**3GPP TSG- Meeting #6**

**, , –**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | **3029** | **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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***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:*** | | An ambiguous [2] dB power reduction is specified for 2Tx implementations for NS\_48 and NS\_49, resulting in PC2 UE being allowed to transmit less power than PC3 UE for some RB allocations. In addition, A-MPR regions definitions contain erros which also result in too low power for PC2. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Remove note 7 from NS\_48 and NS\_49, adjust PC2 A-MPR so that allowed power reduction PC2 UE will always be required to transmit at least as much power as PC3 UE. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | When NS\_48 and NS\_49 is signalled, PC2 is allowed to transmit less power than PC3 UE for some RB allocations. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.3.1, 6.2.3.26, 6.2.3.27 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.521-1 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

<Start of Change>

#### 6.2.3.1 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 6.2.1-1. Unless stated otherwise, the total reduction to UE maximum output power is max(MPR+∆MPR, A-MPR) where MPR and ∆MPR are defined in clause 6.2.2. Outer and inner allocation notation used in clause 6.2.3 is defined in clause 6.2.2. Unless stated otherwise, Edge RB allocations get the same AMPR as Outer RB allocations. In absence of modulation and waveform types the A-MPR applies to all modulation and waveform types.

Table 6.2.3.1-1 specifies the additional requirements with their associated network signalling values and the allowed A-MPR and applicable operating band(s) for each NS value. In case of a power class 3 UE, when IE *powerBoostPi2BPSK* is set to 1, power class 2 A-MPR values apply. When IE *powerBoostPi2BPSK-r18* or *powerBoostQPSK-r18* is enabled, A-MPR, if larger than zero, is increased by ΔPPowerBoost. The mapping of NR frequency band numbers and values of the *additionalSpectrumEmission* to network signalling labels is specified in Table 6.2.3.1-1A.

For almost contiguous allocations in CP-OFDM waveforms in power class 1.5, 2 and 3, the allowed A-MPR defined in clause 6.2.3 is increased by CEIL{ 10 log10(1 + NRB\_gap / NRB\_alloc), 0.5 } dB, where CEIL{x, 0.5} means x rounding upwards to closest 0.5dB, NRB\_gap is the total number of unallocated RBs between allocated RBs and NRB\_alloc is the total number of allocated RBs, and the parameter LCRB is replaced by NRB\_alloc + NRB\_gap in specifying the RB allocation regions.

Unless otherwise specified, pi/2 BPSK in following A-MPR tables refers to both variants of pi/2 BPSK referenced in clause 6.2.2 Table 6.2.2-1.

Table 6.2.3.1-1: Additional maximum power reduction (A-MPR)

