7, 8, 11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 33, 34, 38, 39, 40, 41, 43, 44, 45, 50, 51, 65, 67, 68, 69, 72, 73,74, 75, 76, 87, 88  NR Band n79, n100, n101, n105 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 3 | FDL\_low | - | FDL\_high | -50 | 1 | 8 |
|  | E-UTRA Band 22, 42, 52  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 4 |
|  |  |  |  |  |  |  |  |
| CA\_n5 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 18, 19, 24, 25, 28, 29, 30, 31, 34, 38, 40, 42, 43, 45, 48, 50, 51, 54, 65, 66, 70, 71, 73, 74, 85, 103  NR Band n79, n105 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 41, 52, 53  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 4 |
|  | E-UTRA Band 11, 21 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 26 | FDL\_low | - | FDL\_high | -50 | 1 | 8 |
|  |  |  |  |  |  |  |  |
| CA\_n7 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 20, 22, 26, 27, 28, 29, 30, 31, 32, 33, 34, 40, 42, 43, 50, 51, 52, 65, 66, 67, 68, 72, 74, 75, 76, 85, 103  NR Band n77, n78, n100, n101 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| CA\_n40 | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 22, 26, 27, 28, 31, 32, 33, 34, 38, 39, 41, 42, 43, 44, 45, 50, 51, 52, 65, 67, 68, 69, 72, 74, 75, 76,  NR Band n77, n78, n100, n101 | FDL\_low | - | FDL\_high | -50 | 1 | 7 |
|  | NR Band n79 | FDL\_low | - | FDL\_high | -50 | 1 | 2, 4 |
|  |  |  |  |  |  |  |  |
| CA\_n41 | E-UTRA Band 1, 2, 3, 4, 5, 8, 12, 13, 14, 17, 24, 25, 26, 27, 28, 29, 30, 34, 39, 42, 44, 45, 48, 50, 51, 52, 54, 65, 66, 70, 71, 73, 74, 85, 103  NR Band n77, n78, n100 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n79 | FDL\_low | - | FDL\_high | -50 | 1 | 2, 4 |
|  | E-UTRA Band 9, 11, 18, 19, 21 | FDL\_low | - | FDL\_high | -50 | 1 | 6 |
|  | E-UTRA Band 40 | FDL\_low | - | FDL\_high | -40 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n48 | E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 29, 30, 41, 50, 51, 54, 66, 70, 71, 74, 85, 103 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| CA\_n77 | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 39, 40, 41, 54, 65, n100, n101 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n78 | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 39, 40, 41, 65, n100, n101 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n79 | E-UTRA Band 1, 3, 5, 8, 11, 18, 19, 21, 28, 34, 39, 40, 41, 42, 65 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| NOTE 1: Void  NOTE 2: Void  NOTE 3: Void  NOTE 4: As exceptions, measurements with a level up to the applicable requirements defined in Table 6.5.3.1-2 are permitted for each assigned NR carrier used in the measurement due to 2nd, 3rd, 4th or 5th harmonic spurious emissions. Due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2 MHz + N x LCRB x RBsize kHz), where N is 2, 3, 4, 5 for the 2nd, 3rd, 4th or 5th harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval.  NOTE 5: Void.  NOTE 6: This requirement applies when the NR carrier is confined within 2545 – 2575 MHz or 2595 – 2645 MHz and the channel bandwidth is 10 or 20 MHz  NOTE 7: As exceptions, for 90 and 100 MHz aggregated bandwidth, -40 dBm/MHz is applicable in the frequency range of 2496 – 2505 MHz.  NOTE 8: These requirements also apply for the frequency ranges that are less than FOOB (MHz) in Table 6.5.3.1-1 from the edge of the aggregated uplink channel bandwidth.  NOTE 9: Void. | | | | | | | |

##### 6.5A.3.2.2 Spurious emissions for UE co-existence for intra-band non-contiguous CA

This clause specifies the requirements for the specified intra-band non-contiguous carrier aggregation configurations for coexistence with protected bands, the requirements in Table 6.5A.3.2.2-1 apply. For intra-band non-contiguous carrier aggregation, the spurious emissions is measured as the sum from both UE transmit antenna connectors when UE indicates support for *dualPA-Architecture* IE.

NOTE: For measurement conditions at the edge of each frequency range, the lowest frequency of the measurement position in each frequency range should be set at the lowest boundary of the frequency range plus MBW/2. The highest frequency of the measurement position in each frequency range should be set at the highest boundary of the frequency range minus MBW/2. MBW denotes the measurement bandwidth defined for the protected band.

