**3GPP TSG-RAN WG4 Meeting #96-e *R4-2011805***

**Electronic meeting, 17-28 Aug, 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **36.104** | **CR** | **4903** | **rev** | **1** | **Current version:** | **16.6.0** |  |
|  |
| *For* [***HELP***](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:***  | Introduction of 1880-1920MHz SUL band into Rel-16 TS 36.104 |
|  |  |
| ***Source to WG:*** |  CMCC, Huawei, HiSilicon |
| ***Source to TSG:*** |  R4 |
|  |  |
| ***Work item code:*** | NR\_SUL\_band\_1880\_1920MHz |  | ***Date:*** | 2020-08-21 |
|  |  |  |  |  |
| ***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-12 (Release 12)Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | Introduction of 1880-1920MHz SUL (supplemental uplink) band for NR |
|  |  |
| ***Summary of change:*** | Introduction of SUL band n98 (1880-1920MHz) |
|  |  |
| ***Consequences if not approved:*** | 1880-1920MHz SUL (supplemental uplink) band is missing. |
|  |  |
| ***Clauses affected:*** | 6.6.4.3, 6.6.4.4 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Rev of [R4-200963](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2009634.zip)5 |

## **<Start of Changes>**

#### 6.6.4.3 Additional spurious emissions requirements

These requirements may be applied for the protection of system operating in frequency ranges other than the E-UTRA BS downlink operating band. The limits may apply as an optional protection of such systems that are deployed in the same geographical area as the E-UTRA BS, or they may be set by local or regional regulation as a mandatory requirement for an E-UTRA operating band. It is in some cases not stated in the present document whether a requirement is mandatory or under what exact circumstances that a limit applies, since this is set by local or regional regulation. An overview of regional requirements in the present document is given in clause 4.3.

Some requirements may apply for the protection of specific equipment (UE, MS and/or BS) or equipment operating in specific systems (GSM, CDMA, UTRA, E-UTRA, NR, etc.) as listed below.

##### 6.6.4.3.1 Minimum Requirement

The power of any spurious emission shall not exceed the limits of Table 6.6.4.3.1-1 for a BS where requirements for co-existence with the system listed in the first column apply. For BS capable of multi-band operation, the exclusions and conditions in the Note column of Table 6.6.4.3.1-1 apply for each supported operating band. For BS capable of multi-band operation where multiple bands are mapped on separate antenna connectors, the exclusions and conditions in the Note column of Table 6.6.4.3.1-1 apply for the operating band supported at that antenna connector.

Table 6.6.4.3.1-1: BS Spurious emissions limits for E-UTRA BS for co-existence with systems operating in other frequency bands

