**3GPP TSG- Meeting #**

**Electronic meeting,**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** | **991** | **rev** | **1** | **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 | **X** | Core Network |  |

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| ***Work item code:*** |  | | | | |  | ***Date:*** | | | 2022-02-26 |
|  |  | | | |  | |  | | |  |
| ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | While the full unlicensed 6GHz band n96, 5925-7125MHz, was introduced in Rel-16, there are countries/regions that have completed their regulatory requirements after introduction of band n96. Since some countries/regions have requirements that are not covered by existing band n96 NS flags NS\_53 and NS\_54, new flags are added with associated A-MPR values. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | In sub-clause 5.2, NOTE14 is changed so that band n96 is not restrcited only to US.  In sub-clause 6.2F.1, new NS values, NS\_59 and NS\_60, are added to support new regulatory requirements.  New sub-clauses are added where new A-MPR values are added for NS\_59 and NS\_60.  In sub-clause 6.5F.3.3.5, additional emission requirements are added for NS\_60. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | If new NS values are not added, it will not be possible to use the 6GHz unlicensed band in certain countries/regions, such as Canada and South Korea. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2, 6.2F.1, 6.2F.3.1, 6.2F.3.y1 (new), 6.2F.3.y2 (new), 6.5F.3.3.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | R1:  - NOTE14 is changed so that band n96 is not restricted only to US.  - Additional requirements for NS\_60 are generalised with NS\_53 and NS\_54 under the existing section 6.5F.3.3.5. | | | | | | | | |

## 5.2 Operating bands

NR is designed to operate in the FR1 operating bands defined in Table 5.2-1.

Table 5.2-1: NR operating bands in FR1

|  |  |  |  |
| --- | --- | --- | --- |
| NR operating band | Uplink (UL) *operating band* BS receive / UE transmit  FUL\_low  – FUL\_high | Downlink (DL) *operating band* BS transmit / UE receive  FDL\_low – FDL\_high | Duplex Mode |
| n1 | 1920 MHz – 1980 MHz | 2110 MHz – 2170 MHz | FDD |
| n2 | 1850 MHz – 1910 MHz | 1930 MHz – 1990 MHz | FDD |
| n3 | 1710 MHz – 1785 MHz | 1805 MHz – 1880 MHz | FDD |
| n5 | 824 MHz – 849 MHz | 869 MHz – 894 MHz | FDD |
| n7 | 2500 MHz – 2570 MHz | 2620 MHz – 2690 MHz | FDD |
| n8 | 880 MHz – 915 MHz | 925 MHz – 960 MHz | FDD |
| n12 | 699 MHz – 716 MHz | 729 MHz – 746 MHz | FDD |
| n13 | 777 MHz – 787 MHz | 746 MHz – 756 MHz | FDD |
| n14 | 788 MHz – 798 MHz | 758 MHz – 768 MHz | FDD |
| n18 | 815 MHz – 830 MHz | 860 MHz – 875 MHz | FDD |
| n20 | 832 MHz – 862 MHz | 791 MHz – 821 MHz | FDD |
| n2416 | 1626.5 MHz – 1660.5 MHz | 1525 MHz – 1559 MHz | FDD |
| n25 | 1850 MHz – 1915 MHz | 1930 MHz – 1995 MHz | FDD |
| n26 | 814 MHz – 849 MHz | 859 MHz – 894 MHz | FDD |
| n28 | 703 MHz – 748 MHz | 758 MHz – 803 MHz | FDD |
| n29 | N/A | 717 MHz – 728 MHz | SDL |
| n303 | 2305 MHz – 2315 MHz | 2350 MHz – 2360 MHz | FDD |
| n34 | 2010 MHz – 2025 MHz | 2010 MHz – 2025 MHz | TDD |
| n3810 | 2570 MHz – 2620 MHz | 2570 MHz – 2620 MHz | TDD |
| n39 | 1880 MHz – 1920 MHz | 1880 MHz – 1920 MHz | TDD |
| n40 | 2300 MHz – 2400 MHz | 2300 MHz – 2400 MHz | TDD |
| n41 | 2496 MHz – 2690 MHz | 2496 MHz – 2690 MHz | TDD |
| n46 | 5150 MHz – 5925 MHz | 5150 MHz – 5925 MHz | TDD13 |
| n4711 | 5855 MHz – 5925 MHz | 5855 MHz – 5925 MHz | TDD |
| n48 | 3550 MHz – 3700 MHz | 3550 MHz – 3700 MHz | TDD |
| n50 | 1432 MHz – 1517 MHz | 1432 MHz – 1517 MHz | TDD1 |
| n51 | 1427 MHz – 1432 MHz | 1427 MHz – 1432 MHz | TDD |
| n53 | 2483.5 MHz – 2495 MHz | 2483.5 MHz – 2495 MHz | TDD |
| n65 | 1920 MHz – 2010 MHz | 2110 MHz – 2200 MHz | FDD4 |
| n66 | 1710 MHz – 1780 MHz | 2110 MHz – 2200 MHz | FDD |
| n67 | N/A | 738 MHz – 758 MHz | SDL |
| n70 | 1695 MHz – 1710 MHz | 1995 MHz – 2020 MHz | FDD |
| n71 | 663 MHz – 698 MHz | 617 MHz – 652 MHz | FDD |
| n74 | 1427 MHz – 1470 MHz | 1475 MHz – 1518 MHz | FDD |
| n75 | N/A | 1432 MHz – 1517 MHz | SDL |
| n76 | N/A | 1427 MHz – 1432 MHz | SDL |
| n7712 | 3300 MHz – 4200 MHz | 3300 MHz – 4200 MHz | TDD |
| n78 | 3300 MHz – 3800 MHz | 3300 MHz – 3800 MHz | TDD |
| n79 | 4400 MHz – 5000 MHz | 4400 MHz – 5000 MHz | TDD |
| n80 | 1710 MHz – 1785 MHz | N/A | SUL |
| n81 | 880 MHz – 915 MHz | N/A | SUL |
| n82 | 832 MHz – 862 MHz | N/A | SUL |
| n83 | 703 MHz – 748 MHz | N/A | SUL |
| n84 | 1920 MHz – 1980 MHz | N/A | SUL |
| n85 | 698 MHz – 716 MHz | 728 MHz – 746 MHz | FDD |
| n86 | 1710 MHz – 1780 MHz | N/A | SUL |
| n89 | 824 MHz – 849 MHz | N/A | SUL |
| n90 | 2496 MHz – 2690 MHz | 2496 MHz – 2690 MHz | TDD5 |
| n91 | 832 MHz – 862 MHz | 1427 MHz – 1432 MHz | FDD9 |
| n92 | 832 MHz – 862 MHz | 1432 MHz – 1517 MHz | FDD9 |
| n93 | 880 MHz – 915 MHz | 1427 MHz – 1432 MHz | FDD9 |
| n94 | 880 MHz – 915 MHz | 1432 MHz – 1517 MHz | FDD9 |
| n958 | 2010 MHz – 2025 MHz | N/A | SUL |
| n9614 | 5925 MHz – 7125 MHz | 5925 MHz – 7125 MHz | TDD13 |
| n9715 | 2300 MHz – 2400 MHz | N/A | SUL |
| n9815 | 1880 MHz – 1920 MHz | N/A | SUL |
| n9916 | 1626.5 MHz – 1660.5 MHz | N/A | SUL |
| NOTE 1: UE that complies with the NR Band n50 minimum requirements in this specification shall also comply with the NR Band n51 minimum requirements.  NOTE 2: UE that complies with the NR Band n75 minimum requirements in this specification shall also comply with the NR Band n76 minimum requirements.  NOTE 3: Uplink transmission is not allowed at this band for UE with external vehicle-mounted antennas.  NOTE 4: A UE that complies with the NR Band n65 minimum requirements in this specification shall also comply with the NR Band n1 minimum requirements.  NOTE 5: Unless otherwise stated, the applicability of requirements for Band n90 is in accordance with that for Band n41; a UE supporting Band n90 shall meet the requirements for Band n41. A UE supporting Band n90 shall also support band n41.  NOTE 6: A UE that supports NR Band n66 shall receive in the entire DL operating band.  NOTE 7: A UE that supports NR Band n66 and CA operation in any CA band shall also comply with the minimum requirements specified for the DL CA configurations CA\_n66B and CA\_n66(2A) in the current version of the specification.  NOTE 8: This band is applicable in China only.  NOTE 9: Variable duplex operation does not enable dynamic variable duplex configuration by the network, and is used such that DL and UL frequency ranges are supported independently in any valid frequency range for the band.  NOTE 10: When this band is used for V2X SL service, the band is exclusively used for NR V2X in particular regions.  NOTE 11: This band is unlicensed band used for V2X service. There is no expected network deployment in this band.  NOTE 12: In the USA this band is restricted to 3450 – 3550 MHz and 3700 – 3980 MHz  NOTE 13: This band is restricted to operation with shared spectrum channel access as defined in 37.213.  NOTE 14: This band is applicable only in countries/regions designating this band for shared-spectrum access use subject to country-specific conditions*.*  NOTE 15: The requirements for this band are applicable only where no other NR or E-UTRA TDD operating band(s) are used within the frequency range of this band in the same geographical area. For scenarios where other NR or E-UTRA TDD operating band(s) are used within the frequency range of this band in the same geographical area, special co-existence requirements may apply that are not covered by the 3GPP specifications.  NOTE 16: DL operation in this band is restricted to 1526 – 1536 MHz and UL operation is restricted to 1627.5 – 1637.5 MHz and 1646.5 – 1656.5 MHz. | | | |