Table 6.5A.3.2.2-1: Requirements for uplink intra-band non-contiguous carrier aggregation

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA combination | Spurious emission | | | | | | |
|  | Protected Band | Frequency range (MHz) | | | Maximum Level (dBm) | MBW (MHz) | NOTE |
| CA\_n26 | E-UTRA Band 1, 2, 3, 4, 5, 7, 11, 12, 13, 14, 17, 18,19, 21, 24, 25, 29, 30, 31, 34, 39, 40, 42, 43, 48, 50, 51, 65, 66, 70, 71, 73,74, 85, 103 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | E-UTRA Band 41, 53, 54  NR Band n77, n78, n79 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
|  | E-UTRA Band 26 | FDL\_low | - | FDL\_high | -50 | 1 | [5] |
|  | Frequency range | 703 | - | 7993 | -50 | 1 |  |
|  | Frequency range | 7993 | - | 803 | -40 | 1 | [5] |
|  | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n41 | E-UTRA Band 1, 2, 3, 4, 5, 8, 10, 12, 13, 14, 17, 24, 25, 26, 27, 28, 29, 30, 34, 39, 42, 44, 45, 48, 50, 51, 52, 54, 65, 66, 70, 71, 73, 74, 85, 103  NR Band n77, n78, n100 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  | NR Band n79 | FDL\_low | - | FDL\_high | -50 | 1 | 1, 2 |
|  | E-UTRA Band 40 | FDL\_low | - | FDL\_high | -40 | 1 |  |
|  | E-UTRA Band 9, 11, 18, 19, 21 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| CA\_n77 | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 39, 40, 41, 54, 65  NR Band n100, n101 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  |
| CA\_n78 | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 39, 40, 41, 65, n101 | FDL\_low | - | FDL\_high | -50 | 1 |  |
|  |
| NOTE 1: As exceptions, measurements with a level up to the applicable requirements defined in Table 6.5.3.1-2 are permitted for each assigned NR carrier used in the measurement due to 2nd, 3rd, 4th or 5th harmonic spurious emissions. Due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2 MHz + N x LCRB x RBsize kHz), where N is 2, 3, 4, 5 for the 2nd, 3rd, 4th or 5th harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval.  NOTE 2: This requirement applies when the NR carrier is confined within 2545 – 2575 MHz or 2595 – 2645 MHz and the channel bandwidth is 10 or 20 MHz  NOTE 3: This value is changed to 794MHz if channel bandwidth of one UL carrier is 20 MHz.  NOTE 4: Void.  [NOTE 5: These requirements also apply for the frequency ranges that are less than FOOB (MHz) in Table 6.5.3.1-1 from the edge of the channel bandwidth.] | | | | | | | |

##### 6.5A.3.2.3 Spurious emissions for UE co-existence for Inter-band CA

This clause specifies the additional requirements for inter-band uplink carrier aggregation configurations with the single CC uplink assigned to two NR bands for coexistence with protected bandsfor the specified uplink carrier aggregation configurations in Table 6.5A.3.2.3-1. The intersection of the requirements for the individual bands specified in clause 6.5.3.2 shall also apply for the specified uplink carrier aggregation configurations. Intersection of a requirement means that both UL constituent bands have the same protected band requirement specified and if one or both protected bands have note(s) associated those note(s) also apply.

For inter-band carrier aggregation with two contiguous carriers assigned to one NR band, the requirements in subclause 6.5A.3.2.1 apply for that band.

For inter-band carrier aggregation with two uplink non-contiguous carrier assigned to one NR band, the spurious emissions for UE co-existence requirements in subclause 6.5A.3.2.2 apply for that band.

For inter-band carrier aggregation with the uplink assigned to two NR bands, the requirements in Table 6.5A.3.2.3-1 apply on each component carrier with all component carriers are active.

NOTE: For inter-band carrier aggregation with uplink assigned to two NR bands the requirements in Table 6.5A.3.2.3-1 could be verified by measuring spurious emissions at the specific frequencies where second and third order intermodulation products generated by the two transmitted carriers can occur; in that case, the requirements for remaining applicable frequencies in Table 6.5A.3.2.3-1 and in clause 6.5.3.2 would be considered to be verified by the measurements verifying the one uplink inter-band CA UE to UE co-existence requirements.