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| System type for E-UTRA to co-exist with | Frequency range for co-existence requirement | Maximum Level | Measurement Bandwidth | Note |
| GSM900 | 921 ‑ 960 MHz | -57 dBm | 100 kHz | This requirement does not apply to E-UTRA BS operating in band 8 |
| 876 - 915 MHz | -61 dBm | 100 kHz | For the frequency range 880-915 MHz, this requirement does not apply to E-UTRA BS operating in band 8, since it is already covered by the requirement in clause 6.6.4.2. |
| DCS1800 | 1805 ‑ 1880 MHz | -47 dBm | 100 kHz | This requirement does not apply to E-UTRA BS operating in band 3.  |
| 1710 - 1785 MHz | -61 dBm | 100 kHz | This requirement does not apply to E-UTRA BS operating in band 3, since it is already covered by the requirement in clause 6.6.4.2. |
| PCS1900 | 1930 ‑ 1990 MHz | -47 dBm | 100 kHz | This requirement does not apply to E-UTRA BS operating in band 2, band 25, band 36 or band 70.  |
| 1850 ‑ 1910 MHz | -61 dBm | 100 kHz | This requirement does not apply to E-UTRA BS operating in band 2 or 25, since it is already covered by the requirement in clause 6.6.4.2. This requirement does not apply to E-UTRA BS operating in band 35. |
| GSM850 or CDMA850 | 869 - 894 MHz | -57 dBm | 100 kHz | This requirement does not apply to E-UTRA BS operating in band 5 or 26. This requirement applies to E-UTRA BS operating in Band 27 for the frequency range 879-894 MHz. |
| 824 ‑ 849 MHz | -61 dBm | 100 kHz | This requirement does not apply to E-UTRA BS operating in band 5 or 26, since it is already covered by the requirement in clause 6.6.4.2. For E‑UTRA BS operating in Band 27, it applies 3 MHz below the Band 27 downlink operating band. |
| UTRA FDD Band I orE-UTRA Band 1 or NR Band n1 | 2110 - 2170 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 1 or 65 |
| 1920 - 1980 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 1 or 65, since it is already covered by the requirement in clause 6.6.4.2. |
| UTRA FDD Band II orE-UTRA Band 2 or NR Band n2 | 1930 - 1990 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 2, 25 or 70.  |
| 1850 - 1910 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 2 or 25, since it is already covered by the requirement in clause 6.6.4.2 |
| UTRA FDD Band III orE-UTRA Band 3 or NR Band n3 | 1805 - 1880 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 3 or 9. |
| 1710 - 1785 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 3, since it is already covered by the requirement in clause 6.6.4.2.For E-UTRA BS operating in band 9, it applies for 1710 MHz to 1749.9 MHz and 1784.9 MHz to 1785 MHz, while the rest is covered in clause 6.6.4.2. |
| UTRA FDD Band IV orE-UTRA Band 4 | 2110 - 2155 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 4, 10 or 66 |
| 1710 - 1755 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 4, 10 or 66, since it is already covered by the requirement in clause 6.6.4.2. |
| UTRA FDD Band V orE-UTRA Band 5 or NR Band n5 | 869 - 894 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 5 or 26. This requirement applies to E-UTRA BS operating in Band 27 for the frequency range 879-894 MHz. |
| 824 - 849 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 5 or 26, since it is already covered by the requirement in clause 6.6.4.2. For E‑UTRA BS operating in Band 27, it applies 3 MHz below the Band 27 downlink operating band. |
| UTRA FDD Band VI, XIX orE-UTRA Band 6, 18, 19 | 860 - 890 MHz  | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 6, 18, 19. |
| 815 - 830 MHz  | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 18, since it is already covered by the requirement in clause 6.6.4.2. |
| 830 - 845 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 6, 19, since it is already covered by the requirement in clause 6.6.4.2. |
| UTRA FDD Band VII orE-UTRA Band 7 or NR Band n7 | 2620 - 2690 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 7. |
| 2500 - 2570 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 7, since it is already covered by the requirement in clause 6.6.4.2. |
| UTRA FDD Band VIII orE-UTRA Band 8 or NR Band n8 | 925 - 960 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 8. |
| 880 - 915 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 8, since it is already covered by the requirement in clause 6.6.4.2. |
| UTRA FDD Band IX orE-UTRA Band 9 | 1844.9 - 1879.9 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 3 or 9. |
| 1749.9 - 1784.9 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 3 or 9, since it is already covered by the requirement in clause 6.6.4.2. |
| UTRA FDD Band X orE-UTRA Band 10 | 2110 - 2170 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 4, 10 or 66 |
| 1710 - 1770 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 10 or 66, since it is already covered by the requirement in clause 6.6.4.2. For E-UTRA BS operating in Band 4, it applies for 1755 MHz to 1770 MHz, while the rest is covered in clause 6.6.4.2. |
| UTRA FDD Band XI or XXI orE-UTRA Band 11 or 21 | 1475.9 - 1510.9 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 11, 21, 32, 50, 74 or 75. |
| 1427.9 - 1447.9 MHz  | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 11 or 74, since it is already covered by the requirement in clause 6.6.4.2. This requirement does not apply to BS operating in band 32, 50, 51, 75 or 76. |
| 1447.9 - 1462.9 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 21 or 74, since it is already covered by the requirement in clause 6.6.4.2. This requirement does not apply to BS operating in band 32, 50 or 75. |
| UTRA FDD Band XII orE-UTRA Band 12 or NR Band n12 | 729 - 746 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 12 or 85. |
| 699 - 716 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 12 or 85, since it is already covered by the requirement in clause 6.6.4.2. For E‑UTRA BS operating in Band 29, it applies 1 MHz below the Band 29 downlink operating band (Note 6). |
| UTRA FDD Band XIII orE-UTRA Band 13 | 746 - 756 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 13. |
| 777 - 787 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 13, since it is already covered by the requirement in clause 6.6.4.2. |
| UTRA FDD Band XIV orE-UTRA Band 14 or NR Band n14 | 758 - 768 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 14. |
| 788 - 798 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 14, since it is already covered by the requirement in clause 6.6.4.2. |
|  E-UTRA Band 17 | 734 - 746 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 17. |
| 704 - 716 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 17, since it is already covered by the requirement in clause 6.6.4.2. For E‑UTRA BS operating in Band 29, it applies 1 MHz below the Band 29 downlink operating band (Note 6). |
