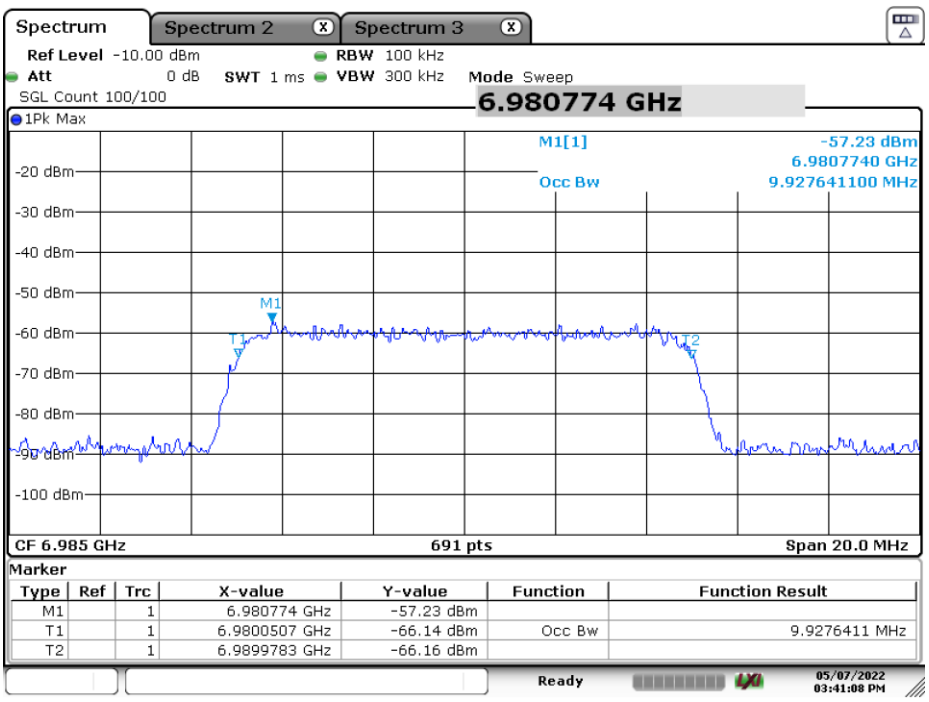
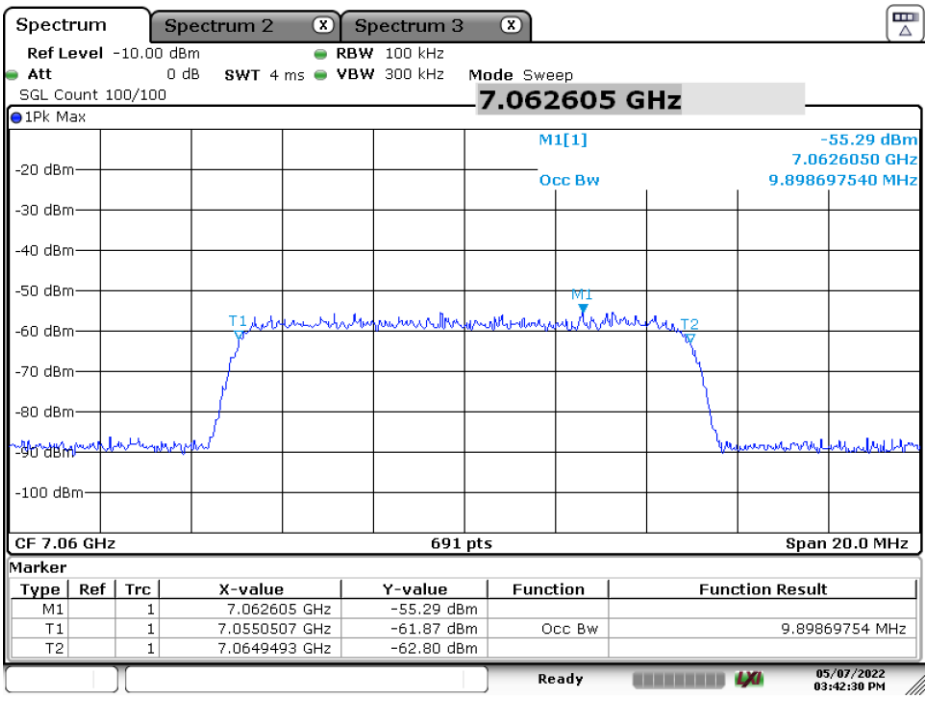



Date: 7.MAY.2022 15:41:07

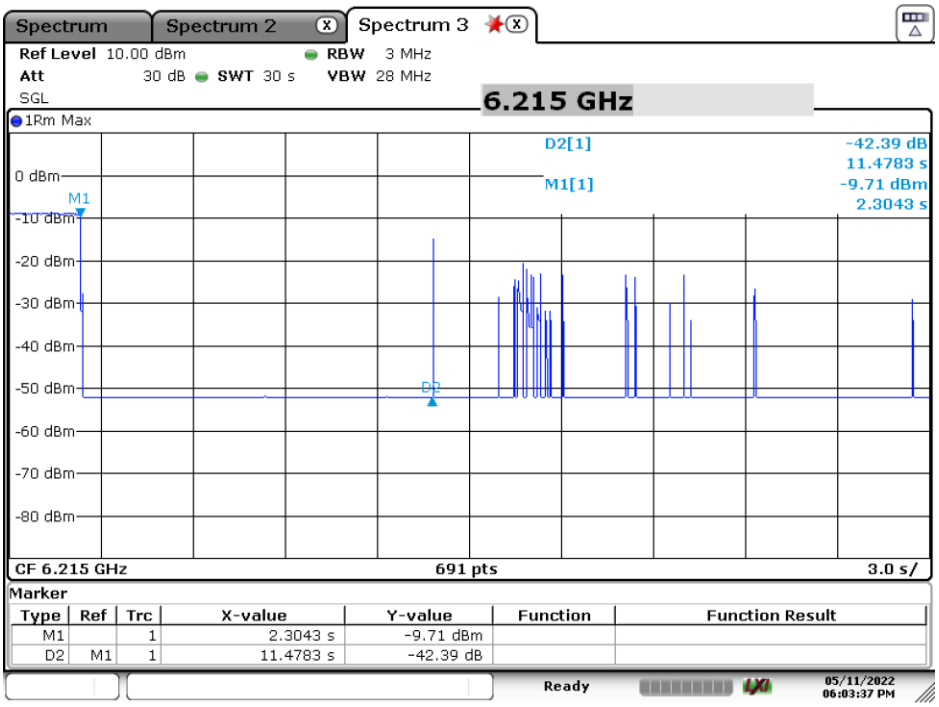
**Plot 7-457. AWGN Signal – UNII 8 – 160MHz - Mid**




Date: 7.MAY.2022 15:42:30

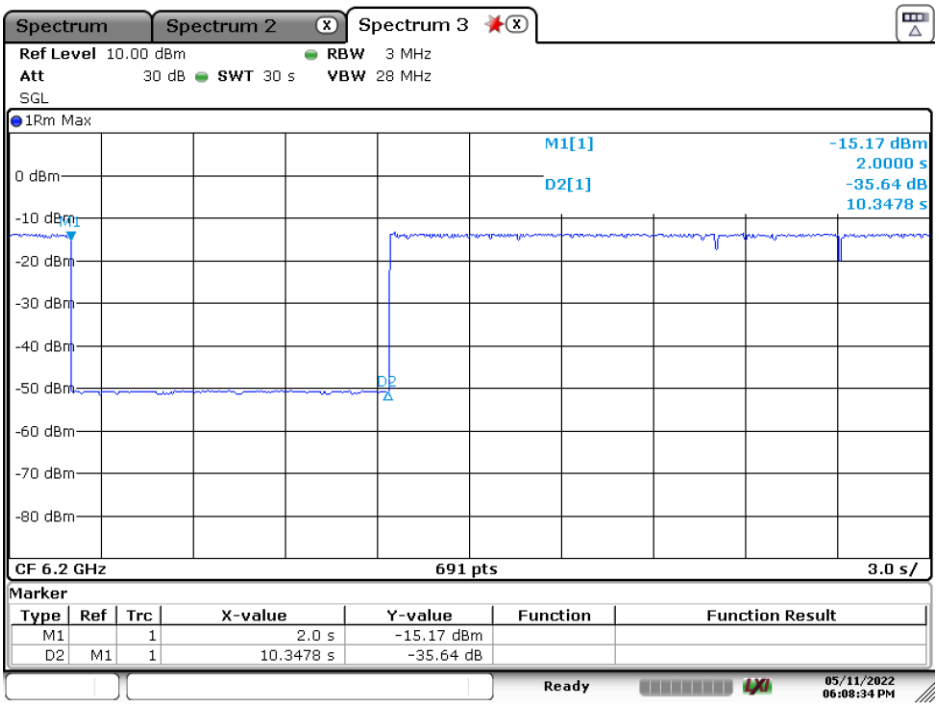
**Plot 7-458. AWGN Signal – UNII 8 – 160MHz - High**

