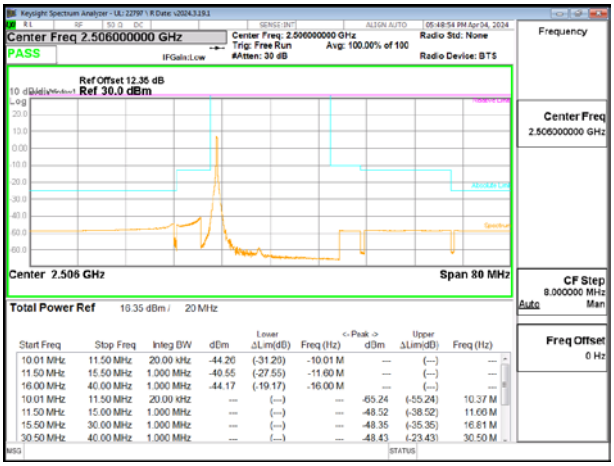
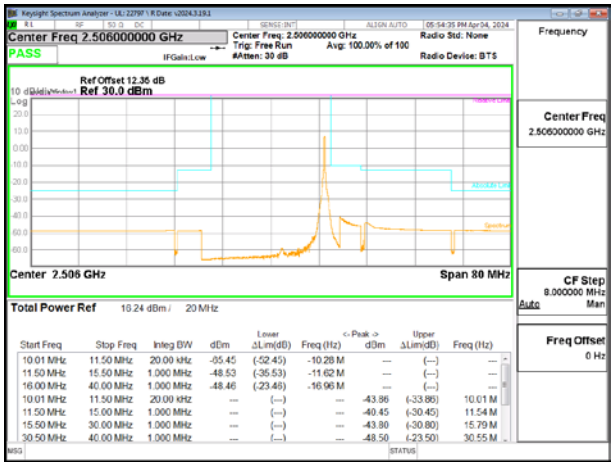
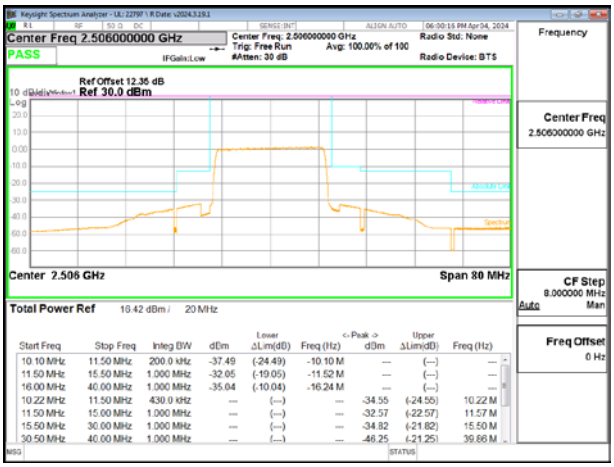


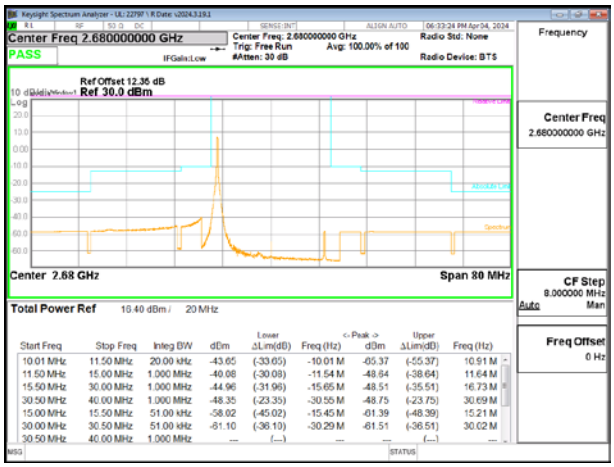

LTE41 20MHz 16QAM LOW Ch RB1-0



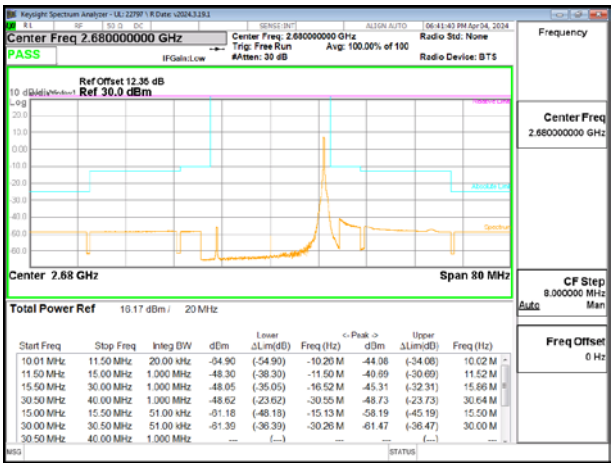

LTE41 20MHz 16QAM LOW Ch RB1-99



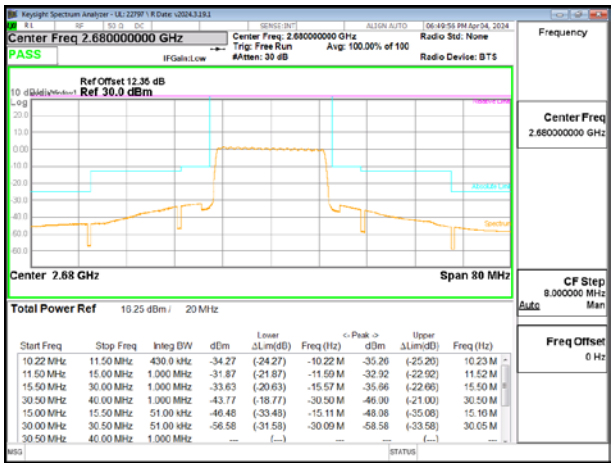

LTE41 20MHz 16QAM LOW Ch RB100-0




LTE41 20MHz 16QAM HIGH Ch RB1-0




LTE41 20MHz 16QAM HIGH Ch RB1-99




LTE41 20MHz 16QAM HIGH Ch RB100-0

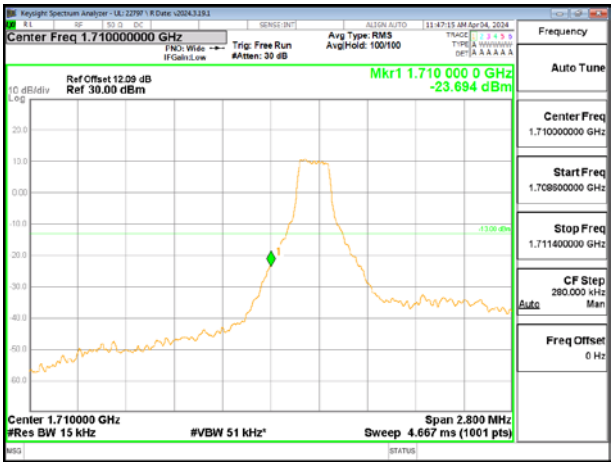
## 9.4.11. LTE66

**LIMITS**

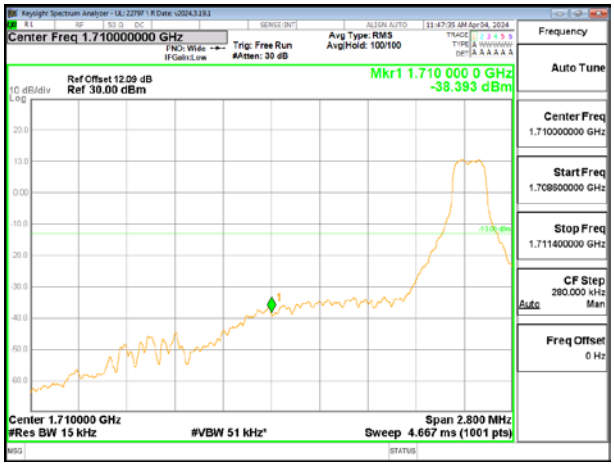
FCC: §27.53(h)

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.

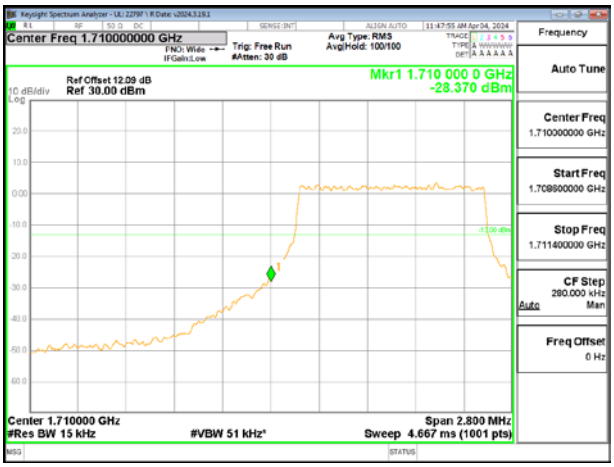
| Test Engineer ID: | 22797/85502 | Test Date: | 04-04-24 | Sample SN: | QV77004EL3 |
|---|---|---|---|---|---|