| UTRA FDD Band XX or E-UTRA Band 20 or NR Band n20 | 791 - 821 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 20 or 28. |
| 832 - 862 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 20, since it is already covered by the requirement in clause 6.6.4.2. |
| UTRA FDD Band XXII or E-UTRA Band 22 | 3510 – 3590 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 22, 42, 48 or 49. |
| 3410 – 3490 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 22, since it is already covered by the requirement in clause 6.6.4.2. This requirement does not apply to E-UTRA BS operating in Band 42 |
| E-UTRA Band 24 | 1525 – 1559 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 24. |
| 1626.5 – 1660.5 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 24, since it is already covered by the requirement in clause 6.6.4.2. |
| UTRA FDD Band XXV orE-UTRA Band 25 or NR Band n25 | 1930 – 1995 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 2, 25 or 70. |
| 1850 – 1915 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 25, since it is already covered by the requirement in clause 6.6.4.2. For E-UTRA BS operating in Band 2, it applies for 1910 MHz to 1915 MHz, while the rest is covered in clause 6.6.4.2 |
| TRA FDD Band XXVI orE-UTRA Band 26 or NR Band n26 | 859 – 894 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 5 or 26. This requirement applies to E-UTRA BS operating in Band 27 for the frequency range 879-894 MHz. |
| 814 – 849 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 26, since it is already covered by the requirement in clause 6.6.4.2. For E-UTRA BS operating in Band 5, it applies for 814 MHz to 824 MHz, while the rest is covered in clause 6.6.4.2. For E‑UTRA BS operating in Band 27, it applies 3 MHz below the Band 27 downlink operating band. |
| E-UTRA Band 27 | 852 – 869 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 5, 26 or 27. |
| 807 – 824 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 27, since it is already covered by the requirement in clause 6.6.4.2. For E-UTRA BS operating in Band 26, it applies for 807 MHz to 814 MHz, while the rest is covered in clause 6.6.4.2. This requirement also applies to E-UTRA BS operating in Band 28, starting 4 MHz above the Band 28 downlink operating band (Note 5). |
| E-UTRA Band 28 or NR Band n28 | 758 - 803 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 20, 28, 44, 67 or 68. |
| 703 - 748 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 28, since it is already covered by the requirement in clause 6.6.4.2. This requirement does not apply to E-UTRA BS operating in Band 44. For E-UTRA BS operating in Band 67, it applies for 703 MHz to 736 MHz. For E-UTRA BS operating in Band 68, it applies for 728MHz to 733MHz. |
| E-UTRA Band 29 or NR Band n29 | 717 – 728 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 29 or 85. |
| E-UTRA Band 30 or NR Band n30 | 2350 – 2360 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 30 or 40. |
| 2305 – 2315 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 30, since it is already covered by the requirement in clause 6.6.4.2. This requirement does not apply to E-UTRA BS operating in Band 40. |
| E-UTRA Band 31 | 462.5 -467.5 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 31, 72 or 73. |
| 452.5 -457.5 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 31, since it is already covered by the requirement in clause 6.6.4.2. This requirement does not apply to E-UTRA BS operating in band 72 or 73. |
| UTRA FDD band XXXII or E-UTRA band 32 | 1452 – 1496 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 11, 21, 32, 50, 74 or 75. |
| UTRA TDD Band a) or E-UTRA Band 33 | 1900 - 1920 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 33. |
| UTRA TDD Band a) or E-UTRA Band 34 or NR Band n34 | 2010 - 2025 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 34. |
| UTRA TDD Band b) or E-UTRA Band 35 | 1850 - 1910 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 35. |
| UTRA TDD Band b) or E-UTRA Band 36 | 1930 - 1990 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 2 and 36. |
| UTRA TDD Band c) or E-UTRA Band 37 | 1910 - 1930 MHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 37. This unpaired band is defined in ITU-R M.1036, but is pending any future deployment. |
| UTRA TDD Band d) or E-UTRA Band 38 or NR Band n38 | 2570 - 2620 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 38 or 69.  |
| UTRA TDD Band f) or E-UTRA Band 39 or NR Band n39 | 1880 - 1920MHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 39. |
| UTRA TDD Band e) or E-UTRA Band 40 or NR Band n40 | 2300 - 2400MHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 30 or 40. |
| E-UTRA Band 41 or NR Band n41 | 2496 - 2690 MHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 41 or 53. |
| E-UTRA Band 42 | 3400 - 3600 MHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 22, 42, 43, 48, 49 or 52. |
| E-UTRA Band 43 | 3600 - 3800 MHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 42, 43, 48 or 49. |
| E-UTRA Band 44 | 703 - 803 MHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 28 or 44. |
| E-UTRA Band 45 | 1447 - 1467 MHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 45. |
| E-UTRA Band 46 | 5150 - 5925 MHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 46. |
| E-UTRA Band 47 | 5855 - 5925 MHz | -52 dBm | 1 MHz |  |
| E-UTRA Band 48 or NR Band n48 | 3550 - 3700 MHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 22, 42, 43, 48 or 49. |
| E-UTRA Band 49 | 3550 - 3700 MHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 22, 42, 43, 48 or 49. |
| E-UTRA Band 50 | 1432 - 1517 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 11, 21, 32, 45, 50, 51, 74, 75 or 76. |
| E-UTRA Band 51 or NR Band n51 | 1427 - 1432 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 50, 51, 75 or 76. |
| E-UTRA Band 52 | 3300 - 3400 MHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 42 or 52. |
| E-UTRA Band 53 or NR Band n53 | 2483.5 - 2495 MHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 41 or 53. |
| E-UTRA Band 65 or NR Band n65 | 2110 - 2200 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 1 or 65,  |
| 1920 - 2010 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 65, since it is already covered by the requirement in clause 6.6.4.2.For E-UTRA BS operating in Band 1, it applies for 1980 MHz to 2010 MHz, while the rest is covered in clause 6.6.4.2. |
| E-UTRA Band 66 or NR Band n66 | 2110 - 2200 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 4, 10, 23 or 66. |
