**3GPP TSG- Meeting # *R5-253443***

**Malta, Malta, 19th May 2025 - 23rd May 2025**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **38.521-1** | **CR** | **3296** | **rev** | **1** | **Current version:** | **18.6.0** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network |  |

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|  |
| ***Title:***  | Updates for PC1 and NS\_06 in A-MPR and A-SEM tests |
|  |  |
| ***Source to WG:*** | Keysight Technologies |
| ***Source to TSG:*** | R5 |
|  |  |
| ***Work item code:*** | TEI18\_Test, LTE\_NR\_HPUE\_FWVM\_R18-UEConTest |  | ***Date:*** | 2025-05-08 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-18 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe 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:*** | Minimum A-MPR requirements for NS\_06 are not correctly updated for PC1 and PC3, the current applicable power classes for the impacted bands in PRD21. In addition, the interdependencies between A-MPR test 6.2.3 and A-SEM test 6.5.2.3 are not correctly captured for NS\_06. Test requirements tables for PC1 in 6.2.3 are not referred in 6.5.2.3. In addition, despite NS\_06 A-MPR <> 0dB only for band n85, result for other power classes are needed as used in test case 6.5.2.3, but the Note 4 in the test confiugration table is misleading. |
|  |  |
| ***Summary of change:*** | In test case 6.2.3, updated minimum requirements for NS\_06. In addition, in corresponding test configuration table, clarified that test can be executed for power classes other than PC1 due to interdependency with test case 6.5.2.3.In test case 6.5.2.3, for NS\_06 requirements, added references to PC1 tables 6.2.3.5-35 and 6.2.3.5-35a for the measured UE mean power in the channel bandwidth. |
|  |  |
| ***Consequences if not approved:*** | Test specification will remain inconsistent. |
|  |  |
| ***Clauses affected:*** | 6.2.3, 6.5.2.3 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Revision 1:-Typo correction over change in Table 6.2.3.4.1-1. |

## <<< START OF CHANGES >>>

### 6.2.3 UE additional maximum output power reduction

Editor’s note: The following aspects are either missing or not yet determined:

- Tests for network signalling values NS\_40, NS\_09 not complete.

- The requirements of this test apply in test case 6.5.3.3 Additional Spurious Emissions for network signalling values NS\_07, NS\_44, NS\_46, NS\_47, NS\_48, and NS\_49 to all types of NR Power Class 2 and 3 UE release 16 forward, and UE release 15 if the corresponding channel bandwidths are supported.

6.2.3.1 Test purpose

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 [6]*.*

To meet the additional requirements, additional maximum power reduction (A-MPR) is allowed for the maximum output power as specified in Table 6.2.1.3-1. Unless stated otherwise, the total reduction to UE maximum output power is max(MPR, A-MPR) where MPR is 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 A-MPR as Outer RB allocations. In absence of modulation and waveform types the A-MPR applies to all modulation and waveform types.

6.2.3.2 Test applicability

The requirements of this test apply in test case 6.5.2.3 Additional Spectrum Emission mask for network signalling values NS\_03, NS\_03U, NS\_04, NS\_06, NS\_07, NS\_27 and NS\_35 to all types of NR Power Class 2 and Power Class 3 UE release 15 and forward that don’t support Tx diversity and NR Power Class 1 UE release 15 and forward.

The requirements of this test apply in test case 6.5.2.4.2 Adjacent channel leakage ratio for network signalling values NS\_03U, NS\_05U, NS\_43U and NS\_100 to all types of NR Power Class 3 UE release 15 and forward that don’t support Tx diversity.

The requirements of this test apply in test case 6.5.3.3 Additional Spurious Emissions for network signalling values NS\_04, NS\_05, NS\_05U, NS\_07, NS\_12, NS\_13, NS\_14, NS\_15, NS\_17, NS\_18, NS\_21, NS\_24, NS\_27, NS\_37, NS\_38, NS\_39, NS\_40, NS\_41, NS\_42, NS\_43, NS\_43U, NS\_44, NS\_45, NS\_48, NS\_49, NS\_50 and NS\_56 to all types of NR Power Class 2 and Power Class 3 UE release 15 and forward that don’t support Tx diversity.

NOTE: Test execution is not necessary if 6.5.2.3, 6.5.2.4.2 and 6.5.3.3 are executed.

6.2.3.3 Minimum conformance requirements

6.2.3.3.1 General

Table 6.2.3.3.1-1 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 6.2.3.3.1-1A.

For almost contiguous allocations in CP-OFDM waveforms in power class 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 6.2.2 Table 6.2.2.3-1.

