



9.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §27.53 and 90.691

LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

Part 27.53:

(c)(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB.

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

(h) The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB.

(m) (4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Part 90.691(a):

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz. (NOTE : Use 100kHz reference bandwidth)

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03r01

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

- a) Set the RBW = 100KHz for emission below 1GHz and 1MHz for emissions above 1GHz
(Tests were performed 1MHz [Worst case], to sweep 1 time for all frequency range)
- b) Set VBW $\geq 3 \times$ RBW;
- c) Set span ≥ 1.5 times the OBW;
- d) Sweep time = auto couple;
- e) Detector = rms;
- f) Ensure that the number of measurement points = Max (40001);
- g) Trace mode = Average(WCDMA, LTE FDD, 5G NR FDD), Max hold(LTE TDD, 5G NR TDD);

NOTE1

5G NR: All Waveforms (CP-OFDM vs DFT-s_OFDM) and modulations ($\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

NOTE2

Please refer to section 5.4 for bandwidth and RB setting about LTE, 5G NR bands.

RESULTS

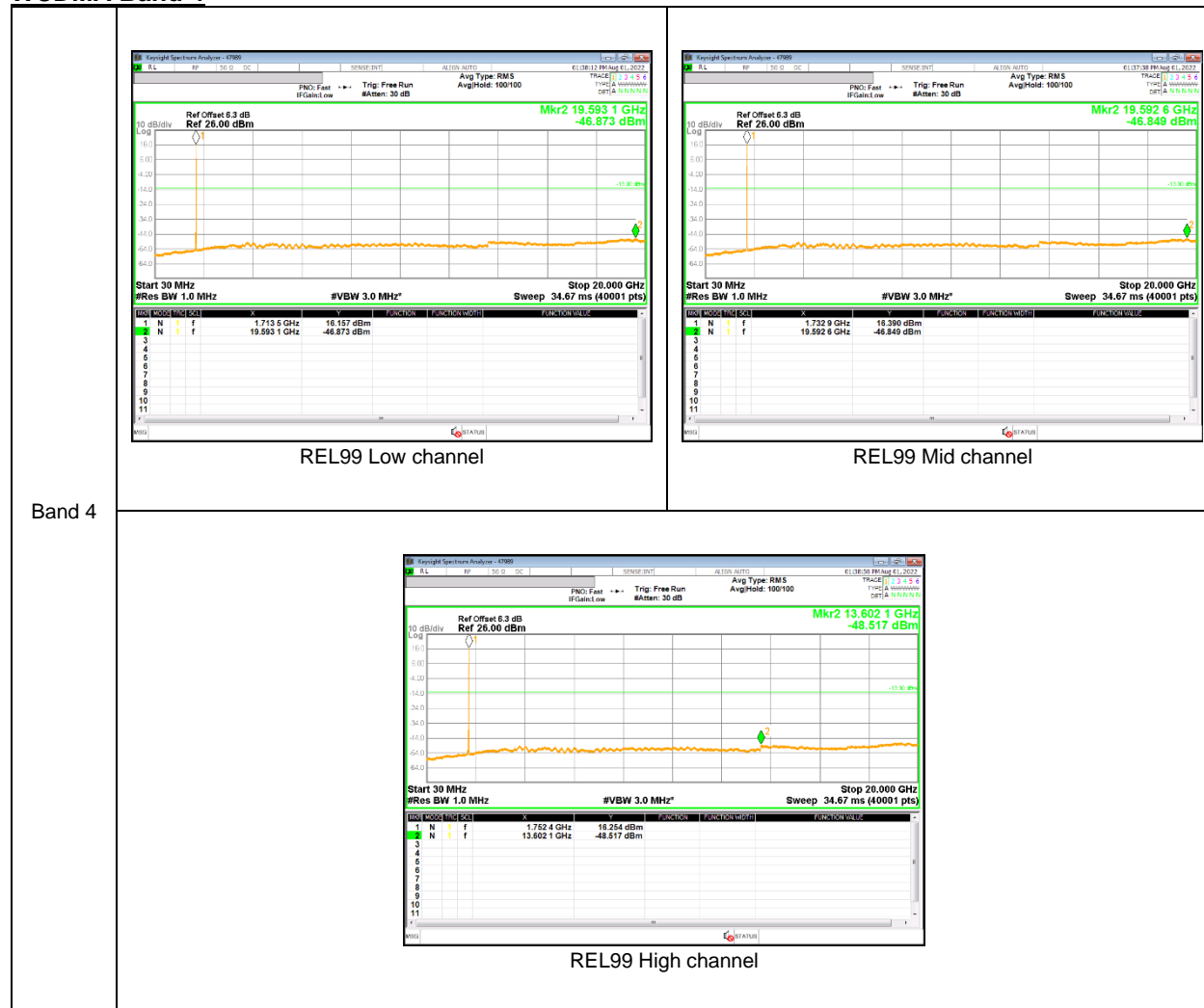
See the following pages.

9.3.1. OUT OF BAND EMISSIONS RESULT

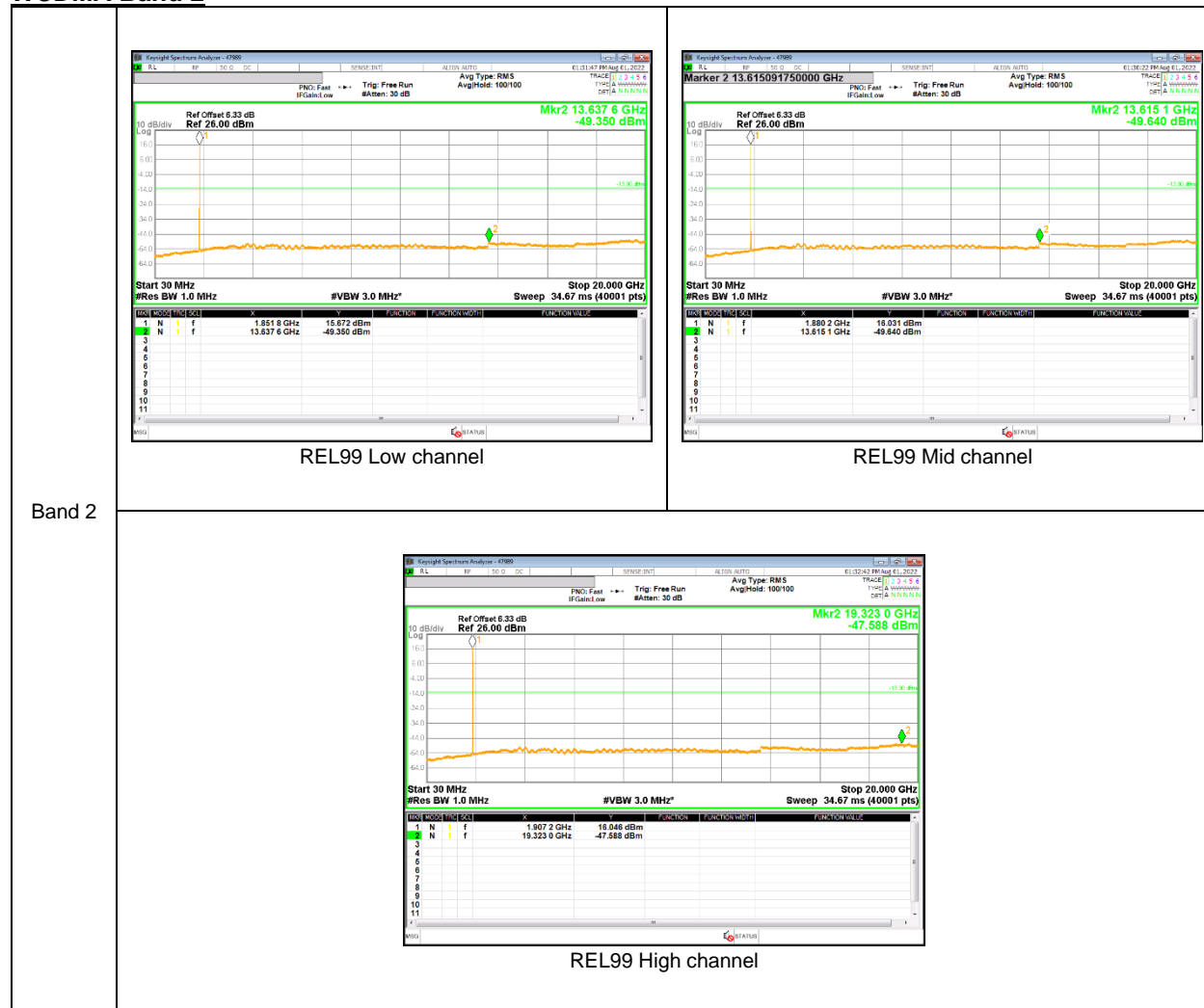
WCDMA Band 5



WCDMA Band 4



WCDMA Band 2



Band 2

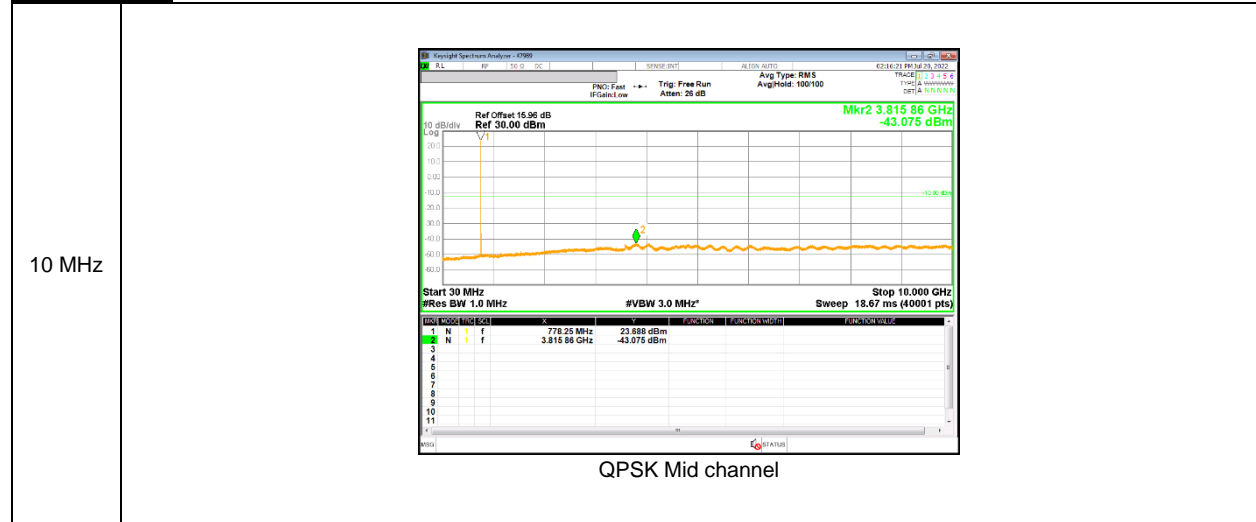
LTE Band 7



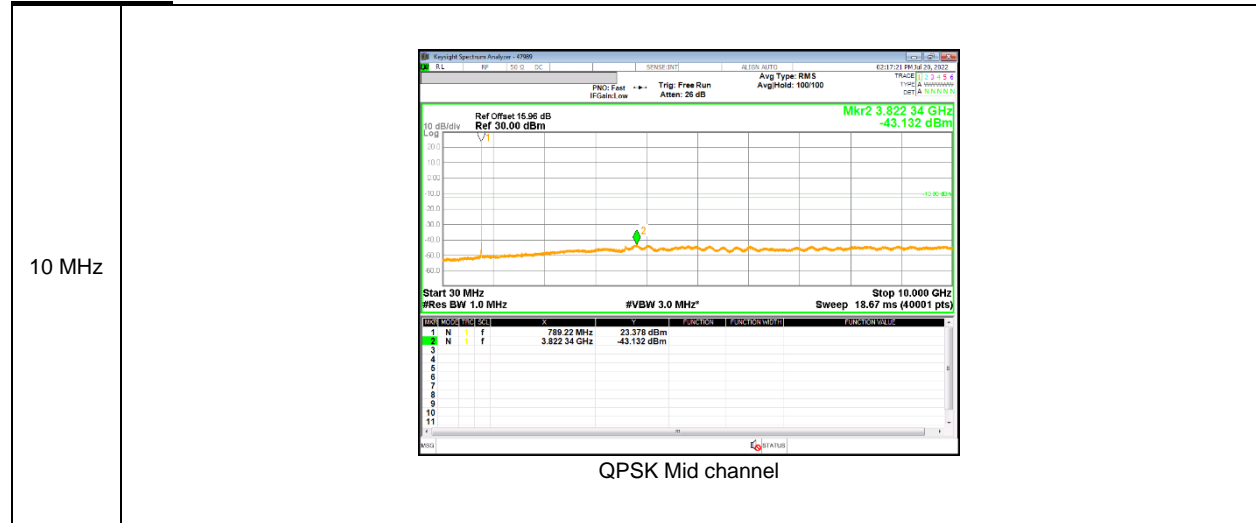
LTE Band 12



LTE Band 13



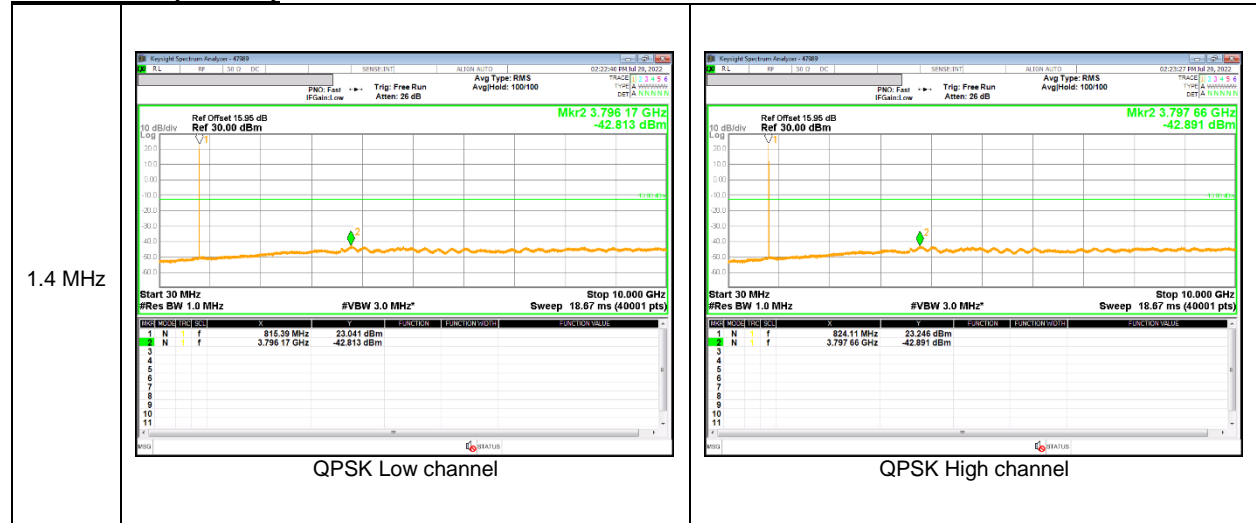
LTE Band 14



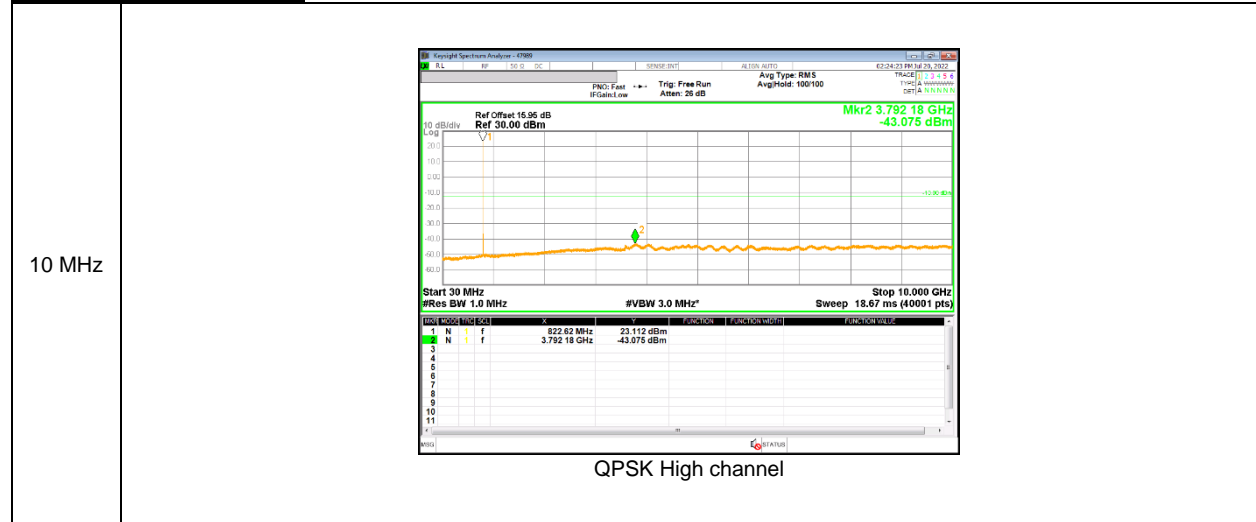
LTE Band 25



LTE Band 26(Part 90)



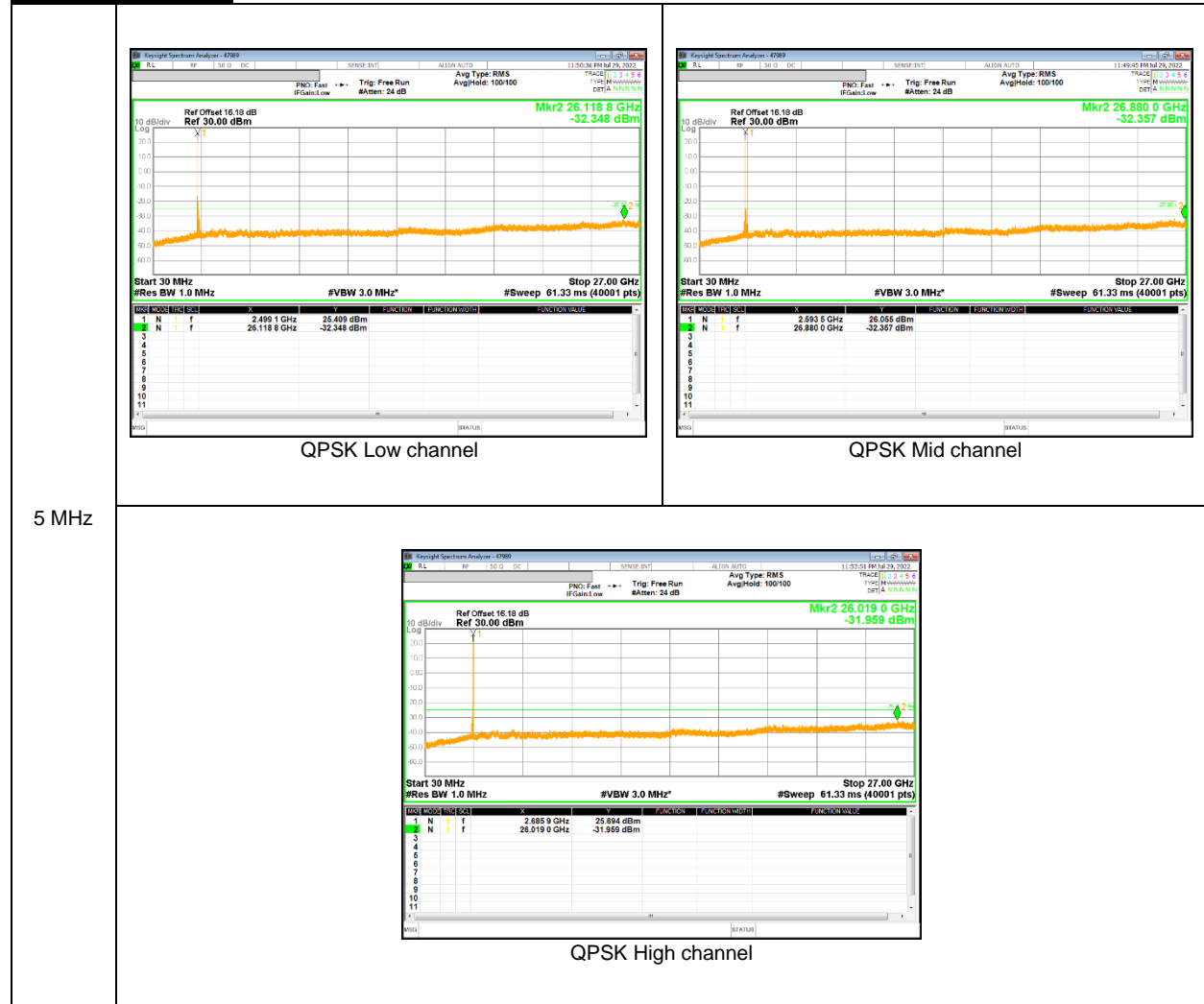
LTE Band 26 (Straddle)