| 1710 - 1780 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 66, since it is already covered by the requirement in clause 6.6.4.2. For E-UTRA BS operating in Band 4, it applies for 1755 MHz to 1780 MHz, while the rest is covered in clause 6.6.4.2. For E-UTRA BS operating in Band 10, it applies for 1770 MHz to 1780 MHz, while the rest is covered in clause 6.6.4.2. |
| E-UTRA Band 67 | 738 – 758 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 28 or 67. |
| E-UTRA Band 68 | 753 -783 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 28, or 68. |
| 698-728 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 68, since it is already covered by the requirement in clause 6.6.4.2. For E-UTRA BS operating in Band 28, it applies between 698 MHz and 703 MHz, while the rest is covered in clause 6.6.4.2. |
| E-UTRA Band 69 | 2570 - 2620 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 38 or 69. |
| E-UTRA Band 70 or NR Band n70 | 1995 - 2020 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 2, 25 or 70 |
| 1695 – 1710 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 70, since it is already covered by the requirement in clause 6.6.4.2 |
| E-UTRA Band 71 or NR Band n71 | 617 - 652 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 71 |
| 663 – 698 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 71, since it is already covered by the requirement in clause 6.6.4.2 |
| E-UTRA Band 72 | 461 - 466 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 31, 72 or 73. |
| 451 - 456 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 72, since it is already covered by the requirement in clause 6.6.4.2. This requirement does not apply to E-UTRA BS operating in band 73. |
| E-UTRA Band 73 | 460 - 465 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 31, 72 or 73. |
| 450 - 455 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 73, since it is already covered by the requirement in clause 6.6.4.2. |
| E-UTRA Band 74 | 1475 – 1518 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 11, 21, 32, 50, 74 or 75. |
| 1427 – 1470 MHz | -49 dBm | 1MHz | This requirement does not apply to E-UTRA BS operating in Band 74, since it is already covered by the requirement in clause 6.6.4.2. This requirement does not apply to BS operating in band 32, 45, 50, 51, 75 or 76. |
| E-UTRA Band 75 or NR Band n75 | 1432 - 1517 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 11, 21, 32, 45, 50, 51, 74, 75 or 76. |
| E-UTRA Band 76 or NR Band n76 | 1427 - 1432 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 50, 51, 75 or 76. |
| NR Band n77 | 3.3 – 4.2 GHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 22, 42, 43, 48, 49 or 52. |
| NR Band n78 | 3.3 – 3.8 GHz | -52 dBm | 1 MHz | This is not applicable to E-UTRA BS operating in Band 22, 42, 43, 48, 49 or 52. |
| NR Band n79 | 4.4 – 5.0 GHz | -52 dBm | 1 MHz |  |
| NR Band n80 | 1710 – 1785 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 3, since it is already covered by the requirement in clause 6.6.4.2.For E-UTRA BS operating in band 9, it applies for 1710 MHz to 1749.9 MHz and 1784.9 MHz to 1785 MHz, while the rest is covered in clause 6.6.4.2. |
| NR Band n81 | 880 – 915 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 8, since it is already covered by the requirement in clause 6.6.4.2. |
| NR Band n82 | 832 – 862 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 20, since it is already covered by the requirement in clause 6.6.4.2. |
| NR Band n83 | 703 – 748 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 28, since it is already covered by the requirement in clause 6.6.4.2. This requirement does not apply to E-UTRA BS operating in Band 44. For E-UTRA BS operating in Band 67, it applies for 703 MHz to 736 MHz. For E-UTRA BS operating in Band 68, it applies for 728MHz to 733MHz. |
| NR Band n84 | 1920 – 1980 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 1 or 65, since it is already covered by the requirement in clause 6.6.4.2. |
| E-UTRA Band 85 | 728 - 746 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 12, 29 or 85.  |
| 698 - 716 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 85, since it is already covered by the requirement in clause 6.6.4.2. For E‑UTRA BS operating in Band 29, it applies 1 MHz below the Band 29 downlink operating band (Note 6). |
| NR Band n86 | 1710 - 1780 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 66, since it is already covered by the requirement in clause 6.6.4.2. For E-UTRA BS operating in Band 4, it applies for 1755 MHz to 1780 MHz, while the rest is covered in clause 6.6.4.2. For E-UTRA BS operating in Band 10, it applies for 1770 MHz to 1780 MHz, while the rest is covered in clause 6.6.4.2. |
| E-UTRA Band 87 | 420 - 425 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 87 or 88. |
| 410 – 415 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 87, since it is already covered by the requirement in clause 6.6.4.2 |
| E-UTRA Band 88 | 422 - 427 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 87 or 88. |
| 412 - 417 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 88, since it is already covered by the requirement in clause 6.6.4.2. This requirement does not apply to E-UTRA BS operating in band 87. |
| NR Band n89 | 824 - 849 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 5 or 26, since it is already covered by the requirement in clause 6.6.4.2. For E‑UTRA BS operating in Band 27, it applies 3 MHz below the Band 27 downlink operating band. |
| NR Band n91 | 1427 – 1432 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 50, 51, 75 or 76. |
| 832 – 862 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 20, since it is already covered by the requirement in clause 6.6.4.2. |
| NR Band n92 | 1432 – 1517 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 11, 21, 32, 45, 50, 51, 74, 75 or 76. |
| 832 – 862 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 20, since it is already covered by the requirement in clause 6.6.4.2. |
| NR Band n93 | 1427 – 1432 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 50, 51, 75 or 76. |
| 880 – 915 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 8, since it is already covered by the requirement in clause 6.6.4.2. |
| NR Band n94 | 1432 – 1517 MHz | -52 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in Band 11, 21, 32, 45, 50, 51, 74, 75 or 76. |
| 880 – 915 MHz | -49 dBm | 1 MHz | This requirement does not apply to E-UTRA BS operating in band 8, since it is already covered by the requirement in clause 6.6.4.2. |
| NR Band n95 | 2010 - 2025 MHz | -52 dBm | 1 MHz |  |
| NR Band n98 | 1880 - 1920MHz | -52 dBm | 1 MHz |  |
| NOTE 4: Void |