----------- NEXT CHANGED SECTION ------------

## 6.2F Transmitter power for shared spectrum channel access

### 6.2F.1 UE maximum output power

The following UE Power Classes define the maximum output power for any transmission bandwidth within the channel bandwidth of shared spectrum channel access carrier unless otherwise stated. The period of measurement shall be at least one sub frame (1ms).

Table 6.2F.1-1: UE Power Class

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NR  band | Class 1 (dBm) | Tolerance (dB) | Class 2 (dBm) | Tolerance (dB) | Class 3 (dBm) | Tolerance (dB) | Class 5 (dBm) | Tolerance (dB) |
| n46 |  |  |  |  |  |  | 20 | +2/-3 |
| n96 |  |  |  |  |  |  | 20 | +2/-3 |
| NOTE 1: PPowerClass is the maximum UE power specified without taking into account the tolerance  NOTE 2: Powerclass 5 is default power class unless otherwise stated. | | | | | | | | |

The UE operating shall meet the following additional requirements for maximum mean transmission power density specified in Table 6.2F.1-2 when NS is signaled and when transmission overlaps with any portion of the specified frequency range. In case transmission overlaps multiple frequency ranges, the lowest power density requirement applies.

Table 6.2F.1-2: Additional requirements for transmit power density

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NR Band | NS value | Channel bandwidth (MHz) | Frequency range (MHz) | Maximum mean power density (dBm/MHz) |
| n46 | NS\_28 | 20, 40, 60, 80 | 5150 – 5350 | 10 |
|  |  |  | 5470 – 5725 |  |
|  | NS\_29 | 20 | 5170 – 5330 | 10 |
|  |  |  | 5490 – 5730 |  |
|  |  | 40 | 5170 – 5330 | 7 |
|  |  |  | 5490 – 5730 |  |
|  |  | 60, 80 | 5170 – 5330 | 4 |
|  |  |  | 5490 – 5730 |  |
|  | NS\_30 | 20, 40, 60, 80 | 5150 – 5350 | 11 |
|  |  |  | 5470 – 5725 |  |
|  | NS\_31 | 20 | 5150 - 5230 | 10 |
|  |  |  | 5250 – 5350 |  |
|  |  |  | 5470 – 5725 |  |
|  |  |  | 5725 - 5850 |  |
|  |  |  | 5230 – 5250 | 4 |
|  |  | 40 | 5150 - 5230 | 7 |
|  |  |  | 5250 – 5350 |  |
|  |  |  | 5470 – 5725 |  |
|  |  |  | 5725 - 5850 |  |
|  |  |  | 5230 – 5250 | 4 |
|  |  | 60, 80 | 5150 - 5230 | 4 |
|  |  |  | 5250 – 5350 |  |
|  |  |  | 5470 – 5725 |  |
|  |  |  | 5725 - 5850 |  |
|  |  |  | 5230 – 5250 |  |
| n96 | NS\_53 | 20, 40, 60, 80 | 5925 – 7125 | -1 |
|  | NS\_54 | 20, 40, 60, 80 | 5925 – 6425 | 17 |
|  | 6525 – 6875 |  |
|  | NS\_59 | 20, 40, 60, 80 | 5925 – 7125 | 5 |
|  | NS\_60 | 20, 40, 60, 80 | 5925 – 7125 | 2 |

### 6.2F.1A UE maximum output power for CA

#### 6.2F.1A.1 UE maximum output power for inter-band CA

For inter-band carrier aggregation with one uplink carrier assigned to one NR band, the transmitter power requirements in clause 6.2 apply.