Table 6.5A.3.2.3-1: Requirements for uplink inter-band carrier aggregation (two bands)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA combination | Spurious emission | | | | | | |
|  | Protected Band | Frequency range (MHz) | | | Maximum Level (dBm) | MBW (MHz) | NOTE |
| CA\_n1-n18 | Frequency range | 758 | - | 799 | -50 | 1 |  |
|  | Frequency range | 799 | - | 803 | -40 | 1 | 4 |
|  | Frequency range | 860 | - | 890 | -40 | 1 |  |
|  | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  | Frequency range | 2545 | - | 2575 | -50 | 1 |  |
|  | Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| CA\_n1-n20 | Frequency range | 758 | - | 788 | -50 | 1 |  |
| CA\_n1-n26 | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  | Frequency range | 703 | - | 79924 | -50 | 1 |  |
|  | Frequency range | 79924 | - | 803 | -40 | 1 | 4 |
| CA\_n1-n28 | Frequency range | 470 | - | 694 | -42 | 8 | 4, 14 |
|  | Frequency range | 470 | - | 710 | -26.2 | 6 | 15 |
|  | Frequency range | 758 | - | 773 | -30 | 1 | 4 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
|  | Frequency range | 662 | - | 694 | -26.2 | 6 | 4 |
| CA\_n1-n74 |  |  |  |  |  |  |  |
|  | Frequency range | 1400 | - | 1427 | -32 | 27 | 4, 20 |
|  | Frequency range | 1475 | - | 1488 | -28 | 1 | 4, 21 |
|  | Frequency range | 1475 | - | 1488 | -50 | 1 | 4, 22 |
|  | Frequency range | 1488 | - | 1510.9 | -35 | 1 | 4, 23 |
|  | Frequency range | 1488 | - | 1518 | -50 | 1 | 4 |
| CA\_n2-n14 | Frequency range | 769 | - | 775 | -35 | 0.00625 | 4 |
|  | Frequency range | 799 | - | 805 | -35 | 0.00625 | 4 |
| CA\_n3-n18 | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
|  | Frequency range | 2545 | - | 2575 | -50 | 1 |  |
|  | Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| CA\_n3-n20 | Frequency range | 758 | - | 788 | -50 | 1 |  |
| CA\_n3-n26 |  |  |  |  |  |  |  |
|  | Frequency range | 703 | - | 79924 | -50 | 1 |  |
|  | Frequency range | 79924 | - | 803 | -40 | 1 | 4 |
|  | Frequency range | 945 | - | 960 | -50 | 1 |  |
| CA\_n3-n28 | Frequency range | 470 | - | 694 | -42 | 8 | 4, 14 |
|  | Frequency range | 470 | - | 710 | -26.2 | 6 | 15 |
|  | Frequency range | 758 | - | 773 | -30 | 1 | 4 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
|  | Frequency range | 662 | - | 694 | -26.2 | 6 | 4 |
|  | Frequency range | 1839.9 | - | 1879.9 | -50 | 1 | 4 |
|  |  |  |  |  | -41 | 0.3 |  |
| CA\_n3-n74 |  |  |  |  |  |  |  |
|  | Frequency range | 1400 | - | 1427 | -32 | 27 | 4, 20 |
|  | Frequency range | 1475 | - | 1488 | -28 | 1 | 4, 21 |
|  | Frequency range | 1475 | - | 1488 | -50 | 1 | 4, 22 |
|  | Frequency range | 1488 | - | 1510.9 | -35 | 1 | 4, 23 |
|  | Frequency range | 1488 | - | 1518 | -50 | 1 | 4 |
| CA\_n5-n7 | Frequency range | 859 | - | 869 | -27 | 1 |  |
| CA\_n5-n28 | Frequency range | 470 | - | 710 | -26.2 | 6 | 13 |
|  | Frequency range | 758 | - | 773 | -32 | 1 | 4 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n5-n78 | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
|  | Frequency range | 2545 | - | 2575 | -50 | 1 | 2 |
|  | Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| CA\_n7-n26 | Frequency range | 703 | - | 79924 | -50 | 1 |  |
|  | Frequency range | 79924 | - | 803 | -40 | 1 | 4 |
|  | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n7-n28 | Frequency range | 758 | - | 773 | -32 | 1 | 4 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
| CA\_n8-n20 | Frequency range | 758 | - | 788 | -50 | 1 |  |
| CA\_n8-n28 | Frequency range | 470 | - | 694 | -42 | 8 | 4, 14 |
|  | Frequency range | 470 | - | 710 | -26.2 | 6 | 13 |
|  | Frequency range | 662 | - | 694 | -26.2 | 6 | 4 |
|  | Frequency range | 758 | - | 773 | -32 | 1 | 4 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n13-n25 | Frequency range | 769 | - | 775 | -35 | 0.00625 | 4 |
