**3GPP TSG-RAN4 Meeting #104-e *Revised R4-2212654***

**Online, , August 15-26, 2022**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **38.141-2** | **CR** | **0407** | **rev** | **1** | **Current version:** | **17.6.0** |  |
|  |
| *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 | **X** | Core Network |  |

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| --- |
|  |
| ***Title:***  | CR to TS 38.141-2: Introduction of band n104  |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | NR\_6GHz-Perf |  | ***Date:*** | 2022-08-22 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-17 |
|  | *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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** |  Add support for bands n104 |
|  |  |
| ***Summary of change:*** | Update the relevant sub-clauses to support the introduction of band n104 for the conformance specification |
|  |  |
| ***Consequences if not approved:*** | Conformance can’t be properly addressed for band n104 |
|  |  |
| ***Clauses affected:*** | 4.1.2.2, 4.1.2.3, 6.2.5, 6.3.5.1, 6.5.2.5, 6.7.1, 6.7.3.5, 6.7.4.5.1.2, 6.7.4.5.1.4, 6.7.4.5.1.5, 6.7.5.3.5.1, 6.7.5.4.5.1, 6.7.5.5.5.1, 7.2.5.2, 7.3.5.2, 7.4.5.2, 7.5.1.5.2, 7.5.2.5.2, 7.7.5.1, 7.8.5.1, 7.9.5.1,  |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 38.104 |
| ***affected:*** | **X** |  |  Test specifications | TS 38.141-1 |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | The proposed MUs and requirements are based on R4-2212563 |
|  |  |
| ***This CR's revision history:*** |  |

*<Start of the change>*

#### 4.1.2.2 Measurement of transmitter

The maximum OTA Test System uncertainty for OTA transmitter tests minimum requirements are given in tables 4.1.2.2-1 and 4.1.2.2-2. Details for derivation of OTA Test System uncertainty are given in corresponding clauses in TR 37.941 [29].

Table 4.1.2.2-1: Maximum OTA Test System uncertainty for FR1 OTA transmitter tests

| Clause | Maximum OTA Test System uncertainty |
| --- | --- |
| 6.2 Radiated transmit power | Normal condition:±1.1 dB, f ≤ 3 GHz±1.3 dB, 3 GHz < f ≤ 6 GHz±1.3 dB, 6.0 GHz < f ≤ 7.125 GHz±1.8 dB for bands n46, n96 and n102 |
|  | Extreme condition:±2.5 dB, f ≤ 3 GHz±2.6 dB, 3 GHz < f ≤ 6 GHz±2.6 dB, 6.0 GHz < f ≤ 7.125 GHz |
| 6.3 OTA base station output power | ±1.4 dB, f ≤ 3.0 GHz±1.5 dB, 3.0 GHz < f ≤ 4.2 GHz±1.5 dB, 4.2 GHz < f ≤ 6.0 GHz±1.5 dB, 6.0 GHz < f ≤ 7.125 GHz |
| 6.4.2 OTA RE power control dynamic range | N/A |
| 6.4.3 OTA total power dynamic range  | ±0.4 dB |
| 6.5.1 OTA transmitter OFF power | ±3.4 dB, f ≤ 3.0 GHz±3.6 dB, 3.0 GHz < f ≤ 6 GHz±3.6 dB, 6.0 GHz < f ≤ 7.125 GHz(NOTE 1) |
| 6.5.2 OTA transmitter transient period | N/A |
| 6.6.2 OTA frequency error | ±12 Hz |
| 6.6.3 OTA modulation quality | ±1 % |
| 6.6.4 OTA time alignment error | ±25 ns |
| 6.7.2 OTA occupied bandwidth | ±100 kHz, BWChannel 5 MHz, 10 MHz±300 kHz, BWChannel 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 MHz, 50 MHz±600 kHz, BWChannel 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz  |
| 6.7.3 OTA ACLR/CACLR | f ≤ 3.0 GHz±1 dB, BW ≤ 20MHz±1 dB, BW > 20MHz3.0 GHz < f ≤ 6.0 GHz±1.2 dB, BW ≤ 20MHz±1.2 dB, BW > 20MHz6.0 GHz < f ≤ 7.125 GHz ±1.2 dB, BW ≤ 20MHz±1.2 dB, BW > 20MHzAbsolute power ±2.2 dB, f ≤ 3.0 GHzAbsolute power ±2.7 dB, 3.0 GHz < f ≤ 4.2 GHzAbsolute power ±2.7 dB, 4.2 GHz < f ≤ 6.0 GHzAbsolute power ±2.7 dB, 6.0 GHz < f ≤ 7.125 GHz |
| 6.7.4 OTA operating band unwanted emissions | Absolute power ±1.8 dB, f ≤ 3.0 GHzAbsolute power ±2 dB, 3.0 GHz < f ≤ 4.2 GHzAbsolute power ±2 dB, 4.2 GHz < f ≤ 6.0 GHzAbsolute power ±2 dB, 6.0 GHz < f ≤ 7.125 GHz |
| 6.7.5.2 OTA transmitter spurious emissions, mandatory requirements | ±2.3 dB, 30 MHz < f ≤ 6 GHz±4.2 dB, 6 GHz < f ≤ 26 GHz |
| 6.7.5.3 OTA transmitter spurious emissions, protection of BS receiver | ±3.1 dB, f ≤ 3 GHz±3.3 dB, 3 GHz < f ≤ 4.2 GHz±3.4, 4.2 GHz < f ≤ 6 GHz±3.4, 6.0 GHz < f ≤ 7.125 GHz (NOTE 1) |
| 6.7.5.4 OTA transmitter spurious emissions, additional spurious emissions requirements | ±2.6 dB, f ≤ 3 GHz±3.0, 3 GHz < f ≤ 4.2 GHz±3.5, 4.2 GHz < f ≤ 6 GHz±3.5, 6.0 GHz < f ≤ 7.125 GHz |
| 6.7.5.5 OTA transmitter spurious emissions, co-location | ±3.1 dB, f ≤ 3 GHz±3.3 dB, 3 GHz < f ≤ 4.2 GHz±3.4, 4.2 GHz < f ≤ 6 GHz±3.4, 6.0 GHz < f ≤ 7.125 GHz(NOTE 1) |
| 6.8 OTA transmitter intermodulation | The value below applies only to the interfering signal and is unrelated to the measurement uncertainty of the tests in6.7.3 (ACLR), 6.7.4 (OBUE) and 6.7.5 (spurious emissions) which have to be carried out in the presence of the interferer.±3.2 dB, f ≤ 3.0 GHz±3.4 dB, 3.0 GHz < f ≤ 4.2 GHz±3.5 dB, 4.2 GHz < f ≤ 6 GHz±3.5 dB, 6.0 GHz < f ≤ 7.125 GHz(NOTE 1) |
| NOTE 1: Fulfilling the criteria for CLTA selection and placement in clause 4.12 is deemed sufficient for the test purposes. When these criteria are met, the measurement uncertainty related to the selection of the co-location test antenna and its alignment as specified in the appropriate measurement uncertainty budget in TR 37.941 [29] shall be used for evaluating the test system uncertainty. NOTE 2: Test system uncertainty values are applicable for normal condition unless otherwise stated. |

Table 4.1.2.2-2: Maximum OTA Test System uncertainty for FR2 OTA transmitter tests

|  |  |
| --- | --- |
| Clause | Maximum OTA Test System uncertainty |
| 6.2 Radiated transmit power | Normal condition:±1.7 dB (24.25 – 29.5 GHz)±2.0 dB (37 – 43.5 GHz)±2.2 dB (43.5 GHz < f ≤ 48.2 GHz) |
|  | Extreme condition:±3.1 dB (24.25 – 29.5 GHz)±3.3 dB (37 – 43.5 GHz)±3.5 dB (43.5 GHz < f ≤ 48.2 GHz) |
| 6.3 OTA base station output power | ±2.1 dB (24.25 – 29.5 GHz)±2.4 dB (37 – 43.5 GHz)±2.6 dB (43.5 GHz < f ≤ 48.2 GHz) |
| 6.4.2 OTA RE power control dynamic range | N/A |
| 6.4.3 OTA total power dynamic range  | ±0.4 dB |
| 6.5.1 OTA transmitter OFF power | ±2.9 dB (24.25 – 29.5 GHz)±3.3 dB (37 – 43.5 GHz)±3.6 dB (43.5 GHz < f ≤ 48.2 GHz) |
| 6.5.2 OTA transmitter transient period | N/A |
| 6.6.2 OTA frequency error | ±12 Hz |
| 6.6.3 OTA modulation quality | 1% |
| 6.6.4 OTA time alignment error | ±25 ns |
| 6.7.2 OTA occupied bandwidth | 600 kHz |
| 6.7.3 OTA ACLR | Relative ACLR:±2.3 dB (24.25 – 29.5 GHz)±2.6 dB (37 – 43.5 GHz)±2.8 dB (43.5 GHz < f ≤ 48.2 GHz)Absolute ACLR: ±2.7 dB (24.25 – 29.5 GHz)±2.7 dB (37 – 43.5 GHz)±2.9 dB (43.5 GHz < f ≤ 48.2 GHz) |
| 6.7.4 OTA operating band unwanted emissions | ±2.7 dB (24.25 – 29.5 GHz)±2.7 dB (37 – 43.5 GHz)±2.9 dB (43.5 GHz < f ≤ 48.2 GHz) |
| 6.7.5.2 OTA transmitter spurious emissions, mandatory requirements | ±2.3 dB, 30 MHz ≤ f ≤ 6 GHz±2.7 dB, 6 GHz < f ≤ 40 GHz±5.0 dB, 40 GHz < f ≤ 60 GHz |
| 6.7.5.4 OTA transmitter spurious emissions, additional requirements | ±2.3 dB, 30 MHz ≤ f ≤ 6 GHz±2.7 dB, 6 GHz < f ≤ 40 GHz±5.0 dB, 40 GHz < f ≤ 60 GHz |
| NOTE: Test system uncertainty values are applicable for normal condition unless otherwise stated. |

#### 4.1.2.3 Measurement of receiver

The maximum OTA Test System uncertainty for OTA receiver tests minimum requirements are given in tables 4.1.2.3-1 and 4.1.2.3-2. Details for derivation of OTA Test System uncertainty are given in corresponding clauses in TR 37.941 [29].

Table 4.1.2.3-1: Maximum OTA Test System uncertainty for FR1 OTA receiver tests

|  |  |
| --- | --- |
| Clause | Maximum OTA Test System uncertainty |
| 7.2 OTA sensitivity | ±1.3 dB, f ≤ 3.0 GHz±1.4 dB, 3.0 GHz < f ≤ 4.2 GHz±1.6 dB, 4.2 GHz < f ≤ 6.0 GHz±1.9 dB, 6.0 GHz < f ≤ 7.125 GHz±1.9 dB for bands n46, n96 and n102 |
| 7.3 OTA reference sensitivity level | ±1.3 dB, f ≤ 3.0 GHz±1.4 dB, 3.0 GHz < f ≤ 4.2 GHz±1.6 dB, 4.2 GHz < f ≤ 6.0 GHz±1.9 dB, 6.0 GHz < f ≤ 7.125 GHz |
| 7.4 OTA dynamic range  | ±0.3 dB |
| 7.5.1 OTA adjacent channel selectivity | ±1.7 dB, f ≤ 3.0 GHz±2.1 dB, 3.0 GHz < f ≤ 4.2 GHz±2.4 dB, 4.2 GHz < f ≤ 6.0 GHz±2.8 dB, 6.0 GHz < f ≤ 7.125 GHz |
| 7.5.2 In-band blocking (General) | ±1.9 dB, f ≤ 3.0 GHz±2.2 dB, 3.0 GHz < f ≤ 4.2 GHz±2.5 dB, 4.2 GHz < f ≤ 6.0 GHz±2.9 dB, 6.0 GHz < f ≤ 7.125 GHz |
| 7.5.2 In-band blocking (Narrowband) | ±1.7 dB, f ≤ 3.0 GHz±2.1 dB, 3.0 GHz < f ≤ 4.2 GHz±2.4 dB, 4.2 GHz < f ≤ 6.0 GHz |
| 7.6 OTA out-of-band blocking (General) | fwanted ≤ 3.0 GHz:±2.0 dB, finterferer ≤ 3.0 GHz±2.1 dB, 3.0 GHz < finterferer ≤ 6.0 GHz±3.5 dB, 6.0 GHz < finterferer ≤ 12.75 GHz3 GHz < fwanted ≤ 4.2 GHz:±2.0 dB, finterferer ≤ 3.0 GHz±2.1 dB, 3.0 GHz < finterferer ≤ 6.0 GHz±3.6 dB, 6.0 GHz < finterferer ≤ 12.75 GHz4.2 GHz < fwanted ≤ 6.0 GHz:±2.2 dB, finterferer ≤ 3.0 GHz±2.3 dB, 3.0 GHz < finterferer ≤ 6.0 GHz±3.6 dB, 6.0 GHz < finterferer ≤ 12.75 GHz6.0 GHz < f ≤ 7.125 GHz:±2.2 dB, finterferer ≤ 3.0 GHz±2.3 dB, 3.0 GHz < finterferer ≤ 6.0 GHz±3.6 dB, 6.0 GHz < finterferer ≤ 12.75 GHz |
| 7.6 OTA out-of-band blocking (Co-location)(NOTE 1) | fwanted ≤ 3.0 GHz:±3.4 dB, finterferer ≤ 3.0 GHz±3.5 dB, 3.0 GHz < finterferer ≤ 4.2 GHz±3.7 dB, 4.2 GHz < finterferer ≤ 6.0 GHz3 GHz < fwanted ≤ 4.2 GHz:±3.5 dB, finterferer ≤ 3.0 GHz±3.6 dB, 3.0 GHz < finterferer ≤ 4.2 GHz±3.7 dB, 4.2 GHz < finterferer ≤ 6.0 GHz4.2 GHz < fwanted ≤ 6.0 GHz:±3.6 dB, finterferer ≤ 3.0 GHz±3.7 dB, 3.0 GHz < finterferer ≤ 4.2 GHz±3.8 dB, 4.2 GHz < finterferer ≤ 6.0 GHz6.0 GHz < f ≤ 7.125 GHz:±3.6 dB, finterferer ≤ 3.0 GHz±3.8 dB, 3.0 GHz < finterferer ≤ 4.2 GHz±3.9 dB, 4.2 GHz < finterferer ≤ 6.0 GHz |
| 7.7 OTA receiver spurious emissions  | ±2.5 dB, 30 MHz ≤ f ≤ 6.0 GHz±4.2 dB, 6.0 GHz < f ≤ 26 GHz |
| 7.8 OTA receiver intermodulation | ±2.0 dB, f ≤ 3.0 GHz±2.6 dB, 3.0 GHz < f ≤ 4.2 GHz±3.2 dB, 4.2 GHz < f ≤ 6.0 GHz±3.5 dB, 6.0 GHz < f ≤ 7.125 GHz |
| 7.9 OTA in-channel selectivity  | ±1.7 dB, f ≤ 3.0 GHz±2.1 dB, 3.0 GHz < f ≤ 4.2 GHz±2.4 dB, 4.2 GHz < f ≤ 6.0 GHz±2.8 dB, 6.0 GHz < f ≤ 7.125 GHz |
| NOTE 1: Fulfilling the criteria for CLTA selection and placement in clause 4.12 is deemed sufficient for the test purposes. When these criteria are met, the measurement uncertainty related to the selection of the co-location test antenna and its alignment as specified in the appropriate measurement uncertainty budget in TR 37.941 [29], shall be used for evaluating the test system uncertainty. NOTE 2: Test system uncertainty values are applicable for normal condition unless otherwise stated. |

Table 4.1.2.3-2: Maximum OTA Test System uncertainty for FR2 OTA receiver tests

|  |  |
| --- | --- |
| Clause | Maximum OTA Test System uncertainty |
| 7.3 OTA reference sensitivity level | ±2.4 dB, 24.25 GHz < f ≤ 29.5 GHz±2.4 dB, 37 GHz < f ≤ 43.5 GHz±[3.5] dB, 43.5 GHz < f ≤ 48.2 GHz |
| 7.5.1 OTA adjacent channel selectivity | ±3.4 dB, 24.25 GHz < f ≤ 29.5 GHz±3.4 dB, 37 GHz < f ≤ 43.5 GHz±[5.1] dB, 43.5 GHz < f ≤ 48.2 GHz |
| 7.5.2 In-band blocking (General) | ±3.4 dB, 24.25 GHz < f ≤ 29.5 GHz±3.4 dB, 37 GHz < f ≤ 43.5 GHz±[5.1] dB, 43.5 GHz < f ≤ 48.2 GHz |
| 7.6 OTA out-of-band blocking  | ±3.6 dB, 24.25 GHz < f ≤ 43.5 GHz±[4.5] dB, 43.5 GHz < f ≤ 48.2 GHz |
| 7.7 OTA receiver spurious emissions  | ±2.5 dB, 30 MHz ≤ f ≤ 6 GHz±2.7 dB, 6 GHz < f ≤ 40 GHz±5.0 dB, 40 GHz < f ≤ 60 GHz |
| 7.8 OTA receiver intermodulation | ±3.9 dB, 24.25 GHz < f ≤ 29.5 GHz±3.9 dB, 37 GHz < f ≤ 43.5 GHz±[5.4] dB, 43.5 GHz < f ≤ 48.2 GHz |
| 7.9 OTA in-channel selectivity  | ±3.4 dB, 24.25 GHz < f ≤ 29.5 GHz±3.4 dB, 37 GHz < f ≤ 43.5 GHz±[5.1] dB, 43.5 GHz < f ≤ 48.2 GHz |
| NOTE: Test system uncertainty values are applicable for normal condition unless otherwise stated. |