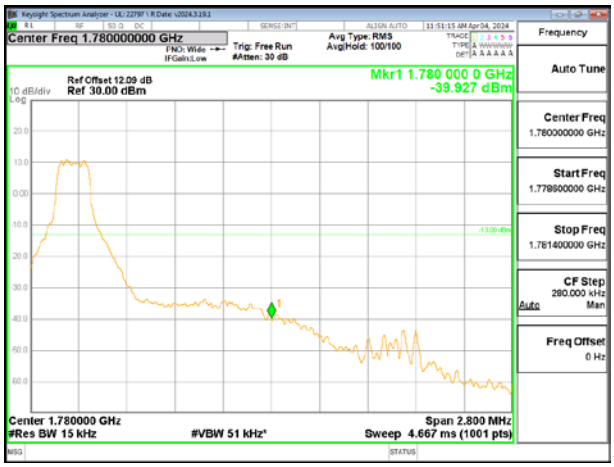

LTE66 1.4MHz 16QAM LOW Ch RB1-0



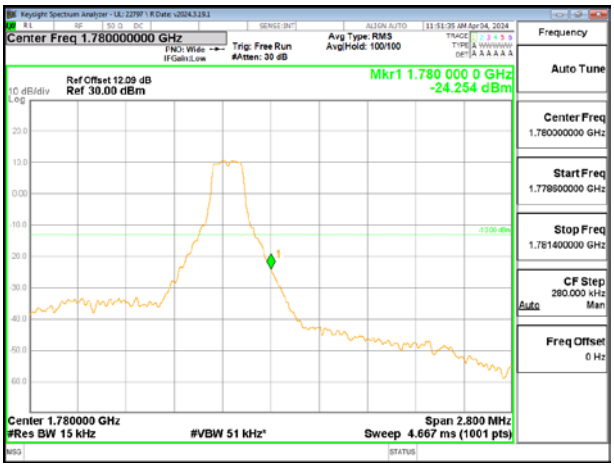

LTE66 1.4MHz 16QAM LOW Ch RB1-5



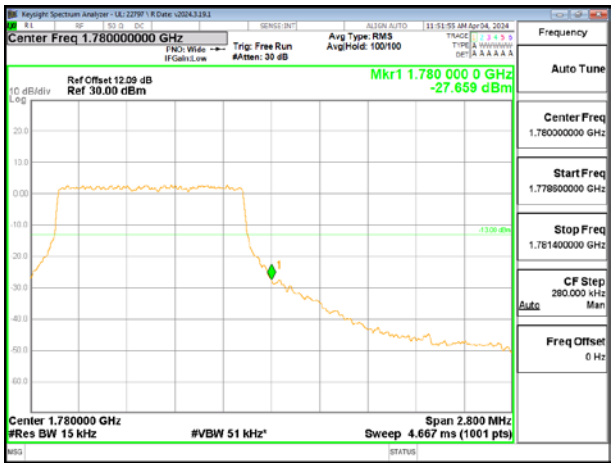

LTE66 1.4MHz 16QAM LOW Ch RB6-0



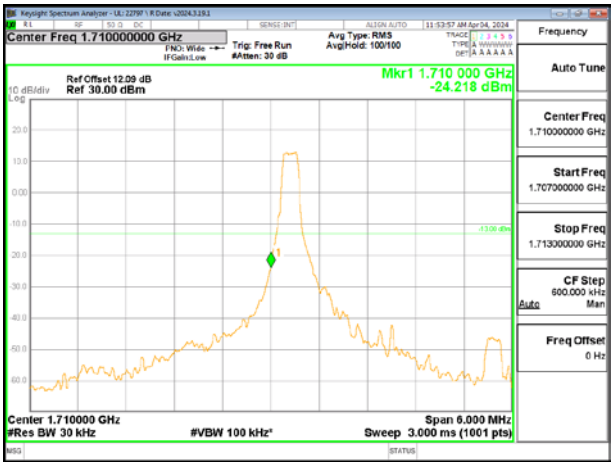

LTE66 1.4MHz 16QAM HIGH Ch RB1-0




LTE66 1.4MHz 16QAM HIGH Ch RB1-5

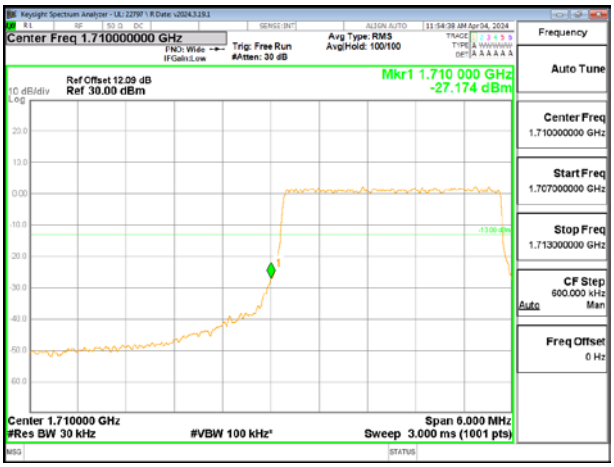



LTE66 1.4MHz 16QAM HIGH Ch RB6-0

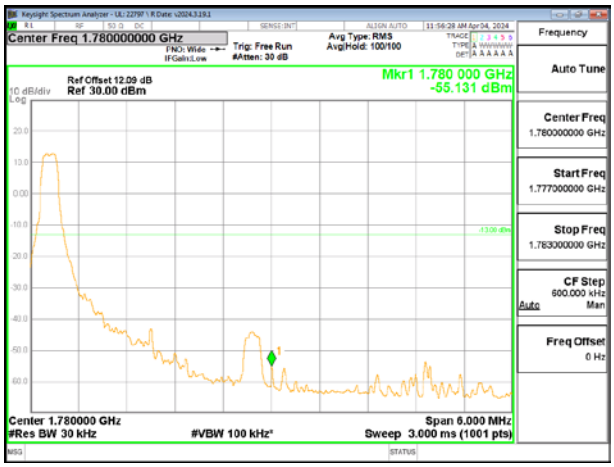



LTE66 3MHz 16QAM LOW Ch RB1-0

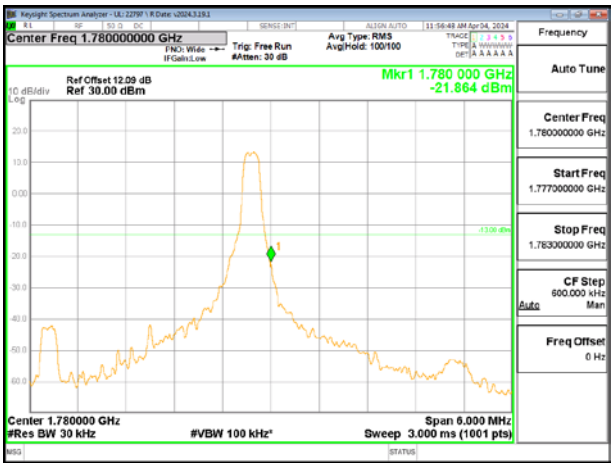

LTE66 3MHz 16QAM LOW Ch RB1-14



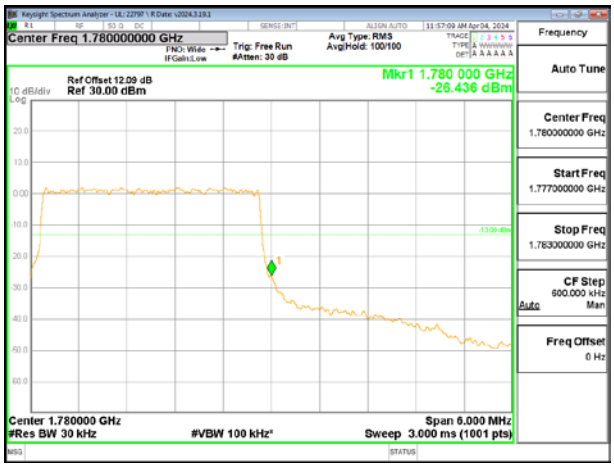

LTE66 3MHz 16QAM LOW Ch RB15-0



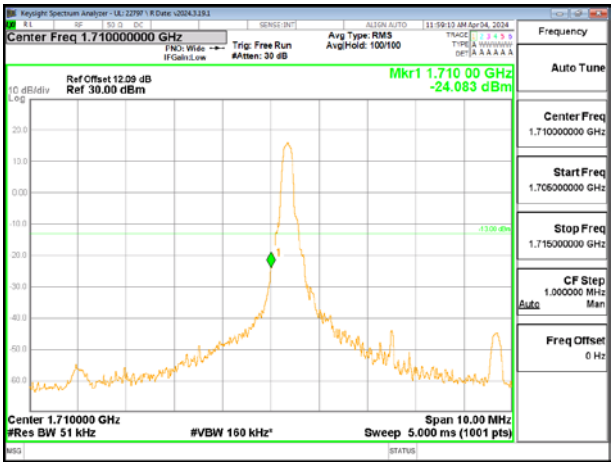

LTE66 3MHz 16QAM HIGH Ch RB1-0



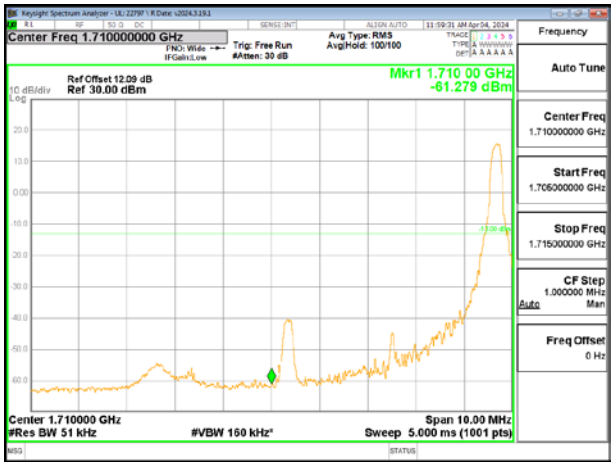

LTE66 3MHz 16QAM HIGH Ch RB1-14



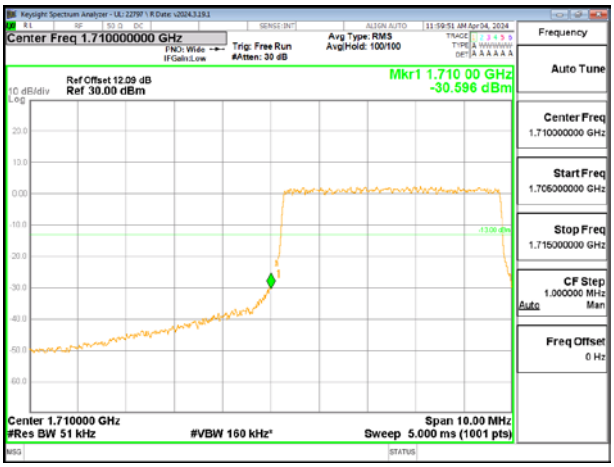

LTE66 3MHz 16QAM HIGH Ch RB15-0



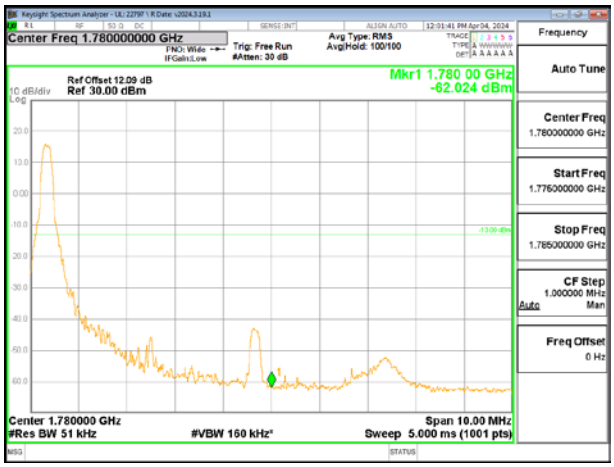

LTE66 5MHz 16QAM LOW Ch RB1-0



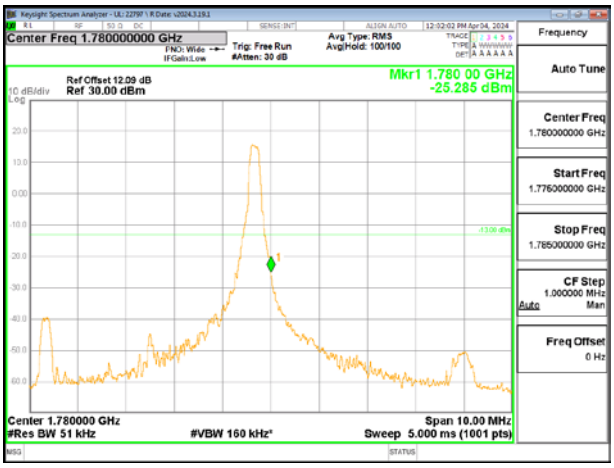

LTE66 5MHz 16QAM LOW Ch RB1-24



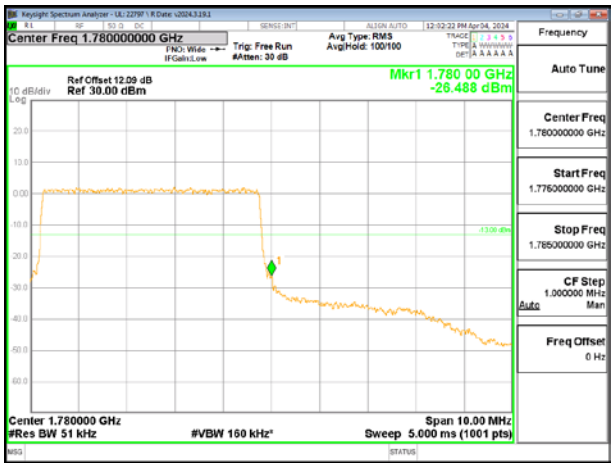

LTE66 5MHz 16QAM LOW Ch RB25-0



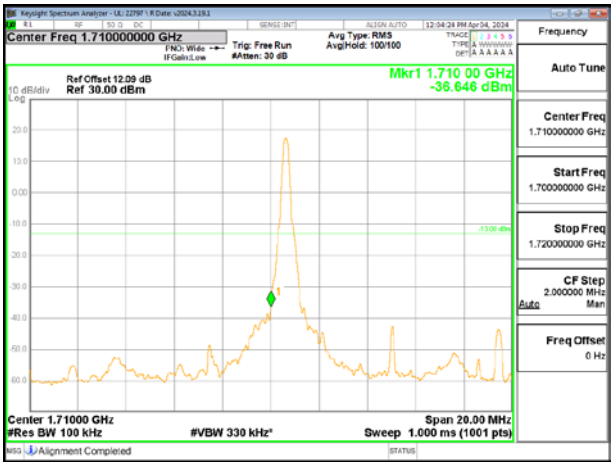

LTE66 5MHz 16QAM HIGH Ch RB1-0



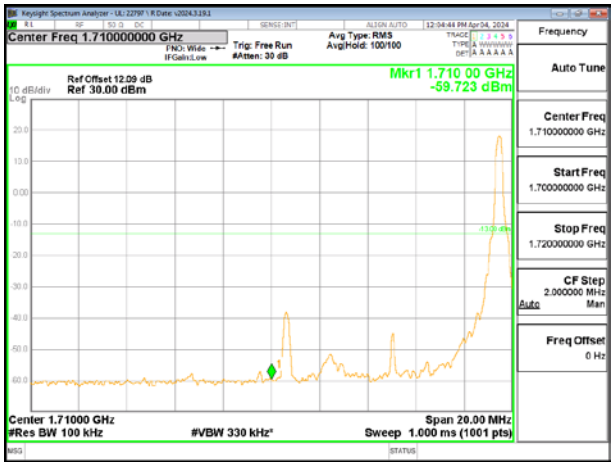

LTE66 5MHz 16QAM HIGH Ch RB1-24



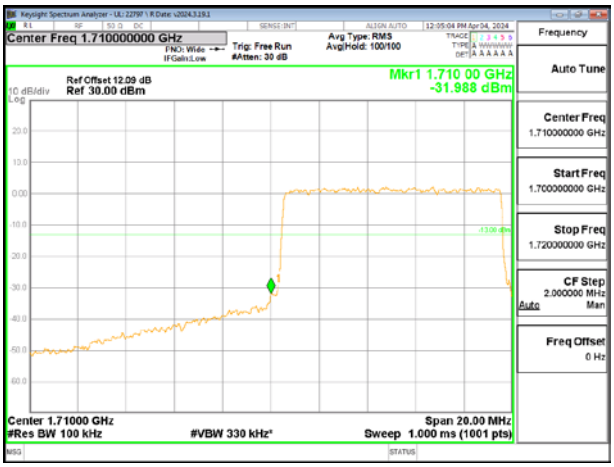

LTE66 5MHz 16QAM HIGH Ch RB25-0



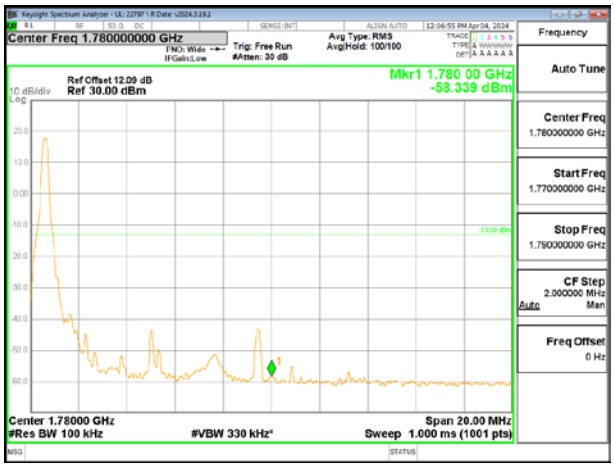

LTE66 10MHz 16QAM LOW Ch RB1-0



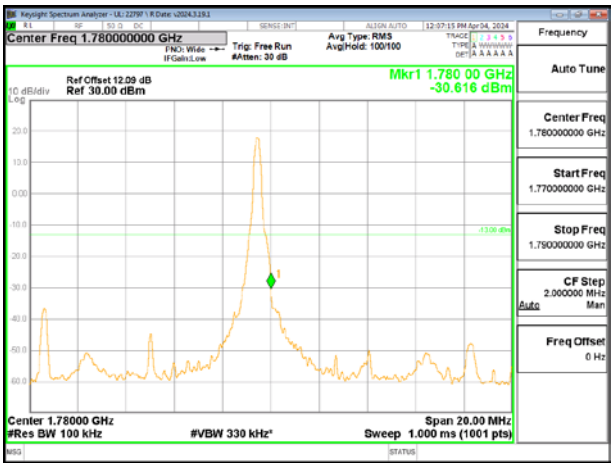

LTE66 10MHz 16QAM LOW Ch RB1-49



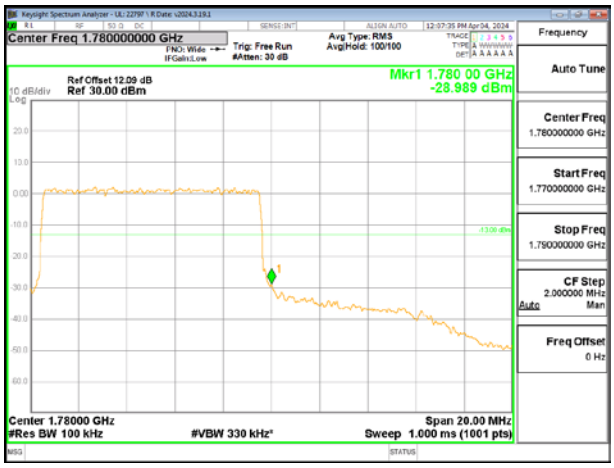

LTE66 10MHz 16QAM LOW Ch RB50-0



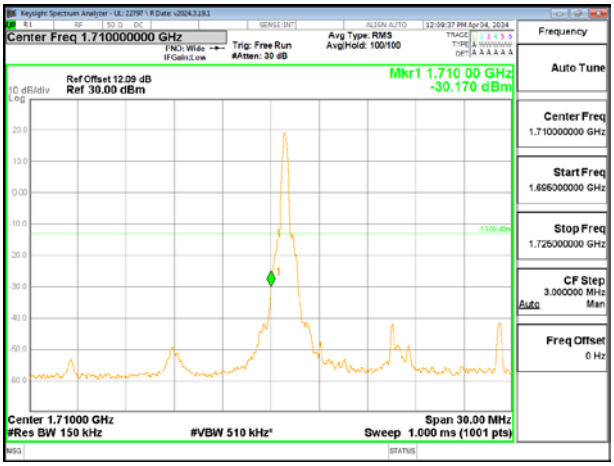

LTE66 10MHz 16QAM HIGH Ch RB1-0



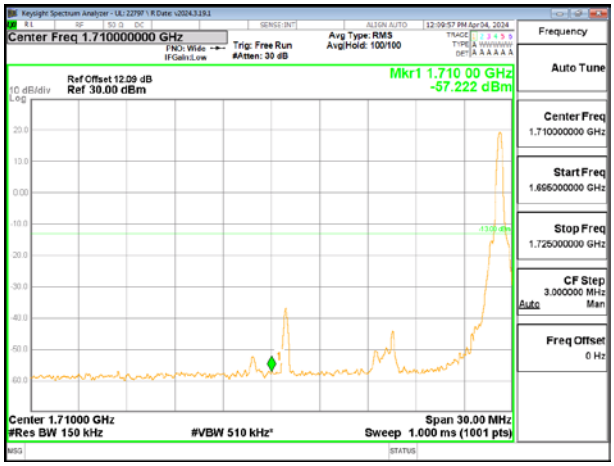

LTE66 10MHz 16QAM HIGH Ch RB1-49



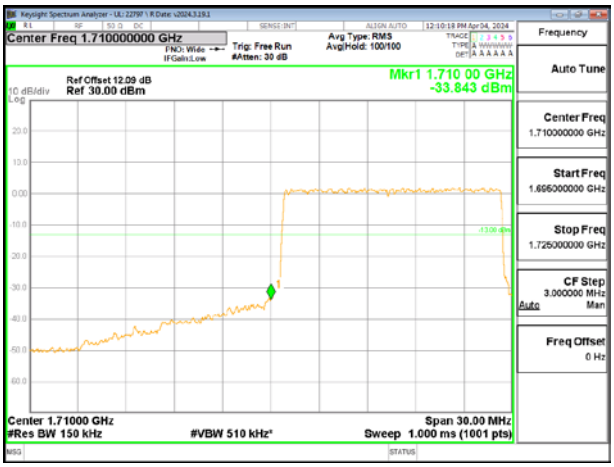

LTE66 10MHz 16QAM HIGH Ch RB50-0



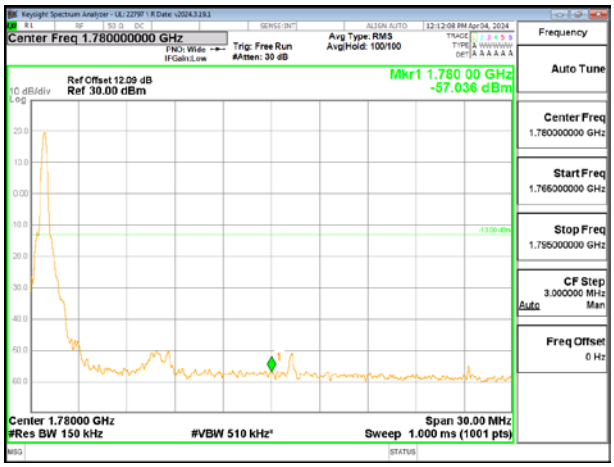

LTE66 15MHz 16QAM LOW Ch RB1-0



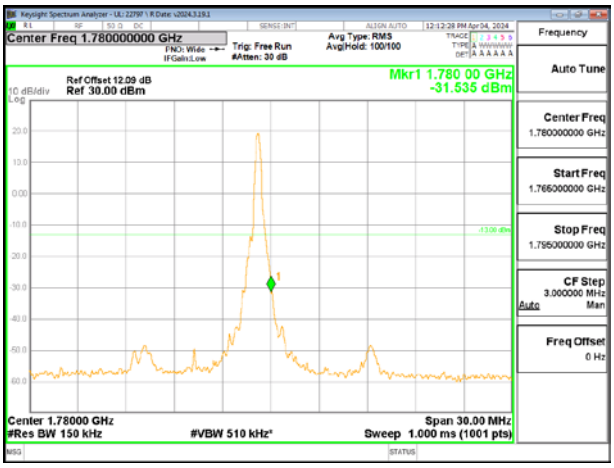

LTE66 15MHz 16QAM LOW Ch RB1-74



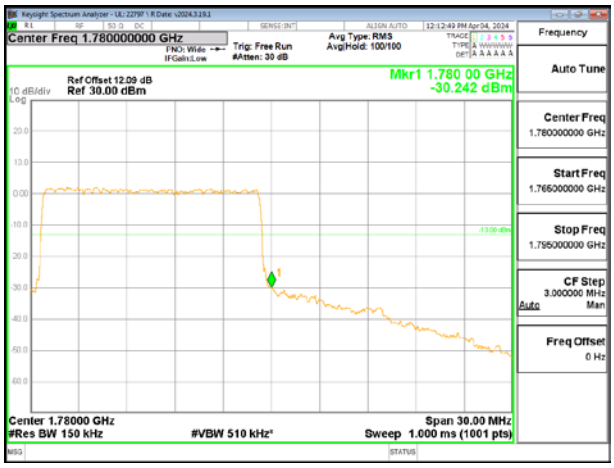

LTE66 15MHz 16QAM LOW Ch RB75-0



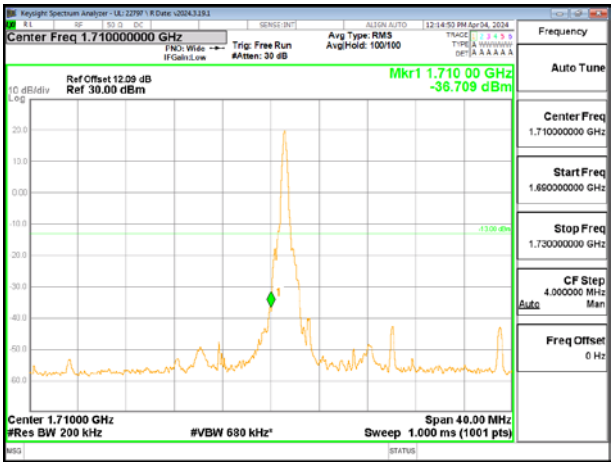

LTE66 15MHz 16QAM HIGH Ch RB1-0



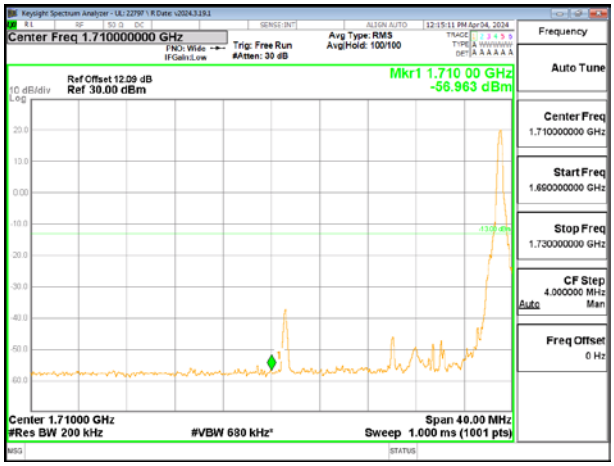

LTE66 15MHz 16QAM HIGH Ch RB1-74



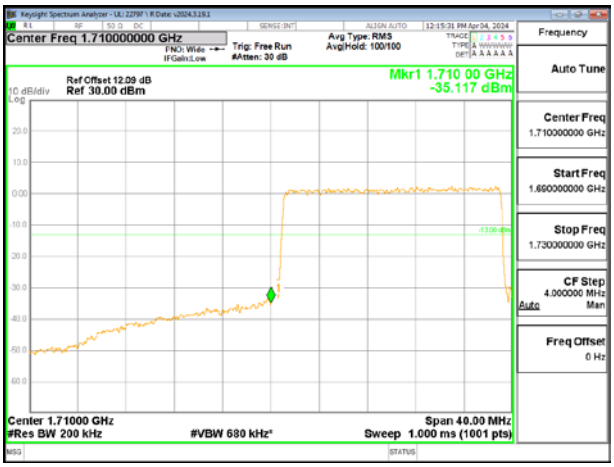

LTE66 15MHz 16QAM HIGH Ch RB75-0



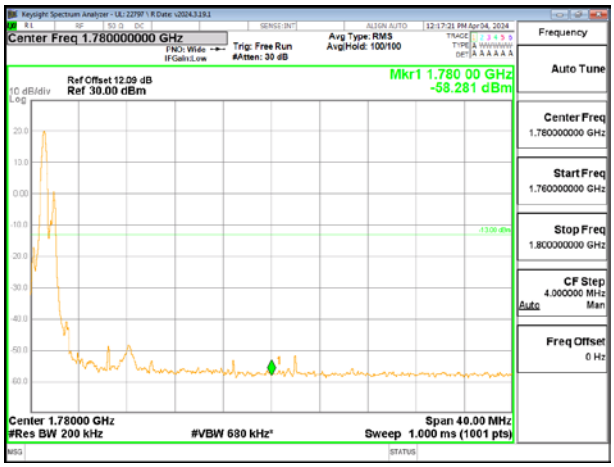

LTE66 20MHz 16QAM LOW Ch RB1-0



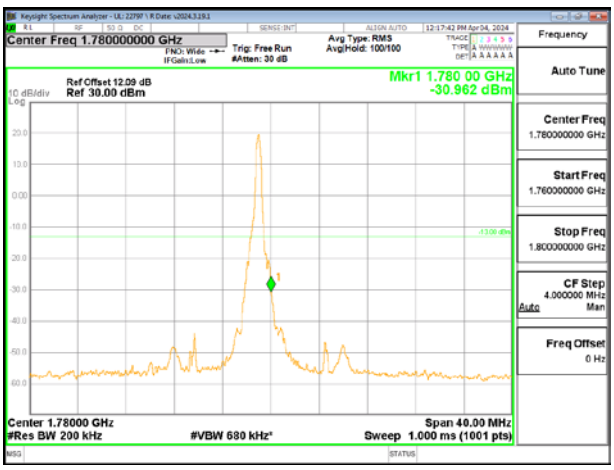

LTE66 20MHz 16QAM LOW Ch RB1-99



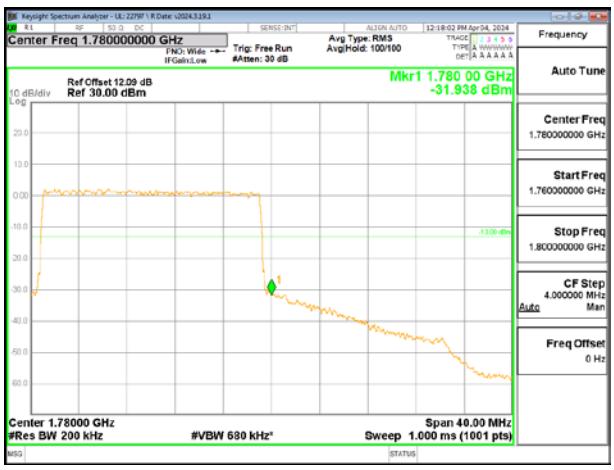

LTE66 20MHz 16QAM LOW Ch RB100-0




LTE66 20MHz 16QAM HIGH Ch RB1-0




LTE66 20MHz 16QAM HIGH Ch RB1-99




LTE66 20MHz 16QAM HIGH Ch RB100-0

## 9.5. FREQUENCY STABILITY

**TEST PROCEDURE**

Use CMW 500 with Frequency Error measurement capability.

(vii) Temp. = −30°C to +50°C
(viii) Voltage = (85% - 100%)
Normal, 3.89VDC
End Voltage, 3.69VDC.

**Frequency Stability vs Temperature:**

The EUT is placed inside a temperature chamber. The temperature is set to 20ºC and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize, and soak, and then the measurement is repeated. This is repeated until +50ºC is reached.

**Frequency Stability vs Voltage:**

FCC 2.1055 (d)(2):
For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.

**RESULTS**

The peak frequency error is recorded (worst-case).

## 9.5.1. GSM850

| Test Engineer ID: | 104463/85502 | Test Date: | 04-03-24 | EUT Serial Number: | QV7700BLLD |
|---|---|---|---|---|---|

| Band | 5 | Frequency Range | | Frequency Error Reading (Hz) | Limit | |
|---|---|---|---|---|---|---|
| Condition | | 824 | 849 | | 2.5 | |
| Temperature | Voltage | Freq Reading @ Low End (MHz) | Freq Reading @ High End (MHz) | | Frequency Stability (ppm) | Within Authorized Frequency Block (Hz) |
| Normal (20°C) | Normal | 824.05660000 | 848.94880000 | | | |
| Extreme (50°C) | | 824.05659500 | 848.94879500 | -5 | -0.006 | Yes |
| Extreme (40°C) | | 824.05659450 | 848.94879450 | -5.5 | -0.007 | Yes |
| Extreme (30°C) | | 824.05659270 | 848.94879270 | -7.3 | -0.009 | Yes |
| Extreme (10°C) | | 824.05659680 | 848.94879680 | -3.2 | -0.004 | Yes |
| Extreme (0°C) | | 824.05659110 | 848.94879110 | -8.9 | -0.011 | Yes |
| Extreme (-10°C) | | 824.05659700 | 848.94879700 | -3 | -0.004 | Yes |
| Extreme (-20°C) | | 824.05659640 | 848.94879640 | -3.6 | -0.004 | Yes |
| Extreme (-30°C) | | 824.05659520 | 848.94879520 | -4.8 | -0.006 | Yes |
| | | | | | | |
| 20°C | End Point Voltage | 824.05659330 | 848.94879330 | -6.7 | -0.008 | Yes |

## 9.5.2. GSM1900

| Test Engineer ID: | 104463/85502 | Test Date: | 04-03-24 | EUT Serial Number: | QV7700BLLD |
|---|---|---|---|---|---|

| Band | 2 | Frequency Range | | Frequency Error Reading (Hz) | Limit | |
|---|---|---|---|---|---|---|
| Condition | | 1850 | 1910 | | 2.5 | |
| | | Freq Reading @ Low End (MHz) | Freq Reading @ High End (MHz) | | Frequency Stability (ppm) | Within Authorized Frequency Block (Hz) |
| Temperature | Voltage | | | | | |
| Normal (20°C) | Normal | 1850.10860000 | 1909.88920000 | | | |
| Extreme (50°C) | | 1850.10859090 | 1909.88919090 | -9.1 | -0.005 | Yes |
| Extreme (40°C) | | 1850.10859640 | 1909.88919640 | -3.6 | -0.002 | Yes |
| Extreme (30°C) | | 1850.10859330 | 1909.88919330 | -6.7 | -0.004 | Yes |
| Extreme (10°C) | | 1850.10859790 | 1909.88919790 | -2.1 | -0.001 | Yes |
| Extreme (0°C) | | 1850.10859480 | 1909.88919480 | -5.2 | -0.003 | Yes |
| Extreme (-10°C) | | 1850.10859300 | 1909.88919300 | -7 | -0.004 | Yes |
| Extreme (-20°C) | | 1850.10860620 | 1909.88920620 | 6.2 | 0.003 | Yes |
| Extreme (-30°C) | | 1850.10859480 | 1909.88919480 | -5.2 | -0.003 | Yes |
| | | | | | | |
| 20°C | End Point Voltage | 1850.10858730 | 1909.88918730 | -12.7 | -0.007 | Yes |

## 9.5.3. WCDMA BAND 2

| Test Engineer ID: | 104463/85502 | Test Date: | 03-29-24<br>04-03-24 | EUT Serial Number: | QV7700BLLD |
|---|---|---|---|---|---|

| Band | 2 | Frequency Range | | Frequency Error Reading (Hz) | Limit | |
|---|---|---|---|---|---|---|
| Condition | | 1850 | 1910 | | 2.5 | |
| Temperature | Voltage | Freq Reading @ Low End (MHz) | Freq Reading @ High End (MHz) | | Frequency Stability (ppm) | Within Authorized Frequency Block (Hz) |
| Normal (20°C) | Normal | 1850.62830000 | 1909.33500000 | | | |
| Extreme (50°C) | | 1850.62830682 | 1909.33500682 | 6.82 | 0.004 | Yes |
| Extreme (40°C) | | 1850.62830300 | 1909.33500300 | 3 | 0.002 | Yes |
| Extreme (30°C) | | 1850.62830340 | 1909.33500340 | 3.4 | 0.002 | Yes |
| Extreme (10°C) | | 1850.62829658 | 1909.33499658 | -3.42 | -0.002 | Yes |
| Extreme (0°C) | | 1850.62829624 | 1909.33499624 | -3.76 | -0.002 | Yes |
| Extreme (-10°C) | | 1850.62829589 | 1909.33499589 | -4.11 | -0.002 | Yes |
| Extreme (-20°C) | | 1850.62830464 | 1909.33500464 | 4.64 | 0.002 | Yes |
| Extreme (-30°C) | | 1850.62829535 | 1909.33499535 | -4.65 | -0.002 | Yes |
| | | | | | | |
| 20°C | End Point Voltage | 1850.62830456 | 1909.33500456 | 4.56 | 0.002 | Yes |

## 9.5.4. WCDMA BAND 4

| Test Engineer ID: | 104463/85502 | Test Date: | 03-29-24<br>04-03-24 | EUT Serial Number: | QV7700BLLD |
|---|---|---|---|---|---|

| Band | 4 | Frequency Range | | Frequency Error Reading (Hz) | Limit | |
|---|---|---|---|---|---|---|
| Condition | | 1710 | 1755 | | | |
| Temperature | Voltage | Freq Reading @ Low End (MHz) | Freq Reading @ High End (MHz) | | Frequency Stability (ppm) | Within Authorized Frequency Block (Hz) |
| Normal (20°C) | Normal | 1710.52170000 | 1754.54000000 | | | |
| Extreme (50°C) | | 1710.52169312 | 1754.53999312 | -6.88 | -0.004 | Yes |
| Extreme (40°C) | | 1710.52169388 | 1754.53999388 | -6.12 | -0.004 | Yes |
| Extreme (30°C) | | 1710.52169417 | 1754.53999417 | -5.83 | -0.003 | Yes |
| Extreme (10°C) | | 1710.52169547 | 1754.53999547 | -4.53 | -0.003 | Yes |
| Extreme (0°C) | | 1710.52169601 | 1754.53999601 | -3.99 | -0.002 | Yes |
| Extreme (-10°C) | | 1710.52169552 | 1754.53999552 | -4.48 | -0.003 | Yes |
| Extreme (-20°C) | | 1710.52169672 | 1754.53999672 | -3.28 | -0.002 | Yes |
| Extreme (-30°C) | | 1710.52169661 | 1754.53999661 | -3.39 | -0.002 | Yes |
| | | | | | | |
| 20°C | End Point Voltage | 1710.52169484 | 1754.53999484 | -5.16 | -0.003 | Yes |

## 9.5.5. WCDMA BAND 5

| Test Engineer ID: | 104463/85502 | Test Date: | 03-29-24<br>04-03-24 | EUT Serial Number: | QV7700BLLD |
|---|---|---|---|---|---|

| Band | 5 | Frequency Range | | Frequency Error Reading (Hz) | Limit | |
|---|---|---|---|---|---|---|
| Condition | | 824 | 849 | | 2.5 | |
| Temperature | Voltage | Freq Reading @ Low End (MHz) | Freq Reading @ High End (MHz) | | Frequency Stability (ppm) | Within Authorized Frequency Block (Hz) |
| Normal (20°C) | Normal | 824.41000000 | 848.59500000 | | | |
| Extreme (50°C) | | 824.40999787 | 848.59499787 | -2.13 | -0.003 | Yes |
| Extreme (40°C) | | 824.40999688 | 848.59499688 | -3.12 | -0.004 | Yes |
| Extreme (30°C) | | 824.40999807 | 848.59499807 | -1.93 | -0.002 | Yes |
| Extreme (10°C) | | 824.41000224 | 848.59500224 | 2.24 | 0.003 | Yes |
| Extreme (0°C) | | 824.41000151 | 848.59500151 | 1.51 | 0.002 | Yes |
| Extreme (-10°C) | | 824.41000288 | 848.59500288 | 2.88 | 0.003 | Yes |
| Extreme (-20°C) | | 824.41000217 | 848.59500217 | 2.17 | 0.003 | Yes |
| Extreme (-30°C) | | 824.41000245 | 848.59500245 | 2.45 | 0.003 | Yes |
| | | | | | | |
| 20°C | End Point Voltage | 824.40999835 | 848.59499835 | -1.65 | -0.002 | Yes |

## 9.5.6. LTE5

| Test Engineer ID: | 104463/85502 | Test Date: | 03-28-24<br>04-01-24 | EUT Serial Number: | QV7700BLLD |
|---|---|---|---|---|---|

| Band | 5 | Frequency Range | | Frequency Error Reading (Hz) | Limit | |
|---|---|---|---|---|---|---|
| Condition | | 824 | 849 | | 2.5 | |
| Temperature | Voltage | Freq Reading @ Low End (MHz) | Freq Reading @ High End (MHz) | | Frequency Stability (ppm) | Within Authorized Frequency Block (Hz) |
| Normal (20°C) | Normal | 824.43000000 | 848.61000000 | | | |
| Extreme (50°C) | | 824.42999850 | 848.60999850 | -1.5 | -0.002 | Yes |
| Extreme (40°C) | | 824.42999760 | 848.60999760 | -2.4 | -0.003 | Yes |
| Extreme (30°C) | | 824.43000320 | 848.61000320 | 3.2 | 0.004 | Yes |
| Extreme (10°C) | | 824.43000260 | 848.61000260 | 2.6 | 0.003 | Yes |
| Extreme (0°C) | | 824.43000180 | 848.61000180 | 1.8 | 0.002 | Yes |
| Extreme (-10°C) | | 824.43000330 | 848.61000330 | 3.3 | 0.004 | Yes |
| Extreme (-20°C) | | 824.43000280 | 848.61000280 | 2.8 | 0.003 | Yes |
| Extreme (-30°C) | | 824.42999780 | 848.60999780 | -2.2 | -0.003 | Yes |
| | | | | | | |
| 20°C | End Point Voltage | 824.43000160 | 848.61000160 | 1.6 | 0.002 | Yes |

## 9.5.7. LTE12

| Test Engineer ID: | 104463/85502 | Test Date: | 03-28-24<br>04-01-24 | EUT Serial Number: | QV7700BLLD |
|---|---|---|---|---|---|

| Band | 12 | Frequency Range | | Frequency Error Reading (Hz) | Limit | |
|---|---|---|---|---|---|---|
| Condition | | 699 | 716 | | | |
| Temperature | Voltage | Freq Reading @ Low End (MHz) | Freq Reading @ High End (MHz) | | Frequency Stability (ppm) | Within Authorized Frequency Block (Hz) |
| Normal (20°C) | Normal | 699.44200000 | 715.59800000 | | | |
| Extreme (50°C) | | 699.44200190 | 715.59800190 | 1.9 | 0.003 | Yes |
| Extreme (40°C) | | 699.44200130 | 715.59800130 | 1.3 | 0.002 | Yes |
| Extreme (30°C) | | 699.44199800 | 715.59799800 | -2 | -0.003 | Yes |
| Extreme (10°C) | | 699.44200390 | 715.59800390 | 3.9 | 0.006 | Yes |
| Extreme (0°C) | | 699.44200280 | 715.59800280 | 2.8 | 0.004 | Yes |
| Extreme (-10°C) | | 699.44200100 | 715.59800100 | 1 | 0.001 | Yes |
| Extreme (-20°C) | | 699.44200180 | 715.59800180 | 1.8 | 0.003 | Yes |
| Extreme (-30°C) | | 699.44200290 | 715.59800290 | 2.9 | 0.004 | Yes |
| | | | | | | |
| 20°C | End Point Voltage | 699.44199770 | 715.59799770 | -2.3 | -0.003 | Yes |