|  | Frequency range | 799 | - | 805 | -35 | 0.00625 | 4 |
| CA\_n13-n66 | Frequency range | 769 | - | 775 | -35 | 0.00625 | 4 |
|  | Frequency range | 799 | - | 805 | -35 | 0.00625 | 4 |
| CA\_n13-n77 | Frequency range | 769 | - | 775 | -35 | 0.00625 | 4 |
|  | Frequency range | 799 | - | 805 | -35 | 0.00625 | 4 |
| CA\_n14-n30 | Frequency range | 769 | - | 775 | -35 | 0.00625 | 4 |
|  | Frequency range | 799 | - | 805 | -35 | 0.00625 | 4 |
| CA\_n14-n66 | Frequency range | 769 | - | 775 | -35 | 0.00625 | 4 |
|  | Frequency range | 799 | - | 805 | -35 | 0.00625 | 4 |
| CA\_n14-n77 | Frequency range | 769 | - | 775 | -35 | 0.00625 | 4, 20 |
|  | Frequency range | 799 | - | 805 | -35 | 0.00625 | 4, 20 |
| CA\_n18-n28 | Frequency range | 470 | - | 694 | -42 | 8 | 4, 14 |
|  | Frequency range | 470 | - | 710 | -26.2 | 6 | 13 |
|  | Frequency range | 662 | - | 694 | -26.2 | 6 | 4 |
|  | Frequency range | 758 | - | 799 | -50 | 1 |  |
|  | Frequency range | 799 | - | 803 | -40 | 1 | 4 |
|  | Frequency range | 860 | - | 890 | -40 | 1 |  |
|  | Frequency range | 945 | - | 960 | -50 | 1 | 4 |
|  |  |  | - |  |  |  |  |
|  | Frequency range | 2545 | - | 2575 | -50 | 1 |  |
|  | Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| CA\_n18-n40 | Frequency range | 758 | - | 799 | -50 | 1 |  |
|  | Frequency range | 799 | - | 803 | -40 | 1 |  |
|  | Frequency range | 860 | - | 890 | -40 | 1 |  |
|  | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
|  | Frequency range | 2545 | - | 2575 | -50 | 1 |  |
|  | Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| CA\_n18-n41 | Frequency range | 758 | - | 799 | -50 | 1 |  |
|  | Frequency range | 799 | - | 803 | -40 | 1 |  |
|  | Frequency range | 860 | - | 890 | -40 | 1 |  |
|  | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  |  |  | - |  |  |  |  |
| CA\_n18-n74 | Frequency range | 758 | - | 799 | -50 | 1 |  |
|  | Frequency range | 799 | - | 803 | -40 | 1 |  |
|  | Frequency range | 860 | - | 890 | -40 | 1 |  |
|  | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  | Frequency range | 1400 | - | 1427 | -32 | 27 | 4, 20 |
|  | Frequency range | 1475 | - | 1488 | -28 | 1 | 4, 21 |
|  | Frequency range | 1475 | - | 1488 | -50 | 1 | 4, 22 |
|  | Frequency range | 1488 | - | 1510.9 | -35 | 1 | 4, 23 |
|  | Frequency range | 1488 | - | 1518 | -50 | 1 | 4 |
|  |  |  |  |  |  |  |  |
|  | Frequency range | 2545 | - | 2575 | -50 | 1 |  |
|  | Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| CA\_n18-n77 | Frequency range | 758 | - | 799 | -50 | 1 |  |
|  | Frequency range | 799 | - | 803 | -40 | 1 |  |
|  | Frequency range | 860 | - | 890 | -40 | 1 |  |
|  | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
|  | Frequency range | 2545 | - | 2575 | -50 | 1 |  |
|  | Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| CA\_n18-n78 | Frequency range | 758 | - | 799 | -50 | 1 |  |
|  | Frequency range | 799 | - | 803 | -40 | 1 |  |
|  | Frequency range | 860 | - | 890 | -40 | 1 |  |
|  | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
|  | Frequency range | 2545 | - | 2575 | -50 | 1 |  |
|  | Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| CA\_n20-n28 | Frequency range | 758 | - | 773 | -32 | 1 | 4 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
| CA\_n26-n28 | Frequency range | 470 | - | 710 | -26.2 | 6 | 13 |
|  | Frequency range | 758 | - | 773 | -32 | 1 | 4 |
|  | Frequency range | 773 | - | 79924 | -50 | 1 |  |
|  | Frequency range | 79924 | - | 803 | -40 | 1 | 4 |
|  |  |  |  |  |  |  |  |
| CA\_n26-n48 | Frequency range | 703 | - | 79924 | -50 | 1 |  |
|  | Frequency range | 79924 | - | 803 | -40 | 1 | 4 |
|  | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n26-n78 | Frequency range | 703 | - | 799x | -50 | 1 |  |
|  | Frequency range | 799x | - | 803 | -40 | 1 | 4 |