Table 6.2.3.3.1-1: Additional maximum power reduction (A-MPR)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Network signalling label | Requirements (subclause) | 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 | 6.5.2.3.3.3 | n2, n25, n66, n70, n86 |  |  | Clause 6.2.3.3.7 |
| NS\_03U | 6.5.2.3.3.3, 6.5.2.4.2.3 | n2, n25, n66, n86(NOTE 1) |  |  | Clause 6.2.3.3.7 |
| NS\_04 | 6.5.2.3.3.2, 6.5.3.3.3.1 | n41 | 5, 10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100 |  | Clause 6.2.3.3.2 |
| NS\_05 | 6.5.3.3.3.4 | n1, n65, n84(NOTE 1) | 5, 10, 15, 20(Note 2) |  | Clause 6.2.3.3.4(NOTE 7) |
| NS\_05U | 6.5.3.3.3.4, 6.5.2.4.2.3 | n1, n65, n84 | 5, 10, 15, 20 |  | Clause 6.2.3.3.4(NOTE 7) |
| NS\_06 | 6.5.2.3.3.4 | n1213, n85 | 3, 5, 10, 15 |  | Clause6.2.3.3.3212 |
| n13, n14 | 5, 10 |
| NS\_07 | 6.5.2.3.3.4, 6.5.3.3.5.26 | n13 | 5,10 | Table 6.2.3.3.29-1 | Table6.2.3.3.29-2 |
| NS\_10 |  | n20 | 15, 20 | Table 6.2.3.3.3-1 | Table 6.2.3.3.3-1 |
| NS\_12 | 6.5.3.3.17 | n26 | 3, 5, 10 | Table 6.2.3.3.21-1 | Table 6.2.3.3.21-2 |
| NS\_13 | 6.5.3.3.18 | n26 | 3, 5 | Table 6.2.3.3.22-1 | Table 6.2.3.3.22-2 |
| NS\_14 | 6.5.3.3.19 | n26 | 10, 15, 20 | Table 6.2.3.3.23-1 | Table 6.2.3.3.23-2 |
| NS\_15 | 6.5.3.3.20 | n26 | 3, 5, 10, 15, 20 | Table 6.2.3.3.24-1 | Table 6.2.3.3.24-2 |
| NS\_17 | 6.5.3.3.3.2 | n28, n8313 | 3, 5, 10 | Table 5.3.2-1 | N/A |
| NS\_18 | 6.5.3.3.3.3 | n28, n8313, n109 | 3, 5 |  | Table 6.2.3.3.13-1, A1 |
| 10, 15, 20 |  | Table 6.2.3.3.13-1, A2 |
| 25, 30 |  | Table 6.2.3.3.13-1, A3, A4, A5 |
| NS\_21 | 6.5.2.3.3.9, 6.5.3.3.3.12 | n30 | 5,10 |  | Clause 6.2.3.3.14 |
| NS\_24 | 6.5.3.3.3.13 | n65 (Note 4) | 5, 10, 15, 20 | Table 6.2.3.3.15-1 | Subclause 6.2.3.3.15 |
| NS\_27 | 6.5.2.3.3.8, 6.5.3.3.3.14 | n48 | 5, 10, 15, 20, 30, 40 | Table 6.2.3.3.16-1 | Table 6.2.3.3.16-2 |
| NS\_35 | 6.5.2.3.3.1 | n71 | 5, 10, 15, 20, 25, 30, 35 | Table 5.3.2-1 | Clause6.2.3.3.3111 |
| NS\_37 | 6.5.3.3.3.6 | n74 (Note 3) | 10, 15 | Table 6.2.3.3.8-1 | Table 6.2.3.3.8-1 |
| NS\_38 | 6.5.3.3.3.7 | n74 | 5, 10, 15, 20 | Table 6.2.3.3.9-1 | Table 6.2.3.3.9-1 |
| NS\_39 | 6.5.3.3.3.8 | n74 | 10, 15, 20 | Table 6.2.3.3.10-1 | Table 6.2.3.3.10-1 |
| NS\_40 | 6.5.3.3.3.9 | n51 | 5 |  | Table 6.2.3.3.5-1 |
| NS\_41 | 6.5.3.3.3.10 | n50 | 5, 10, 15, 20, 40, 50, 60 |  | Table 6.2.3.3.11-1 |
| NS\_42 | 6.5.3.3.3.11 | n50 | 5, 10, 15, 20, 40, 50, 60 |  | Table 6.2.3.3.12-1 |
| NS\_43 | 6.5.3.3.3.5 | n8, n81 | 5, 10, 15 |  | Clause 6.2.3.3.6 |
| NS\_43U | 6.5.3.3.3.5, 6.5.2.4.2.3 | n8, n81(NOTE 1) | 5, 10, 15 |  | Clause 6.2.3.3.6 |
| NS\_44 | 6.5.3.3.24 | n38 | 25,30,40 | Table 6.2.3.3.20-1 | Table 6.2.3.3.20-1 |
| NS\_45 | 6.5.3.3.3.21 | n53 | 5, 10 |  | Clause 6.2.3.3.25 |
| NS\_46 | 6.5.3.3.3.25 | n7 | 10, 15, 20, 25, 30, 35, 40, 50 | Table 6.2.3.3.17-1Table 6.2.3.3.17-311Table 6.2.3.3.17-5 | Table 6.2.3.3.17-2Table 6.2.3.3.17-411Table 6.2.3.3.17-6 |
| NS\_47 | 6.5.3.3.3.15 | n41 (Note 5) | 30 | Table 6.2.3.3.18-1Table 6.2.3.3.18-3 | Table 6.2.3.3.18-2Table 6.2.3.3.18-4 |
| NS\_48 | 6.5.3.3.3.22 | n1 and n84 | 10, 15, 20, 25, 30, 40, 45, 50 | Table 6.2.3.3.26-1,Table 6.2.3.3.26-3 | Table 6.2.3.3.26-2,Table 6.2.3.3.26-4 (NOTE 7) |
| NS\_49 | 6.5.3.3.3.23 | n1 and n84 | 10, 15, 20, 25, 30, 40, 45, 50 | Table 6.2.3.3.27-1Table 6.2.3.3.27-3 | Table 6.2.3.3.27-2,Table 6.2.3.3.27-4 (NOTE 7) |
| NS\_50 | 6.5.3.3.3.16 | n39 and n98 | 10, 15, 20, 25, 30, 35, 40 |  | Clause 6.2.3.3.19 |
| NS\_55 | NOTE 6 | n77 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |  | N/A |
| NS\_56 | 6.5.3.3.3.27 | n24, n99 | 5, 10 | Table 6.2.3.3.30 | Clause 6.2.3.3.30 |
| NS\_62 | 6.5.3.3.3.28 | n54 | 5 |  | N/A |
| NS\_100 | 6.5.2.4.2.3 | n1, n2, n3, n5, n8, n25, n26, n66, n80, n81, n84, n86 (Note 1) |  |  | Table 6.2.3.3.1-2 |
| 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.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* [TS 38.306], the additional relaxation of [2] dB is applicable.NOTE 8: The NS\_01 label with the field *additionalPmax* [6] absent is default for all NR bands.NOTE 9: Void.NOTE 10: FFSNOTE 11: Applicable only for power class 1 operation.NOTE 12: Applicable only for power class 1 operation on band n85.NOTE 13: 3 MHz channel bandwidth is not applicable. |

Table 6.2.3.3.1-1A: 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 |  |  |
| n2 | NS\_01 | NS\_100 | NS\_03 | NS\_03U |  |  |  |  |
| n3 | NS\_01 | NS\_100 |  |  |  |  |  |  |
| n5 | NS\_01 | NS\_100 |  |  |  |  |  |  |
| n7 | NS\_01 | NS\_46 |  |  |  |  |  |  |
| n8 | NS\_01 | NS\_100 | NS\_43 | NS\_43U |  |  |  |  |
| n12 | NS\_01 | NS\_06 |  |  |  |  |  |  |
| n13 | NS\_01 | NS\_06 | NS\_07 |  |  |  |  |  |
| n14 | NS\_01 | NS\_06 |  |  |  |  |  |  |
| n20 | NS\_01 | Void | NS\_10 |  |  |  |  |  |
| n24 | NS\_01 | NS\_56 |  |  |  |  |  |  |
| n25 | NS\_01 | NS\_100 | NS\_03 | NS\_03U |  |  |  |  |
| n26 | NS\_01 | NS\_100 | NS\_12 | NS\_13 | NS\_14 | NS\_15 |  |  |
| n28 | NS\_01 | NS\_17 | NS\_18 |  |  |  |  |  |
| n30 | NS\_01 | NS\_21 |  |  |  |  |  |  |
| n31 | NS\_01 |  |  |  |  |  |  |  |
| n34 | NS\_01 |  |  |  |  |  |  |  |
| n38 | NS\_01 | NS\_44 |  |  |  |  |  |  |
| n39 | NS\_01 | NS\_50 |  |  |  |  |  |  |
| n40 | NS\_01 |  |  |  |  |  |  |  |
| n41 | NS\_01 | NS\_04 | NS\_47 |  |  |  |  |  |
| n48 | NS\_01 | NS\_27 |  |  |  |  |  |  |
| n50 | NS\_01 | NS\_41 | NS\_42 |  |  |  |  |  |
| n51 | NS\_01 | NS\_40 |  |  |  |  |  |  |
| n53 | NS\_01 | NS\_45 |  |  |  |  |  |  |
| n54 | NS\_01 | NS\_62 |  |  |  |  |  |  |
| n65 | NS\_01 | NS\_24 | NS\_100 | NS\_05 | NS\_05U | NS\_51 |  |  |
| n66 | NS\_01 | NS\_100 | NS\_03 | NS\_03U |  |  |  |  |
| n70 | NS\_01 | NS\_03 |  |  |  |  |  |  |
| n71 | NS\_01 | NS\_35 |  |  |  |  |  |  |
| n72 | NS\_01 |  |  |  |  |  |  |  |
| n74 | NS\_01 | NS\_37 | NS\_38 | NS\_39 |  |  |  |  |
| n77 | NS\_01 | NS\_55 |  |  |  |  |  |  |
| n78 | NS\_01 |  |  |  |  |  |  |  |
| n79 | NS\_01 |  |  |  |  |  |  |  |
| n80 | NS\_01 | NS\_100 |  |  |  |  |  |  |
| n81 | NS\_01 | NS\_100 | NS\_43 | NS\_43U |  |  |  |  |
| n82 | NS\_01 | Void |  |  |  |  |  |  |
| n83 | NS\_01 | NS\_17 | NS\_18 |  |  |  |  |  |
| n84 | NS\_01 | NS\_100 | NS\_05 | NS\_05U |  |  |  |  |
| n85 | NS\_01 | NS\_06 |  |  |  |  |  |  |
| n86 | NS\_01 | NS\_100 | NS\_03 | NS\_03U |  |  |  |  |
| n91 | NS\_01 |  |  |  |  |  |  |  |
| n92 | NS\_01 |  |  |  |  |  |  |  |
| n93 | NS\_01 |  |  |  |  |  |  |  |
| n94 | NS\_01 |  |  |  |  |  |  |  |
| n95 | NS\_01 |  |  |  |  |  |  |  |
| n98 | NS\_01 | NS\_50 |  |  |  |  |  |  |
| n99 | NS\_01 | NS\_56 |  |  |  |  |  |  |
| n100 | NS\_01 |  |  |  |  |  |  |  |
| n101 | NS\_01 |  |  |  |  |  |  |  |
| n1042 | NS\_01 |  |  |  |  |  |  |  |
| n105 | NS\_01 |  |  |  |  |  |  |  |
| n106 | NS\_01 |  |  |  |  |  |  |  |
| n109 | NS\_01 | NS\_18 |  |  |  |  |  |  |
| NOTE 1: additionalSpectrumEmission corresponds to an information element of the same name defined in clause 6.3.2 of TS 38.331 [6].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. |

Table 6.2.3.3.1-2: 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 |

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2.3.1.