*<End of the change>*

*<Start of the change>*

### 6.2.5 Test requirement

For each declared conformance *beam direction pair*, the EIRP measurement results in clause 6.2.4.2 shall remain within the values provided in table 6.2.5-1, relative to the manufacturer's declared rated beam EIRP (D.11) value:

Table 6.2.5-1: Test requirement for radiated transmit power

|  |  |  |
| --- | --- | --- |
|  | Normal test environment | Extreme test environment |
| BS type 1-H | f ≤ 3 GHz: ± 3.3 dB | N/A |
|  | 3 GHz < f ≤ 6 GHz: ± 3.5 dB6.0 GHz < f ≤ 7.125 GHz: ± 3.5 dBFor bands n46, n96 and n102: ± 4.0 dB |  |
| BS type 1-O | f  ≤ 3 GHz: ± 3.3 dB | f  ≤ 3 GHz: ± 5.2 dB |
|  | 3 GHz < f ≤ 6 GHz: ± 3.5 dB  | 3 GHz < f ≤ 4.2 GHz: ± 5.3 dB |
|  |  | 4.2 GHz < f ≤ 6 GHz: ± 5.3 dB |
|  | 6.0 GHz < f ≤ 7.125 GHz: ± 3.5 dB | 6.0 GHz < f ≤ 7.125 GHz: ± 5.3 dB |
| BS type 2-O | 24.15 GHz < f ≤ 29.5 GHz: ± 5.1 dB37 GHz < f ≤ 43.5 GHz: ± 5.4 dB43.5 GHz < f ≤ 48.2 GHz: ± 5.6 dB | 24.15 GHz < f ≤ 29.5 GHz: ± 7.6 dB37 GHz < f ≤ 43.5 GHz: ± 7.8 dB 43.5 GHz < f ≤ 48.2 GHz: ± 8.0 dB |

*<End of the change>*

*<Start of the change>*

#### 6.3.5.1 *BS type 1-O*

The final TRP measurement result in clause 6.3.4.2 shall remain:

- within +3.4 dB and -3.4 dB of the manufacturer's declared *rated carrier TRP* Prated,c,TRP carrier frequency f ≤ 3.0 GHz;

- within +3.5 dB and –3.5 dB of the manufacturer's declared *rated carrier TRP* Prated,c,TRP for carrier frequency 3.0 GHz < f ≤ 4.2 GHz.

- within +3.5 dB and –3.5 dB of the manufacturer's declared *rated carrier TRP* Prated,c,TRP for carrier frequency 4.2 GHz < f ≤ 6.0 GHz.

- within +3.5 dB and –3.5 dB of the manufacturer's declared *rated carrier TRP* Prated,c,TRP for carrier frequency 6.0  GHz < f ≤ 7.125 GHz.

*<End of the change>*

*<Start of the change>*

#### 6.5.2.5 Test requirements

##### 6.5.2.5.1 *BS type 1-O*

The mean power spectral density measured according to clause 6.5.2.4.2 shall be less than -102.6 dBm/MHz for carrier frequency f ≤ 3.0 GHz.

The mean power spectral density measured according to clause 6.5.2.4.2 shall be less than -102.4 dBm/MHz for carrier frequency 3.0 GHz < f ≤ 6.0 GHz.

The mean power spectral density measured according to clause 6.5.2.4.2 shall be less than -102.4 dBm/MHz for carrier frequency 6.0 GHz < f ≤ 7.125 GHz.

For *multi-band RIB*, the requirement is only applicable during the transmitter OFF period in all supported operating bands.

*<End of the change>*

*<Start of the change>*

### 6.7.1 General

OTA unwanted emissions consist of so-called out-of-band emissions and spurious emissions according to ITU definitions ITU-R SM.329 [5]. In ITU terminology, out of band emissions are unwanted emissions immediately outside the *BS channel bandwidth* resulting from the modulation process and non-linearity in the transmitter but excluding spurious emissions. Spurious emissions are emissions which are caused by unwanted transmitter effects such as harmonics emission, parasitic emission, intermodulation products and frequency conversion products, but exclude out of band emissions.

The OTA out-of-band emissions requirement for the *BS type 1-O* and *BS type 2-O* transmitter is specified both in terms of Adjacent Channel Leakage power Ratio (ACLR) and operating band unwanted emissions (OBUE). The OTA Operating band unwanted emissions define all unwanted emissions in each supported downlink operating band plus the frequency ranges ΔfOBUE above and ΔfOBUE below each band. OTA Unwanted emissions outside of this frequency range are limited by an OTA spurious emissions requirement.

The maximum offset of the operating band unwanted emissions mask from the operating band edge is ΔfOBUE. The value of ΔfOBUE is defined in table 6.7.1-1 for *BS type 1-O* and *BS type 2-O* for the NR operating bands.

Table 6.7.1-1: Maximum offset ΔfOBUE outside the downlink operating band

|  |  |  |
| --- | --- | --- |
| BS type | Operating band characteristics | ΔfOBUE (MHz) |
| BS type 1-O | FDL\_high – FDL\_low < 100 MHz | 10 |
|  | 100 MHz ≤ FDL\_high – FDL\_low ≤ 900 MHz | 40 |
|  | n104 | 100 |
| BS type 2-O | FDL\_high – FDL\_low ≤ 4000 MHz | 1500 |

The OTA unwanted emission requirements are applied per cell for all the configurations. Requirements for OTA unwanted emissions are captured using TRP, *directional requirements* or co-location requirements as described per requirement.

There is in addition a requirement for OTA occupied bandwidth.

*<End of the change>*

*<Start of the change>*

#### 6.7.3.5 Test requirements

##### 6.7.3.5.1 *BS type 1-O*

For the OTA ACLR requirement either the OTA ACLR limits in tables 6.7.3.5.1-1/2a or the OTA ACLR absolute limits in table 6.7.3.5.1-2 shall apply, whichever is less stringent. The OTA CACLR limits in table 6.7.3.5.1-3 or the OTA CACLR absolute limits in table 6.7.3.5.1-3a shall apply, whichever is less stringent.

The CACLR in a sub-block gap and Inter RF Bandwidth gap is the ratio of:

a) the sum of the filtered mean power centred on the assigned channel frequencies for the two carriers adjacent to each side of the sub-block gap or the Inter RF Bandwidth gap, and

b) the filtered mean power centred on a frequency channel adjacent to one of the respective sub-block edges or Base Station RF Bandwidth edges.

The assumed filter for the adjacent channel frequency is defined in table 6.7.3.5.1-3 and the filters on the assigned channels are defined in table 6.7.3.5.1-4.

For operation in paired and unpaired spectrum, the OTA ACLR measurement result shall not be less than the OTA ACLR limit specified in table 6.7.3.5.1-1.

Table 6.7.3.5.1-1: *BS type 1-O* ACLR limit

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *BS channel bandwidth* of lowest/highest NR carrier transmitted BWChannel (MHz)  | BS adjacent channel centre frequency offset below the lowest or above the highest carrier centre frequency transmitted | Assumed adjacent channel carrier (informative) | Filter on the adjacent channel frequency and corresponding filter bandwidth | OTA ACLR limit(0 – 3 GHz) | OTA ACLR limit (3 – 6 GHz) | OTA ACLR limit (6.0 – 7.125 GHz) |
| 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90,100 | BWChannel | NR of same BW (Note 2) | Square (BWConfig) | 44 dB | 43.8 dB | 36.8 dB |
|  | 2 x BWChannel | NR of same BW (Note 2) | Square (BWConfig) | 44 dB | 43.8 dB | 36.8 dB |
|  | BWChannel /2 + 2.5 MHz | 5 MHz E-UTRA | Square (4.5 MHz) | 44 dB (Note 3) | 43.8 dB (Note 3) | NA |
|  | BWChannel /2 + 7.5 MHz | 5 MHz E-UTRA | Square (4.5 MHz) | 44 dB (Note 3) | 43.8 dB (Note 3) | NA |
| NOTE 1: BWChannel and BWConfig are the *BS channel bandwidth* and transmission bandwidth configuration of the lowest/highest NR carrier transmitted on the assigned channel frequency.NOTE 2: With SCS that provides largest transmission bandwidth configuration (BWConfig).NOTE 3: The requirements are applicable when the band is also defined for E-UTRA or UTRA. |

The absolute total power measurement shall not exceed the OTA ACLR absolute limit specified in table 6.7.3.5.1-2.

Table 6.7.3.5.1-2: *BS type 1-O* ACLR absolutelimit

|  |  |
| --- | --- |
| BS category / BS class | OTA ACLR absolute limit |
| Category A Wide Area BS | -4 dBm/MHz |
| Category B Wide Area BS | -6 dBm/MHz |
| Medium Range BS | -16 dBm/MHz |
| Local Area BS | -23 dBm/MHz |
| NOTE 1: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 2: Void |

For operation in non-contiguous spectrum or multiple bands, the OTA ACLR measurement result shall not be less than the OTA ACLR limit specified in table 6.7.3.5.1-2a.

Table 6.7.3.5.1-2a: *BS type 1-O* ACLR limit in non-contiguous spectrum or multiple bands

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *BS channel bandwidth* of lowest/highest NR carrier transmitted BWChannel (MHz)  | Sub-block or Inter RF Bandwidth gap size (Wgap) where the limit applies (MHz) | BS adjacent channel centre frequency offset below or above the sub-block or Base Station RF Bandwidth edge (inside the gap) | Assumed adjacent channel carrier | Filter on the adjacent channel frequency and corresponding filter bandwidth | OTA ACLR limit(0-3GHz) | OTA ACLR limit (3-6GHz) | OTA ACLR limit (6.0 – 7.125 GHz) |
| 5, 10, 15, 20 | Wgap ≥ 15 (Note 3)Wgap ≥ 45 (Note 4) | 2.5 MHz | 5 MHz NR (Note 2) | Square (BWConfig) | 44 dB | 43.8 dB | 36.8 dB |
|  | Wgap ≥ 20 (Note 3)Wgap ≥ 50 (Note 4) | 7.5 MHz | 5 MHz NR (Note 2) | Square (BWConfig) | 44 dB | 43.8 dB | 36.8 dB |
| 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100 | Wgap ≥ 60 (Note 4)Wgap ≥ 30 (Note 3)  | 10 MHz | 20 MHz NR (Note 2) | Square (BWConfig) | 44 dB  | 43.8 dB  | 36.8 dB |
|  | Wgap ≥ 80 (Note 4)Wgap ≥ 50 (Note 3) | 30 MHz | 20 MHz NR (Note 2) | Square (BWConfig) | 44 dB  | 43.8 dB  | 36.8 dB |
| NOTE 1: BWConfig is the transmission bandwidth configuration of the assumed adjacent channel carrier.NOTE 2: With SCS that provides largest transmission bandwidth configuration (BWConfig).NOTE 3: Applicable in case the *BS channel bandwidth* of the NR carrier transmitted at the other edge of the gap is 5, 10, 15, 20 MHz.NOTE 4: Applicable in case the *BS channel bandwidth* of the NR carrier transmitted at the other edge of the gap is 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100 MHz. |

The OTA CACLR measurement result shall not less than the OTA CACLR limit specified in table 6.7.3.5.1-3.

Table 6.7.3.5.1-3: *BS type 1-O* CACLR limit

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *BS channel bandwidth* of lowest/highest NR carrier transmitted BWChannel (MHz)  | Sub-block or Inter RF Bandwidth gap size (Wgap) where the limit applies (MHz) | BS adjacent channel centre frequency offset below or above the sub-block or Base Station RF Bandwidth edge (inside the gap) | Assumed adjacent channel carrier | Filter on the adjacent channel frequency and corresponding filter bandwidth | OTA CACLR limit(0-3 GHz) | OTA CACLR limit (3-6 GHz) | OTA CACLR limit (6.0 – 7.125 GHz) |
| 5, 10, 15, 20 | 5 ≤ Wgap < 15 (Note 3)5 ≤ Wgap < 45 (Note 4) | 2.5 MHz | 5 MHz NR (Note 2) | Square (BWConfig) | 44 dB | 43.8 dB | 36.8dB |
|  | 10 < Wgap < 20 (Note 3)10 ≤ Wgap < 50 (Note 4) | 7.5 MHz | 5 MHz NR (Note 2) | Square (BWConfig) | 44 dB | 43.8 dB | 36.8dB |
| 25, 30, 35, 40, 45, 50, 60, 70, 80,90, 100 | 20 ≤ Wgap < 60 (Note 4)20 ≤ Wgap < 30 (Note 3) | 10 MHz | 20 MHz NR (Note 2) | Square (BWConfig) | 44 dB  | 43.8 dB  | 36.8dB |
|  | 40 < Wgap < 80 (Note 4)40 ≤ Wgap < 50 (Note 3) | 30 MHz | 20 MHz NR (Note 2) | Square (BWConfig) | 44 dB  | 43.8 dB  | 36.8dB |
| NOTE 1: BWConfig is the transmission bandwidth configuration of the assumed adjacent channel carrier.NOTE 2: With SCS that provides largest transmission bandwidth configuration (BWConfig).NOTE 3: Applicable in case the *BS channel bandwidth* of the NR carrier transmitted at the other edge of the gap is 5, 10, 15, 20 MHz.NOTE 4: Applicable in case the *BS channel bandwidth* of the NR carrier transmitted at the other edge of the gap is 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100 MHz. |

The absolute total power measurement shall not exceed the OTA CACLR absolute limit specified in table 6.7.3.5.1-3a.

Table 6.7.3.5.1-3a: *BS type 1-O* CACLR absolutelimit

|  |  |
| --- | --- |
| BS category / BS class | OTA CACLR absolutelimit |
| Category A Wide Area BS | -4 dBm/MHz |
| Category B Wide Area BS | -6 dBm/MHz |
| Medium Range BS | -16 dBm/MHz |
| Local Area BS | -23 dBm/MHz |
| NOTE 1: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 2: Void |

Table 6.7.3.5.1-4: Filter parameters for the assigned channel

|  |  |
| --- | --- |
| RAT of the carrier adjacent to the sub-block or Inter RF Bandwidth gap  | Filter on the assigned channel frequency and corresponding filter bandwidth |
| NR | NR of same BW with SCS that provides largest transmission bandwidth configuration |

*<End of the change>*

*<Start of the change>*

6.7.4.5.1.2 Wide Area BS Category B (Option 1)

For Category B operating band unwanted emissions, there are two options for the limits that may be applied regionally. option 1 is as follows.