## **<Next Section>**

#### 6.6.4.4 Co-location with other base stations

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 an E-UTRA BS.

The requirements assume a 30 dB coupling loss between transmitter and receiver and are based on co-location with base stations of the same class.

##### 6.6.4.4.1 Minimum Requirement

The power of any spurious emission shall not exceed the limits of Table 6.6.4.4.1-1 for a Wide Area BS where requirements for co-location with a BS type listed in the first column apply. For BS capable of multi-band operation, the exclusions and conditions in the Note column of Table 6.6.4.4.1-1 apply for each supported operating band. For BS capable of multi-band operation where multiple bands are mapped on separate antenna connectors, the exclusions and conditions in the Note column of Table 6.6.4.4.1-1 apply for the operating band supported at that antenna connector.

Table 6.6.4.4.1-1: BS Spurious emissions limits for Wide Area BS co-located with another BS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type of co-located BS | Frequency range for co-location requirement | Maximum Level | Measurement Bandwidth | Note |
| Macro GSM900 | 876-915 MHz | -98 dBm | 100 kHz |  |
| Macro DCS1800 | 1710 - 1785 MHz | -98 dBm | 100 kHz |  |
| Macro PCS1900 | 1850 - 1910 MHz | -98 dBm | 100 kHz |  |
| Macro GSM850 or CDMA850 | 824 - 849 MHz | -98 dBm | 100 kHz |  |
| WA UTRA FDD Band I or E-UTRA Band 1 or NR Band n1 | 1920 - 1980 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band II or E-UTRA Band 2 or NR Band n2 | 1850 - 1910 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band III or E-UTRA Band 3 or NR Band n3 | 1710 - 1785 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band IV or E-UTRA Band 4 | 1710 - 1755 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band V or E-UTRA Band 5 or NR Band n5 | 824 - 849 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band VI, XIX or E-UTRA Band 6, 19 | 830 - 845 MHz  | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band VII or E-UTRA Band 7 or NR Band n7 | 2500 - 2570 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band VIII or E-UTRA Band 8 or NR Band n8 | 880 - 915 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band IX or E-UTRA Band 9 | 1749.9 - 1784.9 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band X or E-UTRA Band 10 | 1710 - 1770 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band XI or E-UTRA Band 11 | 1427.9 –1447.9 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 50 or 75 |
| WA UTRA FDD Band XII orE-UTRA Band 12 or NR Band n12 | 699 - 716 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band XIII orE-UTRA Band 13 | 777 - 787 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band XIV orE-UTRA Band 14 or NR Band n14 | 788 - 798 MHz | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 17 | 704 - 716 MHz | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 18 | 815 - 830 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band XX or E-UTRA Band 20 or NR Band n20 | 832 - 862 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band XXI or E-UTRA Band 21 | 1447.9 – 1462.9 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 32, 50 or 75 |
| WA UTRA FDD Band XXII or E-UTRA Band 22 | 3410 – 3490 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 42 |
| WA E-UTRA Band 23 | 2000 - 2020 MHz | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 24 | 1626.5 – 1660.5 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band XXV orE-UTRA Band 25 or NR Band n25 | 1850 – 1915 MHz | -96 dBm | 100 kHz |  |
| WA UTRA FDD Band XXVI orE-UTRA Band 26 or NR Band n26 | 814 – 849 MHz | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 27 | 807 - 824 MHz  | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 28 or NR Band n28 | 703 – 748 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 44 |
| WA E-UTRA Band 30 or NR Band n30 | 2305 – 2315 MHz  | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 40 |
| WA E-UTRA Band 31 | 452.5 -457.5 MHz | -96 dBm | 100 kHz |  |
| WA UTRA TDD Band a) or E-UTRA Band 33 | 1900 - 1920 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 33  |
| WA UTRA TDD Band a) or E-UTRA Band 34 or NR Band n34 | 2010 - 2025 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 34 |
| WA UTRA TDD Band b) or E-UTRA Band 35 | 1850 – 1910 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 35 |
| WA UTRA TDD Band b) or E-UTRA Band 36 | 1930 - 1990 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 2 and 36 |
| WA UTRA TDD Band c) or E-UTRA Band 37 | 1910 - 1930 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 37. This unpaired band is defined in ITU-R M.1036, but is pending any future deployment. |
| WA UTRA TDD Band d) or E-UTRA Band 38 or NR Band n38 | 2570 – 2620 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 38.  |
| WA UTRA TDD Band f) or E-UTRA Band 39 or NR Band n39 | 1880 – 1920MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 33 and 39 |
| WA UTRA TDD Band e) or E-UTRA Band 40 or NR Band n40 | 2300 – 2400MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 30 or 40 |
| WA E-UTRA Band 41 or NR Band n41 | 2496 – 2690 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 41 |
| WA E-UTRA Band 42 | 3400 – 3600 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 22, 42, 43, 48 or 52 |
| WA E-UTRA Band 43 | 3600 – 3800 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 42, 43 or 48 |
| WA E-UTRA Band 44 | 703 – 803 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 28 or 44 |
| WA E-UTRA Band 45 | 1447 – 1467 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 45 |
| WA E-UTRA Band 48 or NR Band n48 | 3550 – 3700 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 42, 43 or 48 |
| WA E-UTRA Band 50 | 1432 – 1517 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 11, 21, 32, 74 or 75 |
| WA E-UTRA Band 52 | 3300 – 3400 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 42 or 52 |
| WA E-UTRA Band 65 or NR Band n65 | 1920 - 2010 MHz | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 66 or NR Band n66 | 1710 - 1780 MHz | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 68 | 698 - 728 MHz | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 70 or NR Band n70 | 1695 - 1710 MHz | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 71 or NR Band n71 | 663 - 698 MHz | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 72 | 451 - 456 MHz | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 73 | 450 - 455 MHz | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 74 | 1427 – 1470 MHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 50 |
| WA NR Band n77 | 3.3 – 4.2 GHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 22, 42, 43, 48 or 52 |
| WA NR Band n78 | 3.3 – 3.8 GHz | -96 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 22, 42, 43, 48 or 52 |
| WA NR Band n79 | 4.4 – 5.0 GHz | -96 dBm | 100 kHz |  |
| WA NR Band n80 | 1710 – 1785 MHz | -96 dBm | 100 kHz |  |
| WA NR Band n81 | 880 – 915 MHz | -96 dBm | 100 kHz |  |
| WA NR Band n82 | 832 – 862 MHz | -96 dBm | 100 kHz |  |
| WA NR Band n83 | 703 – 748 MHz | -96 dBm | 100 kHz |  |
| WA NR Band n84 | 1920 – 1980 MHz | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 85 | 698 - 716 MHz | -96 dBm | 100 kHz |  |
| WA NR Band n86 | 1710 – 1780 MHz | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 87 | 410 - 415 MHz | -96 dBm | 100 kHz |  |
| WA E-UTRA Band 88 | 412 - 417 MHz | -96 dBm | 100 kHz |  |
| WA NR Band n89 | 824 – 849 MHz | -96 dBm | 100 kHz |  |
| WA NR Band n92 | 832 – 862 MHz | -96 dBm | 100 kHz |  |
| WA NR Band n94 | 880 – 915 MHz | -96 dBm | 100 kHz |  |
| WA NR Band n95 | 2010 - 2025 MHz | -96 dBm | 100 kHz |  |
| WA NR Band n98 | 1880 – 1920MHz | -96 dBm | 100 kHz |  |