## <<< Skip unchanged sections >>>

6.2.3.3.32 A-MPR for NS\_06

For power class 3 operation on bands n12, n13, n14 and n85, no A-MPR is applicable.

For power class 1 operation on band n14, no A-MPR is applicable.

For power class 1 operation on band n85 A-MPR = 8.5 dB if

 ( LCRB ≤ 0.20 ∙ NRB and ( RBstart = 0 or RBstart + LCRB = NRB ) )

or

 ( LCRB = 1 and 5 ∙ | RBstart + 0.5 – NRB / 2 | ∙ 12 ∙ SCS ≥ 1.5 ∙ CBW + 5 MHz ).

The normative reference for this requirement is TS 38.101-1 [2] clause 6.2.3.32.

6.2.3.4 Test description

6.2.3.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in tables 6.2.3.4.1-1 to 6.2.3.4.1-30. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2

Network signalling value NS\_10 is not tested. The relaxation specified under NS\_10 is for the purpose to control / mitigate self-desensitization of the UE’s own receiver, but no corresponding REFSENS requirements are specified. There is no need to test A-MPR requirements for its own.

Table 6.2.3.4.1-1: Test Configuration table for NS\_06 and NS\_35

|  |
| --- |
| Initial Conditions |
| Test Environment as specified in TS 38.508-1 [5] subclause 4.1 | Normal |
| Test Frequencies as specified in TS 38.508-1 [5] subclause 4.3.1 | Low range, High range |
| Test Channel Bandwidths as specified in TS 38.508-1 [5] subclause 4.3.1 | Lowest, Highest |
| Test SCS as specified in Table 5.3.5-1 | Lowest, Highest |
| A-MPR test parameters for NS\_06 and NS\_35 |
|  |  |  |  | Downlink Configuration | Uplink Configuration |
| Test ID | Freq | ChBw | SCS | N/A for A-MPR testing. | Modulation(NOTE 2) | RB allocation (NOTE 1) |
| 1 | Low | Default | Default |  | DFT-s-OFDM PI/2 BPSK | Edge\_1RB\_Left |
| 2 | High |  |  |  | DFT-s-OFDM PI/2 BPSK | Edge\_1RB\_Right |
| 3 | Default |  |  |  | DFT-s-OFDM PI/2 BPSK | Outer Full |
| 4 | Low |  |  |  | DFT-s-OFDM QPSK | Edge\_1RB\_Left |
| 5 | High |  |  |  | DFT-s-OFDM QPSK | Edge\_1RB\_Right |
| 6 | Default |  |  |  | DFT-s-OFDM QPSK | Outer Full |
| 7 | Low |  |  |  | DFT-s-OFDM 16 QAM | Edge\_1RB\_Left |
| 8 | High |  |  |  | DFT-s-OFDM 16 QAM | Edge\_1RB\_Right |
| 9 | Default |  |  |  | DFT-s-OFDM 16 QAM | Outer Full |
| 10 | Low |  |  |  | DFT-s-OFDM 64 QAM | Edge\_1RB\_Left |
| 11 | High |  |  |  | DFT-s-OFDM 64 QAM | Edge\_1RB\_Right |
| 12 | Default |  |  |  | DFT-s-OFDM 64 QAM | Outer Full |
| 13 | Low |  |  |  | DFT-s-OFDM 256 QAM | Edge\_1RB\_Left |
| 14 | High |  |  |  | DFT-s-OFDM 256 QAM | Edge\_1RB\_Right |
| 15 | Default |  |  |  | DFT-s-OFDM 256 QAM | Outer Full |
| 16 | Low |  |  |  | CP-OFDM QPSK | Edge\_1RB\_Left |
| 17 | High |  |  |  | CP-OFDM QPSK | Edge\_1RB\_Right |
| 18 | Default |  |  |  | CP-OFDM QPSK | Outer Full |
| 19 | Low |  |  |  | CP-OFDM 16 QAM | Edge\_1RB\_Left |
| 20 | High |  |  |  | CP-OFDM 16 QAM | Edge\_1RB\_Right |
| 21 | Default |  |  |  | CP-OFDM 16 QAM | Outer Full |
| 22 | Low |  |  |  | CP-OFDM 64 QAM | Edge\_1RB\_Left |
| 23 | High |  |  |  | CP-OFDM 64 QAM | Edge\_1RB\_Right |
| 24 | Default |  |  |  | CP-OFDM 64 QAM | Outer Full |
| 25 | Low |  |  |  | CP-OFDM 256 QAM | Edge\_1RB\_Left |
| 26 | High |  |  |  | CP-OFDM 256 QAM | Edge\_1RB\_Right |
| 27 | Default |  |  |  | CP-OFDM 256 QAM | Outer Full |
| NOTE 1: The specific configuration of each RB allocation is defined in Table 6.1-1.NOTE 2: DFT-s-OFDM PI/2 BPSK test applies only for UEs which supports half Pi BPSK in FR1.NOTE 3: VoidNOTE 4: This configuration is only applicable for NS\_06 power class 1 UE in n85. NS\_06 cases implying A-MPR = 0 are not precluded but can be covered with the execution of test case 6.5.2.3. |

## <<< Skip unchanged tables >>>

Editor’s note: The following lines belong at the end of subclause 6.2.3.4.1. As new tables are added to this section, these lines should always follow the tables

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.1.1 for TE diagram and section A.3.2 for UE diagram.

2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.

3. Downlink signals are initially set up according to Annex C.0, C.1, C.2 and uplink signals according Annex G.0, G.1, G.2 and G.3.0.

4. The UL Reference Measurement channels are set according to the applicable table from Table 6.2.3.4.1-1 to Table 6.2.3.4.1-30.

5. Propagation conditions are set according to Annex B.0.

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On,* Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.2.3.4.3.

6.2.3.4.2 Test procedure

1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to the applicable table from Table 6.2.3.4.1-1 to Table 6.2.3.4.1-31. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.

2. Send continuously uplink power control "up" commands in the uplink scheduling information to the UE Allow at least 200ms starting from the first TPC command in this step for the UE to reach PUMAX level.

3. Measure the mean power of the UE in the channel bandwidth of the radio access mode. The period of measurement shall be at least the continuous duration one sub-frame (1ms). For TDD, only slots consisting of only UL symbols are under test.

4. For network signalling value “NS\_04” and UEs supporting Power Class 2, repeat steps 1~3 on the applicable bands with message exception of P-Max defined in Table 6.2.3.4.3.4-2.

NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration Table 6.2.3.4.1-1 to Table 6.2.3.4.1-20, send an NR RRCReconfiguration message according to TS 38.508-1 [5] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.

6.2.3.4.3 Message contents

6.2.3.4.3.0 General

Message contents are according to TS 38.508-1 [5] subclause 4.6.1, with the following exceptions for each network signalling value.