For a *RIB* operating in Bands n5, n8, n12, n20, n26, n28, n29, n67, n71, n85, emissions shall not exceed the maximum levels specified in table 6.7.4.5.1.2-1:

Table 6.7.4.5.1.2-1: Wide Area BS operating band unwanted emission limits
(NR bands ≤ 1 GHz) for Category B

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | Measurement bandwidth |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz | 3.8 dBm-7/5(f\_offset/MHz-0.05)dB | 100 kHz  |
| 5 MHz ≤ Δf <min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset <min(10.05 MHz, f\_offsetmax) | -3.2 dBm | 100 kHz  |
| 10 MHz ≤ Δf ≤ Δfmax | 10.05 MHz ≤ f\_offset < f\_offsetmax  | -7 dBm (Note 3) | 100 kHz  |
| NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is f ≥ 10MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be ‑7 dBm/ 100 kHz.NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2\*ΔfOBUE the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.NOTE 3: The requirement is not applicable when Δfmax < 10 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 5: Void |

For a *RIB* operating in Bands n1, n2, n3, n7, n25, n34, n38, n39, n40, n41, n50, n65, n66, n70, n75, n77, n78, n79, n104 emissions shall not exceed the maximum levels specified in tables 6.7.4.5.1.2-2 to 6.7.4.5.1.2-5:

Table 6.7.4.5.1.2-2: Wide Area BS operating band unwanted emission limits
(1 GHz < NR bands ≤ 3 GHz) for Category B

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | Measurement bandwidth |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz | 3.8 dBm-7/5(f\_offset/MHz-0.05)dB | 100 kHz  |
| 5 MHz ≤ Δf <min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset <min(10.05 MHz, f\_offsetmax) | -3.2 dBm | 100 kHz  |
| 10 MHz ≤ Δf ≤ Δfmax | 10.5 MHz ≤ f\_offset < f\_offsetmax  | -6 dBm (Note 3) | 1MHz  |
| NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is f ≥ 10MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be ‑6 dBm/1 MHz.NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2\*ΔfOBUE the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.NOTE 3: The requirement is not applicable when Δfmax < 10 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 5: Void |

Table 6.7.4.5.1.2-3: Wide Area BS operating band unwanted emission limits
(3 GHz < NR bands ≤ 4.2 GHz) for Category B

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | Measurement bandwidth |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz | 4 dBm-7/5(f\_offset/MHz-0.05)dB | 100 kHz  |
| 5 MHz ≤ Δf <min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset <min(10.05 MHz, f\_offsetmax) | -3 dBm | 100 kHz  |
| 10 MHz ≤ Δf ≤ Δfmax | 10.5 MHz ≤ f\_offset < f\_offsetmax  | -6 dBm (Note 3) | 1MHz  |
| NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is f ≥ 10MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be ‑6 dBm/1 MHz.NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2\*ΔfOBUE the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.NOTE 3: The requirement is not applicable when Δfmax < 10 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 5: Void |

Table 6.7.4.5.1.2-4: Wide Area BS operating band unwanted emission limits
(4.2 GHz < NR bands ≤ 6 GHz) for Category B

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | Measurement bandwidth |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz | 4 dBm-7/5(f\_offset/MHz-0.05)dB | 100 kHz  |
| 5 MHz ≤ Δf <min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset <min(10.05 MHz, f\_offsetmax) | -3 dBm | 100 kHz  |
| 10 MHz ≤ Δf ≤ Δfmax | 10.5 MHz ≤ f\_offset < f\_offsetmax  | -6 dBm (Note 3) | 1MHz  |
| NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is f ≥ 10MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be ‑6 dBm/1 MHz.NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2\*ΔfOBUE the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.NOTE 3: The requirement is not applicable when Δfmax < 10 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 5: Void |

Table 6.7.4.5.1.2-5: Wide Area BS operating band unwanted emission limits
(6 GHz < NR bands ≤ 7.125 GHz) for Category B

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | *Basic limit* (Note 1, 2, 5) | Measurement bandwidth |
| 0.2 MHz ≤ Δf < 50 MHz | 0.215 MHz ≤ f\_offset < 50.05 MHz |  | 100 kHz  |
| (Note 4) |  |  |  |
| 50 MHz ≤ Δf ≤min( 100 MHz, Δfmax)  | 50.05 MHz ≤ f\_offset <min(100.05 MHz, f\_offsetmax) | -3 dBm | 100 kHz  |
| 100 MHz ≤ Δf ≤ Δfmax | 100.5 MHz ≤ f\_offset < f\_offsetmax  | - 6 dBm (Note 3) | 1 MHz  |
| NOTE 1: For a BS supporting non-contiguous spectrum operation within any operating band, the minimum requirement within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is f ≥ 10MHz from both adjacent sub blocks on each side of the sub-block gap, where the minimum requirement within sub-block gaps shall be -6 dBm/1MHz.NOTE 2: For a *multi-band connector* with Inter RF Bandwidth gap < 2\*ΔfOBUE the minimum requirement within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.NOTE 3: The requirement is not applicable when Δfmax < 100 MHz.NOTE 4: This frequency range ensures that the range of values of f\_offset is continuous.NOTE 5: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT. |

6.7.4.5.1.4 Medium Range BS (Category A and Category B)

For Medium Range BS class in NR bands ≤ 3 GHz, emissions shall not exceed the maximum levels specified in tables 6.7.4.5.1.4-1 and 6.7.4.5.1.4-4.

For Medium Range BS class in 3GHz <NR bands ≤ 4.2 GHz, emissions shall not exceed the maximum levels specified in tables 6.7.4.5.1.4-2 and 6.7.4.5.1.4-5.

For Medium Range BS class in 4.2GHz <NR bands ≤ 6 GHz, emissions shall not exceed the maximum levels specified in tables 6.7.4.5.1.4-3 and 6.7.4.5.1.4-6.

For Medium Range BS class in 6.0 GHz <NR bands ≤ 7.125 GHz, emissions shall not exceed the maximum levels specified in tables 6.7.4.5.1.4-3a and 6.7.4.5.1.4-7.

Table 6.7.4.5.1.4-1: Medium Range BS *operating band* unwanted emission limits, 40 < Prated,c,TRP ≤ 47 dBm (NR bands ≤ 3 GHz)

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | Measurement bandwidth  |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz |  | 100 kHz  |
| 5 MHz ≤ Δf < min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset < min(10.05 MHz, f\_offsetmax) |  – 58.2 dB | 100 kHz  |
| 10 MHz ≤ Δf ≤ Δfmax | 10.05 MHz ≤ f\_offset < f\_offsetmax | Min(Prated,c,TRP - 60 dB, -16 dBm)(Note 3) | 100 kHz |
| NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is f ≥ 10MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be Min(Prated,c,TRP – 60 dB, ‑16 dBm)/100kHz.NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2\*ΔfOBUE the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.NOTE 3: The requirement is not applicable when Δfmax < 10 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 5: Void |

Table 6.7.4.5.1.4-2: Medium Range BS *operating band* unwanted emission limits, 40 < Prated,c,TRP ≤ 47 dBm ( 3 GHz < NR bands ≤ 4.2 GHz)

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | Measurement bandwidth  |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz |  | 100 kHz  |
| 5 MHz ≤ Δf < min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset < min(10.05 MHz, f\_offsetmax) | Prated,c,TRP - 58 dB | 100 kHz  |
| 10 MHz ≤ Δf ≤ Δfmax | 10.05 MHz ≤ f\_offset < f\_offsetmax | Min(Prated,c,TRP – 60 dB, -16 dBm)(Note 3) | 100 kHz |
| NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is f ≥ 10MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be Min(Prated,c,TRP – 60 dB, ‑16 dBm)/100kHz.NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2\*ΔfOBUE the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.NOTE 3: The requirement is not applicable when Δfmax < 10 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 5: Void |

Table 6.7.4.5.1.4-3: Medium Range BS operating band unwanted emission limits, 40 < Prated,c,TRP ≤ 47 dBm ( 4.2 GHz < NR bands ≤ 6 GHz)

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | Measurement bandwidth  |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz |  | 100 kHz  |
| 5 MHz ≤ Δf < min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset < min(10.05 MHz, f\_offsetmax) | Prated,c,TRP - 58 dB | 100 kHz  |
| 10 MHz ≤ Δf ≤ Δfmax | 10.05 MHz ≤ f\_offset < f\_offsetmax | Min(Prated,c,TRP – 60 dB, -16 dBm)(Note 3) | 100 kHz |
| NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is f ≥ 10MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be Min(Prated,c,TRP – 60 dB, ‑16 dBm)/100kHz.NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2\*ΔfOBUE the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.NOTE 3: The requirement is not applicable when Δfmax < 10 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 5: Void |

Table 6.7.4.5.1.4-3a: Medium Range BS operating band unwanted emission limits, 40 < Prated,c,TRP ≤ 47 dBm (for 6.0 GHz < NR bands ≤ 7.125 GHz)

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | *Measurement bandwidth* |
| 0 MHz ≤ Δf < 50 MHz | 0.05 MHz ≤ f\_offset < 50.05 MHz |  | 100 kHz  |
| 50 MHz ≤ Δf <min(100 MHz, Δfmax) | 50.05 MHz ≤ f\_offset <min(100.05 MHz, f\_offsetmax) | Prated,x - 58dB | 100 kHz  |
| 100 MHz ≤ Δf ≤ Δfmax | 100.5 MHz ≤ f\_offset < f\_offsetmax  | Min(Prated,x - 60dB, -16dBm)(Note 3) | 100 kHz |
| NOTE 1: For a BS supporting *non-contiguous spectrum* operation within any *operating band* the emission limits within *sub-block gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* on each side of the *sub-block gap*. Exception is f ≥ 100MHz from both adjacent *sub-blocks* on each side of the *sub-block gap*, where the emission limits within *sub-block gaps* shall be Min(Prated,x -60dB, ‑25dBm)/100kHz.NOTE 2: For a *multi-band connector* with *Inter RF Bandwidth gap* < 2\*ΔfOBUE the emission limits within the *Inter RF Bandwidth gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* or RF Bandwidth on each side of the *Inter RF Bandwidth gap*.NOTE 3: The requirement is not applicable when Δfmax < 100 MHz.NOTE 4: The test requirement is derived from the basic limit applying a scaling factor of 9 dB and any applicable TT. |

Table 6.7.4.5.1.4-4: Medium Range BS operating band unwanted emission limits, Prated,c,TRP ≤ 40 dBm

(NR bands ≤ 3 GHz)

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | Measurement bandwidth  |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz |  | 100 kHz  |
| 5 MHz ≤ Δf < min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset < min(10.05 MHz, f\_offsetmax) | -18.2 dBm | 100 kHz  |
| 10 MHz ≤ Δf ≤ Δfmax | 10.05 MHz ≤ f\_offset < f\_offsetmax | -20 dBm (Note 3) | 100 kHz |
| NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is f ≥ 10MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -20 dBm/100kHz.NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2\*ΔfOBUE the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.NOTE 3: The requirement is not applicable when Δfmax < 10 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 5: Void |

Table 6.7.4.5.1.4-5: Medium Range BS operating band unwanted emission limits, Prated,c,TRP ≤ 40 dBm

(3 GHz < NR bands ≤ 4.2 GHz)

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | Measurement bandwidth  |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz |  | 100 kHz  |
| 5 MHz ≤ Δf < min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset < min(10.05 MHz, f\_offsetmax) | -18 dBm | 100 kHz  |
| 10 MHz ≤ Δf ≤ Δfmax | 10.05 MHz ≤ f\_offset < f\_offsetmax | -20 dBm (Note 3) | 100 kHz |
| NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is f ≥ 10MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -20 dBm/100kHz.NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2\*ΔfOBUE the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.NOTE 3: The requirement is not applicable when Δfmax < 10 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 5: Void |

Table 6.7.4.5.1.4-6: Medium Range BS operating band unwanted emission limits, Prated,c,TRP ≤ 40 dBm

(4.2 GHz < NR bands ≤ 6 GHz)

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | Measurement bandwidth  |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz |  | 100 kHz  |
| 5 MHz ≤ Δf < min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset < min(10.05 MHz, f\_offsetmax) | -18 dBm | 100 kHz  |
| 10 MHz ≤ Δf ≤ Δfmax | 10.05 MHz ≤ f\_offset < f\_offsetmax | -20 dBm (Note 3) | 100 kHz |
| NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is f ≥ 10MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -20 dBm/100kHz.NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2\*ΔfOBUE the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.NOTE 3: The requirement is not applicable when Δfmax < 10 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 5: Void |

Table 6.7.4.5.1.4-7: Medium Range BS operating band unwanted emission limits, Prated,c,TRP ≤ 40 dBm (for 6.0 GHz < NR bands ≤ 7.125 GHz)

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | *Measurement bandwidth* |
| 0 MHz ≤ Δf < 50 MHz | 0.05 MHz ≤ f\_offset < 50.05 MHz |  | 100 kHz  |
| 50 MHz ≤ Δf <min(100 MHz, Δfmax) | 50.05 MHz ≤ f\_offset <min(100.05 MHz, f\_offsetmax) | -18 dBm | 100 kHz  |
| 100 MHz ≤ Δf ≤ Δfmax | 100.5 MHz ≤ f\_offset < f\_offsetmax  | -20 dBm | 100 kHz |
| NOTE 1: For a BS supporting *non-contiguous spectrum* operation within any *operating band* the emission limits within *sub-block gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* on each side of the *sub-block gap*. Exception is f ≥ 100MHz from both adjacent *sub-blocks* on each side of the *sub-block gap*, where the emission limits within *sub-block gaps* shall be -29dBm/100kHz.NOTE 2: For a *multi-band connector* with *Inter RF Bandwidth gap* < 2\*ΔfOBUE the emission limits within the *Inter RF Bandwidth gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* or RF Bandwidth on each side of the *Inter RF Bandwidth gap*.NOTE 3: The requirement is not applicable when Δfmax < 100 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT. |

6.7.4.5.1.5 Local Area BS (Category A and Category B)

For Local Area BS class in NR bands ≤ 3 GHz, emissions shall not exceed the maximum levels specified in table 6.7.4.5.1.5-1.

For Local Area BS class in 3 GHz < NR bands ≤ 4.2 GHz, emissions shall not exceed the maximum levels specified in tables 6.7.4.5.1.5-2.

For Local Area BS class in 4.2 GHz < NR bands ≤ 6 GHz, emissions shall not exceed the maximum levels specified in tables 6.7.4.5.1.5-3.

For Local Area BS class in 6.0 GHz < NR bands ≤ 7.125 GHz, emissions shall not exceed the maximum levels specified in tables 6.7.4.5.1.5-4.

Table 6.7.4.5.1.5-1: Local Area BS operating band unwanted emission limits (NR bands ≤ 3 GHz)

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | Measurement bandwidth  |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz |  | 100 kHz  |
| 5 MHz ≤ Δf < min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset < min(10.05 MHz, f\_offsetmax) | -26.2 dBm | 100 kHz  |
| 10 MHz ≤ Δf ≤ Δfmax | 10.05 MHz ≤ f\_offset < f\_offsetmax  | -28 dBm (Note 3) | 100 kHz  |
| NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is f ≥ 10MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -28 dBm/100kHz.NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2\*ΔfOBUE the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gapNOTE 3: The requirement is not applicable when Δfmax < 10 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 5: Void |

Table 6.7.4.5.1.5-2: Local Area BS operating band unwanted emission limits (3 GHz < NR bands ≤ 4.2 GHz)

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | Measurement bandwidth  |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz |  | 100 kHz  |
| 5 MHz ≤ Δf < min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset < min(10.05 MHz, f\_offsetmax) | -26 dBm | 100 kHz  |
| 10 MHz ≤ Δf ≤ Δfmax | 10.05 MHz ≤ f\_offset < f\_offsetmax  | -28 dBm (Note 3) | 100 kHz  |
| NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is f ≥ 10MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -28 dBm/100kHz.NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2\*ΔfOBUE the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gapNOTE 3: The requirement is not applicable when Δfmax < 10 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 5: Void |

Table 6.7.4.5.1.5-3: Local Area BS operating band unwanted emission limits (4.2 GHz < NR bands ≤ 6 GHz)

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | Measurement bandwidth  |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz |  | 100 kHz  |
| 5 MHz ≤ Δf < min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset < min(10.05 MHz, f\_offsetmax) | -26 dBm | 100 kHz  |
| 10 MHz ≤ Δf ≤ Δfmax | 10.05 MHz ≤ f\_offset < f\_offsetmax  | -28 dBm (Note 3) | 100 kHz  |
| NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is f ≥ 10MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -28 dBm/100kHz.NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2\*ΔfOBUE the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gapNOTE 3: The requirement is not applicable when Δfmax < 10 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.NOTE 5: Void |

Table 6.7.4.5.1.5-4: Local Area BS operating band unwanted emission limits (for 6.0 GHz < NR bands ≤ 7.125 GHz)

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | Test requirement (Note 1, 2, 4) | *Measurement bandwidth*  |
| 0 MHz ≤ Δf < 50 MHz | 0.05 MHz ≤ f\_offset < 50.05 MHz |  | 100 kHz  |
| 50 MHz ≤ Δf <min(100 MHz, Δfmax) | 50.05 MHz ≤ f\_offset <min(100.05 MHz, f\_offsetmax) | -26 dBm | 100 kHz  |
| 100 MHz ≤ Δf ≤ Δfmax | 100.5 MHz ≤ f\_offset < f\_offsetmax  | -28 dBm | 100 kHz  |
| NOTE 1: For a BS supporting *non-contiguous spectrum* operation within any *operating band* the emission limits within *sub-block gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* on each side of the *sub-block gap*. Exception is f ≥ 100MHz from both adjacent *sub-blocks* on each side of the *sub-block gap*, where the emission limits within *sub-block gaps* shall be -37dBm/100kHz.NOTE 2: For a *multi-band connector* with *Inter RF Bandwidth gap* < 2\*ΔfOBUE the emission limits within the *Inter RF Bandwidth gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* or RF Bandwidth on each side of the *Inter RF Bandwidth gap*NOTE 3: The requirement is not applicable when Δfmax < 100 MHz.NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT. |

*<End of the change>*

*<Start of the change>*

6.7.5.3.5.1 Test requirement for *BS type 1-O*

This requirement shall be applied for NR FDD operation in order to prevent the receivers of own or a different BS of the same band being desensitised by emissions from a *BS type 1-O*.

This requirement is a co-location requirement as defined in clause 4.9, in TS 38.104 [2], the power levels are specified at the CLTA output.