| Network signalling label | Requirements (clause) | NR Band | Channel bandwidth (MHz) | Resources blocks (*N*RB) | A-MPR (dB) |
| --- | --- | --- | --- | --- | --- |
| NS\_01 |  | Table 5.2-1  (NOTE 8) | 3, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100 | Table 5.3.2-1 | N/A |
| NS\_03 | 6.5.2.3.3 | n2, n25, n66,  n70, n86 |  |  | Clause 6.2.3.7 |
| NS\_03U | 6.5.2.3.3, 6.5.2.4.2 | n2, n25, n66, n86 (NOTE 1) |  |  | Clause 6.2.3.7 |
| NS\_04 | 6.5.2.3.2, 6.5.3.3.1 | n41, n90 | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100 |  | Clause 6.2.3.2 |
| NS\_05 | 6.5.3.3.4 | n1, n65, n84 | 5, 10, 15, 20(NOTE 2) |  | Clause 6.2.3.4 (NOTE 7) |
| NS\_05U | 6.5.3.3.4, 6.5.2.4.2 | n1, n65, n84 (NOTE 1) | 5, 10, 15, 20 |  | Clause 6.2.3.4 (NOTE 7) |
| NS\_06 | 6.5.2.3.4 | n12 | 3, 5, 10, 15 |  | Clause  6.2.3.32 |
|  |  | n13, n14 | 5, 10 |  |  |
|  |  | n85 | 3, 5, 10, 15 |  |  |
|  |  | n110 | 3 |  |  |
| NS\_07 | 6.5.2.3.4  6.5.3.3.26 | n13 | 5,10 | Table 6.2.3.29-1,  Table 6.2.3.29-3 | Table  6.2.3.29-2.  Table 6.2.3.29-4 |
| NS\_10 |  | n20, n82 | 15, 20 | Table 6.2.3.3-1 | Table  6.2.3.3-1 |
| NS\_12 | 6.5.3.3.17 | n26 | 3,5,10 | Table 6.2.3.21-1 | Table 6.2.3.21-2 |
| NS\_13 | 6.5.3.3.18 | n26 | 3, 5 | Table 6.2.3.22-1 | Table 6.2.3.22-2 |
| NS\_14 | 6.5.3.3.19 | n515, n26 | 10,15,20 | Table 6.2.3.23-1 | Table 6.2.3.23-2 |
| NS\_15 | 6.5.3.3.20 | n515, n26 | 3,5,10,15,20 | Table 6.2.3.24-1 | Table 6.2.3.24-2 |
| NS\_17 | 6.5.3.3.2 | n28, n8313 | 3,5,10 | Table 5.3.2-1 | Table 6.2.3.33-2 |
| NS\_18 | 6.5.3.3.3 | n28, n8313, n109 | 3, 5 |  | Table 6.2.3.13-1, A1  Table 6.2.3.13-3, A1 |
|  |  |  | 10, 15, 20 |  | Table 6.2.3.13-1, A2  Table 6.2.3.13-3, A2 |
|  |  |  | 25, 30, 40 |  | Table 6.2.3.13-1, A3, A4, A5  Table 6.2.3.13-3, A3, A4, A5, A6 |
| NS\_21 | 6.5.2.3.9  6.5.3.3.12 | n30 | 5, 10 |  | Clause 6.2.3.14 |
| NS\_24 | 6.5.3.3.13 | n65 (NOTE 4) | 5, 10, 15, 20 | Table 6.2.3.15-1 | Clause 6.2.3.15 |
| NS\_26 | 6.5.3.3.29 | n68 | 10, 15 | Table 6.2.3.34-1 | Table 6.2.3.34-1 |
| NS\_27 | 6.5.2.3.8  6.5.3.3.14 | n48 | 5, 10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100 | Table 6.2.3.16-1 | Table 6.2.3.16-2 |
| NS\_35 | 6.5.2.3.1 | n71 | 5, 10, 15, 20, 25, 30, 35 | Table 5.3.2-1 | Clause  6.2.3.3111 |
| NS\_36 | 6.5.3.3.30 | n68 | 5, 10, 15 | Table 6.2.3.35-1 | Table 6.2.3.35-1 |
| NS\_37 | 6.5.3.3.6 | n74  (NOTE 3) | 10, 15 | Table 6.2.3.8-1 | Table  6.2.3.8-1 |
| NS\_38 | 6.5.3.3.7 | n74 | 5, 10, 15, 20 | Table 6.2.3.9-1 | Table  6.2.3.9-1 |
| NS\_39 | 6.5.3.3.8 | n74 | 10, 15, 20 | Table 6.2.3.10-1 | Table 6.2.3.10-1 |
| NS\_40 | 6.5.3.3.9 | n51 | 5 |  | Table  6.2.3.5-1 |
| NS\_41 | 6.5.3.3.10 | n50 | 5, 10, 15, 20, 30, 40, 50, 60 |  | Table 6.2.3.11-1 |
| NS\_42 | 6.5.3.3.11 | n50 | 5, 10, 15, 20, 30, 40, 50, 60 |  | Table 6.2.3.12-1 |
| NS\_43 | 6.5.3.3.5 | n8, n81 | 5, 10, 15 |  | Clause 6.2.3.6 |
| NS\_43U | 6.5.3.3.5, 6.5.2.4.2 | n8, n81 (NOTE 1) | 5, 10, 15 |  | Clause 6.2.3.6 |