For almost contiguous allocation testing, message contents are according to TS 38.508-1 [5] subclause 4.6.1 with the following exceptions:

Table 6.2.3.4.3-1: *PUSCH-Config*

|  |
| --- |
| Derivation Path: TS 38.508-1 [5] subclause 4.6.3 Table 4.6.3-118 PUSCH-Config |
| Information Element | Value/remark | Comment | Condition |
| PUSCH-Config ::= SEQUENCE { |  |  |  |
|  resourceAllocation | resourceAllocationType0 |  |  |
| } |  |  |  |

6.2.3.4.3.1 Message contents exceptions for network signalling value “NS\_03”

1. Information element additionalSpectrumEmission is set to NS\_03. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.1-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_03" and NR band n2, n25, n66 and n86

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 2 (NS\_03) |  |  |

Table 6.2.3.4.3.1-2: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_03" and NR band n70

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_03) |  |  |

6.2.3.4.3.2 Message contents exceptions for network signalling value "NS\_35"

1. Information element additionalSpectrumEmission is set to NS\_35. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.2-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_35" and NR band n71

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_35) |  |  |

6.2.3.4.3.3 Message contents exceptions for network signalling value "NS\_03U"

1. Information element additionalSpectrumEmission is set to NS\_03U. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.3-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_03U"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 3 (NS\_03U) |  |  |

6.2.3.4.3.4 Message contents exceptions for network signalling value "NS\_04"

1. Information element additionalSpectrumEmission is set to NS\_04. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.4-1: *AdditionalSpectrumEmission* Additional spurious emissions test requirement for "NS\_04"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_04) |  |  |

Table 6.2.3.4.3.4-2: *P-Max* (Step 4)

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-89 |
| Information Element | Value/remark | Comment | Condition |
| P-Max | 23 |  | PC2 UE |

Table 6.2.3.4.3.4-3: Void

6.2.3.4.3.5 Message contents exceptions for network signalling value "NS\_05"

1. Information element additionalSpectrumEmission is set to NS\_05. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.5-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_05"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 2 (NS\_05) |  |  |

6.2.3.4.3.6 Message contents exceptions for network signalling value "NS\_05U"

1. Information element additionalSpectrumEmission is set to NS\_05U. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.6-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_05U"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 3 (NS\_05U) |  |  |

6.2.3.4.3.7 Message contents exceptions for network signalling value "NS\_06"

1. Information element additionalSpectrumEmission is set to NS\_06. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.7-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_06"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_06) |  |  |

6.2.3.4.3.8 Message contents exceptions for network signalling value "NS\_08"

1. Information element additionalSpectrumEmission is set to NS\_08. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.8-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_08"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 2 (NS\_08) |  |  |

6.2.3.4.3.9 Message contents exceptions for network signalling value "NS\_08U"

1. Information element additionalSpectrumEmission is set to NS\_08U. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.9-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_08U"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 3 (NS\_08U) |  |  |

6.2.3.4.3.10 Message contents exceptions for network signalling value "NS\_10"

1. Information element additionalSpectrumEmission is set to NS\_10. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.10-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_10"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 2 (NS\_10) |  |  |

6.2.3.4.3.11 Message contents exceptions for network signalling value "NS\_17"

1. Information element additionalSpectrumEmission is set to NS\_17. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.11-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_17"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_17) |  |  |

6.2.3.4.3.12 Message contents exceptions for network signalling value "NS\_18"

1. Information element additionalSpectrumEmission is set to NS\_18. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.12-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_18"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 2 (NS\_18) |  |  |

6.2.3.4.3.13 Message contents exceptions for network signalling value "NS\_37"

1. Information element additionalSpectrumEmission is set to NS\_37. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.13-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_37"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_37) |  |  |

6.2.3.4.3.14 Message contents exceptions for network signalling value "NS\_38"

1. Information element additionalSpectrumEmission is set to NS\_38. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.14-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_38"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 2 (NS\_38) |  |  |

6.2.3.4.3.15 Message contents exceptions for network signalling value "NS\_39"

1. Information element additionalSpectrumEmission is set to NS\_39. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.15-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_39"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 3 (NS\_39) |  |  |

6.2.3.4.3.16 Message contents exceptions for network signalling value "NS\_40"

1. Information element additionalSpectrumEmission is set to NS\_40. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.16-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_40"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_40) |  |  |

6.2.3.4.3.17 Message contents exceptions for network signalling value "NS\_41"

1. Information element additionalSpectrumEmission is set to NS\_41. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.17-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_41"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_41) |  |  |

6.2.3.4.3.18 Message contents exceptions for network signalling value "NS\_42"

1. Information element additionalSpectrumEmission is set to NS\_42. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.18-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_42"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 2 (NS\_42) |  |  |

6.2.3.4.3.19 Message contents exceptions for network signalling value "NS\_100"

1. Information element additionalSpectrumEmission is set to NS\_100. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.19-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_100"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_100) |  | not for band n65 |
| 2 (NS\_100) |  | for band n65 |

6.2.3.4.3.20 Message contents exceptions for network signalling value "NS\_21"

1. Information element additionalSpectrumEmission is set to NS\_21. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.20-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_21"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_21) |  |  |

6.2.3.4.3.21 Message contents exceptions for network signalling value "NS\_24"

1. Information element additionalSpectrumEmission is set to NS\_24. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.21-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_24"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_24) |  |  |

6.2.3.4.3.22 Message contents exceptions for network signalling value "NS\_27"

1. Information element additionalSpectrumEmission is set to NS\_27. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.22-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_27"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_27) |  |  |

6.2.3.4.3.23 Message contents exceptions for network signalling value "NS\_43"

1. Information element additionalSpectrumEmission is set to NS\_43. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.23-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_43"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 2 (NS\_43) |  |  |

6.2.3.4.3.24 Message contents exceptions for network signalling value "NS\_47"

1. Information element additionalSpectrumEmission is set to NS\_47. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.24-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_47"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 2 (NS\_47) |  |  |

6.2.3.4.3.25 Message contents exceptions for network signalling value "NS\_48"

1. Information element additionalSpectrumEmission is set to NS\_48. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.25-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_48"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 4 (NS\_48) |  |  |

6.2.3.4.3.26 Message contents exceptions for network signalling value "NS\_49"

1. Information element additionalSpectrumEmission is set to NS\_49. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.26-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_49"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 5 (NS\_49) |  |  |

6.2.3.4.3.27 Message contents exceptions for network signalling value "NS\_12"

1. Information element additionalSpectrumEmission is set to NS\_12. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.27-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_12"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 2 (NS\_12) |  |  |

6.2.3.4.3.28 Message contents exceptions for network signalling value "NS\_13"

1. Information element additionalSpectrumEmission is set to NS\_13. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.28-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_13"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 3 (NS\_13) |  |  |

6.2.3.4.3.29 Message contents exceptions for network signalling value "NS\_14"

1. Information element additionalSpectrumEmission is set to NS\_14. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.29-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_14"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 4 (NS\_14) |  |  |

6.2.3.4.3.30 Message contents exceptions for network signalling value "NS\_15"

1. Information element additionalSpectrumEmission is set to NS\_15. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.30-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_15"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 5 (NS\_15) |  |  |

6.2.3.4.3.31 Message contents exceptions for network signalling value "NS\_45"

1. Information element additionalSpectrumEmission is set to NS\_45. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

6.2.3.4.3.32 Message contents exceptions for network signalling value "NS\_46"

1. Information element additionalSpectrumEmission is set to NS\_46. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.32-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_46"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_46) |  |  |

6.2.3.4.3.33 Message contents exceptions for network signalling value "NS\_44"

1. Information element additionalSpectrumEmission is set to NS\_44. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.33-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_44"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_44) |  |  |

6.2.3.4.3.34 Message contents exceptions for network signalled value "NS\_56"

1. Information element additionalSpectrumEmission is set to NS\_56. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.34-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_56"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_56) |  |  |

6.2.3.4.3.35 Message contents exceptions for network signalled value "NS\_07"

1. Information element additionalSpectrumEmission is set to NS\_07. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.35-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_07"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 2 (NS\_07) |  |  |

6.2.3.4.3.36 Message contents exceptions for network signalled value "NS\_50"

1. Information element additionalSpectrumEmission is set to NS\_50. This can be set in the *SIB1* as part of the cell broadcast message. This exception indicates that the UE shall meet the additional spurious emission requirement for a specific deployment scenario.

Table 6.2.3.4.3.36-1: *AdditionalSpectrumEmission*: Additional spurious emissions test requirement for "NS\_50"

|  |
| --- |
| Derivation Path: TS 38.508-1 [5], Table 4.6.3-1 |
| Information Element | Value/remark | Comment | Condition |
| additionalSpectrumEmission | 1 (NS\_50) |  |  |

6.2.3.5 Test requirement

The maximum output power, derived in step 3 shall be within the range prescribed by the nominal maximum output power and tolerance in the applicable Table from table 6.2.3.5-1 to Table 6.2.3.5-38. The allowed A-MPR values specified in Table 6.2.3.3.1-1 are in addition to the allowed MPR requirements specified in clause 6.2.2. For the UE maximum output power modified by MPR and/or A-MPR, the power limits specified in Table 6.2.1.3-1 apply.