## CBP Timing Plots



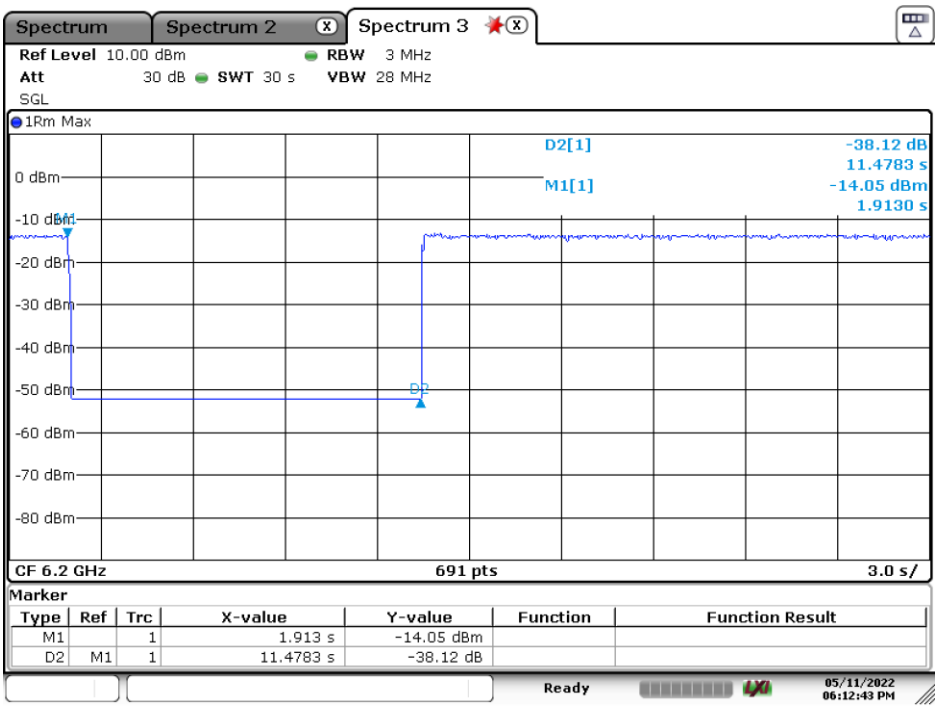

Date: 11.MAY.2022 18:03:37

**Plot 7-459. Contention Based Protocol Timing Plot – UNII 5 – 20MHz Ch53**



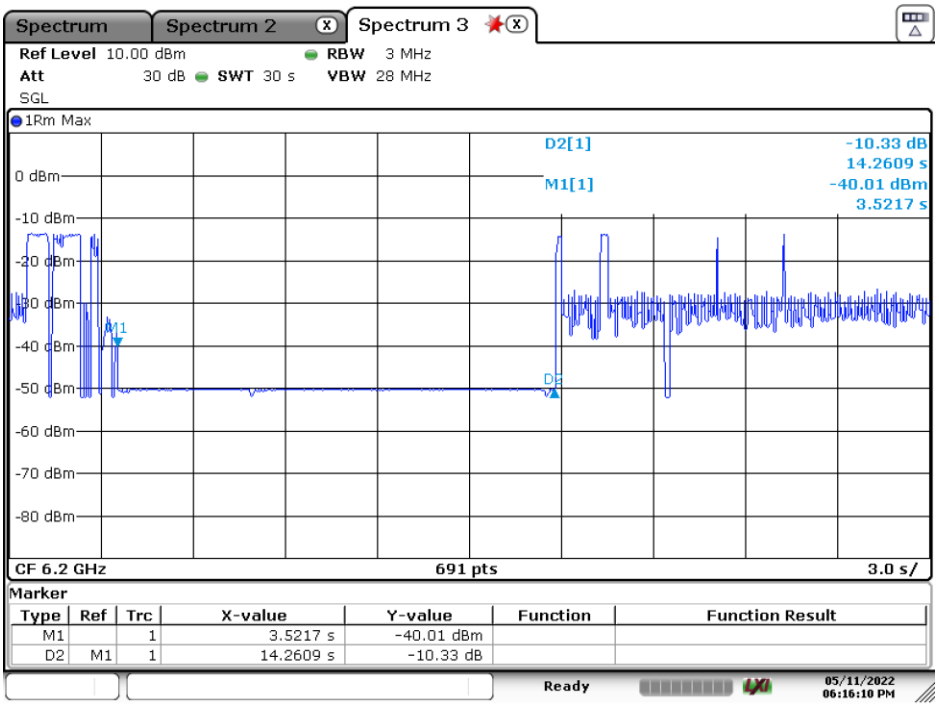

Date: 11.MAY.2022 18:08:34

**Plot 7-460. Contention Based Protocol Timing Plot – UNII 5 – 160MHz Ch47 – Low**



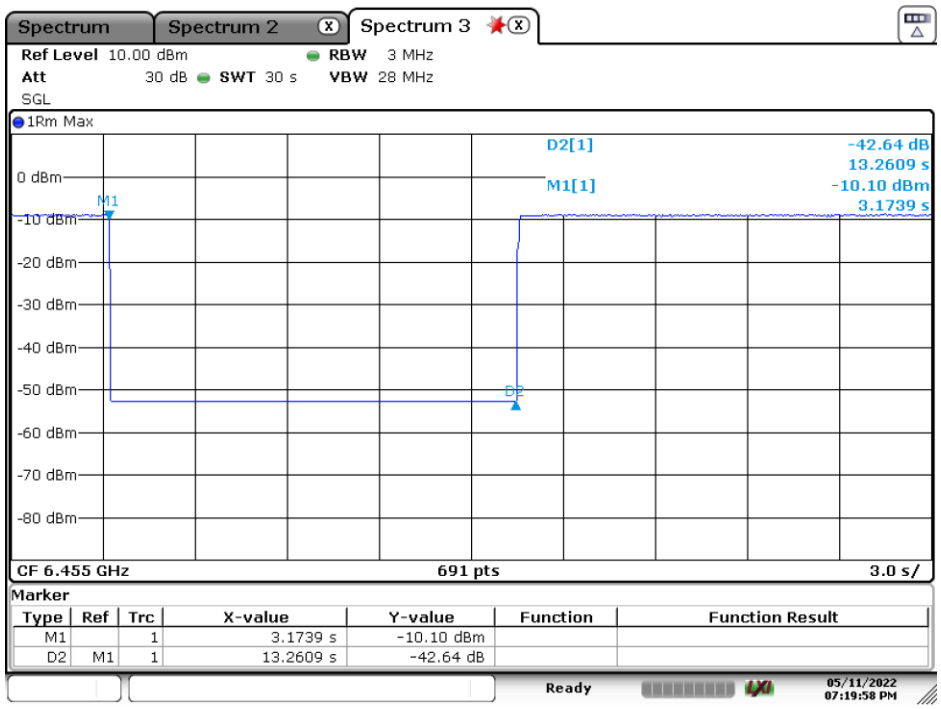

Date: 11.MAY.2022 18:12:43

**Plot 7-461. Contention Based Protocol Timing Plot – UNII 5 – 160MHz Ch47 – Mid**



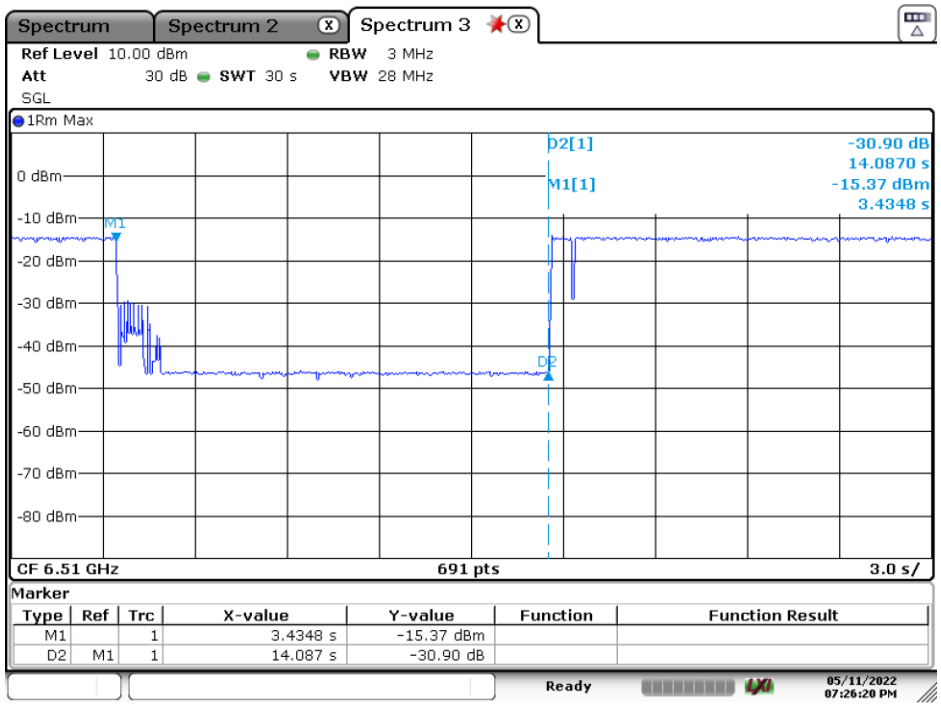

Date: 11.MAY.2022 18:16:10

**Plot 7-462. Contention Based Protocol Timing Plot – UNII 5 – 160MHz Ch47 - High**



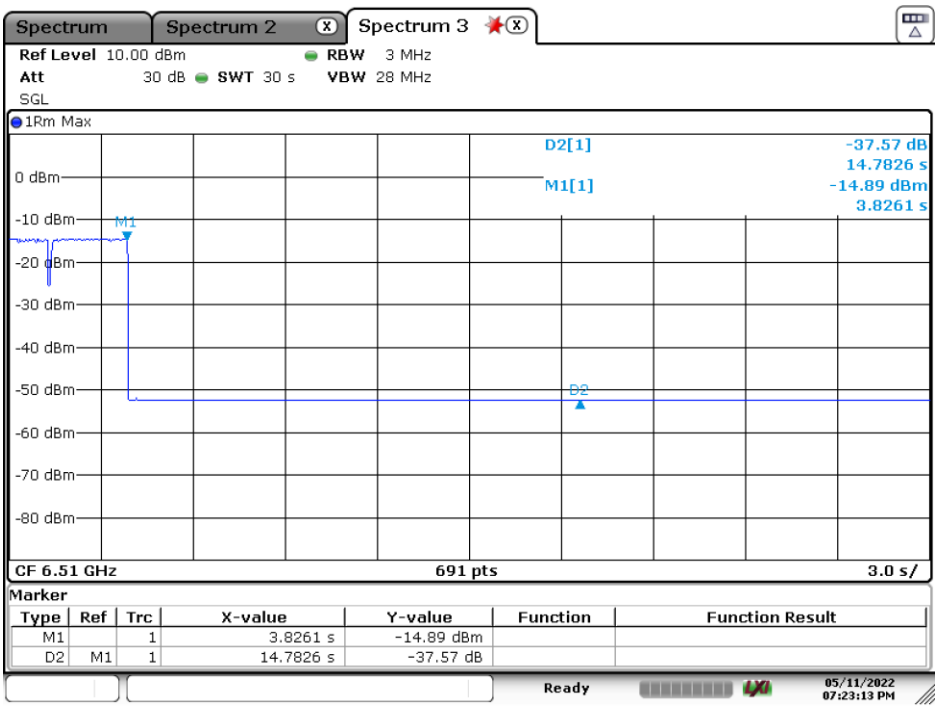

Date: 11.MAY.2022 19:19:58

**Plot 7-463. Contention Based Protocol Timing Plot – UNII 6 – 20MHz Ch101**



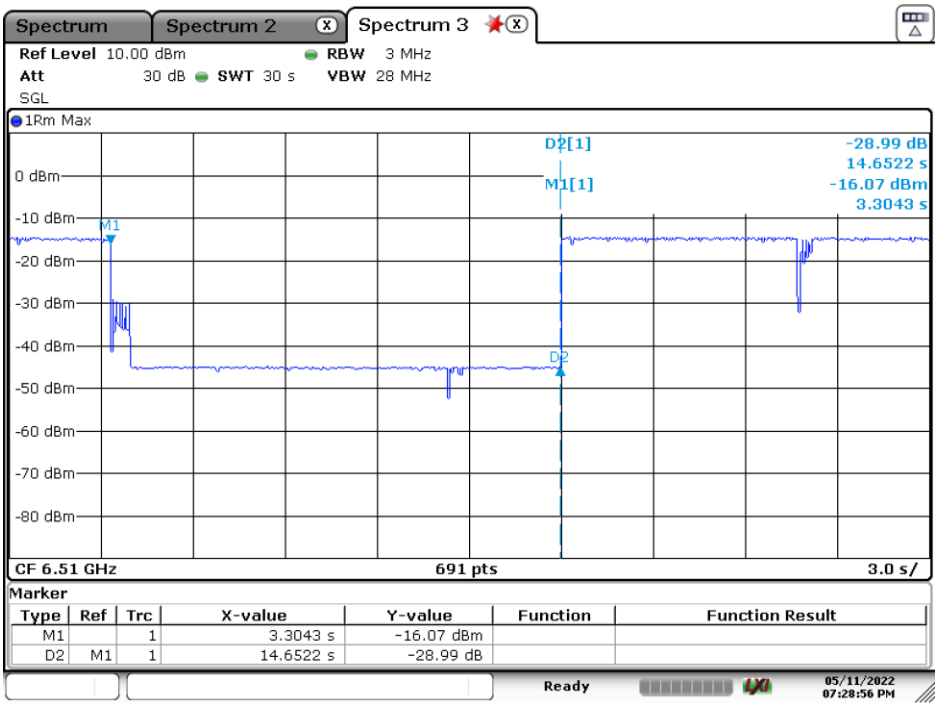

Date: 11.MAY.2022 19:26:20

**Plot 7-464. Contention Based Protocol Timing Plot – UNII 6 – 160MHz Ch111 – Low**



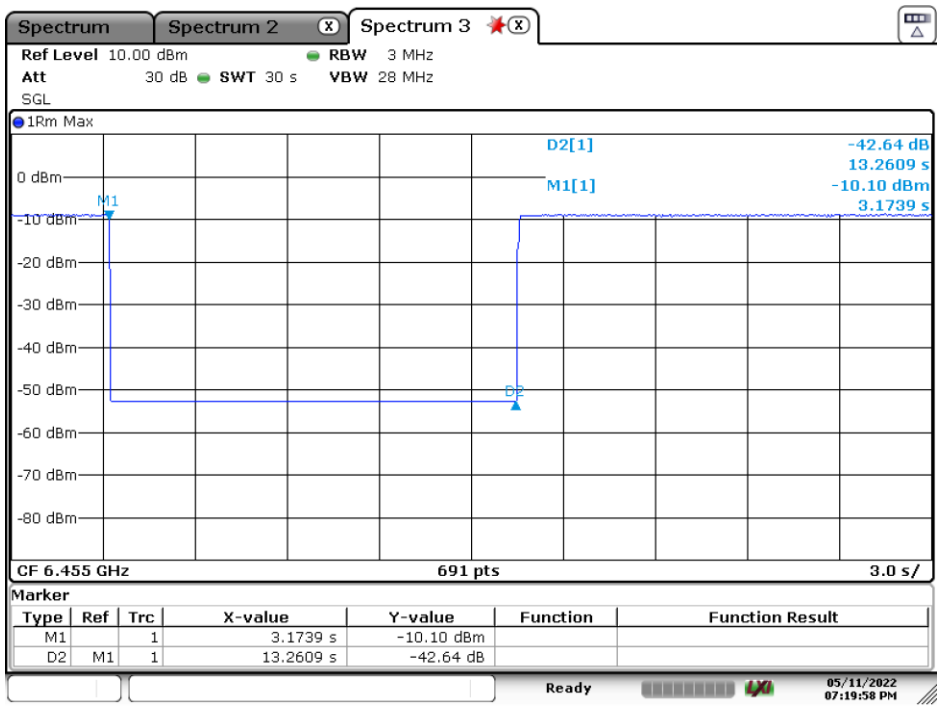

Date: 11.MAY.2022 19:23:13

**Plot 7-465. Contention Based Protocol Timing Plot – UNII 6 – 160MHz Ch111 – Mid**



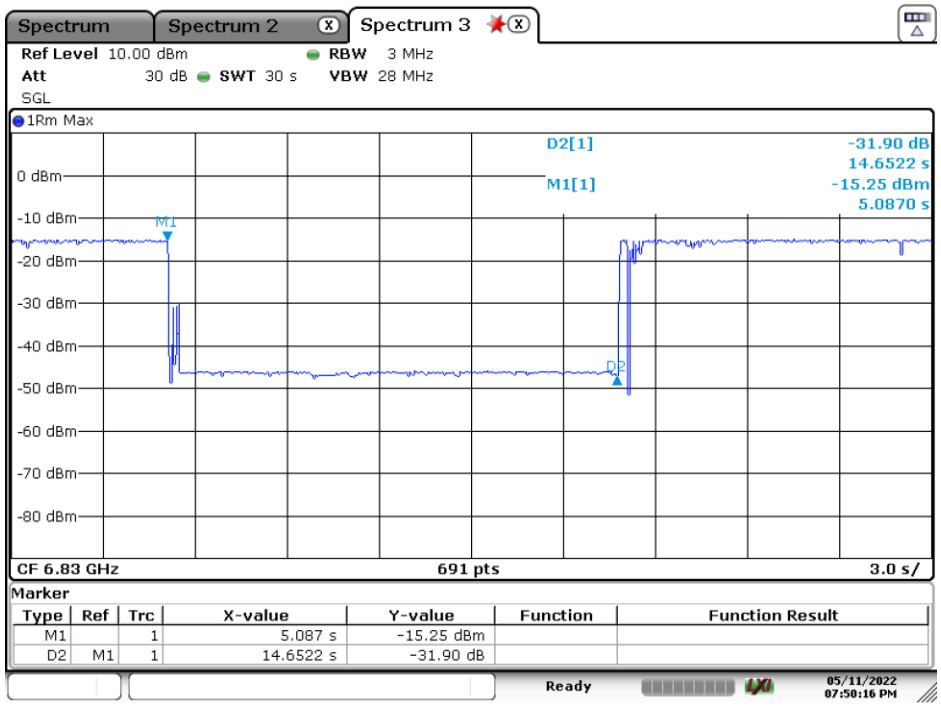

Date: 11.MAY.2022 19:28:56

**Plot 7-466. Contention Based Protocol Timing Plot – UNII 6 – 160MHz Ch111 - High**



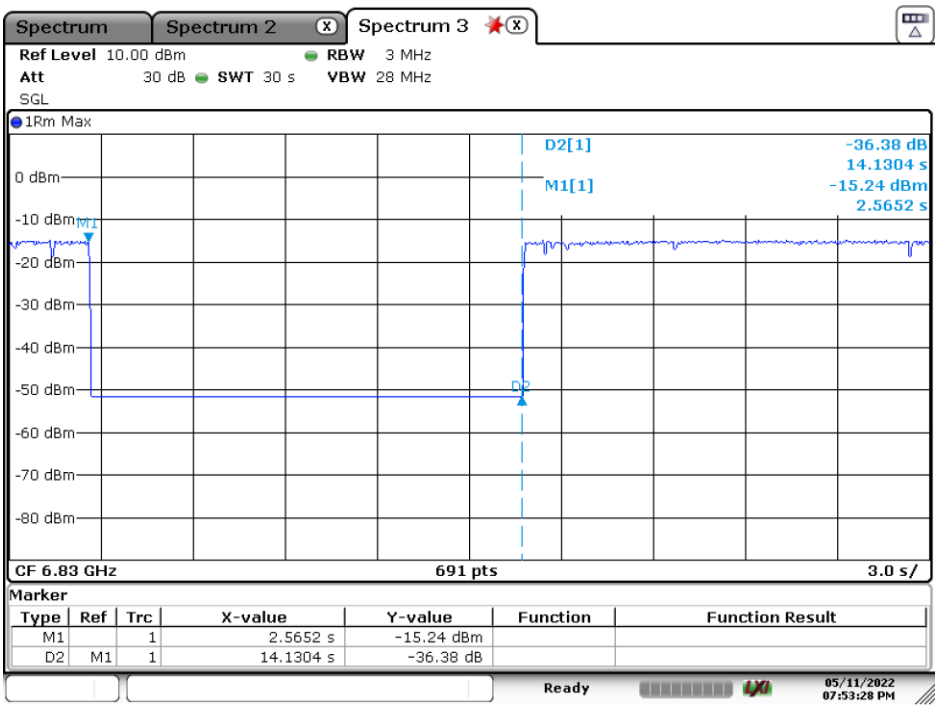

Date: 11.MAY.2022 19:19:58

**Plot 7-467. Contention Based Protocol Timing Plot – UNII 7 – 20MHz Ch149**



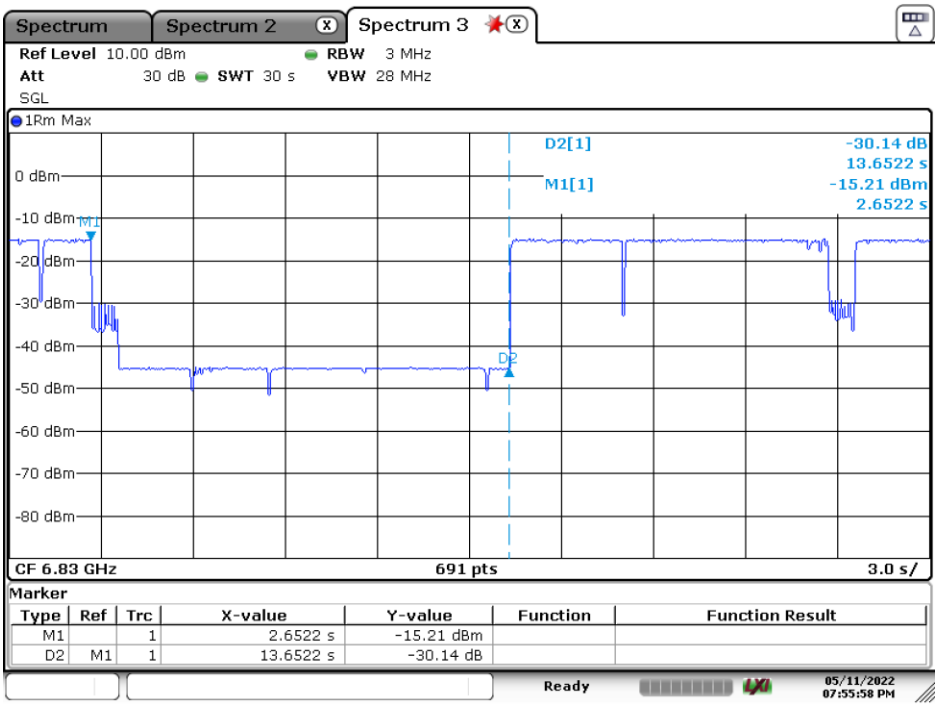

Date: 11.MAY.2022 19:50:16

**Plot 7-468. Contention Based Protocol Timing Plot – UNII 7 – 160MHz Ch175 – Low**



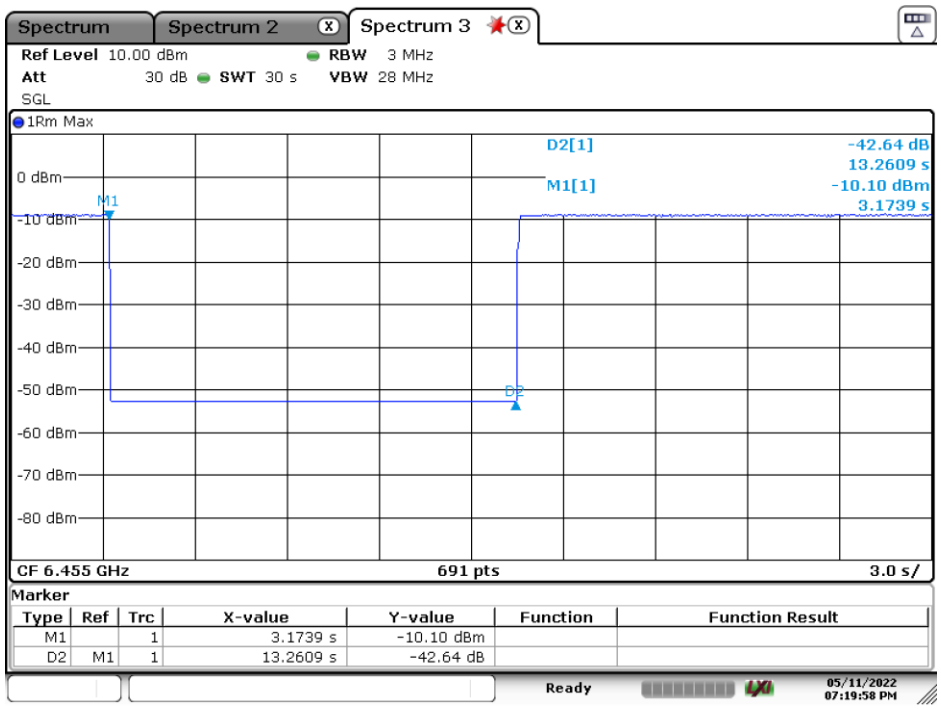

Date: 11.MAY.2022 19:53:28

**Plot 7-469. Contention Based Protocol Timing Plot – UNII 7 – 160MHz Ch175 – Mid**



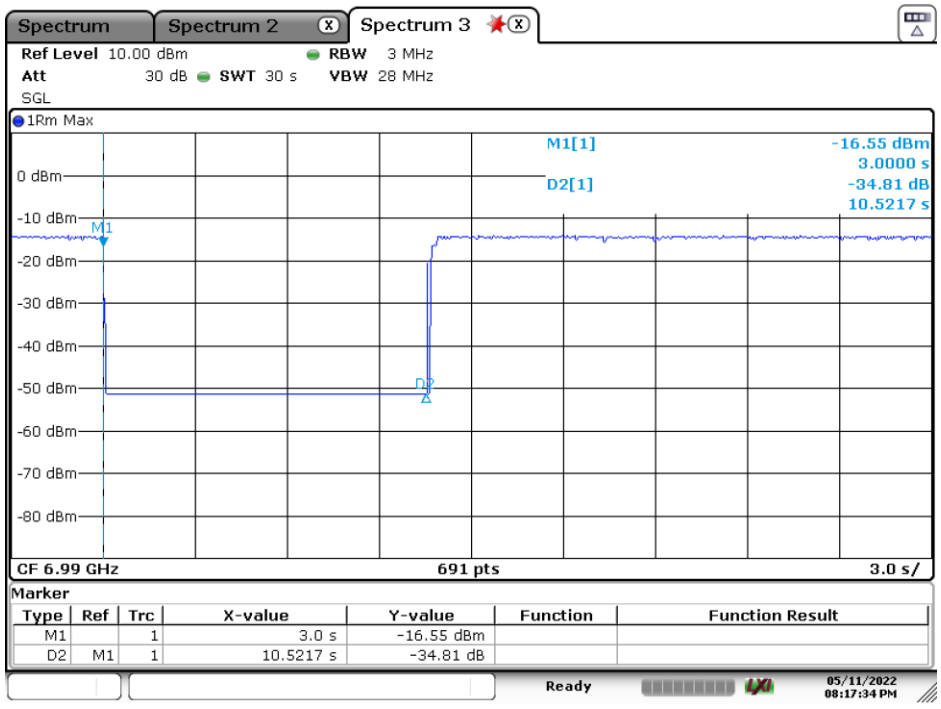

Date: 11.MAY.2022 19:55:58

**Plot 7-470. Contention Based Protocol Timing Plot – UNII 7 – 160MHz Ch175 - High**



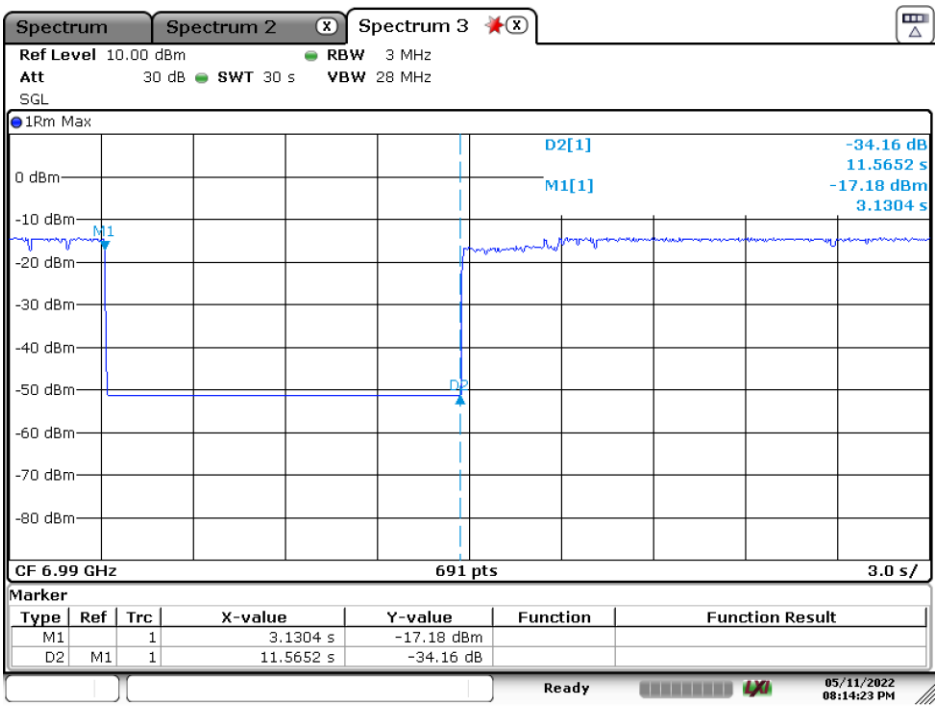

Date: 11.MAY.2022 19:19:58

**Plot 7-471. Contention Based Protocol Timing Plot – UNII 8 – 20MHz Ch197**



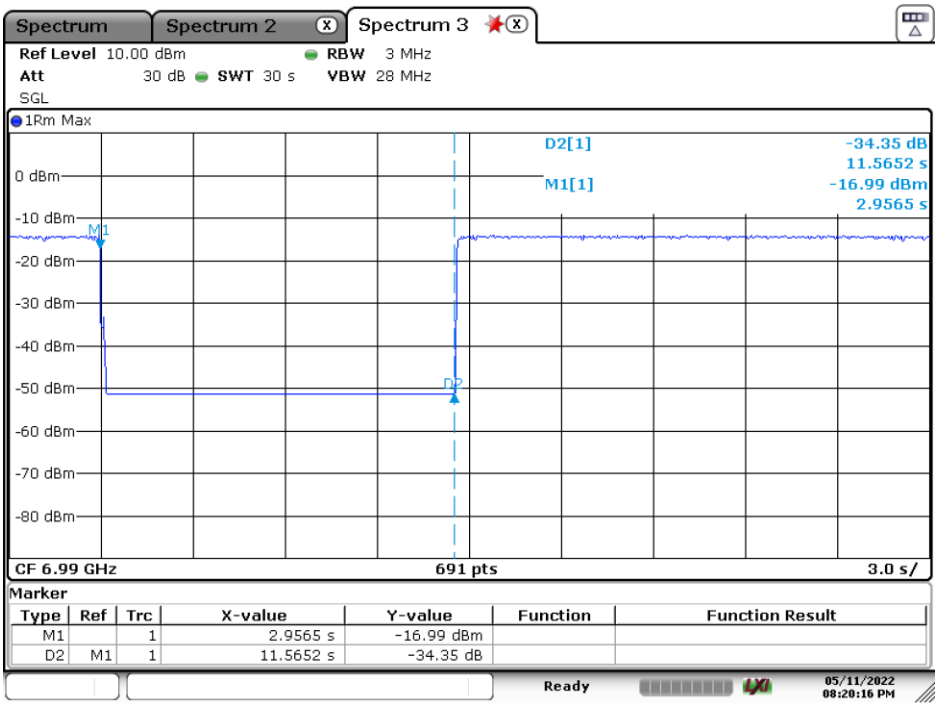

Date: 11.MAY.2022 20:17:34

**Plot 7-472. Contention Based Protocol Timing Plot – UNII 8 – 160MHz Ch207 – Low**




Date: 11.MAY.2022 20:14:23

**Plot 7-473. Contention Based Protocol Timing Plot – UNII 8 – 160MHz Ch207 – Mid**




Date: 11.MAY.2022 20:20:16