| NS\_44 | 6.5.3.3.24 | n38 | 25, 30, 40 | Table 6.2.3.20-1 | Table 6.2.3.20-1 |
| NS\_45 | 6.5.3.3.21 | n53 | 5, 10 |  | Clause 6.2.3.25 |
| NS\_46 | 6.5.3.3.25 | n7 | 10, 15, 20, 25, 30, 35, 40, 50 | Table 6.2.3.17-1  Table 6.2.3.17-311  Table 6.2.3.17-5 | Table 6.2.3.17-2  Table 6.2.3.17-411  Table 6.2.3.17-6 |
| NS\_47 | 6.5.3.3.15 | n41 (Note 5) | 30 (Note 5) | Table 6.2.3.18-1  Table 6.2.3.18-3 | Table 6.2.3.18-2  Table 6.2.3.18-4 |
| NS\_48 | 6.5.3.3.22 | n1 and n84 | 10, 15, 20, 25, 30, 40, 45, 50 | Table 6.2.3.26-1,  Table 6.2.3.26-3 | Table 6.2.3.26-2,  Table 6.2.3.26-4 |
| NS\_49 | 6.5.3.3.23 | n1 and n84 | 10, 15, 20, 25, 30, 40, 45, 50 | Table 6.2.3.27-1,  Table 6.2.3.27-3 | Table 6.2.3.27-2,  Table 6.2.3.27-4 |
| NS\_50 | 6.5.3.3.16 | n39, n98 | 10, 15, 20, 25, 30, 35, 40 |  | Clause 6.2.3.19 |
| NS\_51 | 6.5.3.3.22 | n65 | 50 | Table 6.2.3.28-1 | Table 6.2.3.28-2 |
| NS\_55 | NOTE 6 | n77 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |  | N/A |
| NS\_56 | 6.5.3.3.27 | n24, n99 | 5, 10 |  | Clause 6.2.3.30 |
| NS\_57 | NOTE 10 | n77 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |  | N/A |
| NS\_62 | 6.5.3.3.28 | n54 | 5 |  | N/A |
| NS\_100 | 6.5.2.4.2 | n1, n2, n3, n5, n8, n18, n25, n26, n65, n66, n80, n81, n84, n86, n89  (NOTE 1) |  |  | Table  6.2.3.1-2 |
| NOTE 1: This NS can be signalled for NR bands that have UTRA services deployed.  NOTE 2: No A-MPR is applied for 5 MHz BWChannel where the upper channel edge is ≥ 1930 MHz,10 MHz BWChannel where the upper channel edge is ≥ 1950 MHz and 15 MHz BWChannel where the upper channel edge is ≥ 1955 MHz and 20 MHz BWChannel where the upper channel edge is ≥ 1970 MHz.  NOTE 3: Applicable when the NR carrier is within 1447.9 – 1462.9 MHz.  NOTE 4: Applicable when the upper edge of the channel bandwidth frequency is greater than 1980 MHz.  NOTE 5: Applicable when the NR carrier is within 2545 – 2575 MHz. PC1 operation is not allowed. BWChannel less than 30 MHz are addressed in Table 6.5.3.2-1.  NOTE 6: This NS value is applicable for cells in the range 3450 – 3550 MHz for operations in the USA. This NS value does not indicate any additional spurious emission and maximum output power reduction requirements.  NOTE 7: The 1Tx architecture is assumed. For power class 2 UE indicating *txDiversity-r16* or *txDiversity2Tx-r18* [TS 38.306], the additional relaxation of [2] dB is applicable.  NOTE 8: The NS\_01 label with the field *additionalPmax* [7] absent is default for all NR bands.  NOTE 9: Void  NOTE 10: This NS value is applicable for cells below 3980 MHz that are partly or fully within the range 3650-3980 MHz for operations in Canada. This NS value does not indicate any additional spurious emission and maximum output power reduction requirements.  NOTE 11: Void.  NOTE 12: Void.  NOTE 13: Void.  NOTE 14: Void.  NOTE 15: Support of the additional requirement indicated by this network signalling value is indicated by modified MPR behaviour for this band (Annex L.1). | | | | | |