The total power of any spurious emission from both polarizations of the CLTA connector output shall not exceed the limits in table 6.7.5.3.5.1-1.

Table 6.7.5.3.5.1-1: *BS type 1-O* OTA spurious emissions limits for protection of the BS receiver

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| BS class | Frequency range | Maximum Level for bands below 3GHz | Maximum Level for bands between 3 and 4.2GHz | Maximum Level for bands between 4.2 and 6GHz | Maximum Level for bands between 6.0 and 7.125 GHz | Measurement bandwidth |
| Wide Area BS | FUL\_low – FUL\_high | -113.9 dBm | -113.7 dBm | -113.6 dBm | -113.6 dBm | 100 kHz |
| Medium Range BS |  | -108.9 dBm | -108.7 dBm | -108.6 dBm | -108.6 dBm |  |
| Local Area BS |  | -105.9 dBm | -105.7 dBm | -105.6 dBm | -105.6 dBm |  |

*<End of the change>*

*<Start of the change>*

##### 6.7.5.4.5 Test requirement

6.7.5.4.5.1 Test requirement for *BS type 1-O*

The power of any spurious emission shall not exceed the test limits in table 6.7.5.4.5-1 for a BS where requirements for co-existence with the system listed in the first column apply. For a *multi-band RIB*, the exclusions and conditions in the Note column of table 6.7.5.4.5-1 apply for each supported *operating band*.

Table 6.7.5.4.5-1: BS spurious emissions test limits for BS for co-existence with systems operating in other frequency bands

| System type for NR to co-exist with | Frequency range for co-existence requirement | Test limit | Measurement bandwidth | Notes |
| --- | --- | --- | --- | --- |
| GSM900 | 921 – 960 MHz | -45.4 dBm | 100 kHz | This requirement does not apply to BS operating in band n8. |
|  | 876 – 915 MHz | -49.4 dBm | 100 kHz | For the frequency range 880-915 MHz, this requirement does not apply to BS operating in band n8, since it is already covered by the requirement in clause 6.7.5.3. |
| DCS1800 | 1805 – 1880 MHz | -35.4 dBm | 100 kHz | This requirement does not apply to BS operating in band n3.  |
|  | 1710 – 1785 MHz | -49.4 dBm | 100 kHz | This requirement does not apply to BS operating in band n3, since it is already covered by the requirement in clause 6.7.5.3. |
| PCS1900 | 1930 – 1990 MHz | -35.4 dBm | 100 kHz | This requirement does not apply to BS operating in band n2, n25 or band n70.  |
|  | 1850 – 1910 MHz | -49.4 dBm | 100 kHz | This requirement does not apply to BS operating in band n2 or n25 since it is already covered by the requirement in clause 6.7.5.3.  |
| GSM850 or CDMA850 | 869 – 894 MHz | -45.4 dBm | 100 kHz | This requirement does not apply to BS operating in band n5 or n26.  |
|  | 824 – 849 MHz | -49.4 dBm | 100 kHz | This requirement does not apply to BS operating in band n5 or n26, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band I or | 2110 – 2170 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n1 or n65. |
| E-UTRA Band 1 or NR Band n1 | 1920 – 1980 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n1 or n65, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band II or | 1930 – 1990 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n2 or n70.  |
| E-UTRA Band 2 or NR Band n2 | 1850 – 1910 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n2, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band III or | 1805 – 1880 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n3. |
| E-UTRA Band 3 or NR Band n3 | 1710 – 1785 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n3, since it is already covered by the requirement in clause 6.7.5.3.  |
| UTRA FDD Band IV or | 2110 – 2155 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n66. |
| E-UTRA Band 4 | 1710 – 1755 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n66, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band V or | 869 – 894 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n5 or n26.  |
| E-UTRA Band 5 or NR Band n5 | 824 – 849 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n5 or n26, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band VI, XIX | 860 – 890 MHz  | -40.4 dBm | 1 MHz |  |
| or E-UTRA Band 6, 18, | 815 – 830 MHz  | -37.4 dBm | 1 MHz |  |
| 19 | 830 – 845 MHz | -37.4 dBm | 1 MHz |  |
| UTRA FDD Band VII or | 2620 – 2690 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n7. |
| E-UTRA Band 7 or NR Band n7 | 2500 – 2570 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n7, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band VIII or | 925 – 960 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n8. |
| E-UTRA Band 8 or NR Band n8 | 880 – 915 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n8, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band IX or | 1844.9 – 1879.9 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n3. |
| E-UTRA Band 9 | 1749.9 – 1784.9 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n3, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band X or | 2110 – 2170 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n66 |
| E-UTRA Band 10 | 1710 – 1770 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n66, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band XI or XXI or | 1475.9 – 1510.9 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n74 or n75. |
| E-UTRA Band 11 or | 1427.9 – 1447.9 MHz  | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76. |
| 21 | 1447.9 – 1462.9 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n74 or n75. |
| UTRA FDD Band XII or | 729 – 746 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n12 or n85. |
| E-UTRA Band 12 or NR Band n12 | 699 – 716 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n12 or n85, since it is already covered by the requirement in clause 6.7.5.3.For NR BS operating in n29, it applies 1 MHz below the Band n29 downlink operating band (Note 5). |
| UTRA FDD Band XIII or | 746 – 756 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n13. |
| E-UTRA Band 13 or NR Band n13 | 777 – 787 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n13, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band XIV or | 758 – 768 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n14. |
| E-UTRA Band 14 or NR Band n14 | 788 – 798 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n14, since it is already covered by the requirement in clause 6.7.5.3. |
| E-UTRA Band 17 | 734 – 746 MHz | -40.4 dBm | 1 MHz |  |
|  | 704 – 716 MHz | -37.4 dBm | 1 MHz | For NR BS operating in n29, it applies 1 MHz below the Band n29 downlink operating band (Note 5). |
| UTRA FDD Band XX or | 791 – 821 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n20 or n28. |
| E-UTRA Band 20 or NR Band n20 | 832 – 862 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n20, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band XXII or | 3510 – 3590 MHz | -40 dBm | 1 MHz | This requirement does not apply to BS operating in Band n77 or n78. |
| E-UTRA Band 22 | 3410 – 3490 MHz | -37 dBm | 1 MHz | This requirement does not apply to BS operating in Band n77 or n78. |
| E-UTRA Band 24 or NR Band n24 | 1525 – 1559 MHz | -40.4 dBm | 1 MHz |  |
|  | 1626.5 – 1660.5 MHz | -37.4 dBm | 1 MHz |  |
| UTRA FDD Band XXV or | 1930 – 1995 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n2, n25 or n70. |
| E-UTRA Band 25 or NR band n25 | 1850 – 1915 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n25 since it is already covered by the requirement in clause 6.7.5.3. For BS operating in Band n2, it applies for 1910 MHz to 1915 MHz, while the rest is covered in clause 6.7.5.3. |
| UTRA FDD Band XXVI or | 859 – 894 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n5 or n26.  |
| E-UTRA Band 26 or NR Band n26 | 814 – 849 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n26 since it is already covered by the requirement in clause 6.7.5.3. For BS operating in Band n5, it applies for 814 MHz to 824 MHz, while the rest is covered in clause 6.7.5.3. |
| E-UTRA Band 27 | 852 – 869 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n5. |
|  | 807 – 824 MHz | -37.4 dBm | 1 MHz | This requirement also applies to BS operating in Band n28, starting 4 MHz above the Band n28 downlink *operating band* (Note 5). |
| E-UTRA Band 28 or | 758 – 803 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n20, n67 or n28. |
| NR Band n28 | 703 – 748 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n28, since it is already covered by the requirement in clause 6.7.5.3. For BS operating in band n67, it applies for 703 MHz to 736 MHz. |
| E-UTRA Band 29 or NR Band n29 | 717 – 728 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n29 or n85. |
| E-UTRA Band 30 or | 2350 – 2360 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n30. |
| NR Band n30 | 2305 – 2315 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n30, since it is already covered by the requirement in clause 6.7.5.3. |
| E-UTRA Band 31 | 462.5 -467.5 MHz | -40.4 dBm | 1 MHz |  |
|  | 452.5 -457.5 MHz | -37.4 dBm | 1 MHz |  |
| UTRA FDD band XXXII or E-UTRA band 32 | 1452 – 1496 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n74 or n75. |
| UTRA TDD Band a) or E-UTRA Band 33 | 1900 – 1920 MHz | -40.4 dBm | 1 MHz |  |
| UTRA TDD Band a) or E-UTRA Band 34 or NR band n34 | 2010 – 2025 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n34. |
| UTRA TDD Band b) or E-UTRA Band 35 | 1850 – 1910 MHz | -40.4 dBm | 1 MHz |  |
| UTRA TDD Band b) or E-UTRA Band 36 | 1930 – 1990 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n2 or n25. |
| UTRA TDD Band c) or E-UTRA Band 37 | 1910 – 1930 MHz | -40.4 dBm | 1 MHz |  |
| UTRA TDD Band d) or E-UTRA Band 38 or NR Band n38 | 2570 – 2620 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n38.  |
| UTRA TDD Band f) or E-UTRA Band 39 or NR band n39 | 1880 – 1920MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n39. |
| UTRA TDD Band e) or E-UTRA Band 40 or NR Band n40 | 2300 – 2400MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Bands n30 or n40. |
| E-UTRA Band 41 or NR Band n41 | 2496 – 2690 MHz | -40.4 dBm | 1 MHz | This is not applicable to BS operating in Band n41. |
| E-UTRA Band 42 | 3400 – 3600 MHz | -40 dBm | 1 MHz | This requirement does not apply to BS operating in Band n77 or n78. |
| E-UTRA Band 43 | 3600 – 3800 MHz | -40 dBm | 1 MHz | This requirement does not apply to BS operating in Band n77 or n78. |
| E-UTRA Band 44 | 703 – 803 MHz | -40.4 dBm | 1 MHz | This is not applicable to BS operating in Band n28. |
| E-UTRA Band 45 | 1447 – 1467 MHz | -40.4 dBm | 1 MHz |  |
| E-UTRA Band 46 or NR Band n46 | 5150 – 5925 MHz | -39.5 dBm | 1 MHz | This is not applicable to BS operating in Band n46, n96, n102 or n104. |
| E-UTRA Band 47 | 5855 – 5925 MHz | -39.5 dBm | 1 MHz |  |
| E-UTRA Band 48 | 3550 – 3700 MHz | -40 dBm | 1 MHz | This requirement does not apply to BS operating in Band n77 or n78. |
| E-UTRA Band 50 or NR Band n50 | 1432 – 1517 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76. |
| E-UTRA Band 51 or NR Band n51 | 1427 – 1432 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n75 or n76. |
| E-UTRA Band 53 or NR Band n53 | 2483.5 - 2495 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n41 or n90. |
| E-UTRA Band 65 or | 2110 – 2200 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n1 or n65.  |
| NR Band n65 | 1920 – 2010 MHz | -37.4 dBm | 1 MHz | For BS operating in Band n1, it applies for 1980 MHz to 2010 MHz, while the rest is covered in clause 6.7.5.3.This requirement does not apply to BS operating in band n65, since it is already covered by the requirement in clause 6.7.5.3. |
| E-UTRA Band 66 or | 2110 – 2200 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n66. |
| NR Band n66 | 1710 – 1780 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n66, since it is already covered by the requirement in clause 6.7.5.3. |
| E-UTRA Band 67 or NR Band n67 | 738 – 758 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n28 or n67. |
| E-UTRA Band 68 | 753 -783 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n28. |
|  | 698-728 MHz | -37.4 dBm | 1 MHz | For BS operating in Band n28, this requirement applies between 698 MHz and 703 MHz, while the rest is covered in clause 6.7.5.3. |
| E-UTRA Band 69 | 2570 – 2620 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n38. |
| E-UTRA Band 70 or | 1995 – 2020 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n2, n25 or n70 |
| NR Band n70 | 1695 – 1710 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n70, since it is already covered by the requirement in clause 6.7.5.3. |
| E-UTRA Band 71 or | 617 – 652 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n71 |
| NR Band n71 | 663 – 698 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n71, since it is already covered by the requirement in clause 6.7.5.3. |
| E-UTRA Band 72 | 461 – 466 MHz | -40.4 dBm | 1 MHz |  |
|  | 451 – 456 MHz | -37.4 dBm | 1 MHz |  |
| E-UTRA Band 74 or | 1475 – 1518 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n74 or n75. |
| NR Band n74 | 1427 – 1470 MHz | -37.4 dBm | 1MHz | This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76. |
| E-UTRA Band 75 or NR Band n75 | 1432 – 1517 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76. |
| E-UTRA Band 76 or NR Band n76 | 1427 – 1432 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n75 or n76. |
| NR Band n77 | 3.3 – 4.2 GHz | -40 dBm | 1 MHz | This requirement does not apply to BS operating in Band n77 or n78 |
| NR Band n78 | 3.3 – 3.8 GHz | -40 dBm | 1 MHz | This requirement does not apply to BS operating in Band n77 or n78 |
| NR Band n79 | 4.4 – 5.0 GHz | -39.5 dBm | 1 MHz | This requirement does not apply to BS operating in Band n79 |
| NR Band n80 | 1710 – 1785 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n3, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n81 | 880 – 915 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n8, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n82 | 832 – 862 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n20, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n83 | 703 – 748 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n28, since it is already covered by the requirement in clause 6.7.5.3.  |
| NR Band n84 | 1920 – 1980 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n1, since it is already covered by the requirement in clause 6.7.5.3. |
| E-UTRA Band 85 or NR Band n85 | 728 - 746 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n12 or n85. |
| 698 - 716 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n12 or n85, since it is already covered by the requirement in clause 6.7.5.3.For NR BS operating in n29, it applies 1 MHz below the Band n29 downlink operating band (Note 5). |
| NR Band n86 | 1710 – 1780 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n66, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n89 | 824 – 849 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n5, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n91 | 1427 – 1432 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n75 or n76. |
|  | 832 – 862 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n20, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n92 | 1432 – 1517 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76. |
|  | 832 – 862 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n20, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n93 | 1427 – 1432 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n75 or n76. |
|  | 880 – 915 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n8, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n94 | 1432 – 1517 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76. |
|  | 880 – 915 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n8, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n95 | 2010 – 2025 MHz | -40.4 dBm | 1 MHz |  |
| NR Band n96 | 5925 – 7125 MHz | -39.5 dBm | 1 MHz | This requirement does not apply to BS operating in Band n46, n96, n102 or n104. |
| NR Band n97 | 2300 – 2400MHz | -40.4 dBm | 1 MHz | NR Band n97 |
| NR Band n98 | 1880 – 1920MHz | -40.4 dBm | 1 MHz |  |
| NR Band n99 | 1626.5 – 1660.5 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n24, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n100 | 919.4 – 925 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n8. |
|  | 874.4 – 880 MHz | -37.4 dBm | 1MHz |  |
| NR Band n101 | 1900 - 1910 MHz | -40.4 dBm | 1 MHz |  |
| NR Band n102 | 6425 – 7125 MHz | -39.5 dBm | 1 MHz | This requirement does not apply to BS operating in Band n46, n96, n102 or n104. |
| E-UTRA Band 103 | 757 – 758 MHz | -40.4 dBm | 1 MHz |  |
|  | 787 – 788 MHz | -37.4 dBm | 1 MHz |  |
| NR Band n104 | 6425 – 7125 MHz | -39.5 dBm | 1 MHz | This requirement does not apply to BS operating in Band n46, n96, n102 or n104 |

*<End of the change>*

*<Start of the change>*

##### 6.7.5.5.5 Test requirements

6.7.5.5.5.1 Test requirement for *BS type 1-O*

These requirements may be applied for the protection of other BS receivers when GSM900, DCS1800, PCS1900, GSM850, CDMA850, UTRA FDD, UTRA TDD, E-UTRA and/or NR BS are co-located with a BS.

The requirements assume co-location with base stations of the same class.

NOTE: For co-location with UTRA, the requirements are based on co-location with UTRA FDD or TDD base stations.

This requirement is a co-location requirement as defined in clause 4.9, in TS 38.104 [2], the power levels are specified at the CLTAoutput.

The output of the CLTA of any spurious emission shall not exceed the test limit in table 6.7.5.5.5.1-1.

For a *multi-band RIB*, the exclusions and conditions in the notes column of table 6.7.5.5.5.1-1 apply for each supported operating band.