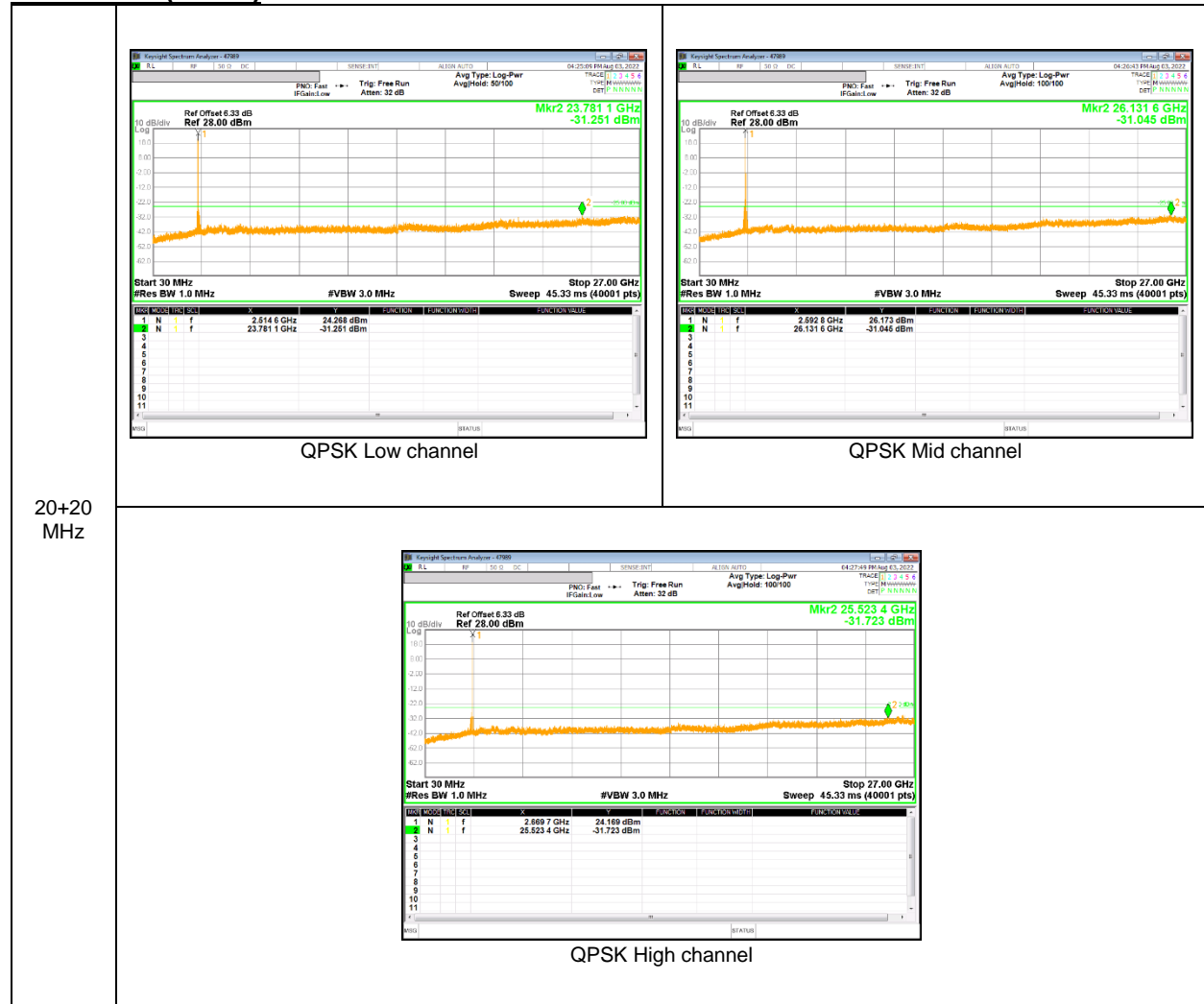
LTE Band 26 (Part 22)



LTE Band 41(PC2)



LTE Band 41(UL CA)



LTE Band 66



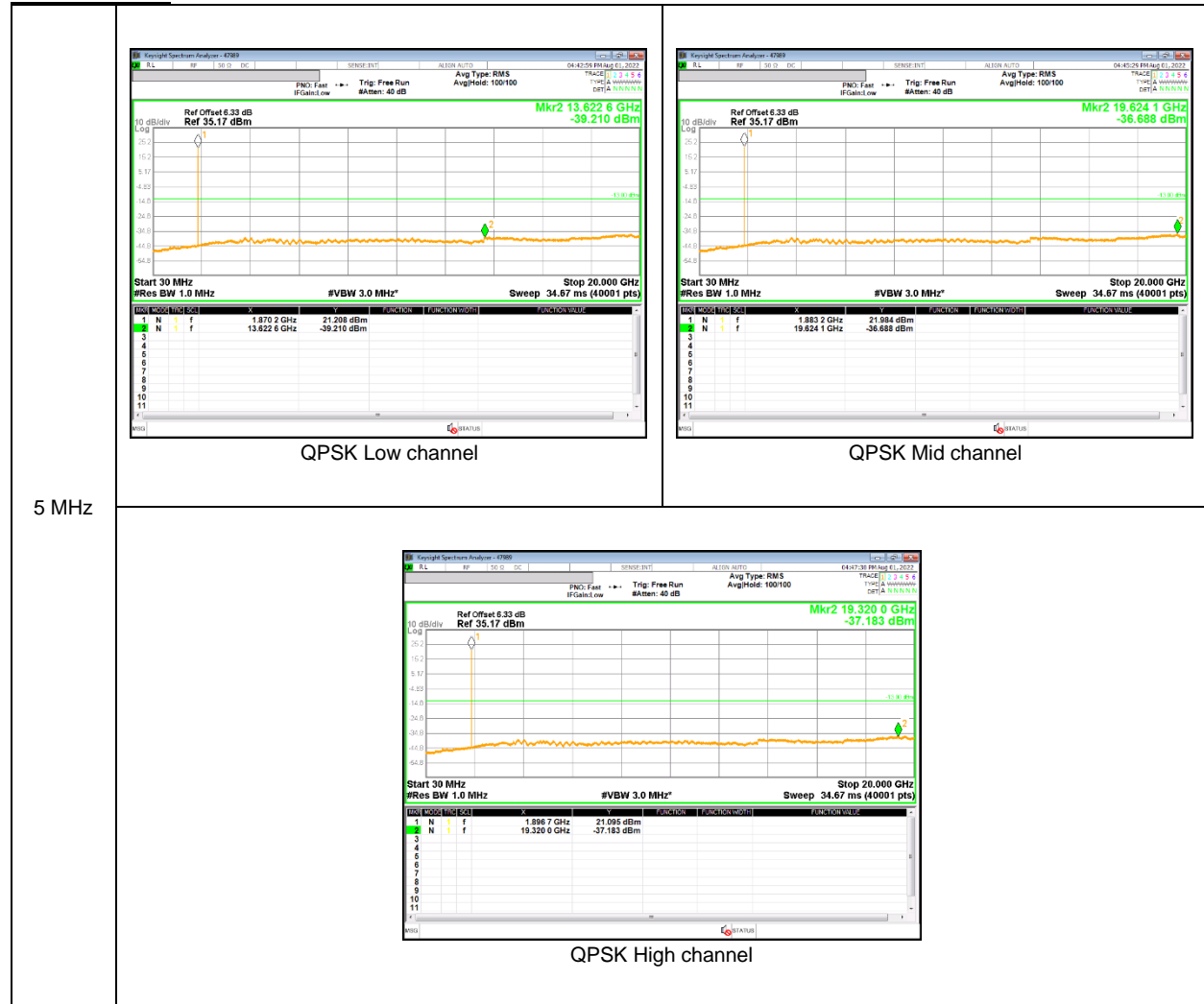
LTE Band 71



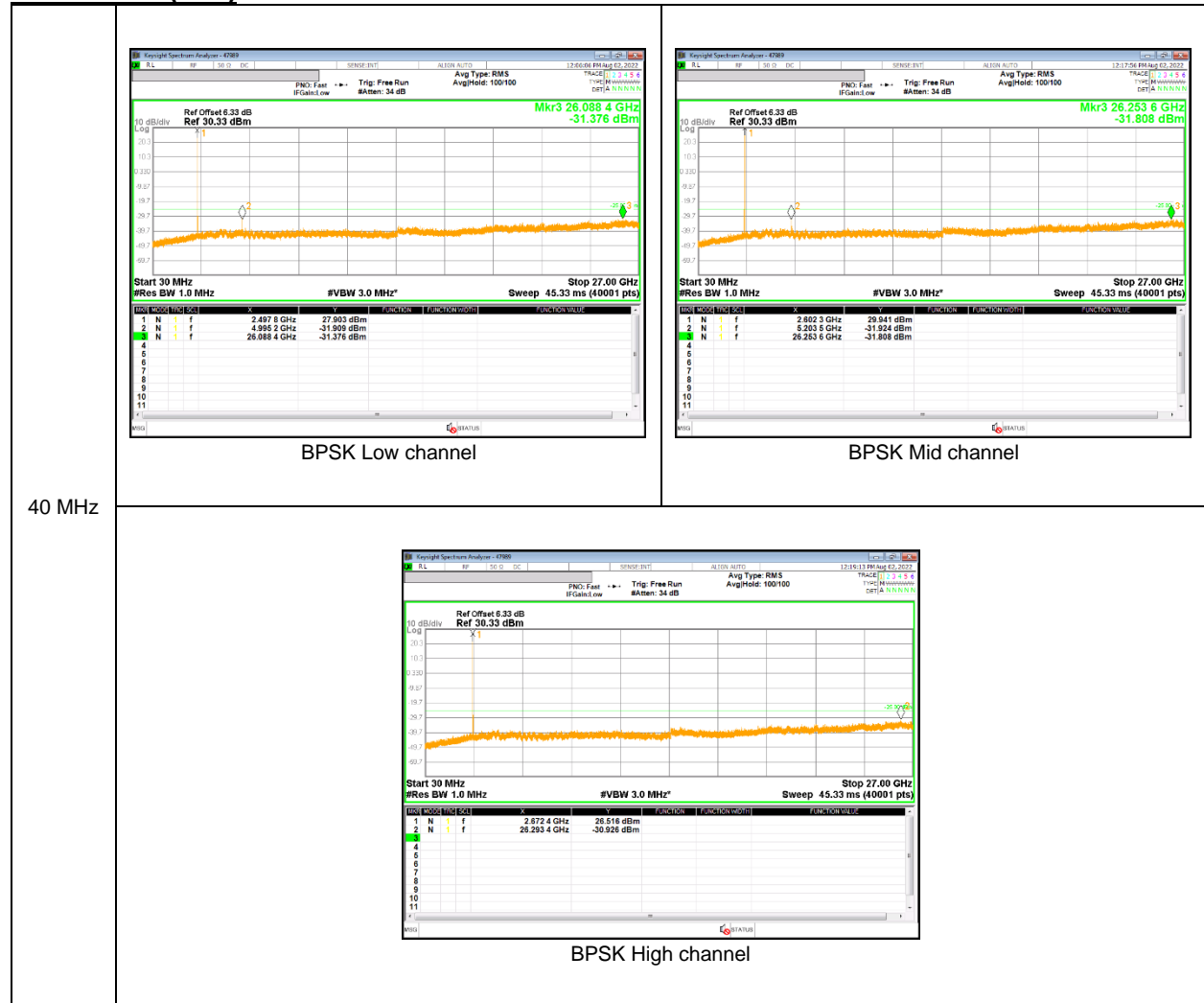
NR Band n5



NR Band n25



NR Band n41(PC2)



NR Band n66



NR Band n71



9.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54 and §90.213

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

§27.54 - The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

§90.213 - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03r01

RESULTS

See the following pages.

NOTE

Test were performed each lowest or highest frequency on the modulation condition of more wide bandwidth. (Please refer to section 9.1.1 OBW results)

9.4.1. FREQUENCY STABILITY RESULTS

WCDMA Band 5

| Limit: +/- 2.5 ppm = | | Reference Frequency : WCDMA Band 5 Low Channel 826.4 MHz / High Channel 846.6 MHz @ 20°C | | | | | |
|----------------------|------------------------------|--|--------------|---------------------|--------------|-------------|----|
| | | Low Channel | 2066.000 | Hz | High Channel | 2116.500 | Hz |
| Power Supply [Vdc] | Environment Temperature [°C] | Frequency Deviation Measured with Time Elapse | | | | Limit [ppm] | |
| | | Low Channel | | High Channel | | | |
| | | [MHz] | Delta [ppm] | [MHz] | Delta [ppm] | | |
| 3.86 | 50 | 826.40000353 | -0.001 | 846.60000371 | 0.001 | 2.5 | |
| 3.86 | 40 | 826.40000297 | 0.000 | 846.60000234 | 0.003 | 2.5 | |
| 3.86 | 30 | 826.40000356 | -0.001 | 846.60000366 | 0.001 | 2.5 | |
| 3.86 | 20 | 826.40000278 | 0.000 | 846.60000457 | 0.000 | 2.5 | |
| 3.86 | 10 | 826.40000265 | 0.000 | 846.60000466 | 0.000 | 2.5 | |
| 3.86 | 0 | 826.40000345 | -0.001 | 846.60000456 | 0.000 | 2.5 | |
| 3.86 | -10 | 826.40000494 | -0.003 | 846.60000678 | -0.003 | 2.5 | |
| 3.86 | -20 | 826.40000563 | -0.003 | 846.60000699 | -0.003 | 2.5 | |
| 3.86 | -30 | 826.40000528 | -0.003 | 846.60000636 | -0.002 | 2.5 | |

| Limit: +/- 2.5 ppm = | | Reference Frequency : WCDMA Band 5 Low Channel 826.4 MHz / High Channel 846.6 MHz @ 20°C | | | | | |
|----------------------|------------------------------|--|-------------|--------------|--------------|-------------|----|
| | | Low Channel | 2066.000 | Hz | High Channel | 2116.500 | Hz |
| Power Supply [Vdc] | Environment Temperature [°C] | Frequency Deviation Measured with Time Elapse | | | | Limit [ppm] | |
| | | Low Channel | | High Channel | | | |
| | | [MHz] | Delta [ppm] | [MHz] | Delta [ppm] | | |
| 3.80 | 20 | 826.40000278 | 0 | 846.60000457 | 0 | 2.5 | |
| 4.30 | 20 | 826.40000310 | 0.000 | 846.60000314 | 0.002 | 2.5 | |
| 3.40 | 20 | 826.40000257 | 0.000 | 846.60000298 | 0.002 | 2.5 | |

WCDMA Band 4 (Lowest Frequency: HSDPA/ Highest Frequency: HSDPA)

| Limit | | 1710 | 1755 | Delta (Hz) | Frequency Stability (ppm) |
|----------------|-----------|--------------------------|---------------------------|------------|---------------------------|
| Condition | | F low @ End of OBW (MHz) | F high @ End of OBW (MHz) | | |
| Temperature | Voltage | (MHz) | (MHz) | | |
| Normal (20C) | Normal | 1710.3237 | 1754.6817 | | |
| Extreme (50C) | | 1710.3237 | 1754.6817 | 13.6 | 0.008 |
| Extreme (40C) | | 1710.3237 | 1754.6817 | 12.9 | 0.007 |
| Extreme (30C) | | 1710.3237 | 1754.6817 | 13.4 | 0.008 |
| Extreme (10C) | | 1710.3237 | 1754.6817 | 8.9 | 0.005 |
| Extreme (0C) | | 1710.3237 | 1754.6817 | 16.9 | 0.010 |
| Extreme (-10C) | | 1710.3237 | 1754.6817 | 22.7 | 0.013 |
| Extreme (-20C) | | 1710.3237 | 1754.6817 | 27.7 | 0.016 |
| Extreme (-30C) | | 1710.3237 | 1754.6817 | 27.6 | 0.016 |
| 20C | 15% | 1710.3237 | 1754.6817 | 5.1 | 0.003 |
| | -15% | 1710.3237 | 1754.6817 | 5.1 | 0.003 |
| | End Point | 1710.3237 | 1754.6817 | 5.3 | 0.003 |

WCDMA Band 2 (Lowest Frequency: Rel99/ Highest Frequency: HSDPA)

| Limit | | 1850 | 1910 | Delta (Hz) | Frequency Stability (ppm) |
|----------------|-----------|--------------------|---------------------|------------|---------------------------|
| Condition | | F low @ End of OBW | F high @ End of OBW | | |
| Temperature | Voltage | (MHz) | (MHz) | | |
| Normal (20C) | Normal | 1850.3236 | 1909.6749 | | |
| Extreme (50C) | | 1850.3236 | 1909.6749 | 7.5 | 0.004 |
| Extreme (40C) | | 1850.3236 | 1909.6749 | 8.0 | 0.004 |
| Extreme (30C) | | 1850.3236 | 1909.6749 | 9.4 | 0.005 |
| Extreme (10C) | | 1850.3236 | 1909.6749 | 6.4 | 0.003 |
| Extreme (0C) | | 1850.3236 | 1909.6749 | 4.3 | 0.002 |
| Extreme (-10C) | | 1850.3236 | 1909.6749 | 4.7 | 0.002 |
| Extreme (-20C) | | 1850.3236 | 1909.6749 | 6.7 | 0.004 |
| Extreme (-30C) | | 1850.3236 | 1909.6749 | 8.2 | 0.004 |
| 20C | | 15% | 1850.3236 | 1909.6749 | 7.6 |
| | -15% | 1850.3236 | 1909.6749 | 7.1 | 0.004 |
| | End Point | 1850.3236 | 1909.6749 | 6.8 | 0.004 |

LTE Band 7 (Lowest Frequency: 16QAM / Highest Frequency: QPSK)

| Limit | | 2500 | 2570 | Delta (Hz) | Frequency Stability (ppm) |
|----------------|-----------|--------------------|---------------------|------------|---------------------------|
| Condition | | F low @ End of OBW | F high @ End of OBW | | |
| Temperature | Voltage | (MHz) | (MHz) | | |
| Normal (20C) | Normal | 2500.2556 | 2569.7540 | | |
| Extreme (50C) | | 2500.2556 | 2569.7540 | 10.0 | 0.004 |
| Extreme (40C) | | 2500.2556 | 2569.7540 | 9.6 | 0.004 |
| Extreme (30C) | | 2500.2556 | 2569.7540 | 9.3 | 0.004 |
| Extreme (10C) | | 2500.2556 | 2569.7540 | 8.7 | 0.003 |
| Extreme (0C) | | 2500.2556 | 2569.7540 | 9.0 | 0.004 |
| Extreme (-10C) | | 2500.2556 | 2569.7540 | 9.3 | 0.004 |
| Extreme (-20C) | | 2500.2556 | 2569.7540 | 10.2 | 0.004 |
| Extreme (-30C) | | 2500.2556 | 2569.7540 | 10.3 | 0.004 |
| 20C | | 15% | 2500.2556 | 2569.7540 | 8.6 |
| | -15% | 2500.2556 | 2569.7540 | 9.7 | 0.004 |
| | End Point | 2500.2556 | 2569.7540 | 10.2 | 0.004 |

LTE Band 12 (Lowest Frequency: 16QAM / Highest Frequency: 16QAM)

| Limit | | 699 | 716 | Delta (Hz) | Frequency Stability (ppm) |
|----------------|-----------|--------------------|---------------------|------------|---------------------------|
| Condition | | F low @ End of OBW | F high @ End of OBW | | |
| Temperature | Voltage | (MHz) | (MHz) | | |
| Normal (20C) | Normal | 699.1546 | 715.8413 | 5.3 | 0.008 |
| Extreme (50C) | | 699.1546 | 715.8413 | | |
| Extreme (40C) | | 699.1546 | 715.8413 | | |
| Extreme (30C) | | 699.1546 | 715.8413 | | |
| Extreme (10C) | | 699.1546 | 715.8413 | | |
| Extreme (0C) | | 699.1546 | 715.8413 | | |
| Extreme (-10C) | | 699.1546 | 715.8413 | | |
| Extreme (-20C) | | 699.1546 | 715.8413 | | |
| Extreme (-30C) | | 699.1546 | 715.8413 | | |
| 20C | | 15% | 699.1546 | | |
| | -15% | 699.1546 | 715.8413 | 4.6 | 0.007 |
| | End Point | 699.1546 | 715.8413 | 4.4 | 0.006 |

LTE Band 13 (Lowest Frequency: QPSK / Highest Frequency: QPSK)

| Limit | | 777 | 787 | Delta (Hz) | Frequency Stability (ppm) |
|----------------|-----------|--------------------|---------------------|------------|---------------------------|
| Condition | | F low @ End of OBW | F high @ End of OBW | | |
| Temperature | Voltage | (MHz) | (MHz) | | |
| Normal (20C) | Normal | 777.2613 | 786.7429 | 5.3 | 0.007 |
| Extreme (50C) | | 777.2613 | 786.7429 | | |
| Extreme (40C) | | 777.2613 | 786.7429 | | |
| Extreme (30C) | | 777.2613 | 786.7429 | | |
| Extreme (10C) | | 777.2613 | 786.7429 | | |
| Extreme (0C) | | 777.2613 | 786.7429 | | |
| Extreme (-10C) | | 777.2613 | 786.7429 | | |
| Extreme (-20C) | | 777.2613 | 786.7429 | | |
| Extreme (-30C) | | 777.2613 | 786.7429 | | |
| 20C | | 15% | 777.2613 | | |
| | -15% | 777.2613 | 786.7429 | 6.0 | 0.008 |
| | End Point | 777.2613 | 786.7429 | 6.1 | 0.008 |

LTE Band 14 (Lowest Frequency: QPSK / Highest Frequency: 16QAM)

| Limit | | 788 | 798 | Delta (Hz) | Frequency Stability (ppm) |
|----------------|-----------|--------------------|---------------------|------------|---------------------------|
| Condition | | F low @ End of OBW | F high @ End of OBW | | |
| Temperature | Voltage | (MHz) | (MHz) | | |
| Normal (20C) | Normal | 788.2513 | 797.7394 | 4.9 | 0.006 |
| Extreme (50C) | | 788.2513 | 797.7394 | | |
| Extreme (40C) | | 788.2513 | 797.7394 | | |
| Extreme (30C) | | 788.2513 | 797.7394 | | |
| Extreme (10C) | | 788.2513 | 797.7394 | | |
| Extreme (0C) | | 788.2513 | 797.7394 | | |
| Extreme (-10C) | | 788.2513 | 797.7394 | | |
| Extreme (-20C) | | 788.2513 | 797.7394 | | |
| Extreme (-30C) | | 788.2513 | 797.7394 | | |
| 20C | | 15% | 788.2513 | | |
| | -15% | 788.2513 | 797.7394 | 6.1 | 0.008 |
| | End Point | 788.2513 | 797.7394 | 5.1 | 0.006 |

LTE Band 25 (Lowest Frequency: 16QAM / Highest Frequency: 16QAM)

| Limit | | 1850 | 1915 | Delta (Hz) | Frequency Stability (ppm) |
|----------------|-----------|--------------------|---------------------|------------|---------------------------|
| Condition | | F low @ End of OBW | F high @ End of OBW | | |
| Temperature | Voltage | (MHz) | (MHz) | | |
| Normal (20C) | Normal | 1850.1592 | 1914.8440 | 17.6 | 0.009 |
| Extreme (50C) | | 1850.1592 | 1914.8440 | | |
| Extreme (40C) | | 1850.1592 | 1914.8440 | | |
| Extreme (30C) | | 1850.1592 | 1914.8440 | | |
| Extreme (10C) | | 1850.1592 | 1914.8440 | | |
| Extreme (0C) | | 1850.1592 | 1914.8440 | | |
| Extreme (-10C) | | 1850.1592 | 1914.8440 | | |
| Extreme (-20C) | | 1850.1592 | 1914.8440 | | |
| Extreme (-30C) | | 1850.1592 | 1914.8440 | | |
| 20C | | 15% | 1850.1592 | | |
| | -15% | 1850.1592 | 1914.8440 | 7.0 | 0.004 |
| | End Point | 1850.1592 | 1914.8440 | 6.0 | 0.003 |