|  | Frequency range | 945 | - | 960 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n28-n34 | Frequency range | 470 | - | 694 | -42 | 8 | 4, 14 |
|  | Frequency range | 470 | - | 710 | -26.2 | 6 | 13 |
|  | Frequency range | 662 | - | 694 | -26.2 | 6 | 4 |
|  | Frequency range | 758 | - | 773 | -32 | 1 | 4 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n28-n39 | Frequency range | 470 | - | 694 | -42 | 8 | 4, 14 |
|  | Frequency range | 470 | - | 710 | -26.2 | 6 | 13 |
|  | Frequency range | 662 | - | 694 | -26.2 | 6 | 4 |
|  | Frequency range | 758 | - | 773 | -32 | 1 | 4 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
| CA\_n28-n40 | Frequency range | 758 | - | 773 | -32 | 1 | 4 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n28-n41 | Frequency range | 470 | - | 694 | -42 | 8 | 4, 14 |
|  | Frequency range | 470 | - | 710 | -26.2 | 6 | 13 |
|  | Frequency range | 662 | - | 694 | -26.2 | 6 | 4 |
|  | Frequency range | 758 | - | 773 | -32 | 1 | 4 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n28-n46 | Frequency range | 470 | - | 694 | -42 | 8 | 15 |
|  | Frequency range | 470 | - | 710 | -26.2 | 6 |  |
|  | Frequency range | 662 | - | 694 | -26.2 | 6 | 15 |
|  | Frequency range | 758 | - | 773 | -32 | 1 | 15 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n28-n50 | Frequency range | 470 | - | 694 | -42 | 8 | 4, 14 |
|  | Frequency range | 470 | - | 710 | -26.2 | 6 | 13 |
|  | Frequency range | 662 | - | 694 | -26.2 | 6 | 4 |
|  | Frequency range | 758 | - | 773 | -32 | 1 | 4 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n28-n77 | Frequency range | 758 | - | 773 | -32 | 1 |  |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n28-n74 | Frequency range | 470 | - | 694 | -42 | 8 | 4, 14 |
|  | Frequency range | 470 | - | 710 | -26.2 | 6 | 13 |
|  | Frequency range | 662 | - | 694 | -26.2 | 6 | 4 |
|  | Frequency range | 758 | - | 773 | -32 | 1 | 4 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
|  | Frequency range | 1400 | - | 1427 | -32 | 27 | 4, 20, 2 |
|  | Frequency range | 1475 | - | 1488 | -28 | 1 | 4, 21, 2 |
|  | Frequency range | 1475 | - | 1488 | -50 | 1 | 4, 22, 2 |
|  | Frequency range | 1488 | - | 1510.9 | -35 | 1 | 4, 23, 2 |
|  | Frequency range | 1488 | - | 1518 | -50 | 1 | 4, 2 |
| CA\_n28-n78 | Frequency range | 758 | - | 773 | -32 | 1 |  |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n28-n79 | Frequency range | 470 | - | 694 | -42 | 8 | 4, 14 |
|  | Frequency range | 470 | - | 710 | -26.2 | 6 | 13 |
|  | Frequency range | 662 | - | 694 | -26.2 | 6 | 4 |
|  | Frequency range | 758 | - | 773 | -32 | 1 | 4 |
|  | Frequency range | 773 | - | 803 | -50 | 1 |  |
|  |  |  |  |  |  |  |  |
| CA\_n41-n74 |  |  |  |  |  |  |  |
|  | Frequency range | 1400 | - | 1427 | -32 | 27 | 4, 20 |
|  | Frequency range | 1475 | - | 1488 | -28 | 1 | 4, 21 |
|  | Frequency range | 1475 | - | 1488 | -50 | 1 | 4, 22 |
|  | Frequency range | 1488 | - | 1510.9 | -35 | 1 | 4, 23 |
|  | Frequency range | 1488 | - | 1518 | -50 | 1 | 4 |
| CA\_n74-n77 | Frequency range |  |  |  |  |  |  |
|  | Frequency range | 1400 | - | 1427 | -32 | 27 | 4, 20 |
|  | Frequency range | 1475 | - | 1488 | -50 | 1 | 21 |
|  | Frequency range | 1475 | - | 1488 | -28 | 1 | 4, 21 |
|  | Frequency range | 1475 | - | 1488 | -50 | 1 | 4, 22 |
|  | Frequency range | 1488 | - | 1510.9 | -35 | 1 | 4, 23 |
| CA\_n74-n78 |  |  |  |  |  |  |  |
|  | Frequency range | 1400 | - | 1427 | -32 | 27 | 4, 20 |
|  | Frequency range | 1475 | - | 1488 | -28 | 1 | 4, 21 |
|  | Frequency range | 1475 | - | 1488 | -50 | 1 | 4, 22 |
|  | Frequency range | 1488 | - | 1510.9 | -35 | 1 | 4, 23 |
|  | Frequency range | 1488 | - | 1518 | -50 | 1 | 4 |