Table 6.7.5.5.5.1-1: *BS type 1-O* OTA spurious emissions limits for BS co-located with another BS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type of co-located BS | Frequency range for | Test limit | Measurement | Note |
|  | co-location requirement | WA BS | MR BS | LA BS | bandwidth |  |
| GSM900 | 876-915 MHz | -115.9 dBm | -108.9 dBm | -87.9 dBm | 100 kHz |  |
| DCS1800 | 1710 – 1785 MHz | -115.9 dBm | -108.9 dBm | -97.9 dBm | 100 kHz |  |
| PCS1900 | 1850 – 1910 MHz | -115.9 dBm | -108.9 dBm | -97.9 dBm | 100 kHz |  |
| GSM850 or CDMA850 | 824 – 849 MHz | -115.9 dBm | -108.9 dBm | -87.9 dBm | 100 kHz |  |
| UTRA FDD Band I or E-UTRA Band 1 or NR Band n1 | 1920 – 1980 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band II or E-UTRA Band 2 or NR Band n2 | 1850 – 1910 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band III or E-UTRA Band 3 or NR Band n3 | 1710 – 1785 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band IV or E-UTRA Band 4 | 1710 – 1755 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band V or E-UTRA Band 5 or NR Band n5 | 824 – 849 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band VI, XIX or E-UTRA Band 6, 19 | 830 – 845 MHz  | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band VII or E-UTRA Band 7 or NR Band n7 | 2500 – 2570 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band VIII or E-UTRA Band 8 or NR Band n8 | 880 – 915 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band IX or E-UTRA Band 9 | 1749.9 – 1784.9 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band X or E-UTRA Band 10 | 1710 – 1770 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band XI or E-UTRA Band 11 | 1427.9 – 1447.9 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz | This is not applicable to BS operating in Band n50 or n75 |
| UTRA FDD Band XII orE-UTRA Band 12 | 699 – 716 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band XIII orE-UTRA Band 13 or NR Band n13 | 777 – 787 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band XIV orE-UTRA Band 14 or NR Band n14 | 788 – 798 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 17 | 704 – 716 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 18 | 815 – 830 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band XX or E-UTRA Band 20 or NR Band n20 | 832 – 862 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band XXI or E-UTRA Band 21 | 1447.9 – 1462.9 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz | This is not applicable to BS operating in Band n50 or n75 |
| UTRA FDD Band XXII or E-UTRA Band 22 | 3410 – 3490 MHz | -113.7 dBm | -108.7 dBm | -105.7 dBm | 100 kHz | This is not applicable to BS operating in Band n77 or n78 |
| E-UTRA Band 24 or NR Band n24 | 1626.5 – 1660.5 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band XXV orE-UTRA Band 25 | 1850 – 1915 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA FDD Band XXVI orE-UTRA Band 26 or NR Band n26 | 814 – 849 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 27 | 807 – 824 MHz  | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 28 or NR Band n28 | 703 – 748 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 30 or NR Band n30 | 2305 – 2315 MHz  | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 31 | 452.5 -457.5 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA TDD Band a) or E-UTRA Band 33 | 1900 – 1920 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA TDD Band a) or E-UTRA Band 34 | 2010 – 2025 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA TDD Band b) or E-UTRA Band 35 | 1850 – 1910 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA TDD Band b) or E-UTRA Band 36 | 1930 – 1990 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz | This is not applicable to BS operating in Band n2 |
| UTRA TDD Band c) or E-UTRA Band 37 | 1910 – 1930 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA TDD Band d) or E-UTRA Band 38 or NR Band n38 | 2570 – 2620 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz | This is not applicable to BS operating in Band n38.  |
| UTRA TDD Band f) or E-UTRA Band 39 | 1880 – 1920 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| UTRA TDD Band e) or E-UTRA Band 40 | 2300 – 2400MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 41 or NR Band n41 | 2496 – 2690 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz | This is not applicable to BS operating in Band n41 |
| E-UTRA Band 42 | 3400 – 3600 MHz | -113.7 dBm | -108.7 dBm | -105.7 dBm | 100 kHz | This is not applicable to BS operating in Band n77 or n78 |
| E-UTRA Band 43 | 3600 – 3800 MHz | -113.7 dBm | -108.7 dBm | -105.7 dBm | 100 kHz | This is not applicable to BS operating in Band n77 or n78 |
| E-UTRA Band 44 | 703 – 803 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz | This is not applicable to BS operating in Band n28 |
| E-UTRA Band 45 | 1447 – 1467 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 46 or NR Band n46 | 5150 – 5925 MHz | N/A | -108.6 dBm | -105.6 dBm | 100 kHz | This is not applicable to BS operating in Band n46, n96, n102 or n104 |
| E-UTRA Band 48 | 3550 – 3700 MHz | -113.7 dBm | -108.7 dBm | -105.7 dBm | 100 kHz | This is not applicable to BS operating in Band n77 or n78 |
| E-UTRA Band 50 or NR Band n50 | 1432 – 1517 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz | This is not applicable to BS operating in Band n74 or n75 |
| E-UTRA Band 51 or NR Band n51 | 1427 – 1432 MHz | N/A | N/A | -105.9 dBm | 100 kHz | This is not applicable to BS operating in Band n50, n75 or n76 |
| E-UTRA Band 53 or NR Band n53 | 2483.5 – 2495 MHz | N/A | -108.9 dBm | -105.9 dBm | 100 kHz | This is not applicable to BS operating in Band n41 or n90 |
| E-UTRA Band 65 or NR Band n65 | 1920 – 2010 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 66 or NR Band n66 | 1710 – 1780 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 68 | 698 – 728 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 70 or NR Band n70 | 1695 – 1710 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 71 or NR Band n71 | 663 – 698 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 72 | 451 – 456 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 74 or NR Band n74 | 1427 – 1470 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz | This is not applicable to BS operating in Band n50 |
| NR Band n77 | 3.3 – 4.2 GHz | -113.7 dBm | -108.7 dBm | -105.7 dBm | 100 kHz | This is not applicable to BS operating in Band n77 or n78 |
| NR Band n78 | 3.3 – 3.8 GHz | -113.7 dBm | -108.7 dBm | -105.7 dBm | 100 kHz | This is not applicable to BS operating in Band n77 or n78 |
| NR Band n79 | 4.4 – 5.0 GHz | -113.6 dBm | -108.6 dBm | -105.6 dBm | 100 kHz |  |
| NR Band n80  | 1710 – 1785 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| NR Band n81 | 880 – 915 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| NR Band n82 | 832 – 862 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| NR Band n83 | 703 – 748 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| NR Band n84 | 1920 – 1980 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| E-UTRA Band 85 or NR Band n85 | 698 - 716 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| NR Band n86 | 1710 – 1780 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| NR Band n89 | 824 – 849 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| NR Band n95 | 2010 – 2025 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| NR Band 96 | 5925 - 7125 | N/A | -107.6 dBm | -104.6 dBm | 100 kHz | This is not applicable to BS operating in Band n46, n96, n102 or n104 |
| NR Band n97 | 2300 – 2400MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| NR Band n98 | 1880 – 1920 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| NR Band n99 | 1626.5 – 1660.5 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| NR band n100 | 874.4 – 880 MHz | -113.9 dBm | NA | NA | 100 kHz |  |
| NR band n101 | 1900 - 1910 MHz | -113.9 dBm | NA | NA | 100 kHz |  |
| NR Band n102 | 6425 – 7125 MHz | N/A | -107.6 dBm | -104.6 dBm | 100 kHz | This is not applicable to BS operating in Band n46, n96, n102 or n104 |
| E-UTRA Band 103 | 787 – 788 MHz | -113.9 dBm | -108.9 dBm | -105.9 dBm | 100 kHz |  |
| NR Band n104 | 6425 – 7125 MHz  | -112.6 dBm | -107.6 dBm | -104.6 dBm  | 100 kHz | This is not applicable to BS operating in Band n46, n96, n102 or n104 |

*<End of the change>*

*<Start of the change>*

#### 7.2.5.2 Test requirements for *BS type 1-H* and *BS type 1-O*

For each measured carrier, the throughput measured in step 9 of clause 7.2.4.2 shall be ≥ 95 % of the maximum throughput of the reference measurement channel as specified in annex A.1 with parameters specified in table 7.2.5.2-1.

Table 7.2.5.2-1: EIS levels

|  |  |  |  |
| --- | --- | --- | --- |
| BS channel | Sub-carrier | Reference | OTA sensitivity level, EIS (dBm) |
| bandwidth (MHz) | spacing (kHz) | measurement channel (annex A.1) | f ≤ 3.0 GHz | 3.0 GHz < f ≤ 4.2 GHz | 4.2 GHz < f ≤ 6.0 GHz | 6.0 GHz < f ≤ 7.125 GHz |
| 5, 10, 15 | 15 | G-FR1-A1-1 |  |  |  |  |
| 10, 15  | 30 | G-FR1-A1-2 |  |  |  |  |
| 10, 15 | 60 | G-FR1-A1-3 | Declared | Declared | Declared | Declared |
| 20, 25, 30, 35, 40, 45, 50  | 15 | G-FR1-A1-4 | minimum EIS | minimum EIS | minimum EIS | minimum EIS |
| 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100  | 30 | G-FR1-A1-5 | + 1.3 | + 1.4 | + 1.6 | + 1.9 |
| 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100  | 60 | G-FR1-A1-6 |  |  |  |  |
| NOTE: EIS is the power level of a single instance of the reference measurement channel. This requirement shall be met for each consecutive application of a single instance of the reference measurement channel mapped to disjoint frequency ranges with a width corresponding to the number of resource blocks of the reference measurement channel each, except for one instance that might overlap one other instance to cover the full *BS channel bandwidth*. |

*<End of the change>*

*<Start of the change>*

#### 7.3.5.2 Test requirements for *BS type 1-O*

For each measured carrier, the throughput measured in step 9 of clause 7.3.4.2 shall be ≥ 95 % of the maximum throughput of the reference measurement channel as specified in annex A.1 with parameters specified in tables 7.3.5.2-1 to 7.3.5.2-3.

Table 7.3.5.2-1: Wide Area BS EISREFSENS levels

|  |  |  |  |
| --- | --- | --- | --- |
| BS channel bandwidth (MHz) | Sub-carrier spacing (kHz) | Reference measurement | OTA reference sensitivity level, EISREFSENS (dBm) |
|  |  | channel(annex A.1) | f ≤ 3.0 GHz | 3.0 GHz < f ≤ 4.2 GHz | 4.2 GHz < f ≤ 6.0 GHz | 6.0 GHz < f ≤ 7.125 GHz |
| 5, 10, 15 | 15 | G-FR1-A1-1 | -100.4 – ΔOTAREFSENS | -100.3 – ΔOTAREFSENS | -100.1 – ΔOTAREFSENS | NA |
| 10, 15  | 30 | G-FR1-A1-2 | -100.5 – ΔOTAREFSENS | -100.4 – ΔOTAREFSENS | -100.2 – ΔOTAREFSENS | NA |
| 10, 15 | 60 | G-FR1-A1-3 | -97.6 – ΔOTAREFSENS | -97.5 – ΔOTAREFSENS | -97.3 – ΔOTAREFSENS | NA |
| 20, 25, 30, 35, 40, 45, 50  | 15 | G-FR1-A1-4 | -94 – ΔOTAREFSENS | -93.9 – ΔOTAREFSENS | -93.7 – ΔOTAREFSENS | -92.4 – ΔOTAREFSENS |
| 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100  | 30 | G-FR1-A1-5 | -94.3 – ΔOTAREFSENS | -94.2 – ΔOTAREFSENS | -94 – ΔOTAREFSENS | -92.7 – ΔOTAREFSENS |
| 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100  | 60 | G-FR1-A1-6 | -94.4 – ΔOTAREFSENS | -94.3 – ΔOTAREFSENS | -94.1 – ΔOTAREFSENS | -92.8 – ΔOTAREFSENS |
| NOTE: EISREFSENS is the power level of a single instance of the reference measurement channel. This requirement shall be met for each consecutive application of a single instance of the reference measurement channel mapped to disjoint frequency ranges with a width corresponding to the number of resource blocks of the reference measurement channel each, except for one instance that might overlap one other instance to cover the full *BS channel bandwidth*. |

Table 7.3.5.2-2: Medium Range BS EISREFSENS levels

|  |  |  |  |
| --- | --- | --- | --- |
| BS channel bandwidth (MHz) | Sub-carrier spacing (kHz) | Reference measurement |  EISREFSENS (dBm) |
|  |  | channel(annex A.1) | f ≤ 3.0 GHz | 3.0 GHz < f ≤ 4.2 GHz | 4.2 GHz < f ≤ 6.0 GHz | 6.0 GHz < f ≤ 7.125 GHz |
| 5, 10, 15 | 15 | G-FR1-A1-1 | -95.4 – ΔOTAREFSENS | -95.3 – ΔOTAREFSENS | -95.1 – ΔOTAREFSENS | NA |
| 10, 15  | 30 | G-FR1-A1-2 | -95.5 – ΔOTAREFSENS | -95.4 – ΔOTAREFSENS | -95.2 – ΔOTAREFSENS  | NA |
| 10, 15 | 60 | G-FR1-A1-3 | -92.6 – ΔOTAREFSENS | -92.5 – ΔOTAREFSENS | -92.3 – ΔOTAREFSENS | NA |
| 20, 25, 30, 35, 40, 45, 50  | 15 | G-FR1-A1-4 | -89 – ΔOTAREFSENS | -88.9 – ΔOTAREFSENS | -88.7 – ΔOTAREFSENS | -87.4 – ΔOTAREFSENS |
| 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100  | 30 | G-FR1-A1-5 | -89.3 – ΔOTAREFSENS | -89.2 – ΔOTAREFSENS | -89 – ΔOTAREFSENS | -87.7 – ΔOTAREFSENS |
| 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100  | 60 | G-FR1-A1-6 | -89.4 – ΔOTAREFSENS | -89.3 – ΔOTAREFSENS | -89.1 – ΔOTAREFSENS | -87.8 – ΔOTAREFSENS |
| NOTE: EISREFSENS is the power level of a single instance of the reference measurement channel. This requirement shall be met for each consecutive application of a single instance of the reference measurement channel mapped to disjoint frequency ranges with a width corresponding to the number of resource blocks of the reference measurement channel each, except for one instance that might overlap one other instance to cover the full *BS channel bandwidth*. |

Table 7.3.5.2-3: Local Area BS EISREFSENS levels

|  |  |  |  |
| --- | --- | --- | --- |
| BS channel bandwidth (MHz) | Sub-carrier spacing (kHz) | Reference measurement | OTA reference sensitivity level, EISREFSENS (dBm) |
|  |  | channel(annex A.1) | f ≤ 3.0 GHz | 3.0 GHz < f ≤ 4.2 GHz | 4.2 GHz < f ≤ 6.0 GHz | 6.0 GHz < f ≤ 7.125 GHz |
| 5, 10, 15 | 15 | G-FR1-A1-1 | -92.4 – ΔOTAREFSENS | -92.3 – ΔOTAREFSENS | -92.1 – ΔOTAREFSENS | NA |
| 10, 15  | 30 | G-FR1-A1-2 | -92.5 – ΔOTAREFSENS | -92.4 – ΔOTAREFSENS | -92.2 – ΔOTAREFSENS | NA |
| 10, 15 | 60 | G-FR1-A1-3 | -89.6 – ΔOTAREFSENS | -89.5 – ΔOTAREFSENS | -89.3 – ΔOTAREFSENS | NA |
| 20, 25, 30, 35, 40, 45, 50  | 15 | G-FR1-A1-4 | -86 – ΔOTAREFSENS | -85.9 – ΔOTAREFSENS | -85.7 – ΔOTAREFSENS | -84.4 - ΔOTAREFSENS |
| 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100  | 30 | G-FR1-A1-5 | -86.3 – ΔOTAREFSENS | -86.2 – ΔOTAREFSENS | -86 – ΔOTAREFSENS | -84.7 - ΔOTAREFSENS |
| 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100  | 60 | G-FR1-A1-6 | -86.4 – ΔOTAREFSENS | -86.3 – ΔOTAREFSENS | -86.1 – ΔOTAREFSENS | -84.8 - ΔOTAREFSENS |
| NOTE: EISREFSENS is the power level of a single instance of the reference measurement channel. This requirement shall be met for each consecutive application of a single instance of the reference measurement channel mapped to disjoint frequency ranges with a width corresponding to the number of resource blocks of the reference measurement channel each, except for one instance that might overlap one other instance to cover the full *BS channel bandwidth*. |

*<End of the change>*

*<Start of the change>*

#### 7.4.5.2 Test requirements for *BS type 1-O*

For each measured carrier, the throughput measured in step 6 of clause 7.4.4.2 shall be ≥ 95 % of the maximum throughput of the reference measurement channel as specified in annex A.2 with parameters specified in tables 7.4.5.2-1 to 7.4.5.2-3a.