**Plot 7-474. Contention Based Protocol Timing Plot – UNII 8 – 160MHz Ch207 - High**

## 7.7 Radiated Spurious Emission Measurements – Above 1GHz

**§15.205, §15.209**

**Test Overview and Limit**

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. All channels, modes (e.g. 802.11ax (20/40/80/160MHz)), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

***For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of −27 dBm/MHz***

***Emissions found in a restricted band are subject to the limits of 15.209 as shown in the table below.***

| Frequency | Field Strength [µV/m] | Measured Distance [Meters] |
|---|---|---|
| Above 960.0 MHz | 500 | 3 |

**Table 7-34. Radiated Limits**

**Test Procedures Used**

ANSI C63.10-2013 – Sections 12.7.7.2, 12.7.6, 12.7.5
KDB 789033 D02 v02r01 – Section G

**Test Settings**

**Average Measurements above 1GHz (Method AD)**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be ≥ 2 x span/RBW)
6. Averaging type = power (RMS)
7. Sweep time = auto couple
8. Trace was averaged over 100 sweeps

**Peak Measurements above 1GHz**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

## Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = 120kHz
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

## Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

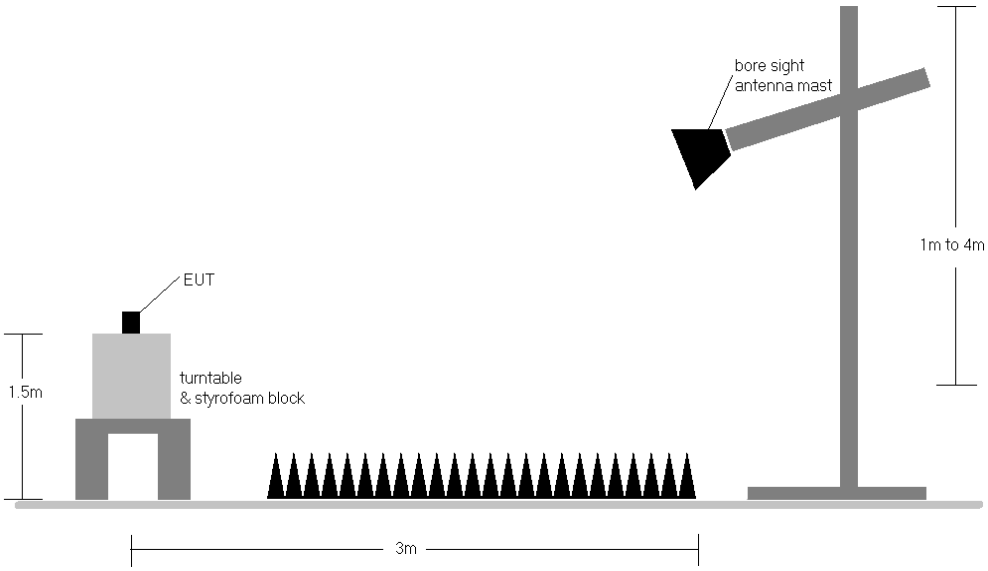



**Figure 7-6. Test Instrument & Measurement Setup**

## Test Notes

1. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 are below the limit shown in Table 7-34.
2. All spurious emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-34. All spurious emissions that do not lie in a restricted band are subject to an average limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBμV/m.
3. All spurious emissions that do not lie in a restricted band are subject to a peak limit not to exceed 20dB of the average limit [68.2dBμV/m]. If a peak measurement passes the average limit it was determined no further investigation is necessary.
4. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
5. This unit was tested with its standard battery.
6. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
7. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
8. Radiated spurious emissions were investigated while operating in MIMO mode, however, it was determined that single antenna operation produced the worst case emissions. Since the emissions produced from MIMO operation were found to be more than 20dB below the limit, the MIMO emissions are not reported.
9. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section.
10. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

## Sample Calculations

### Determining Spurious Emissions Levels

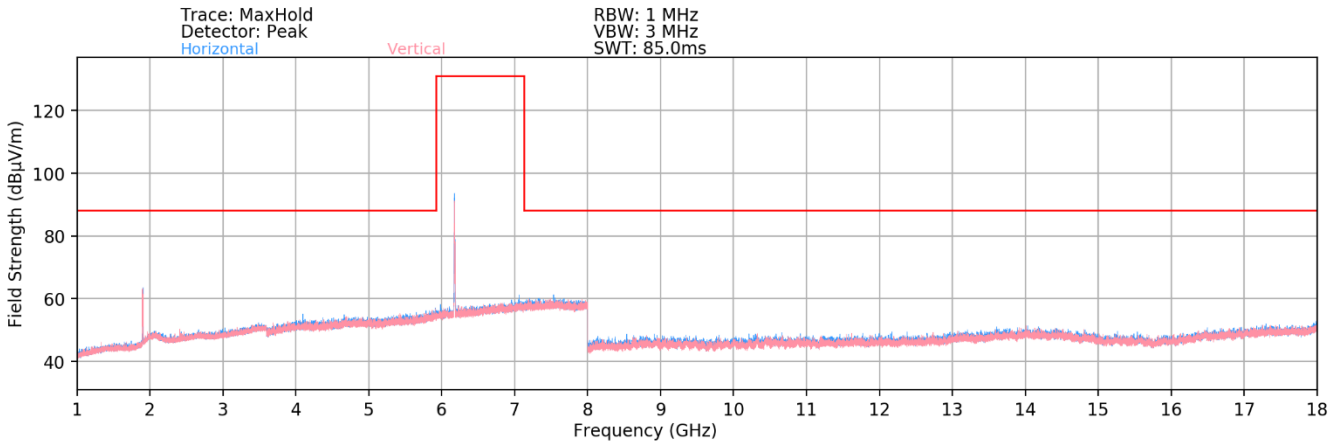
- Field Strength Level $_{[dB\mu V/m]}$ = Analyzer Level $_{[dBm]}$ + 107 + AFCL $_{[dB/m]}$
- AFCL $_{[dB/m]}$ = Antenna Factor $_{[dB/m]}$ + Cable Loss $_{[dB]}$
- Margin $_{[dB]}$ = Field Strength Level $_{[dB\mu V/m]}$ – Limit $_{[dB\mu V/m]}$

### Radiated Band Edge Measurement Offset

- The amplitude offset shown in the radiated restricted band edge plots was calculated using the formula:

  Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

## 7.7.1 MIMO Radiated Spurious Emission Measurements (106 Tones)




**Plot 7-475. Radiated Spurious Plot above 1GHz MIMO (802.11ax – UNII Band 5 – 20MHz – Ch.45)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 54 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 5935MHz |
| Channel: | 2 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 11870.00 | Average | V | - | - | -80.47 | 13.93 | 0.00 | 40.46 | 53.98 | -13.52 |
| * | 11870.00 | Peak | V | - | - | -66.39 | 13.93 | 0.00 | 54.54 | 73.98 | -19.44 |
| * | 17805.00 | Average | V | - | - | -82.11 | 18.26 | 0.00 | 43.15 | 53.98 | -10.83 |
| * | 17805.00 | Peak | V | - | - | -65.39 | 18.26 | 0.00 | 59.87 | 73.98 | -14.11 |
| * | 23740.00 | Average | V | - | - | -67.54 | 3.99 | -9.54 | 33.91 | 53.98 | -20.07 |
| * | 23740.00 | Peak | V | - | - | -58.01 | 3.99 | -9.54 | 43.44 | 73.98 | -30.54 |
| | 29675.00 | Peak | V | - | - | -58.03 | 6.33 | -9.54 | 45.76 | 68.20 | -22.44 |

**Table 7-35. Radiated Measurements MIMO (106 Tones)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 54 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6175MHz |
| Channel: | 45 |

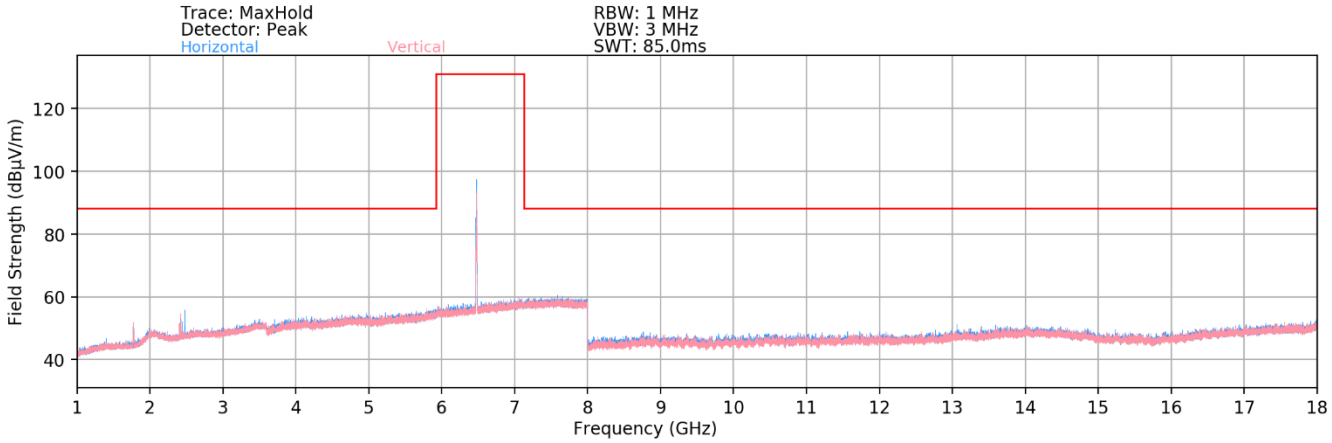
| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 12350.00 | Average | V | - | - | -81.30 | 13.85 | 0.00 | 39.55 | 53.98 | -14.43 |
| * | 12350.00 | Peak | V | - | - | -67.65 | 13.85 | 0.00 | 53.20 | 73.98 | -20.78 |
| * | 18525.00 | Average | V | - | - | -63.42 | 1.93 | -9.54 | 35.97 | 53.98 | -18.01 |
| * | 18525.00 | Peak | V | - | - | -56.11 | 1.93 | -9.54 | 43.28 | 73.98 | -30.70 |
| | 24700.00 | Peak | V | - | - | -56.64 | 4.39 | -9.54 | 45.21 | 68.20 | -22.99 |
| | 30875.00 | Peak | V | - | - | -58.01 | 6.89 | -9.54 | 46.34 | 68.20 | -21.86 |