For inter-band carrier aggregation with uplink assigned to two NR bands, UE maximum output power shall be measured over all component carriers from different bands. If each band has separate antenna connectors, maximum output power is defined as the sum of maximum output power from each UE antenna connector. The period of measurement shall be at least one sub frame (1 ms). The maximum output power is specified in Table 6.2F.1.3A-1.

Table 6.2F.1A.1-1 UE Power Class for uplink inter-band CA (two bands)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Uplink CA Configuration | Class 1 (dBm) | Tolerance (dB) | Class 2 (dBm) | Tolerance  (dB) | Class 3 (dBm) | Tolerance (dB) | Class 4 (dBm) | Tolerance (dB) |
| CA\_n46A-n48A |  |  |  |  | 23 | +2/-32 |  |  |

### 6.2F.2 UE maximum output power reduction

For UE maximum output power reduction, the general requirements of clause 6.2.2 do not apply but instead the UE is allowed to reduce the maximum output power due to higher order modulations and transmit bandwidth configurations for power class 5 according to Table 6.2F.2-1 and Table 6.2F.2-2.

Table 6.2F.2-1 Maximum power reduction (MPR) for shared spectrum access UE power class 5

|  |  |  |  |
| --- | --- | --- | --- |
| Pre-coding | Modulation | RB Allocation | |
|  |  | Full2 (dB) | Partial3 (dB) |
| DFT-s-ODFM | Pi/2 BPSK4 | ≤ 1.5 | ≤ 2.5 |
|  | QPSK | ≤ 1.5 | ≤ 2.5 |
|  | 16 QAM | ≤ 2.0 | ≤ 3.0 |
|  | 64 QAM | ≤ 3.5 | ≤ 4.5 |
|  | 256 QAM | ≤ 5.0 | ≤ 5.5 |
| CP-OFDM | QPSK | ≤ 3.5 | ≤ 3.5 |
|  | 16 QAM | ≤ 4.0 | ≤ 4.0 |
|  | 64 QAM | ≤ 5.5 | ≤ 5.5 |
|  | 256 QAM | ≤ 7.0 | ≤ 7.0 |
| NOTE 1: The MPR shall apply to all SCS in all active 20 MHz sub-bands contiguously allocated in the channel. The MPR applies to interlaced allocations with uplink resource allocation type 2 as specified in TS 38.214 [10].  NOTE 2: Full RB allocation MPR applies when all RB’s in a 20 MHz channel or all RB’s in all sub-bands for wideband operation are fully allocated and sub-bands are transmitted according to configuration A in Table 6.2F.2-2.  NOTE 3: Partial RB allocation MPR applies when one or more RB’s in one or more sub-bands are not allocated or when the transmitted sub-bands for wideband operation are transmitted according to configuration B in Table 6.2F.2-2.  NOTE 4: Applicable to Pi/2-BPSK modulation when IE powerBoostPi2BPSK is set to 0. | | | |

Table 6.2F.2-2 MPR mapping for wideband operation

|  |  |  |
| --- | --- | --- |
| Wideband operation channel bandwidth (MHz) | Sub-band configuration | |
|  | A | B |
| 40 | 11 | 10, 01 |
| 60 | 111, 011, 110, 001, 010, 100 | None |
| 80 | 1111, 0111, 1110, 0110, 0001, 1000 | 1100, 0011, 0100, 0010 |
| NOTE 1: The sub-band configuration is represented as a bitmap where ‘1’ indicates that a sub-band is transmitted and ‘0’ indicates a sub-band is not transmitted. The bitmap is ordered with MSB mapped to the lowest frequency sub-band and LSB mapped to highest frequency sub-band within the wideband channel. | | |

For the UE maximum output power modified by MPR, the power limits specified in clause 6.2F.4 apply.

### 6.2F.2A UE maximum output power reduction for CA

#### 6.2F.2A.1 UE maximum output power reduction for inter-band CA

For inter-band carrier aggregation with uplink assigned to two bands, the requirements in clause 6.2.2 apply for the NR uplink carrier and clause 6.2F.2 for the carrier operating with shared spectrum access.

### 6.2F.3 UE additional maximum output power reduction

#### 6.2F.3.1 General

Additional emission requirements can be signalled by the network. Each additional emission requirement is associated with a unique network signalling (NS) value indicated in RRC signalling by an NR frequency band number of the applicable operating band and an associated value in the field *additionalSpectrumEmission.* Throughout this specification, the notion of indication or signalling of an NS value refers to the corresponding indication of an NR frequency band number of the applicable operating band, the IE field *freqBandIndicatorNR* and an associated value of *additionalSpectrumEmission* in the relevant RRC information elements [7]*.*

To meet the additional requirements, additional maximum power reduction (A-MPR) is allowed for the maximum output power as specified in Table 6.2F.1-1. Unless stated otherwise, the total reduction to UE maximum output power is max(MPR, A-MPR) where MPR is defined in clause 6.2F.2.

Table 6.2F.3.1-1 specifies the additional requirements with their associated network signalling values and the allowed A-MPR and applicable operating band(s) for each NS value. The mapping of NR frequency band numbers and values of the *additionalSpectrumEmission* to network signalling labels is specified in Table 6.2F.3.1-1A.

Table 6.2F.3.1-1: Additional maximum power reduction (A-MPR)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Network signalling label | Requirements (clause) | NR Band | Channel bandwidth (MHz) | Resources blocks (*N*RB) | A-MPR (clause) |
| NS\_01 |  | n46, n96 | 20, 40, 60, 80 |  | N/A |
| NS\_28 |  | n46 | 20, 40, 60, 80 |  | 6.2F.3.2 |
| NS\_29 |  | n46 | 20, 40, 60, 80 |  | 6.2F.3.3 |
| NS\_30 |  | n46 | 20, 40, 60, 80 |  | 6.2F.3.4 |
| NS\_31 |  | n46 | 20, 40, 60, 80 |  | 6.2F.3.5 |
| NS\_53 |  | n96 | 20, 40, 60, 80 |  | 6.2F.3.6 |
| NS\_54 |  | n96 | 20, 40, 60, 80 |  | 6.2F.3.7 |
| NS\_59 |  | n96 | 20, 40, 60, 80 |  | 6.2F.3.y1 |
| NS\_60 |  | n96 | 20, 40, 60, 80 |  | 6.2F.3.y2 |
| NOTE 1: The A-MPR shall apply to all active 20 MHz sub-bands contiguously allocated in the channel. | | | | | |

[The NS\_01 label with the field *additionalPmax* [7] absent is default for all NR bands.]