## 9.5.8. LTE13

| Test Engineer ID: | 104463/85502 | Test Date: | 03-28-24<br>04-01-24 | EUT Serial Number: | QV7700BLLD |
|---|---|---|---|---|---|

| Band | 13 | Frequency Range | | Frequency Error Reading (Hz) | Limit | |
|---|---|---|---|---|---|---|
| Condition | | 777 | 787 | | | |
| Temperature | Voltage | Freq Reading @ Low End (MHz) | Freq Reading @ High End (MHz) | | Frequency Stability (ppm) | Within Authorized Frequency Block (Hz) |
| Normal (20°C) | | 777.18000000 | 786.88000000 | | | |
| Extreme (50°C) | | 777.18000190 | 786.88000190 | 1.9 | 0.002 | Yes |
| Extreme (40°C) | | 777.18000250 | 786.88000250 | 2.5 | 0.003 | Yes |
| Extreme (30°C) | | 777.18000290 | 786.88000290 | 2.9 | 0.004 | Yes |
| Extreme (10°C) | Normal | 777.18000370 | 786.88000370 | 3.7 | 0.005 | Yes |
| Extreme (0°C) | | 777.18000360 | 786.88000360 | 3.6 | 0.005 | Yes |
| Extreme (-10°C) | | 777.18000420 | 786.88000420 | 4.2 | 0.005 | Yes |
| Extreme (-20°C) | | 777.18000270 | 786.88000270 | 2.7 | 0.003 | Yes |
| Extreme (-30°C) | | 777.18000250 | 786.88000250 | 2.5 | 0.003 | Yes |
| | | | | | | |
| 20°C | End Point Voltage | 777.17999810 | 786.87999810 | -1.9 | -0.002 | Yes |

## 9.5.9. LTE25

| Test Engineer ID: | 33499/84740 | Test Date: | 04-01-24 | EUT Serial Number: | QV7700BLLD |
|---|---|---|---|---|---|

| Band | 25 | Frequency Range | | Frequency Error Reading (Hz) | Limit | |
|---|---|---|---|---|---|---|
| Condition | | 1850 | 1915 | | 2.5 | |
| Temperature | Voltage | Freq Reading @ Low End (MHz) | Freq Reading @ High End (MHz) | | Frequency Stability (ppm) | Within Authorized Frequency Block (Hz) |
| Normal (20°C) | Normal | 1850.89400000 | 1914.13900000 | | | |
| Extreme (50°C) | | 1850.89399240 | 1914.13899240 | -7.6 | -0.004 | Yes |
| Extreme (40°C) | | 1850.89399310 | 1914.13899310 | -6.9 | -0.004 | Yes |
| Extreme (30°C) | | 1850.89399440 | 1914.13899440 | -5.6 | -0.003 | Yes |
| Extreme (10°C) | | 1850.89399290 | 1914.13899290 | -7.1 | -0.004 | Yes |
| Extreme (0°C) | | 1850.89399180 | 1914.13899180 | -8.2 | -0.004 | Yes |
| Extreme (-10°C) | | 1850.89399450 | 1914.13899450 | -5.5 | -0.003 | Yes |
| Extreme (-20°C) | | 1850.89399370 | 1914.13899370 | -6.3 | -0.003 | Yes |
| Extreme (-30°C) | | 1850.89399450 | 1914.13899450 | -5.5 | -0.003 | Yes |
| | | | | | | |
| 20°C | End Point Voltage | 1850.89399580 | 1914.13899580 | -4.2 | -0.002 | Yes |

## 9.5.10. LTE41

| Test Engineer ID: | 104463/85502 | Test Date: | 03-28-24<br>04-01-24 | EUT Serial Number: | QV7700BLLD |
|---|---|---|---|---|---|

| Band | 41 | Frequency Range | | Frequency Error Reading (Hz) | Limit | |
|---|---|---|---|---|---|---|
| Condition | | 2496 | 2690 | | | |
| Temperature | Voltage | Freq Reading @ Low End (MHz) | Freq Reading @ High End (MHz) | | Frequency Stability (ppm) | Within Authorized Frequency Block (Hz) |
| Normal (20°C) | | 2496.93300000 | 2689.10600000 | | | |
| Extreme (50°C) | | 2496.93300240 | 2689.10600240 | 2.4 | 0.001 | Yes |
| Extreme (40°C) | | 2496.93299620 | 2689.10599620 | -3.8 | -0.001 | Yes |
| Extreme (30°C) | | 2496.93300530 | 2689.10600530 | 5.3 | 0.002 | Yes |
| Extreme (10°C) | Normal | 2496.93299610 | 2689.10599610 | -3.9 | -0.002 | Yes |
| Extreme (0°C) | | 2496.93299600 | 2689.10599600 | -4 | -0.002 | Yes |
| Extreme (-10°C) | | 2496.93300390 | 2689.10600390 | 3.9 | 0.002 | Yes |
| Extreme (-20°C) | | 2496.93300390 | 2689.10600390 | 3.9 | 0.002 | Yes |
| Extreme (-30°C) | | 2496.93299590 | 2689.10599590 | -4.1 | -0.002 | Yes |
| | | | | | | |
| 20°C | End Point Voltage | 2496.93300750 | 2689.10600750 | 7.5 | 0.003 | Yes |

## 9.5.11. LTE66

| Test Engineer ID: | 104463/85502 | Test Date: | 03-28-24<br>04-01-24 | EUT Serial Number: | QV7700BLLD |
|---|---|---|---|---|---|

| Band | 66 | Frequency Range | | Frequency Error Reading (Hz) | Limit | |
|---|---|---|---|---|---|---|
| Condition | | 1710 | 1780 | | | |
| Temperature | Voltage | Freq Reading @ Low End (MHz) | Freq Reading @ High End (MHz) | | Frequency Stability (ppm) | Within Authorized Frequency Block (Hz) |
| Normal (20°C) | | 1710.87300000 | 1779.16900000 | | | |
| Extreme (50°C) | | 1710.87299450 | 1779.16899450 | -5.5 | -0.003 | Yes |
| Extreme (40°C) | | 1710.87299430 | 1779.16899430 | -5.7 | -0.003 | Yes |
| Extreme (30°C) | | 1710.87300340 | 1779.16900340 | 3.4 | 0.002 | Yes |
| Extreme (10°C) | Normal | 1710.87300530 | 1779.16900530 | 5.3 | 0.003 | Yes |
| Extreme (0°C) | | 1710.87299570 | 1779.16899570 | -4.3 | -0.002 | Yes |
| Extreme (-10°C) | | 1710.87300300 | 1779.16900300 | 3 | 0.002 | Yes |
| Extreme (-20°C) | | 1710.87300360 | 1779.16900360 | 3.6 | 0.002 | Yes |
| Extreme (-30°C) | | 1710.87300540 | 1779.16900540 | 5.4 | 0.003 | Yes |
| | | | | | | |
| 20°C | End Point Voltage | 1710.87300500 | 1779.16900500 | 5 | 0.003 | Yes |

# 10. RADIATED TEST RESULTS

**Radiated measurement using the Field Strength Method**

Using the test configuration shown in Figure 6 below, We measure the radiated emissions directly from the EUT and convert the measured field strength or received power to ERP or EIRP, as required, for comparison to the applicable limits. As stated in 5.5.1 of ANSI C63.26-2015, the field strength measurement method using a test site validated to the requirements of ANSI C63.4 is an alternative to the substitution measurement method.

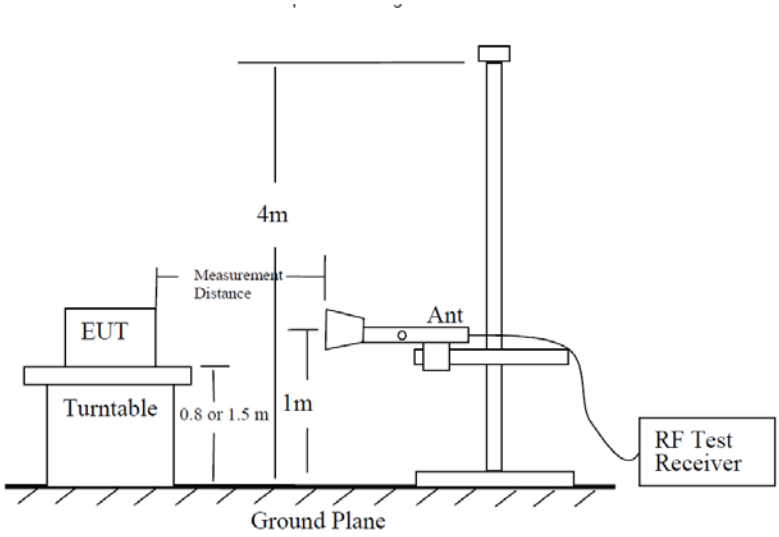



**Figure 6—Test site-up for radiated ERP and/or EIRP measurements**

**Radiated Power Measurement Calculation According to ANSI C63.26-2015**

a) E (dBμV/m) = Measured amplitude level (dBμV) + Cable Loss (dB) + Antenna Factor (dB/m).

b) E (dBμV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m).

c) E (dBμV/m) = EIRP (dBm) − 20log(D) + 104.8; where D is the measurement distance (in the far field region) in m.

d) EIRP (dBm) = E (dBμV/m) + 20log(D) − 104.8; where D is the measurement distance (in the far field region) in m.

So, from d)

The measuring distance is usually at 3m, then 20*Log(3)=9.5424

Then, EIRP (dBm) = E (dBμV/m) + 9.5424 − 104.8 = E (dBμV/m) – 95.2576

Note: Confidence check of each chamber is performed daily to see if any degradation from expected/normal reading reference data. Ambient check of each chamber is performed monthly.

## 10.1. FIELD STRENGTH OF SPURIOUS RADIATION, ABOVE 1GHz

**TEST PROCEDURE**

KDB 971168 D01 v03r01/D02 v02/r01
All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz

**RESULTS**

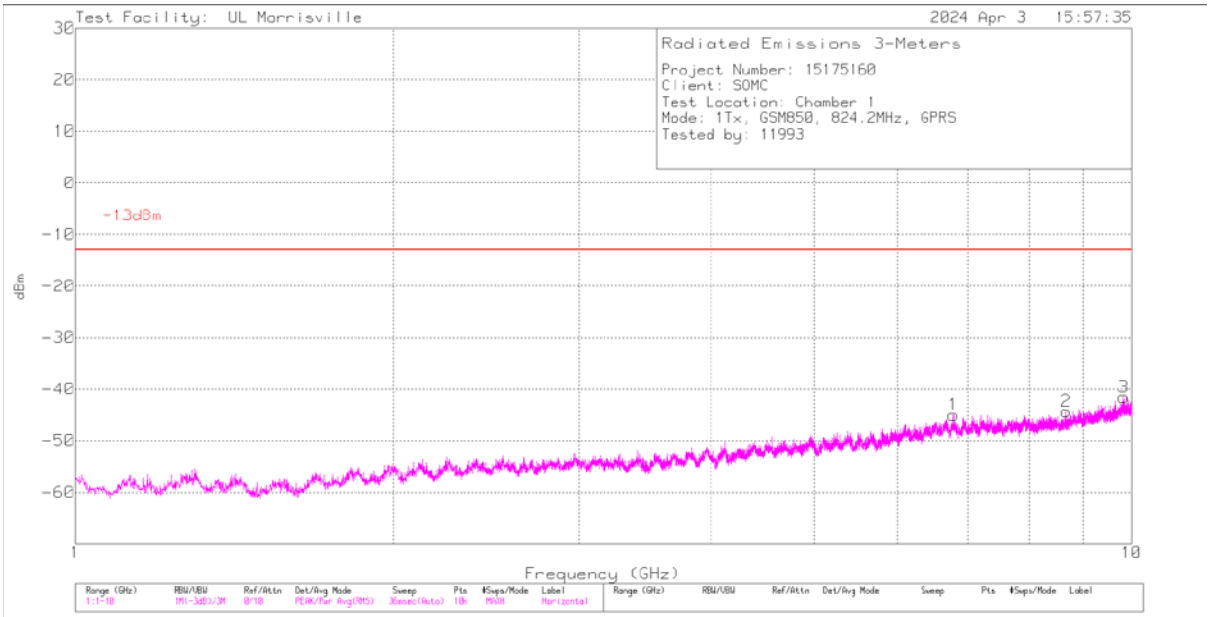
| WWAN Band | Serial Number of EUT tested |
|---|---|
| All GSM, WCDMA, LTE Band RSE data in Section 10.1 | QV7700CDLD |

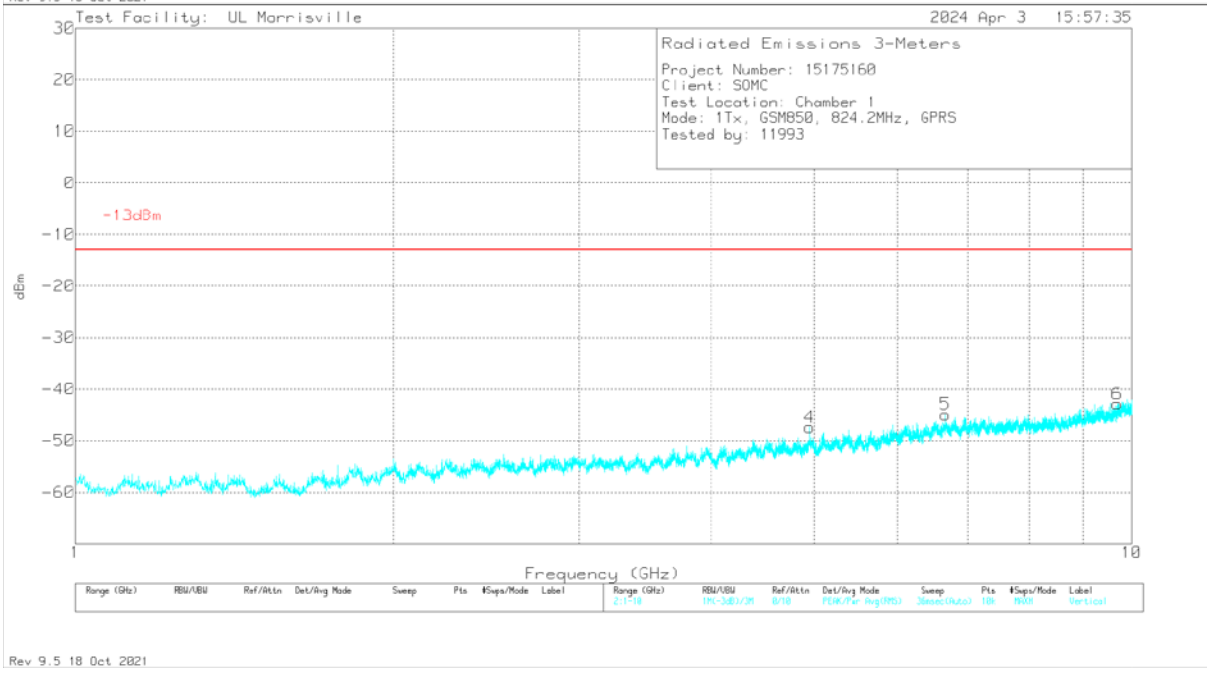
### 10.1.1. GSM850

**LIMITS**

FCC: §22.917 (a)
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.

**GPRS Low Channel**

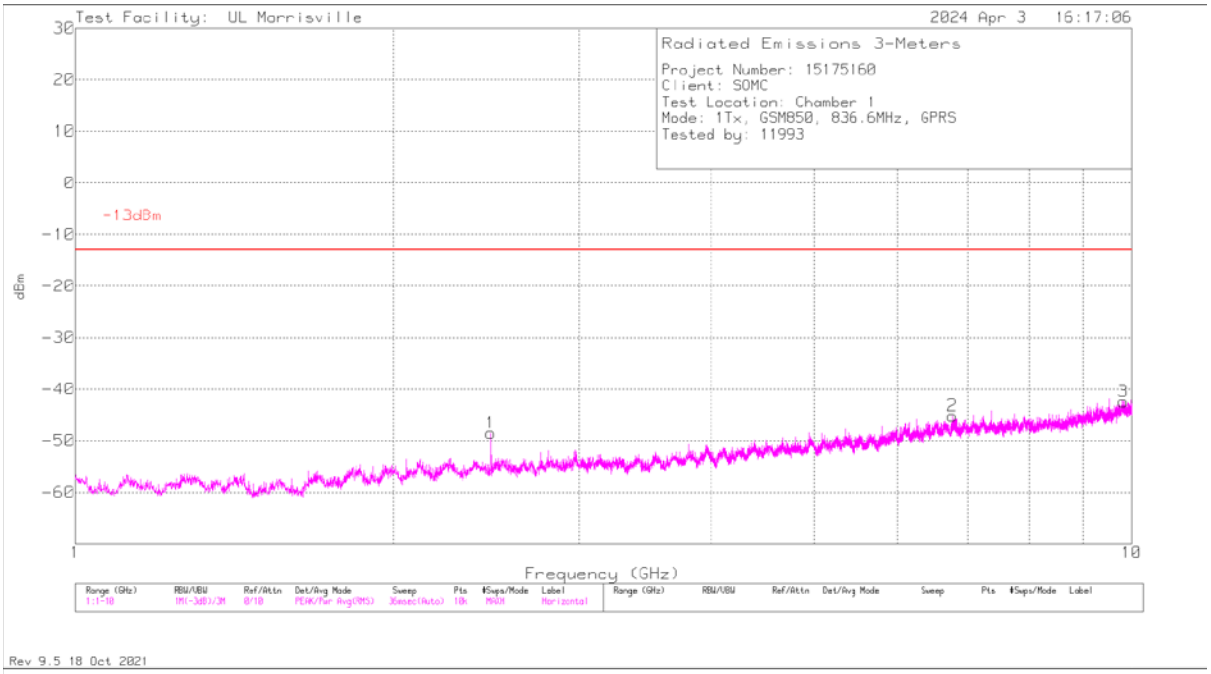


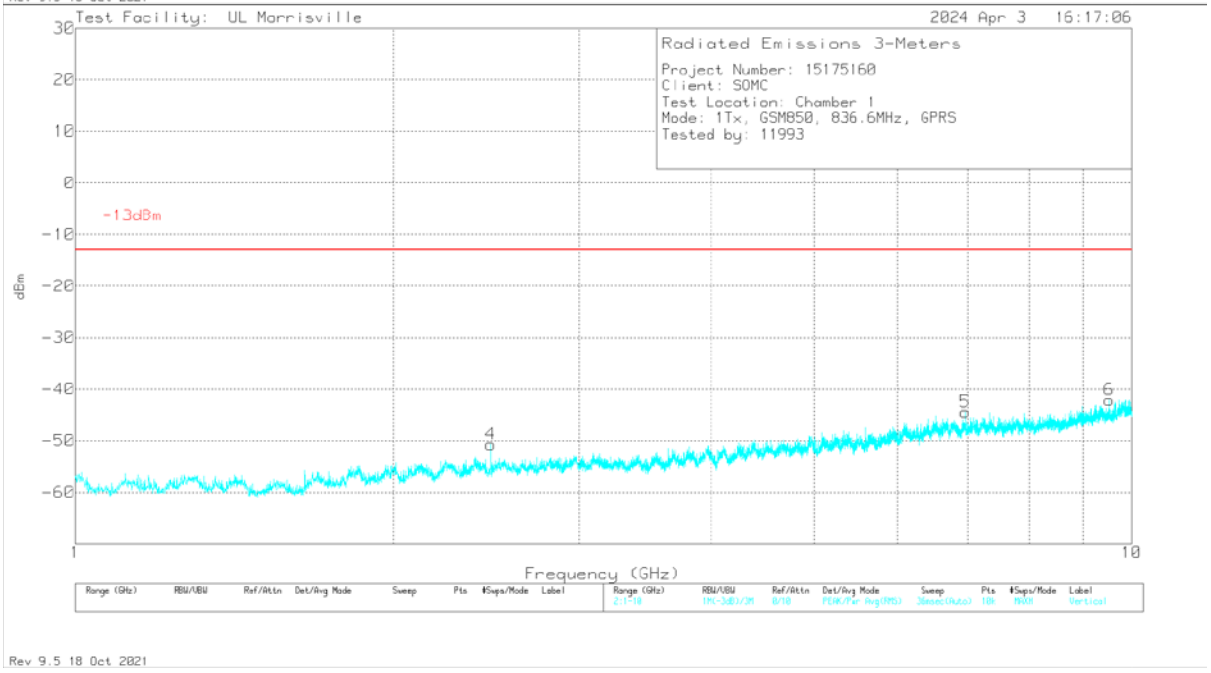




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | Filter (dB) | CF (dB) | Corrected Reading dBm | Limit -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 4.9519 | -63.01 | Pk | 34 | -30.6 | .4 | 11.8 | -47.41 | -13 | -34.41 | 0-360 | 101 | V |
| 5 | 6.6646 | -64.29 | Pk | 35.6 | -28.5 | .5 | 11.8 | -44.89 | -13 | -31.89 | 0-360 | 101 | V |
| 1 | 6.778 | -64.57 | Pk | 35.6 | -28.4 | .6 | 11.8 | -44.97 | -13 | -31.97 | 0-360 | 299 | H |
| 2 | 8.6743 | -65.71 | Pk | 35.8 | -26.6 | .4 | 11.8 | -44.31 | -13 | -31.31 | 0-360 | 99 | H |
| 6 | 9.6949 | -66.66 | Pk | 36.8 | -25.5 | .7 | 11.8 | -42.86 | -13 | -29.86 | 0-360 | 200 | V |
| 3 | 9.8281 | -66.36 | Pk | 37.1 | -24.9 | .8 | 11.8 | -41.56 | -13 | -28.56 | 0-360 | 299 | H |

Pk - Peak detector

**GPRS Mid channel**

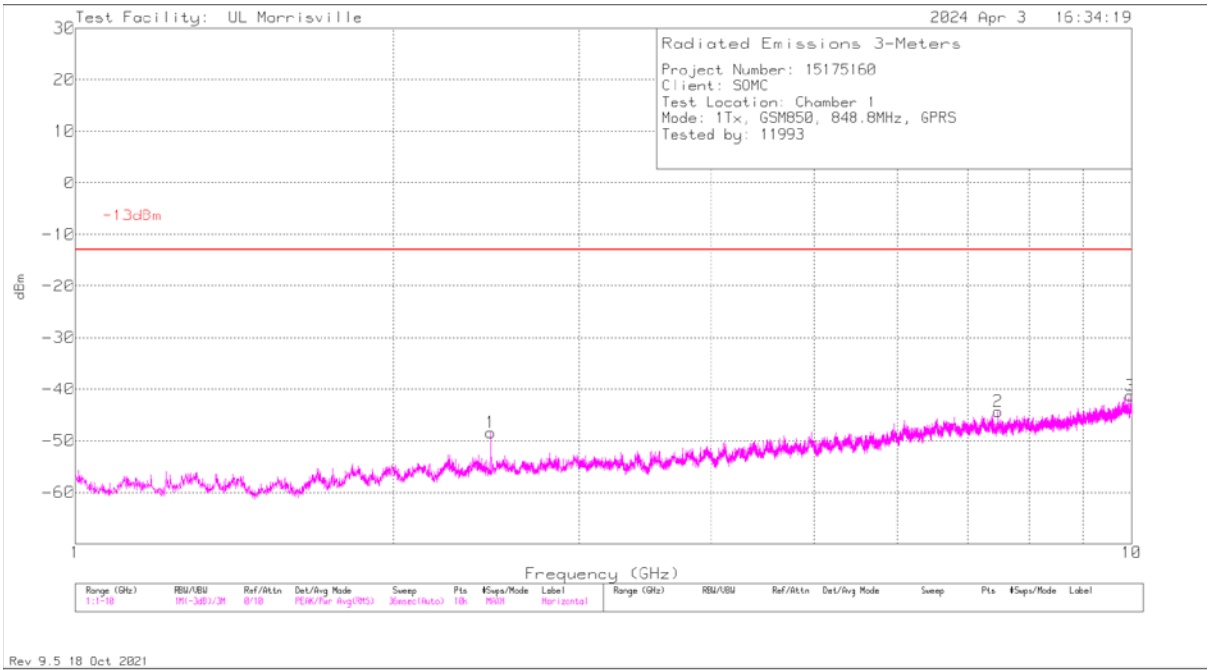


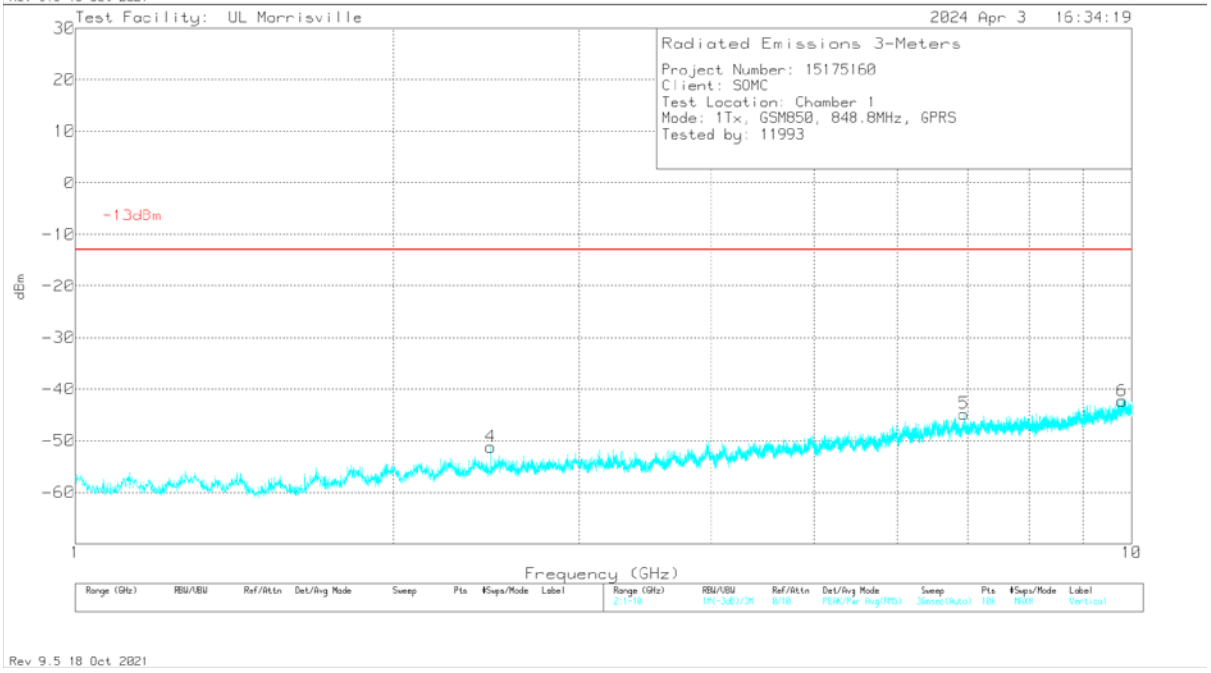




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | Filter (dB) | CF (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.4724 | -58.91 | Pk | 32.3 | -34.1 | .4 | 11.8 | -48.51 | -13 | -35.51 | 0-360 | 101 | H |
| 4 | 2.4724 | -61.09 | Pk | 32.3 | -34.1 | .4 | 11.8 | -50.69 | -13 | -37.69 | 0-360 | 300 | V |
| 2 | 6.7654 | -64.75 | Pk | 35.6 | -28.4 | .6 | 11.8 | -45.15 | -13 | -32.15 | 0-360 | 200 | H |
| 5 | 6.9607 | -64.43 | Pk | 35.6 | -28 | .6 | 11.8 | -44.43 | -13 | -31.43 | 0-360 | 101 | V |
| 6 | 9.5329 | -65.76 | Pk | 36.6 | -25.2 | .5 | 11.8 | -42.06 | -13 | -29.06 | 0-360 | 300 | V |
| 3 | 9.8218 | -67 | Pk | 37.1 | -25.1 | .8 | 11.8 | -42.4 | -13 | -29.4 | 0-360 | 299 | H |