Table 6.2.3.5-0: Test Tolerance (UE additional maximum output power reduction)

|  |  |  |  |
| --- | --- | --- | --- |
|  | f ≤ 3.0GHz | 3.0GHz < f ≤ 4.2GHz | 4.2GHz < f ≤ 6.0GHz |
| BW ≤ 40MHz | 0.7 dB | 1.0 dB | 1.0 dB |
| 40MHz < BW ≤ 100MHz | 1.0 dB | 1.0 dB | 1.0 dB |

## <<< Skip unchanged tables >>>

Table 6.2.3.5-34: UE Power Class 3 test requirements (NS\_06) for band n12, n13 and n14

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Test ID | PPowerClass (dBm) | MPR (dB) | A-MPR (dB) | ΔTC,c (dB) | PCMAX,c (dBm) | T(PCMAX\_L,c) (dB) | TL,c (dB) | Upper limit (dBm) | Lower limit (dBm) |
| 1 | 23 | 0.5 | 0 | 0 | 22.5 | 2 | 2.5 | 25+TT | 20.5-TT |
| 2 | 23 | 0.5 | 0 | 0 | 22.5 | 2 | 2.5 | 25+TT | 20.5-TT |
| 3 | 23 | 0.5 | 0 | 0 | 22.5 | 2 | 2.5 | 25+TT | 20.5-TT |
| 4 | 23 | 1 | 0 | 0 | 22 | 2 | 2.5 | 25+TT | 20-TT |
| 5 | 23 | 1 | 0 | 0 | 22 | 2 | 2.5 | 25+TT | 20-TT |
| 6 | 23 | 1 | 0 | 0 | 22 | 2 | 2.5 | 25+TT | 20-TT |
| 7 | 23 | 2 | 0 | 0 | 21 | 2 | 2.5 | 25+TT | 19-TT |
| 8 | 23 | 2 | 0 | 0 | 21 | 2 | 2.5 | 25+TT | 19-TT |
| 9 | 23 | 2 | 0 | 0 | 21 | 2 | 2.5 | 25+TT | 19-TT |
| 10 | 23 | 2.5 | 0 | 0 | 20.5 | 2.5 | 2.5 | 25+TT | 18-TT |
| 11 | 23 | 2.5 | 0 | 0 | 20.5 | 2.5 | 2.5 | 25+TT | 18-TT |
| 12 | 23 | 2.5 | 0 | 0 | 20.5 | 2.5 | 2.5 | 25+TT | 18-TT |
| 13 | 23 | 4.5 | 0 | 0 | 18.5 | 4 | 2.5 | 25+TT | 14.5-TT |
| 14 | 23 | 4.5 | 0 | 0 | 18.5 | 4 | 2.5 | 25+TT | 14.5-TT |
| 15 | 23 | 4.5 | 0 | 0 | 18.5 | 4 | 2.5 | 25+TT | 14.5-TT |
| 16 | 23 | 3 | 0 | 0 | 20 | 2.5 | 2.5 | 25+TT | 17.5-TT |
| 17 | 23 | 3 | 0 | 0 | 20 | 2.5 | 2.5 | 25+TT | 17.5-TT |
| 18 | 23 | 3 | 0 | 0 | 20 | 2.5 | 2.5 | 25+TT | 17.5-TT |
| 19 | 23 | 3 | 0 | 0 | 20 | 2.5 | 2.5 | 25+TT | 17.5-TT |
| 20 | 23 | 3 | 0 | 0 | 20 | 2.5 | 2.5 | 25+TT | 17.5-TT |
| 21 | 23 | 3 | 0 | 0 | 20 | 2.5 | 2.5 | 25+TT | 17.5-TT |
| 22 | 23 | 3.5 | 0 | 0 | 19.5 | 3.5 | 2.5 | 25+TT | 16-TT |
| 23 | 23 | 3.5 | 0 | 0 | 19.5 | 3.5 | 2.5 | 25+TT | 16-TT |
| 24 | 23 | 3.5 | 0 | 0 | 19.5 | 3.5 | 2.5 | 25+TT | 16-TT |
| 25 | 23 | 6.5 | 0 | 0 | 16.5 | 5 | 2.5 | 25+TT | 11.5-TT |
| 26 | 23 | 6.5 | 0 | 0 | 16.5 | 5 | 2.5 | 25+TT | 11.5-TT |
| 27 | 23 | 6.5 | 0 | 0 | 16.5 | 5 | 2.5 | 25+TT | 11.5-TT |
| NOTE 1: PPowerClass is the maximum UE power specified without taking into account the tolerance.NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0. |

Table 6.2.3.5-35: UE Power Class 1 test requirements (NS\_06) for band n14

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Test ID | PPowerClass (dBm) | MPR (dB) | A-MPR (dB) | ΔTC,c (dB) | PCMAX,c (dBm) | T(PCMAX\_L,c) (dB) | TL,c (dB) | Upper limit (dBm) | Lower limit (dBm) |
| 1 | 31 | 0.5 | 0 | 0 | 30.5 | 2 | 3 | 33+TT | 27.5-TT |
| 2 | 31 | 0.5 | 0 | 0 | 30.5 | 2 | 3 | 33+TT | 27.5-TT |
| 3 | 31 | 0.5 | 0 | 0 | 30.5 | 2 | 3 | 33+TT | 27.5-TT |
| 4 | 31 | 1 | 0 | 0 | 30 | 2 | 3 | 33+TT | 27-TT |
| 5 | 31 | 1 | 0 | 0 | 30 | 2 | 3 | 33+TT | 27-TT |
| 6 | 31 | 1 | 0 | 0 | 30 | 2 | 3 | 33+TT | 27-TT |
| 7 | 31 | 2 | 0 | 0 | 29 | 2 | 3 | 33+TT | 26-TT |
| 8 | 31 | 2 | 0 | 0 | 29 | 2 | 3 | 33+TT | 26-TT |
| 9 | 31 | 2 | 0 | 0 | 29 | 2 | 3 | 33+TT | 26-TT |
| 10 | 31 | 2.5 | 0 | 0 | 28.5 | 2 | 3 | 33+TT | 25.5-TT |
| 11 | 31 | 2.5 | 0 | 0 | 28.5 | 2 | 3 | 33+TT | 25.5-TT |
| 12 | 31 | 2.5 | 0 | 0 | 28.5 | 2 | 3 | 33+TT | 25.5-TT |
| 13 | 31 | 4.5 | 0 | 0 | 26.5 | 2 | 3 | 33+TT | 23.5-TT |
| 14 | 31 | 4.5 | 0 | 0 | 26.5 | 2 | 3 | 33+TT | 23.5-TT |
| 15 | 31 | 4.5 | 0 | 0 | 26.5 | 2 | 3 | 33+TT | 23.5-TT |
| 16 | 31 | 3 | 0 | 0 | 28 | 2 | 3 | 33+TT | 25-TT |
| 17 | 31 | 3 | 0 | 0 | 28 | 2 | 3 | 33+TT | 25-TT |
| 18 | 31 | 3 | 0 | 0 | 28 | 2 | 3 | 33+TT | 25-TT |
| 19 | 31 | 3 | 0 | 0 | 28 | 2 | 3 | 33+TT | 25-TT |
| 20 | 31 | 3 | 0 | 0 | 28 | 2 | 3 | 33+TT | 25-TT |
| 21 | 31 | 3 | 0 | 0 | 28 | 2 | 3 | 33+TT | 25-TT |
| 22 | 31 | 3.5 | 0 | 0 | 27.5 | 2 | 3 | 33+TT | 24.5-TT |
| 23 | 31 | 3.5 | 0 | 0 | 27.5 | 2 | 3 | 33+TT | 24.5-TT |
| 24 | 31 | 3.5 | 0 | 0 | 27.5 | 2 | 3 | 33+TT | 24.5-TT |
| 25 | 31 | 6.5 | 0 | 0 | 24.5 | 2 | 3 | 33+TT | 21.5-TT |
| 26 | 31 | 6.5 | 0 | 0 | 24.5 | 2 | 3 | 33+TT | 21.5-TT |
| 27 | 31 | 6.5 | 0 | 0 | 24.5 | 2 | 3 | 33+TT | 21.5-TT |
| 28 | 31 | 0.5 | 0 | 0 | 30.5 | 2 | 3 | 33+TT | 27.5-TT |
| 29 | 31 | 0.5 | 0 | 0 | 30.5 | 2 | 3 | 33+TT | 27.5-TT |
| 30 | 31 | 0 | 0 | 0 | 31 | 2 | 3 | 33+TT | 28-TT |
| NOTE 1: PPowerClass is the maximum UE power specified without taking into account the tolerance.NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0. |