| NOTE 1: Void.  NOTE 2: As exceptions, measurements with a level up to the applicable requirements defined in Table 6.5.3.1-2 are permitted for each assigned NR carrier used in the measurement due to 2nd, 3rd, 4th or 5th harmonic spurious emissions. Due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2 MHz + N x LCRB x 180kHz), where N is 2, 3, 4, 5 for the 2nd, 3rd, 4th or 5th harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval.  NOTE 3: Void  NOTE 4: These requirements also apply for the frequency ranges that are less than FOOB (MHz) in Table 6.5.3.1-1 from the edge of the channel bandwidth.  NOTE 5: Void.  NOTE 6: Void.  NOTE 7: Void.  NOTE 8: This requirement is only applicable for carriers with bandwidth confined within 1885-1920 MHz (requirement for carriers with at least 1RB confined within 1880 - 1885 MHz is not specified). This requirement applies for an uplink transmission bandwidth less than or equal to 54 RB for carriers of 15 MHz bandwidth when carrier center frequency is within the range 1892.5 - 1894.5 MHz and for carriers of 20 MHz bandwidth when carrier center frequency is within the range 1895 - 1903 MHz.  NOTE 9: Void.  NOTE 10: Void.  NOTE 11:Applicable when the assigned NR carrier is confined within 718 MHz and 748 MHz and when the channel bandwidth used is 5 or 10 MHz.  NOTE 12: Void.  NOTE 13: This requirement is applicable for 5 and 10 MHz NR channel bandwidth allocated within 718 - 728 MHz. For carriers of 10 MHz bandwidth, this requirement applies for an uplink transmission bandwidth less than or equal to 30 RB with RBstart > 1 and Rbstart < 48.  NOTE 14: This requirement is applicable in the case of a 10 MHz NR carrier confined within 703 MHz and 733 MHz, otherwise the requirement of -25 dBm with a measurement bandwidth of 8 MHz applies.  NOTE 15: As exceptions, measurements with a level up to the applicable requirement of -36 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 3rd harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 3rd harmonic totally or partially overlaps the measurement bandwidth (MBW).  NOTE 17: Void.  NOTE 18: Void.  NOTE 19: This requirement is applicable for power class 3 UE for any channel bandwidths within the range 2570 - 2615 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 2605.5 - 2607.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 2597 - 2605 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB. For power class 2 UE for any channel bandwidths within the range 2570 - 2615 MHz, NS\_44 shall apply. For power class 2 or 3 UE for carriers with channel bandwidth overlapping the frequency range 2615 - 2620 MHz the requirement applies with the maximum output power configured to +19 dBm in the IE P-Max.  NOTE 20: Applicable for cases and when the lower edge of the assigned NR UL channel bandwidth frequency is greater than or equal to 1427 MHz + the channel BW assigned for 5 and 10 MHz bandwidth, and when the lower edge of the assigned NR UL channel bandwidth frequency is greater than or equal to 1440 MHz for 15 and 20 MHz bandwidth.  NOTE 21: Applicable for 5 MHz bandwidth, and when the upper edge of the assigned NR UL channel bandwidth frequency is less than or equal to 1467 MHz assigned for 10 MHz bandwidth, and when the upper edge of the assigned NR UL channel bandwidth frequency is less than or equal to 1463.8 MHz for 15 MHz bandwidth, and when the upper edge of the assigned NR UL channel bandwidth.  NOTE 22: As exceptions, for 90 and 100 MHz channel bandwidth, -40 dBm/MHz is applicable in the frequency range of 2496 – 2505 MHz.  NOTE 23: For these adjacent bands, the emission limit could imply risk of harmful interference to UE(s) operating in the protected operating band.if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval.  NOTE 24: For 20MHz channel bandwidth in band n26 this value is changed to 794MHz. | | | | | | | |