Pk - Peak detector

**GPRS High Channel**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | Filter (dB) | CF (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.4724 | -58.81 | Pk | 32.3 | -34.1 | .4 | 11.8 | -48.41 | -13 | -35.41 | 0-360 | 101 | H |
| 4 | 2.4724 | -61.58 | Pk | 32.3 | -34.1 | .4 | 11.8 | -51.18 | -13 | -38.18 | 0-360 | 200 | V |
| 5 | 6.9454 | -65.05 | Pk | 35.6 | -27.7 | .6 | 11.8 | -44.75 | -13 | -31.75 | 0-360 | 300 | V |
| 2 | 7.4791 | -64.72 | Pk | 35.6 | -27.3 | .3 | 11.8 | -44.32 | -13 | -31.32 | 0-360 | 101 | H |
| 6 | 9.7966 | -66.49 | Pk | 37 | -25.2 | .6 | 11.8 | -42.29 | -13 | -29.29 | 0-360 | 300 | V |
| 3 | 9.9703 | -65.99 | Pk | 37.4 | -25.2 | .7 | 11.8 | -41.29 | -13 | -28.29 | 0-360 | 200 | H |

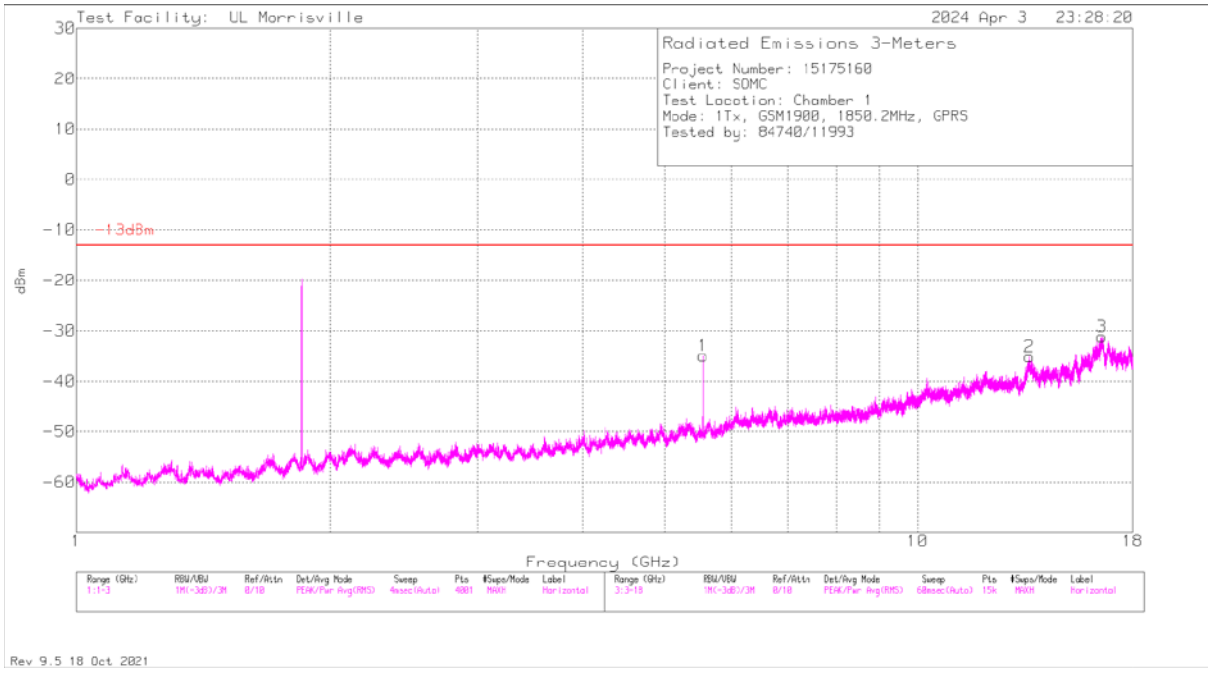
Pk - Peak detector

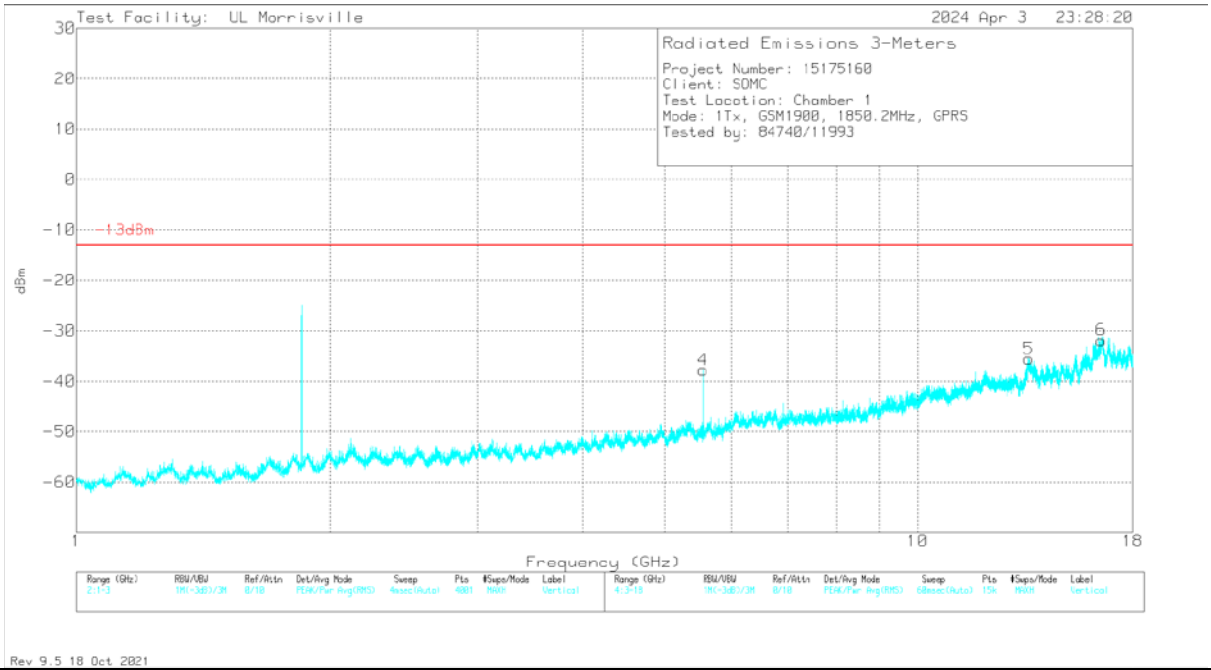
### 10.1.2. GSM1900

**LIMITS**

FCC: §24.238 (a)
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.

**GPRS Low Channel**

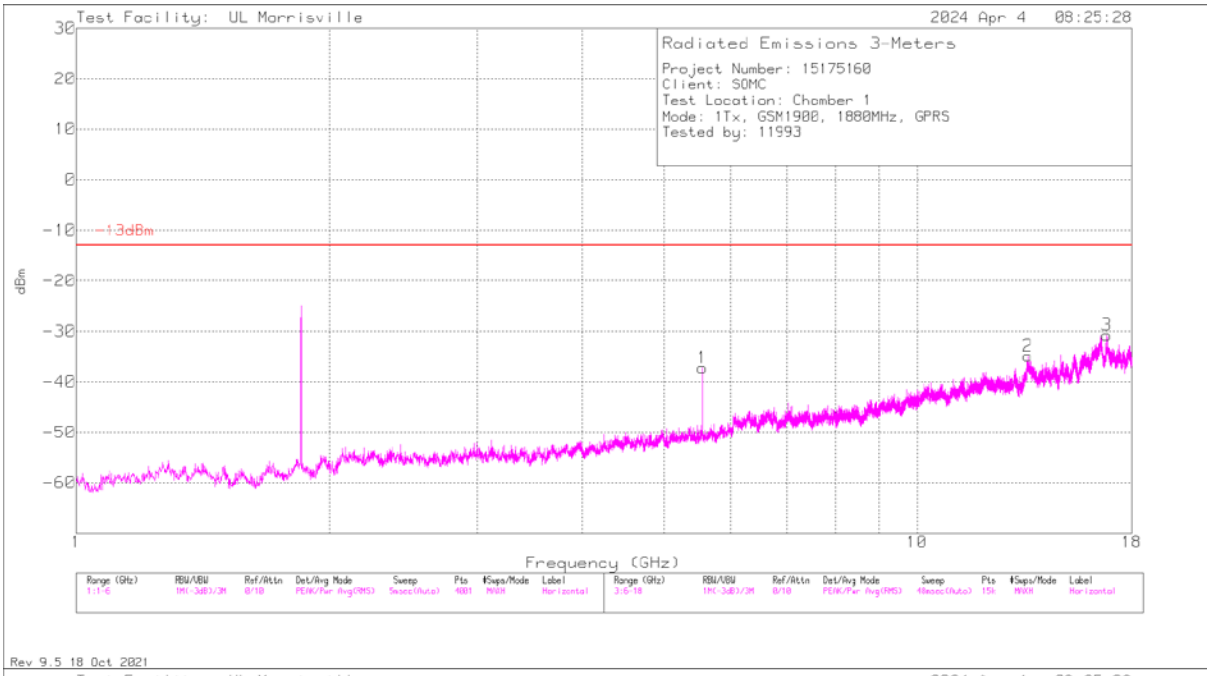


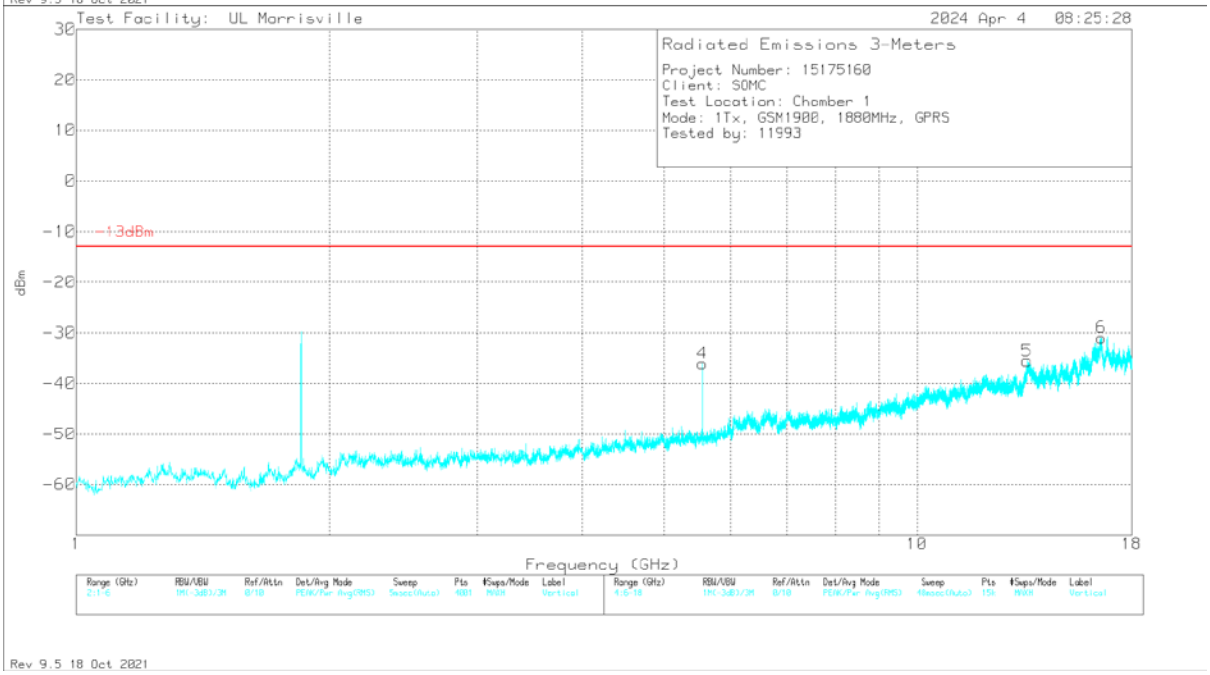




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | CF (dB) | Filter (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.55 | -50.85 | Pk | 34.4 | -30.3 | 11.8 | 0 | -34.95 | -13 | -21.95 | 0-360 | 101 | H |
| 4 | 5.55 | -53.68 | Pk | 34.4 | -30.3 | 11.8 | 0 | -37.78 | -13 | -24.78 | 0-360 | 299 | V |
| 5 | 13.543 | -63.05 | Pk | 39 | -23.3 | 11.8 | 0 | -35.55 | -13 | -22.55 | 0-360 | 299 | V |
| 2 | 13.576 | -62.12 | Pk | 39 | -23.8 | 11.8 | 0 | -35.12 | -13 | -22.12 | 0-360 | 199 | H |
| 6 | 16.521 | -66.64 | Pk | 41.1 | -18.1 | 11.8 | 0 | -31.84 | -13 | -18.84 | 0-360 | 299 | V |
| 3 | 16.535 | -65.99 | Pk | 41.1 | -18.1 | 11.8 | 0 | -31.19 | -13 | -18.19 | 0-360 | 199 | H |

Pk - Peak detector

**GPRS Mid Channel**

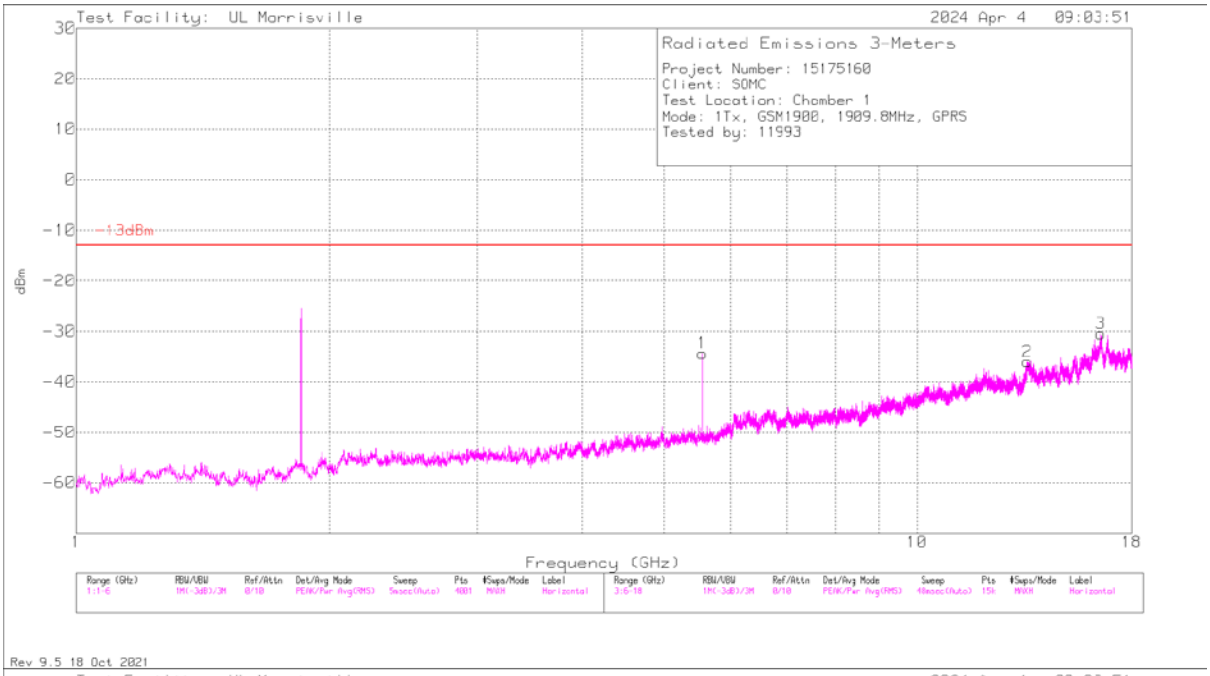


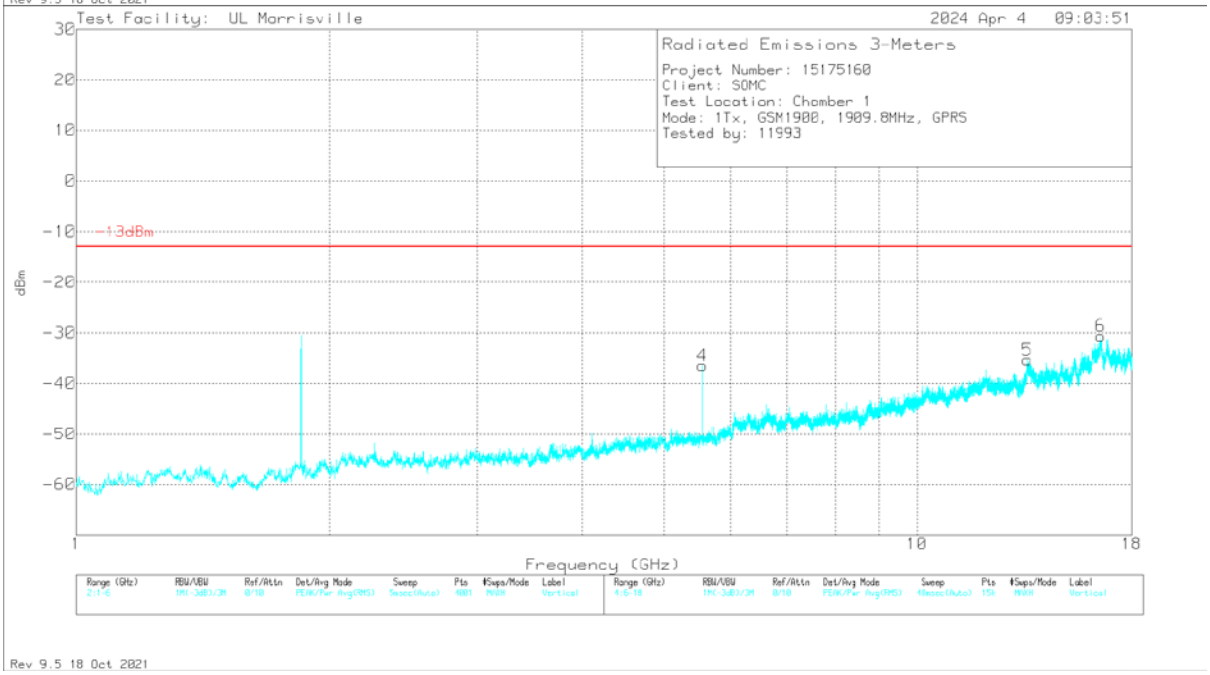




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | CF (dB) | Filter (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 13.5128 | -63.56 | Pk | 39 | -22.8 | 11.8 | 0 | -35.56 | -13 | -22.56 | 0-360 | 200 | V |
| 2 | 13.5424 | -62.48 | Pk | 39 | -23.2 | 11.8 | 0 | -34.88 | -13 | -21.88 | 0-360 | 300 | H |
| 6 | 16.5704 | -65.68 | Pk | 41.2 | -18.3 | 11.8 | 0 | -30.98 | -13 | -17.98 | 0-360 | 300 | V |
| 3 | 16.824 | -65.56 | Pk | 41.6 | -18.6 | 11.8 | 0 | -30.76 | -13 | -17.76 | 0-360 | 199 | H |
| 1 | 5.55125 | -53.71 | Pk | 34.4 | -30.1 | 11.8 | .4 | -37.21 | -13 | -24.21 | 0-360 | 200 | H |
| 4 | 5.55125 | -52.58 | Pk | 34.4 | -30.1 | 11.8 | .4 | -36.08 | -13 | -23.08 | 0-360 | 300 | V |

Pk - Peak detector

**GPRS High Channel**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | CF (dB) | Filter (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 13.516 | -64.03 | Pk | 39 | -22.8 | 11.8 | 0 | -36.03 | -13 | -23.03 | 0-360 | 101 | H |
| 5 | 13.5336 | -63.17 | Pk | 39 | -23 | 11.8 | 0 | -35.37 | -13 | -22.37 | 0-360 | 201 | V |
| 3 | 16.5392 | -65.45 | Pk | 41.1 | -17.9 | 11.8 | 0 | -30.45 | -13 | -17.45 | 0-360 | 300 | H |
| 6 | 16.54 | -65.74 | Pk | 41.1 | -17.8 | 11.8 | 0 | -30.64 | -13 | -17.64 | 0-360 | 101 | V |
| 1 | 5.55125 | -50.83 | Pk | 34.4 | -30.1 | 11.8 | .4 | -34.33 | -13 | -21.33 | 0-360 | 101 | H |
| 4 | 5.55125 | -53 | Pk | 34.4 | -30.1 | 11.8 | .4 | -36.5 | -13 | -23.5 | 0-360 | 299 | V |

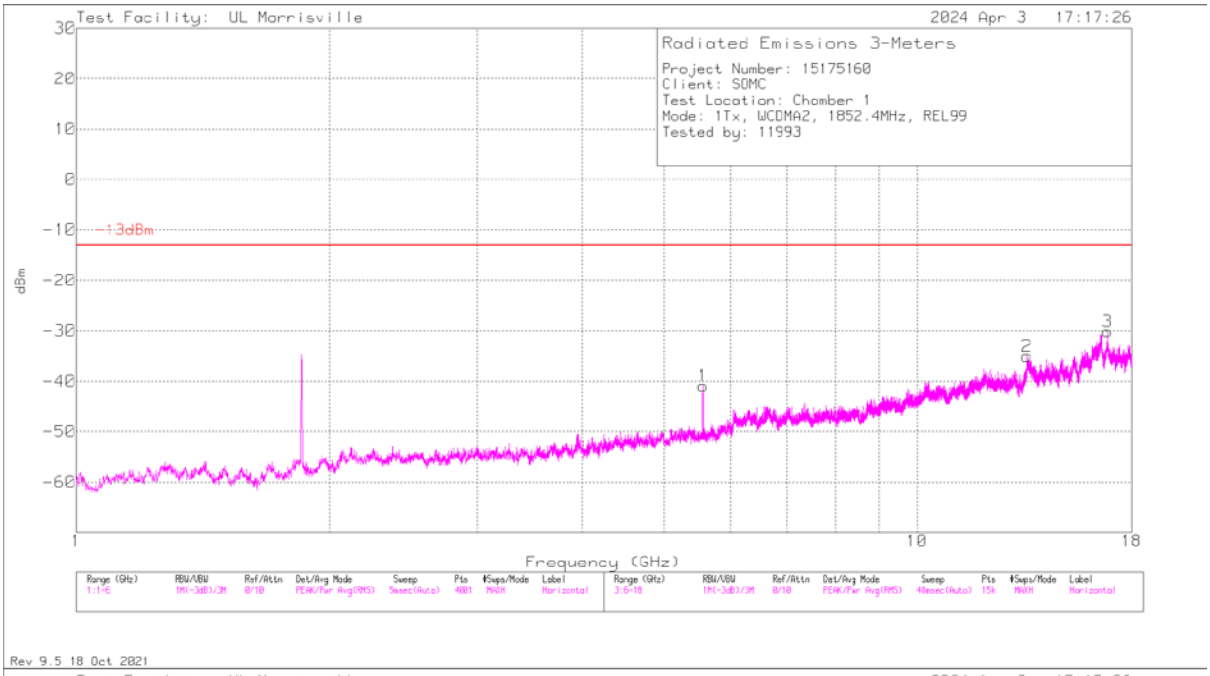
Pk - Peak detector

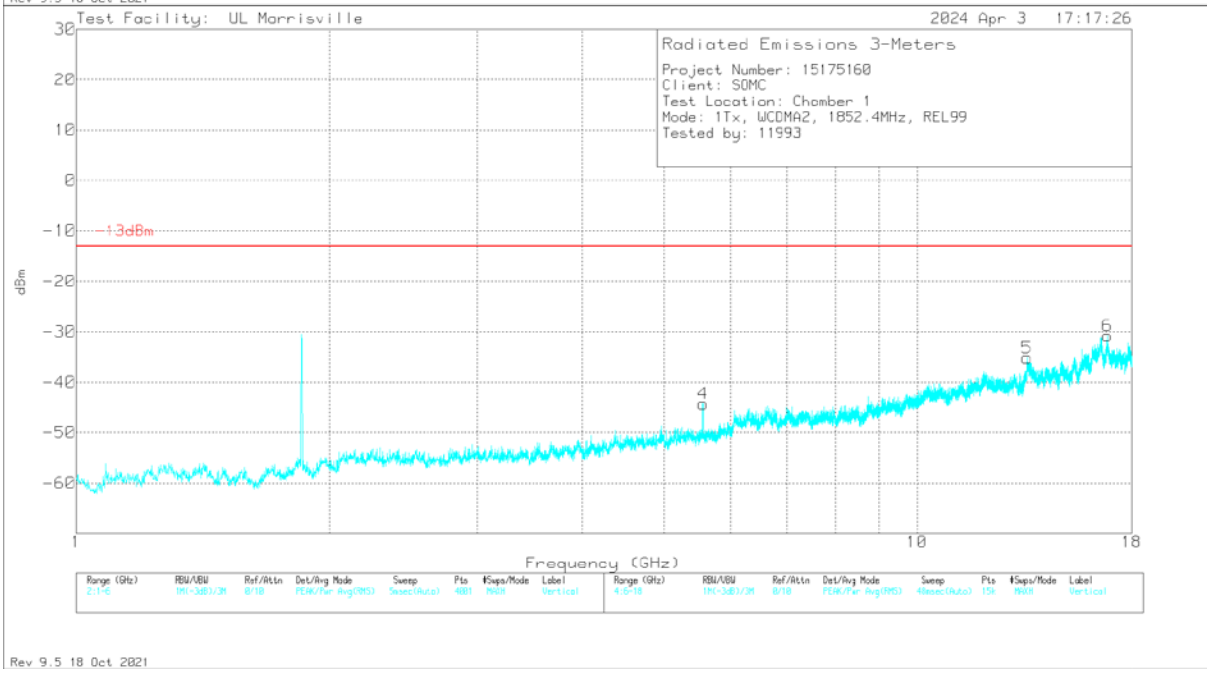
### 10.1.3. WCDMA2

**LIMITS**

FCC: §24.238 (a)
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.