Table 6.2.3.5-35a: UE Power Class 1 test requirements (NS\_06) for band n85

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Test ID | PPowerClass (dBm) | MPR (dB) | A-MPR (dB) | ΔTC,c (dB) | PCMAX,c (dBm) | T(PCMAX\_L,c) (dB) | TL,c (dB) | Upper limit (dBm) | Lower limit (dBm) |
| 1 | 31 | 0.5 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 2 | 31 | 0.5 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 3 | 31 | 0.5 | 0 | 0 | 30.5 | 2 | 2.5 | 31+TT | 28-TT |
| 4 | 31 | 1 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 5 | 31 | 1 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 6 | 31 | 1 | 0 | 0 | 30 | 2 | 2.5 | 31+TT | 27.5-TT |
| 7 | 31 | 2 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 8 | 31 | 2 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 9 | 31 | 2 | 0 | 0 | 29 | 2 | 2.5 | 31+TT | 26.5-TT |
| 10 | 31 | 2.5 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 11 | 31 | 2.5 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 12 | 31 | 2.5 | 0 | 0 | 28.5 | 2 | 2.5 | 31+TT | 26-TT |
| 13 | 31 | 4.5 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 14 | 31 | 4.5 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 15 | 31 | 4.5 | 0 | 0 | 26.5 | 2 | 2.5 | 31+TT | 24-TT |
| 16 | 31 | 3 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 17 | 31 | 3 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 18 | 31 | 3 | 0 | 0 | 28 | 2 | 2.5 | 31+TT | 25.5-TT |
| 19 | 31 | 3 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 20 | 31 | 3 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 21 | 31 | 3 | 0 | 0 | 28 | 2 | 2.5 | 31+TT | 25.5-TT |
| 22 | 31 | 3.5 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 23 | 31 | 3.5 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 24 | 31 | 3.5 | 0 | 0 | 27.5 | 2 | 2.5 | 31+TT | 25-TT |
| 25 | 31 | 6.5 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 26 | 31 | 6.5 | 8.5 | 0 | 22.5 | 2 | 2.5 | 31+TT | 20-TT |
| 27 | 31 | 6.5 | 0 | 0 | 24.5 | 2 | 2.5 | 31+TT | 22-TT |
| NOTE 1: PPowerClass is the maximum UE power specified without taking into account the tolerance.NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.2.3.5-0. |

## <<< Skip unchanged sections >>>

#### 6.5.2.3 Additional spectrum emission mask

6.5.2.3.1 Test purpose

To verify that the power of any UE emission shall not exceed specified level for the specified channel bandwidth under the deployment scenarios where additional requirements are specified.

6.5.2.3.2 Test applicability

This test case applies to all types of NR Power Class 1 UE release 15 and forward.

This test case applies to all types of NR Power Class 2 and Power Class 3 UE release 15 and forward that don’t support Tx diversity.

6.5.2.3.3 Minimum conformance requirements

6.5.2.3.3.1 Minimum requirement for "NS\_35"

Additional spectrum 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.

When " NS\_35" is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5.2.2.3.3.1-1.

Table 6.5.2.2.3.3.1-1: Additional requirements for “NS\_35”

|  |  |  |
| --- | --- | --- |
| ΔfOOB(MHz) | Channel bandwidth (MHz) / Spectrum emission limit (dBm) | Measurement bandwidth |
|  | 5 | 10 | 15 | 20 | 25 | 30 | 35 |  |
| ± 0-0.1 | -15  | -18  | -20 | -21 | -22 | -23 | -23.5 | 30 kHz  |
| ± 0.1-6 | -13 | 100 kHz |
| ± 6-10 | -25  |  | 1 MHz |
| ± 6-CBW |  | -13 | 100 kHz |
| ± CBW-CBW+5 |  | -25 | 1 MHz |

NOTE: As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain the equivalent noise bandwidth of the measurement bandwidth.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.5.2.3.1.

6.5.2.3.3.2 Requirements for network signalling value "NS\_04"

Additional spectrum 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.

The n41 SEM transition point from -13 dBm/MHz to -25 dBm/MHz is based on the emission bandwidth. The emission bandwidth is defined as the width of the signal between two points, one below the carrier centre frequency and one above the carrier c frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. Since the 26-dB emission bandwidth is implementation dependent, the maximum transmission bandwidths in MHz (NRB \* SCS \* 12 / 1,000) is used for the SEM.

Table 6.5.2.3.3.2-1: n41 maximum transmission bandwidths (MHz) for CP-OFDM

|  |  |
| --- | --- |
| SCS (kHz) | Channel bandwidths (MHz) / Maximum transmission bandwidth (MHz) |
| 5 | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| 15 | 4.50 | 9.36 | 14.22 | 19.08 | 28.80 | 38.88 | 48.6 | N/A | N/A | N/A | N/A | N/A |
| 30 | N/A | 8.64 | 13.68 | 18.36 | 28.08 | 38.16 | 47.88 | 58.32 | 68.04 | 78.12 | 88.02 | 98.28 |
| 60 | N/A | 7.92 | 12.96 | 17.28 | 27.36 | 36.72 | 46.8 | 56.88 | 66.96 | 77.04 | 87.12 | 97.20 |

Table 6.5.2.3.3.2-2: n41 maximum transmission bandwidths (MHz) for DFT-S-OFDM

|  |  |
| --- | --- |
| SCS (kHz) | Channel bandwidths (MHz) / Maximum transmission bandwidth (MHz) |
| 5 | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| 15 | 4.50 | 9.00 | 13.50 | 18.00 | 28.80 | 38.88 | 48.60 | N/A | N/A | N/A | N/A | N/A |
| 30 | N/A | 8.64 | 12.96 | 18.00 | 27.00 | 36.00 | 46.08 | 58.32 | 64.80 | 77.76 | 87.48 | 97.20 |
| 60 | N/A | 7.20 | 12.96 | 17.28 | 25.92 | 36.00 | 46.08 | 54.00 | 64.80 | 72.00 | 86.40 | 97.20 |

When "NS\_04" is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5.2.3.3.2-3.

Table 6.5.2.3.3.2-3: n41 SEM with “NS\_04”

|  |  |  |
| --- | --- | --- |
| ΔfOOB MHz | Channel bandwidth (MHz) / Spectrum emission limit (dBm) | Measurementbandwidth |
|  | 5 | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |  |
| ± 0 - 1 | -10 | -10 | -10 | -10 | -10 | -10 |  |  | 2 % channel bandwidth |
|  |  |  |  |  |  |  |  | -10 | 1 MHz |
| ± 1 - 5 |  |  | -10 | 1 MHz |
| ± 5 - X |  |  | -13 |
| ± X - (BWChannel + 5 MHz) |  |  | -25 |
| NOTE: X is defined in Table 6.5.2.3.3.2-1 for CP-OFDM and 6.5.2.3.3.2-2 for DFT-S-OFDM |

The normative reference for this requirement is TS 38.101-1 [2] clause 6.5.2.3.2.

6.5.2.3.3.3 Requirements for network signalling value "NS\_03" and "NS\_03U"

Additional spectrum 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.

When "NS\_03" or "NS\_03U", is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5.2.3.3.3-1.