Table 7.4.5.2-1: Wide Area BS dynamic range for f ≤ 6.0 GHz

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BS | Subcarrier | Reference | Wanted signal mean power (dBm) | Interfering | Type of |
| channel bandwidth (MHz) | spacing (kHz) | measurement channel(annex A.2) | f ≤ 3.0 GHz | 3.0 GHz < f ≤ 4.2 GHz | 4.2 GHz < f ≤ 6.0 GHz | signal mean power (dBm) / BWConfig | interfering signal |
| 5 | 15 | G-FR1-A2-1 | -70.4 – ΔOTAREFSENS | -70.4 – ΔOTAREFSENS | -70.4 – ΔOTAREFSENS | -82.5 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-2 | -71.1 – ΔOTAREFSENS | -71.1 – ΔOTAREFSENS | -71.1 – ΔOTAREFSENS |  |  |
| 10 | 15 | G-FR1-A2-1 | -70.4 – ΔOTAREFSENS | -70.4 – ΔOTAREFSENS | -70.4 – ΔOTAREFSENS | -79.3 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-2 | -71.1 – ΔOTAREFSENS | -71.1 – ΔOTAREFSENS | -71.1 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-3 | -68.1 – ΔOTAREFSENS | -68.1 – ΔOTAREFSENS | -68.1 – ΔOTAREFSENS |  |  |
| 15 | 15 | G-FR1-A2-1 | -70.4 – ΔOTAREFSENS | -70.4 – ΔOTAREFSENS | -70.4 – ΔOTAREFSENS | -77.5 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-2 | -71.1 – ΔOTAREFSENS | -71.1 – ΔOTAREFSENS | -71.1 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-3 | -68.1 – ΔOTAREFSENS | -68.1 – ΔOTAREFSENS | -68.1 – ΔOTAREFSENS |  |  |
| 20 | 15 | G-FR1-A2-4 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -76.2 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS |  |  |
| 25 | 15 | G-FR1-A2-4 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -75.2 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS |  |  |
| 30 | 15 | G-FR1-A2-4 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -74.4 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS |  |  |
| 35 | 15 | G-FR1-A2-4 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -73.7– ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS |  |  |
| 40 | 15 | G-FR1-A2-4 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -73.1 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS |  |  |
| 45 | 15 | G-FR1-A2-4 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -72.6– ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS |  |  |
| 50 | 15 | G-FR1-A2-4 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -72.1 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS |  |  |
| 60 | 30 | G-FR1-A2-5 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -71.3 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS |  |  |
| 70 | 30 | G-FR1-A2-5 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -70.7 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS |  |  |
| 80 | 30 | G-FR1-A2-5 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -70.1 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS |  |  |
| 90 | 30 | G-FR1-A2-5 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -69.5 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS |  |  |
| 100 | 30 | G-FR1-A2-5 | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -64.2 – ΔOTAREFSENS | -69.1 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS |  |  |
| NOTE: The wanted signal mean power is the power level of a single instance of the corresponding reference measurement channel. This requirement shall be met for each consecutive application of a single instance of the reference measurement channel mapped to disjoint frequency ranges with a width corresponding to the number of resource blocks of the reference measurement channel each, except for one instance that might overlap one other instance to cover the full *BS channel bandwidth*. |

Table 7.4.5.2-1a: Wide Area BS dynamic range for 6.0 < f ≤ 7.125 GHz

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BS channel bandwidth (MHz) | Subcarrier spacing (kHz) | Reference measurement channel(annex A.2) | Wanted signal mean power (dBm) | Interfering signal mean power (dBm) / BWConfig | Type of interfering signal |
| 20 | 15 | G-FR1-A2-4 | -63.2 – ΔOTAREFSENS | -75.2 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -63.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -63.5– ΔOTAREFSENS |  |  |
| 30 | 15 | G-FR1-A2-4 | -63.2 – ΔOTAREFSENS | -73.4 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -63.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -63.5 – ΔOTAREFSENS |  |  |
| 40 | 15 | G-FR1-A2-4 | -63.2 – ΔOTAREFSENS | -72.1 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -63.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -63.5 – ΔOTAREFSENS |  |  |
| 50 | 15 | G-FR1-A2-4 | -63.2 – ΔOTAREFSENS | -71.1 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -63.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -63.5 – ΔOTAREFSENS |  |  |
| 60 | 30 | G-FR1-A2-5 | -63.2 – ΔOTAREFSENS | -70.3 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -63.5 – ΔOTAREFSENS |  |  |
| 70 | 30 | G-FR1-A2-5 | -63.2 – ΔOTAREFSENS | -69.7 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -63.5 – ΔOTAREFSENS |  |  |
| 80 | 30 | G-FR1-A2-5 | -63.2 – ΔOTAREFSENS | -69.1 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -63.5 – ΔOTAREFSENS |  |  |
| 90 | 30 | G-FR1-A2-5 | -63.2 – ΔOTAREFSENS | -68.5 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -63.5 – ΔOTAREFSENS |  |  |
| 100 | 30 | G-FR1-A2-5 | -63.2 – ΔOTAREFSENS | -68.1 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -63.5 – ΔOTAREFSENS |  |  |
| NOTE: The wanted signal mean power is the power level of a single instance of the corresponding reference measurement channel. This requirement shall be met for each consecutive application of a single instance of the reference measurement channel mapped to disjoint frequency ranges with a width corresponding to the number of resource blocks of the reference measurement channel each, except for one instance that might overlap one other instance to cover the full *BS channel bandwidth*. |

Table 7.4.5.2-2: Medium Range BS dynamic range for f ≤ 6.0 GHz

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BS | Subcarrier | Reference | Wanted signal mean power (dBm) | Interfering | Type of |
| channel bandwidth (MHz) | spacing (kHz) | measurement channel(annex A.2) | f ≤ 3.0 GHz | 3.0 GHz < f ≤ 4.2 GHz | 4.2 GHz < f ≤ 6.0 GHz | signal mean power (dBm) / BWConfig | interfering signal |
| 5 | 15 | G-FR1-A2-1 | -65.4 – ΔOTAREFSENS | -65.4 – ΔOTAREFSENS | -65.4 – ΔOTAREFSENS | -77.5 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-2 | -66.1 – ΔOTAREFSENS | -66.1 – ΔOTAREFSENS | -66.1 – ΔOTAREFSENS |  |  |
| 10 | 15 | G-FR1-A2-1 | -65.4 – ΔOTAREFSENS | -65.4 – ΔOTAREFSENS | -65.4 – ΔOTAREFSENS | -74.3 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-2 | -66.1 – ΔOTAREFSENS | -66.1 – ΔOTAREFSENS | -66.1 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-3 | -63.1 – ΔOTAREFSENS | -63.1 – ΔOTAREFSENS | -63.1 – ΔOTAREFSENS |  |  |
| 15 | 15 | G-FR1-A2-1 | -65.4 – ΔOTAREFSENS | -65.4 – ΔOTAREFSENS | -65.4 – ΔOTAREFSENS | -72.5 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-2 | -66.1 – ΔOTAREFSENS | -66.1 – ΔOTAREFSENS | -66.1 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-3 | -63.1 – ΔOTAREFSENS | -63.1 – ΔOTAREFSENS | -63.1 – ΔOTAREFSENS |  |  |
| 20 | 15 | G-FR1-A2-4 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -71.2 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS |  |  |
| 25 | 15 | G-FR1-A2-4 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -70.2 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS |  |  |
| 30 | 15 | G-FR1-A2-4 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -69.4 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS |  |  |
| 35 | 15 | G-FR1-A2-4 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -68.7– ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS |  |  |
| 40 | 15 | G-FR1-A2-4 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -68.1 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS |  |  |
| 45 | 15 | G-FR1-A2-4 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -67.6– ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS |  |  |
| 50 | 15 | G-FR1-A2-4 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -67.1 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS |  |  |
| 60 | 30 | G-FR1-A2-5 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -66.3 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS |  |  |
| 70 | 30 | G-FR1-A2-5 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -65.7 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS |  |  |
| 80 | 30 | G-FR1-A2-5 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -65.1 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS |  |  |
| 90 | 30 | G-FR1-A2-5 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -64.5 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS |  |  |
| 100 | 30 | G-FR1-A2-5 | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -59.2 – ΔOTAREFSENS | -64.1 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS | -59.5 – ΔOTAREFSENS |  |  |
| NOTE: The wanted signal mean power is the power level of a single instance of the corresponding reference measurement channel. This requirement shall be met for each consecutive application of a single instance of the reference measurement channel mapped to disjoint frequency ranges with a width corresponding to the number of resource blocks of the reference measurement channel each, except for one instance that might overlap one other instance to cover the full *BS channel bandwidth*. |

Table 7.4.5.2-2a: Medium Range BS dynamic range for 6.0 < f ≤ 7.125 GHz

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BS channel bandwidth (MHz) | Subcarrier spacing (kHz) | Reference measurement channel(annex A.2) | Wanted signal mean power (dBm) | Interfering signal mean power (dBm) / BWConfig | Type of interfering signal |
| 20 | 15 | G-FR1-A2-4 | -58.2 – ΔOTAREFSENS | -70.2 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -58.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -58.5 – ΔOTAREFSENS |  |  |
| 30 | 15 | G-FR1-A2-4 | -58.2 – ΔOTAREFSENS | -68.4 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -58.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -58.5 – ΔOTAREFSENS |  |  |
| 40 | 15 | G-FR1-A2-4 | -58.2 – ΔOTAREFSENS | -67.1 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -58.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -58.5 – ΔOTAREFSENS |  |  |
| 50 | 15 | G-FR1-A2-4 | -58.2 – ΔOTAREFSENS | -66.1 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -58.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -58.5 – ΔOTAREFSENS |  |  |
| 60 | 30 | G-FR1-A2-5 | -58.2 – ΔOTAREFSENS | -65.3 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -58.5 – ΔOTAREFSENS |  |  |
| 70 | 30 | G-FR1-A2-5 | -58.2 – ΔOTAREFSENS | -64.7 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -58.5 – ΔOTAREFSENS |  |  |
| 80 | 30 | G-FR1-A2-5 | -58.2 – ΔOTAREFSENS | -64.1 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -58.5 – ΔOTAREFSENS |  |  |
| 90 | 30 | G-FR1-A2-5 | -58.2 – ΔOTAREFSENS | -63.5 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -58.5 – ΔOTAREFSENS |  |  |
| 100 | 30 | G-FR1-A2-5 | -58.2 – ΔOTAREFSENS | -63.1 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -58.5 – ΔOTAREFSENS |  |  |
| NOTE: The wanted signal mean power is the power level of a single instance of the corresponding reference measurement channel. This requirement shall be met for each consecutive application of a single instance of the reference measurement channel mapped to disjoint frequency ranges with a width corresponding to the number of resource blocks of the reference measurement channel each, except for one instance that might overlap one other instance to cover the full *BS channel bandwidth*. |

Table 7.4.5.2-3: Local Area BS dynamic range for f ≤ 6.0 GHz

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BS | Subcarrier | Reference | Wanted signal mean power (dBm) | Interfering | Type of |
| channel bandwidth (MHz) | spacing (kHz) | measurement channel(annex A.2) | f ≤ 3.0 GHz | 3.0 GHz < f ≤ 4.2 GHz | 4.2 GHz < f ≤ 6.0 GHz | signal mean power (dBm) / BWConfig | interfering signal |
| 5 | 15 | G-FR1-A2-1 | -62.4 – ΔOTAREFSENS | -62.4 – ΔOTAREFSENS | -62.4 – ΔOTAREFSENS | -74.5 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-2 | -64.1 – ΔOTAREFSENS | -64.1 – ΔOTAREFSENS | -64.1 – ΔOTAREFSENS |  |  |
| 10 | 15 | G-FR1-A2-1 | -62.4 – ΔOTAREFSENS | -62.4 – ΔOTAREFSENS | -62.4 – ΔOTAREFSENS | -71.3 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-2 | -64.1 – ΔOTAREFSENS | -64.1 – ΔOTAREFSENS | -64.1 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-3 | -60.1 – ΔOTAREFSENS | -60.1 – ΔOTAREFSENS | -60.1 – ΔOTAREFSENS |  |  |
| 15 | 15 | G-FR1-A2-1 | -62.4 – ΔOTAREFSENS | -62.4 – ΔOTAREFSENS | -62.4 – ΔOTAREFSENS | -69.5 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-2 | -64.1 – ΔOTAREFSENS | -64.1 – ΔOTAREFSENS | -64.1 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-3 | -60.1 – ΔOTAREFSENS | -60.1 – ΔOTAREFSENS | -60.1 – ΔOTAREFSENS |  |  |
| 20 | 15 | G-FR1-A2-4 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -68.2 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS |  |  |
| 25 | 15 | G-FR1-A2-4 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -67.2 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS |  |  |
| 30 | 15 | G-FR1-A2-4 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -66.4 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS |  |  |
| 35 | 15 | G-FR1-A2-4 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -65.7 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS |  |  |
| 40 | 15 | G-FR1-A2-4 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -65.1 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS |  |  |
| 45 | 15 | G-FR1-A2-4 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -64.6 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS |  |  |
| 50 | 15 | G-FR1-A2-4 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -64.1 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS |  |  |
| 60 | 30 | G-FR1-A2-5 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -63.3 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS |  |  |
| 70 | 30 | G-FR1-A2-5 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -62.7 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS |  |  |
| 80 | 30 | G-FR1-A2-5 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -62.1 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS |  |  |
| 90 | 30 | G-FR1-A2-5 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -61.5 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS |  |  |
| 100 | 30 | G-FR1-A2-5 | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -56.2 – ΔOTAREFSENS | -61.1 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS | -56.5 – ΔOTAREFSENS |  |  |
| NOTE: The wanted signal mean power is the power level of a single instance of the corresponding reference measurement channel. This requirement shall be met for each consecutive application of a single instance of the reference measurement channel mapped to disjoint frequency ranges with a width corresponding to the number of resource blocks of the reference measurement channel each, except for one instance that might overlap one other instance to cover the full *BS channel bandwidth*. |

Table 7.4.5.2-3a: Local Area BS dynamic range for 6.0 < f ≤ 7.125 GHz

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BS channel bandwidth (MHz) | Subcarrier spacing (kHz) | Reference measurement channel(annex A.2) | Wanted signal mean power (dBm) | Interfering signal mean power (dBm) / BWConfig | Type of interfering signal |
| 20 | 15 | G-FR1-A2-4 | -55.2 – ΔOTAREFSENS | -67.2 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -55.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -55.5 – ΔOTAREFSENS |  |  |
| 30 | 15 | G-FR1-A2-4 | -55.2 – ΔOTAREFSENS | -65.4 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -55.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -55.5 – ΔOTAREFSENS |  |  |
| 40 | 15 | G-FR1-A2-4 | -55.2 – ΔOTAREFSENS | -64.1 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -55.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -55.5 – ΔOTAREFSENS |  |  |
| 50 | 15 | G-FR1-A2-4 | -55.2 – ΔOTAREFSENS | -63.1 – ΔOTAREFSENS | AWGN |
|  | 30 | G-FR1-A2-5 | -55.2 – ΔOTAREFSENS |  |  |
|  | 60 | G-FR1-A2-6 | -55.5 – ΔOTAREFSENS |  |  |
| 60 | 30 | G-FR1-A2-5 | -55.2 – ΔOTAREFSENS | -62.3 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -55.5 – ΔOTAREFSENS |  |  |
| 70 | 30 | G-FR1-A2-5 | -55.2 – ΔOTAREFSENS | -61.7 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -55.5 – ΔOTAREFSENS |  |  |
| 80 | 30 | G-FR1-A2-5 | -55.2 – ΔOTAREFSENS | -61.1 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -55.5 – ΔOTAREFSENS |  |  |
| 90 | 30 | G-FR1-A2-5 | -55.2 – ΔOTAREFSENS | -60.5 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -55.5 – ΔOTAREFSENS |  |  |
| 100 | 30 | G-FR1-A2-5 | -55.2 – ΔOTAREFSENS | -60.1 – ΔOTAREFSENS | AWGN |
|  | 60 | G-FR1-A2-6 | -55.5 – ΔOTAREFSENS |  |  |
| NOTE: The wanted signal mean power is the power level of a single instance of the corresponding reference measurement channel. This requirement shall be met for each consecutive application of a single instance of the reference measurement channel mapped to disjoint frequency ranges with a width corresponding to the number of resource blocks of the reference measurement channel each, except for one instance that might overlap one other instance to cover the full *BS channel bandwidth*. |

*<End of the change>*

*<Start of the change>*

##### 7.5.1.5.2 Test requirements for *BS type 1-O*

The requirement shall apply at the RIB when the AoA of the incident wave of a received signal and the interfering signal are from the same direction, and the AoA of the incident wave of a received signal and the interfering signal are within the *minSENS RoAoA*.

The wanted and interfering signals apply to each supported polarization, under the assumption o*f polarization match*.

The throughput shall be ≥ 95% of the maximum throughput of the reference measurement channel.

For FR1, the OTA wanted and the interfering signal are specified in table 7.5.1.5.2-1, 7.5.1.5.2-1a and table 7.5.1.5.2-2 for ACS. The reference measurement channel for the OTA wanted signal is identified in clause 7.3.5.2 and is further specified in annex A.1. The characteristics of the interfering signal is further specified in TS 38.104 [2] annex D.