**REL 99 Low Channel**

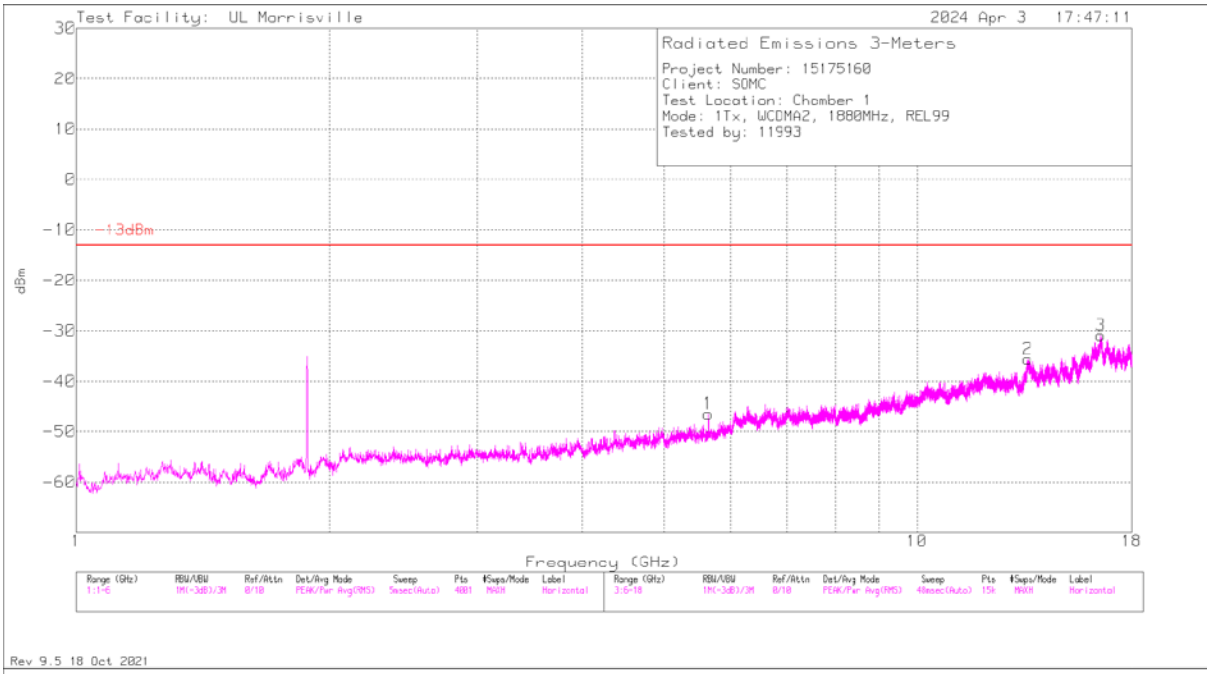


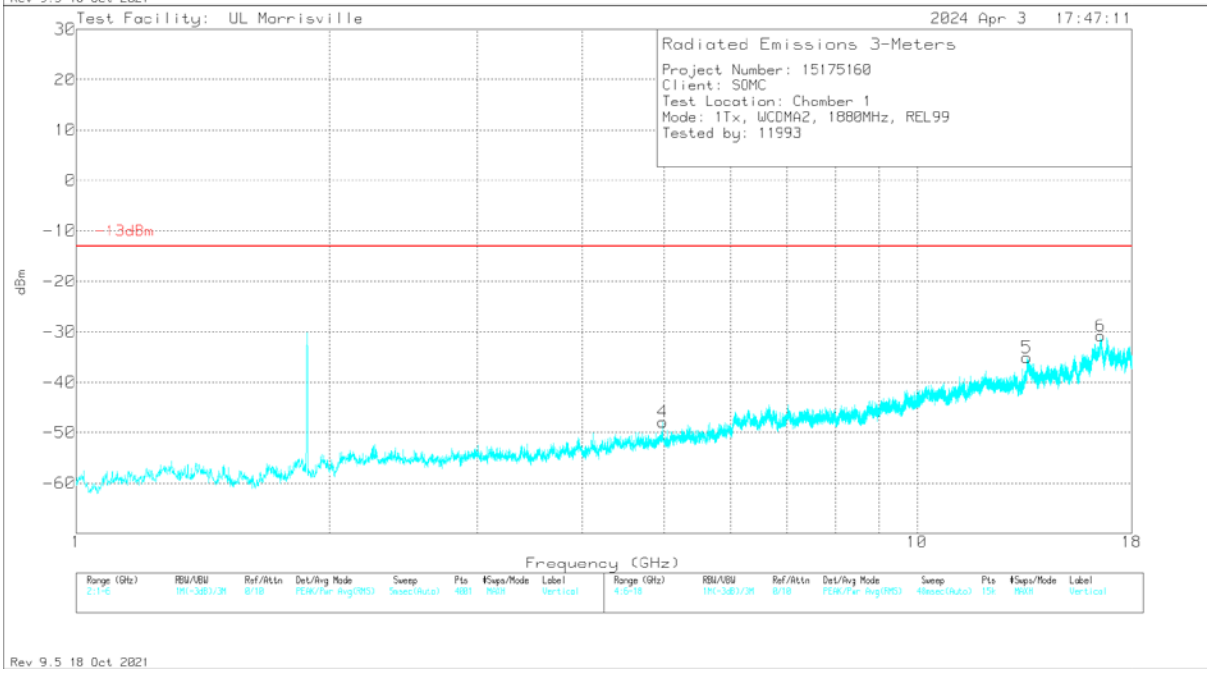




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | CF (dB) | Filter (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 13.5096 | -63.07 | Pk | 39 | -22.8 | 11.8 | 0 | -35.07 | -13 | -22.07 | 0-360 | 200 | H |
| 5 | 13.5112 | -63.19 | Pk | 39 | -22.8 | 11.8 | 0 | -35.19 | -13 | -22.19 | 0-360 | 201 | V |
| 6 | 16.8488 | -65.99 | Pk | 41.6 | -18.2 | 11.8 | 0 | -30.79 | -13 | -17.79 | 0-360 | 300 | V |
| 3 | 16.8576 | -65.55 | Pk | 41.6 | -18 | 11.8 | 0 | -30.15 | -13 | -17.15 | 0-360 | 200 | H |
| 1 | 5.56 | -57.02 | Pk | 34.4 | -30.5 | 11.8 | .4 | -40.92 | -13 | -27.92 | 0-360 | 200 | H |
| 4 | 5.56125 | -60.38 | Pk | 34.4 | -30.5 | 11.8 | .4 | -44.28 | -13 | -31.28 | 0-360 | 201 | V |

Pk - Peak detector

**REL 99 Mid Channel**

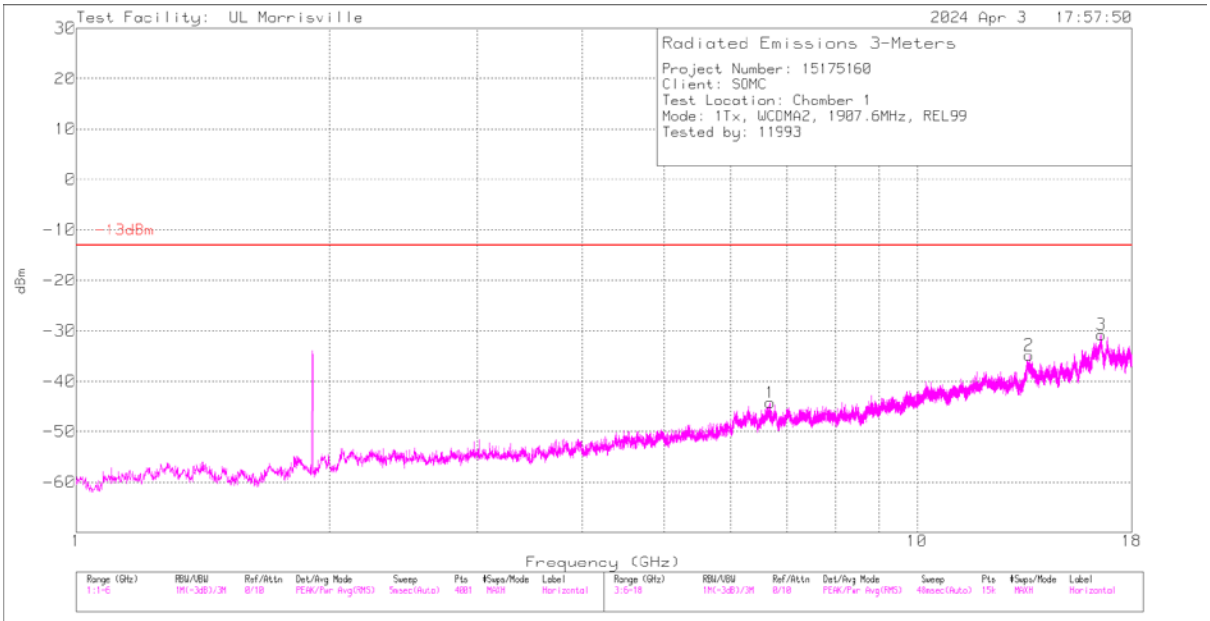


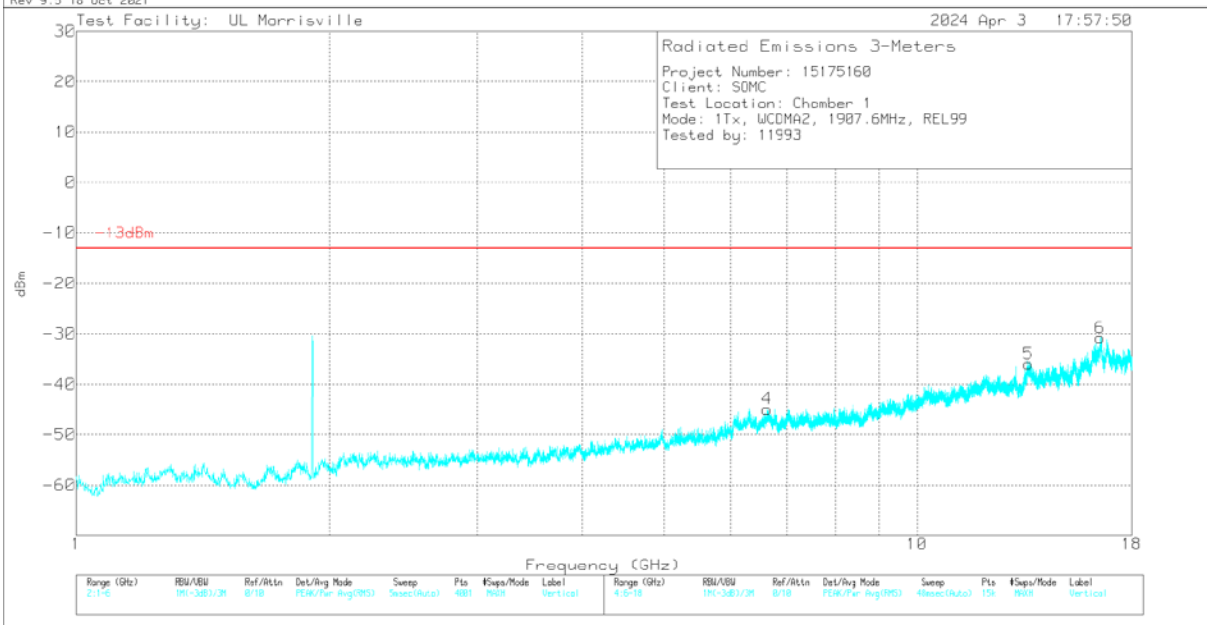




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | CF (dB) | Filter (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 13.5016 | -63.01 | Pk | 39 | -22.9 | 11.8 | 0 | -35.11 | -13 | -22.11 | 0-360 | 201 | V |
| 2 | 13.5408 | -63.3 | Pk | 39 | -23.1 | 11.8 | 0 | -35.6 | -13 | -22.6 | 0-360 | 101 | H |
| 3 | 16.5416 | -65.99 | Pk | 41.1 | -17.8 | 11.8 | 0 | -30.89 | -13 | -17.89 | 0-360 | 200 | H |
| 6 | 16.5456 | -65.69 | Pk | 41.1 | -18 | 11.8 | 0 | -30.79 | -13 | -17.79 | 0-360 | 299 | V |
| 4 | 4.98 | -63.48 | Pk | 34.1 | -30.7 | 11.8 | .4 | -47.88 | -13 | -34.88 | 0-360 | 101 | V |
| 1 | 5.64 | -62.64 | Pk | 34.4 | -30.4 | 11.8 | .4 | -46.44 | -13 | -33.44 | 0-360 | 200 | H |

Pk - Peak detector

**REL 99 High Channel**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | CF (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 6.6344 | -65.13 | Pk | 35.6 | -27.2 | 11.8 | -44.93 | -13 | -31.93 | 0-360 | 300 | V |
| 1 | 6.684 | -64.33 | Pk | 35.6 | -27.3 | 11.8 | -44.23 | -13 | -31.23 | 0-360 | 101 | H |
| 5 | 13.5768 | -62.97 | Pk | 39 | -23.8 | 11.8 | -35.97 | -13 | -22.97 | 0-360 | 101 | V |
| 2 | 13.5896 | -61.35 | Pk | 38.9 | -24.2 | 11.8 | -34.85 | -13 | -21.85 | 0-360 | 101 | H |
| 6 | 16.5216 | -65.6 | Pk | 41.1 | -18.1 | 11.8 | -30.8 | -13 | -17.8 | 0-360 | 200 | V |
| 3 | 16.5728 | -65.37 | Pk | 41.2 | -18.4 | 11.8 | -30.77 | -13 | -17.77 | 0-360 | 300 | H |

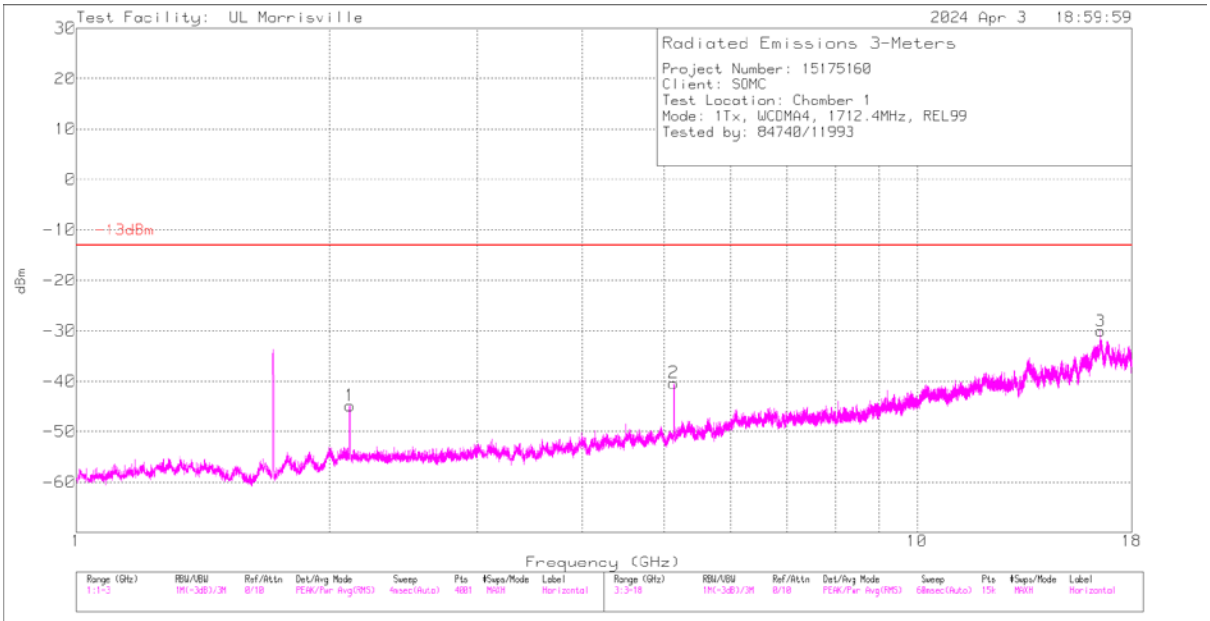
Pk - Peak detector

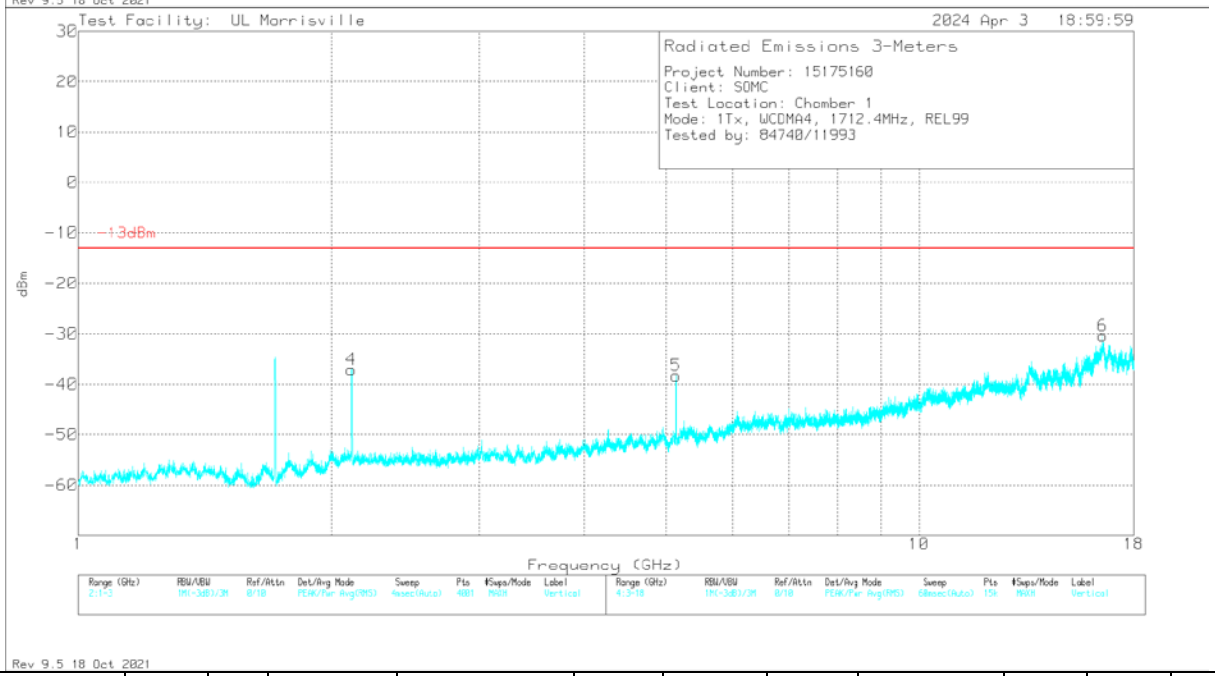
### 10.1.4. WCDMA4

**LIMITS**

FCC: §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.

**REL 99 Low Channel**

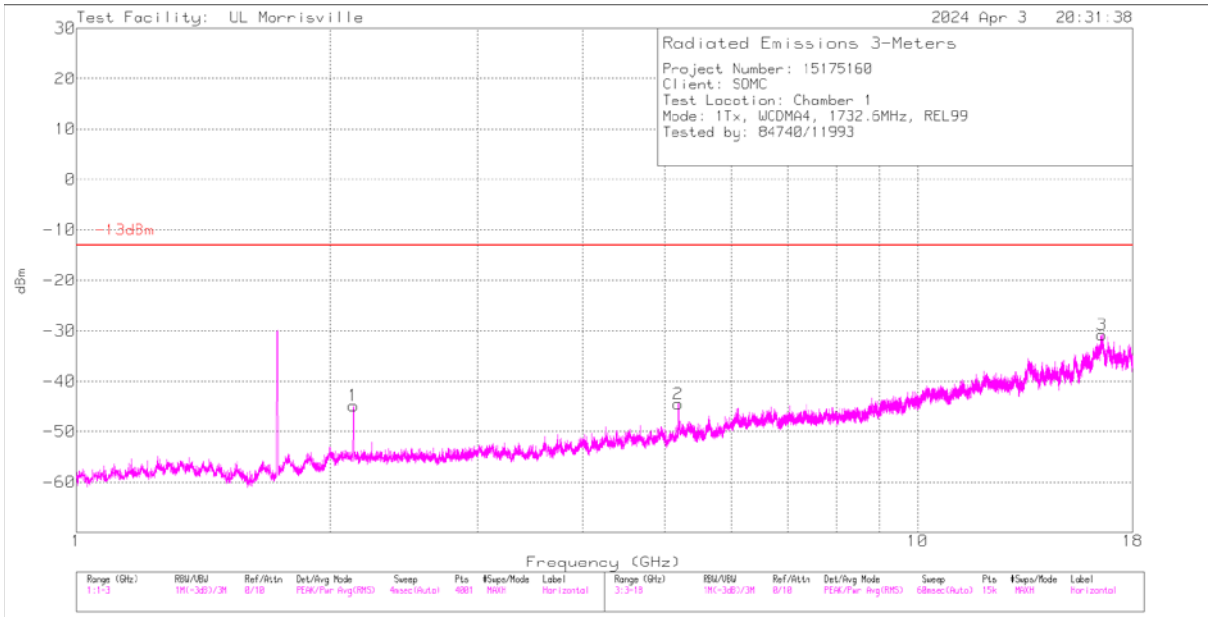


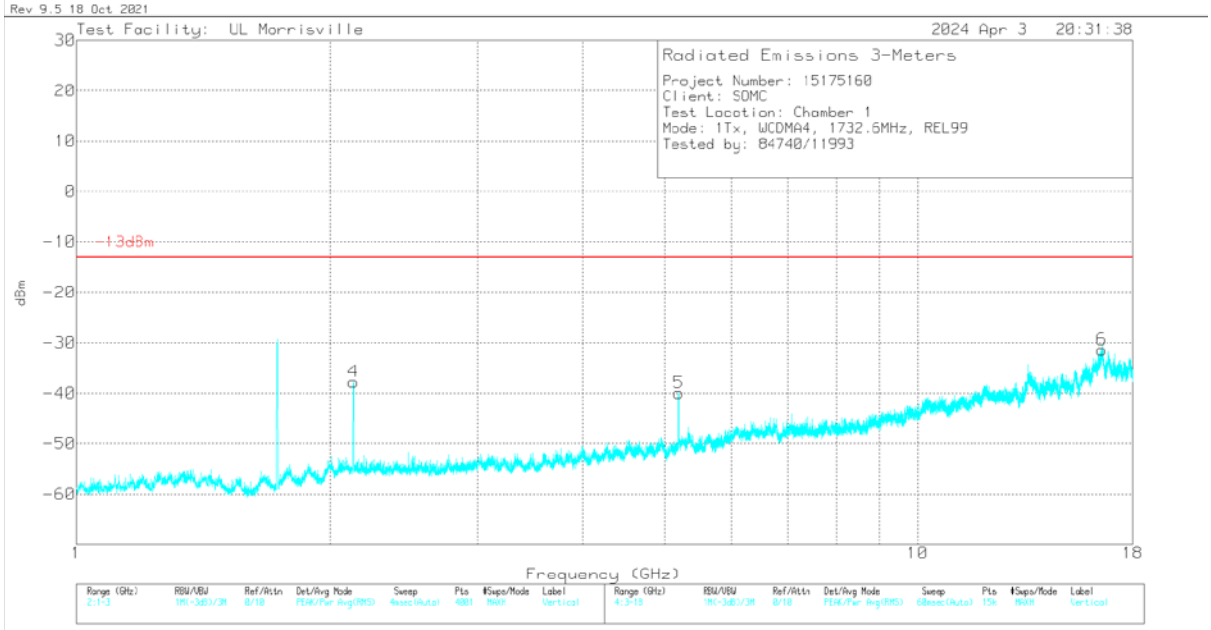




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | CF (dB) | Filter (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 2.1115 | -47.7 | Pk | 31.6 | -34.2 | 11.8 | 1.4 | -37.1 | -13 | -24.1 | 0-360 | 300 | V |
| 1 | 2.114 | -55.45 | Pk | 31.6 | -34.2 | 11.8 | 1.4 | -44.85 | -13 | -31.85 | 0-360 | 200 | H |
| 2 | 5.134 | -55.81 | Pk | 34.3 | -30.6 | 11.8 | 0 | -40.31 | -13 | -27.31 | 0-360 | 101 | H |
| 5 | 5.139 | -53.8 | Pk | 34.3 | -30.6 | 11.8 | 0 | -38.3 | -13 | -25.3 | 0-360 | 101 | V |
| 3 | 16.542 | -65.15 | Pk | 41.1 | -17.8 | 11.8 | 0 | -30.05 | -13 | -17.05 | 0-360 | 300 | H |
| 6 | 16.543 | -65.4 | Pk | 41.1 | -17.9 | 11.8 | 0 | -30.4 | -13 | -17.4 | 0-360 | 101 | V |