LTE Band 26

| Reference Frequency : LTE Band 26 Low Channel 814.7 MHz / High Channel 848.3 MHz @ 20°C | | | | | | | |
|---|------------------------------|---|--------------|---------------------|--------------|------------|-------------|
| Limit: +/- 2.5 ppm = | | Low Channel | 2036.750 | Hz | High Channel | 2120.750 | Hz |
| Power Supply [Vdc] | Environment Temperature [°C] | Frequency Deviation Measured with Time Elapse | | | | | Limit [ppm] |
| | | Low Channel | | High Channel | | | |
| | | [MHz] | Delta [ppm] | [MHz] | Delta [ppm] | | |
| 3.86 | 50 | 814.70002118 | -0.012 | 848.30000636 | 0.003 | 2.5 | |
| 3.86 | 40 | 814.70002168 | -0.012 | 848.30000682 | 0.002 | 2.5 | |
| 3.86 | 30 | 814.70001167 | 0.000 | 848.30000697 | 0.002 | 2.5 | |
| 3.86 | 20 | 814.70001167 | 0.000 | 848.30000880 | 0.000 | 2.5 | |
| 3.86 | 10 | 814.70000751 | 0.005 | 848.30002005 | -0.013 | 2.5 | |
| 3.86 | 0 | 814.70003342 | -0.027 | 848.30000915 | 0.000 | 2.5 | |
| 3.86 | -10 | 814.70000703 | 0.006 | 848.30002536 | -0.020 | 2.5 | |
| 3.86 | -20 | 814.70000959 | 0.003 | 848.30002472 | -0.019 | 2.5 | |
| 3.86 | -30 | 814.70000866 | 0.004 | 848.30001971 | -0.013 | 2.5 | |

| Reference Frequency : LTE Band 26 Low Channel 814.7 MHz / High Channel 848.3 MHz @ 20°C | | | | | | | |
|---|------------------------------|---|-------------|--------------|--------------|----------|-------------|
| Limit: +/- 2.5 ppm = | | Low Channel | 2036.750 | Hz | High Channel | 2120.750 | Hz |
| Power Supply [Vdc] | Environment Temperature [°C] | Frequency Deviation Measured with Time Elapse | | | | | Limit [ppm] |
| | | Low Channel | | High Channel | | | |
| | | [MHz] | Delta [ppm] | [MHz] | Delta [ppm] | | |
| 3.80 | 20 | 814.70001167 | 0 | 848.30000880 | 0 | 2.5 | |
| 4.30 | 20 | 814.70000775 | 0.005 | 848.30000603 | 0.003 | 2.5 | |
| 3.40 | 20 | 814.70000598 | 0.007 | 848.30000701 | 0.002 | 2.5 | |

LTE Band 41(PC2) (Lowest Frequency: QPSK / Highest Frequency: QPSK)

| Limit | | 2496 | 2690 | Delta (Hz) | Frequency Stability (ppm) |
|----------------|-----------|--------------------|---------------------|------------|---------------------------|
| Condition | | F low @ End of OBW | F high @ End of OBW | | |
| Temperature | Voltage | (MHz) | (MHz) | | |
| Normal (20C) | Normal | 2496.2503 | 2689.7403 | | |
| Extreme (50C) | | 2496.2503 | 2689.7403 | 23.2 | 0.009 |
| Extreme (40C) | | 2496.2503 | 2689.7403 | 22.0 | 0.008 |
| Extreme (30C) | | 2496.2503 | 2689.7403 | 18.9 | 0.007 |
| Extreme (10C) | | 2496.2503 | 2689.7403 | 20.2 | 0.008 |
| Extreme (0C) | | 2496.2503 | 2689.7403 | 19.0 | 0.007 |
| Extreme (-10C) | | 2496.2503 | 2689.7403 | 21.8 | 0.008 |
| Extreme (-20C) | | 2496.2503 | 2689.7403 | 21.2 | 0.008 |
| Extreme (-30C) | | 2496.2503 | 2689.7403 | 22.0 | 0.008 |
| 20C | 15% | 2496.2503 | 2689.7403 | 15.1 | 0.006 |
| | -15% | 2496.2503 | 2689.7403 | 15.8 | 0.006 |
| | End Point | 2496.2503 | 2689.7403 | 18.1 | 0.007 |

LTE Band 66 (Lowest Frequency: QPSK / Highest Frequency: 16QAM)

| Limit | | 1710 | 1780 | Delta (Hz) | Frequency Stability (ppm) |
|----------------|-----------|--------------------|---------------------|------------|---------------------------|
| Condition | | F low @ End of OBW | F high @ End of OBW | | |
| Temperature | Voltage | (MHz) | (MHz) | | |
| Normal (20C) | Normal | 1710.1542 | 1779.8411 | 9.2 | 0.005 |
| Extreme (50C) | | 1710.1542 | 1779.8411 | | |
| Extreme (40C) | | 1710.1542 | 1779.8411 | | |
| Extreme (30C) | | 1710.1542 | 1779.8411 | | |
| Extreme (10C) | | 1710.1542 | 1779.8411 | | |
| Extreme (0C) | | 1710.1542 | 1779.8411 | | |
| Extreme (-10C) | | 1710.1542 | 1779.8411 | | |
| Extreme (-20C) | | 1710.1542 | 1779.8411 | | |
| Extreme (-30C) | | 1710.1542 | 1779.8411 | | |
| 20C | | 15% | 1710.1542 | | |
| | -15% | 1710.1542 | 1779.8411 | 7.1 | 0.004 |
| | End Point | 1710.1542 | 1779.8411 | 9.1 | 0.005 |

LTE Band 71 (Lowest Frequency: QPSK / Highest Frequency: QPSK)

| Limit | | 663 | 698 | Delta (Hz) | Frequency Stability (ppm) |
|----------------|-----------|--------------------|---------------------|------------|---------------------------|
| Condition | | F low @ End of OBW | F high @ End of OBW | | |
| Temperature | Voltage | (MHz) | (MHz) | | |
| Normal (20C) | Normal | 663.2467 | 697.7466 | 5.1 | 0.007 |
| Extreme (50C) | | 663.2467 | 697.7466 | | |
| Extreme (40C) | | 663.2467 | 697.7466 | | |
| Extreme (30C) | | 663.2467 | 697.7466 | | |
| Extreme (10C) | | 663.2467 | 697.7466 | | |
| Extreme (0C) | | 663.2467 | 697.7466 | | |
| Extreme (-10C) | | 663.2467 | 697.7466 | | |
| Extreme (-20C) | | 663.2467 | 697.7466 | | |
| Extreme (-30C) | | 663.2467 | 697.7466 | | |
| 20C | | 15% | 663.2467 | | |
| | -15% | 663.2467 | 697.7466 | 4.7 | 0.007 |
| | End Point | 663.2467 | 697.7466 | 5.2 | 0.008 |

5G NR Band n5

| Reference Frequency : n5 Low Channel 826.5 MHz / High Channel 846.5 MHz @ 20°C | | | | | | |
|--|------------------------------|--------------------|--------------|--------------------|--------------|-------------|
| Limit: +- 2.5 ppm = | | Low Channel | 2066.250 | Hz | High Channel | 2116.250 |
| Frequency Deviation Measured with Time Elapse | | | | | | |
| Power Supply [Vdc] | Environment Temperature [°C] | Low Channel | | High Channel | | Limit [ppm] |
| | | [MHz] | Delta [ppm] | [MHz] | Delta [ppm] | |
| 3.80 | 50 | 826.5000695 | 0.000 | 846.5000832 | 0.000 | 2.5 |
| 3.80 | 40 | 826.5000654 | 0.000 | 846.5000845 | 0.000 | 2.5 |
| 3.80 | 30 | 826.5000603 | 0.001 | 846.5000830 | 0.000 | 2.5 |
| 3.80 | 20 | 826.5000655 | 0.000 | 846.5000845 | 0.000 | 2.5 |
| 3.80 | 10 | 826.5000699 | -0.001 | 846.5000749 | 0.001 | 2.5 |
| 3.80 | 0 | 826.5000584 | 0.001 | 846.5000768 | 0.001 | 2.5 |
| 3.80 | -10 | 826.5000553 | 0.001 | 846.5000798 | 0.001 | 2.5 |
| 3.80 | -20 | 826.5000565 | 0.001 | 846.5000658 | 0.002 | 2.5 |
| 3.80 | -30 | 826.5000635 | 0.000 | 846.5000698 | 0.002 | 2.5 |

| Reference Frequency : n5 Low Channel 826.5 MHz / High Channel 846.5 MHz @ 20°C | | | | | | |
|--|------------------------------|-------------|-------------|--------------|--------------|-------------|
| Limit: +- 2.5 ppm = | | Low Channel | 2066.250 | Hz | High Channel | 2116.250 |
| Frequency Deviation Measured with Time Elapse | | | | | | |
| Power Supply [Vdc] | Environment Temperature [°C] | Low Channel | | High Channel | | Limit [ppm] |
| | | [MHz] | Delta [ppm] | [MHz] | Delta [ppm] | |
| 3.80 | 20 | 826.5000655 | 0 | 846.5000845 | 0 | 2.5 |
| 4.30 | 20 | 826.5000689 | 0.000 | 846.5000810 | 0.000 | 2.5 |
| 3.40 | 20 | 826.5000621 | 0.000 | 846.5000832 | 0.000 | 2.5 |

5G NR Band n25 (Lowest Frequency:16QAM / Highest Frequency: 16QAM)

| Limit | | 1850 | 1915 | Delta (Hz) | Frequency Stability (ppm) |
|----------------|-----------|--------------------|---------------------|------------|---------------------------|
| Condition | | F low @ End of OBW | F high @ End of OBW | | |
| Temperature | Voltage | (MHz) | (MHz) | | |
| Normal (20C) | Normal | 1850.2587 | 1914.7390 | | |
| Extreme (50C) | | 1850.2587 | 1914.7390 | 16.3 | 0.009 |
| Extreme (40C) | | 1850.2587 | 1914.7390 | 10.5 | 0.006 |
| Extreme (30C) | | 1850.2587 | 1914.7390 | 10.7 | 0.006 |
| Extreme (10C) | | 1850.2587 | 1914.7390 | 11.3 | 0.006 |
| Extreme (0C) | | 1850.2587 | 1914.7390 | 12.3 | 0.007 |
| Extreme (-10C) | | 1850.2587 | 1914.7390 | 15.4 | 0.008 |
| Extreme (-20C) | | 1850.2587 | 1914.7390 | 16.0 | 0.008 |
| Extreme (-30C) | | 1850.2587 | 1914.7390 | 16.0 | 0.008 |
| 20C | 15% | 1850.2587 | 1914.7390 | 7.7 | 0.004 |
| | -15% | 1850.2587 | 1914.7390 | 8.0 | 0.004 |
| | End Point | 1850.2587 | 1914.7390 | 6.2 | 0.003 |

5G NR Band n41(PC2) (Lowest Frequency: QPSK / Highest Frequency: QPSK)

| Normal (20C) | | 2496 | 2690 | Delta (Hz) | Frequency Stability (ppm) |
|----------------|-----------|--------------------|---------------------|------------|---------------------------|
| Condition | | F low @ End of OBW | F high @ End of OBW | | |
| Temperature | Voltage | (MHz) | (MHz) | | |
| Normal (20C) | Normal | 2496.8625 | 2689.1630 | | |
| Extreme (50C) | | 2496.8625 | 2689.1630 | 22.9 | 0.009 |
| Extreme (40C) | | 2496.8625 | 2689.1630 | 21.6 | 0.008 |
| Extreme (30C) | | 2496.8625 | 2689.1630 | 18.4 | 0.007 |
| Extreme (10C) | | 2496.8625 | 2689.1630 | 19.6 | 0.008 |
| Extreme (0C) | | 2496.8625 | 2689.1630 | 18.6 | 0.007 |
| Extreme (-10C) | | 2496.8625 | 2689.1630 | 21.0 | 0.008 |
| Extreme (-20C) | | 2496.8625 | 2689.1630 | 20.8 | 0.008 |
| Extreme (-30C) | | 2496.8625 | 2689.1630 | 21.2 | 0.008 |
| 20C | | 15% | 2496.8625 | 2689.1630 | 20.6 |
| | -15% | 2496.8625 | 2689.1630 | 19.3 | 0.007 |
| | End Point | 2496.8625 | 2689.1630 | 19.7 | 0.008 |

5G NR Band n66 (Lowest Frequency: 16QAM / Highest Frequency: 16QAM)

| Limit | | 1710 | 1780 | Delta (Hz) | Frequency Stability (ppm) |
|----------------|-----------|--------------------|---------------------|------------|---------------------------|
| Condition | | F low @ End of OBW | F high @ End of OBW | | |
| Temperature | Voltage | (MHz) | (MHz) | | |
| Normal (20C) | Normal | 1710.2606 | 1779.7402 | | |
| Extreme (50C) | | 1710.2606 | 1779.7402 | 8.9 | 0.005 |
| Extreme (40C) | | 1710.2606 | 1779.7402 | 7.7 | 0.004 |
| Extreme (30C) | | 1710.2606 | 1779.7402 | 5.3 | 0.003 |
| Extreme (10C) | | 1710.2606 | 1779.7402 | 9.8 | 0.006 |
| Extreme (0C) | | 1710.2606 | 1779.7402 | 11.6 | 0.007 |
| Extreme (-10C) | | 1710.2606 | 1779.7402 | 16.4 | 0.009 |
| Extreme (-20C) | | 1710.2606 | 1779.7402 | 8.7 | 0.005 |
| Extreme (-30C) | | 1710.2606 | 1779.7402 | 19.2 | 0.011 |
| 20C | | 15% | 1710.2606 | 1779.7402 | 5.8 |
| | -15% | 1710.2606 | 1779.7402 | 6.9 | 0.004 |
| | End Point | 1710.2606 | 1779.7402 | 7.3 | 0.004 |

5G NR Band n71 (Lowest Frequency: QPSK / Highest Frequency: 16QAM)

| Limit | | 663 | 698 | Delta (Hz) | Frequency Stability (ppm) |
|----------------|-----------|--------------------|---------------------|------------|---------------------------|
| Condition | | F low @ End of OBW | F high @ End of OBW | | |
| Temperature | Voltage | (MHz) | (MHz) | | |
| Normal (20C) | Normal | 663.2622 | 697.7413 | | |
| Extreme (50C) | | 663.2622 | 697.7413 | 4.8 | 0.007 |
| Extreme (40C) | | 663.2622 | 697.7413 | 4.4 | 0.006 |
| Extreme (30C) | | 663.2622 | 697.7413 | 4.5 | 0.007 |
| Extreme (10C) | | 663.2622 | 697.7413 | 4.7 | 0.007 |
| Extreme (0C) | | 663.2622 | 697.7413 | 4.1 | 0.006 |
| Extreme (-10C) | | 663.2622 | 697.7413 | 3.8 | 0.006 |
| Extreme (-20C) | | 663.2622 | 697.7413 | 5.4 | 0.008 |
| Extreme (-30C) | | 663.2622 | 697.7413 | 5.2 | 0.008 |
| | | | | | |
| 20C | 15% | 663.2622 | 697.7413 | 9.2 | 0.014 |
| | -15% | 663.2622 | 697.7413 | 8.4 | 0.012 |
| | End Point | 663.2622 | 697.7413 | 9.3 | 0.014 |

9.5. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27.50, §90.542 and §90.635

LIMITS

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232(c) - Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

27.50:

(b)(10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

(c) (10) - Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

(d)(4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

(h) The following power limits shall apply in the BRS and EBS:

(2) Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

90.542(a)(7) - Portable stations (hand-held devices) transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 3 watts ERP.

90.635(b) The maximum output power of the transmitter for mobile stations is 100 watts (20dBw).

TEST PROCEDURE

ANSI / TIA / EIA 603 E Clause 2.2.17; ESU40 setting reference to 971168 D01 v03r01

For radiated output power measurement with a ESU40:

- a) Set the RBW \geq OBW;
- b) Set VBW \geq 3 \times RBW;
- c) Set span \geq 2 \times RBW;
- d) Sweep time = auto couple or 1 second;
- e) Detector = rms;
- f) Ensure that the number of measurement points \geq span/RBW;
- g) Trace mode = max hold(WCDMA), average(LTE, 5G NR);

TEST RESULTS

See the following pages.

9.5.1. ERP/EIRP Results

WCDMA

| Band | Mode | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | ERP (dBm) | ERP (mW) | Limit (dBm) | Delta (dB) |
|--------|--------|---------|------------------|-----------------|-----------------|--------------------|-----------|----------|-------------|------------|
| Band 5 | REL99 | 826.40 | 28.93 | V | 3.11 | -0.84 | 24.99 | 315.50 | 38.50 | -13.51 |
| | | 826.40 | 21.23 | H | 3.11 | -0.84 | 17.29 | 53.58 | 38.50 | -21.21 |
| | | 836.60 | 28.32 | V | 3.13 | -0.93 | 24.26 | 266.69 | 38.50 | -14.24 |
| | | 836.60 | 21.65 | H | 3.13 | -0.93 | 17.60 | 57.54 | 38.50 | -20.90 |
| | | 846.60 | 27.18 | V | 3.14 | -1.02 | 23.02 | 200.45 | 38.50 | -15.48 |
| | 846.60 | 20.99 | H | 3.14 | -1.02 | 16.83 | 48.19 | 38.50 | -21.67 | |
| | HSDPA | 826.40 | 27.52 | V | 3.11 | -0.84 | 23.58 | 228.03 | 38.50 | -14.92 |
| | | 826.40 | 20.62 | H | 3.11 | -0.84 | 16.68 | 46.56 | 38.50 | -21.82 |
| | | 836.60 | 26.27 | V | 3.13 | -0.93 | 22.21 | 166.34 | 38.50 | -16.29 |
| | | 836.60 | 21.08 | H | 3.13 | -0.93 | 17.03 | 50.47 | 38.50 | -21.47 |
| 846.60 | | 24.92 | V | 3.14 | -1.02 | 20.76 | 119.12 | 38.50 | -17.74 | |
| 846.60 | 19.80 | H | 3.14 | -1.02 | 15.64 | 36.64 | 38.50 | -22.86 | | |

| Band | Mode | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | EIRP (mW) | Limit (dBm) | Delta (dB) |
|---------|---------|---------|------------------|-----------------|-----------------|--------------------|------------|-----------|-------------|------------|
| Band 4 | REL99 | 1712.40 | 8.68 | V | 4.44 | 9.58 | 13.82 | 24.10 | 30.00 | -16.18 |
| | | 1712.40 | 22.13 | H | 4.44 | 9.58 | 27.27 | 533.33 | 30.00 | -2.73 |
| | | 1732.60 | 9.26 | V | 4.46 | 9.65 | 14.44 | 27.80 | 30.00 | -15.56 |
| | | 1732.60 | 22.00 | H | 4.46 | 9.65 | 27.19 | 523.60 | 30.00 | -2.81 |
| | | 1752.60 | 10.02 | V | 4.48 | 9.70 | 15.23 | 33.34 | 30.00 | -14.77 |
| | 1752.60 | 21.48 | H | 4.48 | 9.70 | 26.69 | 466.66 | 30.00 | -3.31 | |
| | HSDPA | 1712.40 | 8.05 | V | 4.44 | 9.58 | 13.19 | 20.84 | 30.00 | -16.81 |
| | | 1712.40 | 21.53 | H | 4.44 | 9.58 | 26.67 | 464.52 | 30.00 | -3.33 |
| | | 1732.60 | 8.58 | V | 4.46 | 9.65 | 13.76 | 23.77 | 30.00 | -16.24 |
| | | 1732.60 | 21.31 | H | 4.46 | 9.65 | 26.50 | 446.68 | 30.00 | -3.50 |
| 1752.60 | | 9.41 | V | 4.48 | 9.70 | 14.62 | 28.97 | 30.00 | -15.38 | |
| 1752.60 | 20.82 | H | 4.48 | 9.70 | 26.03 | 400.87 | 30.00 | -3.97 | | |

| Band | Mode | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | EIRP (mW) | Limit (dBm) | Delta (dB) |
|---------|---------|---------|------------------|-----------------|-----------------|--------------------|------------|-----------|-------------|------------|
| Band 2 | REL99 | 1852.40 | 20.67 | V | 4.62 | 9.62 | 25.67 | 368.98 | 33.00 | -7.33 |
| | | 1852.40 | 10.30 | H | 4.62 | 9.62 | 15.31 | 33.96 | 33.00 | -17.69 |
| | | 1880.00 | 21.18 | V | 4.65 | 9.37 | 25.90 | 389.05 | 33.00 | -7.10 |
| | | 1880.00 | 10.11 | H | 4.65 | 9.37 | 14.83 | 30.41 | 33.00 | -18.17 |
| | | 1907.60 | 21.16 | V | 4.68 | 9.10 | 25.57 | 360.58 | 33.00 | -7.43 |
| | 1907.60 | 8.16 | H | 4.68 | 9.10 | 12.57 | 18.07 | 33.00 | -20.43 | |
| | HSDPA | 1852.40 | 20.09 | V | 4.62 | 9.62 | 25.09 | 322.85 | 33.00 | -7.91 |
| | | 1852.40 | 9.83 | H | 4.62 | 9.62 | 14.84 | 30.48 | 33.00 | -18.16 |
| | | 1880.00 | 20.69 | V | 4.65 | 9.37 | 25.41 | 347.54 | 33.00 | -7.59 |
| | | 1880.00 | 9.79 | H | 4.65 | 9.37 | 14.51 | 28.25 | 33.00 | -18.49 |
| 1907.60 | | 20.73 | V | 4.68 | 9.10 | 25.14 | 326.59 | 33.00 | -7.86 | |
| 1907.60 | 7.95 | H | 4.68 | 9.10 | 12.36 | 17.22 | 33.00 | -20.64 | | |