Table 6.2.3.1-1A: Mapping of network signalling label

| NR band | Value of *additionalSpectrumEmission* | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **0** | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
| n1 | NS\_01 | NS\_100 | NS\_05 | NS\_05U | NS\_48 | NS\_49 |  | Reserved |
| n2 | NS\_01 | NS\_100 | NS\_03 | NS\_03U |  |  |  | Reserved |
| n3 | NS\_01 | NS\_100 |  |  |  |  |  | Reserved |
| n5 | NS\_01 | NS\_100 | NS\_14 (NOTE 3) | NS\_15 (NOTE 3) |  |  |  | Reserved |
| n7 | NS\_01 | NS\_46 |  |  |  |  |  | Reserved |
| n8 | NS\_01 | NS\_100 | NS\_43 | NS\_43U |  |  |  | Reserved |
| n12 | NS\_01 | NS\_06 |  |  |  |  |  | Reserved |
| n13 | NS\_01 | NS\_06 | NS\_07 |  |  |  |  | Reserved |
| n14 | NS\_01 | NS\_06 |  |  |  |  |  | Reserved |
| n18 | NS\_01 | NS\_100 |  |  |  |  |  | Reserved |
| n20 | NS\_01 | Void | NS\_10 |  |  |  |  | Reserved |
| n24 | NS\_01 | NS\_56 |  |  |  |  |  | Reserved |
| n25 | NS\_01 | NS\_100 | NS\_03 | NS\_03U |  |  |  | Reserved |
| n26 | NS\_01 | NS\_100 | NS\_12 | NS\_13 | NS\_14 | NS\_15 |  | Reserved |
| n28 | NS\_01 | NS\_17 | NS\_18 |  |  |  |  | Reserved |
| n30 | NS\_01 | NS\_21 |  |  |  |  |  | Reserved |
| n31 | NS\_01 |  |  |  |  |  |  | Reserved |
| n34 | NS\_01 |  |  |  |  |  |  | Reserved |
| n38 | NS\_01 | NS\_44 |  |  |  |  |  | Reserved |
| n39 | NS\_01 | NS\_50 |  |  |  |  |  | Reserved |
| n40 | NS\_01 |  |  |  |  |  |  | Reserved |
| n41 | NS\_01 | NS\_04 | NS\_47 |  |  |  |  | Reserved |
| n48 | NS\_01 | NS\_27 |  |  |  |  |  | Reserved |
| n50 | NS\_01 | NS\_41 | NS\_42 |  |  |  |  | Reserved |
| n51 | NS\_01 | NS\_40 |  |  |  |  |  | Reserved |
| n53 | NS\_01 | NS\_45 |  |  |  |  |  | Reserved |
| n54 | NS\_01 | NS\_62 |  |  |  |  |  | Reserved |
| n65 | NS\_01 | NS\_24 | NS\_100 | NS\_05 | NS\_05U | NS\_51 |  | Reserved |
| n66 | NS\_01 | NS\_100 | NS\_03 | NS\_03U |  |  |  | Reserved |
| n68 | NS\_01 | NS\_26 | NS\_36 |  |  |  |  | Reserved |
| n70 | NS\_01 | NS\_03 |  |  |  |  |  | Reserved |
| n71 | NS\_01 | NS\_35 |  |  |  |  |  | Reserved |
| n72 | NS\_01 |  |  |  |  |  |  | Reserved |
| n74 | NS\_01 | NS\_37 | NS\_38 | NS\_39 |  |  |  | Reserved |
| n77 | NS\_01 | NS\_55 | NS\_57 |  |  |  |  | Reserved |
| n78 | NS\_01 |  |  |  |  |  |  | Reserved |
| n79 | NS\_01 |  |  |  |  |  |  | Reserved |
| n80 | NS\_01 | NS\_100 |  |  |  |  |  | Reserved |
| n81 | NS\_01 | NS\_100 | NS\_43 | NS\_43U |  |  |  | Reserved |
| n82 | NS\_01 | Void | NS\_10 |  |  |  |  | Reserved |
| n83 | NS\_01 | NS\_17 | NS\_18 |  |  |  |  | Reserved |
| n84 | NS\_01 | NS\_100 | NS\_05 | NS\_05U | NS\_48 | NS\_49 |  | Reserved |
| n85 | NS\_01 | NS\_06 |  |  |  |  |  | Reserved |
| n86 | NS\_01 | NS\_100 | NS\_03 | NS\_03U |  |  |  | Reserved |
| n87 | NS\_01 |  |  |  |  |  |  | Reserved |
| n88 | NS\_01 |  |  |  |  |  |  | Reserved |
| n89 | NS\_01 | NS\_100 |  |  |  |  |  | Reserved |
| n90 | NS\_01 | NS\_04 |  |  |  |  |  | Reserved |
| n91 | NS\_01 |  |  |  |  |  |  | Reserved |
| n92 | NS\_01 |  |  |  |  |  |  | Reserved |
| n93 | NS\_01 |  |  |  |  |  |  | Reserved |
| n94 | NS\_01 |  |  |  |  |  |  | Reserved |
| n95 | NS\_01 |  |  |  |  |  |  | Reserved |
| n97 | NS\_01 |  |  |  |  |  |  | Reserved |
| n98 | NS\_01 | NS\_50 |  |  |  |  |  | Reserved |
| n99 | NS\_01 | NS\_56 |  |  |  |  |  | Reserved |
| n100 | NS\_01 |  |  |  |  |  |  | Reserved |
| n101 | NS\_01 |  |  |  |  |  |  | Reserved |
| n1042 | NS\_01 |  |  |  |  |  |  | Reserved |
| n105 | NS\_01 |  |  |  |  |  |  | Reserved |
| n106 | NS\_01 |  |  |  |  |  |  | Reserved |
| n109 | NS\_01 | NS\_18 |  |  |  |  |  | Reserved |
| n110 | NS\_01 | NS\_06 |  |  |  |  |  | Reserved |
| NOTE 1: *additionalSpectrumEmission* corresponds to an information element of the same name defined in clause 6.3.2 of TS 38.331 [7].  NOTE 2: Additional emission requirements and associated network signalling for Band n104 are not defined in this version of the specification but may be forthcoming in the future.  NOTE 3: Support of the additional requirement indicated by this network signalling value is indicated by modified MPR behaviour for this band (Annex L.1). | | | | | | | | |

Table 6.2.3.1-2: A-MPR for NS\_100 (UTRA protection) (Power Class 3 and Power Class 2)

|  |  |  |
| --- | --- | --- |
| Modulation/Waveform | | Outer (dB) |
| DFT-s-OFDM | Pi/2 BPSK | ≤ 2 |
|  | QPSK | ≤ 2 |
|  | 16 QAM | ≤ 2.5 |
|  | 64 QAM | ≤ 3 |
|  | 256 QAM | ≤ 4.5 |
| CP-OFDM | QPSK | ≤ 4 |
|  | 16 QAM | ≤ 4 |
|  | 64 QAM | ≤ 4 |
|  | 256 QAM | ≤ 6.5 |
| NOTE 1: Void  NOTE 2: Void | | |