Pk - Peak detector

**REL 99 Mid Channel**

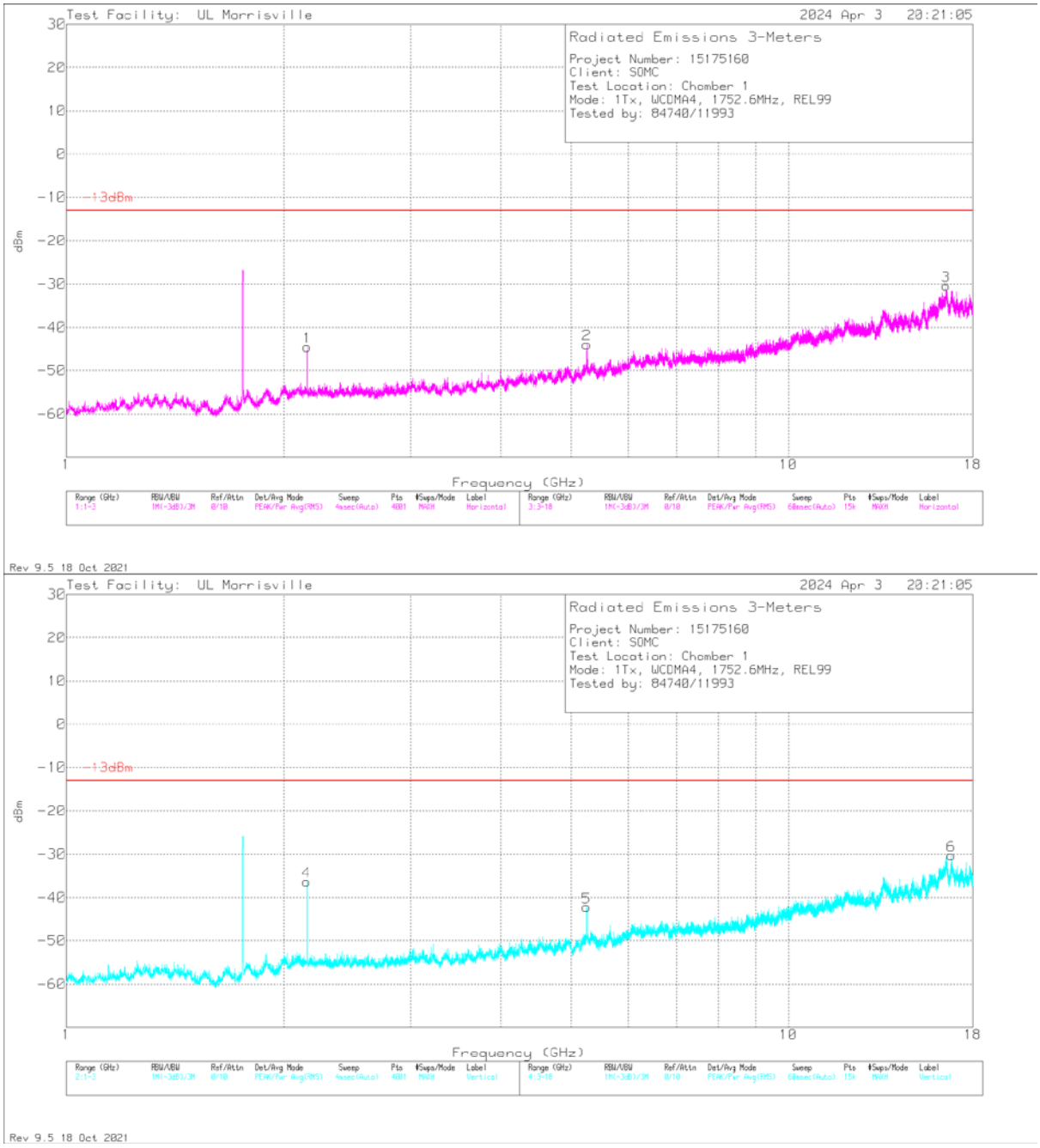



| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | CF (dB) | Filter (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.134 | -55.36 | Pk | 31.6 | -34.2 | 11.8 | 1.3 | -44.86 | -13 | -31.86 | 0-360 | 299 | H |
| 4 | 2.134 | -48.2 | Pk | 31.6 | -34.2 | 11.8 | 1.3 | -37.7 | -13 | -24.7 | 0-360 | 299 | V |
| 2 | 5.194 | -60.51 | Pk | 34.4 | -30.2 | 11.8 | 0 | -44.51 | -13 | -31.51 | 0-360 | 299 | H |
| 5 | 5.2 | -56.11 | Pk | 34.4 | -30 | 11.8 | 0 | -39.91 | -13 | -26.91 | 0-360 | 201 | V |
| 6 | 16.54 | -66.46 | Pk | 41.1 | -17.8 | 11.8 | 0 | -31.36 | -13 | -18.36 | 0-360 | 300 | V |
| 3 | 16.543 | -65.81 | Pk | 41.1 | -17.9 | 11.8 | 0 | -30.81 | -13 | -17.81 | 0-360 | 199 | H |

Pk - Peak detector

**REL 99 High Channel**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | CF (dB) | Filter (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 2.1515 | -46.83 | Pk | 31.7 | -34.2 | 11.8 | 1.2 | -36.33 | -13 | -23.33 | 0-360 | 300 | V |
| 1 | 2.154 | -55.02 | Pk | 31.7 | -34.2 | 11.8 | 1.2 | -44.52 | -13 | -31.52 | 0-360 | 300 | H |
| 5 | 5.254 | -59.47 | Pk | 34.4 | -29 | 11.8 | 0 | -42.27 | -13 | -29.27 | 0-360 | 101 | V |
| 2 | 5.261 | -61.33 | Pk | 34.4 | -28.8 | 11.8 | 0 | -43.93 | -13 | -30.93 | 0-360 | 101 | H |
| 3 | 16.534 | -65.22 | Pk | 41.1 | -18.1 | 11.8 | 0 | -30.42 | -13 | -17.42 | 0-360 | 200 | H |
| 6 | 16.823 | -65.09 | Pk | 41.6 | -18.6 | 11.8 | 0 | -30.29 | -13 | -17.29 | 0-360 | 200 | V |

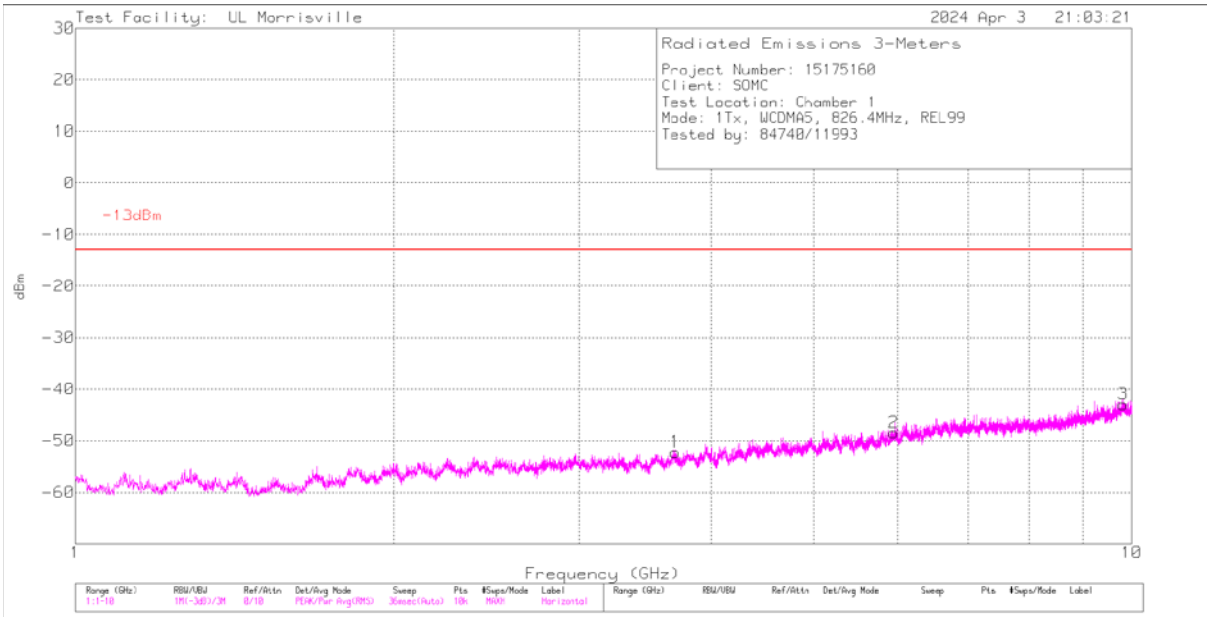
Pk - Peak detector

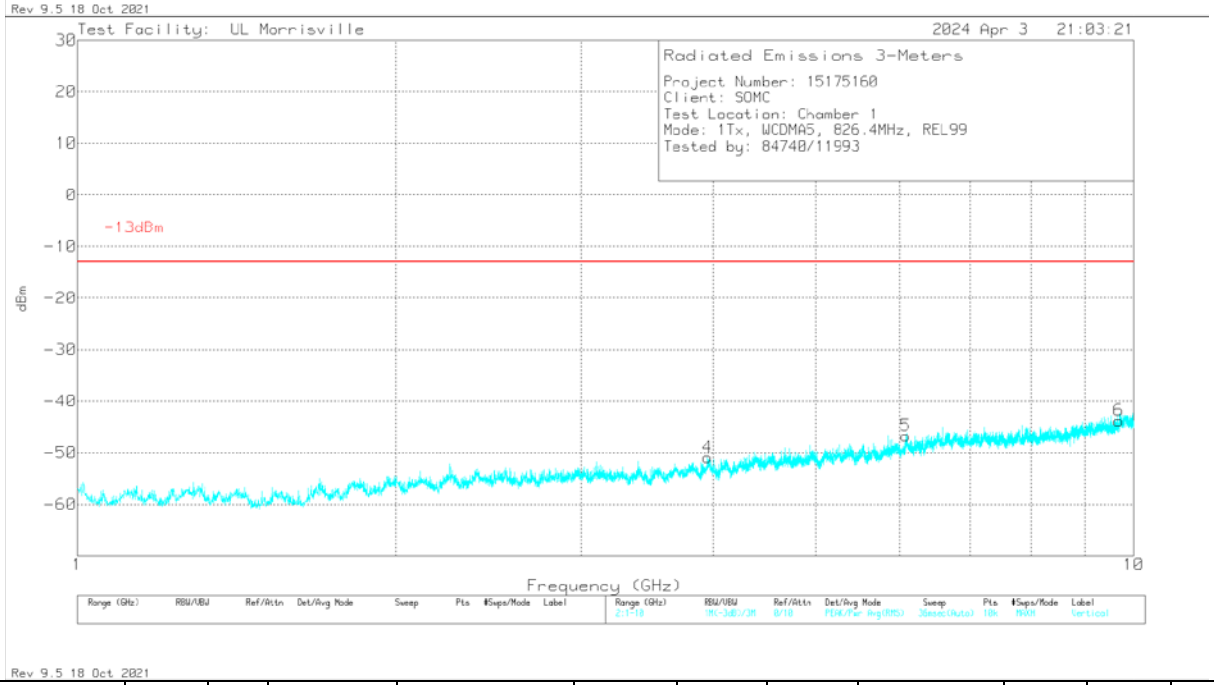
### 10.1.5. WCDMA5

**LIMITS**

FCC: §22.917 (a)
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.

**REL 99 Low Channel**

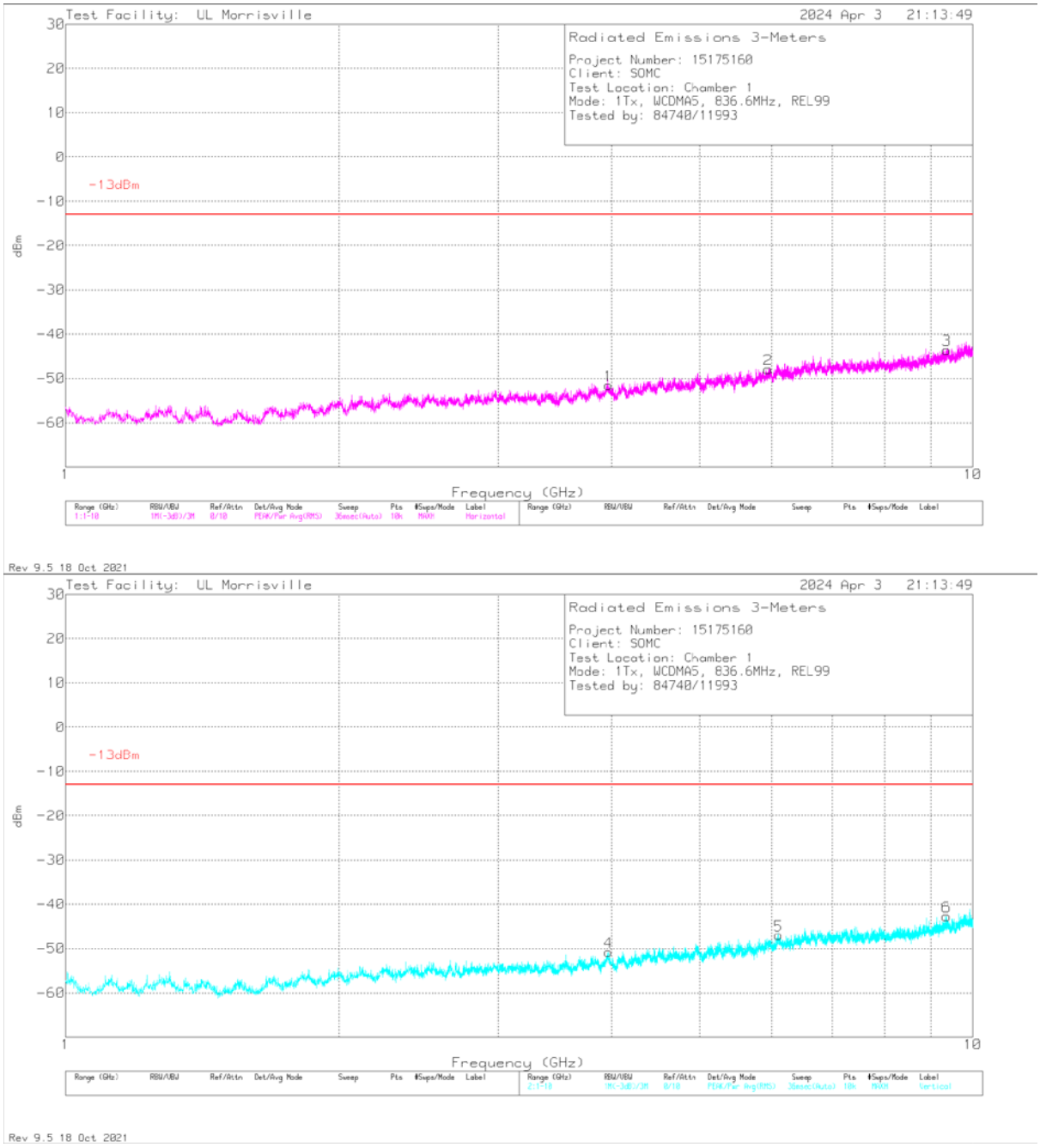



| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | Filter (dB) | CF (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.6973 | -65.01 | Pk | 33.2 | -32.6 | .4 | 11.8 | -52.21 | -13 | -39.21 | 0-360 | 101 | H |
| 4 | 3.9529 | -64.6 | Pk | 33.4 | -31.9 | .4 | 11.8 | -50.9 | -13 | -37.9 | 0-360 | 101 | V |
| 2 | 5.9554 | -65.91 | Pk | 35.1 | -29.8 | .4 | 11.8 | -48.41 | -13 | -35.41 | 0-360 | 101 | H |
| 5 | 6.0868 | -65.09 | Pk | 35.3 | -29 | .3 | 11.8 | -46.69 | -13 | -33.69 | 0-360 | 200 | V |
| 6 | 9.6841 | -67.07 | Pk | 36.7 | -25.9 | .7 | 11.8 | -43.77 | -13 | -30.77 | 0-360 | 300 | V |
| 3 | 9.8191 | -67.52 | Pk | 37.1 | -25.1 | .8 | 11.8 | -42.92 | -13 | -29.92 | 0-360 | 299 | H |

Pk - Peak detector

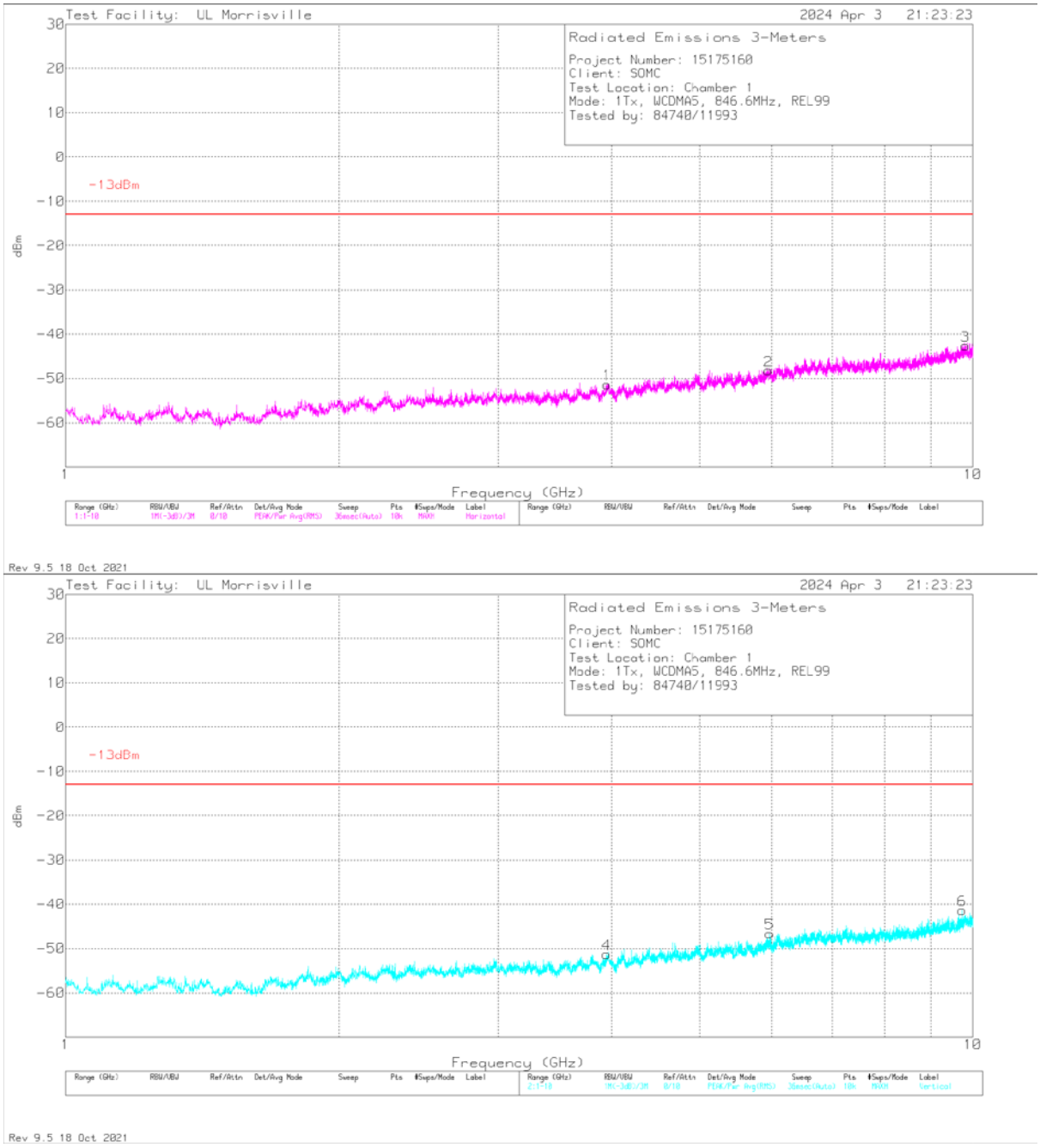
**REL 99 Mid Channel**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | Filter (dB) | CF (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.9664 | -65.3 | Pk | 33.4 | -31.8 | .4 | 11.8 | -51.5 | -13 | -38.5 | 0-360 | 101 | H |
| 4 | 3.9682 | -64.49 | Pk | 33.4 | -31.9 | .4 | 11.8 | -50.79 | -13 | -37.79 | 0-360 | 300 | V |
| 2 | 5.95 | -65.62 | Pk | 35.1 | -29.6 | .4 | 11.8 | -47.92 | -13 | -34.92 | 0-360 | 300 | H |
| 5 | 6.1102 | -65.49 | Pk | 35.3 | -28.9 | .3 | 11.8 | -46.99 | -13 | -33.99 | 0-360 | 300 | V |
| 6 | 9.3547 | -65.29 | Pk | 36.3 | -25.8 | .3 | 11.8 | -42.69 | -13 | -29.69 | 0-360 | 101 | V |
| 3 | 9.3646 | -65.95 | Pk | 36.3 | -26 | .3 | 11.8 | -43.55 | -13 | -30.55 | 0-360 | 300 | H |

Pk - Peak detector

**REL 99 High Channel**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | Filter (dB) | CF (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 3.9484 | -64.97 | Pk | 33.4 | -31.9 | .4 | 11.8 | -51.27 | -13 | -38.27 | 0-360 | 300 | V |
| 1 | 3.952 | -65.06 | Pk | 33.4 | -31.9 | .4 | 11.8 | -51.36 | -13 | -38.36 | 0-360 | 300 | H |
| 2 | 5.9518 | -65.83 | Pk | 35.1 | -29.7 | .4 | 11.8 | -48.23 | -13 | -35.23 | 0-360 | 300 | H |
| 5 | 5.9734 | -64.27 | Pk | 35.2 | -29.6 | .3 | 11.8 | -46.57 | -13 | -33.57 | 0-360 | 200 | V |
| 6 | 9.739 | -65.34 | Pk | 36.9 | -25.3 | .6 | 11.8 | -41.34 | -13 | -28.34 | 0-360 | 300 | V |
| 3 | 9.8245 | -67.31 | Pk | 37.1 | -25 | .8 | 11.8 | -42.61 | -13 | -29.61 | 0-360 | 300 | H |

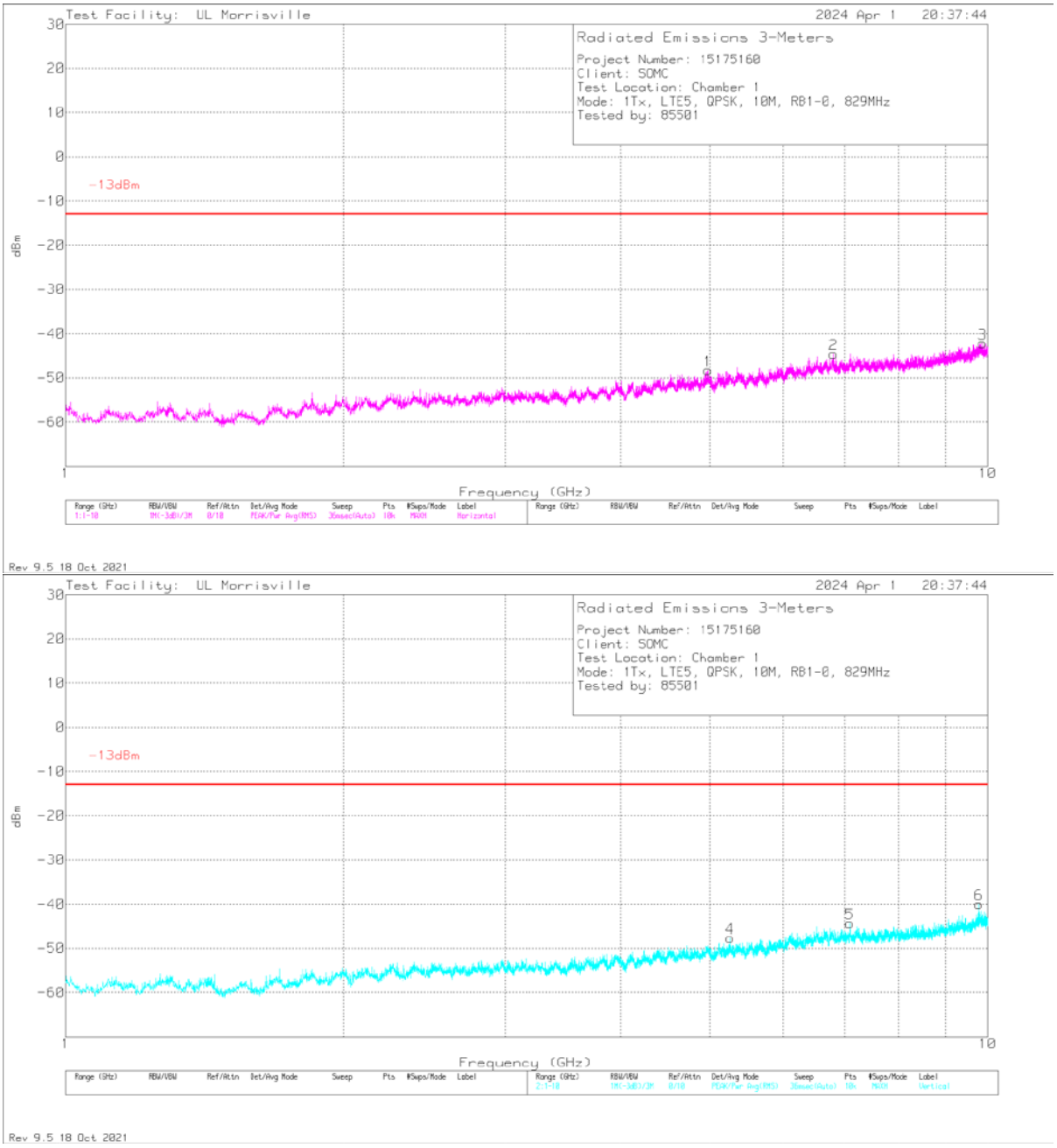
Pk - Peak detector

## 10.1.6. LTE BAND 5

**LIMITS**

FCC: §22.917 (a)
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.