LTE Band 7

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | EIRP (mW) | Limit (dBm) | Delta (dB) | RB |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|------------|-----------|-------------|------------|------|
| 5 | QPSK | 2502.50 | 18.52 | H | 5.37 | 10.17 | 23.32 | 214.78 | 33.00 | -9.68 | 1/0 |
| | | 2535.00 | 19.99 | H | 5.41 | 10.11 | 24.69 | 294.44 | 33.00 | -8.31 | 1/0 |
| | | 2567.50 | 20.18 | H | 5.45 | 10.06 | 24.79 | 301.30 | 33.00 | -8.21 | 1/0 |
| | 16-QAM | 2502.50 | 17.55 | H | 5.37 | 10.17 | 22.34 | 171.40 | 33.00 | -10.66 | 1/0 |
| | | 2535.00 | 19.14 | H | 5.41 | 10.11 | 23.84 | 242.10 | 33.00 | -9.16 | 1/0 |
| | | 2567.50 | 19.18 | H | 5.45 | 10.06 | 23.80 | 239.88 | 33.00 | -9.20 | 1/0 |
| 10 | QPSK | 2505.00 | 18.54 | H | 5.38 | 10.17 | 23.32 | 214.78 | 33.00 | -9.68 | 1/0 |
| | | 2535.00 | 19.86 | H | 5.41 | 10.11 | 24.56 | 285.76 | 33.00 | -8.44 | 1/0 |
| | | 2565.00 | 20.11 | H | 5.43 | 10.07 | 24.75 | 298.54 | 33.00 | -8.25 | 1/0 |
| | 16-QAM | 2505.00 | 17.60 | H | 5.38 | 10.17 | 22.39 | 173.38 | 33.00 | -10.61 | 1/0 |
| | | 2535.00 | 18.87 | H | 5.41 | 10.11 | 23.57 | 227.51 | 33.00 | -9.43 | 1/0 |
| | | 2565.00 | 19.28 | H | 5.43 | 10.07 | 23.92 | 246.60 | 33.00 | -9.08 | 1/49 |
| 15 | QPSK | 2507.50 | 18.96 | H | 5.39 | 10.16 | 23.73 | 236.05 | 33.00 | -9.27 | 1/0 |
| | | 2535.00 | 19.89 | H | 5.41 | 10.11 | 24.69 | 287.74 | 33.00 | -8.41 | 1/0 |
| | | 2562.50 | 20.02 | H | 5.44 | 10.07 | 24.65 | 291.74 | 33.00 | -8.35 | 1/0 |
| | 16-QAM | 2507.50 | 17.88 | H | 5.39 | 10.16 | 22.66 | 184.50 | 33.00 | -10.34 | 1/0 |
| | | 2535.00 | 18.94 | H | 5.41 | 10.11 | 23.64 | 231.21 | 33.00 | -9.36 | 1/0 |
| | | 2562.50 | 18.96 | H | 5.44 | 10.07 | 23.59 | 228.56 | 33.00 | -9.41 | 1/0 |
| 20 | QPSK | 2510.00 | 19.07 | H | 5.38 | 10.16 | 23.84 | 242.10 | 33.00 | -9.16 | 1/0 |
| | | 2535.00 | 19.59 | H | 5.41 | 10.11 | 24.29 | 268.53 | 33.00 | -8.71 | 1/0 |
| | | 2560.00 | 19.75 | H | 5.44 | 10.07 | 24.38 | 274.16 | 33.00 | -8.62 | 1/0 |
| | 16-QAM | 2510.00 | 18.16 | H | 5.38 | 10.16 | 22.94 | 196.79 | 33.00 | -10.06 | 1/0 |
| | | 2535.00 | 18.60 | H | 5.41 | 10.11 | 23.30 | 213.80 | 33.00 | -9.70 | 1/0 |
| | | 2560.00 | 18.79 | H | 5.44 | 10.07 | 23.42 | 219.79 | 33.00 | -9.58 | 1/0 |

LTE Band 12

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | ERP (dBm) | ERP (mW) | Limit (dBm) | Delta (dB) | RB |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|-----------|----------|-------------|------------|------|
| 1.4 | QPSK | 699.70 | 25.51 | H | 2.87 | -0.80 | 21.84 | 152.76 | 34.77 | -12.93 | 1/5 |
| | | 707.50 | 24.97 | H | 2.89 | -0.79 | 21.30 | 134.90 | 34.77 | -13.47 | 1/3 |
| | | 715.30 | 24.54 | H | 2.90 | -0.77 | 20.87 | 122.18 | 34.77 | -13.90 | 1/3 |
| | 16-QAM | 699.70 | 24.72 | H | 2.87 | -0.80 | 21.05 | 127.35 | 34.77 | -13.72 | 1/3 |
| | | 707.50 | 24.03 | H | 2.89 | -0.79 | 20.36 | 108.64 | 34.77 | -14.41 | 1/3 |
| | | 715.30 | 23.28 | H | 2.90 | -0.77 | 19.61 | 91.41 | 34.77 | -15.16 | 1/3 |
| 3 | QPSK | 700.50 | 25.65 | H | 2.88 | -0.80 | 21.99 | 158.02 | 34.77 | -12.80 | 1/0 |
| | | 707.50 | 25.39 | H | 2.89 | -0.79 | 21.72 | 148.59 | 34.77 | -13.05 | 1/0 |
| | | 714.50 | 24.42 | H | 2.90 | -0.77 | 20.75 | 118.85 | 34.77 | -14.02 | 1/14 |
| | 16-QAM | 700.50 | 24.51 | H | 2.88 | -0.80 | 20.83 | 121.06 | 34.77 | -13.94 | 1/0 |
| | | 707.50 | 24.19 | H | 2.89 | -0.79 | 20.52 | 112.72 | 34.77 | -14.25 | 1/0 |
| | | 714.50 | 23.69 | H | 2.90 | -0.77 | 20.02 | 100.46 | 34.77 | -14.75 | 1/0 |
| 5 | QPSK | 701.50 | 25.73 | H | 2.88 | -0.80 | 22.06 | 160.69 | 34.77 | -12.71 | 1/0 |
| | | 707.50 | 25.16 | H | 2.89 | -0.79 | 21.49 | 140.93 | 34.77 | -13.28 | 1/12 |
| | | 713.50 | 24.93 | H | 2.90 | -0.77 | 21.26 | 133.66 | 34.77 | -13.51 | 1/0 |
| | 16-QAM | 701.50 | 24.52 | H | 2.88 | -0.80 | 20.85 | 121.62 | 34.77 | -13.92 | 1/12 |
| | | 707.50 | 24.29 | H | 2.89 | -0.79 | 20.62 | 115.35 | 34.77 | -14.15 | 1/24 |
| | | 713.50 | 23.56 | H | 2.90 | -0.77 | 19.89 | 97.50 | 34.77 | -14.88 | 1/24 |
| 10 | QPSK | 704.00 | 25.25 | H | 2.88 | -0.79 | 21.58 | 143.88 | 34.77 | -13.19 | 1/0 |
| | | 707.50 | 25.53 | H | 2.89 | -0.79 | 21.86 | 153.46 | 34.77 | -12.91 | 1/0 |
| | | 711.00 | 24.99 | H | 2.89 | -0.78 | 21.32 | 135.52 | 34.77 | -13.45 | 1/25 |
| | 16-QAM | 704.00 | 24.55 | H | 2.88 | -0.79 | 20.88 | 122.46 | 34.77 | -13.89 | 1/0 |
| | | 707.50 | 24.08 | H | 2.89 | -0.79 | 20.41 | 109.90 | 34.77 | -14.36 | 1/49 |
| | | 711.00 | 23.42 | H | 2.89 | -0.78 | 19.75 | 94.41 | 34.77 | -15.02 | 1/0 |

LTE Band 13

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | ERP (dBm) | ERP (mW) | Limit (dBm) | Delta (dB) | RB |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|-----------|----------|-------------|------------|------|
| 5 | QPSK | 779.50 | 25.77 | H | 3.02 | -0.64 | 22.11 | 162.55 | 34.77 | -12.66 | 1/24 |
| | | 782.00 | 25.70 | H | 3.02 | -0.64 | 22.04 | 159.96 | 34.77 | -12.73 | 1/0 |
| | | 784.50 | 25.07 | H | 3.04 | -0.63 | 21.40 | 138.04 | 34.77 | -13.37 | 1/0 |
| | 16-QAM | 779.50 | 24.97 | H | 3.02 | -0.64 | 21.31 | 135.21 | 34.77 | -13.46 | 1/24 |
| | | 782.00 | 24.64 | H | 3.02 | -0.64 | 20.98 | 125.31 | 34.77 | -13.79 | 1/12 |
| | | 784.50 | 24.18 | H | 3.04 | -0.63 | 20.51 | 112.46 | 34.77 | -14.26 | 1/0 |
| 10 | QPSK | 782.00 | 26.01 | H | 3.02 | -0.64 | 22.35 | 171.79 | 34.77 | -12.42 | 1/0 |
| | 16-QAM | 782.00 | 25.30 | H | 3.02 | -0.64 | 21.64 | 145.88 | 34.77 | -13.13 | 1/0 |

LTE Band 14

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | ERP (dBm) | ERP (mW) | Limit (dBm) | Delta (dB) | RB |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|-----------|----------|-------------|------------|-----|
| 5 | QPSK | 790.50 | 25.69 | V | 3.04 | -0.62 | 22.03 | 159.59 | 34.77 | -12.74 | 1/0 |
| | | 793.00 | 25.64 | V | 3.05 | -0.61 | 21.98 | 157.76 | 34.77 | -12.79 | 1/0 |
| | | 795.50 | 25.22 | V | 3.05 | -0.61 | 21.56 | 143.22 | 34.77 | -13.21 | 1/0 |
| | 16-QAM | 790.50 | 24.89 | V | 3.04 | -0.62 | 21.23 | 132.74 | 34.77 | -13.54 | 1/0 |
| | | 793.00 | 24.50 | V | 3.05 | -0.61 | 20.84 | 121.34 | 34.77 | -13.93 | 1/0 |
| | | 795.50 | 24.32 | V | 3.05 | -0.61 | 20.66 | 116.41 | 34.77 | -14.11 | 1/0 |
| 10 | QPSK | 793.00 | 26.09 | V | 3.05 | -0.61 | 22.43 | 174.98 | 34.77 | -12.34 | 1/0 |
| | 16-QAM | 793.00 | 24.95 | V | 3.05 | -0.61 | 21.29 | 134.59 | 34.77 | -13.48 | 1/0 |

LTE Band 25

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | EIRP (mW) | Limit (dBm) | Delta (dB) | RB |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|------------|-----------|-------------|------------|------|
| 1.4 | QPSK | 1850.70 | 21.17 | V | 4.62 | 9.64 | 26.19 | 415.91 | 33.00 | -6.81 | 1/3 |
| | | 1882.50 | 22.45 | V | 4.65 | 9.35 | 27.14 | 517.61 | 33.00 | -5.86 | 1/3 |
| | | 1914.30 | 21.56 | V | 4.70 | 9.01 | 25.87 | 386.37 | 33.00 | -7.13 | 1/3 |
| | 16-QAM | 1850.70 | 20.56 | V | 4.62 | 9.64 | 25.58 | 361.41 | 33.00 | -7.42 | 1/3 |
| | | 1882.50 | 21.80 | V | 4.65 | 9.35 | 26.49 | 445.66 | 33.00 | -6.51 | 1/3 |
| | | 1914.30 | 20.93 | V | 4.70 | 9.01 | 25.24 | 334.20 | 33.00 | -7.76 | 1/3 |
| 3 | QPSK | 1851.50 | 21.38 | V | 4.62 | 9.63 | 26.39 | 435.51 | 33.00 | -6.61 | 1/14 |
| | | 1882.50 | 22.42 | V | 4.65 | 9.35 | 27.11 | 514.04 | 33.00 | -5.89 | 1/14 |
| | | 1913.50 | 21.89 | V | 4.69 | 9.02 | 26.22 | 418.79 | 33.00 | -6.78 | 1/14 |
| | 16-QAM | 1851.50 | 20.75 | V | 4.62 | 9.63 | 25.76 | 376.70 | 33.00 | -7.24 | 1/14 |
| | | 1882.50 | 22.02 | V | 4.65 | 9.35 | 26.71 | 468.81 | 33.00 | -6.29 | 1/14 |
| | | 1913.50 | 21.07 | V | 4.69 | 9.02 | 25.40 | 346.74 | 33.00 | -7.60 | 1/14 |
| 5 | QPSK | 1852.50 | 21.09 | V | 4.62 | 9.62 | 26.10 | 407.38 | 33.00 | -6.90 | 1/24 |
| | | 1882.50 | 22.22 | V | 4.65 | 9.35 | 26.91 | 490.91 | 33.00 | -6.09 | 1/24 |
| | | 1912.50 | 21.33 | V | 4.69 | 9.03 | 25.68 | 369.83 | 33.00 | -7.32 | 1/0 |
| | 16-QAM | 1852.50 | 20.51 | V | 4.62 | 9.62 | 25.52 | 356.45 | 33.00 | -7.48 | 1/0 |
| | | 1882.50 | 21.49 | V | 4.65 | 9.35 | 26.18 | 414.95 | 33.00 | -6.82 | 1/24 |
| | | 1912.50 | 20.85 | V | 4.69 | 9.03 | 25.20 | 331.13 | 33.00 | -7.80 | 1/0 |
| 10 | QPSK | 1855.00 | 21.24 | V | 4.62 | 9.60 | 26.22 | 418.79 | 33.00 | -6.78 | 1/25 |
| | | 1882.50 | 22.28 | V | 4.65 | 9.35 | 26.97 | 497.74 | 33.00 | -6.03 | 1/25 |
| | | 1910.00 | 22.02 | V | 4.68 | 9.07 | 26.40 | 436.52 | 33.00 | -6.60 | 1/0 |
| | 16-QAM | 1855.00 | 20.76 | V | 4.62 | 9.60 | 25.74 | 374.97 | 33.00 | -7.26 | 1/25 |
| | | 1882.50 | 21.99 | V | 4.65 | 9.35 | 26.68 | 465.59 | 33.00 | -6.32 | 1/25 |
| | | 1910.00 | 21.26 | V | 4.68 | 9.07 | 25.64 | 366.44 | 33.00 | -7.36 | 1/0 |
| 15 | QPSK | 1857.50 | 21.60 | V | 4.63 | 9.58 | 26.55 | 451.86 | 33.00 | -6.45 | 1/37 |
| | | 1882.50 | 22.54 | V | 4.65 | 9.35 | 27.23 | 528.45 | 33.00 | -5.77 | 1/74 |
| | | 1907.50 | 22.06 | V | 4.69 | 9.10 | 26.47 | 443.61 | 33.00 | -6.53 | 1/0 |
| | 16-QAM | 1857.50 | 21.07 | V | 4.63 | 9.58 | 26.02 | 399.94 | 33.00 | -6.98 | 1/37 |
| | | 1882.50 | 21.79 | V | 4.65 | 9.35 | 26.48 | 444.63 | 33.00 | -6.52 | 1/0 |
| | | 1907.50 | 21.35 | V | 4.69 | 9.10 | 25.76 | 376.70 | 33.00 | -7.24 | 1/0 |
| 20 | QPSK | 1860.00 | 21.77 | V | 4.63 | 9.55 | 26.70 | 467.74 | 33.00 | -6.30 | 1/0 |
| | | 1882.50 | 22.61 | V | 4.65 | 9.35 | 27.30 | 537.03 | 33.00 | -5.70 | 1/99 |
| | | 1905.00 | 22.20 | V | 4.68 | 9.13 | 26.65 | 462.38 | 33.00 | -6.35 | 1/0 |
| | 16-QAM | 1860.00 | 21.12 | V | 4.63 | 9.55 | 26.05 | 402.72 | 33.00 | -6.95 | 1/99 |
| | | 1882.50 | 21.82 | V | 4.65 | 9.35 | 26.51 | 447.71 | 33.00 | -6.49 | 1/99 |
| | | 1905.00 | 21.53 | V | 4.68 | 9.13 | 25.98 | 396.28 | 33.00 | -7.02 | 1/0 |

LTE Band 26

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | ERP (dBm) | ERP (mW) | Limit (dBm) | Delta (dB) | RB | | |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|-----------|----------|-------------|------------|-------|--------|------|
| 1.4 | QPSK | 814.70 | 25.08 | V | 3.09 | -0.73 | 21.26 | 133.66 | 50.00 | -28.74 | 1/3 | | |
| | | 823.30 | 24.50 | V | 3.10 | -0.81 | 20.59 | 114.55 | 50.00 | -29.41 | 1/3 | | |
| | | 824.70 | 23.98 | V | 3.11 | -0.82 | 20.05 | 101.16 | 38.50 | -18.45 | 1/3 | | |
| | | 831.50 | 23.76 | V | 3.11 | -0.88 | 19.77 | 94.84 | 38.50 | -18.73 | 1/3 | | |
| | | 848.30 | 22.57 | V | 3.15 | -1.03 | 18.39 | 69.02 | 38.50 | -20.11 | 1/3 | | |
| | 16-QAM | 814.70 | 23.82 | V | 3.09 | -0.73 | 20.00 | 100.00 | 50.00 | -30.00 | 1/3 | | |
| | | 822.50 | 23.47 | V | 3.10 | -0.80 | 19.56 | 90.36 | 50.00 | -30.44 | 1/3 | | |
| | | 824.70 | 23.06 | V | 3.11 | -0.82 | 19.13 | 81.85 | 38.50 | -19.37 | 1/3 | | |
| | | 831.50 | 22.50 | V | 3.11 | -0.88 | 18.51 | 70.96 | 38.50 | -19.99 | 1/3 | | |
| | | 848.30 | 21.57 | V | 3.15 | -1.03 | 17.39 | 54.83 | 38.50 | -21.11 | 1/3 | | |
| 3 | QPSK | 815.50 | 24.86 | V | 3.08 | -0.74 | 21.04 | 127.06 | 50.00 | -28.96 | 1/0 | | |
| | | 822.50 | 24.90 | V | 3.10 | -0.80 | 21.00 | 125.89 | 50.00 | -29.00 | 1/0 | | |
| | | 825.50 | 24.19 | V | 3.10 | -0.83 | 20.25 | 105.93 | 38.50 | -18.25 | 1/0 | | |
| | | 831.50 | 23.58 | V | 3.11 | -0.88 | 19.59 | 90.99 | 38.50 | -18.91 | 1/0 | | |
| | | 847.50 | 22.80 | V | 3.15 | -1.03 | 18.63 | 72.95 | 38.50 | -19.87 | 1/0 | | |
| | 16-QAM | 815.50 | 24.11 | V | 3.08 | -0.74 | 20.29 | 106.91 | 50.00 | -29.71 | 1/0 | | |
| | | 822.50 | 23.69 | V | 3.10 | -0.80 | 19.79 | 95.28 | 50.00 | -30.21 | 1/14 | | |
| | | 825.50 | 23.05 | V | 3.10 | -0.83 | 19.11 | 81.47 | 38.50 | -19.39 | 1/0 | | |
| | | 831.50 | 22.44 | V | 3.11 | -0.88 | 18.45 | 69.98 | 38.50 | -20.05 | 1/0 | | |
| | | 847.50 | 21.46 | V | 3.15 | -1.03 | 17.29 | 53.58 | 38.50 | -21.21 | 1/0 | | |
| 5 | QPSK | 816.50 | 24.77 | V | 3.09 | -0.75 | 20.94 | 124.17 | 50.00 | -29.06 | 1/12 | | |
| | | 821.50 | 24.41 | V | 3.10 | -0.79 | 20.52 | 112.72 | 50.00 | -29.48 | 1/0 | | |
| | | 826.50 | 23.85 | V | 3.11 | -0.84 | 19.90 | 97.72 | 38.50 | -18.60 | 1/0 | | |
| | | 831.50 | 24.01 | V | 3.11 | -0.88 | 20.02 | 100.46 | 38.50 | -18.48 | 1/0 | | |
| | | 846.50 | 22.51 | V | 3.14 | -1.02 | 18.35 | 68.39 | 38.50 | -20.15 | 1/0 | | |
| | 16-QAM | 816.50 | 23.77 | V | 3.09 | -0.75 | 19.94 | 98.63 | 50.00 | -30.06 | 1/12 | | |
| | | 821.50 | 23.34 | V | 3.10 | -0.79 | 19.45 | 88.10 | 50.00 | -30.55 | 1/0 | | |
| | | 826.50 | 23.00 | V | 3.11 | -0.84 | 19.05 | 80.35 | 38.50 | -19.45 | 1/0 | | |
| | | 831.50 | 23.25 | V | 3.11 | -0.88 | 19.26 | 84.33 | 38.50 | -19.24 | 1/0 | | |
| | | 846.50 | 21.86 | V | 3.14 | -1.02 | 17.70 | 58.88 | 38.50 | -20.80 | 1/0 | | |
| 10 | QPSK | 819.00 | 24.70 | V | 3.09 | -0.77 | 20.83 | 121.06 | 50.00 | -29.17 | 1/0 | | |
| | | 829.00 | 24.50 | V | 3.11 | -0.86 | 20.52 | 112.72 | 38.50 | -17.98 | 1/49 | | |
| | | 831.50 | 24.68 | V | 3.11 | -0.88 | 20.69 | 117.22 | 38.50 | -17.81 | 1/0 | | |
| | | 844.00 | 23.71 | V | 3.14 | -1.00 | 19.57 | 90.57 | 38.50 | -18.93 | 1/0 | | |
| | | 819.00 | 23.81 | V | 3.09 | -0.77 | 19.94 | 98.63 | 50.00 | -30.06 | 1/0 | | |
| | 16-QAM | 829.00 | 22.80 | V | 3.11 | -0.86 | 18.82 | 76.21 | 38.50 | -19.68 | 1/49 | | |
| | | 831.50 | 23.13 | V | 3.11 | -0.88 | 19.14 | 82.04 | 38.50 | -19.36 | 1/0 | | |
| | | 844.00 | 22.72 | V | 3.14 | -1.00 | 18.58 | 72.11 | 38.50 | -19.92 | 1/0 | | |
| | | 15 | QPSK | 821.50 | 24.05 | V | 3.10 | -0.79 | 20.16 | 103.75 | 50.00 | -29.84 | 1/0 |
| | | | | 831.50 | 23.54 | V | 3.11 | -0.88 | 19.55 | 90.16 | 38.50 | -18.95 | 1/37 |
| 841.50 | 22.37 | | | V | 3.13 | -0.97 | 18.26 | 66.99 | 38.50 | -20.24 | 1/37 | | |
| 16-QAM | 821.50 | | 23.04 | V | 3.10 | -0.79 | 19.15 | 82.22 | 50.00 | -30.85 | 1/0 | | |
| | 831.50 | | 23.36 | V | 3.11 | -0.88 | 19.37 | 86.50 | 38.50 | -19.13 | 1/0 | | |
| 841.50 | 21.90 | V | 3.13 | -0.97 | 17.79 | 60.12 | 38.50 | -20.71 | 1/0 | | | | |