The power of any spurious emission shall not exceed the limits of Table 6.6.4.4.1-2 for a Local Area BS where requirements for co-location with a BS type listed in the first column apply. For BS capable of multi-band operation, the exclusions and conditions in the Note column of Table 6.6.4.4.1-2 apply for each supported operating band. For BS capable of multi-band operation where multiple bands are mapped on separate antenna connectors, the exclusions and conditions in the Note column of Table 6.6.4.4.1-2 apply for the operating band supported at that antenna connector.

Table 6.6.4.4.1-2: BS Spurious emissions limits for Local Area BS co-located with another BS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type of co-located BS | Frequency range for co-location requirement | Maximum Level | Measurement Bandwidth | Note |
| Pico GSM900 | 876-915 MHz | -70 dBm | 100 kHz |  |
| Pico DCS1800 | 1710 - 1785 MHz | -80 dBm | 100 kHz |  |
| Pico PCS1900 | 1850 - 1910 MHz | -80 dBm | 100 kHz |  |
| Pico GSM850 | 824 - 849 MHz | -70 dBm | 100 kHz |  |
| LA UTRA FDD Band I or E-UTRA Band 1 or NR Band n1 | 1920 - 1980 MHz | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band II or E-UTRA Band 2 or NR Band n2 | 1850 - 1910 MHz | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band III or E-UTRA Band 3 or NR Band n3 | 1710 - 1785 MHz | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band IV or E-UTRA Band 4 | 1710 - 1755 MHz | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band V or E-UTRA Band 5 or NR Band n5 | 824 - 849 MHz | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band VI, XIX or E-UTRA Band 6, 19 | 830 - 845 MHz  | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band VII or E-UTRA Band 7 or NR Band n7 | 2500 - 2570 MHz | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band VIII or E-UTRA Band 8 or NR Band n8 | 880 - 915 MHz | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band IX or E-UTRA Band 9 | 1749.9 - 1784.9 MHz | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band X or E-UTRA Band 10 | 1710 - 1770 MHz | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band XI or E-UTRA Band 11 | 1427.9 - 1447.9 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 50, 51, 75 or 76 |
| LA UTRA FDD Band XII or E-UTRA Band 12 or NR Band n12 | 699 - 716 MHz | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band XIII or E-UTRA Band 13 | 777 - 787 MHz | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band XIV or E-UTRA Band 14 or NR Band n14 | 788 - 798 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 17 | 704 - 716 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 18 | 815 - 830 MHz | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band XX or E-UTRA Band 20 or NR Band n20 | 832 - 862 MHz | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band XXI or E-UTRA Band 21 | 1447.9 - 1462.9 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 32, 50 or 75 |
| LA UTRA FDD Band XXII or E-UTRA Band 22 | 3410 – 3490 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 42 |
| LA E-UTRA Band 23 | 2000 - 2020 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 24 | 1626.5 – 1660.5 MHz | -88 dBm | 100 kHz |  |
|  LA UTRA FDD Band XXV or E-UTRA Band 25 or NR Band n25 | 1850 – 1915 MHz | -88 dBm | 100 kHz |  |
| LA UTRA FDD Band XXVI orE-UTRA Band 26 or NR Band n26 | 814 – 849 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 27 | 807 - 824 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 28 or NR Band n28 | 703 – 748 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 44 |
| LA E-UTRA Band 30 or NR Band n30 | 2305 – 2315 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 40 |
| LA E-UTRA Band 31 | 452.5 – 457.5 MHz | -88 dBm | 100 kHz |  |
| LA UTRA TDD Band a) or E-UTRA Band 33 | 1900 - 1920 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 33  |
| LA UTRA TDD Band a) or E-UTRA Band 34 or NR Band n34 | 2010 - 2025 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 34 |
| LA UTRA TDD Band b) or E-UTRA Band 35 | 1850 – 1910 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 35 |
| LA UTRA TDD Band b) or E-UTRA Band 36 | 1930 - 1990 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 2 and 36 |
| LA UTRA TDD Band c) or E-UTRA Band 37 | 1910 - 1930 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 37. This unpaired band is defined in ITU-R M.1036, but is pending any future deployment. |
| LA UTRA TDD Band d) or E-UTRA Band 38 or NR Band n38 | 2570 – 2620 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 38.  |
| LA LUTRA TDD Band f) or E-UTRA Band 39 or NR Band n39 | 1880 – 1920MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 33 and 39 |
| LA UTRA TDD Band e) or E-UTRA Band 40 or NR Band n40 | 2300 – 2400MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 30 or 40 |
| LA E-UTRA Band 41 or NR Band n41 | 2496 – 2690 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 41 or 53 |
| LA E-UTRA Band 42 | 3400 – 3600 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 22, 42, 43, 48, 49 or 52 |
| LA E-UTRA Band 43 | 3600 – 3800 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 42, 43, 48 or 49 |
| LA E-UTRA Band 44 | 703 – 803 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 28 or 44 |
| LA E-UTRA Band 45 | 1447 – 1467 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 45 |
| LA E-UTRA Band 46 | 5150 – 5925 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 46 |
| LA E-UTRA Band 48 or NR Band n48 | 3550 – 3700 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 42, 43, 48 or 49 |
| LA E-UTRA Band 49 | 3550 – 3700 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 42, 43, 48 or 49 |
| LA E-UTRA Band 50 | 1432 – 1517 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 11, 21, 32, 51, 74, 75 or 76 |
| LA E-UTRA Band 51 or NR Band n51 | 1427 – 1432 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 50, 75 or 76 |
| LA E-UTRA Band 52 | 3300 – 3400 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 42 or 52 |
| LA E-UTRA Band 53 or NR Band n53 | 2483.5 – 2495 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 41 or 53 |
| LA E-UTRA Band 65 or NR Band n65 | 1920 - 2010 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 66 or NR Band n66 | 1710 - 1780 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 68 | 698 - 728 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 70 or NR Band n70 | 1695 - 1710 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 71 or NR Band n71 | 663 - 698 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 72 | 451 - 456 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 73 | 450 - 455 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 74 | 1427 – 1470 MHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 50 or 51 |
| LA NR Band n77 | 3.3 – 4.2 GHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 22, 42, 43, 48, 49 or 52 |
| LA NR Band n78 | 3.3 – 3.8 GHz | -88 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 22, 42, 43, 48, 49 or 52 |
| LA NR Band n79 | 4.4 – 5.0 GHz | -88 dBm | 100 kHz |  |
| LA NR Band n80 | 1710 – 1785 MHz | -88 dBm | 100 kHz |  |
| LA NR Band n81 | 880 – 915 MHz | -88 dBm | 100 kHz |  |
| LA NR Band n82 | 832 – 862 MHz | -88 dBm | 100 kHz |  |
| LA NR Band n83 | 703 – 748 MHz | -88 dBm | 100 kHz |  |
| LA NR Band n84 | 1920 – 1980 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 85 | 698 - 716 MHz | -88 dBm | 100 kHz |  |
| LA NR Band n86 | 1710 – 1780 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 87 | 410 - 415 MHz | -88 dBm | 100 kHz |  |
| LA E-UTRA Band 88 | 412 - 417 MHz | -88 dBm | 100 kHz |  |
| LA NR Band n89 | 824 – 849 MHz | -88 dBm | 100 kHz |  |
| LA NR Band n91 | 832 – 862 MHz | -88 dBm | 100 kHz |  |
| LA NR Band n92 | 832 – 862 MHz | -88 dBm | 100 kHz |  |
| LA NR Band n93 | 880 – 915 MHz | -88 dBm | 100 kHz |  |
| LA NR Band n94 | 880 – 915 MHz | -88 dBm | 100 kHz |  |
| LA NR Band n95 | 2010 - 2025 MHz | -88 dBm | 100 kHz |  |
| LA NR Band n98 | 1880 – 1920MHz | -88 dBm | 100 kHz |  |