Table 6.2F.3.1-1A: Mapping of network signaling label

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NR band | Value of additionalSpectrumEmission | | | | | | | |
| **0** | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
| n46 | NS\_01 | NS\_28 | NS\_29 | NS\_30 | NS\_31 |  |  |  |
| n96 | NS\_01 | NS\_53 | NS\_54 | NS\_59 | NS\_60 |  |  |  |
| NOTE: *additionalSpectrumEmission* corresponds to an information element of the same name defined in clause 6.3.2 of TS 38.331 [7]. | | | | | | | | |

#### 6.2F.3.2 A-MPR for NS\_28

When "NS\_28" is indicated in the cell, the A-MPR is specified in Table 6.2F.3.2-1.

Table 6.2F.3.2-1: A-MPR for NS\_28 power class 5

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pre-coding | Modulation | RB Allocation (Note 2) | | RB Allocation (Note 3) |
|  |  | Full (dB) | Partial (dB) | Full/Partial |
| DFT-s-ODFM | QPSK | ≤ 4.0 | ≤ 6.0 | See Table 6.2F.2-1 |
|  | 16 QAM | ≤ 4.5 | ≤ 6.0 |  |
|  | 64 QAM | ≤ 4.5 | ≤ 6.5 |  |
|  | 256 QAM | ≤ 5.5 | ≤ 6.5 |  |
| CP-OFDM | QPSK | ≤ 6.0 | ≤ 7.0 |  |
|  | 16 QAM | ≤ 6.0 | ≤ 7.5 |  |
|  | 64 QAM | ≤ 6.5 | ≤ 7.5 |  |
|  | 256 QAM | ≤ 7.0 | ≤ 7.5 |  |
| NOTE 1: Full allocation A-MPR applies when all RB’s in a 20 MHz channel or all RB’s in all sub-bands for wideband operation are fully allocated and all sub-bands are transmitted. Partial allocation A-MPR applies when one or more RB’s in one or more sub-bands are not allocated or when not all transmitted sub-bands for wideband operation are transmitted.  NOTE 2: Applicable for 20 MHz channels centered at the nearest NR-ARFCN corresponding to 5160, 5340, 5480, and 5700 MHz, 40 MHz channels centered at the nearest NR-ARFCN corresponding to 5170, 5190, 5310, 5330, 5490, and 5510 MHz, 60 MHz channels centered at the nearest NR-ARFCN corresponding to 5180, 5200, 5220, 5280, 5300, 5320, 5500, 5520, 5540, 5680 MHz, and 80 MHz channels centered at the nearest NR-ARFCN corresponding to 5190, 5210, 5290, 5310, 5510, and 5530 MHz.  NOTE 3: Applicable for all valid channels other than those enumerated under NOTE 2. | | | | |

#### 6.2F.3.3 A-MPR for NS\_29

When "NS\_29" is indicated in the cell, the A-MPR is specified in Table 6.2F.3.3-1.

Table 6.2F.3.3-1: A-MPR for NS\_29 power class 5

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Pre-coding | Modulation | Channel bandwidth (Sub-band allocation) / RB Allocation | | | | |
|  |  | 20 MHz | 40 MHz | | 60 MHz, 80 MHz | |
|  |  | Full/Partial | Full (dB) | Partial (dB) | Full (dB) | Partial (dB) |
| DFT-s-ODFM | QPSK | See Table 6.2F.2-1 | ≤ 2.0 | ≤ 4.0 | ≤ 4.0 | ≤ 6.0 |
|  | 16 QAM |  | ≤ 2.5 | ≤ 4.0 | ≤ 4.0 | ≤ 6.0 |
|  | 64 QAM |  | ≤ 3.5 | ≤ 4.0 | ≤ 4.5 | ≤ 6.0 |
|  | 256 QAM |  | ≤ 5.0 | ≤ 5.5 | ≤ 5.5 | ≤ 6.0 |
| CP-OFDM | QPSK |  | ≤ 3.5 | ≤ 4.5 | ≤ 4.0 | ≤ 6.0 |
|  | 16 QAM |  | ≤ 4.0 | ≤ 4.5 | ≤ 4.0 | ≤ 6.0 |
|  | 64 QAM |  | ≤ 5.5 | ≤ 5.0 | ≤ 5.5 | ≤ 6.5 |
|  | 256 QAM |  | ≤ 7.0 | ≤ 6.5 | ≤ 7.0 | ≤ 7.0 |
| NOTE 1: Full allocation A-MPR applies when all RB’s in a 20 MHz channel or all RB’s in all sub-bands for wideband operation are fully allocated and all sub-bands are transmitted. Partial allocation A-MPR applies when one or more RB’s in one or more sub-bands are not allocated but when all sub-bands within the channel are transmitted. When not all sub-bands within the channel are transmitted, the A-MPR associated with the channel bandwidth according to the bandwidth of the contiguously transmitted sub-bands and according to the allocation type applies. | | | | | | |

#### 6.2F.3.4 A-MPR for NS\_30

When "NS\_30" is indicated in the cell, the A-MPR is specified in Table 6.2F.3.4-1.

Table 6.2F.3.4-1: A-MPR for NS\_30 power class 5

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Pre-coding | Modulation | RB Allocation (Note 2) | | RB Allocation (Note 3) | | RB Allocation (Note 4) |
|  |  | Full (dB) | Partial (dB) | Full (dB) | Partial (dB) | Full/Partial |
| DFT-s-ODFM | QPSK | ≤ 9.0 | ≤ 15.0 | ≤ 2.5 | ≤ 5.0 | See Table 6.2F.2-1 |
|  | 16 QAM | ≤ 9.0 | ≤ 15.5 | ≤ 3.0 | ≤ 5.0 |  |
|  | 64 QAM | ≤ 9.0 | ≤ 15.5 | ≤ 4.5 | ≤ 5.5 |  |
|  | 256 QAM | ≤ 9.0 | ≤ 16.0 | ≤ 5.5 | ≤ 5.5 |  |
| CP-OFDM | QPSK | ≤ 9.0 | ≤ 14.0 | ≤ 4.0 | ≤ 6.0 |  |
|  | 16 QAM | ≤ 9.5 | ≤ 14.5 | ≤ 4.0 | ≤ 6.0 |  |
|  | 64 QAM | ≤ 9.5 | ≤ 15.0 | ≤ 5.5 | ≤ 6.5 |  |
|  | 256 QAM | ≤ 9.5 | ≤ 15.0 | ≤ 7.0 | ≤ 7.0 |  |
| NOTE 1: Full allocation A-MPR applies when all RB’s in a 20 MHz channel or all RB’s in all sub-bands for wideband operation are fully allocated and all sub-bands are transmitted. Partial allocation A-MPR applies when one or more RB’s in one or more sub-bands are not allocated or when not all transmitted sub-bands for wideband operation are transmitted.  NOTE 2: Applicable for 20 MHz channels centered at the nearest NR-ARFCN corresponding to 5160, 5340, 5480, and 5700 MHz, 40 MHz channels centered at the nearest NR-ARFCN corresponding to 5170, 5190, 5310, 5330, 5490, and 5510 MHz, 60 MHz channels centered at the nearest NR-ARFCN corresponding to 5180, 5200, 5220, 5280, 5300, 5320, 5500, 5520, 5540, 5680 MHz, and 80 MHz channels centered at the nearest NR-ARFCN corresponding to 5190, 5210, 5290, 5310, 5510, and 5530 MHz.  NOTE 3: Applicable for 20 MHz channels centered at the nearest NR-ARFCN corresponding to 5180 and 5320 MHz, and 40 MHz channels centered at the nearest NR-ARFCN corresponding to 5230 and 5270 MHz.  NOTE 4: Applicable for all valid channels other than those enumerated under NOTE 2 and NOTE 3. | | | | | | |