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain #REF! | ERP (dBm) | ERP (mW) | Limit (dBm) | Delta (dB) | RB |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|-----------|----------|-------------|------------|-----|
| 1.4 | QPSK | 824.00 | 23.89 | V | 3.10 | -0.82 | 19.97 | 99.31 | 38.50 | -18.53 | 1/5 |
| | 16-QAM | | 22.65 | V | 3.10 | -0.82 | 18.73 | 74.64 | 38.50 | -19.77 | 1/5 |
| 3 | QPSK | | 24.13 | V | 3.10 | -0.82 | 20.21 | 104.95 | 38.50 | -18.29 | 1/0 |
| | 16-QAM | | 22.94 | V | 3.10 | -0.82 | 19.02 | 79.80 | 38.50 | -19.48 | 1/0 |
| 5 | QPSK | | 24.15 | V | 3.10 | -0.82 | 20.23 | 105.44 | 38.50 | -18.27 | 1/0 |
| | 16-QAM | | 23.39 | V | 3.10 | -0.82 | 19.47 | 88.51 | 38.50 | -19.03 | 1/0 |
| 10 | QPSK | | 25.10 | V | 3.10 | -0.82 | 21.18 | 131.22 | 38.50 | -17.32 | 1/0 |
| | 16-QAM | | 23.98 | V | 3.10 | -0.82 | 20.06 | 101.39 | 38.50 | -18.44 | 1/0 |
| 15 | QPSK | | 23.78 | V | 3.10 | -0.82 | 19.86 | 96.83 | 38.50 | -18.64 | 1/0 |
| | 16-QAM | | 23.00 | V | 3.10 | -0.82 | 19.08 | 80.91 | 38.50 | -19.42 | 1/0 |

LTE Band 41(PC2)

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | EIRP (mW) | Limit (dBm) | Delta (dB) | RB |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|------------|-----------|-------------|------------|------|
| 5 | QPSK | 2498.50 | 19.41 | H | 5.36 | 10.18 | 24.22 | 264.24 | 33.00 | -8.78 | 1/12 |
| | | 2593.00 | 22.11 | H | 5.47 | 10.03 | 26.67 | 464.52 | 33.00 | -6.33 | 1/12 |
| | | 2687.50 | 21.33 | H | 5.57 | 10.05 | 25.82 | 381.94 | 33.00 | -7.18 | 1/0 |
| | 16-QAM | 2498.50 | 18.71 | H | 5.36 | 10.18 | 23.52 | 224.91 | 33.00 | -9.48 | 1/24 |
| | | 2593.00 | 21.45 | H | 5.47 | 10.03 | 26.01 | 399.02 | 33.00 | -6.99 | 1/12 |
| | | 2687.50 | 20.78 | H | 5.57 | 10.05 | 25.27 | 336.51 | 33.00 | -7.73 | 1/12 |
| 10 | QPSK | 2501.00 | 19.66 | H | 5.38 | 10.17 | 24.45 | 278.61 | 33.00 | -8.55 | 1/0 |
| | | 2593.00 | 21.93 | H | 5.47 | 10.03 | 26.49 | 445.66 | 33.00 | -6.51 | 1/0 |
| | | 2685.00 | 21.27 | H | 5.56 | 10.05 | 25.77 | 377.57 | 33.00 | -7.23 | 1/25 |
| | 16-QAM | 2501.00 | 18.78 | H | 5.38 | 10.17 | 23.57 | 227.51 | 33.00 | -9.43 | 1/0 |
| | | 2593.00 | 21.40 | H | 5.47 | 10.03 | 25.96 | 394.46 | 33.00 | -7.04 | 1/25 |
| | | 2685.00 | 20.68 | H | 5.56 | 10.05 | 25.18 | 329.61 | 33.00 | -7.82 | 1/25 |
| 15 | QPSK | 2503.50 | 19.89 | H | 5.37 | 10.17 | 24.69 | 294.44 | 33.00 | -8.31 | 1/0 |
| | | 2593.00 | 21.87 | H | 5.47 | 10.03 | 26.43 | 439.54 | 33.00 | -6.57 | 1/0 |
| | | 2682.50 | 21.23 | H | 5.56 | 10.05 | 25.72 | 373.25 | 33.00 | -7.28 | 1/74 |
| | 16-QAM | 2503.50 | 19.25 | H | 5.37 | 10.17 | 24.05 | 254.10 | 33.00 | -8.95 | 1/74 |
| | | 2593.00 | 21.29 | H | 5.47 | 10.03 | 25.85 | 384.59 | 33.00 | -7.15 | 1/37 |
| | | 2682.50 | 20.47 | H | 5.56 | 10.05 | 24.96 | 313.33 | 33.00 | -8.04 | 1/74 |
| 20 | QPSK | 2506.00 | 19.50 | H | 5.37 | 10.16 | 24.29 | 268.53 | 33.00 | -8.71 | 1/0 |
| | | 2593.00 | 21.84 | H | 5.47 | 10.03 | 26.40 | 436.52 | 33.00 | -6.60 | 1/49 |
| | | 2680.00 | 21.30 | H | 5.56 | 10.05 | 25.79 | 379.31 | 33.00 | -7.21 | 1/49 |
| | 16-QAM | 2506.00 | 18.94 | H | 5.37 | 10.16 | 23.73 | 236.05 | 33.00 | -9.27 | 1/0 |
| | | 2593.00 | 21.08 | H | 5.47 | 10.03 | 25.64 | 366.44 | 33.00 | -7.36 | 1/49 |
| | | 2680.00 | 20.11 | H | 5.56 | 10.05 | 24.60 | 288.40 | 33.00 | -8.40 | 1/99 |

LTE Band 41C (Uplink CA)

| Antenna Gain (dBi) | -0.5 | | | | | | | | | | | | |
|-----------------------|-----------------------|----------------------|--------|--------|---------|--------|-------------------------------|-------|------------|-------|-----------|--------|--------|
| Bandwidth | PCC Frequency (MHz) | SCC1 Frequency (MHz) | PCC RB | | SCC1 RB | | Conducted Average Power (dBm) | | eirp (dBm) | | eirp (mW) | | |
| | | | Size | Offset | Size | Offset | QPSK | 16QAM | QPSK | 16QAM | QPSK | 16QAM | |
| 40MHz (20MHz / 20MHz) | 2506 | 2525.8 | 1 | 99 | 1 | 0 | 23.94 | 23.50 | 23.44 | 23.00 | 220.80 | 199.53 | |
| | | | 1 | 0 | 1 | 99 | 15.33 | 15.68 | 14.83 | 15.18 | 30.41 | 32.96 | |
| | | | 100 | 0 | 100 | 0 | 21.72 | 20.62 | 21.22 | 20.12 | 132.43 | 102.80 | |
| | | | 1 | 99 | 1 | 0 | 23.92 | 23.11 | 23.42 | 22.61 | 219.79 | 182.39 | |
| | | | 1 | 0 | 1 | 99 | 15.56 | 15.01 | 15.06 | 14.51 | 32.06 | 28.25 | |
| | | | 100 | 0 | 100 | 0 | 21.59 | 20.66 | 21.09 | 20.16 | 128.53 | 103.75 | |
| | 2660.2 | 2680 | 1 | 99 | 1 | 0 | 23.98 | 22.62 | 23.48 | 22.12 | 222.84 | 162.93 | |
| | | | 1 | 0 | 1 | 99 | 15.33 | 15.05 | 14.83 | 14.55 | 30.41 | 28.51 | |
| | | | 100 | 0 | 100 | 0 | 21.63 | 20.76 | 21.13 | 20.26 | 129.72 | 106.17 | |
| | | | 1 | 74 | 1 | 0 | 23.81 | 22.47 | 23.31 | 21.97 | 214.29 | 157.40 | |
| | | | 1 | 0 | 1 | 99 | 15.57 | 15.23 | 15.07 | 14.73 | 32.14 | 29.72 | |
| | | | 75 | 0 | 100 | 0 | 21.61 | 20.72 | 21.11 | 20.22 | 129.12 | 105.20 | |
| 35MHz (15MHz / 20MHz) | 2503.5 | 2520.6 | 1 | 74 | 1 | 0 | 23.66 | 22.50 | 23.16 | 22.00 | 207.01 | 158.49 | |
| | | | 1 | 0 | 1 | 99 | 16.01 | 15.91 | 15.51 | 15.41 | 35.56 | 34.75 | |
| | | | 75 | 0 | 100 | 0 | 22.20 | 21.25 | 21.70 | 20.75 | 147.91 | 118.85 | |
| | | | 1 | 74 | 1 | 0 | 22.95 | 21.23 | 22.45 | 20.73 | 175.79 | 118.30 | |
| | | | 1 | 0 | 1 | 99 | 14.70 | 14.77 | 14.20 | 14.27 | 26.30 | 26.73 | |
| | | | 75 | 0 | 100 | 0 | 20.22 | 19.56 | 19.72 | 19.06 | 93.76 | 80.54 | |
| | 30MHz (15MHz / 15MHz) | 2503.5 | 2518.5 | 1 | 74 | 1 | 0 | 23.69 | 23.45 | 23.19 | 22.95 | 208.45 | 197.24 |
| | | | | 1 | 0 | 1 | 74 | 17.71 | 16.50 | 17.21 | 16.00 | 52.60 | 39.81 |
| | | | | 75 | 0 | 75 | 0 | 22.95 | 21.89 | 22.45 | 21.39 | 175.79 | 137.72 |
| | | | | 1 | 74 | 1 | 0 | 23.85 | 22.90 | 23.35 | 22.40 | 216.27 | 173.58 |
| | | | | 1 | 0 | 1 | 74 | 15.88 | 15.44 | 15.38 | 14.94 | 34.51 | 31.19 |
| | | | | 75 | 0 | 75 | 0 | 22.45 | 21.49 | 21.95 | 20.99 | 156.68 | 125.60 |
| 2667.5 | | 2682.5 | 1 | 74 | 1 | 0 | 23.23 | 23.14 | 22.73 | 22.64 | 187.50 | 183.65 | |
| | | | 1 | 0 | 1 | 74 | 14.59 | 14.15 | 14.09 | 13.65 | 25.64 | 23.17 | |
| | | | 75 | 0 | 75 | 0 | 20.45 | 19.31 | 19.95 | 18.81 | 98.86 | 76.03 | |
| | | | 1 | 74 | 1 | 0 | 23.65 | 22.80 | 23.15 | 22.30 | 206.54 | 169.82 | |
| | | | 1 | 0 | 1 | 99 | 15.65 | 16.27 | 15.15 | 15.77 | 32.73 | 37.76 | |
| | | | 25 | 0 | 100 | 0 | 21.80 | 20.53 | 21.30 | 20.03 | 134.90 | 100.69 | |
| 25MHz (5MHz / 20MHz) | 2498.5 | 2510.2 | 1 | 24 | 1 | 0 | 22.83 | 21.42 | 22.33 | 20.92 | 171.00 | 123.59 | |
| | | | 1 | 0 | 1 | 99 | 16.70 | 17.33 | 16.20 | 16.83 | 41.69 | 48.19 | |
| | | | 25 | 0 | 100 | 0 | 20.03 | 19.14 | 19.53 | 18.64 | 89.74 | 73.11 | |
| | | | 1 | 24 | 1 | 0 | 23.14 | 22.02 | 22.64 | 21.52 | 183.65 | 141.91 | |
| | | | 1 | 0 | 1 | 99 | 15.14 | 15.34 | 14.64 | 14.84 | 29.11 | 30.48 | |
| | | | 25 | 0 | 100 | 0 | 21.50 | 20.50 | 21.00 | 20.00 | 125.89 | 100.00 | |
| | 2583.8 | 2595.5 | 1 | 0 | 1 | 99 | 16.70 | 17.33 | 16.20 | 16.83 | 41.69 | 48.19 | |
| | | | 25 | 0 | 100 | 0 | 20.03 | 19.14 | 19.53 | 18.64 | 89.74 | 73.11 | |
| | | | 1 | 24 | 1 | 0 | 23.14 | 22.02 | 22.64 | 21.52 | 183.65 | 141.91 | |
| | | | 1 | 0 | 1 | 99 | 15.14 | 15.34 | 14.64 | 14.84 | 29.11 | 30.48 | |
| | | | 25 | 0 | 100 | 0 | 21.50 | 20.50 | 21.00 | 20.00 | 125.89 | 100.00 | |
| | | | 2668.3 | 2680 | 1 | 0 | 1 | 99 | 15.14 | 15.34 | 14.64 | 14.84 | 29.11 |

Note: eirp (dBm) = Conducted Average Power (dBm) + Antenna Gain (dBi)

LTE Band 66

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | EIRP (mW) | Limit (dBm) | Delta (dB) | RB |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|------------|-----------|-------------|------------|------|
| 1.4 | QPSK | 1710.70 | 21.40 | H | 4.43 | 9.57 | 26.54 | 450.82 | 30.00 | -3.46 | 1/3 |
| | | 1745.00 | 21.78 | H | 4.47 | 9.68 | 26.98 | 498.88 | 30.00 | -3.02 | 1/3 |
| | | 1779.30 | 20.51 | H | 4.52 | 9.70 | 25.69 | 370.68 | 30.00 | -4.31 | 1/0 |
| | 16-QAM | 1710.70 | 20.41 | H | 4.43 | 9.57 | 25.55 | 358.92 | 30.00 | -4.45 | 1/3 |
| | | 1745.00 | 20.72 | H | 4.47 | 9.68 | 25.93 | 391.74 | 30.00 | -4.07 | 1/3 |
| | | 1779.30 | 19.44 | H | 4.52 | 9.70 | 24.63 | 290.40 | 30.00 | -5.37 | 1/3 |
| 3 | QPSK | 1711.50 | 21.63 | H | 4.44 | 9.57 | 26.77 | 475.34 | 30.00 | -3.23 | 1/0 |
| | | 1745.00 | 21.73 | H | 4.47 | 9.68 | 26.93 | 493.17 | 30.00 | -3.07 | 1/0 |
| | | 1778.50 | 20.94 | H | 4.52 | 9.70 | 26.13 | 410.20 | 30.00 | -3.87 | 1/0 |
| | 16-QAM | 1711.50 | 20.37 | H | 4.44 | 9.57 | 25.51 | 355.63 | 30.00 | -4.49 | 1/0 |
| | | 1745.00 | 20.70 | H | 4.47 | 9.68 | 25.90 | 389.05 | 30.00 | -4.10 | 1/0 |
| | | 1778.50 | 19.76 | H | 4.52 | 9.70 | 24.94 | 311.89 | 30.00 | -5.06 | 1/0 |
| 5 | QPSK | 1712.50 | 21.56 | H | 4.44 | 9.57 | 26.70 | 467.74 | 30.00 | -3.30 | 1/0 |
| | | 1745.00 | 21.71 | H | 4.47 | 9.68 | 26.91 | 490.91 | 30.00 | -3.09 | 1/0 |
| | | 1777.50 | 20.64 | H | 4.52 | 9.70 | 25.82 | 381.94 | 30.00 | -4.18 | 1/12 |
| | 16-QAM | 1712.50 | 20.61 | H | 4.44 | 9.57 | 25.75 | 375.84 | 30.00 | -4.25 | 1/0 |
| | | 1745.00 | 20.93 | H | 4.47 | 9.68 | 26.13 | 410.20 | 30.00 | -3.87 | 1/12 |
| | | 1777.50 | 19.71 | H | 4.52 | 9.70 | 24.89 | 308.32 | 30.00 | -5.11 | 1/0 |
| 10 | QPSK | 1715.00 | 21.44 | H | 4.44 | 9.58 | 26.59 | 456.04 | 30.00 | -3.41 | 1/25 |
| | | 1745.00 | 21.64 | H | 4.47 | 9.68 | 26.84 | 483.06 | 30.00 | -3.16 | 1/25 |
| | | 1775.00 | 20.61 | H | 4.51 | 9.70 | 25.80 | 380.19 | 30.00 | -4.20 | 1/25 |
| | 16-QAM | 1715.00 | 20.51 | H | 4.44 | 9.58 | 25.66 | 368.13 | 30.00 | -4.34 | 1/25 |
| | | 1745.00 | 20.53 | H | 4.47 | 9.68 | 25.73 | 374.11 | 30.00 | -4.27 | 1/25 |
| | | 1775.00 | 19.60 | H | 4.51 | 9.70 | 24.79 | 301.30 | 30.00 | -5.21 | 1/25 |
| 15 | QPSK | 1717.50 | 21.56 | H | 4.44 | 9.59 | 26.71 | 468.81 | 30.00 | -3.29 | 1/37 |
| | | 1745.00 | 21.32 | H | 4.47 | 9.68 | 26.52 | 448.75 | 30.00 | -3.48 | 1/37 |
| | | 1772.50 | 20.59 | H | 4.51 | 9.70 | 25.78 | 378.44 | 30.00 | -4.22 | 1/0 |
| | 16-QAM | 1717.50 | 20.68 | H | 4.44 | 9.59 | 25.83 | 382.82 | 30.00 | -4.17 | 1/37 |
| | | 1745.00 | 20.49 | H | 4.47 | 9.68 | 25.69 | 370.68 | 30.00 | -4.31 | 1/37 |
| | | 1772.50 | 19.73 | H | 4.51 | 9.70 | 24.92 | 310.46 | 30.00 | -5.08 | 1/0 |
| 20 | QPSK | 1720.00 | 21.60 | H | 4.44 | 9.60 | 26.75 | 473.15 | 30.00 | -3.25 | 1/49 |
| | | 1745.00 | 21.47 | H | 4.47 | 9.68 | 26.68 | 465.59 | 30.00 | -3.32 | 1/49 |
| | | 1770.00 | 20.52 | H | 4.51 | 9.70 | 25.71 | 372.39 | 30.00 | -4.29 | 1/0 |
| | 16-QAM | 1720.00 | 20.70 | H | 4.44 | 9.60 | 25.86 | 385.48 | 30.00 | -4.14 | 1/49 |
| | | 1745.00 | 20.63 | H | 4.47 | 9.68 | 25.83 | 382.82 | 30.00 | -4.17 | 1/49 |
| | | 1770.00 | 19.60 | H | 4.51 | 9.70 | 24.79 | 301.30 | 30.00 | -5.21 | 1/0 |

LTE Band 71

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | ERP (dBm) | ERP (mW) | Limit (dBm) | Delta (dB) | RB |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|-----------|----------|-------------|------------|------|
| 5 | QPSK | 665.50 | 24.67 | H | 2.79 | -0.70 | 21.18 | 131.22 | 34.77 | -13.59 | 1/0 |
| | | 680.50 | 25.14 | H | 2.83 | -0.74 | 21.57 | 143.55 | 34.77 | -13.20 | 1/12 |
| | | 695.50 | 24.59 | H | 2.86 | -0.79 | 20.94 | 124.17 | 34.77 | -13.83 | 1/12 |
| | 16-QAM | 665.50 | 23.74 | H | 2.79 | -0.70 | 20.25 | 105.93 | 34.77 | -14.52 | 1/0 |
| | | 680.50 | 24.35 | H | 2.83 | -0.74 | 20.78 | 119.67 | 34.77 | -13.99 | 1/12 |
| | | 695.50 | 23.47 | H | 2.86 | -0.79 | 19.82 | 95.94 | 34.77 | -14.95 | 1/0 |
| 10 | QPSK | 668.00 | 24.72 | H | 2.81 | -0.70 | 21.21 | 132.13 | 34.77 | -13.56 | 1/0 |
| | | 680.50 | 25.03 | H | 2.83 | -0.74 | 21.46 | 139.96 | 34.77 | -13.31 | 1/0 |
| | | 693.00 | 24.77 | H | 2.86 | -0.78 | 21.14 | 130.02 | 34.77 | -13.63 | 1/0 |
| | 16-QAM | 668.00 | 23.68 | H | 2.81 | -0.70 | 20.17 | 103.99 | 34.77 | -14.60 | 1/0 |
| | | 680.50 | 23.83 | H | 2.83 | -0.74 | 20.26 | 106.17 | 34.77 | -14.51 | 1/0 |
| | | 693.00 | 23.87 | H | 2.86 | -0.78 | 20.24 | 105.68 | 34.77 | -14.53 | 1/0 |
| 15 | QPSK | 670.50 | 24.46 | H | 2.81 | -0.71 | 20.94 | 124.17 | 34.77 | -13.83 | 1/0 |
| | | 680.50 | 25.06 | H | 2.83 | -0.74 | 21.49 | 140.93 | 34.77 | -13.28 | 1/0 |
| | | 690.50 | 24.99 | H | 2.85 | -0.77 | 21.37 | 137.09 | 34.77 | -13.40 | 1/0 |
| | 16-QAM | 670.50 | 24.13 | H | 2.81 | -0.71 | 20.61 | 115.08 | 34.77 | -14.16 | 1/74 |
| | | 680.50 | 24.46 | H | 2.83 | -0.74 | 20.89 | 122.74 | 34.77 | -13.88 | 1/0 |
| | | 690.50 | 24.09 | H | 2.85 | -0.77 | 20.47 | 111.43 | 34.77 | -14.30 | 1/0 |
| 20 | QPSK | 673.00 | 24.48 | H | 2.81 | -0.72 | 20.95 | 124.45 | 34.77 | -13.82 | 1/0 |
| | | 680.50 | 24.88 | H | 2.83 | -0.74 | 21.31 | 135.21 | 34.77 | -13.46 | 1/0 |
| | | 688.00 | 25.08 | H | 2.85 | -0.76 | 21.47 | 140.28 | 34.77 | -13.30 | 1/0 |
| | 16-QAM | 673.00 | 24.42 | H | 2.81 | -0.72 | 20.89 | 122.74 | 34.77 | -13.88 | 1/49 |
| | | 680.50 | 24.20 | H | 2.83 | -0.74 | 20.63 | 115.61 | 34.77 | -14.14 | 1/0 |
| | | 688.00 | 24.19 | H | 2.85 | -0.76 | 20.58 | 114.29 | 34.77 | -14.19 | 1/0 |