#### 6.2.3.2 A-MPR for NS\_04

<End of Change>

<Start of Change>

#### 6.2.3.26 A-MPR for NS\_48

Table 6.2.3.26-1: A-MPR regions for NS\_48 (Power Class 3)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Channel Bandwidth, MHz | Carrier Center Frequency, Fc, MHz | Regions | | A-MPR |
|  |  | RBend\*12\*SCS  MHz | LCRB\*12\*SCS  MHz |  |
| 25 MHz | 1932.5≤ FC ≤ 1967.5 | ≥0 | ≥9.72 | A3 |
|  |  | ≥18.72 | <1.08 | A3 |
| 30 MHz | 1935 ≤ FC ≤ 1965 | ≥0 | ≥13.5 | A3 |
|  |  | ≥21.6 | <1.08 | A5 |
| 40 MHz | 1940 ≤ FC ≤ 1960 | ≥0, <2.88 | ≥0 | A2 |
|  |  | ≥2.88, <17.1 | ≥max (0, 12\*SCS\*RBend - 3.6) | A3 |
|  |  | ≥17.1, <27.36 | ≥13.5 | A4 |
|  |  | ≥27.36, <34.56 | ≥13.5 | A2 |
|  |  | ≥27.36, <34.56 | <1.08 | A3 |
|  |  | ≥34.56 | ≥0 | A1 |
| 45 MHz | 1942.5 ≤ FC ≤ 1957.5 | ≥0, <4.86 | >0 | A2 |
|  |  | ≥4.86, <19 | ≥max (0, 12\*SCS\*RBend - 3.6) | A4 |
|  |  | ≥19, <37.44 | ≥15.4 | A2 |
|  |  | ≥30.96, <37.44 | <1.08 | A5 |
|  |  | ≥37.44 | >0 | A1 |
| 50 MHz | 1945 ≤ FC ≤ 1955 | ≥0, <6.12 | >0 | A2 |
|  |  | ≥6.12, <20.7 | ≥max (0, 12\*SCS\*RBend - 3.6) | A4 |
|  |  | ≥20.7, <41.04 | ≥17.1 | A2 |
|  |  | ≥33.84, <41.04 | <1.08 | A5 |
|  |  | ≥41.04 | >0 | A1 |

Table 6.2.3.26-2: A-MPR for NS\_48 (Power Class 3)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Modulation/Waveform | | A1 | A2 | A3 | A4 | A5 |
|  | | Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner |
| DFT-s-OFDM | PI/2 BPSK | ≤10 | ≤6 | ≤3 | ≤4 | ≤5 |
|  | QPSK | ≤10 | ≤6 | ≤3 | ≤4 | ≤5 |
|  | 16 QAM | ≤10 | ≤6 | ≤3 | ≤4 | ≤5 |
|  | 64 QAM | ≤10 | ≤6 | ≤3 | ≤4 | ≤5 |
|  | 256 QAM | ≤10 | ≤6 | ≤3 | ≤4 | ≤5 |
| CP-OFDM | QPSK | ≤11 | ≤7 | ≤4.5 | ≤5.5 | ≤5 |
|  | 16 QAM | ≤11 | ≤7 | ≤4.5 | ≤5.5 | ≤5 |
|  | 64 QAM | ≤11 | ≤7 | ≤4.5 | ≤5.5 | ≤5 |
|  | 256 QAM | ≤11 | ≤7 | ≤4.5 | ≤5.5 | ≤5 |