#### 6.2F.3.5 A-MPR for NS\_31

When "NS\_31" is indicated in the cell, the A-MPR is specified in Table 6.2F.3.5-1.

Table 6.2F.3.5-1: A-MPR for NS\_31 power class 5

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pre-coding | Modulation | RB Allocation (Note 2) | RB Allocation (Note 3) | |
|  |  | Full/Partial | Full (dB) | Partial (dB) |
| DFT-s-ODFM | QPSK | See Table 6.2F.2-1 | ≤ 4.0 | ≤ 6.5 |
|  | 16 QAM |  | ≤ 4.0 | ≤ 6.5 |
|  | 64 QAM |  | ≤ 4.0 | ≤ 6.5 |
|  | 256 QAM |  | ≤ 5.0 | ≤ 6.5 |
| CP-OFDM | QPSK |  | ≤ 5.5 | ≤ 6.5 |
|  | 16 QAM |  | ≤ 5.5 | ≤ 7.0 |
|  | 64 QAM |  | ≤ 5.5 | ≤ 7.0 |
|  | 256 QAM |  | ≤ 7.0 | ≤ 7.0 |
| NOTE 1: Full allocation A-MPR applies when all RB’s in a 20 MHz channel or all RB’s in all sub-bands for wideband operation are fully allocated and all sub-bands are transmitted. Partial allocation A-MPR applies when one or more RB’s in one or more sub-bands are not allocated or when not all transmitted sub-bands for wideband operation are transmitted.  NOTE 2: Applicable for 20 MHz channels centered at the nearest NR-ARFCN corresponding to 5180, 5200, 5220, 5280, 5300, 5320, 5500, 5520, 5540, 5560, 5580, 5600, 5620, 5640, 5660, 5680, 5745, 5765, 5785, and 5805 MHz.  NOTE 3: Applicable for all valid channels and bandwidths other than those enumerated in NOTE 2. | | | | |

#### 6.2F.3.6 A-MPR for NS\_53

When "NS\_53" is indicated in the cell, the A-MPR is specified in Table 6.2F.3.6-1.

Table 6.2F.3.6-1: A-MPR for NS\_53 power class 5

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Pre-coding | Modulation | Channel bandwidth (Sub-band allocation) / RB Allocation | | | | | | | |
|  |  | 20 MHz | | 40 MHz | | 60 MHz | | 80 MHz | |
|  |  | Full (dB) | Partial (dB) | Full (dB) | Partial (dB) | Full (dB) | Partial (dB) | Full (dB) | Partial (dB) |
| DFT-s-ODFM | QPSK | ≤ 9.0 | ≤ 12.0 | ≤ 6.5 | ≤ 8.5 | ≤ 4.5 | ≤ 6.5 | ≤ 3.0 | ≤ 5.5 |
|  | 16 QAM | ≤ 9.0 | ≤ 12.0 | ≤ 6.5 | ≤ 8.5 | ≤ 4.5 | ≤ 6.5 | ≤ 3.0 | ≤ 5.5 |
|  | 64 QAM | ≤ 9.0 | ≤ 12.0 | ≤ 6.5 | ≤ 8.5 | ≤ 4.5 | ≤ 6.5 | ≤ 4.0 | ≤ 5.5 |
|  | 256 QAM | ≤ 9.0 | ≤ 12.0 | ≤ 6.5 | ≤ 8.5 | ≤ 5.0 | ≤ 7.0 | ≤ 5.0 | ≤ 5.5 |
| CP-OFDM | QPSK | ≤ 9.0 | ≤ 12.0 | ≤ 6.5 | ≤ 8.5 | ≤ 4.5 | ≤ 6.5 | ≤ 4.0 | ≤ 5.5 |
|  | 16 QAM | ≤ 9.0 | ≤ 12.0 | ≤ 6.5 | ≤ 8.5 | ≤ 4.5 | ≤ 6.5 | ≤ 4.0 | ≤ 5.5 |
|  | 64 QAM | ≤ 9.0 | ≤ 12.0 | ≤ 6.5 | ≤ 8.5 | ≤ 5.5 | ≤ 6.5 | ≤ 5.5 | ≤ 5.5 |
|  | 256 QAM | ≤ 9.0 | ≤ 12.0 | ≤ 7.0 | ≤ 8.5 | ≤ 7.0 | ≤ 7.0 | ≤ 7.0 | ≤ 7.0 |
| NOTE 1: Full allocation A-MPR applies when all RB’s in a 20 MHz channel or all RB’s in all sub-bands for wideband operation are fully allocated and all sub-bands are transmitted. Partial allocation A-MPR applies when one or more RB’s in one or more sub-bands are not allocated but when all sub-bands within the channel are transmitted. When not all sub-bands within the channel are transmitted, the A-MPR associated with the channel bandwidth according to the bandwidth of the contiguously transmitted sub-bands and according to the allocation type applies. | | | | | | | | | |

#### 6.2F.3.7 A-MPR for NS\_54

When "NS\_54" is indicated in the cell, the A-MPR is specified in Table 6.2F.3.7-1.