##### 6.5A.3.2.4 Void

*< text omitted >*

Annex L (normative):  
ModifiedMPR-Behavior

# L.1 Indication of modified MPR behavior

This annex contains the definitions of the bits in the field *modifiedMPR-Behaviour* indicated per supported NR band in the IE *RF-Parameters* [7] by a UE supporting an MPR or A-MPR modified in a given version of this specification. A modified MPR or A-MPR behaviour can apply to a supported NR band in stand-alone operation (including CA and NN-DC operation) or in non-standalone operation with the said NR band as part of an EN-DC or NE-DC band combination.

NOTE 1: In the present release, the *modifiedMPR-Behaviour* is indicated [7] by an 8-bit bitmap per supported NR band.

Table L.1-1: Definitions of the bits in the field *modifiedMPR-Behaviour*

| NR Band | Index of field  (bit number) | Definition  (description of the supported functionality if indicator set to one) | Notes |
| --- | --- | --- | --- |
| n1 | 0 (leftmost bit) | Requirements for network signalling values NS\_05 and NS\_05U as defined in Clause 6.5.3.3.4 of 38.101-1 v19.3.0 and the A-MPR as defined in clause 6.2.3.4 of 38.101-1 v19.3.0 | This bit shall be set to 1 by a UE supporting this version of the specification. |
| n30 | 0 (leftmost bit) | Requirements for network signalling value NS\_21 as defined in Clause 6.5.2.3.y of 38.101-1 v17.6.0 and A-MPR as defined in Clause 6.2.3.14 of 38.101-1 v17.6.0. | This bit shall be set to 1 by a UE supporting the Rel-17 version of the specification.  If the bit is not set, then requirements for NS\_21 as defined in Clause 6.5.2.3.3 of 38.101-1 v16.11.0 and A-MPR as defined in Clause 6.2.3.14 of 38.101-1 v16.11.0 apply. |
| n34 | 0 (leftmost bit) | PC 1.5 MPR as defined in Table 6.2D.2-3 | This bit may be set to 1 by a UE of any release supporting power class 1.5. This bit is intended to be set by larger form factor FWA devices. If the bit is not set for a Rel-17 and later UE, PC 1.5 MPR as defined in Table 6.2D.2-2 applies. If the bit is not set for a Rel-16 and earlier UE, MPR in Table 6.2.2-4 of 38.101-1 v16.5.0 applies. |
| n39 | 0 (leftmost bit) | PC 1.5 MPR as defined in Table 6.2D.2-3 | This bit may be set to 1 by a UE of any release supporting power class 1.5. This bit is intended to be set by larger form factor FWA devices. If the bit is not set for a Rel-17 and later UE, PC 1.5 MPR as defined in Table 6.2D.2-2 applies. If the bit is not set for a Rel-16 and earlier UE, MPR in Table 6.2.2-4 of 38.101-1 v16.5.0 applies. |
| n40 | 0 (leftmost bit) | PC 1.5 MPR as defined in Table 6.2D.2-3 | This bit may be set to 1 by a UE of any release supporting power class 1.5. This bit is intended to be set by larger form factor FWA devices. If the bit is not set for a Rel-17 and later UE, PC 1.5 MPR as defined in Table 6.2D.2-2 applies. If the bit is not set for a Rel-16 and earlier UE, MPR in Table 6.2.2-4 of 38.101-1 v16.5.0 applies. |
| n41 | 0 (leftmost bit) | EN-DC contiguous intraband MPR as defined in clause 6.2B.2.1 of 38.101-3 v15.5.0 | - This bit shall be set to 1 by a UE supporting DC\_(n)41AA UE EN-DC |
|  | 1 | EN-DC non-contiguous intraband MPR as defined in clause 6.2B.2.2 of 38.101-3 v15.5.0 | - This bit shall be set to 1 by a UE supporting DC\_41A\_n41A EN-DC |
|  | 2 | EN-DC contiguous and non-contiguous intraband MPR and A-MPR as defined in 38.101-3 v16.4.0. If this bit is not set the UE uses Rel-15 MPR or A-MPR for EN-DC contiguous and non-contiguous intraband MPR and A-MPR | -This bit may be set to 1 by a UE supporting DC\_(n)41AA or DC\_41A\_n41A EN-DC |