5G NR n5

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | ERP (dBm) | ERP (mW) | Limit (dBm) | Delta (dB) | RB |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|-----------|----------|-------------|------------|-------|
| 5 | QPSK | 826.50 | 27.68 | V | 3.11 | -0.84 | 23.73 | 236.01 | 38.50 | -14.77 | 1/1 |
| | | 836.50 | 26.70 | V | 3.13 | -0.93 | 22.64 | 183.84 | 38.50 | -15.86 | 1/1 |
| | | 846.50 | 24.45 | V | 3.14 | -1.02 | 20.29 | 106.84 | 38.50 | -18.21 | 1/1 |
| | 16-QAM | 826.50 | 27.26 | V | 3.11 | -0.84 | 23.31 | 214.25 | 38.50 | -15.19 | 1/1 |
| | | 836.50 | 26.25 | V | 3.13 | -0.93 | 22.19 | 165.74 | 38.50 | -16.31 | 1/1 |
| | | 846.50 | 23.83 | V | 3.14 | -1.02 | 19.67 | 92.62 | 38.50 | -18.83 | 1/1 |
| 10 | QPSK | 829.00 | 27.49 | V | 3.11 | -0.86 | 23.52 | 224.72 | 38.50 | -14.98 | 1/50 |
| | | 836.50 | 25.96 | V | 3.13 | -0.93 | 21.90 | 155.04 | 38.50 | -16.60 | 1/26 |
| | | 844.00 | 24.66 | V | 3.14 | -1.00 | 20.52 | 112.83 | 38.50 | -17.98 | 1/26 |
| | 16-QAM | 829.00 | 27.09 | V | 3.11 | -0.86 | 23.12 | 204.95 | 38.50 | -15.38 | 1/50 |
| | | 836.50 | 25.53 | V | 3.13 | -0.93 | 21.47 | 140.42 | 38.50 | -17.03 | 1/26 |
| | | 844.00 | 24.23 | V | 3.14 | -1.00 | 20.09 | 102.19 | 38.50 | -18.41 | 1/26 |
| 15 | QPSK | 831.50 | 26.90 | V | 3.11 | -0.88 | 22.90 | 195.07 | 38.50 | -15.60 | 1/40 |
| | | 836.50 | 27.46 | V | 3.13 | -0.93 | 23.40 | 219.00 | 38.50 | -15.10 | 1/1 |
| | | 841.50 | 24.93 | V | 3.13 | -0.97 | 20.82 | 120.89 | 38.50 | -17.68 | 1/40 |
| | 16-QAM | 831.50 | 26.37 | V | 3.11 | -0.88 | 22.37 | 172.66 | 38.50 | -16.13 | 1/40 |
| | | 836.50 | 27.07 | V | 3.13 | -0.93 | 23.01 | 200.19 | 38.50 | -15.49 | 1/1 |
| | | 841.50 | 24.54 | V | 3.13 | -0.97 | 20.43 | 110.51 | 38.50 | -18.07 | 1/40 |
| 20 | QPSK | 834.00 | 26.60 | V | 3.12 | -0.91 | 22.57 | 180.77 | 38.50 | -15.93 | 1/104 |
| | | 836.50 | 27.68 | V | 3.13 | -0.93 | 23.62 | 230.38 | 38.50 | -14.88 | 1/1 |
| | | 839.00 | 25.33 | V | 3.13 | -0.95 | 21.25 | 133.25 | 38.50 | -17.25 | 1/53 |
| | 16-QAM | 834.00 | 25.87 | V | 3.12 | -0.91 | 21.84 | 152.80 | 38.50 | -16.66 | 1/104 |
| | | 836.50 | 27.31 | V | 3.13 | -0.93 | 23.25 | 211.56 | 38.50 | -15.25 | 1/53 |
| | | 839.00 | 24.94 | V | 3.13 | -0.95 | 20.86 | 121.81 | 38.50 | -17.64 | 1/53 |

5G NR n25

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | EIRP (mW) | Limit (dBm) | Delta (dB) | RB |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|------------|-----------|-------------|------------|-------|
| 5 | QPSK | 1852.50 | 20.67 | V | 4.62 | 9.62 | 25.68 | 369.50 | 33.00 | -7.32 | 1/23 |
| | | 1882.50 | 21.47 | V | 4.65 | 9.35 | 26.16 | 413.16 | 33.00 | -6.84 | 1/23 |
| | | 1912.50 | 20.54 | V | 4.69 | 9.03 | 24.89 | 308.13 | 33.00 | -8.11 | 1/1 |
| | 16-QAM | 1852.50 | 19.85 | V | 4.62 | 9.62 | 24.86 | 305.93 | 33.00 | -8.14 | 1/23 |
| | | 1882.50 | 20.58 | V | 4.65 | 9.35 | 25.27 | 336.60 | 33.00 | -7.73 | 1/23 |
| | | 1912.50 | 19.46 | V | 4.69 | 9.03 | 23.81 | 240.29 | 33.00 | -9.19 | 1/1 |
| 10 | QPSK | 1855.00 | 20.66 | V | 4.62 | 9.60 | 25.64 | 366.16 | 33.00 | -7.36 | 1/50 |
| | | 1882.50 | 21.40 | V | 4.65 | 9.35 | 26.09 | 406.55 | 33.00 | -6.91 | 1/26 |
| | | 1910.00 | 20.61 | V | 4.68 | 9.07 | 24.99 | 315.78 | 33.00 | -8.01 | 1/1 |
| | 16-QAM | 1855.00 | 19.88 | V | 4.62 | 9.60 | 24.86 | 305.97 | 33.00 | -8.14 | 1/50 |
| | | 1882.50 | 20.54 | V | 4.65 | 9.35 | 25.23 | 333.52 | 33.00 | -7.77 | 1/26 |
| | | 1910.00 | 19.92 | V | 4.68 | 9.07 | 24.30 | 269.39 | 33.00 | -8.70 | 1/1 |
| 15 | QPSK | 1857.50 | 20.65 | V | 4.63 | 9.58 | 25.60 | 362.76 | 33.00 | -7.40 | 1/77 |
| | | 1882.50 | 21.47 | V | 4.65 | 9.35 | 26.16 | 413.16 | 33.00 | -6.84 | 1/1 |
| | | 1907.50 | 20.54 | V | 4.69 | 9.10 | 24.95 | 312.78 | 33.00 | -8.05 | 1/1 |
| | 16-QAM | 1857.50 | 20.18 | V | 4.63 | 9.58 | 25.13 | 325.55 | 33.00 | -7.87 | 1/77 |
| | | 1882.50 | 20.62 | V | 4.65 | 9.35 | 25.31 | 339.72 | 33.00 | -7.69 | 1/1 |
| | | 1907.50 | 19.91 | V | 4.69 | 9.10 | 24.32 | 270.54 | 33.00 | -8.68 | 1/1 |
| 20 | QPSK | 1860.00 | 21.55 | V | 4.63 | 9.55 | 26.48 | 444.62 | 33.00 | -6.52 | 1/104 |
| | | 1882.50 | 21.34 | V | 4.65 | 9.35 | 26.03 | 400.98 | 33.00 | -6.97 | 1/53 |
| | | 1905.00 | 20.78 | V | 4.68 | 9.13 | 25.23 | 333.24 | 33.00 | -7.77 | 1/1 |
| | 16-QAM | 1860.00 | 20.22 | V | 4.63 | 9.55 | 25.15 | 327.33 | 33.00 | -7.85 | 1/53 |
| | | 1882.50 | 20.43 | V | 4.65 | 9.35 | 25.12 | 325.18 | 33.00 | -7.88 | 1/1 |
| | | 1905.00 | 19.71 | V | 4.68 | 9.13 | 24.16 | 260.47 | 33.00 | -8.84 | 1/1 |

5G NR n41(PC2)

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | EIRP (mW) | Limit (dBm) | Delta (dB) | RB |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|------------|-----------|-------------|------------|-------|
| 20 | BPSK | 2506.01 | 20.28 | H | 5.37 | 10.16 | 25.07 | 321.37 | 33.00 | -7.93 | 1/1 |
| | | 2592.99 | 23.19 | H | 5.47 | 10.03 | 27.75 | 595.66 | 33.00 | -5.25 | 1/49 |
| | | 2680.00 | 22.83 | H | 5.56 | 10.05 | 27.32 | 539.51 | 33.00 | -5.68 | 1/1 |
| | 16-QAM | 2506.01 | 19.46 | H | 5.37 | 10.16 | 24.25 | 266.07 | 33.00 | -8.75 | 1/1 |
| | | 2592.99 | 22.27 | H | 5.47 | 10.03 | 26.83 | 481.95 | 33.00 | -6.17 | 1/49 |
| | | 2680.00 | 21.91 | H | 5.56 | 10.05 | 26.40 | 436.52 | 33.00 | -6.60 | 1/1 |
| 30 | BPSK | 2511.01 | 19.42 | H | 5.39 | 10.16 | 24.19 | 262.42 | 33.00 | -8.81 | 1/76 |
| | | 2592.99 | 23.26 | H | 5.47 | 10.03 | 27.82 | 605.34 | 33.00 | -5.18 | 1/76 |
| | | 2675.00 | 23.04 | H | 5.56 | 10.05 | 27.52 | 564.94 | 33.00 | -5.48 | 1/1 |
| | 16-QAM | 2511.01 | 18.60 | H | 5.39 | 10.16 | 23.37 | 217.27 | 33.00 | -9.63 | 1/76 |
| | | 2592.99 | 22.21 | H | 5.47 | 10.03 | 26.77 | 475.34 | 33.00 | -6.23 | 1/76 |
| | | 2675.00 | 22.09 | H | 5.56 | 10.05 | 26.57 | 453.94 | 33.00 | -6.43 | 1/1 |
| 40 | BPSK | 2516.01 | 21.25 | H | 5.38 | 10.15 | 26.02 | 399.94 | 33.00 | -6.98 | 1/1 |
| | | 2592.99 | 24.30 | H | 5.47 | 10.03 | 28.86 | 769.13 | 33.00 | -4.14 | 1/104 |
| | | 2670.00 | 22.25 | H | 5.55 | 10.04 | 26.75 | 473.15 | 33.00 | -6.25 | 1/1 |
| | 16-QAM | 2516.01 | 20.39 | H | 5.38 | 10.15 | 25.16 | 328.10 | 33.00 | -7.84 | 1/1 |
| | | 2592.99 | 23.25 | H | 5.47 | 10.03 | 27.81 | 603.95 | 33.00 | -5.19 | 1/104 |
| | | 2670.00 | 21.35 | H | 5.55 | 10.04 | 25.85 | 384.59 | 33.00 | -7.15 | 1/1 |
| 50 | BPSK | 2521.01 | 19.64 | H | 5.40 | 10.14 | 24.38 | 274.16 | 33.00 | -8.62 | 1/1 |
| | | 2592.99 | 24.05 | H | 5.47 | 10.03 | 28.61 | 726.11 | 33.00 | -4.39 | 1/131 |
| | | 2665.00 | 22.21 | H | 5.55 | 10.04 | 26.70 | 467.74 | 33.00 | -6.30 | 1/1 |
| | 16-QAM | 2521.01 | 18.64 | H | 5.40 | 10.17 | 23.41 | 219.28 | 33.00 | -9.59 | 1/1 |
| | | 2592.99 | 23.21 | H | 5.47 | 10.12 | 27.85 | 609.54 | 33.00 | -5.15 | 1/131 |
| | | 2665.00 | 21.27 | H | 5.55 | 10.16 | 25.88 | 387.26 | 33.00 | -7.12 | 1/1 |
| 60 | BPSK | 2526.01 | 21.97 | H | 5.39 | 10.13 | 26.72 | 469.89 | 33.00 | -6.28 | 1/1 |
| | | 2592.99 | 24.06 | H | 5.47 | 10.03 | 28.62 | 727.78 | 33.00 | -4.38 | 1/160 |
| | | 2660.00 | 23.22 | H | 5.57 | 10.04 | 27.69 | 587.49 | 33.00 | -5.31 | 1/1 |
| | 16-QAM | 2526.01 | 21.26 | H | 5.39 | 10.16 | 26.04 | 401.79 | 33.00 | -6.96 | 1/1 |
| | | 2592.99 | 23.17 | H | 5.47 | 10.12 | 27.81 | 603.95 | 33.00 | -5.19 | 1/160 |
| | | 2660.00 | 22.26 | H | 5.57 | 10.15 | 26.84 | 483.06 | 33.00 | -6.16 | 1/1 |
| 80 | BPSK | 2536.01 | 22.57 | H | 5.41 | 10.11 | 27.27 | 533.33 | 33.00 | -5.73 | 1/215 |
| | | 2592.99 | 23.93 | H | 5.47 | 10.03 | 28.49 | 706.32 | 33.00 | -4.51 | 1/215 |
| | | 2650.00 | 23.39 | H | 5.53 | 10.03 | 27.89 | 615.18 | 33.00 | -5.11 | 1/1 |
| | 16-QAM | 2536.01 | 21.55 | H | 5.41 | 10.14 | 26.28 | 424.62 | 33.00 | -6.72 | 1/215 |
| | | 2592.99 | 22.89 | H | 5.47 | 10.12 | 27.53 | 566.24 | 33.00 | -5.47 | 1/215 |
| | | 2650.00 | 22.35 | H | 5.53 | 10.13 | 26.95 | 495.45 | 33.00 | -6.05 | 1/1 |
| 90 | BPSK | 2541.01 | 22.95 | H | 5.43 | 10.10 | 27.63 | 579.43 | 33.00 | -5.37 | 1/243 |
| | | 2592.99 | 23.94 | H | 5.47 | 10.03 | 28.50 | 707.95 | 33.00 | -4.50 | 1/243 |
| | | 2645.00 | 23.41 | H | 5.53 | 10.03 | 27.91 | 618.02 | 33.00 | -5.09 | 1/1 |
| | 16-QAM | 2541.01 | 21.64 | H | 5.43 | 10.13 | 26.35 | 431.52 | 33.00 | -6.65 | 1/243 |
| | | 2592.99 | 22.40 | H | 5.47 | 10.12 | 27.04 | 505.82 | 33.00 | -5.96 | 1/243 |
| | | 2645.00 | 22.37 | H | 5.53 | 10.13 | 26.97 | 497.74 | 33.00 | -6.03 | 1/1 |
| 100 | BPSK | 2546.01 | 22.79 | H | 5.42 | 10.09 | 27.46 | 557.19 | 33.00 | -5.54 | 1/271 |
| | | 2592.99 | 23.91 | H | 5.47 | 10.03 | 28.47 | 703.07 | 33.00 | -4.53 | 1/137 |
| | | 2640.00 | 23.63 | H | 5.52 | 10.03 | 28.14 | 651.63 | 33.00 | -4.86 | 1/1 |
| | 16-QAM | 2546.01 | 21.29 | H | 5.42 | 10.09 | 25.96 | 394.46 | 33.00 | -7.04 | 1/271 |
| | | 2592.99 | 23.01 | H | 5.47 | 10.03 | 27.57 | 571.48 | 33.00 | -5.43 | 1/137 |
| | | 2640.00 | 22.30 | H | 5.52 | 10.03 | 26.81 | 479.73 | 33.00 | -6.19 | 1/1 |

5G NR n66

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | EIRP (mW) | Limit (dBm) | Delta (dB) | RB |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|------------|-----------|-------------|------------|-------|
| 5 | QPSK | 1712.50 | 21.55 | H | 4.44 | 9.58 | 26.70 | 467.74 | 30.00 | -3.30 | 1/23 |
| | | 1745.00 | 21.68 | H | 4.47 | 9.69 | 26.89 | 488.65 | 30.00 | -3.11 | 1/13 |
| | | 1777.50 | 20.44 | H | 4.52 | 9.71 | 25.63 | 365.59 | 30.00 | -4.37 | 1/13 |
| | 16-QAM | 1712.50 | 20.46 | H | 4.44 | 9.58 | 25.61 | 363.92 | 30.00 | -4.39 | 1/23 |
| | | 1745.00 | 20.70 | H | 4.47 | 9.69 | 25.91 | 389.94 | 30.00 | -4.09 | 1/13 |
| | | 1777.50 | 19.28 | H | 4.52 | 9.71 | 24.47 | 279.90 | 30.00 | -5.53 | 1/13 |
| 10 | QPSK | 1715.00 | 21.81 | H | 4.44 | 9.59 | 26.97 | 497.74 | 30.00 | -3.03 | 1/50 |
| | | 1745.00 | 21.55 | H | 4.47 | 9.69 | 26.76 | 474.24 | 30.00 | -3.24 | 1/26 |
| | | 1775.00 | 21.12 | H | 4.51 | 9.71 | 26.31 | 427.56 | 30.00 | -3.69 | 1/50 |
| | 16-QAM | 1715.00 | 21.05 | H | 4.44 | 9.59 | 26.21 | 417.83 | 30.00 | -3.79 | 1/50 |
| | | 1745.00 | 20.61 | H | 4.47 | 9.69 | 25.82 | 381.94 | 30.00 | -4.18 | 1/26 |
| | | 1775.00 | 20.33 | H | 4.51 | 9.71 | 25.52 | 356.45 | 30.00 | -4.48 | 1/50 |
| 15 | QPSK | 1717.50 | 21.73 | H | 4.44 | 9.60 | 26.89 | 488.65 | 30.00 | -3.11 | 1/77 |
| | | 1745.00 | 21.29 | H | 4.47 | 9.69 | 26.50 | 446.68 | 30.00 | -3.50 | 1/1 |
| | | 1772.50 | 21.44 | H | 4.51 | 9.71 | 26.64 | 461.32 | 30.00 | -3.36 | 1/77 |
| | 16-QAM | 1717.50 | 20.82 | H | 4.44 | 9.60 | 25.98 | 396.28 | 30.00 | -4.02 | 1/77 |
| | | 1745.00 | 20.39 | H | 4.47 | 9.69 | 25.60 | 363.08 | 30.00 | -4.40 | 1/1 |
| | | 1772.50 | 20.21 | H | 4.51 | 9.71 | 25.41 | 347.54 | 30.00 | -4.59 | 1/77 |
| 20 | QPSK | 1720.00 | 21.85 | H | 4.44 | 9.61 | 27.01 | 502.34 | 30.00 | -2.99 | 1/1 |
| | | 1745.00 | 21.72 | H | 4.47 | 9.69 | 26.93 | 493.17 | 30.00 | -3.07 | 1/1 |
| | | 1770.00 | 20.35 | H | 4.51 | 9.71 | 25.55 | 358.92 | 30.00 | -4.45 | 1/104 |
| | 16-QAM | 1720.00 | 20.79 | H | 4.44 | 9.61 | 25.95 | 393.55 | 30.00 | -4.05 | 1/104 |
| | | 1745.00 | 20.59 | H | 4.47 | 9.69 | 25.80 | 380.19 | 30.00 | -4.20 | 1/104 |
| | | 1770.00 | 19.21 | H | 4.51 | 9.71 | 24.41 | 276.06 | 30.00 | -5.59 | 1/104 |

5G NR n71

| BW (MHz) | Modulation | f (MHz) | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | ERP (dBm) | ERP (mW) | Limit (dBm) | Delta (dB) | RB |
|----------|------------|---------|------------------|-----------------|-----------------|--------------------|-----------|----------|-------------|------------|------|
| 5 | QPSK | 665.50 | 24.74 | H | 2.79 | -0.70 | 21.25 | 133.35 | 34.77 | -13.52 | 1/1 |
| | | 680.50 | 25.28 | H | 2.83 | -0.74 | 21.71 | 148.25 | 34.77 | -13.06 | 1/13 |
| | | 695.50 | 24.63 | H | 2.86 | -0.79 | 20.98 | 125.31 | 34.77 | -13.79 | 1/1 |
| | 16-QAM | 665.50 | 24.24 | H | 2.79 | -0.70 | 20.75 | 118.85 | 34.77 | -14.02 | 1/1 |
| | | 680.50 | 24.64 | H | 2.83 | -0.74 | 21.07 | 127.94 | 34.77 | -13.70 | 1/13 |
| | | 695.50 | 24.02 | H | 2.86 | -0.79 | 20.37 | 108.89 | 34.77 | -14.40 | 1/1 |
| 10 | QPSK | 668.00 | 25.34 | H | 2.81 | -0.70 | 21.83 | 152.41 | 34.77 | -12.94 | 1/50 |
| | | 680.50 | 25.34 | H | 2.83 | -0.74 | 21.77 | 150.31 | 34.77 | -13.00 | 1/26 |
| | | 693.00 | 24.80 | H | 2.86 | -0.78 | 21.17 | 130.92 | 34.77 | -13.60 | 1/1 |
| | 16-QAM | 668.00 | 24.86 | H | 2.81 | -0.70 | 21.35 | 136.46 | 34.77 | -13.42 | 1/50 |
| | | 680.50 | 24.73 | H | 2.83 | -0.74 | 21.16 | 130.62 | 34.77 | -13.61 | 1/26 |
| | | 693.00 | 24.38 | H | 2.86 | -0.78 | 20.75 | 118.85 | 34.77 | -14.02 | 1/1 |
| 15 | QPSK | 670.50 | 25.24 | H | 2.81 | -0.71 | 21.72 | 148.59 | 34.77 | -13.05 | 1/77 |
| | | 680.50 | 25.11 | H | 2.83 | -0.74 | 21.54 | 142.56 | 34.77 | -13.23 | 1/40 |
| | | 690.50 | 24.48 | H | 2.85 | -0.77 | 20.86 | 121.90 | 34.77 | -13.91 | 1/1 |
| | 16-QAM | 670.50 | 24.71 | H | 2.81 | -0.71 | 21.19 | 131.52 | 34.77 | -13.58 | 1/77 |
| | | 680.50 | 24.64 | H | 2.83 | -0.74 | 21.07 | 127.94 | 34.77 | -13.70 | 1/40 |
| | | 690.50 | 24.06 | H | 2.85 | -0.77 | 20.44 | 110.66 | 34.77 | -14.33 | 1/1 |
| 20 | QPSK | 673.00 | 25.25 | H | 2.81 | -0.72 | 21.72 | 148.59 | 34.77 | -13.05 | 1/53 |
| | | 680.50 | 24.84 | H | 2.83 | -0.74 | 21.27 | 133.97 | 34.77 | -13.50 | 1/1 |
| | | 688.00 | 24.70 | H | 2.85 | -0.76 | 21.09 | 128.53 | 34.77 | -13.68 | 1/1 |
| | 16-QAM | 673.00 | 24.81 | H | 2.81 | -0.72 | 21.28 | 134.28 | 34.77 | -13.49 | 1/1 |
| | | 680.50 | 24.25 | H | 2.83 | -0.74 | 20.68 | 116.95 | 34.77 | -14.09 | 1/53 |
| | | 688.00 | 24.27 | H | 2.85 | -0.76 | 20.66 | 116.41 | 34.77 | -14.11 | 1/1 |

9.6. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53 and §90.691

LIMIT

Part 22.917(a) & Part 24.238(a) & Part 27.53(h) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

Part 27.53:

(c)(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB.

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

(h) The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB.