Table 6.2F.3.7-1: A-MPR for NS\_54 power class 5

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pre-coding | Modulation | RB Allocation (Note 2) | RB Allocation (Note 3) | |
|  |  | Full/Partial | Full (dB) | Partial (dB) |
| DFT-s-ODFM | QPSK | See Table 6.2F.2-1 | ≤ 2.5 | ≤ 5.0 |
|  | 16 QAM |  | ≤ 3.0 | ≤ 5.0 |
|  | 64 QAM |  | ≤ 3.5 | ≤ 5.0 |
|  | 256 QAM |  | ≤ 5.0 | ≤ 6.0 |
| CP-OFDM | QPSK |  | ≤ 4.5 | ≤ 6.0 |
|  | 16 QAM |  | ≤ 4.5 | ≤ 6.0 |
|  | 64 QAM |  | ≤ 5.5 | ≤ 6.0 |
|  | 256 QAM |  | ≤ 7.0 | ≤ 7.0 |
| NOTE 1: Full allocation A-MPR applies when all RB’s in a 20 MHz channel or all RB’s in all sub-bands for wideband operation are fully allocated and all sub-bands are transmitted. Partial allocation A-MPR applies when one or more RB’s in one or more sub-bands are not allocated or when not all transmitted sub-bands for wideband operation are transmitted.  NOTE 2: Applicable for all valid channels and bandwidths other than those enumerated in NOTE 3.  NOTE 3: Applicable for 40 MHz channels centered at the nearest NR-ARFCN corresponding to [5965 MHz], 60 MHz channels centered at the nearest NR-ARFCN corresponding to [5975 and 5995 MHz], and 80 MHz channels centered at the nearest NR-ARFCN corresponding to [5985 MHz]. | | | | |

#### 6.2F.3.y1 A-MPR for NS\_59

When "NS\_59" is indicated in the cell, the A-MPR is specified in Table 6.2F.3.y1-1.

Table 6.2F.3.y1-1: A-MPR for NS\_59 power class 5

|  |  |  |  |
| --- | --- | --- | --- |
| Pre-coding | Modulation | Channel bandwidth (Sub-band allocation) / RB Allocation | |
| 20 MHz | |
| Full (dB) | Partial (dB) |
| DFT-s-ODFM | PI/2 BPSK | ≤ 3.0 | ≤ 5.5 |
|  | QPSK | ≤ 3.0 | ≤ 5.5 |
|  | 16 QAM | ≤ 3.0 | ≤ 5.5 |
|  | 64 QAM | ≤ 3.5 | ≤ 5.5 |
|  | 256 QAM | ≤ 5.0 | ≤ 5.5 |
| CP-OFDM | QPSK | ≤ 3.5 | ≤ 5.5 |
|  | 16 QAM | ≤ 4.0 | ≤ 5.5 |
|  | 64 QAM | ≤ 5.5 | ≤ 5.5 |
|  | 256 QAM | ≤ 7.0 | ≤ 7.0 |
| NOTE 1: Full allocation A-MPR applies when all RB’s in a 20 MHz channel or all RB’s in all sub-bands for wideband operation are fully allocated and all sub-bands are transmitted. Partial allocation A-MPR applies when one or more RB’s in one or more sub-bands are not allocated but when all sub-bands within the channel are transmitted. When not all sub-bands within the channel are transmitted, the A-MPR associated with the channel bandwidth according to the bandwidth of the contiguously transmitted sub-bands and according to the allocation type applies | | | |

#### 6.2F.3.y2 A-MPR for NS\_60

When "NS\_60" is indicated in the cell, the A-MPR is specified in Table 6.2F.3.y2-1.

Table 6.2F.3.y2-1: A-MPR for NS\_60 power class 5

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Pre-coding | Modulation | Channel bandwidth (Sub-band allocation) / RB Allocation | | | | | | | |
| 20 MHz | | 40 MHz | | 60 MHz | | 80 MHz | |
| Full (dB) | Partial (dB) | Full (dB) | Partial (dB) | Full (dB) | Partial (dB) | Full (dB) | Partial (dB) |
| DFT-s-ODFM | QPSK | ≤ 6.0 | ≤ 8.5 | ≤ 4.0 | ≤ 5.5 | ≤ 3.5 | ≤ 4.5 | ≤ 3.0 | ≤ 4.5 |
| 16 QAM | ≤ 6.0 | ≤ 8.5 | ≤ 4.0 | ≤ 5.5 | ≤ 4.0 | ≤ 5.0 | ≤ 3.5 | ≤ 5.0 |
| 64 QAM | ≤ 6.0 | ≤ 8.5 | ≤ 4.0 | ≤ 5.5 | ≤ 4.0 | ≤ 5.0 | ≤ 3.5 | ≤ 5.0 |
| 256 QAM | ≤ 6.0 | ≤ 8.5 | ≤ 5.0 | ≤ 5.5 | ≤ 5.0 | ≤ 5.5 | ≤ 5.0 | ≤ 5.5 |
| CP-OFDM | QPSK | ≤ 6.0 | ≤ 8.5 | ≤ 5.5 | ≤ 5.5 | ≤ 5.0 | ≤ 5.5 | ≤ 4.5 | ≤ 5.5 |
| 16 QAM | ≤ 6.0 | ≤ 8.5 | ≤ 5.5 | ≤ 5.5 | ≤ 5.0 | ≤ 5.5 | ≤ 4.5 | ≤ 5.5 |
| 64 QAM | ≤ 6.0 | ≤ 8.5 | ≤ 5.5 | ≤ 5.5 | ≤ 5.5 | ≤ 5.5 | ≤ 5.5 | ≤ 5.5 |
| 256 QAM | ≤ 6.0 | ≤ 8.5 | ≤ 7.0 | ≤ 7.0 | ≤ 7.0 | ≤ 7.0 | ≤ 7.0 | ≤ 7.0 |
| NOTE 1: Full allocation A-MPR applies when all RB’s in a 20 MHz channel or all RB’s in all sub-bands for wideband operation are fully allocated and all sub-bands are transmitted. Partial allocation A-MPR applies when one or more RB’s in one or more sub-bands are not allocated but when all sub-bands within the channel are transmitted. When not all sub-bands within the channel are transmitted, the A-MPR associated with the channel bandwidth according to the bandwidth of the contiguously transmitted sub-bands and according to the allocation type applies | | | | | | | | | |

### 6.2F.3A UE additional maximum output power reduction for CA

#### 6.2F.3A.1 UE additional maximum output power reduction for inter-band CA

For inter-band carrier aggregation with uplink assigned to two bands, the requirements in clause 6.2.3 apply for the NR uplink carrier and clause 6.2F.3 for the carrier operating with shared spectrum access.