Table 6.5.2.3.3.3-1: Additional requirements for "NS\_03" and "NS\_03U"

|  |  |  |
| --- | --- | --- |
| **ΔfOOB MHz** | **Channel bandwidth (MHz) / Spectrum emission limit (dBm)** | **Measurement bandwidth** |
|  | **5** | **10, 15, 20, 25, 30, 35, 40, 45** |  |
| ± 0-1 | -13 | -13 | 1 % of channel BW |
| ± 1-6 | -13 | -13 | 1 MHz |
| ± 6-10 | -25 |
| ± 1-BWChannel |  |
| ± BWChannel-(BWChannel+5) |  | -25 |

NOTE: As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain the equivalent noise bandwidth of the measurement bandwidth.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.5.2.3.3.

6.5.2.3.3.4 Requirements for network signalling value "NS\_06" or "NS\_07"

Additional spectrum 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.

When "NS\_06" or "NS\_07" is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5.2.3.3.4-1.

Table 6.5.2.3.3.4-1: Additional requirements for "NS\_06" or "NS\_07"

|  |  |  |
| --- | --- | --- |
| ΔfOOB(MHz) | Channel bandwidth (MHz) / Spectrum emission limit (dBm) | Measurementbandwidth |
|  | 3 | 5 | 10 | 15 |  |
| ± 0 – 0.1 | -13 | -15 | -18 | -20 | 30 kHz  |
| ± 0.1 – 1 | -13 | -13 | -13 | -13 | 100 kHz |
| ± 1 – 5 | -13 | -13 | -13 | -13 | 1 MHz |
| ± 5 – 6 | -25 | -13 | -13 | -13 | 1 MHz |
| ± 6 – 10 |  | -25 |
| ± 10 – 15 |  |  | -25 |
| ± 15 – 20 |  |  |  | -25 |

NOTE: As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.5.2.3.4.

6.5.2.3.3.5 Void

6.5.2.3.3.6 Void

6.5.2.3.3.7 Void

6.5.2.3.3.8 Requirements for network signalling value "NS\_27"

Additional spectrum 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.

When "NS\_27" is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5.2.3.3.8-1.

Table 6.5.2.3.3.8-1: Additional requirements for "NS\_27"

|  |  |  |
| --- | --- | --- |
| ΔfOOB MHz | Channel bandwidth (MHz) / Spectrum emission limit (dBm) | Measurementbandwidth |
| 5 | 10 | 15 | 20 | 30 | 40 |
| ± 0 - 1 | -13 | 1 % channel bandwidth |
| ± 1 - X | -13 | 1 MHz |
| < – X or > X | -25 |
| NOTE 1: X is occupied channel bandwidth as defined in Table 6.5.1.3-1.NOTE 2: The requirements apply only at the frequency range from 3540 MHz to 3710 MHz. |

NOTE: As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement.

The normative reference for this requirement is TS 38.101-1 [2] clause 6.5.2.3.8.

6.5.2.3.3.9 Requirements for network signalling value "NS\_21"

Additional spectrum 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.

When "NS\_21" is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5.2.3.3.9-1.

Table 6.5.2.3.3.9-1: Additional requirements for "NS\_21" (applicable to UEs Release 17 and forward indicating *modifiedMPR-Behaviour)*

|  |  |  |
| --- | --- | --- |
| **ΔfOOB MHz** | **Channel bandwidth (MHz) / Spectrum emission limit (dBm)** | **Measurement bandwidth** |
|  | **5** | **10** |  |
| ± 0-1 | -13 | -13 | 1 MHz |
| ± 1-6 | -13 | -13 | 1 MHz |
| ± 6-10 | -25 | -13 | 1 MHz |
| ± 10-15 |  | -25 | 1 MHz |

NOTE 1: As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain the equivalent noise bandwidth of the measurement bandwidth.

NOTE 2: For ΔfOOB = ±0-1MHz, a resolution bandwidth of as close as possible to, without being less than 1% of the channel bandwidth, shall be employed provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz.

6.5.2.3.4 Test description

6.5.2.3.4.1 Initial conditions

Initial conditions are a set of test configurations the UE needs to be tested in and the steps for the SS to take with the UE to reach the correct measurement state.

The initial test configurations consist of environmental conditions, test frequencies, test channel bandwidths and sub-carrier spacing based on NR operating bands specified in table 5.3.5-1. All of these configurations shall be tested with applicable test parameters for each combination of test channel bandwidth and sub-carrier spacing, and are shown in clause 6.2.3.4.1. The details of the uplink reference measurement channels (RMCs) are specified in Annex A.2. Configurations of PDSCH and PDCCH before measurement are specified in Annex C.2.

1. Connect the SS to the UE antenna connectors as shown in TS 38.508-1 [5] Annex A, Figure A.3.1.1.1 for TE diagram and section A.3.2 for UE diagram.

2. The parameter settings for the cell are set up according to TS 38.508-1 [5] subclause 4.4.3.

3. Downlink signals are initially set up according to Annex C.0, C.1, C.2 and uplink signals according Annex G.0, G.1, G.2, G.3.0.

4. The UL Reference Measurement channels are set according to the applicable test configuration table in clause 6.2.3.4.1.

5. Propagation conditions are set according to Annex B.0.

6. Ensure the UE is in state RRC\_CONNECTED with generic procedure parameters Connectivity *NR*, Connected without release *On,* Test Mode *On* and Test Loop Function *On* according to TS 38.508-1 [5] clause 4.5. Message contents are defined in clause 6.5.2.3.4.3.

6.5.2.3.4.2 Test procedure

1. SS sends uplink scheduling information for each UL HARQ process via PDCCH DCI format 0\_1 for C\_RNTI to schedule the UL RMC according to the applicable test configuration table in clause 6.2.3.4.1. Since the UE has no payload data to send, the UE transmits uplink MAC padding bits on the UL RMC.

2. Send continuously uplink power control "up" commands in the uplink scheduling information to the UE. Allow at least 200ms starting from the first TPC command in this step for the UE to reach PUMAX level.

3. Measure the mean power of the UE in the channel bandwidth of the radio access mode according to the test configuration, which shall meet the requirements described in applicable table from Table 6.2.3.5-1 to Table 6.2.3.5-35. The period of measurement shall be at least the continuous duration one sub-frame (1ms). For TDD slots with transient periods are not under test.

4. Measure the power of the transmitted signal with a measurement filter of bandwidths according to applicable test configuration tables in subclause 6.5.2.3.5 and using a rms detector. If the sweep count is higher than one, the trace mode shall be average. The centre frequency of the filter shall be stepped in continuous steps according to the applicable test requirement table. The measured power shall be recorded for each step. The measurement period shall capture the active TSs.

NOTE 1: When switching to DFT-s-OFDM waveform, as specified in the test configuration Table 6.2.3.4.1-1 through 6.2.3.4.1-2, send an NR RRCReconfiguration message according to TS 38.508-1 [5] clause 4.6.3 Table 4.6.3-118 PUSCH-Config with TRANSFORM\_PRECODER\_ENABLED condition.

6.5.2.3.4.3 Message contents

Message contents are according to TS 38.508-1 [5] subclause 4.6, with the following exceptions for each network signalling value.

6.5.2.3.4.3.1 Message contents exceptions (network signalling value "NS\_35")

For "NS\_35" see A-MPR test case in table 6.2.3.4.3.2-1.

6.5.2.3.4.3.2 Message contents exceptions (network signalling value "NS\_04")

For "NS\_04" see A-MPR test case in table 6.2.3.4.3.4-1.

6.5.2.3.4.3.3 Message contents exceptions (network signalling value "NS\_03")

For "NS\_03" see A-MPR test case in table 6.2.3.4.3.1-1.

6.5.2.3.4.3.4 Message contents exceptions (network signalling value "NS\_03U")

For "NS\_03U" see A-MPR test case in table 6.2.3.4.3.3-1.

6.5.2.3.4.3.5 Message contents exceptions (network signalling value "NS\_06") or "NS\_07"

For "NS\_06" see A-MPR test case in table 6.2.3.4.3.7-1. For "NS\_07" see A-MPR test case in table 6.2.3.4.3.35-1

6.5.2.3.4.3.6 Message contents exceptions (network signalling value "NS\_21")

For "NS\_21" see A-MPR test case in table 6.2.3.4.3.20-1.