Table 6.2.3.26-3: A-MPR regions for NS\_48 (Power Class 2)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Channel Bandwidth, MHz | Carrier Center Frequency, Fc, MHz | Regions | | A-MPR |
|  |  | RBend\*12\*SCS  MHz | LCRB\*12\*SCS  MHz |  |
| 10 MHz | 1925≤ FC ≤ 1975 | ≥0 | ≥8.1 | A6 |
| <1.8 | ≥0 | A6 |
| 15 MHz | 1927.5≤ FC ≤ 1972.5 | ≥0 | ≥9 | A6 |
| ≥0 | ≥max (0,12\*SCS\* RBend - 2.88)  <9 | A6 |
| 20 MHz | 1930≤ FC ≤ 1970 | ≥0 | ≥9.72 | A4 |
| ≥0 | ≥max (0,12\*SCS\* RBend - 3.6)  <9.72 | A6 |
| 25 MHz | 1932.5≤ FC ≤ 1967.5 | ≥0 | ≥9.72 | A3 |
|  |  | ≥18.72 | <1.08 | A3 |
| ≥0 | ≥max (0, 12\*SCS\*RBend - 1.08)  < 9.72 | A6 |
| 30 MHz | 1935 ≤ FC ≤ 1965 | ≥0 | ≥13.5 | A3 |
| ≥0 | ≥12.96, <13.5 | A6 |
| ≥21.6 | <1.08 | A5 |
| ≥0 | ≥max (0, 12\*SCS\*RBend - 3.6)  < 12.96 | A6 |
| 40 MHz | 1940 ≤ FC ≤ 1960 | ≥0, <2.88 | ≥0 | A2 |
|  |  | ≥2.88, <17.1 | ≥max (0, 12\*SCS\*RBend - 3.6) | A3 |
|  |  | ≥2.88, <17.1 | <max (0, 12\*SCS\*RBend - 3.6),  ≥max (0, 12\*SCS\*RBend - 4.68) | A6 |
|  |  | ≥17.1, <27.36 | ≥13.5 | A3 |
|  |  | ≥27.36, <34.56 | ≥13.5 | A2 |
|  |  | ≥17.1, <34.56 | ≥12.96, <13,5 | A6 |
|  |  | ≥27.36, <34.56 | <1.08 | A3 |
|  |  | ≥34.56 | ≥0 | A1 |
| 45 MHz | 1942.5 ≤ FC ≤ 1957.5 | ≥0, <4.86 | >0 | A2 |
|  |  | ≥4.86, <5.22 | < max (0, 12\*SCS\*RBend - 3.6) | A6 |
|  |  | ≥4.86, <19 | ≥max (0, 12\*SCS\*RBend - 3.6) | A3 |
|  |  | ≥5.22, <19 | ≥max (0, 12\*SCS\*RBend - 5.4),  <max (0, 12\*SCS\*RBend - 3.6) | A6 |
|  |  | ≥19, <37.44 | ≥15.4 | A2 |
|  |  | ≥19, <37.44 | ≥14.04, <15.4 | A6 |
|  |  | ≥30.96, <37.44 | <1.08 | A5 |
|  |  | ≥37.44 | >0 | A1 |
| 50 MHz | 1945 ≤ FC ≤ 1955 | ≥0, <6.12 | >0 | A2 |
|  |  | ≥6.12, <7.2 | <max (0, 12\*SCS\*RBend - 3.6) | A6 |
|  |  | ≥6.12, <20.7 | ≥max (0, 12\*SCS\*RBend - 3.6) | A3 |
|  |  | ≥7.2, <20.7 | ≥max (0, 12\*SCS\*RBend - 5.4)  <max (0, 12\*SCS\*RBend - 3.6) | A6 |
|  |  | ≥20.7, <41.04 | ≥17.1 | A2 |
|  |  | ≥20.7, <41.04 | ≥15.12,  <17.1 | A6 |
|  |  | ≥33.84, <41.04 | <1.08 | A5 |
|  |  | ≥41.04 | >0 | A1 |

Table 6.2.3.26-4: A-MPR for NS\_48 (Power Class 2)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Modulation/Waveform | | A1 | A2 | A3 | A4 | A5 | A6 |
|  | | Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner |
| DFT-s-OFDM | PI/2 BPSK | ≤12.5 | ≤8.5 | ≤5.0 | ≤3 | ≤6.5 | ≤3.0 |
|  | QPSK | ≤12.5 | ≤8.5 | ≤5.0 | ≤4.0 | ≤6.5 | ≤3.0 |
|  | 16 QAM | ≤12.5 | ≤8.5 | ≤5.0 | ≤4.5 | ≤6.5 | ≤3.5 |
|  | 64 QAM | ≤12.5 | ≤8.5 | ≤5.0 | ≤4.5 | ≤6.5 | ≤3.5 |
|  | 256 QAM | ≤12.5 | ≤8.5 | ≤5.0 | ≤4.5 | ≤6.5 | ≤3.5 |
| CP-OFDM | QPSK | ≤13 | ≤9.5 | ≤6.5 | ≤6.0 | ≤6.5 | ≤4.5 |
|  | 16 QAM | ≤13 | ≤9.5 | ≤6.5 | ≤6.0 | ≤6.5 | ≤5 |
|  | 64 QAM | ≤13 | ≤9.5 | ≤6.5 | ≤6.5 | ≤6.5 | ≤5 |
|  | 256 QAM | ≤13 | ≤9.5 | ≤6.5 | ≤6.5 | ≤6.5 | ≤5 |