### 6.2F.4 Configured transmitted power

The requirements for configured maximum output power in clause 6.2.4 apply.

----------- NEXT CHANGED SECTION ------------

#### 6.5F.3.3 Additional spurious emissions

These requirements are specified in terms of an additional spectrum emission requirement. Additional spurious emission requirements are signalled by the network to indicate that the UE shall meet an additional requirement for a specific deployment scenario as part of the cell handover/broadcast message.

##### 6.5F.3.3.1 Requirement for network signalling value "NS\_28"

When "NS\_28" is indicated in the cell, the power of any UE emission for channels assigned within 5150-5350 and 5470-5725 MHz shall not exceed the levels specified in Table 6.5F.3.3.1-1. This requirement also applies for the frequency ranges that are less than FOOB (MHz) in Table 6.6.3.1-1 from the edge of the channel bandwidth.

Table 6.5F.3.3.1-1: Additional requirements

|  |  |  |
| --- | --- | --- |
| Frequency band  (MHz) | Channel bandwidth /  Spectrum emission limit  (dBm) | Measurement bandwidth |
|  | 20, 40, 60, 80, [100] MHz |  |
| 47 ≤ f ≤ 74 | -54 | 100 kHz |
| 87.5 ≤ f ≤ 118 | -54 | 100 kHz |
| 174 ≤ f ≤ 230 | -54 | 100 kHz |
| 470 ≤ f ≤ 862 | -54 | 100 kHz |
| 1000 ≤ f ≤ 5150 | -30 | 1 MHz |
| 5350 ≤ f ≤ 5470 | -30 | 1 MHz |
| 5725 ≤ f ≤ 26000 | -30 | 1 MHz |

##### 6.5F.3.3.2 Requirement for network signalling value "NS\_29"

When "NS\_29" is indicated in the cell, the power of any UE emission for channels assigned within 5150-5350 and 5470-5730 MHz shall not exceed the levels specified in Table 6.5F.3.3.2-1, Table 6.5F.3.3.2-2, and Table 6.F.3.3.2-3. This requirement also applies for the frequency ranges that are less than FOOB (MHz) in Table 6.6.3.1-1 from the edge of the channel bandwidth.

Table 6.5F.3.3.2-1: Additional requirements for 20 MHz channel bandwidth

|  |  |  |  |
| --- | --- | --- | --- |
| Center  Frequency Fc  [MHz] | Protected range  [MHz] | Minimum requirement  [dBm] | Measurement bandwidth |
| 5179.98 ≤ Fc ≤ 5239.98 | 5135 ≤ f ≤ 5142 | -26 | 1 MHz |
|  | 5142 < f ≤ 5150 | -18 |  |
|  | 5250 ≤ f < 5250.2 | 3 to -2 |  |
|  | 5250.2 ≤ f < 5251 | -2 to -10 |  |
|  | 5251 ≤ f < 5260 | -10 to -18 |  |
|  | 5260 ≤ f < 5266.7 | -18 to -26 |  |
|  | 5266.7 ≤ f ≤ 5365 | -26 |  |
| 5260.02 ≤ Fc ≤ 5320.02 | 5135 ≤ f ≤ 5233.3 | -26 |  |
|  | 5233.3 < f ≤ 5240 | -26 to -18 |  |
|  | 5240 < f ≤ 5249 | -18 to -10 |  |
|  | 5249 < f ≤ 5249.8 | -10 to -2 |  |
|  | 5249.8 < f ≤ 5250 | -2 to 3 |  |
|  | 5350 ≤ f ≤ 5365 | -26 |  |
| 5500.02 ≤ Fc ≤ 5719.98 | 5420 ≤ f ≤ 5460 | -26 |  |
|  | 5460 < f ≤ 5470 | -19 |  |
|  | 5745 ≤ f < 5765 | -19 |  |
|  | 5765 ≤ f ≤ 5800 | -26 |  |
| NOTE: The minimum requirement when specified as a range denotes the emission requirement at the end points of the protected range. The requirement within the protected range is obtained by linear interpolation between the requirements at the end points. | | | |

Table 6.5F.3.3.2-2: Additional requirements for 40 MHz channel bandwidth

|  |  |  |  |
| --- | --- | --- | --- |
| Center  Frequency Fc  [MHz] | Protected range  [MHz] | Minimum requirement  [dBm] | Measurement bandwidth |
| 5190 ≤ Fc ≤ 5230.02 | 5100 ≤ f ≤ 5141.6 | -26 | 1 MHz |
|  | 5141.6 < f ≤ 5150 | -18 |  |
|  | 5250 ≤ f < 5251 | -3 to -13 |  |
|  | 5251 ≤ f < 5270 | -13 to -21 |  |
|  | 5270 ≤ f < 5278.4 | -21 to -26 |  |
|  | 5278.4 ≤ f ≤ 5400 | -26 |  |
| 5269.98 ≤ Fc ≤ 5310 | 5210 < f ≤ 5221.6 | -26 |  |
|  | 5221.6 < f ≤ 5230 | -26 to -21 |  |
|  | 5230 < f ≤ 5249 | -21 to -13 |  |
|  | 5249 ≤ f ≤ 5250 | -13 to -3 |  |
|  | 5350 ≤ f ≤ 5358.4 | -18 |  |
|  | 5358.4 < f ≤ 5400 | -26 |  |
| 5509.98 ≤ Fc ≤ 5670 | 5420 ≤ f ≤ 5460 | -19 |  |
|  | 5460 < f ≤ 5470 | -13 |  |
|  | 5770 ≤ f ≤ 5800 | -19 |  |
| NOTE: The minimum requirement when specified as a range denotes the emission requirement at the end points of the protected range. The requirement within the protected range is obtained by linear interpolation between the requirements at the end points. | | | |