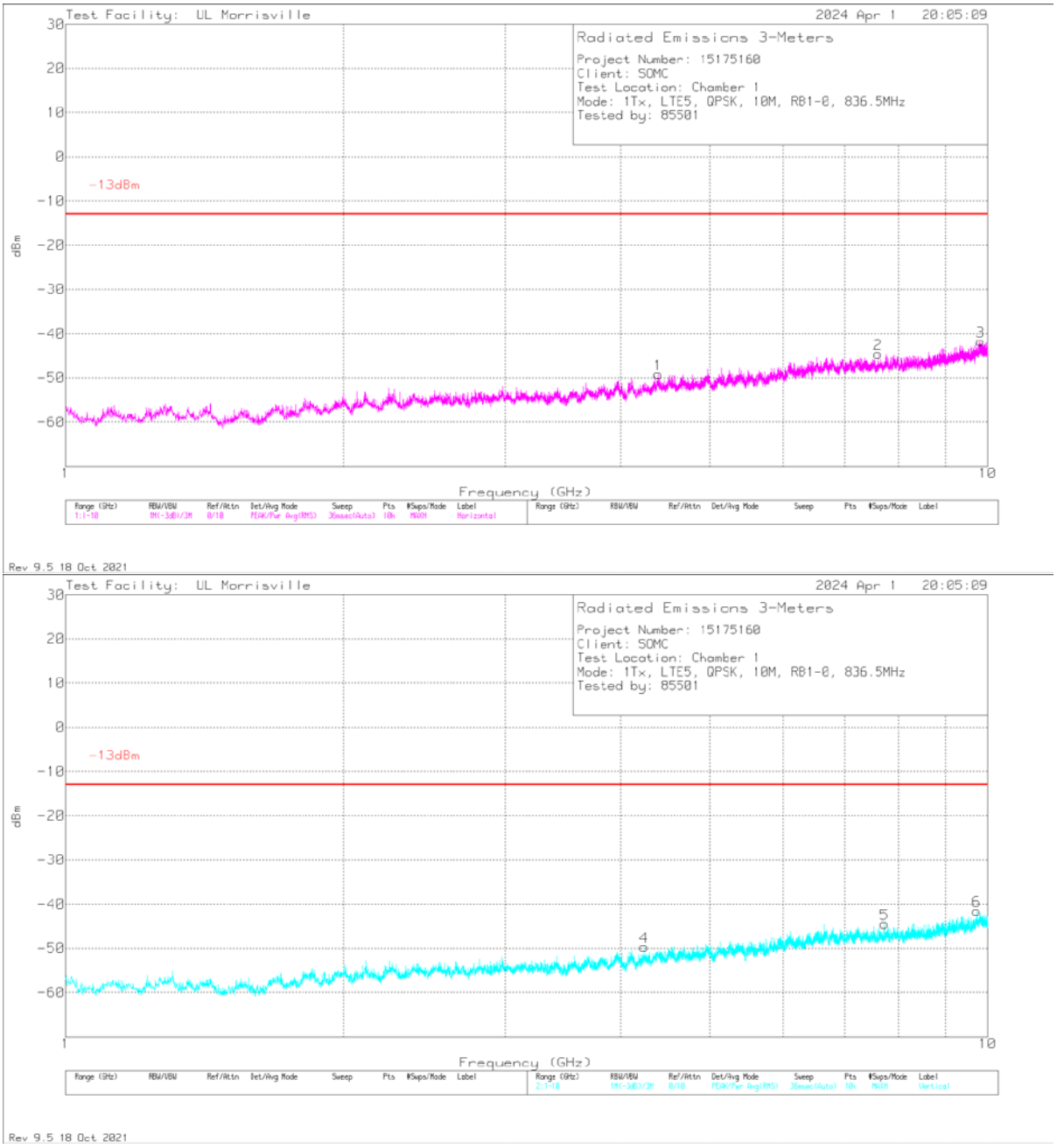
**QPSK LTE5 (10MHz, Low Channel)**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | Filter (dB) | CF (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.9735 | -63.93 | Pk | 34 | -30.5 | .3 | 11.8 | -48.33 | -13 | -35.33 | 0-360 | 101 | H |
| 4 | 5.2561 | -63.63 | Pk | 34.4 | -30.5 | .3 | 11.8 | -47.63 | -13 | -34.63 | 0-360 | 200 | V |
| 2 | 6.8104 | -64.33 | Pk | 35.6 | -28.2 | .5 | 11.8 | -44.63 | -13 | -31.63 | 0-360 | 300 | H |
| 5 | 7.0822 | -64.56 | Pk | 35.6 | -27.8 | .6 | 11.8 | -44.36 | -13 | -31.36 | 0-360 | 101 | V |
| 6 | 9.7858 | -63.97 | Pk | 37 | -25.4 | .6 | 11.8 | -39.97 | -13 | -26.97 | 0-360 | 101 | V |
| 3 | 9.8713 | -66.48 | Pk | 37.1 | -25.3 | .6 | 11.8 | -42.28 | -13 | -29.28 | 0-360 | 101 | H |

Pk - Peak detector

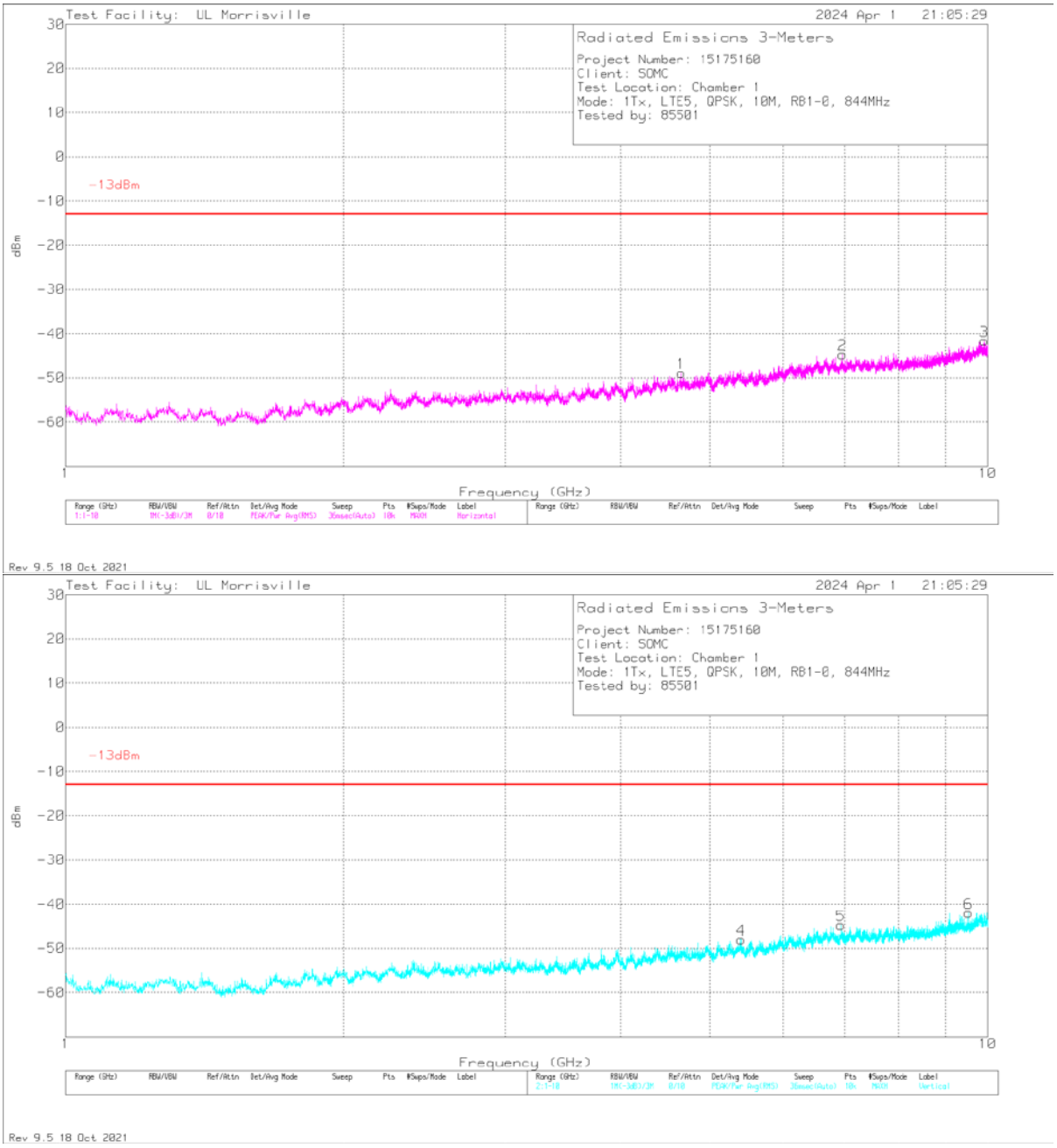
**QPSK LTE5 (10MHz, Mid Channel)**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | Filter (dB) | CF (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 4.24 | -63.64 | Pk | 33.4 | -31.5 | .3 | 11.8 | -49.64 | -13 | -36.64 | 0-360 | 300 | V |
| 1 | 4.3948 | -63.63 | Pk | 33.7 | -31.3 | .3 | 11.8 | -49.13 | -13 | -36.13 | 0-360 | 101 | H |
| 2 | 7.6078 | -65.14 | Pk | 35.7 | -27.2 | .3 | 11.8 | -44.54 | -13 | -31.54 | 0-360 | 200 | H |
| 5 | 7.7284 | -65.4 | Pk | 35.8 | -27.1 | .4 | 11.8 | -44.5 | -13 | -31.5 | 0-360 | 300 | V |
| 6 | 9.7264 | -65.74 | Pk | 36.8 | -25 | .6 | 11.8 | -41.54 | -13 | -28.54 | 0-360 | 200 | V |
| 3 | 9.8263 | -66.5 | Pk | 37.1 | -24.9 | .8 | 11.8 | -41.7 | -13 | -28.7 | 0-360 | 101 | H |

Pk - Peak detector

**QPSK LTE5 (10MHz, High Channel)**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | Filter (dB) | CF (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.6549 | -63.67 | Pk | 34.2 | -31.5 | .3 | 11.8 | -48.87 | -13 | -35.87 | 0-360 | 299 | H |
| 4 | 5.4055 | -64.3 | Pk | 34.5 | -30.3 | .3 | 11.8 | -48 | -13 | -35 | 0-360 | 300 | V |
| 5 | 6.9274 | -64.77 | Pk | 35.6 | -27.9 | .6 | 11.8 | -44.67 | -13 | -31.67 | 0-360 | 300 | V |
| 2 | 6.9571 | -64.85 | Pk | 35.6 | -27.8 | .6 | 11.8 | -44.65 | -13 | -31.65 | 0-360 | 101 | H |
| 6 | 9.5311 | -65.56 | Pk | 36.6 | -25.3 | .5 | 11.8 | -41.96 | -13 | -28.96 | 0-360 | 300 | V |
| 3 | 9.9208 | -66.26 | Pk | 37.3 | -25.2 | .7 | 11.8 | -41.66 | -13 | -28.66 | 0-360 | 299 | H |

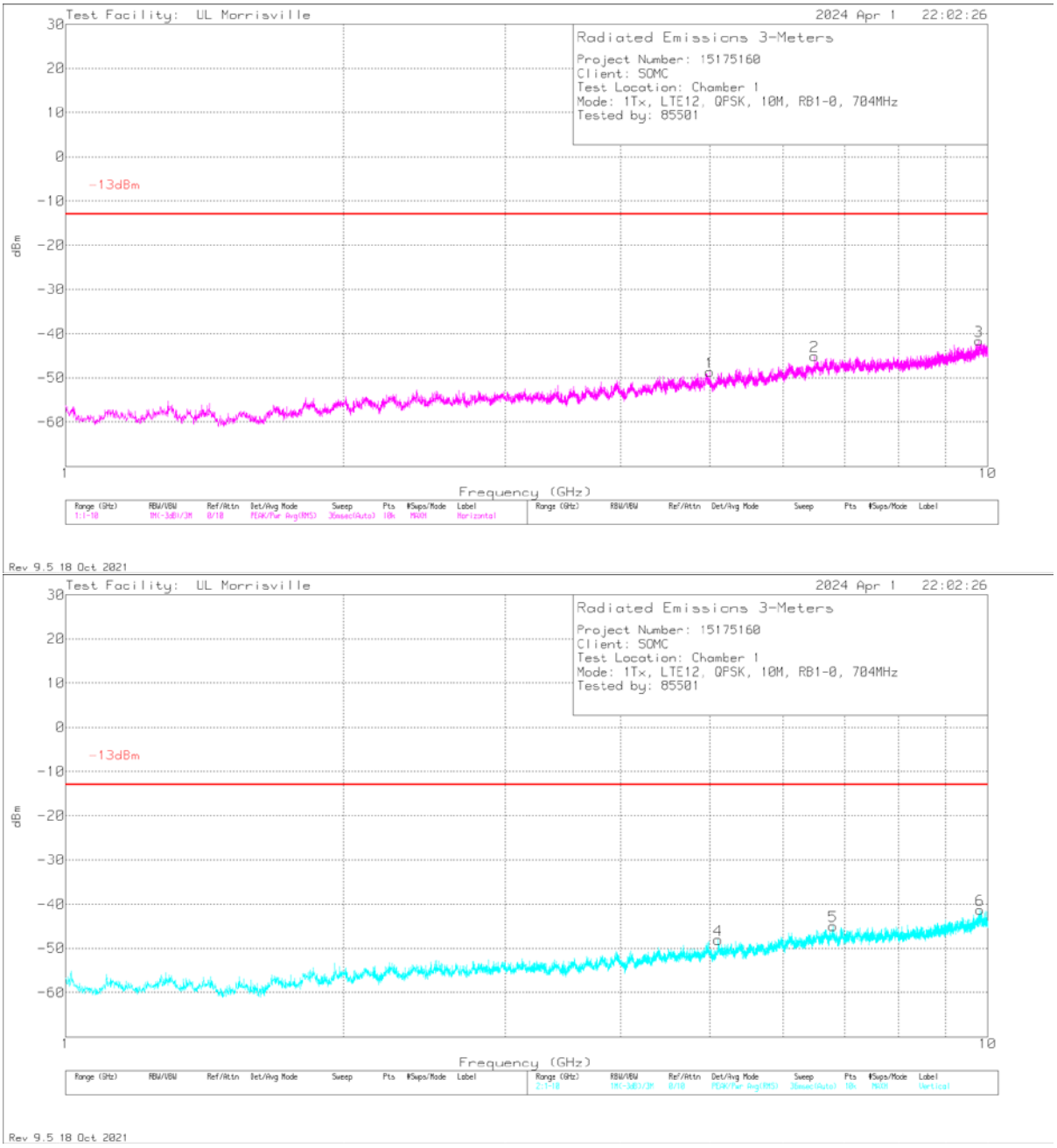
Pk - Peak detector

## 10.1.7. LTE BAND 12

**LIMITS**

FCC: §27.53 (g)
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.

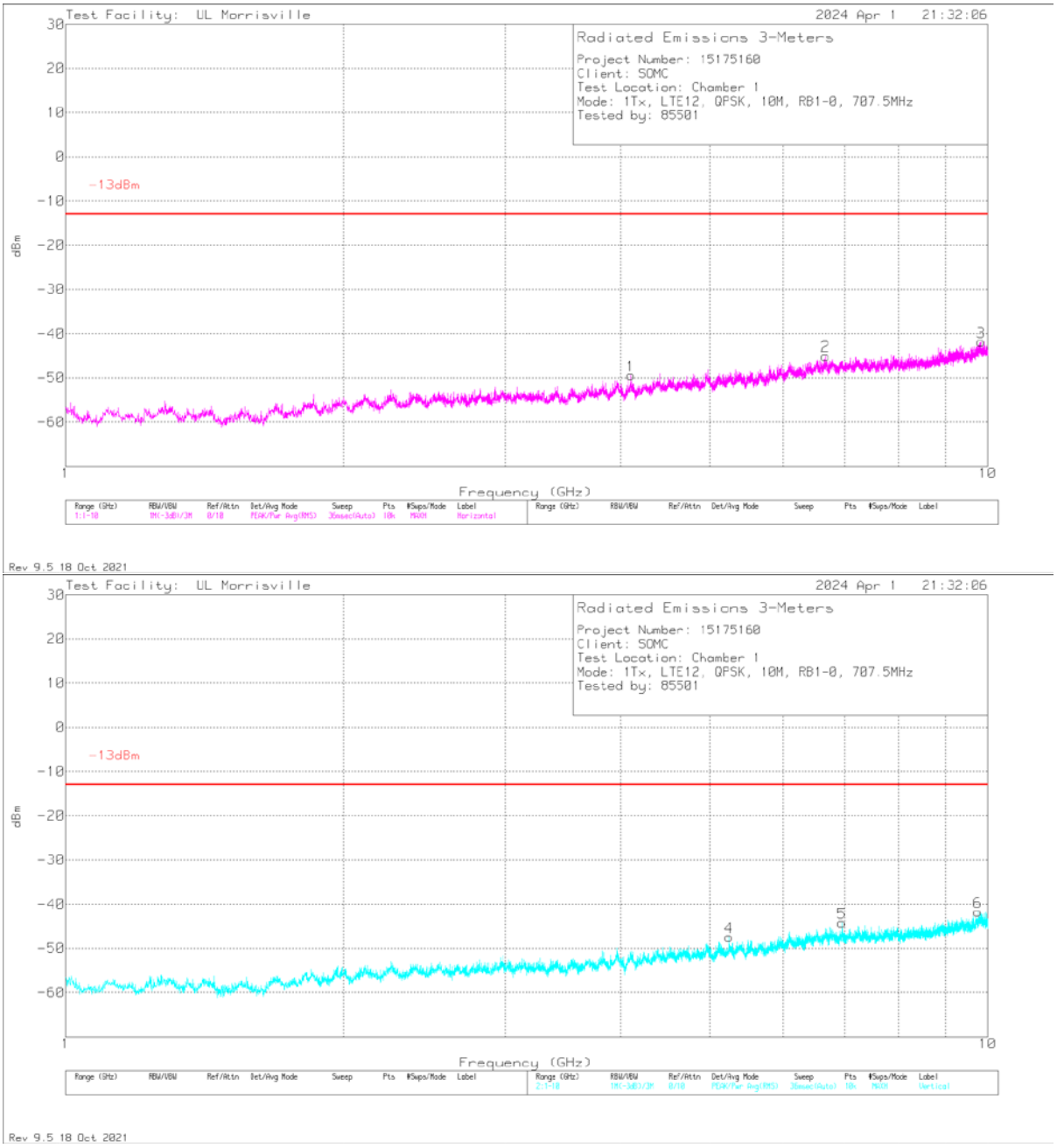
**QPSK LTE12 (10MHz, Low Channel)**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | Filter (dB) | CF (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.9987 | -63.67 | Pk | 34.1 | -31.2 | .3 | 11.8 | -48.67 | -13 | -35.67 | 0-360 | 101 | H |
| 4 | 5.1022 | -63.72 | Pk | 34.2 | -30.8 | .4 | 11.8 | -48.12 | -13 | -35.12 | 0-360 | 200 | V |
| 2 | 6.4927 | -64.44 | Pk | 35.5 | -28.3 | .4 | 11.8 | -45.04 | -13 | -32.04 | 0-360 | 101 | H |
| 5 | 6.7942 | -64.79 | Pk | 35.6 | -28.1 | .5 | 11.8 | -44.99 | -13 | -31.99 | 0-360 | 101 | V |
| 3 | 9.7876 | -65.84 | Pk | 37 | -25.2 | .6 | 11.8 | -41.64 | -13 | -28.64 | 0-360 | 199 | H |
| 6 | 9.8155 | -65.69 | Pk | 37.1 | -25.2 | .7 | 11.8 | -41.29 | -13 | -28.29 | 0-360 | 200 | V |

Pk - Peak detector

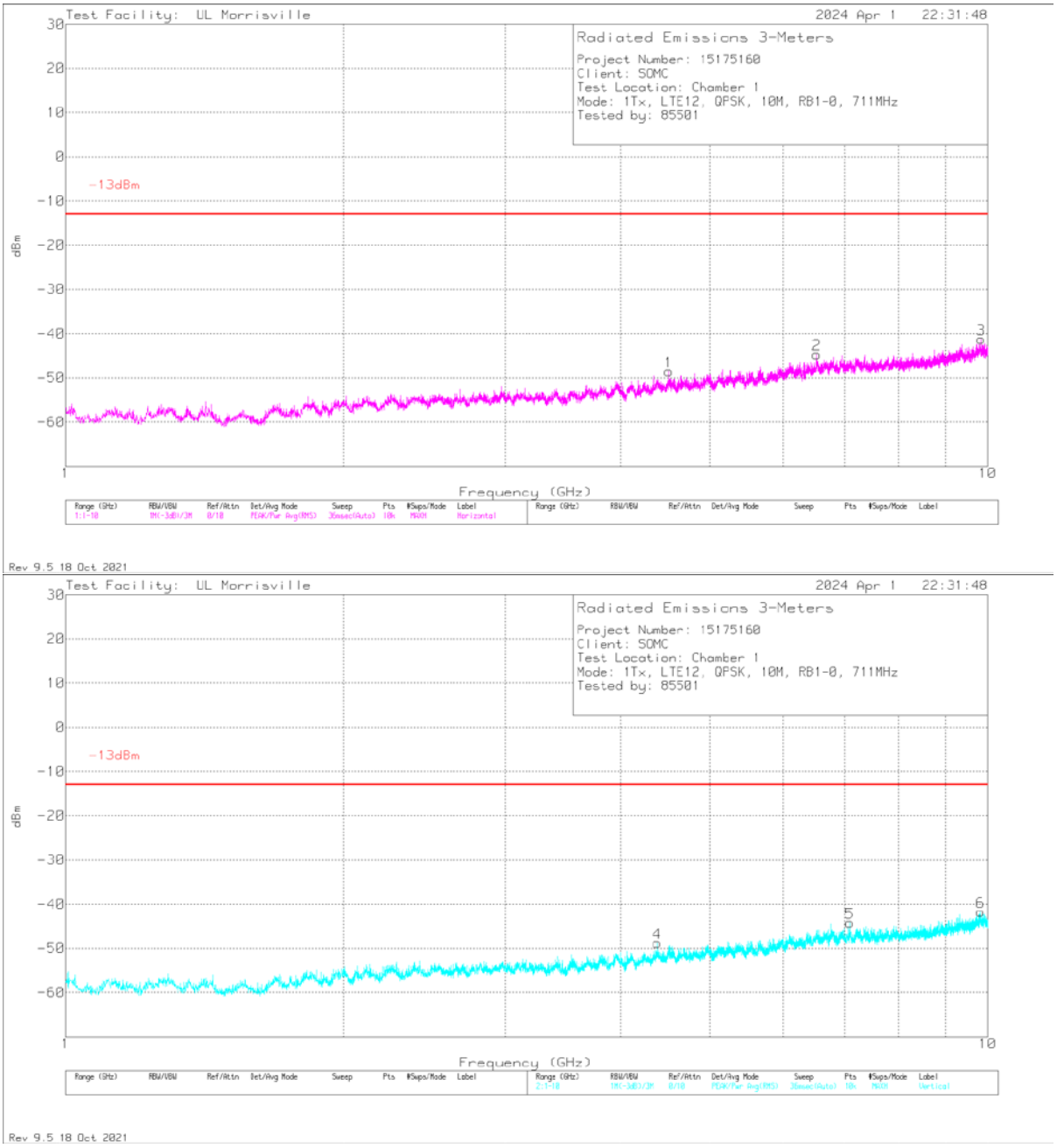
**QPSK LTE12 (10MHz, Mid Channel)**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | Filter (dB) | CF (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.1014 | -63.27 | Pk | 33.4 | -31.7 | .4 | 11.8 | -49.37 | -13 | -36.37 | 0-360 | 199 | H |
| 4 | 5.2444 | -63.43 | Pk | 34.4 | -30.6 | .4 | 11.8 | -47.43 | -13 | -34.43 | 0-360 | 299 | V |
| 2 | 6.6691 | -64.42 | Pk | 35.6 | -28.5 | .5 | 11.8 | -45.02 | -13 | -32.02 | 0-360 | 199 | H |
| 5 | 6.9463 | -64.46 | Pk | 35.6 | -27.7 | .6 | 11.8 | -44.16 | -13 | -31.16 | 0-360 | 299 | V |
| 6 | 9.757 | -65.29 | Pk | 36.9 | -25.6 | .5 | 11.8 | -41.69 | -13 | -28.69 | 0-360 | 101 | V |
| 3 | 9.8362 | -66.47 | Pk | 37.1 | -25 | .7 | 11.8 | -41.87 | -13 | -28.87 | 0-360 | 299 | H |

Pk - Peak detector

**QPSK LTE12 (10MHz, High Channel)**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | Filter (dB) | CF (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 4.3822 | -63.39 | Pk | 33.6 | -31.1 | .3 | 11.8 | -48.79 | -13 | -35.79 | 0-360 | 300 | V |
| 1 | 4.5091 | -63.2 | Pk | 34 | -31.5 | .3 | 11.8 | -48.6 | -13 | -35.6 | 0-360 | 101 | H |
| 2 | 6.5269 | -64.05 | Pk | 35.6 | -28.4 | .4 | 11.8 | -44.65 | -13 | -31.65 | 0-360 | 199 | H |
| 5 | 7.0831 | -64.48 | Pk | 35.6 | -27.7 | .6 | 11.8 | -44.18 | -13 | -31.18 | 0-360 | 200 | V |
| 6 | 9.8245 | -66.46 | Pk | 37.1 | -25 | .8 | 11.8 | -41.76 | -13 | -28.76 | 0-360 | 300 | V |
| 3 | 9.8353 | -65.84 | Pk | 37.1 | -25 | .7 | 11.8 | -41.24 | -13 | -28.24 | 0-360 | 101 | H |

Pk - Peak detector

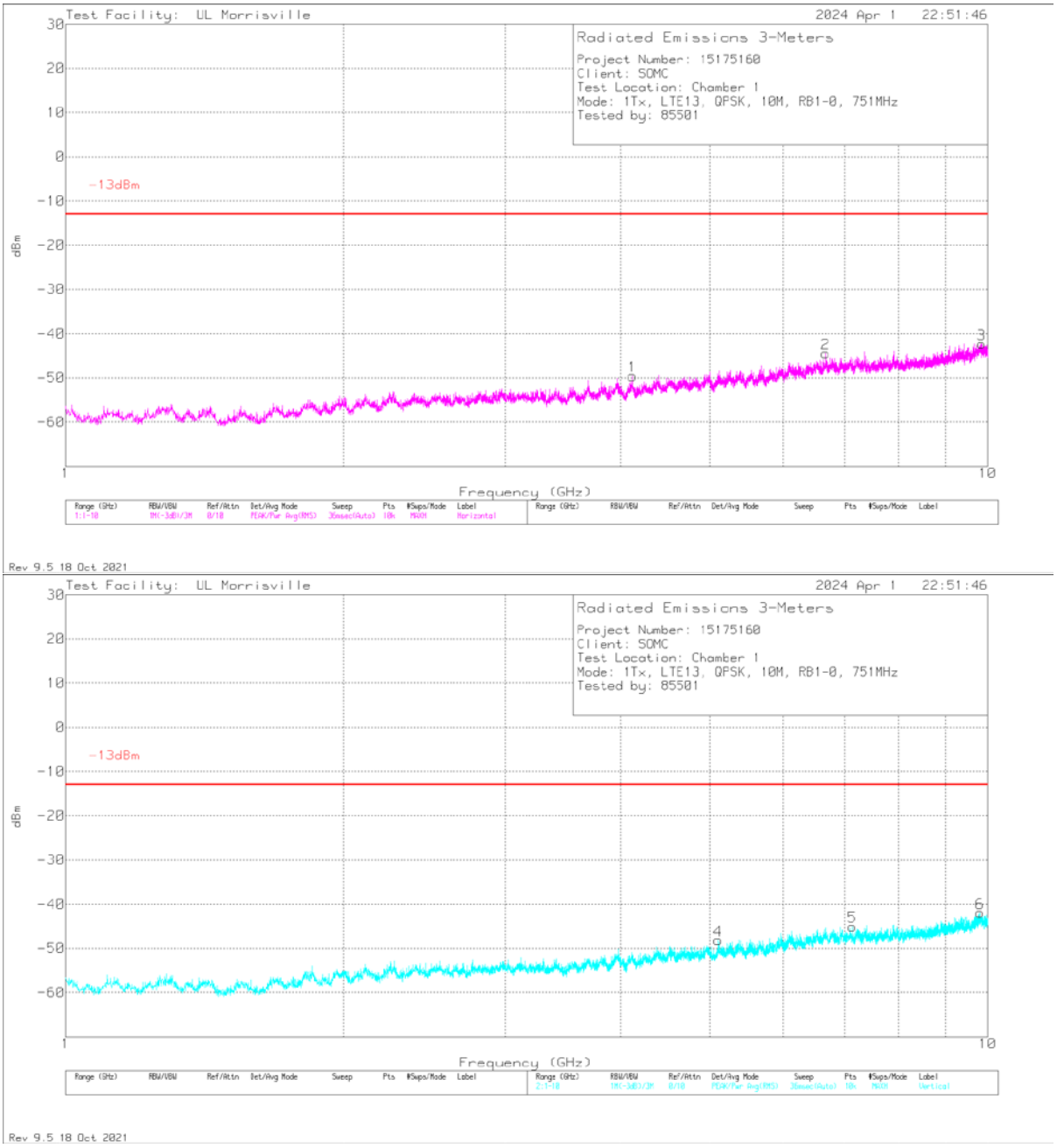
## 10.1.8. LTE BAND 13

**LIMITS**

FCC: §27.53
(c) 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.
(f) Emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

Note: No Emissions in the GPS band (1559 – 1610) MHz were observed.