(m) (4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Part 90.691(a):

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz. (NOTE : Use 100kHz reference bandwidth)

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

TEST PROCEDURE

ANSI / TIA / EIA 603 E Clause 2.2.12; ESU40 setting reference to 971168 D01 v03r01

For peak power measurement with a ESU40:

- a) Set the RBW = 100 KHz for emission below 1GHz and 1MHz for emissions above 1GHz
- b) Set VBW $\geq 3 \times$ RBW;
- c) Set span ≥ 1.5 times the OBW;
- d) Sweep time = auto couple;
- e) Detector = rms;
- f) Ensure that the number of measurement points \geq span/RBW;
- g) Trace mode = average(WCDMA, LTE FDD, 5G NR FDD), Maxhold(LTE TDD, 5G NR TDD);

RESULTS

See the following pages.

NOTE1

5G NR: All Waveforms (CP-OFDM vs DFT-s_OFDM) and modulations ($\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

NOTE2

Please refer to section 5.4 for bandwidth and RB setting about LTE, 5G NR bands.

9.6.1. SPURIOUS RADIATION PLOTS

WCDMA Band 5

| | | UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | |
|-----------------|--------------------------|--|--------------------|-----------------|----------------|----------------|---------------|----------------|---------------|-------|
| Band 5 REL99 | Company: | Samsung | | | | | | | | |
| | Project #: | 4790430333 | | | | | | | | |
| | Date: | 7/19/2022 | | | | | | | | |
| | Test Engineer: | 25770 | | | | | | | | |
| | Configuration: | EUT / AC Adapter / Earphone, Y-Position | | | | | | | | |
| | Location: | Chamber 1 | | | | | | | | |
| | Mode: | Rel99 Band 5 Harmonics | | | | | | | | |
| | Test Voltage: | AC 120 V, 60 Hz | | | | | | | | |
| | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| | Low Ch, 826.4MHz | | | | | | | | | |
| | 1652.80 | -15.2 | V | 3.0 | 45.6 | 1.0 | -59.8 | -13.0 | -46.8 | |
| | 2479.20 | -11.5 | V | 3.0 | 45.5 | 1.0 | -56.0 | -13.0 | -43.0 | |
| | 3305.60 | -9.9 | V | 3.0 | 45.7 | 1.0 | -54.6 | -13.0 | -41.6 | |
| | 1652.80 | -16.2 | H | 3.0 | 45.6 | 1.0 | -60.8 | -13.0 | -47.8 | |
| | 2479.20 | -11.9 | H | 3.0 | 45.5 | 1.0 | -56.4 | -13.0 | -43.4 | |
| | 3305.60 | -9.9 | H | 3.0 | 45.7 | 1.0 | -54.5 | -13.0 | -41.5 | |
| | Mid Ch, 836.6MHz | | | | | | | | | |
| | 1673.20 | -15.1 | V | 3.0 | 45.6 | 1.0 | -59.7 | -13.0 | -46.7 | |
| | 2509.80 | -11.1 | V | 3.0 | 45.5 | 1.0 | -55.5 | -13.0 | -42.5 | |
| | 3346.40 | -9.7 | V | 3.0 | 45.7 | 1.0 | -54.4 | -13.0 | -41.4 | |
| | 1673.20 | -16.1 | H | 3.0 | 45.6 | 1.0 | -60.7 | -13.0 | -47.7 | |
| | 2509.80 | -11.7 | H | 3.0 | 45.5 | 1.0 | -56.1 | -13.0 | -43.1 | |
| | 3346.40 | -9.7 | H | 3.0 | 45.7 | 1.0 | -54.4 | -13.0 | -41.4 | |
| | High Ch, 846.6MHz | | | | | | | | | |
| | 1693.20 | -15.1 | V | 3.0 | 45.6 | 1.0 | -59.7 | -13.0 | -46.7 | |
| | 2539.80 | -11.7 | V | 3.0 | 45.5 | 1.0 | -56.2 | -13.0 | -43.2 | |
| | 3386.40 | -9.5 | V | 3.0 | 45.7 | 1.0 | -54.2 | -13.0 | -41.2 | |
| 1693.20 | -16.0 | H | 3.0 | 45.6 | 1.0 | -60.6 | -13.0 | -47.6 | | |
| 2539.80 | -12.0 | H | 3.0 | 45.5 | 1.0 | -56.4 | -13.0 | -43.4 | | |
| 3386.40 | -9.5 | H | 3.0 | 45.7 | 1.0 | -54.2 | -13.0 | -41.2 | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | |
| Band 5 HSDPA | Company: | Samsung | | | | | | | | |
| | Project #: | 4790430333 | | | | | | | | |
| | Date: | 7/19/2022 | | | | | | | | |
| | Test Engineer: | 25770 | | | | | | | | |
| | Configuration: | EUT / AC Adapter / Earphone, Y-Position | | | | | | | | |
| | Location: | Chamber 1 | | | | | | | | |
| | Mode: | HSDPA Band 5 Harmonics | | | | | | | | |
| | Test Voltage: | AC 120 V, 60 Hz | | | | | | | | |
| | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| | Low Ch, 826.4MHz | | | | | | | | | |
| | 1652.80 | -15.5 | V | 3.0 | 45.6 | 1.0 | -60.1 | -13.0 | -47.1 | |
| | 2479.20 | -11.9 | V | 3.0 | 45.5 | 1.0 | -56.3 | -13.0 | -43.3 | |
| | 3305.60 | -9.9 | V | 3.0 | 45.7 | 1.0 | -54.6 | -13.0 | -41.6 | |
| | 1652.80 | -16.3 | H | 3.0 | 45.6 | 1.0 | -60.9 | -13.0 | -47.9 | |
| | 2479.20 | -12.2 | H | 3.0 | 45.5 | 1.0 | -56.6 | -13.0 | -43.6 | |
| | 3305.60 | -9.9 | H | 3.0 | 45.7 | 1.0 | -54.5 | -13.0 | -41.5 | |
| | Mid Ch, 836.6MHz | | | | | | | | | |
| | 1673.20 | -15.3 | V | 3.0 | 45.6 | 1.0 | -59.9 | -13.0 | -46.9 | |
| | 2509.80 | -11.8 | V | 3.0 | 45.5 | 1.0 | -56.3 | -13.0 | -43.3 | |
| | 3346.40 | -9.7 | V | 3.0 | 45.7 | 1.0 | -54.4 | -13.0 | -41.4 | |
| | 1673.20 | -16.3 | H | 3.0 | 45.6 | 1.0 | -60.9 | -13.0 | -47.9 | |
| | 2509.80 | -12.2 | H | 3.0 | 45.5 | 1.0 | -56.7 | -13.0 | -43.7 | |
| | 3346.40 | -9.7 | H | 3.0 | 45.7 | 1.0 | -54.4 | -13.0 | -41.4 | |
| | High Ch, 846.6MHz | | | | | | | | | |
| | 1693.20 | -15.3 | V | 3.0 | 45.6 | 1.0 | -59.9 | -13.0 | -46.9 | |
| | 2539.80 | -12.0 | V | 3.0 | 45.5 | 1.0 | -56.4 | -13.0 | -43.4 | |
| | 3386.40 | -9.5 | V | 3.0 | 45.7 | 1.0 | -54.2 | -13.0 | -41.2 | |
| 1693.20 | -16.2 | H | 3.0 | 45.6 | 1.0 | -60.8 | -13.0 | -47.8 | | |
| 2539.80 | -12.4 | H | 3.0 | 45.5 | 1.0 | -56.9 | -13.0 | -43.9 | | |
| 3386.40 | -9.5 | H | 3.0 | 45.7 | 1.0 | -54.2 | -13.0 | -41.2 | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

WCDMA Band 4

| UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 4790430333 | | | | | | | |
| Date: | | 7/21/2022 | | | | | | | |
| Test Engineer: | | 19568 | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone, X-Position | | | | | | | |
| Location: | | Chamber 1 | | | | | | | |
| Mode: | | Rel99 Band 4 Harmonics | | | | | | | |
| Test Voltage: | | AC 120 V, 60 Hz | | | | | | | |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 1712.4MHz | | | | | | | | | |
| 3424.80 | -8.9 | V | 3.0 | 45.7 | 1.0 | -53.6 | -13.0 | -40.6 | |
| 5137.20 | -9.2 | V | 3.0 | 45.8 | 1.0 | -54.0 | -13.0 | -41.0 | |
| 6849.60 | -6.0 | V | 3.0 | 44.9 | 1.0 | -49.9 | -13.0 | -36.9 | |
| 3424.80 | -9.0 | H | 3.0 | 45.7 | 1.0 | -53.8 | -13.0 | -40.8 | |
| 5137.20 | -9.2 | H | 3.0 | 45.8 | 1.0 | -54.0 | -13.0 | -41.0 | |
| 6849.60 | -6.1 | H | 3.0 | 44.9 | 1.0 | -50.0 | -13.0 | -37.0 | |
| Mid Ch, 1732.6MHz | | | | | | | | | |
| 3465.20 | -8.7 | V | 3.0 | 45.7 | 1.0 | -53.5 | -13.0 | -40.5 | |
| 5197.80 | -9.0 | V | 3.0 | 45.8 | 1.0 | -53.8 | -13.0 | -40.8 | |
| 6930.40 | -5.7 | V | 3.0 | 44.8 | 1.0 | -49.6 | -13.0 | -36.6 | |
| 3465.20 | -9.0 | H | 3.0 | 45.7 | 1.0 | -53.7 | -13.0 | -40.7 | |
| 5197.80 | -8.9 | H | 3.0 | 45.8 | 1.0 | -53.7 | -13.0 | -40.7 | |
| 6930.40 | -5.9 | H | 3.0 | 44.8 | 1.0 | -49.7 | -13.0 | -36.7 | |
| High Ch, 1752.6MHz | | | | | | | | | |
| 3505.20 | -8.8 | V | 3.0 | 45.7 | 1.0 | -53.5 | -13.0 | -40.5 | |
| 5257.80 | -8.7 | V | 3.0 | 45.8 | 1.0 | -53.5 | -13.0 | -40.5 | |
| 7010.40 | -5.9 | V | 3.0 | 44.8 | 1.0 | -49.7 | -13.0 | -36.7 | |
| 3505.20 | -8.7 | H | 3.0 | 45.7 | 1.0 | -53.5 | -13.0 | -40.5 | |
| 5257.80 | -8.6 | H | 3.0 | 45.8 | 1.0 | -53.4 | -13.0 | -40.4 | |
| 7010.40 | -6.1 | H | 3.0 | 44.8 | 1.0 | -49.9 | -13.0 | -36.9 | |

Band 4
REL99

| UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 4790430333 | | | | | | | |
| Date: | | 7/21/2022 | | | | | | | |
| Test Engineer: | | 19568 | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone, X-Position | | | | | | | |
| Location: | | Chamber 1 | | | | | | | |
| Mode: | | HSDPA Band 4 Harmonics | | | | | | | |
| Test Voltage: | | AC 120 V, 60 Hz | | | | | | | |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 1712.4MHz | | | | | | | | | |
| 3424.80 | -9.0 | V | 3.0 | 45.7 | 1.0 | -53.7 | -13.0 | -40.7 | |
| 5137.20 | -9.2 | V | 3.0 | 45.8 | 1.0 | -54.0 | -13.0 | -41.0 | |
| 6849.60 | -6.1 | V | 3.0 | 44.9 | 1.0 | -50.0 | -13.0 | -37.0 | |
| 3424.80 | -8.9 | H | 3.0 | 45.7 | 1.0 | -53.6 | -13.0 | -40.6 | |
| 5137.20 | -9.1 | H | 3.0 | 45.8 | 1.0 | -53.9 | -13.0 | -40.9 | |
| 6849.60 | -6.1 | H | 3.0 | 44.9 | 1.0 | -50.0 | -13.0 | -37.0 | |
| Mid Ch, 1732.6MHz | | | | | | | | | |
| 3465.20 | -8.7 | V | 3.0 | 45.7 | 1.0 | -53.4 | -13.0 | -40.4 | |
| 5197.80 | -8.7 | V | 3.0 | 45.8 | 1.0 | -53.5 | -13.0 | -40.5 | |
| 6930.40 | -5.8 | V | 3.0 | 44.8 | 1.0 | -49.7 | -13.0 | -36.7 | |
| 3465.20 | -8.8 | H | 3.0 | 45.7 | 1.0 | -53.6 | -13.0 | -40.6 | |
| 5197.80 | -8.8 | H | 3.0 | 45.8 | 1.0 | -53.6 | -13.0 | -40.6 | |
| 6930.40 | -5.9 | H | 3.0 | 44.8 | 1.0 | -49.7 | -13.0 | -36.7 | |
| High Ch, 1752.6MHz | | | | | | | | | |
| 3505.20 | -8.7 | V | 3.0 | 45.7 | 1.0 | -53.4 | -13.0 | -40.4 | |
| 5257.80 | -8.8 | V | 3.0 | 45.8 | 1.0 | -53.5 | -13.0 | -40.5 | |
| 7010.40 | -6.0 | V | 3.0 | 44.8 | 1.0 | -49.7 | -13.0 | -36.7 | |
| 3505.20 | -8.8 | H | 3.0 | 45.7 | 1.0 | -53.5 | -13.0 | -40.5 | |
| 5257.80 | -8.6 | H | 3.0 | 45.8 | 1.0 | -53.4 | -13.0 | -40.4 | |
| 7010.40 | -6.0 | H | 3.0 | 44.8 | 1.0 | -49.8 | -13.0 | -36.8 | |

Band 4
HSDPA

WCDMA Band 2

| UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 4790430333 | | | | | | | |
| Date: | | 7/20/2022 | | | | | | | |
| Test Engineer: | | 25770 | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone, X-Position | | | | | | | |
| Location: | | Chamber 1 | | | | | | | |
| Mode: | | Rel99 Band 2 Harmonics | | | | | | | |
| Test Votage: | | AC 120 V, 60 Hz | | | | | | | |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 1852.4MHz | | | | | | | | | |
| 3704.80 | -10.0 | V | 3.0 | 45.8 | 1.0 | -54.8 | -13.0 | -41.8 | |
| 5557.20 | -8.1 | V | 3.0 | 45.7 | 1.0 | -52.8 | -13.0 | -39.8 | |
| 7409.60 | -4.9 | V | 3.0 | 44.6 | 1.0 | -48.5 | -13.0 | -35.5 | |
| 3704.80 | -11.0 | H | 3.0 | 45.8 | 1.0 | -55.8 | -13.0 | -42.8 | |
| 5557.20 | -7.9 | H | 3.0 | 45.7 | 1.0 | -52.7 | -13.0 | -39.7 | |
| 7409.60 | -5.8 | H | 3.0 | 44.6 | 1.0 | -49.3 | -13.0 | -36.3 | |
| Mid Ch, 1880MHz | | | | | | | | | |
| 3760.00 | -10.0 | V | 3.0 | 45.8 | 1.0 | -54.8 | -13.0 | -41.8 | |
| 5640.00 | -7.9 | V | 3.0 | 45.7 | 1.0 | -52.6 | -13.0 | -39.6 | |
| 7520.00 | -4.8 | V | 3.0 | 44.5 | 1.0 | -48.3 | -13.0 | -35.3 | |
| 3760.00 | -10.6 | H | 3.0 | 45.8 | 1.0 | -55.4 | -13.0 | -42.4 | |
| 5640.00 | -7.9 | H | 3.0 | 45.7 | 1.0 | -52.6 | -13.0 | -39.6 | |
| 7520.00 | -5.7 | H | 3.0 | 44.5 | 1.0 | -49.2 | -13.0 | -36.2 | |
| High Ch, 1907.6MHz | | | | | | | | | |
| 3815.20 | -10.6 | V | 3.0 | 45.8 | 1.0 | -55.5 | -13.0 | -42.5 | |
| 5722.80 | -7.7 | V | 3.0 | 45.7 | 1.0 | -52.5 | -13.0 | -39.5 | |
| 7630.40 | -4.9 | V | 3.0 | 44.4 | 1.0 | -48.3 | -13.0 | -35.3 | |
| 3815.20 | -10.4 | H | 3.0 | 45.8 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 5722.80 | -7.9 | H | 3.0 | 45.7 | 1.0 | -52.6 | -13.0 | -39.6 | |
| 7630.40 | -5.6 | H | 3.0 | 44.4 | 1.0 | -49.0 | -13.0 | -36.0 | |

Band 2
REL99

| UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 4790430333 | | | | | | | |
| Date: | | 7/20/2022 | | | | | | | |
| Test Engineer: | | 26087 | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone, X-Position | | | | | | | |
| Location: | | Chamber 1 | | | | | | | |
| Mode: | | HSDPA Band 2 Harmonics | | | | | | | |
| Test Votage: | | AC 120 V, 60 Hz | | | | | | | |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 1852.4MHz | | | | | | | | | |
| 3704.80 | -10.2 | V | 3.0 | 45.8 | 1.0 | -55.0 | -13.0 | -42.0 | |
| 5557.20 | -8.0 | V | 3.0 | 45.7 | 1.0 | -52.7 | -13.0 | -39.7 | |
| 7409.60 | -5.3 | V | 3.0 | 44.6 | 1.0 | -48.9 | -13.0 | -35.9 | |
| 3704.80 | -11.2 | H | 3.0 | 45.8 | 1.0 | -56.0 | -13.0 | -43.0 | |
| 5557.20 | -8.1 | H | 3.0 | 45.7 | 1.0 | -52.9 | -13.0 | -39.9 | |
| 7409.60 | -5.9 | H | 3.0 | 44.6 | 1.0 | -49.5 | -13.0 | -36.5 | |
| Mid Ch, 1880MHz | | | | | | | | | |
| 3760.00 | -10.2 | V | 3.0 | 45.8 | 1.0 | -55.0 | -13.0 | -42.0 | |
| 5640.00 | -8.0 | V | 3.0 | 45.7 | 1.0 | -52.8 | -13.0 | -39.8 | |
| 7520.00 | -5.0 | V | 3.0 | 44.5 | 1.0 | -48.5 | -13.0 | -35.5 | |
| 3760.00 | -10.8 | H | 3.0 | 45.8 | 1.0 | -55.6 | -13.0 | -42.6 | |
| 5640.00 | -8.1 | H | 3.0 | 45.7 | 1.0 | -52.8 | -13.0 | -39.8 | |
| 7520.00 | -5.9 | H | 3.0 | 44.5 | 1.0 | -49.4 | -13.0 | -36.4 | |
| High Ch, 1907.6MHz | | | | | | | | | |
| 3815.20 | -10.8 | V | 3.0 | 45.8 | 1.0 | -55.7 | -13.0 | -42.7 | |
| 5722.80 | -7.9 | V | 3.0 | 45.7 | 1.0 | -52.6 | -13.0 | -39.6 | |
| 7630.40 | -5.0 | V | 3.0 | 44.4 | 1.0 | -48.4 | -13.0 | -35.4 | |
| 3815.20 | -10.6 | H | 3.0 | 45.8 | 1.0 | -55.5 | -13.0 | -42.5 | |
| 5722.80 | -7.9 | H | 3.0 | 45.7 | 1.0 | -52.7 | -13.0 | -39.7 | |
| 7630.40 | -5.7 | H | 3.0 | 44.4 | 1.0 | -49.2 | -13.0 | -36.2 | |

Band 2
HSDPA

LTE Band 7

| UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 4790430333 | | | | | | | |
| Date: | | 7/21/2022 | | | | | | | |
| Test Engineer: | | 25770 | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone, Y-Position | | | | | | | |
| Location: | | Chamber 1 | | | | | | | |
| Mode: | | LTE_QPSK Band 7 Harmonics, 5MHz Bandwidth | | | | | | | |
| Test Votage: | | AC 120 V, 60 Hz | | | | | | | |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 2502.5MHz | | | | | | | | | |
| 5005.00 | -10.9 | V | 3.0 | 45.8 | 1.0 | -55.7 | -25.0 | -30.7 | |
| 7507.50 | -14.5 | V | 3.0 | 44.5 | 1.0 | -58.0 | -25.0 | -33.0 | |
| 10010.00 | -13.6 | V | 3.0 | 42.6 | 1.0 | -55.2 | -25.0 | -30.2 | |
| 5005.00 | -16.0 | H | 3.0 | 45.8 | 1.0 | -60.8 | -25.0 | -35.8 | |
| 7507.50 | -11.0 | H | 3.0 | 44.5 | 1.0 | -54.5 | -25.0 | -29.5 | |
| 10010.00 | -13.8 | H | 3.0 | 42.6 | 1.0 | -55.4 | -25.0 | -30.4 | |
| Mid Ch, 2535MHz | | | | | | | | | |
| 5070.00 | -10.9 | V | 3.0 | 45.8 | 1.0 | -55.7 | -25.0 | -30.7 | |
| 7605.00 | -11.0 | V | 3.0 | 44.4 | 1.0 | -54.4 | -25.0 | -29.4 | |
| 10140.00 | -13.5 | V | 3.0 | 42.6 | 1.0 | -55.1 | -25.0 | -30.1 | |
| 5070.00 | -14.4 | H | 3.0 | 45.8 | 1.0 | -59.2 | -25.0 | -34.2 | |
| 7605.00 | -10.8 | H | 3.0 | 44.4 | 1.0 | -54.3 | -25.0 | -29.3 | |
| 10140.00 | -13.6 | H | 3.0 | 42.6 | 1.0 | -55.3 | -25.0 | -30.3 | |
| High Ch, 2567.5MHz | | | | | | | | | |
| 5135.00 | -11.3 | V | 3.0 | 45.8 | 1.0 | -56.1 | -25.0 | -31.1 | |
| 7702.50 | -9.3 | V | 3.0 | 44.4 | 1.0 | -52.7 | -25.0 | -27.7 | |
| 10270.00 | -13.6 | V | 3.0 | 42.7 | 1.0 | -55.3 | -25.0 | -30.3 | |
| 5135.00 | -10.8 | H | 3.0 | 45.8 | 1.0 | -55.6 | -25.0 | -30.6 | |
| 7702.50 | -9.7 | H | 3.0 | 44.4 | 1.0 | -53.1 | -25.0 | -28.1 | |
| 10270.00 | -13.7 | H | 3.0 | 42.7 | 1.0 | -55.4 | -25.0 | -30.4 | |