The power of any spurious emission shall not exceed the limits of Table 6.6.4.4.1-3 for a Medium Range BS where requirements for co-location with a BS type listed in the first column apply. For BS capable of multi-band operation, the exclusions and conditions in the Note column of Table 6.6.4.4.1-3 apply for each supported operating band. For BS capable of multi-band operation where multiple bands are mapped on separate antenna connectors, the exclusions and conditions in the Note column of Table 6.6.4.4.1-3 apply for the operating band supported at that antenna connector.

Table 6.6.4.4.1-3: BS Spurious emissions limits for Medium range BS co-located with another BS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type of co-located BS | Frequency range for co-location requirement | Maximum Level | Measurement Bandwidth | Note |
| Micro/MR GSM900 | 876-915 MHz | -91 dBm | 100 kHz |  |
| Micro/MR DCS1800 | 1710 - 1785 MHz | -91 dBm | 100 kHz |  |
| Micro/MR PCS1900 | 1850 - 1910 MHz | -91 dBm | 100 kHz |  |
| Micro/MR GSM850 | 824 - 849 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band I or E-UTRA Band 1 or NR Band n1 | 1920 - 1980 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band II or E-UTRA Band 2 or NR Band n2 | 1850 - 1910 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band III or E-UTRA Band 3 or NR Band n3 | 1710 - 1785 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band IV or E-UTRA Band 4 | 1710 - 1755 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band V or E-UTRA Band 5 or NR Band n5 | 824 - 849 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band VI, XIX or E-UTRA Band 6, 19 | 830 - 850 MHz  | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band VII or E-UTRA Band 7 or NR Band n7 | 2500 - 2570 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band VIII or E-UTRA Band 8 or NR Band n8 | 880 - 915 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band IX or E-UTRA Band 9 | 1749.9 - 1784.9 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band X or E-UTRA Band 10 | 1710 - 1770 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band XI or E-UTRA Band 11 | 1427.9 - 1447.9 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 50 or 75 |
| MR UTRA FDD Band XII or E-UTRA Band 12 or NR Band n12 | 699 - 716 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band XIII or E-UTRA Band 13 | 777 - 787 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band XIV or E-UTRA Band 14 or NR Band n14 | 788 - 798 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 17 | 704 - 716 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 18 | 815 - 830 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band XX or E-UTRA Band 20 or NR Band n20 | 832 - 862 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band XXI or E-UTRA Band 21 | 1447.9 - 1462.9 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 32, 50 or 75 |
| MR UTRA FDD Band XXII or E-UTRA Band 22 | 3410 – 3490 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 42 |
| MR E-UTRA Band 23 | 2000 - 2020 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 24 | 1626.5 – 1660.5 MHz | -91 dBm | 100 kHz |  |
|  MR UTRA FDD Band XXV or E-UTRA Band 25 or NR Band n25 | 1850 – 1915 MHz | -91 dBm | 100 kHz |  |
| MR UTRA FDD Band XXVI orE-UTRA Band 26 or NR Band n26 | 814 – 849 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 27 | 807 - 824 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 28 or NR Band n28 | 703 – 748 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 44 |
| MR E-UTRA Band 30 or NR Band n30 | 2305 – 2315 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 40 |
| MR E-UTRA Band 31 | 452.5 – 457.5 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 33 | 1900 - 1920 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 33  |
| MR E-UTRA Band 34 or NR Band n34 | 2010 - 2025 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 34 |
| MR E-UTRA Band 35 | 1850 – 1910 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 35 |
| MR E-UTRA Band 36 | 1930 - 1990 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 2 and 36 |
| MR E-UTRA Band 37 | 1910 - 1930 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 37. This unpaired band is defined in ITU-R M.1036, but is pending any future deployment. |
| MR E-UTRA Band 38 or NR Band n38 | 2570 – 2620 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 38.  |