**Table 7-36. Radiated Measurements MIMO (106 Tones)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 54 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6415MHz |
| Channel: | 93 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12830.00 | Peak | V | - | - | -66.59 | 14.78 | 0.00 | 55.19 | 68.20 | -13.01 |
| * | 19245.00 | Average | V | - | - | -65.11 | 2.30 | -9.54 | 34.65 | 53.98 | -19.33 |
| * | 19245.00 | Peak | V | - | - | -56.69 | 2.30 | -9.54 | 43.07 | 73.98 | -30.91 |
| | 25660.00 | Peak | V | - | - | -56.91 | 4.61 | -9.54 | 45.16 | 68.20 | -23.04 |
| | 32075.00 | Peak | V | - | - | -57.22 | 7.18 | -9.54 | 47.42 | 68.20 | -20.78 |

**Table 7-37. Radiated Measurements MIMO (106 Tones)**




**Plot 7-476. Radiated Spurious Plot above 1GHz MIMO (802.11ax– UNII Band 6 – 20MHz – Ch.105)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 54 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6435MHz |
| Channel: | 97 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12870.00 | Peak | V | - | - | -67.56 | 14.51 | 0.00 | 53.95 | 68.20 | -14.25 |
| * | 19305.00 | Average | V | - | - | -64.21 | 2.61 | -9.54 | 35.86 | 53.98 | -18.12 |
| * | 19305.00 | Peak | V | - | - | -64.03 | 2.61 | -9.54 | 36.04 | 73.98 | -37.94 |
| | 25740.00 | Peak | V | - | - | -56.88 | 4.71 | -9.54 | 45.29 | 68.20 | -22.91 |
| | 32175.00 | Peak | V | - | - | -58.22 | 7.21 | -9.54 | 46.45 | 68.20 | -21.75 |

**Table 7-38. Radiated Measurements MIMO (106 Tones)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 54 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6475MHz |
| Channel: | 105 |

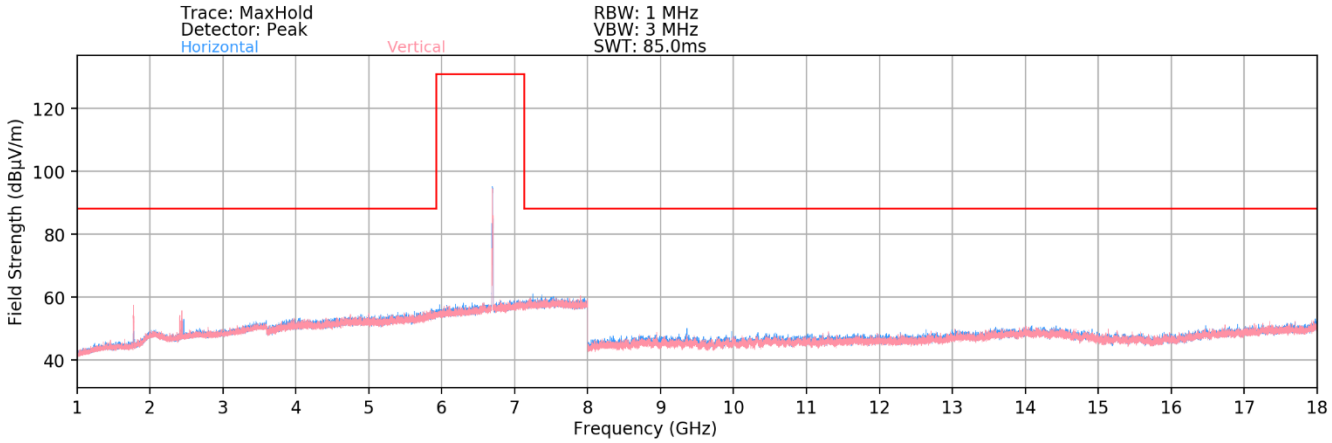
| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12950.00 | Peak | V | - | - | -67.04 | 14.59 | 0.00 | 54.55 | 68.20 | -13.65 |
| * | 19425.00 | Average | V | - | - | -64.21 | 2.67 | -9.54 | 35.92 | 53.98 | -18.06 |
| * | 19425.00 | Peak | V | - | - | -57.11 | 2.67 | -9.54 | 43.02 | 73.98 | -30.96 |
| | 25900.00 | Peak | V | - | - | -57.01 | 4.77 | -9.54 | 45.22 | 68.20 | -22.98 |
| | 32375.00 | Peak | V | - | - | -58.22 | 6.96 | -9.54 | 46.20 | 68.20 | -22.00 |

**Table 7-39. Radiated Measurements MIMO (106 Tones)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 54 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6515MHz |
| Channel: | 113 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13030.00 | Peak | V | - | - | -67.66 | 14.61 | 0.00 | 53.95 | 68.20 | -14.25 |
| * | 19545.00 | Average | V | - | - | -63.41 | 2.63 | -9.54 | 36.68 | 53.98 | -17.30 |
| * | 19545.00 | Peak | V | - | - | -56.22 | 2.63 | -9.54 | 43.87 | 73.98 | -30.11 |
| | 26060.00 | Peak | V | - | - | -57.28 | 4.83 | -9.54 | 45.01 | 68.20 | -23.19 |
| | 32575.00 | Peak | V | - | - | -57.01 | 6.80 | -9.54 | 47.25 | 68.20 | -20.95 |

**Table 7-40. Radiated Measurements MIMO (106 Tones)**




**Plot 7 314. Radiated Spurious Plot above 1GHz MIMO (802.11ax– UNII Band 7 – 20MHz – Ch.149)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 54 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6535MHz |
| Channel: | 117 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13070.00 | Peak | V | - | - | -76.13 | 24.74 | 0.00 | 55.61 | 68.20 | -12.59 |
| * | 19605.00 | Average | V | - | - | -64.19 | 2.75 | -9.54 | 36.02 | 53.98 | -17.96 |
| * | 19605.00 | Peak | V | - | - | -57.01 | 2.75 | -9.54 | 43.20 | 73.98 | -30.78 |
| | 26140.00 | Peak | V | - | - | -57.22 | 5.14 | -9.54 | 45.38 | 68.20 | -22.82 |
| | 32675.00 | Peak | V | - | - | -57.56 | 7.15 | -9.54 | 47.05 | 68.20 | -21.15 |

**Table 7-41. Radiated Measurements MIMO (106 Tones)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 54 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6695MHz |
| Channel: | 149 |

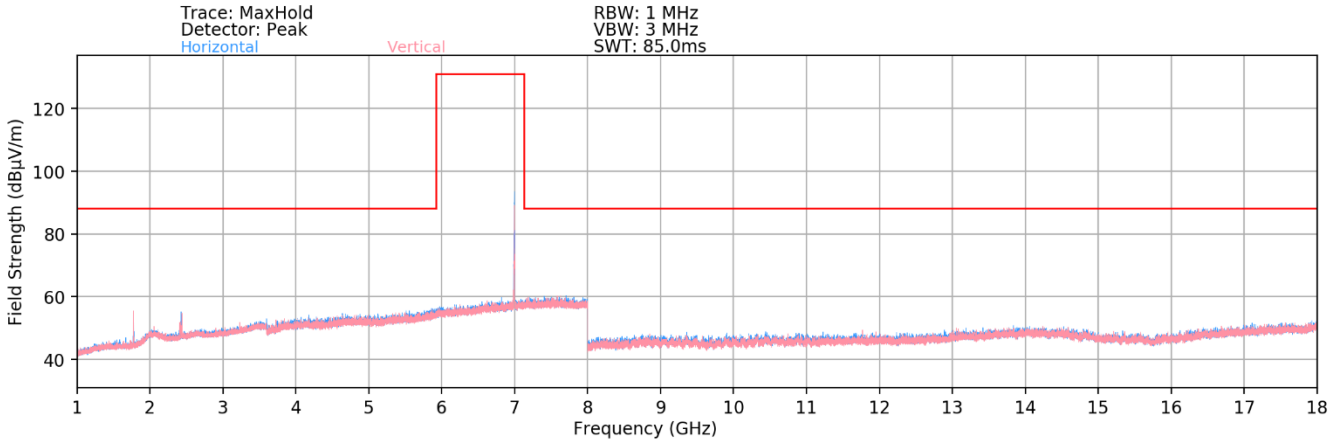
| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 13390.00 | Average | V | - | - | -87.45 | 25.62 | 0.00 | 45.17 | 53.98 | -8.81 |
| * | 13390.00 | Peak | V | - | - | -75.89 | 25.62 | 0.00 | 56.73 | 73.98 | -17.25 |
| * | 20085.00 | Average | V | - | - | -63.41 | 3.06 | -9.54 | 37.11 | 53.98 | -16.87 |
| * | 20085.00 | Peak | V | - | - | -63.81 | 3.06 | -9.54 | 36.71 | 73.98 | -37.27 |
| | 26780.00 | Peak | V | - | - | -57.01 | 5.33 | -9.54 | 45.78 | 68.20 | -22.42 |
| | 33475.00 | Peak | V | - | - | -57.22 | 7.51 | -9.54 | 47.75 | 68.20 | -20.45 |

**Table 7-42. Radiated Measurements MIMO (106 Tones)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 54 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6875MHz |
| Channel: | 185 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13750.00 | Peak | V | - | - | -75.99 | 26.03 | 0.00 | 57.04 | 68.20 | -11.16 |
| * | 20625.00 | Average | V | - | - | -65.01 | 3.32 | -9.54 | 35.77 | 53.98 | -18.21 |
| * | 20625.00 | Peak | V | - | - | -56.44 | 3.32 | -9.54 | 44.34 | 73.98 | -29.64 |
| | 27500.00 | Peak | V | - | - | -57.32 | 4.97 | -9.54 | 45.11 | 68.20 | -23.09 |
| | 34375.00 | Peak | V | - | - | -58.01 | 7.82 | -9.54 | 47.27 | 68.20 | -20.93 |

**Table 7-43. Radiated Measurements MIMO (106 Tones)**




**Plot 7 314. Radiated Spurious Plot above 1GHz MIMO (802.11ax– UNII Band 8 – 20MHz – Ch.209)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 54 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6895MHz |
| Channel: | 189 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13790.00 | Peak | V | - | - | -73.57 | 26.18 | 0.00 | 59.61 | 68.20 | -8.59 |
| * | 20685.00 | Average | V | - | - | -64.41 | 3.24 | -9.54 | 36.29 | 53.98 | -17.69 |
| * | 20685.00 | Peak | V | - | - | -56.70 | 3.24 | -9.54 | 44.00 | 73.98 | -29.98 |
| | 27580.00 | Peak | V | - | - | -55.63 | 5.11 | -9.54 | 46.94 | 68.20 | -21.26 |
| | 34475.00 | Peak | V | - | - | -57.01 | 7.75 | -9.54 | 48.20 | 68.20 | -20.00 |

**Table 7-44. Radiated Measurements MIMO (106 Tones)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6995MHz |
| Channel: | 209 |

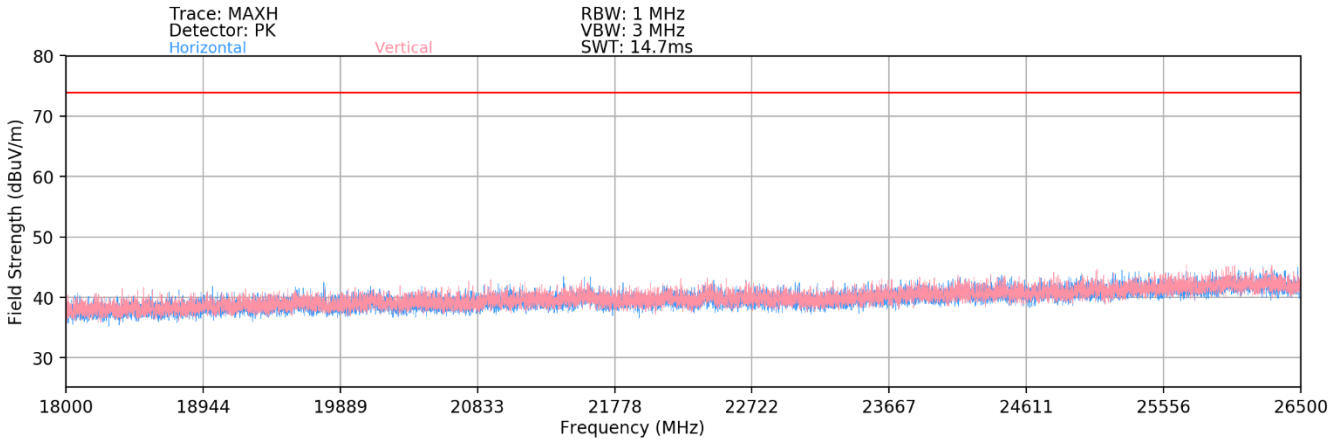
| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13990.00 | Peak | V | - | - | -72.77 | 26.49 | 0.00 | 60.72 | 68.20 | -7.48 |
| * | 20985.00 | Average | V | - | - | -64.28 | 3.52 | -9.54 | 36.70 | 53.98 | -17.28 |
| * | 20985.00 | Peak | V | - | - | -57.66 | 3.52 | -9.54 | 43.32 | 73.98 | -30.66 |
| | 27980.00 | Peak | V | - | - | -57.86 | 4.92 | -9.54 | 44.52 | 68.20 | -23.68 |
| | 34975.00 | Peak | V | - | - | -57.01 | 8.03 | -9.54 | 48.48 | 68.20 | -19.72 |