|  | 3 | PC 1.5 MPR as defined in Table 6.2D.2-3 | This bit may be set to 1 by a UE of any release supporting power class 1.5. This bit is intended to be set by larger form factor FWA devices. If the bit is not set for a Rel-17 and later UE, PC 1.5 MPR as defined in Table 6.2D.2-2 applies. If the bit is not set for a Rel-16 and earlier UE, MPR in Table 6.2.2-4 of 38.101-1 v16.5.0 applies. |
| n71 | 0 (leftmost bit) | EN-DC contiguous intraband MPR as defined in clause 6.2B.2.1 of 38.101-3 v15.5.0 | - This bit shall be set to 1 by a UE supporting DC\_(n)71AA UE EN-DC |
| n77 | 0 (leftmost bit) | PC 1.5 MPR as defined in Table 6.2D.2-3 | This bit may be set to 1 by a UE of any release supporting power class 1.5. This bit is intended to be set by larger form factor FWA devices. If the bit is not set for a Rel-17 and later UE, PC 1.5 MPR as defined in Table 6.2D.2-2 applies. If the bit is not set for a Rel-16 and earlier UE, MPR in Table 6.2.2-4 of 38.101-1 v16.5.0 applies. |
| n78 | 0 (leftmost bit) | PC 1.5 MPR as defined in Table 6.2D.2-3 | This bit may be set to 1 by a UE of any release supporting power class 1.5. This bit is intended to be set by larger form factor FWA devices. If the bit is not set for a Rel-17 and later UE, PC 1.5 MPR as defined in Table 6.2D.2-2. If the bit is not set for a Rel-16 and earlier UE, MPR in Table 6.2.2-4 of 38.101-1 v16.5.0 applies. |
| n79 | 0 (leftmost bit) | PC 1.5 MPR as defined in Table 6.2D.2-3 | This bit may be set to 1 by a UE of any release supporting power class 1.5. This bit is intended to be set by larger form factor FWA devices. If the bit is not set for a Rel-17 and later UE, PC 1.5 MPR as defined in Table 6.2D.2-2 applies. If the bit is not set for a Rel-16 and earlier UE, MPR in Table 6.2.2-4 of 38.101-1 v16.5.0 applies. |
| n96 | 0 (leftmost bit) | Support of all band n96 network signalling labels as defined in Table 6.2F.3.1-1 of 38.101-1 Rel-17 | This bit may be set to 1 by a Rel-16 UE to indicate support of all network signalling labels for n96 as defined in Table 6.2F.3.1-1 of 38.101-1 Rel-17 |
|  | 1 | Support of all band n96 network signalling labels as defined in Table 6.2F.3.1-1 of 38.101-1 Rel-18 | This bit may be set to 1 by a Rel-16 and Rel-17 UE to indicate support of all network signalling labels for n96 as defined in Table 6.2F.3.1-1 of 38.101-1 Rel-18 |
| n102 | 0 (leftmost bit) | Support of all band n102 network signalling labels as defined in Table 6.2F.3.1-1 of 38.101-1 Rel-17 | This bit may be set to 1 by a Rel-16 UE to indicate support of all network signalling labels for n102 as defined in Table 6.2F.3.1-1 of 38.101-1 Rel-17 |
|  | 1 | Support of all band n102 network signalling labels as defined in Table 6.2F.3.1-1 of 38.101-1 Rel-18 | This bit may be set to 1 by a Rel-16 and Rel-17 UE to indicate support of all network signalling labels for n102 as defined in Table 6.2F.3.1-1 of 38.101-1 Rel-18 |
| n104 | 0 (leftmost bit) | PC 1.5 MPR as defined in Table 6.2D.2-3 | This bit may be set to 1 by a UE of any release supporting power class 1.5. This bit is intended to be set by larger form factor FWA devices. If the bit is not set for a Rel-17 and later UE, PC 1.5 MPR as defined in Table 6.2D.2-2 applies. If the bit is not set for a Rel-16 and earlier UE, MPR in Table 6.2.2-4 of 38.101-1 v16.5.0 applies. |

Annex M (informative):  
Change history

*< end of changes >*