6.5.2.3.4.3.7 Message contents exceptions (network signalling value "NS\_27")

For "NS\_27" see A-MPR test case in table 6.2.3.4.3.22-1.

6.5.2.3.5 Test requirement

Table 6.5.2.3.5-1: Test Tolerance (Additional spectrum emission mask)

|  |  |  |  |
| --- | --- | --- | --- |
|  | f ≤ 3.0GHz | 3.0GHz < f ≤ 4.2GHz | 4.2GHz < f ≤ 6.0GHz |
| BW ≤ 100MHz | 1.5 dB | 1.8 dB | 1.8 dB |

6.5.2.3.5.1 Test requirements (network signalling value "NS\_35")

When "NS\_35" is indicated in the cell:

- the measured UE mean power in the channel bandwidth, derived in step 3, shall fulfil requirements in table 6.2.3.5-1 as appropriate for a NR UE.

and

- the power of any UE emission shall fulfil requirements in table 6.5.2.3.5.1-1, as applicable.

Table 6.5.2.3.5.1-1: Additional test requirements "NS\_35"

|  |  |  |
| --- | --- | --- |
| ΔfOOB(MHz) | Channel bandwidth (MHz) / Spectrum emission limit (dBm) | Measurement bandwidth |
|  | 5 | 10 | 15 | 20 | 25 | 30 | 35 |  |
| ± 0-0.1 | -15 + TT | -18 + TT | -20 + TT | -21 + TT | -22 + TT | -23 + TT | -23.5 + TT | 30 kHz  |
| ± 0.1-6 | -13 + TT | 100 kHz |
| ± 6-10 | -25 + TT |  | 1 MHz |
| ± 6-CBW |  | -13 + TT | 100 kHz |
| ± CBW-CBW+5 |  | -25 + TT | 1 MHz |
| NOTE 1: TT for each frequency and channel bandwidth is specified in Table 6.5.2.3.5-1. |

NOTE: As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain the equivalent noise bandwidth of the measurement bandwidth.

6.5.2.3.5.2 Test requirements (network signalling value "NS\_04")

When "NS\_04" is indicated in the cell:

- the measured UE mean power in the channel bandwidth, derived in step 3, shall fulfil requirements in Table 6.2.3.5-2 for UE power class 2 or Table 6.2.3.5-3 UE power class 3.

and

- the power of any UE emission shall fulfil requirements in table 6.5.2.3.5.2-1.

Table 6.5.2.3.5.2-1: Additional test requirements for "NS\_04"

|  |  |  |
| --- | --- | --- |
| ΔfOOB MHz | Spectrum emission limit (dBm) / measurement bandwidthfor each channel bandwidth (MHz) | Measurementbandwidth |
|  | 5 | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |  |
| ± 0 - 1 | -10+TT | -10+TT | -10+TT | -10+TT | -10+TT | -10+TT |  |  | 2 % channel bandwidth |
|  |  |  |  |  |  |  |  | -10+TT | 1 MHz |
| ± 1 - 5 |  |  | -10 + TT | 1 MHz |
| ± 5 - X |  |  | -13 + TT |
| ± X - (BWChannel + 5 MHz) |  |  | -25 + TT |
| NOTE 1: X is defined in Table 6.5.2.3.3.2-1 for CP-OFDM and 6.5.2.3.3.2-2 for DFT-S-OFDM.NOTE 2: TT for each frequency and channel bandwidth is specified in Table 6.5.2.3.5-1. |

6.5.2.3.5.3 Test requirements (network signalling value "NS\_03", "NS\_03U")

When "NS\_03" or "NS\_03U" is indicated in the cell:

- the measured UE mean power in the channel bandwidth, derived in step 3, shall fulfil requirements in table 6.2.3.5-4 or 6.2.3.5-5 as appropriate for a NR UE.

and

- the power of any UE emission shall fulfil requirements in table 6.5.2.3.5.3-1, as applicable.

Table 6.5.2.3.5.3-1: Additional requirements for "NS\_03", "NS\_03U"

|  |  |  |
| --- | --- | --- |
| **ΔfOOB MHz** | **Channel bandwidth (MHz) / Spectrum emission limit (dBm)** | **Measurement bandwidth** |
|  | **5** | **10, 15, 20, 25, 30, 35, 40, 45** |  |
| ± 0-1 | -13 + TT | -13 + TT | 1 % of channel BW |
| ± 1-6 | -13 + TT | -13 + TT | 1 MHz |
| ± 6-10 | -25 + TT |
| ± 1-BWChannel |  |
| ± BWChannel-(BWChannel+5) |  | -25 + TT |
| NOTE 1: TT for each frequency and channel bandwidth is specified in Table 6.5.2.3.5-1. |

NOTE: As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain the equivalent noise bandwidth of the measurement bandwidth.

6.5.2.3.5.4 Test requirements (network signalling value "NS\_06" or “NS\_07)

When "NS\_06" is indicated in the cell:

- the measured UE mean power in the channel bandwidth, derived in step 3, shall fulfil requirements in table 6.2.3.5-34, table 6.2.3.5-35 and table 6.2.3.5-35a as appropriate for a NR UE

When "NS\_07 is indicated in the cell:

- the measured UE mean power in the channel bandwidth, derived in step 3, shall fulfil requirements in table 6.2.3.5-37 as appropriate for a NR UE

and

- the power of any UE emission shall fulfil requirements in table 6.5.2.3.5.4-1, as applicable.

Table 6.5.2.3.5.4-1: Additional requirements for "NS\_06" or "NS\_07"

|  |  |
| --- | --- |
|  | Spectrum emission limit (dBm) / Channel bandwidth  |
| ΔfOOB(MHz) | 3 MHz | 5 MHz | 10 MHz | 15 MHz | Measurementbandwidth |
| ± 0 – 0.1 | -13 + TT | -15 + TT | -18 + TT | -20 + TT | 30 kHz  |
| ± 0.1 – 1 | -13 + TT | -13 + TT | -13 + TT | -13 + TT | 100 kHz |
| ± 1 – 5 | -13 + TT | -13 + TT | -13 + TT | -13 + TT | 1 MHz |
| ± 5 – 6 | -25 + TT | -13 + TT | -13 + TT | -13 + TT | 1 MHz |
| ± 6 – 10 |  | -25 + TT | -13 + TT | -13 + TT | 1 MHz |
| ± 10 – 15 |  |  | -25 + TT | -13 + TT | 1 MHz |
| ± 15 – 20 |  |  |  | -25 + TT | 1 MHz |
| NOTE 1: TT for each frequency and channel bandwidth is specified in Table 6.5.2.3.5-1. |

NOTE: As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain the equivalent noise bandwidth of the measurement bandwidth.

6.5.2.3.5.5 Void

6.5.2.3.5.6 Void

6.5.2.3.5.7 Void

6.5.2.3.5.8 FFS

6.5.2.3.5.9 Test requirements for network signalling value "NS\_21"

When "NS\_21" is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5.2.3.5.9-1.

Table 6.5.2.3.5.9-1: Additional requirements for "NS\_21" (applicable to UEs Release 17 and forward indicating *modifiedMPR-Behaviour)*

|  |  |  |
| --- | --- | --- |
| **ΔfOOB MHz** | **Channel bandwidth (MHz) / Spectrum emission limit (dBm)** | **Measurement bandwidth** |
|  | **5** | **10** |  |
| ± 0-1 | -13+TT | -13+TT | 1 MHz |
| ± 1-6 | -13+TT | -13+TT | 1 MHz |
| ± 6-10 | -25+TT | -13+TT | 1 MHz |
| ± 10-15 |  | -25+TT | 1 MHz |

NOTE 1: As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain the equivalent noise bandwidth of the measurement bandwidth.

NOTE 2: For ΔfOOB = ±0-1MHz, a resolution bandwidth of as close as possible to, without being less than 1% of the channel bandwidth, shall be employed provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz.

## <<< END OF CHANGES >>>