**Table 7-45. Radiated Measurements MIMO (106 Tones)**

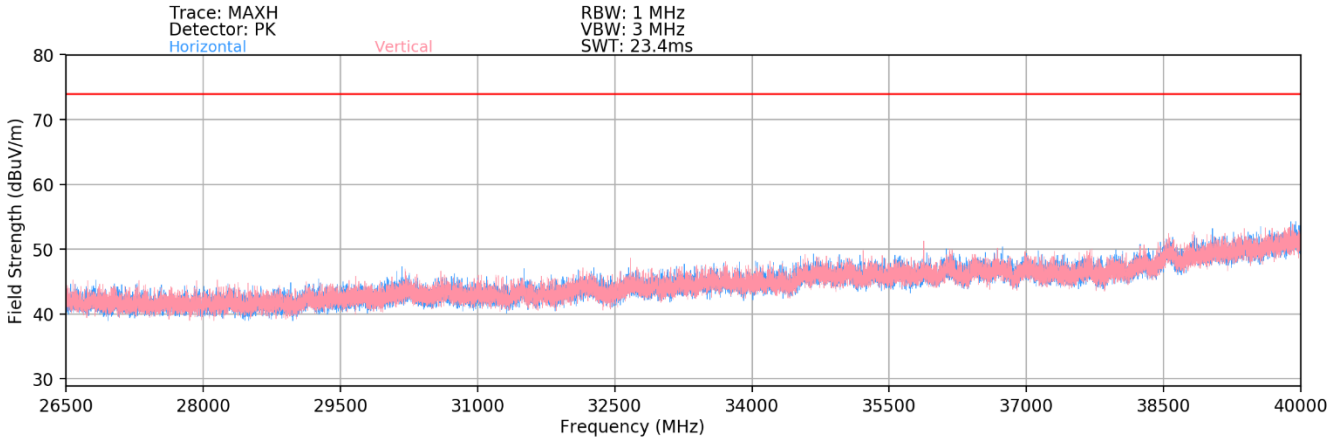
| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 54 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 7115MHz |
| Channel: | 233 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 14230.00 | Peak | V | - | - | -74.12 | 27.66 | 0.00 | 60.54 | 68.20 | -7.66 |
| * | 21345.00 | Average | V | - | - | -64.59 | 3.97 | -9.54 | 36.84 | 53.98 | -17.14 |
| * | 21345.00 | Peak | V | - | - | -57.71 | 3.97 | -9.54 | 43.72 | 73.98 | -30.26 |
| | 28460.00 | Peak | V | - | - | -56.91 | 5.18 | -9.54 | 45.73 | 68.20 | -22.47 |
| | 35575.00 | Peak | V | - | - | -56.66 | 7.82 | -9.54 | 48.62 | 68.20 | -19.58 |

**Table 7-46. Radiated Measurements MIMO (106 Tones)**

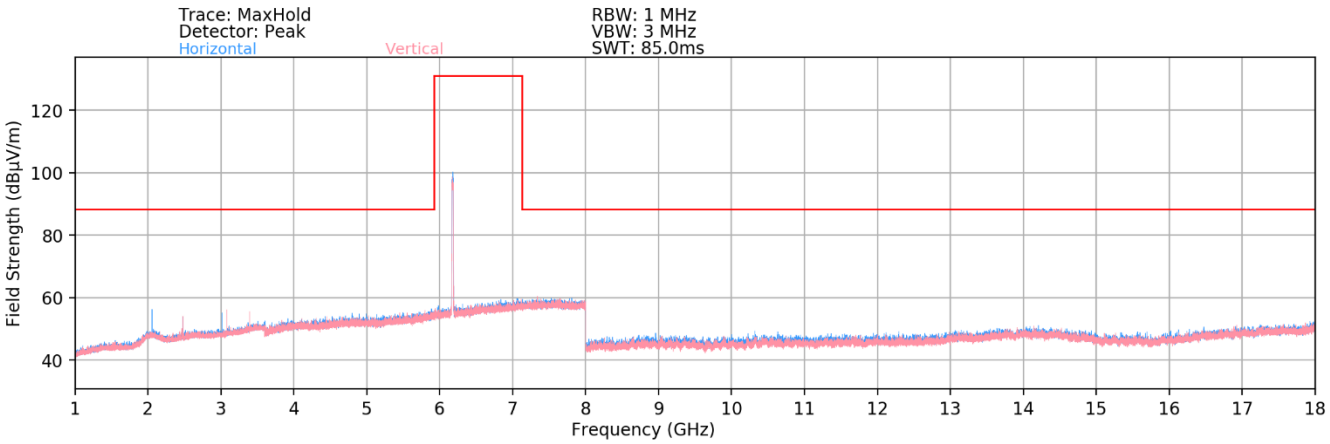



**Plot 7-477. Radiated Spurious Plot above 18GHz - 26.5GHz MIMO (802.11ax)**




**Plot 7-478. Radiated Spurious Plot 26.5GHz - 40GHz MIMO (802.11ax)**

## 7.7.2 MIMO Radiated Spurious Emission Measurements (242 Tones)




**Plot 7-479. Radiated Spurious Plot above 1GHz MIMO (802.11ax – UNII Band 5 – 20MHz – Ch.45)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 61 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 5935MHz |
| Channel: | 2 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 11910.00 | Average | V | - | - | -80.98 | 13.93 | 0.00 | 39.95 | 53.98 | -14.03 |
| * | 11910.00 | Peak | V | - | - | -69.53 | 13.93 | 0.00 | 51.40 | 73.98 | -22.58 |
| * | 17865.00 | Average | V | - | - | -83.51 | 18.26 | 0.00 | 41.75 | 53.98 | -12.23 |
| * | 17865.00 | Peak | V | - | - | -70.32 | 18.26 | 0.00 | 54.94 | 73.98 | -19.04 |
| * | 23820.00 | Average | V | - | - | -67.54 | 3.99 | -9.54 | 33.91 | 53.98 | -20.07 |
| * | 23820.00 | Peak | V | - | - | -58.01 | 3.99 | -9.54 | 43.44 | 73.98 | -30.54 |
| | 29775.00 | Peak | V | - | - | -58.03 | 6.33 | -9.54 | 45.76 | 68.20 | -22.44 |

**Table 7-47. Radiated Measurements MIMO (242 Tones)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 61 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6175MHz |
| Channel: | 45 |

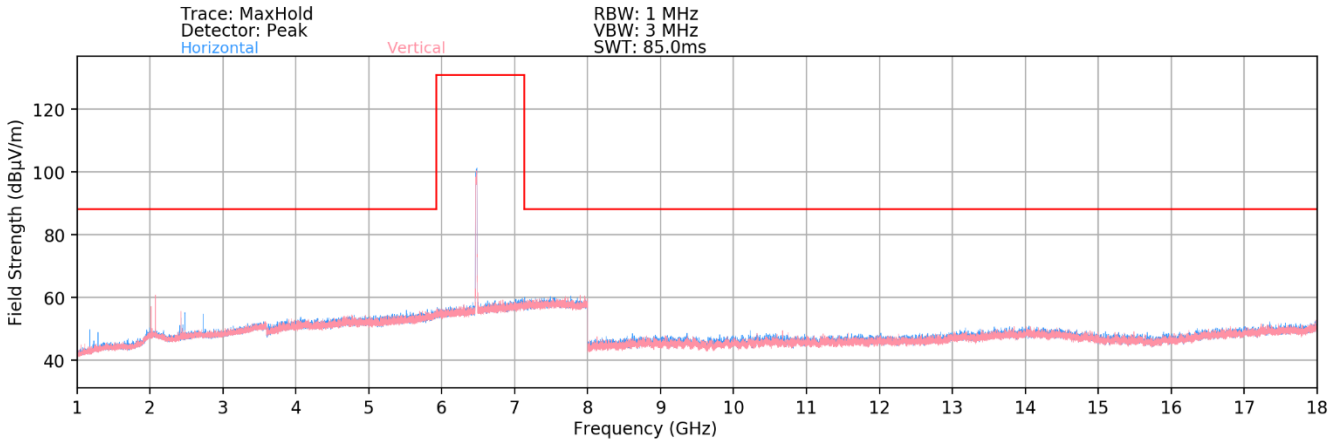
| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 12350.00 | Average | V | - | - | -81.40 | 13.85 | 0.00 | 39.45 | 53.98 | -14.53 |
| * | 12350.00 | Peak | V | - | - | -69.37 | 13.85 | 0.00 | 51.48 | 73.98 | -22.50 |
| * | 18525.00 | Average | V | - | - | -63.42 | 1.93 | -9.54 | 35.97 | 53.98 | -18.01 |
| * | 18525.00 | Peak | V | - | - | -56.11 | 1.93 | -9.54 | 43.28 | 73.98 | -30.70 |
| | 24700.00 | Peak | V | - | - | -56.64 | 4.39 | -9.54 | 45.21 | 68.20 | -22.99 |
| | 30875.00 | Peak | V | - | - | -58.01 | 6.89 | -9.54 | 46.34 | 68.20 | -21.86 |

**Table 7-48. Radiated Measurements MIMO (242 Tones)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 61 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6415MHz |
| Channel: | 93 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12830.00 | Peak | V | - | - | -69.08 | 14.78 | 0.00 | 52.70 | 68.20 | -15.50 |
| * | 19245.00 | Average | V | - | - | -65.11 | 2.30 | -9.54 | 34.65 | 53.98 | -19.33 |
| * | 19245.00 | Peak | V | - | - | -56.69 | 2.30 | -9.54 | 43.07 | 73.98 | -30.91 |
| | 25660.00 | Peak | V | - | - | -56.91 | 4.61 | -9.54 | 45.16 | 68.20 | -23.04 |
| | 32075.00 | Peak | V | - | - | -57.22 | 7.18 | -9.54 | 47.42 | 68.20 | -20.78 |

**Table 7-49. Radiated Measurements MIMO (242 Tones)**




**Plot 7-480. Radiated Spurious Plot above 1GHz MIMO (802.11ax– UNII Band 6 – 20MHz – Ch.105)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 61 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6435MHz |
| Channel: | 97 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12870.00 | Peak | V | - | - | -68.36 | 14.51 | 0.00 | 53.15 | 68.20 | -15.05 |
| * | 19305.00 | Average | V | - | - | -64.21 | 2.61 | -9.54 | 35.86 | 53.98 | -18.12 |
| * | 19305.00 | Peak | V | - | - | -64.03 | 2.61 | -9.54 | 36.04 | 73.98 | -37.94 |
| | 25740.00 | Peak | V | - | - | -56.88 | 4.71 | -9.54 | 45.29 | 68.20 | -22.91 |
| | 32175.00 | Peak | V | - | - | -58.22 | 7.21 | -9.54 | 46.45 | 68.20 | -21.75 |

**Table 7-50. Radiated Measurements MIMO (242 Tones)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 61 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6475MHz |
| Channel: | 105 |