#### 6.2.3.27 A-MPR for NS\_49

Table 6.2.3.27-1: A-MPR regions for NS\_49 (Power Class 3)

| Channel Bandwidth, MHz | Carrier Center Frequency, Fc, MHz | Regions | | A-MPR |
| --- | --- | --- | --- | --- |
| RBend\*12\*SCS  MHz | LCRB\*12\*SCS  MHz |
| 25 MHz | 1932.5≤ FC ≤ 1967.5 | ≥0 | ≥9.72 | A3 |
| ≥18.72 | <1.08 | A3 |
| ≤3.96 | <1.08 | A3 |
| 30 MHz | 1935 ≤ FC ≤ 1965 | ≥0, <3.6 | ≥0 | A1 |
| ≥3.6, <6.48 | ≥0 | A5 |
| ≥6.48, <14.4 | ≥max (0,12\*SCS\* RBend - 3.6) | A3 |
| ≥14.4, <21.6 | ≥10.8 | A4 |
| ≥21.6 | ≥10.8 | A2 |
| ≥21.6 | <1.08 | A5 |
| 40 MHz | 1940 ≤ FC ≤ 1960 | ≥0, <7.2 | ≥0 | A1 |
| ≥7.2, <10.44 | <1.08 | A5 |
| ≥7.2, <18 | ≥max (0, 12\*SCS\*RBend - 3.6) | A4 |
| ≥18, <34.56 | ≥14.4, <28.8 | A2 |
| ≥27.36, <34.56 | <1.08 | A5 |
| <34.56 | ≥28.8 | A1 |
| ≥34.56 | ≥0 | A1 |
|  |  | ≥6.12, <12.42 | < min [1.08, max(0,12\*SCS\* RBend-6.12)] | A5 |
|  |  | ≥30.76, <36.72 | <1.08 | A5 |
| 45 MHz | 1942.5 ≤ FC ≤ 1957.5 | <36.72 | ≥16.2, <max (0, 12\*SCS\*RBend – 6.12) | A2 |
|  |  | <36.72 | ≥max (0, 12\*SCS\*RBend – 6.12) | A1 |
|  |  | ≥36.72 | >0 | A1 |
| 50 MHz | 1945 ≤ FC ≤ 1955 | ≥7.74, <14.4 | < min [1.08, max(0,12\*SCS\* RBend-7.74)] | A5 |
| ≥36, <39.6 | <1.08 | A5 |
| <39.6 | ≥18, <max (0, 12\*SCS\*RBend – 7.74) | A2 |
| <39.6 | ≥max (0, 12\*SCS\*RBend – 7.74) | A1 |
| ≥39.6 | >0 | A1 |

Table 6.2.3.27-2: A-MPR for NS\_49 (Power Class 3)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Modulation/Waveform | | A1 | A2 | A3 | A4 | A5 |
| Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner |
| DFT-s-OFDM | PI/2 BPSK | ≤10 | ≤6 | ≤3 | ≤4 | ≤5 |
| QPSK | ≤10 | ≤6 | ≤3 | ≤4 | ≤5 |
| 16 QAM | ≤10 | ≤6 | ≤3 | ≤4 | ≤5 |
| 64 QAM | ≤10 | ≤6 | ≤3 | ≤4 | ≤5 |
| 256 QAM | ≤10 | ≤6 | ≤3 | ≤4 | ≤5 |
| CP-OFDM | QPSK | ≤11 | ≤7 | ≤4.5 | ≤5.5 | ≤5 |
| 16 QAM | ≤11 | ≤7 | ≤4.5 | ≤5.5 | ≤5 |
| 64 QAM | ≤11 | ≤7 | ≤4.5 | ≤5.5 | ≤5 |
| 256 QAM | ≤11 | ≤7 | ≤4.5 | ≤5.5 | ≤5 |

Table 6.2.3.27-3: A-MPR regions for NS\_49 (Power Class 2)