| MR E-UTRA Band 39 or NR Band n39 | 1880 – 1920MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 33 and 39 |
| MR E-UTRA Band 40 or NR Band n40 | 2300 – 2400MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 30 or 40 |
| MR E-UTRA Band 41 or NR Band n41 | 2496 – 2690 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 41 or 53 |
| MR E-UTRA Band 42 | 3400 – 3600 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 22, 42, 43, 48 or 52 |
| MR E-UTRA Band 43 | 3600 – 3800 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 42, 43 or 48 |
| MR E-UTRA Band 44 | 703 – 803 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 28 or 44 |
| MR E-UTRA Band 45 | 1447 – 1467 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 45 |
| MR E-UTRA Band 46 | 5150 – 5925 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 46 |
| MR E-UTRA Band 48 or NR Band n48 | 3550 – 3700 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 42, 43 or 48 |
| MR E-UTRA Band 50 | 1432 – 1517 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 11, 21, 32, 74 or 75 |
| MR E-UTRA Band 52 | 3300 – 3400 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 42 or 52 |
| MR E-UTRA Band 53 or NR Band n53 | 2483.5 – 2495 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 41 or 53 |
| MR E-UTRA Band 65 or NR Band n65 | 1920 - 2010 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 66 or NR Band n66 | 1710 - 1780 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 68 | 698 - 728 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 70 or NR Band n70 | 1695 - 1710 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 71 or NR Band n71 | 663 - 698 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 72 | 451 - 456 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 73 | 450 - 455 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 74 | 1427 – 1470 MHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 50 |
| MR NR Band n77 | 3.3 – 4.2 GHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 22, 42, 43, 48 or 52 |
| MR NR Band n78 | 3.3 – 3.8 GHz | -91 dBm | 100 kHz | This is not applicable to E-UTRA BS operating in Band 22, 42, 43, 48 or 52 |
| MR NR Band n79 | 4.4 – 5.0 GHz | -91 dBm | 100 kHz |  |
| MR NR Band n80 | 1710 – 1785 MHz | -91 dBm | 100 kHz |  |
| MR NR Band n81 | 880 – 915 MHz | -91 dBm | 100 kHz |  |
| MR NR Band n82 | 832 – 862 MHz | -91 dBm | 100 kHz |  |
| MR NR Band n83 | 703 – 748 MHz | -91 dBm | 100 kHz |  |
| MR NR Band n84 | 1920 – 1980 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 85 | 698 - 716 MHz | -91 dBm | 100 kHz |  |
| MR NR Band n86 | 1710 – 1780 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 87 | 410 - 415 MHz | -91 dBm | 100 kHz |  |
| MR E-UTRA Band 88 | 412 - 417 MHz | -91 dBm | 100 kHz |  |
| MR NR Band n89 | 824 – 849 MHz | -91 dBm | 100 kHz |  |
| MR NR Band n92 | 832 – 862 MHz | -91 dBm | 100 kHz |  |
| MR NR Band n94 | 880 – 915 MHz | -91 dBm | 100 kHz |  |
| MR NR Band n95 | 2010 - 2025 MHz | -91 dBm | 100 kHz |  |
| MR NR Band n98 | 1880 – 1920MHz | -91 dBm | 100 kHz |  |

NOTE 1: As defined in the scope for spurious emissions in this clause, the co-location requirements in Table 6.6.4.4.1-1 to Table 6.6.4.4.1-3 do not apply for the 10 MHz frequency range immediately outside the BS transmit frequency range of a downlink operating band (see Table 5.5-1). The current state-of-the-art technology does not allow a single generic solution for co-location with other system on adjacent frequencies for 30dB BS-BS minimum coupling loss. However, there are certain site-engineering solutions that can be used. These techniques are addressed in TR 25.942 [8].

NOTE 2: Table 6.6.4.4.1-1 to Table 6.6.4.4.1-3 assume that two operating bands, where the corresponding BS transmit and receive frequency ranges in Table 5.5-1 would be overlapping, are not deployed in the same geographical area. For such a case of operation with overlapping frequency arrangements in the same geographical area, special co-location requirements may apply that are not covered by the 3GPP specifications.

NOTE 3: Co-located TDD base stations that are synchronized and using the same or adjacent operating band can transmit without special co-locations requirements. For unsynchronized base stations (except in Band 46), special co-location requirements may apply that are not covered by the 3GPP specifications.

## **<End of Changes>**