LTE
 Band 7
 5 MHz
 QPSK

LTE Band 12

| UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | | | | |
|--|-------|--|------------------|-----------------|--------------|-------------|-------------|------------|-------------|------------|-------|
| LTE Band 12 5MHz QPSK | | Company: Samsung Project #: 4790430333 Date: 7/19/2022 Test Engineer: 25770 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 1 Mode: LTE_QPSK Band 12 Harmonics, 5MHz Bandwidth Test Voltage: AC 120 V, 60 Hz | | | | | | | | | |
| | | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| | | Low Ch, 701.5MHz | | | | | | | | | |
| | | 1403.00 | -17.0 | V | 3.0 | 45.8 | 1.0 | -61.8 | -13.0 | -48.8 | |
| | | 2104.50 | -13.4 | V | 3.0 | 45.4 | 1.0 | -57.8 | -13.0 | -44.8 | |
| | | 2806.00 | -11.2 | V | 3.0 | 45.5 | 1.0 | -55.7 | -13.0 | -42.7 | |
| | | 1403.00 | -18.0 | H | 3.0 | 45.8 | 1.0 | -62.8 | -13.0 | -49.8 | |
| | | 2104.50 | -14.4 | H | 3.0 | 45.4 | 1.0 | -58.7 | -13.0 | -45.7 | |
| | | 2806.00 | -11.4 | H | 3.0 | 45.5 | 1.0 | -55.9 | -13.0 | -42.9 | |
| | | Mid Ch, 707.5MHz | | | | | | | | | |
| 1415.00 | -17.0 | V | 3.0 | 45.8 | 1.0 | -61.8 | -13.0 | -48.8 | | | |
| 2122.50 | -13.5 | V | 3.0 | 45.4 | 1.0 | -57.9 | -13.0 | -44.9 | | | |
| 2830.00 | -11.1 | V | 3.0 | 45.5 | 1.0 | -55.6 | -13.0 | -42.6 | | | |
| 1415.00 | -18.0 | H | 3.0 | 45.8 | 1.0 | -62.8 | -13.0 | -49.8 | | | |
| 2122.50 | -14.3 | H | 3.0 | 45.4 | 1.0 | -58.7 | -13.0 | -45.7 | | | |
| 2830.00 | -11.3 | H | 3.0 | 45.5 | 1.0 | -55.8 | -13.0 | -42.8 | | | |
| High Ch, 713.5MHz | | | | | | | | | | | |
| 1427.00 | -16.8 | V | 3.0 | 45.8 | 1.0 | -61.6 | -13.0 | -48.6 | | | |
| 2140.50 | -13.4 | V | 3.0 | 45.4 | 1.0 | -57.8 | -13.0 | -44.8 | | | |
| 2854.00 | -11.0 | V | 3.0 | 45.5 | 1.0 | -55.6 | -13.0 | -42.6 | | | |
| 1427.00 | -17.8 | H | 3.0 | 45.8 | 1.0 | -62.6 | -13.0 | -49.6 | | | |
| 2140.50 | -14.2 | H | 3.0 | 45.4 | 1.0 | -58.6 | -13.0 | -45.6 | | | |
| 2854.00 | -11.2 | H | 3.0 | 45.5 | 1.0 | -55.7 | -13.0 | -42.7 | | | |

LTE Band 13

| UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | | | | |
|--|--|---|------------------|-----------------|--------------|-------------|-------------|------------|-------------|------------|-------|
| LTE Band 13 10 MHz QPSK | | Company: Samsung Project #: 4790430333 Date: 7/21/2022 Test Engineer: 25770 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 1 Mode: LTE_QPSK Band 13 Harmonics, 10MHz Bandwidth Test Voltage: AC 120 V, 60 Hz | | | | | | | | | |
| | | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| | | Mid Ch, 782MHz | | | | | | | | | |
| | | 1564.00 | -16.1 | V | 3.0 | 45.7 | 1.0 | -60.8 | -13.0 | -47.8 | |
| | | 2346.00 | -12.5 | V | 3.0 | 45.4 | 1.0 | -56.9 | -13.0 | -43.9 | |
| | | 3128.00 | -10.4 | V | 3.0 | 45.6 | 1.0 | -55.0 | -13.0 | -42.0 | |
| | | 1564.00 | -16.0 | H | 3.0 | 45.7 | 1.0 | -60.7 | -13.0 | -47.7 | |
| | | 2346.00 | -13.1 | H | 3.0 | 45.4 | 1.0 | -57.5 | -13.0 | -44.5 | |
| | | 3128.00 | -9.8 | H | 3.0 | 45.6 | 1.0 | -54.4 | -13.0 | -41.4 | |

LTE Band 14

| UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 4790430333 | | | | | | | |
| Date: | | 7/19/2022 | | | | | | | |
| Test Engineer: | | 25770 | | | | | | | |
| Configuration: | | EUT / Earphone, Y-Position | | | | | | | |
| Location: | | Chamber 1 | | | | | | | |
| Mode: | | LTE_QPSK Band 14 Harmonics, 10MHz Bandwidth | | | | | | | |
| Test Voltage: | | AC 120 V, 60 Hz | | | | | | | |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Mid Ch, 793MHz | | | | | | | | | |
| 1586.00 | -15.3 | V | 3.0 | 45.7 | 1.0 | -60.0 | -13.0 | -47.0 | |
| 2379.00 | -11.2 | V | 3.0 | 45.4 | 1.0 | -55.6 | -13.0 | -42.6 | |
| 3172.00 | -10.3 | V | 3.0 | 45.6 | 1.0 | -54.9 | -13.0 | -41.9 | |
| 1586.00 | -16.3 | H | 3.0 | 45.7 | 1.0 | -61.0 | -13.0 | -48.0 | |
| 2379.00 | -12.6 | H | 3.0 | 45.4 | 1.0 | -57.0 | -13.0 | -44.0 | |
| 3172.00 | -10.2 | H | 3.0 | 45.6 | 1.0 | -54.9 | -13.0 | -41.9 | |

LTE
Band 14

10 MHz

QPSK

LTE Band 25

| UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 4790430333 | | | | | | | |
| Date: | | 7/20/2022 | | | | | | | |
| Test Engineer: | | 25770 | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone, Y-Position | | | | | | | |
| Location: | | Chamber 1 | | | | | | | |
| Mode: | | LTE_QPSK Band 25 Harmonics, 20MHz Bandwidth | | | | | | | |
| Test Voltage: | | AC 120 V, 60 Hz | | | | | | | |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 1860MHz | | | | | | | | | |
| 3720.00 | -6.7 | V | 3.0 | 45.8 | 1.0 | -51.5 | -13.0 | -38.5 | |
| 5580.00 | -8.3 | V | 3.0 | 45.7 | 1.0 | -53.0 | -13.0 | -40.0 | |
| 7440.00 | -4.9 | V | 3.0 | 44.5 | 1.0 | -48.5 | -13.0 | -35.5 | |
| 3720.00 | -10.1 | H | 3.0 | 45.8 | 1.0 | -54.9 | -13.0 | -41.9 | |
| 5580.00 | -7.9 | H | 3.0 | 45.7 | 1.0 | -52.7 | -13.0 | -39.7 | |
| 7440.00 | -3.5 | H | 3.0 | 44.5 | 1.0 | -47.0 | -13.0 | -34.0 | |
| Mid Ch, 1882.5MHz | | | | | | | | | |
| 3765.00 | -6.9 | V | 3.0 | 45.8 | 1.0 | -51.8 | -13.0 | -38.8 | |
| 5647.50 | -7.4 | V | 3.0 | 45.7 | 1.0 | -52.1 | -13.0 | -39.1 | |
| 7530.00 | -3.5 | V | 3.0 | 44.5 | 1.0 | -47.0 | -13.0 | -34.0 | |
| 3765.00 | -10.4 | H | 3.0 | 45.8 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 5647.50 | -7.1 | H | 3.0 | 45.7 | 1.0 | -51.9 | -13.0 | -38.9 | |
| 7530.00 | -3.0 | H | 3.0 | 44.5 | 1.0 | -46.5 | -13.0 | -33.5 | |
| High Ch, 1905MHz | | | | | | | | | |
| 3810.00 | -7.6 | V | 3.0 | 45.8 | 1.0 | -52.5 | -13.0 | -39.5 | |
| 5715.00 | -7.4 | V | 3.0 | 45.7 | 1.0 | -52.1 | -13.0 | -39.1 | |
| 7620.00 | -3.9 | V | 3.0 | 44.4 | 1.0 | -47.4 | -13.0 | -34.4 | |
| 3810.00 | -10.5 | H | 3.0 | 45.8 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 5715.00 | -7.1 | H | 3.0 | 45.7 | 1.0 | -51.9 | -13.0 | -38.9 | |
| 7620.00 | -3.4 | H | 3.0 | 44.4 | 1.0 | -46.8 | -13.0 | -33.8 | |

LTE
Band 25

20 MHz

QPSK

LTE Band 26 (Part 90)

| | | UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|---|---|--|------------------|-----------------|--------------|-------------|-------------|------------|-------------|------------|-------|
| | | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| LTE Band 26 1.4 MHz QPSK | Company: Samsung | | | | | | | | | | |
| | Project #: 4790430333 | | | | | | | | | | |
| | Date: 7/21/2022 | | | | | | | | | | |
| | Test Engineer: 19568 | | | | | | | | | | |
| | Configuration: EUT / AC Adapter / Earphone, Y-Position | | | | | | | | | | |
| | Location: Chamber 1 | | | | | | | | | | |
| | Mode: LTE_QPSK Band 26 Harmonics, 1.4MHz Bandwidth | | | | | | | | | | |
| | Test Votage: AC 120 V, 60 Hz | | | | | | | | | | |
| | Low Ch, 814.7MHz | | | | | | | | | | |
| | | 1629.40 | -15.7 | V | 3.0 | 45.6 | 1.0 | -60.3 | -13.0 | -47.3 | |
| | | 2444.10 | -12.1 | V | 3.0 | 45.4 | 1.0 | -56.6 | -13.0 | -43.6 | |
| | | 3258.80 | -9.9 | V | 3.0 | 45.7 | 1.0 | -54.6 | -13.0 | -41.6 | |
| | | 1629.40 | -16.7 | H | 3.0 | 45.6 | 1.0 | -61.4 | -13.0 | -48.4 | |
| | | 2444.10 | -12.5 | H | 3.0 | 45.4 | 1.0 | -56.9 | -13.0 | -43.9 | |
| | | 3258.80 | -10.1 | H | 3.0 | 45.7 | 1.0 | -54.7 | -13.0 | -41.7 | |
| | Mid Ch, 823.3MHz | | | | | | | | | | |
| | | 1646.60 | -15.6 | V | 3.0 | 45.6 | 1.0 | -60.2 | -13.0 | -47.2 | |
| | | 2469.90 | -12.2 | V | 3.0 | 45.4 | 1.0 | -56.6 | -13.0 | -43.6 | |
| | 3293.20 | -9.8 | V | 3.0 | 45.7 | 1.0 | -54.4 | -13.0 | -41.4 | | |
| | 1646.60 | -16.3 | H | 3.0 | 45.6 | 1.0 | -61.0 | -13.0 | -48.0 | | |
| | 2469.90 | -12.8 | H | 3.0 | 45.4 | 1.0 | -57.2 | -13.0 | -44.2 | | |
| | 3293.20 | -9.8 | H | 3.0 | 45.7 | 1.0 | -54.5 | -13.0 | -41.5 | | |

LTE Band 26 (Straddle)

| | | UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|---|--|------------------|-----------------|--------------|-------------|-------------|------------|-------------|------------|-------|
| | | f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| LTE Band 26 10 MHz QPSK | Company: Samsung | | | | | | | | | | |
| | Project #: 4790430333 | | | | | | | | | | |
| | Date: 7/21/2022 | | | | | | | | | | |
| | Test Engineer: 25770 | | | | | | | | | | |
| | Configuration: EUT / AC Adapter / Earphone, Y-Position | | | | | | | | | | |
| | Location: Chamber 1 | | | | | | | | | | |
| | Mode: LTE_QPSK Band 26 Harmonics, 10MHz Bandwidth | | | | | | | | | | |
| | Test Votage: AC 120 V, 60 Hz | | | | | | | | | | |
| | Straddle Ch, 824MHz | | | | | | | | | | |
| | | 1648.00 | -15.7 | V | 3.0 | 45.6 | 1.0 | -60.3 | -13.0 | -47.3 | |
| | | 2472.00 | -12.2 | V | 3.0 | 45.4 | 1.0 | -56.7 | -13.0 | -43.7 | |
| | | 3296.00 | -9.9 | V | 3.0 | 45.7 | 1.0 | -54.6 | -13.0 | -41.6 | |
| | | 1648.00 | -16.6 | H | 3.0 | 45.6 | 1.0 | -61.2 | -13.0 | -48.2 | |
| | | 2472.00 | -12.7 | H | 3.0 | 45.4 | 1.0 | -57.2 | -13.0 | -44.2 | |
| | | 3296.00 | -9.9 | H | 3.0 | 45.7 | 1.0 | -54.6 | -13.0 | -41.6 | |

LTE Band 26 (Part 22)

| UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|---|--------------|-------------|-------------|------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 4790430333 | | | | | | | |
| Date: | | 7/21/2022 | | | | | | | |
| Test Engineer: | | 25770 | | | | | | | |
| Configuration: | | EUT / AC Adapter / Earphone, Y-Position | | | | | | | |
| Location: | | Chamber 1 | | | | | | | |
| Mode: | | LTE_QPSK Band 26 Harmonics, 10MHz Bandwidth | | | | | | | |
| Test Votage: | | AC 120 V, 60 Hz | | | | | | | |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 829MHz | | | | | | | | | |
| 1658.00 | -14.7 | V | 3.0 | 45.6 | 1.0 | -59.3 | -13.0 | -46.3 | |
| 2487.00 | -12.0 | V | 3.0 | 45.5 | 1.0 | -56.5 | -13.0 | -43.5 | |
| 3316.00 | -9.8 | V | 3.0 | 45.7 | 1.0 | -54.4 | -13.0 | -41.4 | |
| 1658.00 | -16.6 | H | 3.0 | 45.6 | 1.0 | -61.2 | -13.0 | -48.2 | |
| 2487.00 | -12.6 | H | 3.0 | 45.5 | 1.0 | -57.1 | -13.0 | -44.1 | |
| 3316.00 | -9.9 | H | 3.0 | 45.7 | 1.0 | -54.6 | -13.0 | -41.6 | |
| Mid Ch, 831.5MHz | | | | | | | | | |
| 1663.00 | -15.6 | V | 3.0 | 45.6 | 1.0 | -60.2 | -13.0 | -47.2 | |
| 2494.50 | -12.2 | V | 3.0 | 45.5 | 1.0 | -56.6 | -13.0 | -43.6 | |
| 3326.00 | -9.8 | V | 3.0 | 45.7 | 1.0 | -54.5 | -13.0 | -41.5 | |
| 1663.00 | -16.5 | H | 3.0 | 45.6 | 1.0 | -61.1 | -13.0 | -48.1 | |
| 2494.50 | -12.6 | H | 3.0 | 45.5 | 1.0 | -57.1 | -13.0 | -44.1 | |
| 3326.00 | -9.7 | H | 3.0 | 45.7 | 1.0 | -54.3 | -13.0 | -41.3 | |
| High Ch, 844MHz | | | | | | | | | |
| 1688.00 | -15.4 | V | 3.0 | 45.6 | 1.0 | -60.0 | -13.0 | -47.0 | |
| 2532.00 | -12.0 | V | 3.0 | 45.5 | 1.0 | -56.5 | -13.0 | -43.5 | |
| 3376.00 | -9.4 | V | 3.0 | 45.7 | 1.0 | -54.1 | -13.0 | -41.1 | |
| 1688.00 | -16.3 | H | 3.0 | 45.6 | 1.0 | -60.8 | -13.0 | -47.8 | |
| 2532.00 | -12.6 | H | 3.0 | 45.5 | 1.0 | -57.0 | -13.0 | -44.0 | |
| 3376.00 | -9.3 | H | 3.0 | 45.7 | 1.0 | -54.0 | -13.0 | -41.0 | |

LTE
 Band 26
 10 MHz
 QPSK

LTE Band 41(PC2)

| UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | | |
|--|------------------|--|--------------|-------------|-------------|------------|-------------|------------|-------|
| Company: | | Samsung | | | | | | | |
| Project #: | | 4790430333 | | | | | | | |
| Date: | | 7/21/2022 | | | | | | | |
| Test Engineer: | | 25770 | | | | | | | |
| Configuration: | | EUT / Earphone, X-Position | | | | | | | |
| Location: | | Chamber 1 | | | | | | | |
| Mode: | | LTE_QPSK Band 41 Harmonics, 5MHz Bandwidth | | | | | | | |
| Test Voltage: | | AC 120 V, 60 Hz | | | | | | | |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
| Low Ch, 2498.5MHz | | | | | | | | | |
| 4997.00 | -3.5 | V | 3.0 | 45.8 | 1.0 | -48.3 | -25.0 | -23.3 | |
| 7495.50 | 1.1 | V | 3.0 | 44.5 | 1.0 | -42.5 | -25.0 | -17.5 | |
| 9994.00 | -10.7 | V | 3.0 | 42.6 | 1.0 | -52.3 | -25.0 | -27.3 | |
| 4997.00 | -10.9 | H | 3.0 | 45.8 | 1.0 | -55.7 | -25.0 | -30.7 | |
| 7495.50 | -5.8 | H | 3.0 | 44.5 | 1.0 | -49.4 | -25.0 | -24.4 | |
| 9994.00 | -11.0 | H | 3.0 | 42.6 | 1.0 | -52.6 | -25.0 | -27.6 | |
| Mid Ch, 2593MHz | | | | | | | | | |
| 5186.0 | 0.8 | V | 3.0 | 45.8 | 1.0 | -44.0 | -25.0 | -19.0 | |
| 7779.0 | -3.0 | V | 3.0 | 44.4 | 1.0 | -46.3 | -25.0 | -21.3 | |
| 10372.0 | -10.7 | V | 3.0 | 42.7 | 1.0 | -52.4 | -25.0 | -27.4 | |
| 5186.0 | -6.2 | H | 3.0 | 45.8 | 1.0 | -51.0 | -25.0 | -26.0 | |
| 7779.0 | -3.6 | H | 3.0 | 44.4 | 1.0 | -47.0 | -25.0 | -22.0 | |
| 10372.0 | -10.5 | H | 3.0 | 42.7 | 1.0 | -52.2 | -25.0 | -27.2 | |
| High Ch, 2687.5MHz | | | | | | | | | |
| 5375.00 | -2.6 | V | 3.0 | 45.8 | 1.0 | -47.4 | -25.0 | -22.4 | |
| 8062.50 | -1.1 | V | 3.0 | 44.2 | 1.0 | -44.3 | -25.0 | -19.3 | |
| 10750.00 | -10.2 | V | 3.0 | 42.8 | 1.0 | -52.0 | -25.0 | -27.0 | |
| 5375.00 | -6.3 | H | 3.0 | 45.8 | 1.0 | -51.1 | -25.0 | -26.1 | |
| 8062.50 | -4.8 | H | 3.0 | 44.2 | 1.0 | -48.0 | -25.0 | -23.0 | |
| 10750.00 | -10.3 | H | 3.0 | 42.8 | 1.0 | -52.1 | -25.0 | -27.1 | |

LTE
 Band
 41(PC2)
 5 MHz
 QPSK

LTE Band 41(UL CA)

| UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement | | | | | | | | | | |
|---|---------------------|--------------------|-----------------|----------------|----------------|---------------|----------------|---------------|-------|--|
| Company: Samsung Project #: 4790430333 Date: 8/3/2022 Test Engineer: 25546 Configuration: EUT / AC Adapter / Earphone, X-Position Location: Chamber 1 Mode: LTE_QPSK Band 41 Harmonics, 20MHz Bandwidth Test Votage: AC 120 V, 60 Hz | | | | | | | | | | |
| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes | |
| LTE Band 41 (UL CA) | | | | | | | | | | |
| 20+20 MHz | | | | | | | | | | |
| QPSK | | | | | | | | | | |
| Low Ch, PCC : 2506MHz SCC : 2525.8MHz | | | | | | | | | | |
| 5031.80 | -7.0 | V | 3.0 | 45.8 | 1.0 | -51.8 | -25.0 | -26.8 | | |
| 7547.70 | 1.0 | V | 3.0 | 44.5 | 1.0 | -42.4 | -25.0 | -17.4 | | |
| 10063.60 | -9.2 | V | 3.0 | 42.6 | 1.0 | -50.8 | -25.0 | -25.8 | | |
| 5031.80 | -10.7 | H | 3.0 | 45.8 | 1.0 | -55.6 | -25.0 | -30.6 | | |
| 7547.70 | -2.6 | H | 3.0 | 44.5 | 1.0 | -46.1 | -25.0 | -21.1 | | |
| 10063.60 | -9.3 | H | 3.0 | 42.6 | 1.0 | -50.9 | -25.0 | -25.9 | | |
| Mid Ch, PCC : 2583.1MHz SCC : 2602.9MHz | | | | | | | | | | |
| 5186.00 | -5.0 | V | 3.0 | 45.8 | 1.0 | -49.8 | -25.0 | -24.8 | | |
| 7779.00 | -0.6 | V | 3.0 | 44.4 | 1.0 | -44.0 | -25.0 | -19.0 | | |
| 10372.00 | -10.8 | V | 3.0 | 42.7 | 1.0 | -52.5 | -25.0 | -27.5 | | |
| 5186.00 | -9.4 | H | 3.0 | 45.8 | 1.0 | -54.2 | -25.0 | -29.2 | | |
| 7779.00 | -6.3 | H | 3.0 | 44.4 | 1.0 | -49.6 | -25.0 | -24.6 | | |
| 10372.00 | -11.0 | H | 3.0 | 42.7 | 1.0 | -52.7 | -25.0 | -27.7 | | |
| High Ch, PCC : 2660.2MHz SCC : 2680MHz | | | | | | | | | | |
| 5340.20 | -3.2 | V | 3.0 | 45.8 | 1.0 | -48.0 | -25.0 | -23.0 | | |
| 8010.30 | -0.7 | V | 3.0 | 44.2 | 1.0 | -44.0 | -25.0 | -19.0 | | |
| 10680.40 | -9.0 | V | 3.0 | 42.8 | 1.0 | -50.8 | -25.0 | -25.8 | | |
| 5340.20 | -4.2 | H | 3.0 | 45.8 | 1.0 | -49.0 | -25.0 | -24.0 | | |
| 8010.30 | -6.2 | H | 3.0 | 44.2 | 1.0 | -49.5 | -25.0 | -24.5 | | |
| 10680.40 | -9.0 | H | 3.0 | 42.8 | 1.0 | -50.8 | -25.0 | -25.8 | | |