Table 6.5F.3.3.2-3: Additional requirements for 60 and 80 MHz channel bandwidth

|  |  |  |  |
| --- | --- | --- | --- |
| Center  Frequency Fc  [MHz] | Protected range  [MHz] | Minimum requirement  [dBm] | Measurement bandwidth |
| 5200.02 ≤ Fc ≤ 5220 | 5020 ≤ f ≤ 5123.2 | -26 | 1 MHz |
|  | 5123.2 < f ≤ 5150 | -18 |  |
|  | 5250 ≤ f < 5251 | -6 to -16 |  |
|  | 5251 ≤ f < 5290 | -16 to -24 |  |
|  | 5290 ≤ f < 5296.7 | -24 to -26 |  |
|  | 5296.7 ≤ f ≤ 5480 | -26 |  |
| 5280 ≤ Fc ≤ 5299.98 | 5020 ≤ f ≤ 5203.3 | -26 |  |
|  | 5203.3 < f ≤ 5210 | -26 to -24 |  |
|  | 5210 < f ≤ 5249 | -24 to -16 |  |
|  | 5249 < f ≤ 5250 | -16 to -6 |  |
|  | 5350 ≤ f < 5376.8 | -18 |  |
|  | 5376.8 ≤ f ≤ 5480 | -26 |  |
| 5520 ≤ Fc ≤ 5689.98 | 5340 ≤ f ≤ 5460 | -19 |  |
|  | 5460 < f ≤ 5469.5 | -13 |  |
|  | 5469.5 < f ≤ 5470 | -13 |  |
|  | 5770 ≤ f ≤ 5800 | -19 |  |
| NOTE: The minimum requirement when specified as a range denotes the emission requirement at the end points of the protected range. The requirement within the protected range is obtained by linear interpolation between the requirements at the end points. | | | |

##### 6.5F.3.3.3 Requirement for network signalling value "NS\_30"

When "NS\_30" is indicated in the cell, the power of any UE emission for channels assigned within 5150-5350 MHz, 5470-5725 MHz and 5725-5850 MHz shall not exceed the levels specified in Table 6.5F.3.3.3-1-1, Table 6.5F.3.3.3-1-2 and Table 6.5F.3.3.3-1-3, respectively. These requirements also apply for the frequency ranges that are less than FOOB (MHz) in Table 6.6.3.1-1 from the edge of the channel bandwidth.

Table 6.5F.3.3.3-1: Additional requirements for shared access channels assigned within 5150-5350 MHz

|  |  |  |
| --- | --- | --- |
| Protected range  (MHz) | Channel bandwidth /  Spectrum emission limit  (dBm) | Measurement bandwidth |
|  | 20, 40, 60, 80 MHz |  |
| 4500 ≤ f ≤ 5150 | -41 | 1 MHz |
| 5350 ≤ f ≤ 5460 | -41 |

Table 6.5F.3.3.3-2: Additional requirements for shared access channels assigned within 5470-5725 MHz

|  |  |  |
| --- | --- | --- |
| Protected range  (MHz) | Channel bandwidth /  Spectrum emission limit  (dBm) | Measurement bandwidth |
|  | 20, 40, 60, 80 MHz |  |
| 4500 ≤ f ≤ 5150 | -41 | 1 MHz |
| 5350 ≤ f ≤ 5460 | -41 |
| 5460 < f ≤ 5470 | -27 |
| 5725 ≤ f | -27 |

Table 6.5F.3.3.3-3: Additional requirements for shared access channels assigned within 5725-5850 MHz

|  |  |  |
| --- | --- | --- |
| Protected range  (MHz) | Channel bandwidth /  Spectrum emission limit  (dBm) | Measurement bandwidth |
|  | 20, 40, 60, 80, [100] MHz |  |
| f < 5650 | -27 | 1 MHz |
| 5650 ≤ f < 5700 | -27 to 10 |
| 5700 ≤ f < 5720 | 10 to 15.6 |
| 5720 < f ≤ 5725 | 15.6 to 27 |
| 5850 ≤ f ≤ 5855 | 27 to 15.6 |
| 5855 < f ≤ 5875 | 15.6 to 10 |
| 5875 < f ≤ 5925 | 10 to -27 |
| 5925 < f | -27 |
| NOTE: The minimum requirement when specified as a range denotes the emission requirement at the end points of the protected range. The requirement within the protected range is obtained by linear interpolation between the requirements at the end points. | | |

##### 6.5F.3.3.4 Requirement for network signalling value "NS\_31"

When "NS\_31" is indicated in the cell, the power of any UE emission for channels assigned within 5150-5250 MHz, 5250-5350 MHz, 5470-5725 MHz and 5725-5850 MHz shall not exceed the levels specified in Table 6.5F.3.3.4-1, Table 6.5F.3.3.4-2, Table 6.5F.3.3.4-3 and Table 6.5F.3.3.4-4, respectively. These requirements also apply for the frequency ranges that are less than FOOB (MHz) in Table 6.6.3.1-1 from the edge of the channel bandwidth.

Table 6.5F.3.3.4-1: Additional requirements for NR-U channels assigned within 5150-5250 MHz

|  |  |  |
| --- | --- | --- |
| Frequency band  (MHz) | Channel bandwidth /  Spectrum emission limit  (dBm) | Measurement bandwidth |
|  | 20, 40, 60, 80 MHz |  |
| f ≤ 5150 | -27 | 1 MHz |
| f ≥ 5250 | -27 |

Table 6.5F.3.3.4-2: Additional requirements for NR-U channels assigned within 5250-5350 MHz

|  |  |  |
| --- | --- | --- |
| Frequency band  (MHz) | Channel bandwidth /  Spectrum emission limit  (dBm) | Measurement bandwidth |
|  | 20, 40, 60, 80 MHz |  |
| f ≤ 5250 | -27 | 1 MHz |
| f ≥ 5350 | -27 |

Table 6.5F.3.3.4-3: Additional requirements for NR-U channels assigned within 5470-5725 MHz

|  |  |  |
| --- | --- | --- |
| Frequency band  (MHz) | Channel bandwidth /  Spectrum emission limit  (dBm) | Measurement bandwidth |
|  | 20, 40, 60, 80 MHz |  |
| f ≤ 5470 | -27 | 1 MHz |
| f ≥ 5725 | -27 |

Table 6.5F.3.3.4-4: Additional requirements for NR-U channels assigned within 5725-5850 MHz

|  |  |  |
| --- | --- | --- |
| Frequency band  (MHz) | Channel bandwidth /  Spectrum emission limit  (dBm) | Measurement bandwidth |
|  | 20, 40, 60, 80 MHz |  |
| f ≤ 5725 | -27 | 1 MHz |
| f ≥ 5850 | -27 |
|  |  |  |

##### 6.5F.3.3.5 Requirements for network signalling value "NS\_53" or "NS\_54" or "NS\_60"

When "NS\_53" or "NS\_54" or "NS\_60" is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5F.3.3.5-1. These requirements also apply for the frequency ranges that are less than FOOB (MHz) in Table 6.6.3.1-1 from the edge of the channel bandwidth.

Table 6.5F.3.3.5-1: Additional requirements

|  |  |  |
| --- | --- | --- |
| Frequency band  (MHz) | Spectrum emission limit  (dBm) | Measurement bandwidth |
| f ≤ 5925 | -27 | 1 MHz |
| f ≥ 7125 | -27 |  |