The OTA ACS requirement is applicable outside the Base Station RF Bandwidth or Radio Bandwidth. The OTA interfering signal offset is defined relative to the Base station RF Bandwidth edges or Radio Bandwidth edges.

For RIBs supporting operation in *non-contiguous spectrum* within any operating band, the OTA ACS requirement shall apply in addition inside any sub-block gap, in case the sub-block gap size is at least as wide as the NR interfering signal in table 7.5.1.5.2-2. The OTA interfering signal offset is defined relative to the sub-block edges inside the sub-block gap.

For *multi-band RIBs*, the OTA ACS requirement shall apply in addition inside any Inter RF Bandwidth gap, in case the Inter RF Bandwidth gap size is at least as wide as the NR interfering signal in table 7.5.1.5.2-2. The interfering signal offset is defined relative to the Base Station RF Bandwidth edges inside the Inter RF Bandwidth gap.

Table 7.5.1.5.2-1: OTA ACS requirement for *BS type 1-O* for f ≤ 6.0 GHz

|  |  |  |
| --- | --- | --- |
| *BS channel bandwidth* of the lowest/highest carrier received (MHz) | Wanted signal mean power (dBm)(Note 2) | Interfering signal mean power (dBm) |
|  | f ≤ 3.0 GHz | 3.0 GHz < f ≤ 4.2 GHz | 4.2 GHz < f ≤ 6.0 GHz |  |
| 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100(Note 1) | EISminSENS + 6 dB | Wide Area BS: -52 – ΔminSENSMedium Range BS: -47– ΔminSENSLocal Area BS: -44– ΔminSENS |
| NOTE 1: The SCS for the lowest/highest carrier received is the lowest SCS supported by the BS for that bandwidth.NOTE 2: EISminSENS depends on the *BS channel bandwidth* as specified in TS 38.104 [2], clause 10.2.1. |

Table 7.5.1.5.2-1a: OTA ACS requirement for *BS type 1-O for band* 6.0 GHz < f ≤ 7.125 GHz

|  |  |  |
| --- | --- | --- |
| *BS channel bandwidth* of the lowest/highest carrier received (MHz) | Wanted signal mean power (dBm)(Note 2) | Interfering signal mean power (dBm) |
| 20, 30, 40, 50, 60, 70, 80, 90, 100(Note 1) | EISminSENS + 6 dB | Wide Area BS: -55 – ΔminSENSMedium Range BS: -50– ΔminSENSLocal Area BS: -47– ΔminSENS |
| NOTE 1: The SCS for the lowest/highest carrier received is the lowest SCS supported by the BS for that bandwidth.NOTE 2: EISminSENS depends on the *BS channel bandwidth* as specified in TS 38.104 [2], clause 10.2.1. |

Table 7.5.1.5.2-2: OTA ACS interferer frequency offset for *BS type 1-O*

|  |  |  |
| --- | --- | --- |
| *BS channel bandwidth* of the lowest/highest carrier received (MHz) | Interfering signal centre frequency offset from the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap (MHz) | Type of interfering signal |
| 5 | ±2.5025 | 5 MHz DFT-s-OFDM NR signal, 15 kHz SCS, 25 RBs |
| 10 | ±2.5075 |  |
| 15 | ±2.5125 |  |
| 20 | ±2.5025 |  |
| 25 | ±9.4675 | 20 MHz DFT-s-OFDM NR signal, 15 kHz SCS, 100 RBs |
| 30 | ±9.4725 |  |
| 35 | ±9.4625 |  |
| 40 | ±9.4675 |  |
| 45 | ±9.4725 |  |
| 50 | ±9.4625 |  |
| 60 | ±9.4725 |  |
| 70 | ±9.4675 |  |
| 80 | ±9.4625 |  |
| 90 | ±9.4725 |  |
| 100 | ±9.4675 |  |

*<End of the change>*

*<Start of the change>*

##### 7.5.2.5.2 Test requirements for *BS type 1-O*

The requirement shall apply at the RIB when the AoA of the incident wave of a received signal and the interfering signal are from the same direction, and:

- when the wanted signal is based on EISREFSENS: the AoA of the incident wave of a received signal and the interfering signal are within the *OTA REFSENS RoAoA.*

- when the wanted signal is based on EISminSENS: the AoA of the incident wave of a received signal and the interfering signal are within the *minSENS RoAoA*.

The wanted and interfering signals apply to each supported polarization, under the assumption of *polarization match*.

The throughput shall be ≥ 95% of the maximum throughput of the reference measurement channel, with OTA wanted and OTA interfering signal specified in tables 7.5.2.5.2-1, table 7.5.2.5.2-2 and table 7.5.2.5.2-3 for general OTA and narrowband OTA blocking requirements. Narrowband blocking requirements shall not be applied for band n104. The reference measurement channel for the OTA wanted signal is identified in clause 7.3.5.2 and is further specified in annex A.1. The characteristics of the interfering signal is further specified in TS 38.104 [2] annex D.

The OTA in-band blocking requirements apply outside the *Base Station RF Bandwidth* or *Radio Bandwidth*. The interfering signal offset is defined relative to the *Base Station RF Bandwidth* *edges* or *Radio Bandwidth* edges.

For *BS type 1-O* the OTA in-band blocking requirement shall apply in the in-band blocking frequency range, which is defined within frequency range from FUL\_low - ΔfOOB to FUL\_high + ΔfOOB, excluding the downlink frequency range of the FDD *operating band,* where the ΔfOOB for *BS type 1-O* is defined in table 7.5.2.5.2-0.

Table 7.5.2.5.2-0: ΔfOOB offset for NR *operating bands* in FR1

|  |  |  |
| --- | --- | --- |
| BS type | *Operating band* characteristics | ΔfOOB (MHz) |
| *BS type 1-O* | FUL\_high – FUL\_low < 100 MHz | 20 |
|  | 100 MHz ≤ FUL\_high – FUL\_low ≤ 900 MHz  | 60 |
|  | n104 | 100 |

For RIBs supporting operation in *non-contiguous spectrum* within any *operating band*, the OTA in-band blocking requirements apply in addition inside any sub-block gap, in case the sub-block gap size is at least as wide as twice the interfering signal minimum offset in table 7.5.2.5.2-1. The interfering signal offset is defined relative to the sub-block edges inside the sub-block gap.

For *multi-band RIBs*, the OTA in-band blocking requirements apply in the in-band blocking frequency ranges for each supported *operating band*. The requirement shall apply in addition inside any *Inter RF Bandwidth gap*, in case the *Inter RF Bandwidth gap* size is at least as wide as twice the interfering signal minimum offset in tables 7.5.2.5.2-1 and 7.5.2.5.2-3.

For a RIBs supporting operation in *non-contiguous spectrum* within any operating band, the OTA narrowband blocking requirements apply in addition inside any sub-block gap, in case the sub-block gap size is at least as wide as the interfering signal minimum offset in table 7.5.2.5.2-3. The interfering signal offset is defined relative to the sub-block edges inside the sub-block gap.

For a *multi-band RIBs*, the OTA narrowband blocking requirements apply in the narrowband blocking frequency ranges for each supported *operating band*. The requirement shall apply in addition inside any *Inter RF Bandwidth gap*, in case the *Inter RF Bandwidth gap* size is at least as wide as the interfering signal minimum offset in table 7.5.2.5.2-3.

Table 7.5.2.5.2-1: General OTA blocking requirement for *BS type 1-O*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *BS channel bandwidth* of the | Wanted signal mean power (dBm) | Interfering signal mean | Interfering signal centre frequency minimum offset | Type of interfering |
| lowest/highest carrier received (MHz) | f ≤ 3.0 GHz | 3.0 GHz < f ≤ 4.2 GHz | 4.2 GHz < f ≤ 6.0 GHz | 6.0 GHz < f ≤ 7.125 GHz | power (dBm) | from the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap (MHz) | signal |
| 5, 10, 15, 20 | EISREFSENS + x dB(NOTE 2, NOTE 4) | Wide Area BS: -43 - ΔOTAREFSENSMedium Range BS: -38 - ΔOTAREFSENSLocal Area BS: -35 - ΔOTAREFSENS(NOTE 2) | ±7.5 | 5 MHz DFT-s-OFDM NR signal, 15 kHz SCS, 25 RBs |
|  | EISminSENS + x dB(NOTE 3, NOTE 4) | Wide Area BS: -43 - ΔminSENSMedium Range BS: -38 - ΔminSENSLocal Area BS: -35 - ΔminSENS(NOTE 3) |  |  |
| 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100 | EISREFSENS + x dB(NOTE 2, NOTE 4) | Wide Area BS: -43 - ΔOTAREFSENSMedium Range BS: -38 - ΔOTAREFSENSLocal Area BS: -35 - ΔOTAREFSENS(NOTE 2) | ±30 | 20 MHz DFT-s-OFDM NR signal, 15 kHz SCS, 100 RBs |
|  | EISminSENS + x dB(NOTE 3, NOTE 4) | Wide Area BS: -43 - ΔminSENSMedium Range BS: -38 - ΔminSENSLocal Area BS: -35 - ΔminSENS(NOTE 3) |  |  |
| NOTE 1: EISREFSENS and EISminSENS depends on the *BS channel bandwidth* as specified in TS 38.104 [2], clause 10.3.2 and 10.2.1.NOTE 2: This test requirement is only applied in the OTA REFSENS conformance test directions.NOTE 3: This test requirement is only applied in the OTA minSENS receiver target reference direction.NOTE 4: For a BS capable of single band operation only, "x" is equal to 6 dB. For a BS capable of multi-band operation, "x" is equal to 6 dB in case of interfering signals that are in the in-band blocking frequency range of the operating band where the wanted signal is present or in the in-band blocking frequency range of an adjacent or overlapping operating band. For other in-band blocking frequency ranges of the interfering signal for the supported operating bands, "x" is equal to 1.4 dB. |

Table 7.5.2.5.2-2: OTA narrowband blocking requirement for *BS type 1-O*

|  |  |  |
| --- | --- | --- |
| *BS channel bandwidth* of the lowest/highest carrier received (MHz) | OTA Wanted signal mean power (dBm) | OTA Interfering signal mean power (dBm) |
|  | f ≤ 3.0 GHz | 3.0 GHz < f ≤ 4.2 GHz | 4.2 GHz < f ≤ 6.0 GHz |  |
| 5, 10, 15, 20 | EISREFSENS + 6 dB (NOTE 3) | Wide Area BS: -49 - ΔOTAREFSENSMedium Range BS: -44 - ΔOTAREFSENSLocal Area BS: -41 - ΔOTAREFSENS |
|  | EISminSENS + 6 dB (NOTE 4) | Wide Area BS: -49 - ΔminSENSMedium Range BS: -44 - ΔminSENSLocal Area BS: -41 - ΔminSENS |
| 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100 | EISREFSENS + 6 dB (NOTE 3) | Wide Area BS: -49 - ΔOTAREFSENSMedium Range BS: -44 - ΔOTAREFSENSLocal Area BS: -41 - ΔOTAREFSENS |
|  | EISminSENS + 6 dB (NOTE 4) | Wide Area BS: -49 - ΔminSENSMedium Range BS: -44 - ΔminSENSLocal Area BS: -41 - ΔminSENS |
| NOTE 1: The SCS for the lowest/highest carrier received is the lowest SCS supported by the BS for that bandwidth.NOTE 2: EISREFSENS and EISminSENS depends on the *BS channel bandwidth* as specified in TS 38.104 [2], clause 10.3.2 and 10.2.1.NOTE 3: This test requirement is only applied in the OTA REFSENS conformance test directions.NOTE 4: This test requirement is only applied in the OTA minSENS receiver target reference direction.NOTE 5: 7.5 kHz shift is not applied to the wanted signal. |

Table 7.5.2.5.2-3: OTA narrowband blocking interferer frequency offsets for *BS type 1-O*

|  |  |  |
| --- | --- | --- |
| *BS channel bandwidth* of the lowest/highest carrier received (MHz) | Interfering RB centre frequency offset to the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap (kHz)(Note 2) | Type of interfering signal |
| 5 | ±(350 + m\*180),m=0, 1, 2, 3, 4, 9, 14, 19, 24 | 5 MHz DFT-s-OFDM NR signal, 15 kHz SCS, 1 RB |
| 10 | ±(355 + m\*180),m=0, 1, 2, 3, 4, 9, 14, 19, 24 |  |
| 15 | ±(360 + m\*180),m=0, 1, 2, 3, 4, 9, 14, 19, 24 |  |
| 20 | ±(350 + m\*180),m=0, 1, 2, 3, 4, 9, 14, 19, 24 |  |
| 25 | ±(565 + m\*180),m=0, 1, 2, 3, 4, 29, 54, 79, 99 | 20 MHz DFT-s-OFDM NR signal, 15 kHz SCS, 1 RB |
| 30 | ±(570 + m\*180),m=0, 1, 2, 3, 4, 29, 54, 79, 99 |  |
| 35 | ±(560+m\*180),m=0, 1, 2, 3, 4, 29, 54, 79, 99 |  |
| 40 | ±(565 + m\*180),m=0, 1, 2, 3, 4, 29, 54, 79, 99 |  |
| 45 | ±(570+m\*180),m=0, 1, 2, 3, 4, 29, 54, 79, 99 |  |
| 50 | ±(560 + m\*180),m=0, 1, 2, 3, 4, 29, 54, 79, 99 |  |
| 60 | ±(570 + m\*180),m=0, 1, 2, 3, 4, 29, 54, 79, 99 |  |
| 70 | ±(565 + m\*180),m=0, 1, 2, 3, 4, 29, 54, 79, 99 |  |
| 80 | ±(560 + m\*180),m=0, 1, 2, 3, 4, 29, 54, 79, 99 |  |
| 90 | ±(570 + m\*180),m=0, 1, 2, 3, 4, 29, 54, 79, 99 |  |
| 100 | ±(565 + m\*180),m=0, 1, 2, 3, 4, 29, 54, 79, 99 |  |
| NOTE 1: Interfering signal consisting of one resource block is positioned at the stated offset, the channel bandwidthof the interfering signal is located adjacently to the lower/upper Base Station RF Bandwidth edge.NOTE 2: The centre of the interfering RB refers to the frequency location between the two central subcarriers. |

*<End of the change>*

*<Start of the change>*

### 7.7.5 Test requirement

#### 7.7.5.1 Test requirement for *BS type 1-O*

For RX only *multi-band RIB*, the OTA receiver spurious emissions requirements are subject to exclusion zones in each supported *operating band*.

The power of any spurious emission shall not exceed the levels in table 7.7.5.1-1:

Table 7.7.5.1-1: General OTA BS receiver spurious emission limits for *BS type 1-O*

| Spurious frequency range | Test limits(Note 6, Note 8) | Measurement bandwidth | Notes |
| --- | --- | --- | --- |
| 30 MHz – 1 GHz | -36 + X dBm | 100 kHz | Note 1, Note 6 |
| 1 GHz – 6 GHz | -30 + X dBm | 1 MHz | Note 1, Note 2, Note 6 |
| 12.75 GHz – 5th harmonic of the upper frequency edge of the UL *operating band* in GHz | -30 + X dBm | 1 MHz | Note 1, Note 2, Note 3, Note 6 |
| 12.75 GHz - 26 GHz | -30 + X dBm | 1 MHz | Note 1, Note 2, Note 3, Note 6, Note 9 |
| NOTE 1: Measurement bandwidths as in ITU-R SM.329 [5], s4.1.NOTE 2: Upper frequency as in ITU-R SM.329 [5], s2.5 table 1.NOTE 3: This spurious frequency range applies only for *operating bands* for which the 5th harmonic of the upper frequency edge of the UL *operating band* is reaching beyond 12.75 GHz.NOTE 4: The frequency range from ΔfOBUE below the lowest frequency of the BS transmitter operating band to ΔfOBUE above the highest frequency of the BS transmitter *operating band* may be excluded from the requirement. ΔfOBUE is defined in clause 6.7.1. For *multi-band* *RIBs*, the exclusion applies for all supported *operating bands*.NOTE 5: VoidNOTE 6: X = 9 dB, unless stated differently in regional regulation.NOTE 7: VoidNOTE 8: Additional limits may apply regionally.NOTE 9: Applies only for band n104. |

*<End of the change>*

*<Start of the change>*

### 7.8.5 Test requirement

#### 7.8.5.1 *BS type 1-O*

The requirement shall apply at the RIB when the AoA of the incident wave of a received signal and the interfering signal are from the same direction, and:

- when the wanted signal is based on EISREFSENS: the AoA of the incident wave of a received signal and the interfering signal are within the *FR1 OTA REFSENS RoAoA.*

- when the wanted signal is based on EISminSENS: the AoA of the incident wave of a received signal and the interfering signal are within the *minSENS RoAoA*.