**QPSK LTE13 (10MHz, Mid Channel)**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | Filter (dB) | CF (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.1221 | -63.51 | Pk | 33.3 | -31.5 | .3 | 11.8 | -49.61 | -13 | -36.61 | 0-360 | 101 | H |
| 4 | 5.1022 | -63.82 | Pk | 34.2 | -30.8 | .4 | 11.8 | -48.22 | -13 | -35.22 | 0-360 | 200 | V |
| 2 | 6.6691 | -63.9 | Pk | 35.6 | -28.5 | .5 | 11.8 | -44.5 | -13 | -31.5 | 0-360 | 199 | H |
| 5 | 7.1344 | -65.37 | Pk | 35.6 | -27.7 | .6 | 11.8 | -45.07 | -13 | -32.07 | 0-360 | 200 | V |
| 6 | 9.8146 | -66.27 | Pk | 37.1 | -25.3 | .7 | 11.8 | -41.97 | -13 | -28.97 | 0-360 | 200 | V |
| 3 | 9.8452 | -66.52 | Pk | 37.1 | -25.4 | .7 | 11.8 | -42.32 | -13 | -29.32 | 0-360 | 199 | H |

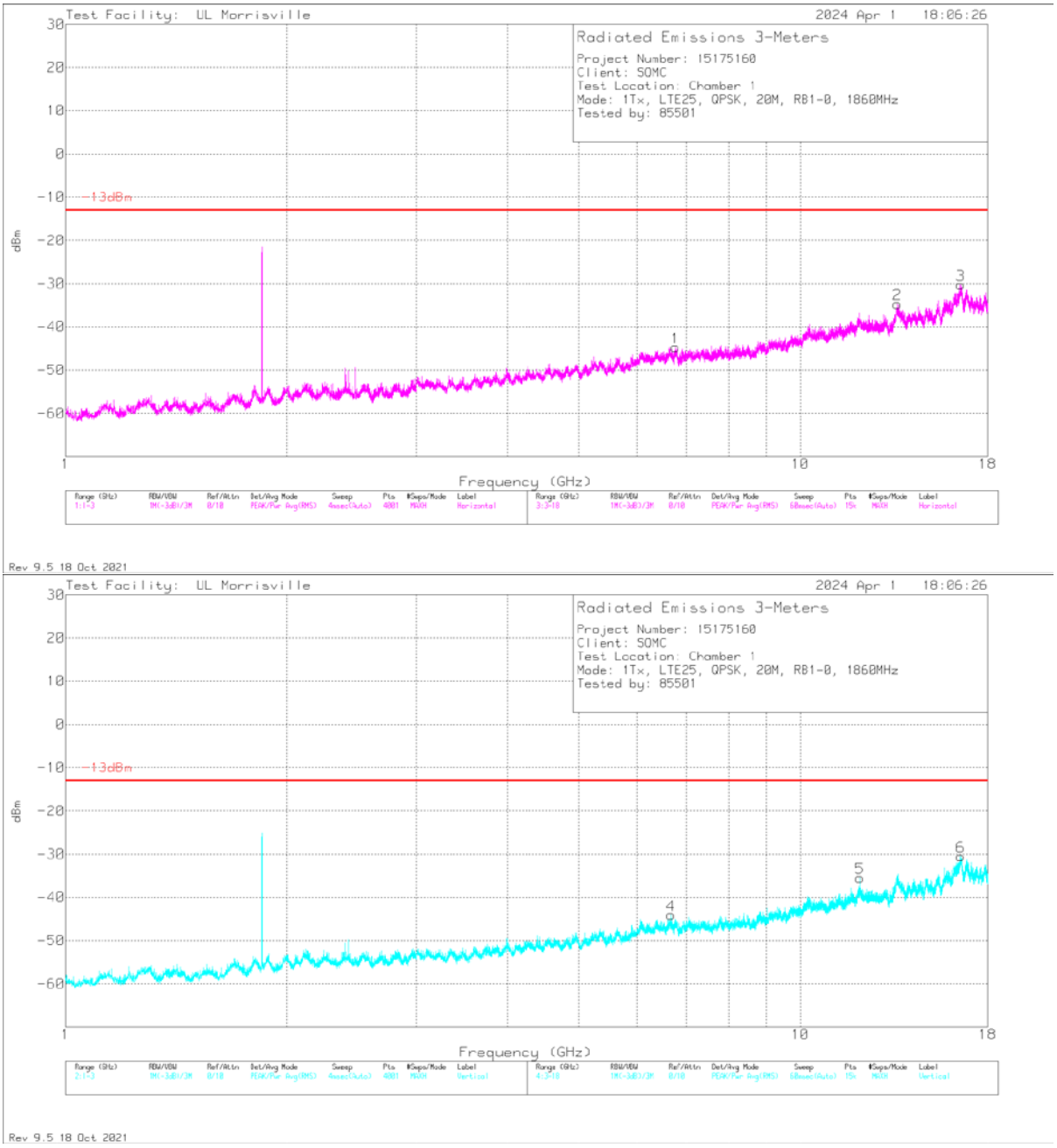
Pk - Peak detector

## 10.1.9. LTE BAND 25

**LIMITS**

FCC: §24.238 (a)
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.

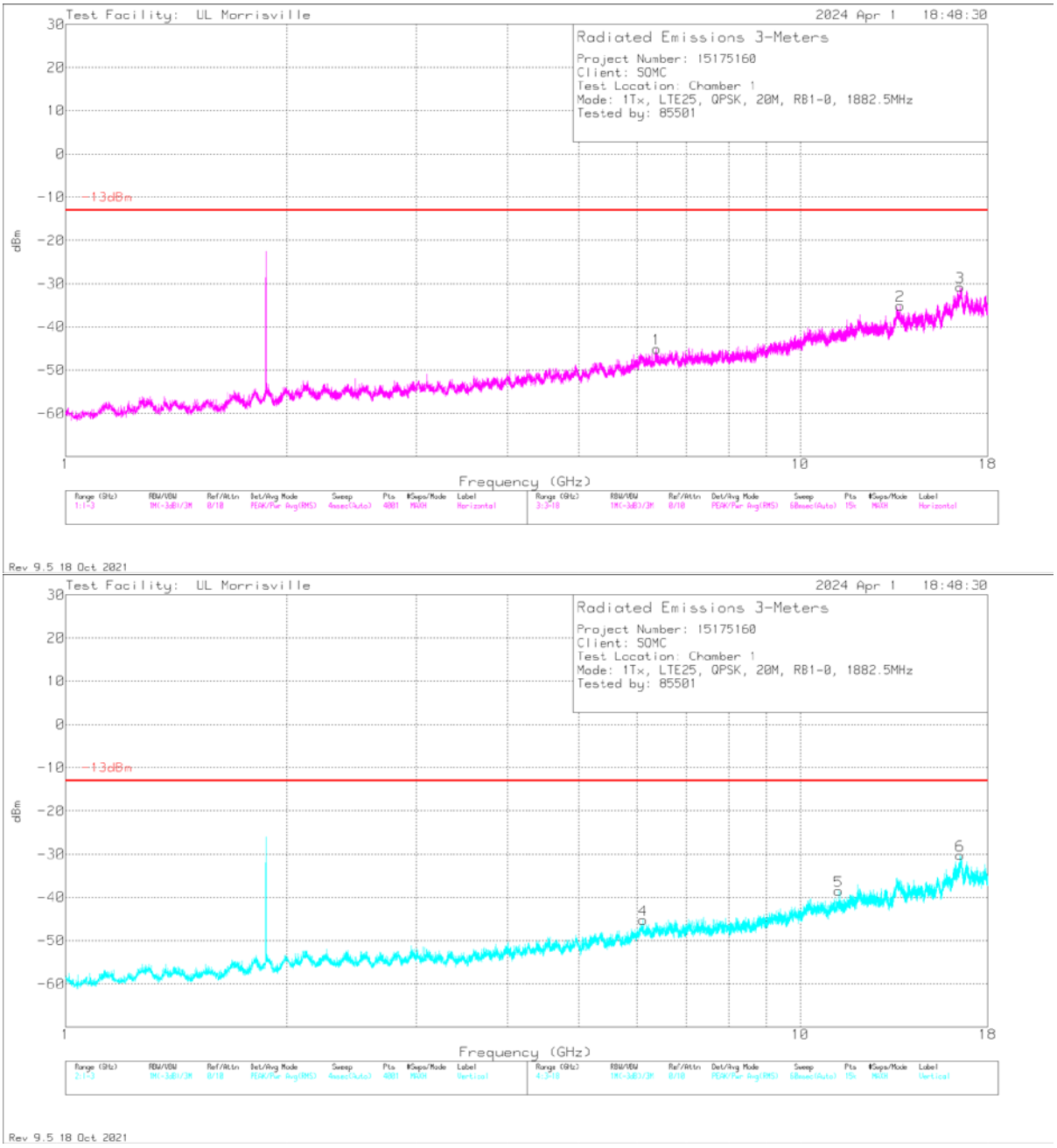
**QPSK LTE25 (20MHz, Low Channel)**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | CF (dB) | Filter (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 6.668 | -64.14 | Pk | 35.6 | -27.3 | 11.8 | 0 | -44.04 | -13 | -31.04 | 0-360 | 300 | V |
| 1 | 6.765 | -64.26 | Pk | 35.6 | -27.9 | 11.8 | 0 | -44.76 | -13 | -31.76 | 0-360 | 200 | H |
| 5 | 12.06 | -63.31 | Pk | 38.7 | -22.6 | 11.8 | 0 | -35.41 | -13 | -22.41 | 0-360 | 201 | V |
| 2 | 13.548 | -62 | Pk | 39 | -23.5 | 11.8 | 0 | -34.7 | -13 | -21.7 | 0-360 | 101 | H |
| 3 | 16.533 | -65.01 | Pk | 41.1 | -18.2 | 11.8 | 0 | -30.31 | -13 | -17.31 | 0-360 | 200 | H |
| 6 | 16.545 | -65.44 | Pk | 41.1 | -18 | 11.8 | 0 | -30.54 | -13 | -17.54 | 0-360 | 300 | V |

Pk - Peak detector

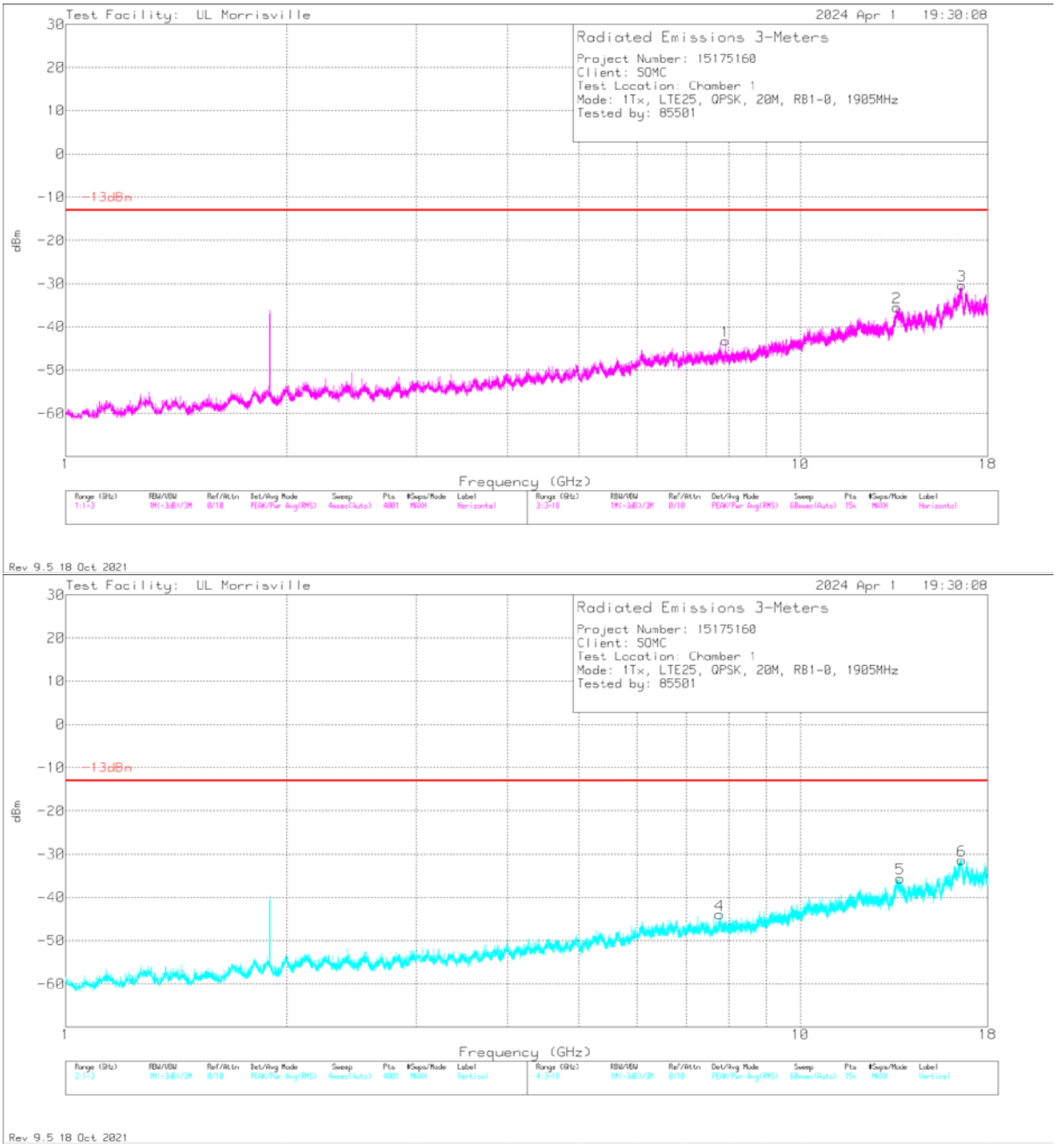
**QPSK LTE25 (20MHz, Mid Channel)**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | CF (dB) | Filter (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 6.113 | -64.07 | Pk | 35.3 | -28.3 | 11.8 | 0 | -45.27 | -13 | -32.27 | 0-360 | 101 | V |
| 1 | 6.376 | -64.75 | Pk | 35.5 | -27.6 | 11.8 | 0 | -45.05 | -13 | -32.05 | 0-360 | 101 | H |
| 5 | 11.28 | -66.01 | Pk | 37.7 | -22 | 11.8 | 0 | -38.51 | -13 | -25.51 | 0-360 | 300 | V |
| 2 | 13.676 | -62.82 | Pk | 38.9 | -23 | 11.8 | 0 | -35.12 | -13 | -22.12 | 0-360 | 101 | H |
| 3 | 16.519 | -65.48 | Pk | 41.1 | -18.2 | 11.8 | 0 | -30.78 | -13 | -17.78 | 0-360 | 300 | H |
| 6 | 16.526 | -64.91 | Pk | 41.1 | -18.2 | 11.8 | 0 | -30.21 | -13 | -17.21 | 0-360 | 201 | V |

Pk - Peak detector

**QPSK LTE25 (20MHz, High Channel)**



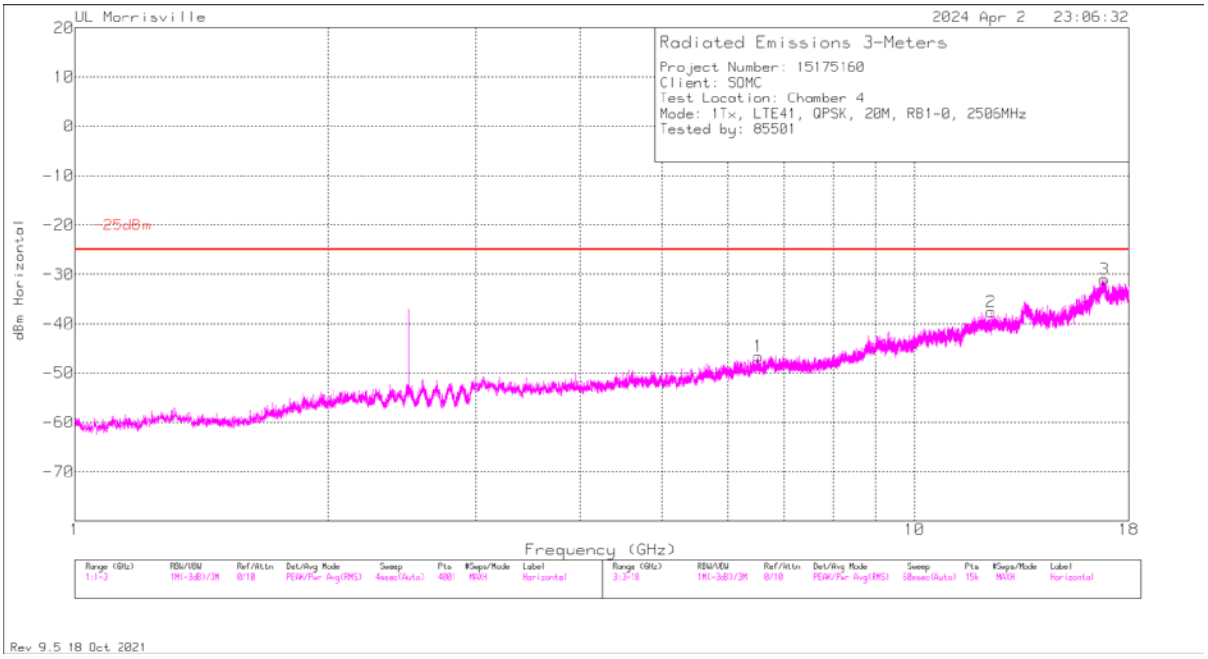

| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 206211 (dB/m) | Gain/Loss (dB) | CF (dB) | Filter (dB) | Corrected Reading dBm | -13dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 7.765 | -64.9 | Pk | 35.7 | -26.6 | 11.8 | 0 | -44 | -13 | -31 | 0-360 | 200 | V |
| 1 | 7.904 | -64.44 | Pk | 35.8 | -26.4 | 11.8 | 0 | -43.24 | -13 | -30.24 | 0-360 | 199 | H |
| 2 | 13.535 | -63.31 | Pk | 39 | -23 | 11.8 | 0 | -35.51 | -13 | -22.51 | 0-360 | 199 | H |
| 5 | 13.675 | -63.25 | Pk | 38.9 | -23 | 11.8 | 0 | -35.55 | -13 | -22.55 | 0-360 | 200 | V |
| 6 | 16.595 | -66.51 | Pk | 41.2 | -17.9 | 11.8 | 0 | -31.41 | -13 | -18.41 | 0-360 | 200 | V |
| 3 | 16.597 | -65.38 | Pk | 41.2 | -18 | 11.8 | 0 | -30.38 | -13 | -17.38 | 0-360 | 101 | H |

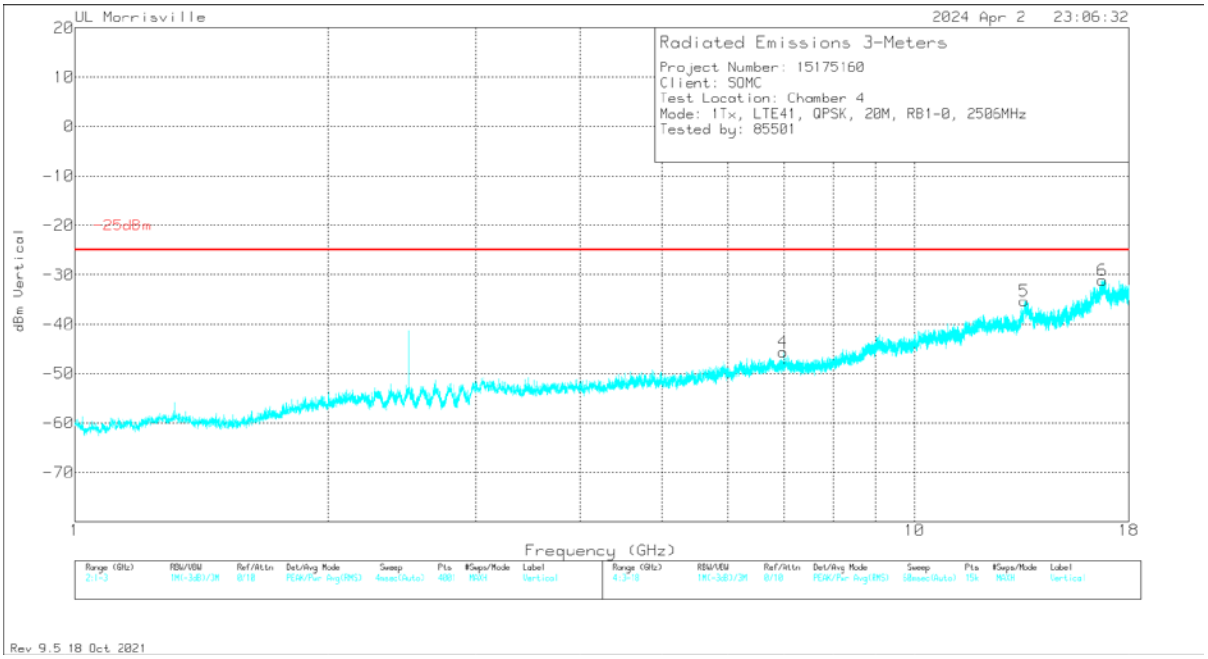
Pk - Peak detector

## 10.1.10. LTE BAND 41

FCC: §27.53 (m)
At least 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.

**QPSK LTE41(20MHz, Low Channel)**




| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | 89509 ACF (dB/m) | Gain/Loss (dB) | CF (dB) | Filter (dB) | Corrected Reading dBm | -25dBm | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.525 | -66.46 | Pk | 35.5 | -27.8 | 11.8 | .4 | -46.56 | -25 | -21.56 | 0-360 | 200 | H |
| 4 | 6.98 | -65.78 | Pk | 35.5 | -27.6 | 11.8 | .5 | -45.58 | -25 | -20.58 | 0-360 | 100 | V |
| 2 | 12.332 | -65.45 | Pk | 38.9 | -23.3 | 11.8 | .5 | -37.55 | -25 | -12.55 | 0-360 | 200 | H |
| 5 | 13.52 | -64.93 | Pk | 38.8 | -21.7 | 11.8 | .7 | -35.33 | -25 | -10.33 | 0-360 | 100 | V |
| 6 | 16.752 | -66.9 | Pk | 41.9 | -19 | 11.8 | 1.1 | -31.1 | -25 | -6.1 | 0-360 | 100 | V |
| 3 | 16.82 | -67.41 | Pk | 41.9 | -18.5 | 11.8 | 1.2 | -31.01 | -25 | -6.01 | 0-360 | 300 | H |

Pk - Peak detector