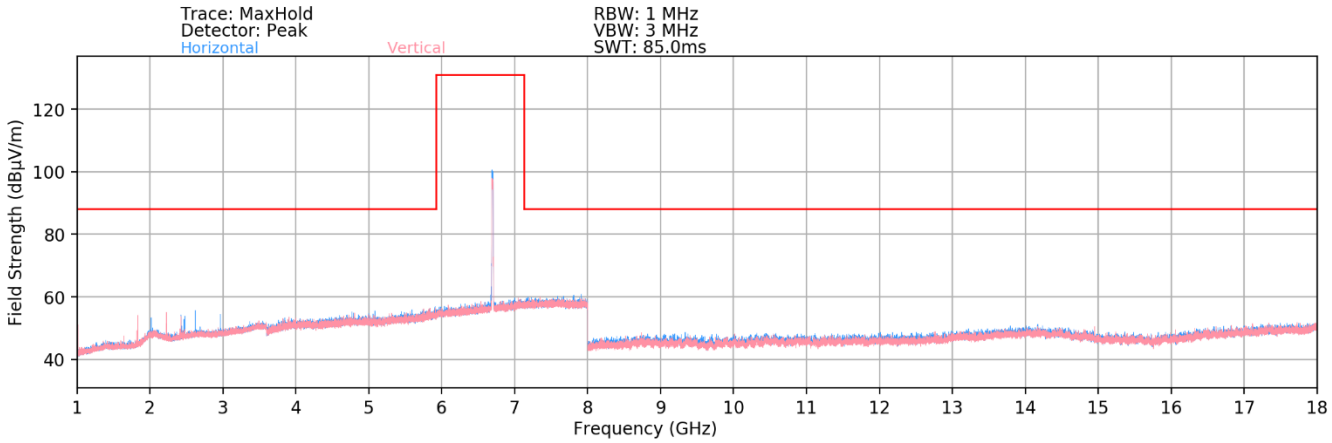
| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12950.00 | Peak | V | - | - | -69.01 | 14.59 | 0.00 | 52.58 | 68.20 | -15.62 |
| * | 19425.00 | Average | V | - | - | -64.21 | 2.67 | -9.54 | 35.92 | 53.98 | -18.06 |
| * | 19425.00 | Peak | V | - | - | -57.11 | 2.67 | -9.54 | 43.02 | 73.98 | -30.96 |
| | 25900.00 | Peak | V | - | - | -57.01 | 4.77 | -9.54 | 45.22 | 68.20 | -22.98 |
| | 32375.00 | Peak | V | - | - | -58.22 | 6.96 | -9.54 | 46.20 | 68.20 | -22.00 |

**Table 7-51. Radiated Measurements MIMO (242 Tones)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 61 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6515MHz |
| Channel: | 113 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13030.00 | Peak | V | - | - | -68.78 | 14.61 | 0.00 | 52.83 | 68.20 | -15.37 |
| * | 19545.00 | Average | V | - | - | -63.41 | 2.63 | -9.54 | 36.68 | 53.98 | -17.30 |
| * | 19545.00 | Peak | V | - | - | -56.22 | 2.63 | -9.54 | 43.87 | 73.98 | -30.11 |
| | 26060.00 | Peak | V | - | - | -57.28 | 4.83 | -9.54 | 45.01 | 68.20 | -23.19 |
| | 32575.00 | Peak | V | - | - | -57.01 | 6.80 | -9.54 | 47.25 | 68.20 | -20.95 |

**Table 7-52. Radiated Measurements MIMO (242 Tones)**




**Plot 7 314. Radiated Spurious Plot above 1GHz MIMO (802.11ax– UNII Band 7 – 20MHz – Ch.149)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 61 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6535MHz |
| Channel: | 117 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13070.00 | Peak | V | - | - | -75.99 | 24.74 | 0.00 | 55.75 | 68.20 | -12.45 |
| * | 19605.00 | Average | V | - | - | -64.19 | 2.75 | -9.54 | 36.02 | 53.98 | -17.96 |
| * | 19605.00 | Peak | V | - | - | -57.01 | 2.75 | -9.54 | 43.20 | 73.98 | -30.78 |
| | 26140.00 | Peak | V | - | - | -57.22 | 5.14 | -9.54 | 45.38 | 68.20 | -22.82 |
| | 32675.00 | Peak | V | - | - | -57.56 | 7.15 | -9.54 | 47.05 | 68.20 | -21.15 |

**Table 7-53. Radiated Measurements MIMO (242 Tones)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 61 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6695MHz |
| Channel: | 149 |

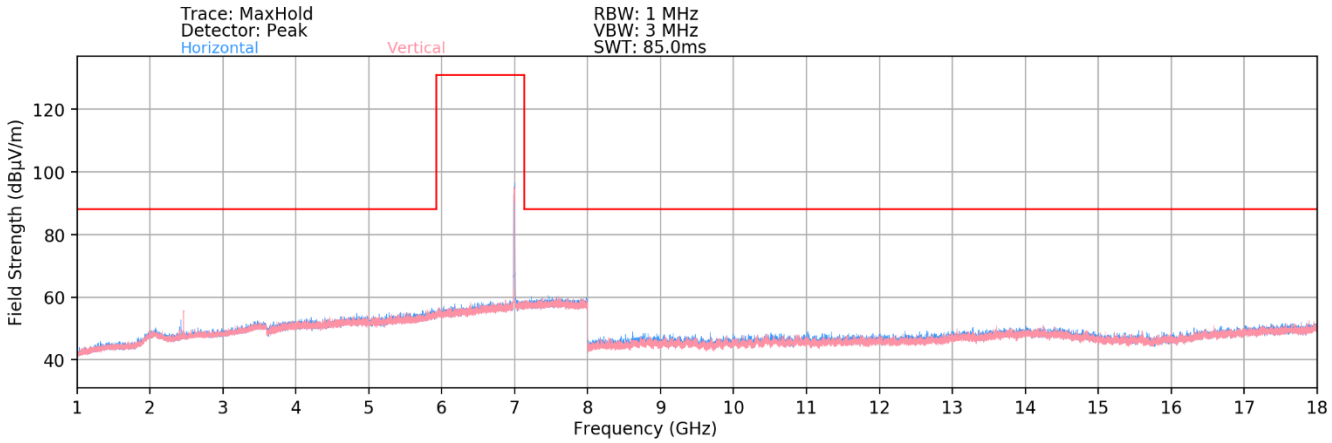
| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 13390.00 | Average | V | - | - | -86.69 | 25.62 | 0.00 | 45.93 | 53.98 | -8.05 |
| * | 13390.00 | Peak | V | - | - | -76.38 | 25.62 | 0.00 | 56.24 | 73.98 | -17.74 |
| * | 20085.00 | Average | V | - | - | -63.41 | 3.06 | -9.54 | 37.11 | 53.98 | -16.87 |
| * | 20085.00 | Peak | V | - | - | -63.81 | 3.06 | -9.54 | 36.71 | 73.98 | -37.27 |
| | 26780.00 | Peak | V | - | - | -57.01 | 5.33 | -9.54 | 45.78 | 68.20 | -22.42 |
| | 33475.00 | Peak | V | - | - | -57.22 | 7.51 | -9.54 | 47.75 | 68.20 | -20.45 |

**Table 7-54. Radiated Measurements MIMO (242 Tones)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 61 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6875MHz |
| Channel: | 185 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13750.00 | Peak | V | - | - | -75.99 | 26.03 | 0.00 | 57.04 | 68.20 | -11.16 |
| * | 20625.00 | Average | V | - | - | -65.01 | 3.32 | -9.54 | 35.77 | 53.98 | -18.21 |
| * | 20625.00 | Peak | V | - | - | -56.44 | 3.32 | -9.54 | 44.34 | 73.98 | -29.64 |
| | 27500.00 | Average | V | - | - | -57.32 | 4.97 | -9.54 | 45.11 | 68.20 | -23.09 |
| | 34375.00 | Peak | V | - | - | -58.01 | 7.82 | -9.54 | 47.27 | 68.20 | -20.93 |

**Table 7-55. Radiated Measurements MIMO (242 Tones)**




**Plot 7 314. Radiated Spurious Plot above 1GHz MIMO (802.11ax– UNII Band 8 – 20MHz – Ch.209)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 61 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6895MHz |
| Channel: | 189 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13790.00 | Peak | V | - | - | -74.63 | 26.18 | 0.00 | 58.55 | 68.20 | -9.65 |
| * | 20685.00 | Average | V | - | - | -64.41 | 3.24 | -9.54 | 36.29 | 53.98 | -17.69 |
| * | 20685.00 | Peak | V | - | - | -56.70 | 3.24 | -9.54 | 44.00 | 73.98 | -29.98 |
| | 27580.00 | Peak | V | - | - | -55.63 | 5.11 | -9.54 | 46.94 | 68.20 | -21.26 |
| | 34475.00 | Peak | V | - | - | -57.01 | 7.75 | -9.54 | 48.20 | 68.20 | -20.00 |

**Table 7-56. Radiated Measurements MIMO (242 Tones)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 6995MHz |
| Channel: | 209 |

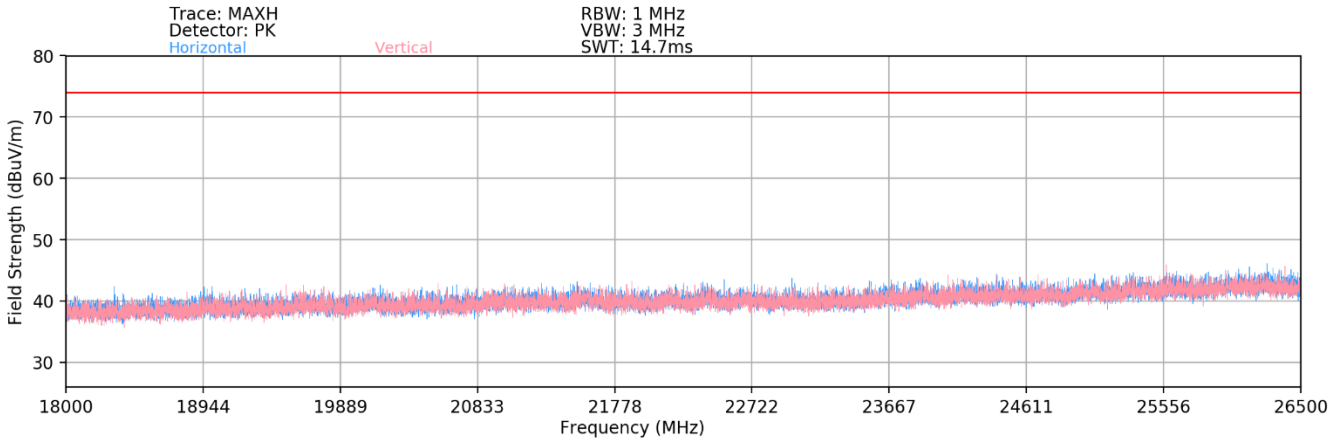
| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13990.00 | Peak | V | - | - | -73.01 | 26.49 | 0.00 | 60.48 | 68.20 | -7.72 |
| * | 20985.00 | Average | V | - | - | -64.28 | 3.52 | -9.54 | 36.70 | 53.98 | -17.28 |
| * | 20985.00 | Peak | V | - | - | -57.66 | 3.52 | -9.54 | 43.32 | 73.98 | -30.66 |
| | 27980.00 | Peak | V | - | - | -57.86 | 4.92 | -9.54 | 44.52 | 68.20 | -23.68 |
| | 34975.00 | Peak | V | - | - | -57.01 | 8.03 | -9.54 | 48.48 | 68.20 | -19.72 |

**Table 7-57. Radiated Measurements MIMO (242 Tones)**

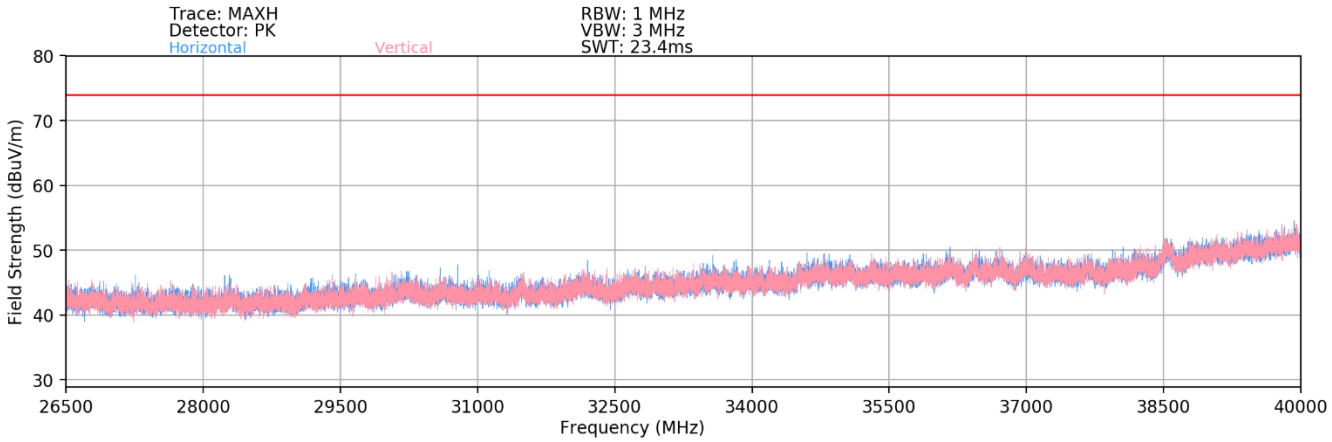
| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index: | 61 |
| Distance of Measurements: | 1 & 3 Meters |
| Operating Frequency: | 7115MHz |
| Channel: | 233 |