The throughputshall be ≥ 95% of the maximum throughput of the reference measurement channel, with a wanted signal at the assigned channel frequency and two interfering signals at the RIB with the conditions specified in tables 7.8.5.1-1 and 7.8.5.1-2 for intermodulation performance and in tables 7.8.5.1-3 and 7.8.5.1-4 for narrowband intermodulation performance. Narrowband intermodulation requirements shall not be applied for band n104.

The reference measurement channel for the wanted signal is identified in table 7.3.5.2-1, table 7.3.5.2-2 and table 7.3.5.2-3 for each *BS channel bandwidth* and further specified in annex A.1.

The subcarrier spacing for the modulated interfering signal shall be the same as the subcarrier spacing for the wanted signal, except for the case of wanted signal subcarrier spacing 60 kHz and *BS channel bandwidth* ≤ 20 MHz, for which the subcarrier spacing of the interfering signal should be 30 kHz.

The receiver intermodulation requirement is applicable outside the Base Station RF Bandwidth or Radio Bandwidth edges. The interfering signal offset is defined relative to the Base Station RF Bandwidth edges or Radio Bandwidth edges.

For a RIBs supporting operation in non-contiguous spectrum within any *operating band*, the narrowband intermodulation requirement shall apply in addition inside any sub-block gap in case the sub-block gap is at least as wide as the *BS channel bandwidth* of the NR interfering signal in tables 7.8.5.1-2 and 7.8.5.1-4. The interfering signal offset is defined relative to the sub-block edges inside the sub-block gap.

For *multi-band RIBs*, the intermodulation requirement shall apply in addition inside any Inter RF Bandwidth gap, in case the gap size is at least twice as wide as the NR interfering signal centre frequency offset from the Base Station RF Bandwidth edge.

For *multi-band RIBs*, the narrowband intermodulation requirement shall apply in addition inside any Inter RF Bandwidth gap in case the gap size is at least as wide as the NR interfering signal in tables 7.8.5.1-2 and 7.8.5.1-4. The interfering signal offset is defined relative to the Base Station RF Bandwidth edges inside the Inter RF Bandwidth gap.

Table 7.8.5.1-1: General intermodulation requirement

|  |  |  |  |
| --- | --- | --- | --- |
| BS class | Wanted Signal mean power (dBm) | Mean power of interfering signals (dBm) | Type of interfering signal |
| Wide Area BS | EISREFSENS + 6 dB | -52 - ΔOTAREFSENS | See table 7.8.5.1-2 |
|  | EISminSENS + 6 dB | -52 - ΔminSENS |  |
| Medium Range BS | EISREFSENS + 6 dB | -47 - ΔOTAREFSENS |  |
|  | EISminSENS + 6 dB | -47 - ΔminSENS |  |
| Local Area BS | EISREFSENS + 6 dB | -44 - ΔOTAREFSENS |  |
|  | EISminSENS + 6 dB | -44 - ΔminSENS |  |
| NOTE: EISREFSENS and EISminSENS depend on the BS class and on the *BS channel bandwidth* as specified in TS 38.104 [2], clause 10.3.2 and 10.2.1.  |

*<End of the change>*

*<Start of the change>*

#### 7.9.5.1 *BS type 1-O*

The requirement shall apply at the RIBwhen the AoA of the incident wave of the received signal and the interfering signal are the same direction and are within the *minSENS RoAoA*

The wanted and interfering signals applies to each supported polarization, under the assumption of *polarization match.*

For a wanted and an interfering signal coupled to the RIB, the following requirements shall be met:

- For *BS type 1-O*, the throughput shall be ≥ 95% of the maximum throughput of the reference measurement channel as specified in annex A.1 with parameters specified in tables 7.9.5.1-1 and 7.9.5.1-1a for Wide Area BS, in tables 7.9.5.1-2 and 7.9.5.1-2a for Medium Range BS and in tables 7.9.5.1-3 and 7.9.5.1-3a for Local Area BS.

Table 7.9.5.1-1: Wide Area BS in-channel selectivity for f ≤ 6.0 GHz

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BS channel bandwidth | Subcarrier spacing | Reference measurement | Wanted signal mean power (dBm) | Interfering signal mean | Type of interfering |
| (MHz) | (kHz) | channel(annex A.1) | f ≤ 3.0 GHz | 3.0 GHz < f ≤ 4.2 GHz | 4.2 GHz < f ≤ 6.0 GHz | power (dBm) | signal |
| 5 | 15 | G-FR1-A1-7 | -98.9-ΔminSENS | -98.5-ΔminSENS | -98.2-ΔminSENS | -81.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 10 RBs |
| 10, 15, 20, 25, 30, 35 | 15 | G-FR1-A1-1 | -97-ΔminSENS  | -96.6-ΔminSENS  | -96.3-ΔminSENS  | -77.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 25 RBs |
| 40, 45, 50 | 15 | G-FR1-A1-4 | -90.6-ΔminSENS  | -90.2-ΔminSENS  | -89.9-ΔminSENS  | -71.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 100 RBs |
| 5 | 30 | G-FR1-A1-8 | -99.6-ΔminSENS | -99.2-ΔminSENS | -98.9-ΔminSENS | -81.4 - ΔminSENS | DFT-s-OFDM NR signal, 30 kHz SCS, 5 RBs |
| 10, 15, 20, 25, 30, 35 | 30 | G-FR1-A1-2 | -97.1-ΔminSENS  | -96.7-ΔminSENS  | -96.4-ΔminSENS  | -78.4 - ΔminSENS | DFT-s-OFDM NR signal, 30 kHz SCS, 10 RBs |
| 40, 45, 50, 60, 70, 80, 90, 100 | 30 | G-FR1-A1-5 | -90.9-ΔminSENS  | -90.5-ΔminSENS  | -90.2-ΔminSENS  | -71.4 - ΔminSENS | DFT-s-OFDM NR signal, 30 kHz SCS, 50 RBs |
| 10, 15, 20, 25, 30, 35 | 60 | G-FR1-A1-9 | -96.5-ΔminSENS  | -96.1-ΔminSENS  | -95.8-ΔminSENS  | -78.4 - ΔminSENS | DFT-s-OFDM NR signal, 60 kHz SCS, 5 RBs |
| 40, 45, 50, 60, 70, 80, 90, 100 | 60 | G-FR1-A1-6 | -91-ΔminSENS | -90.6-ΔminSENS | -90.3-ΔminSENS | -71.6 - ΔminSENS | DFT-s-OFDM NR signal, 60 kHz SCS, 24 RBs |
| NOTE: Wanted and interfering signal are placed adjacently around Fc, where the Fc is defined for *BS channel bandwidth* of the wanted signal according to the table 5.4.2.2-1 in TS 38.104 [2]. The aggregated wanted and interferer signal shall be centred in the BS channel bandwidth of the wanted signal.  |

Table 7.9.5.1-1a: Wide Area BS in-channel selectivity for 6.0 < f ≤ 7.125 GHz

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BS channel bandwidth(MHz) | Subcarrier spacing(kHz) | Reference measurementchannel(annex A.1) | Wanted signal mean power (dBm) | Interfering signal meanpower (dBm) | Type of interferingsignal |
| 20, 30 | 15 | G-FR1-A1-1 | -94.9 -ΔminSENS | -76.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 25 RBs |
| 40, 50 | 15 | G-FR1-A1-4 | -88.5 -ΔminSENS | -70.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 100 RBs |
| 20, 30 | 30 | G-FR1-A1-2 | -95.0 -ΔminSENS | -77.4 - ΔminSENS | DFT-s-OFDM NR signal, 30 kHz SCS, 10 RBs |
| 40, 50, 60, 70, 80, 90, 100 | 30 | G-FR1-A1-5 | -88.8 -ΔminSENS | -70.4 - ΔminSENS | DFT-s-OFDM NR signal, 30 kHz SCS, 50 RBs |
| 20, 30 | 60 | G-FR1-A1-9 | -94.4 -ΔminSENS | -77.4 - ΔminSENS | DFT-s-OFDM NR signal, 60 kHz SCS, 5 RBs |
| 40, 50, 60, 70, 80, 90, 100 | 60 | G-FR1-A1-6 | -88.9 -ΔminSENS | -70.6 - ΔminSENS | DFT-s-OFDM NR signal, 60 kHz SCS, 24 RBs |

Table 7.9.5.1-2: Medium Range BS in-channel selectivity for f ≤ 6.0 GHz

| BS channel bandwidth | Subcarrier spacing | Reference measurement | Wanted signal mean power (dBm) | Interfering signal mean | Type of interfering |
| --- | --- | --- | --- | --- | --- |
| (MHz) | (kHz) | channel(annex A.1) | f ≤ 3.0 GHz | 3.0 GHz < f ≤ 4.2 GHz | 4.2 GHz < f ≤ 6.0 GHz | power (dBm) | signal |
| 5 | 15 | G-FR1-A1-7 | -93.9-ΔminSENS  | -93.5-ΔminSENS  | -93.2-ΔminSENS  | -76.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 10 RBs |
| 10, 15, 20, 25, 30, 35 | 15 | G-FR1-A1-1 | -92-ΔminSENS  | -91.6-ΔminSENS  | -91.3-ΔminSENS  | -72.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 25 RBs |
| 40, 45, 50 | 15 | G-FR1-A1-4 | -85.6-ΔminSENS  | -85.2-ΔminSENS  | -84.9-ΔminSENS  | -66.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 100 RBs |
| 5 | 30 | G-FR1-A1-8 | -94.6-ΔminSENS  | -94.2-ΔminSENS  | -93.9-ΔminSENS  | -76.4 - ΔminSENS | DFT-s-OFDM NR signal, 30 kHz SCS, 5 RBs |
| 10, 15, 20, 25, 30, 35 | 30 | G-FR1-A1-2 | -92.1-ΔminSENS  | -91.7-ΔminSENS  | -91.4-ΔminSENS  | -73.4 - ΔminSENS | DFT-s-OFDM NR signal, 30 kHz SCS, 10 RBs |
| 40, 45, 50, 60, 70, 80, 90, 100 | 30 | G-FR1-A1-5 | -85.9-ΔminSENS  | -85.5-ΔminSENS  | -85.2-ΔminSENS  | -66.4 - ΔminSENS | DFT-s-OFDM NR signal, 30 kHz SCS, 50 RBs |
| 10, 15, 20, 25, 30, 35 | 60 | G-FR1-A1-9 | -91.5-ΔminSENS  | -91.1-ΔminSENS  | -90.8-ΔminSENS  | -73.4 - ΔminSENS | DFT-s-OFDM NR signal, 60 kHz SCS, 5 RBs |
| 40, 45, 50, 60, 70, 80, 90, 100 | 60 | G-FR1-A1-6 | -86-ΔminSENS  | -85.6-ΔminSENS  | -85.3-ΔminSENS  | -66.6 - ΔminSENS | DFT-s-OFDM NR signal, 60 kHz SCS, 24 RBs |
| NOTE: Wanted and interfering signal are placed adjacently around Fc, where the Fc is defined for *BS channel bandwidth* of the wanted signal according to the table 5.4.2.2-1 in TS 38.104 [2]. The aggregated wanted and interferer signal shall be centred in the BS channel bandwidth of the wanted signal. |

Table 7.9.5.1-2a: Medium Range BS in-channel selectivity for 6.0 < f ≤ 7.125 GHz

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BS channel bandwidth(MHz) | Subcarrier spacing(kHz) | Reference measurementchannel(annex A.1) | Wanted signal mean power (dBm) | Interfering signal meanpower (dBm) | Type of interferingsignal |
| 20, 30 | 15 | G-FR1-A1-1 | -89.9 -ΔminSENS | -71.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 25 RBs |
| 40, 50 | 15 | G-FR1-A1-4 | -83.5 -ΔminSENS | -65.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 100 RBs |
| 20, 30 | 30 | G-FR1-A1-2 | -90.0 -ΔminSENS | -72.4 - ΔminSENS | DFT-s-OFDM NR signal, 30 kHz SCS, 10 RBs |
| 40, 50, 60, 70, 80, 90, 100 | 30 | G-FR1-A1-5 | -83.8 -ΔminSENS | -65.4 - ΔminSENS | DFT-s-OFDM NR signal, 30 kHz SCS, 50 RBs |
| 20, 30 | 60 | G-FR1-A1-9 | -89.4 -ΔminSENS | -72.4 - ΔminSENS | DFT-s-OFDM NR signal, 60 kHz SCS, 5 RBs |
| 40, 50, 60, 70, 80, 90, 100 | 60 | G-FR1-A1-6 | -83.9 -ΔminSENS | -65.6 - ΔminSENS | DFT-s-OFDM NR signal, 60 kHz SCS, 24 RBs |

Table 7.9.5.1-3: Local area BS in-channel selectivity for f ≤ 6.0 GHz

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BS channel bandwidth | Subcarrier spacing | Reference measurement | Wanted signal mean power (dBm) | Interfering signal mean | Type of interfering |
| (MHz) | (kHz) | channel(annex A.1) | f ≤ 3.0 GHz | 3.0 GHz < f ≤ 4.2 GHz | 4.2 GHz < f ≤ 6.0 GHz | power (dBm) | signal |
| 5 | 15 | G-FR1-A1-7 | -90.9-ΔminSENS  | -90.5-ΔminSENS  | -90.2-ΔminSENS  | -73.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 10 RBs |
| 10, 15, 20, 25, 30, 35 | 15 | G-FR1-A1-1 | -89-ΔminSENS  | -88.6-ΔminSENS  | -88.3-ΔminSENS  | -69.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 25 RBs |
| 40, 45, 50 | 15 | G-FR1-A1-4 | -82.6-ΔminSENS  | -82.2-ΔminSENS  | -81.9-ΔminSENS  | -63.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 100 RBs |
| 5 | 30 | G-FR1-A1-8 | -91.6-ΔminSENS  | -91.2-ΔminSENS  | -90.9-ΔminSENS  | -73.4 - ΔminSENS | DFT-s- NR signal, 30 kHz SCS, 5 RBs |
| 10, 15, 20, 25, 30, 35 | 30 | G-FR1-A1-2 | -89.1-ΔminSENS  | -88.7-ΔminSENS  | -88.4-ΔminSENS  | -70.4 - ΔminSENS | DFT-s-OFDM NR signal, 30 kHz SCS, 10 RBs |
| 40, 45, 50, 60, 70, 80, 90, 100 | 30 | G-FR1-A1-5 | -82.9-ΔminSENS  | -82.5-ΔminSENS  | -82.2-ΔminSENS  | -63.4 - ΔminSENS | DFT-s-OFDM NR signal, 30 kHz SCS, 50 RBs |
| 10, 15, 20, 25, 30, 35 | 60 | G-FR1-A1-9 | -88.5-ΔminSENS  | -88.1-ΔminSENS  | -87.8-ΔminSENS  | -70.4 - ΔminSENS | DFT-s-OFDM NR signal, 60 kHz SCS, 5 RBs |
| 40, 45, 50, 60, 70, 80, 90, 100 | 60 | G-FR1-A1-6 | -83-ΔminSENS  | -82.6-ΔminSENS  | -82.3-ΔminSENS  | -63.6 - ΔminSENS | DFT-s-OFDM NR signal, 60 kHz SCS, 24 RBs |
| NOTE: Wanted and interfering signal are placed adjacently around Fc, where the Fc is defined for *BS channel bandwidth* of the wanted signal according to the table 5.4.2.2-1 in TS 38.104 [2]. The aggregated wanted and interferer signal shall be centred in the BS channel bandwidth of the wanted signal. |

Table 7.9.5.1-3a: Local area BS in-channel selectivity for 6.0 < f ≤ 7.125 GHz

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BS channel bandwidth(MHz) | Subcarrier spacing(kHz) | Reference measurementchannel(annex A.1) | Wanted signal mean power (dBm) | Interfering signal meanpower (dBm) | Type of interferingsignal |
| 20, 30 | 15 | G-FR1-A1-1 | -86.9 -ΔminSENS | -68.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 25 RBs |
| 40, 50 | 15 | G-FR1-A1-4 | -80.5 -ΔminSENS | -62.4 - ΔminSENS | DFT-s-OFDM NR signal, 15 kHz SCS, 100 RBs |
| 20, 30 | 30 | G-FR1-A1-2 | -87.0 -ΔminSENS | -69.4 - ΔminSENS | DFT-s-OFDM NR signal, 30 kHz SCS, 10 RBs |
| 40, 50, 60, 70, 80, 90, 100 | 30 | G-FR1-A1-5 | -80.8 -ΔminSENS | -62.4 - ΔminSENS | DFT-s-OFDM NR signal, 30 kHz SCS, 50 RBs |
| 20, 30 | 60 | G-FR1-A1-9 | -86.4 -ΔminSENS | -69.4 - ΔminSENS | DFT-s-OFDM NR signal, 60 kHz SCS, 5 RBs |
| 40, 50, 60, 70, 80, 90, 100 | 60 | G-FR1-A1-6 | -80.9 -ΔminSENS | -62.6 - ΔminSENS | DFT-s-OFDM NR signal, 60 kHz SCS, 24 RBs |

*<End of the change>*