| Channel Bandwidth, MHz | Carrier Center Frequency, Fc, MHz | Regions | | A-MPR |
| --- | --- | --- | --- | --- |
| RBend\*12\*SCS  MHz | LCRB\*12\*SCS  MHz |
| 10 MHz | 1925≤ FC ≤ 1975 | ≥0 | ≥8.1 | A6 |
| <1.8 | ≥0 | A6 |
| 15 MHz | 1927.5≤ FC ≤ 1972.5 | ≥0 | ≥9 | A6 |
| ≥0 | ≥max (0,12\*SCS\* RBend - 2.88)  <9 | A6 |
| 20 MHz | 1930≤ FC ≤ 1970 | ≥0 | ≥9.72 | A6 |
| ≥0 | ≥max (0,12\*SCS\* RBend - 3.6)  <9.72 | A6 |
| 25 MHz | 1932.5≤ FC ≤ 1967.5 | ≥0 | ≥9.72 | A4 |
| ≥0 | ≥7.92, <9.72 | A6 |
| ≥18.72 | <1.08 | A3 |
| ≤3.96 | <1.08 | A3 |
| ≤3.96 | ≥1.08 | A6 |
| ≤6.48, >3.96 | <3.6 | A6 |
| 30 MHz | 1935 ≤ FC ≤ 1965 | ≥0, <3.6 | ≥0 | A1 |
| ≥3.6, <6.48 | ≥0 | A5 |
| ≥6.48, <7.92 | <max (0,12\*SCS\*RBend - 4.32) | A6 |
| ≥6.48, <14.4 | ≥max (0,12\*SCS\* RBend - 3.6) | A3 |
| ≥7.92, <14.4 | <max (0,12\*SCS\*RBend - 3.6),  ≥max (0,12\*SCS\*RBend - 4.32) | A6 |
| ≥14.4, <21.6 | ≥10.8 | A4 |
| ≥21.6 | ≥10.8 | A2 |
| ≥14.4 | ≥10.44, <10.8 | A6 |
| ≥21.6 | <1.08 | A5 |
| ≥21.6 | <1.8, ≥1.08 | A1 |
| 40 MHz | 1940 ≤ FC ≤ 1960 | ≥0, <7.2 | ≥0 | A1 |
| ≥7.2, <10.44 | <1.08 | A5 |
| ≥7.2, <11.52 | ≥1.08, <3.06 | A6 |
| ≥10.44, <11.52 | <1.08 | A6 |
| ≥7.2, <18 | ≥max (0, 12\*SCS\*RBend - 3.6) | A4 |
| ≥7.2, <18 | ≥3.06,  ≥max (3.06, 12\*SCS\*RBend - 6.48),  <max (3.06, 12\*SCS\*RBend - 3.6) | A6 |
| ≥18, <34.56 | ≥14.4, <28.8 | A2 |
| ≥18, <34.56 | <14.4, ≥11.16 | A6 |
| ≥27.36, <34.56 | <1.08 | A5 |
| <34.56 | ≥28.8 | A1 |
| ≥34.56 | ≥0 | A1 |
|  |  | ≥6.12, <12.42 | < min (1.08, max(0,12\*SCS\* RBend-6.12)) | A5 |
|  |  | ≥30.76, <36.72 | <1.08 | A5 |
|  |  | <36.72 | ≥12.24, <16.2  <max (0, 12\*SCS\*RBend - 6.12) | A6 |
| 45 MHz | 1942.5 ≤ FC ≤ 1957.5 | <36.72 | ≥16.2, <max (0, 12\*SCS\*RBend – 6.12) | A2 |
|  |  | <36.72 | ≥max (0, 12\*SCS\*RBend – 6.12) | A1 |
|  |  | <36.72 | ≥1.08, <12.24  <max (0, 12\*SCS\*RBend - 6.12)  ≥max (0, 12\*SCS\*RBend - 7.92) | A6 |
| ≥36.72 | >0 | A1 |
| 50 MHz | 1945 ≤ FC ≤ 1955 | ≥7.74, <14.4 | <min (1.08, max(0,12\*SCS\* RBend-7.74)) | A5 |
| ≥36, <39.6 | <1.08 | A5 |
| <39.6 | ≥18, <max (0, 12\*SCS\*RBend - 7.74) | A2 |
| <39.6 | ≥13.68, <18,  <max (0, 12\*SCS\*RBend - 7.74) | A6 |
| <39.6 | ≥max (0, 12\*SCS\*RBend- 7.74) | A1 |
| <39.6 | ≥1.08, <13.68,  <max (0, 12\*SCS\*RBend - 7.74)  ≥max (0, 12\*SCS\*RBend - 10.08) | A6 |
| ≥39.6 | >0 | A1 |

Table 6.2.3.27-4: A-MPR for NS\_49 (Power Class 2)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Modulation/Waveform | | A1 | A2 | A3 | A4 | A5 | A6 |
| Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner | Outer/Inner |
| DFT-s-OFDM | PI/2 BPSK | ≤13 | ≤7.5 | ≤4.5 | ≤6 | ≤6.5 | ≤3.0 |
| QPSK | ≤13 | ≤7.5 | ≤4.5 | ≤6 | ≤6.5 | ≤3.0 |
| 16 QAM | ≤13 | ≤7.5 | ≤4.5 | ≤6 | ≤6.5 | ≤4 |
| 64 QAM | ≤13 | ≤7.5 | ≤4.5 | ≤6 | ≤6.5 | ≤4.5 |
| 256 QAM | ≤13 | ≤7.5 | ≤4.5 | ≤6 | ≤6.5 | ≤4.5 |
| CP-OFDM | QPSK | ≤14 | ≤8.5 | ≤6 | ≤7.5 | ≤6.5 | ≤4.5 |
| 16 QAM | ≤14 | ≤8.5 | ≤6 | ≤7.5 | ≤6.5 | ≤5 |
| 64 QAM | ≤14 | ≤8.5 | ≤6 | ≤7.5 | ≤6.5 | ≤5.5 |
| 256 QAM | ≤14 | ≤8.5 | ≤6 | ≤7.5 | ≤6.5 | ≤5.5 |

#### 6.2.3.28 A-MPR for NS\_51

<End of Change>