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 14230.00 | Peak | V | - | - | -72.86 | 27.66 | 0.00 | 61.80 | 68.20 | -6.40 |
| * | 21345.00 | Average | V | - | - | -64.59 | 3.97 | -9.54 | 36.84 | 53.98 | -17.14 |
| | 21345.00 | Peak | V | - | - | -57.71 | 3.97 | -9.54 | 43.72 | 73.98 | -30.26 |
| | 28460.00 | Peak | V | - | - | -56.91 | 5.18 | -9.54 | 45.73 | 68.20 | -22.47 |
| | 35575.00 | Peak | V | - | - | -56.66 | 7.82 | -9.54 | 48.62 | 68.20 | -19.58 |

**Table 7-58. Radiated Measurements MIMO (242 Tones)**




**Plot 7-481. Radiated Spurious Plot above 18GHz - 26.5GHz MIMO (802.11ax)**

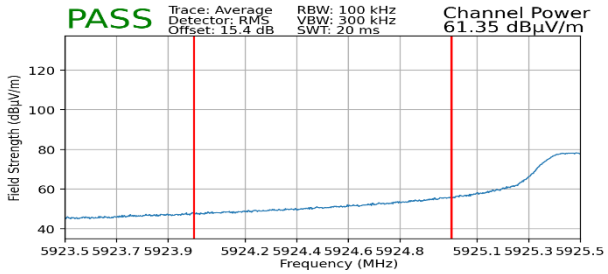



**Plot 7-482. Radiated Spurious Plot 26.5GHz - 40GHz MIMO (802.11ax)**

## 7.7.3 MIMO Radiated Band Edge Measurements (20MHz BW – Full Tone)

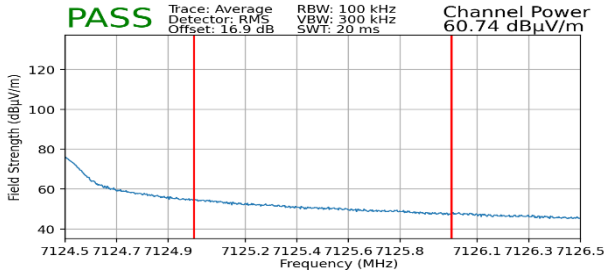
**§15.407(b.6) §15.205 §15.209**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index | 61 |
| Distance of Measurements: | 3 Meters |
| Operating Frequency: | 5935MHz |
| Channel: | 2 |




**Plot 7-483. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 5)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index | 61 |
| Distance of Measurements: | 3 Meters |
| Operating Frequency: | 7115MHz |
| Channel: | 233 |

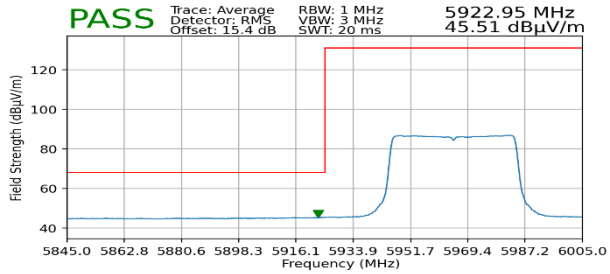



**Plot 7-484. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 8)**

## 7.7.4 MIMO Radiated Band Edge Measurements (40MHz BW – Full Tone)

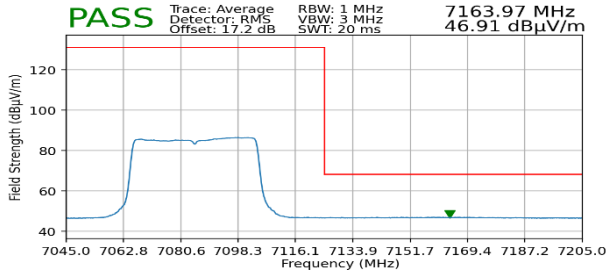
**§15.407(b.5) §15.205 §15.209**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index | 65 |
| Distance of Measurements: | 3 Meters |
| Operating Frequency: | 5965MHz |
| Channel: | 3 |




**Plot 7-485. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 5)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index | 65 |
| Distance of Measurements: | 3 Meters |
| Operating Frequency: | 7085MHz |
| Channel: | 227 |

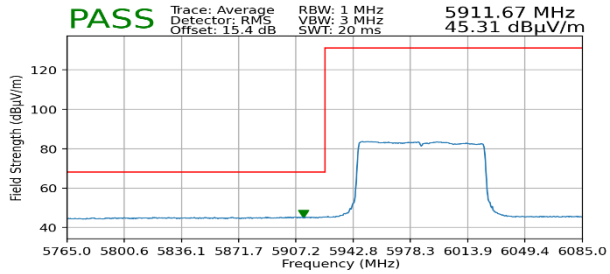



**Plot 7-486. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 8)**

## 7.7.5 MIMO Radiated Band Edge Measurements (80MHz BW Full Tone)

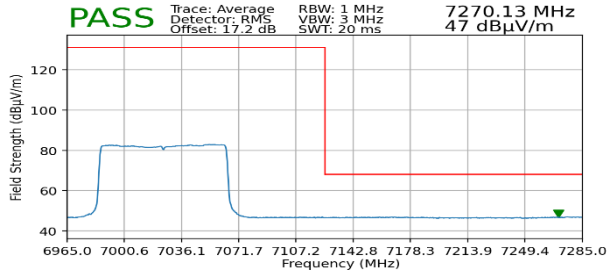
**§15.407(b.5) §15.205 §15.209**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index | 67 |
| Distance of Measurements: | 3 Meters |
| Operating Frequency: | 5985MHz |
| Channel: | 7 |




**Plot 7-487. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 5)**

| | |
|---|---|
| Worst Case Mode: | 802.11ax |
| Worst Case Transfer Rate: | MCS0 |
| RU Index | 67 |
| Distance of Measurements: | 3 Meters |
| Operating Frequency: | 7025MHz |
| Channel: | 215 |




**Plot 7-488. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 8)**

## 7.8 Radiated Spurious Emissions Measurements – Below 1GHz

**§15.209**

### Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

***All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFRmust not exceed the limits shown in Table 7-59 per Section 15.209.***

| Frequency | Field Strength [µV/m] | Measured Distance [Meters] |
|---|---|---|
| 0.009 – 0.490 MHz | 2400/F (kHz) | 300 |
| 0.490 – 1.705 MHz | 24000/F (kHz) | 30 |
| 1.705 – 30.00 MHz | 30 | 30 |
| 30.00 – 88.00 MHz | 100 | 3 |
| 88.00 – 216.0 MHz | 150 | 3 |
| 216.0 – 960.0 MHz | 200 | 3 |
| Above 960.0 MHz | 500 | 3 |

**Table 7-59. Radiated Limits**

### Test Procedures Used

ANSI C63.10-2013

### Test Settings

#### Quasi-Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 120kHz (for emissions from 30MHz – 1GHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

## Test Setup

The EUT and measurement equipment were set up as shown in the diagrams below.

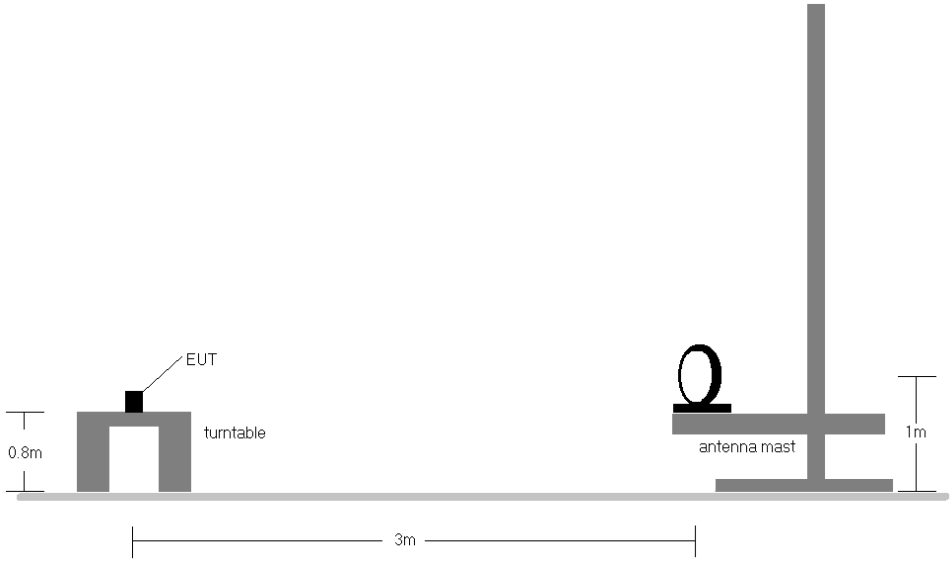



**Figure 7-7. Radiated Test Setup < 30MHz**

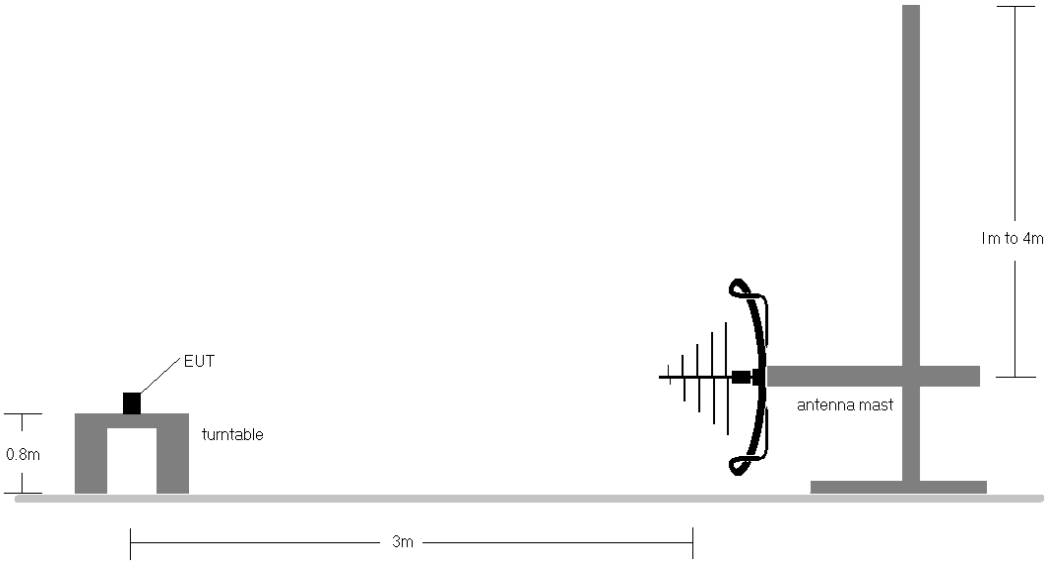


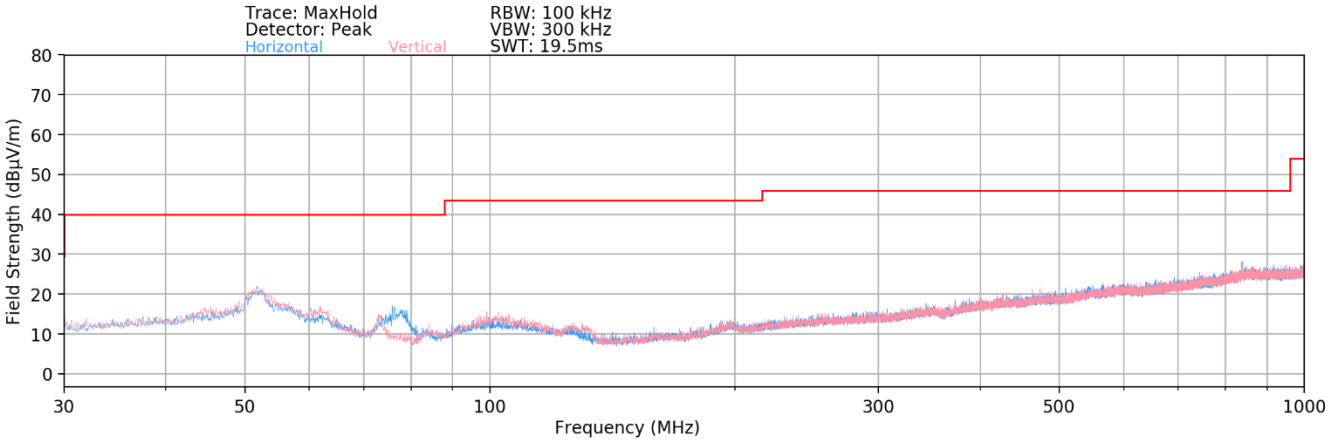

**Figure 7-8. Radiated Test Setup < 1GHz**

## Test Notes

1. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-59.
2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes.
3. This unit was tested with its standard battery.
4. The spectrum is investigated using a peak detector and final measurements are recorded using CISPR quasi peak detector. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
5. Emissions were measured at a 3 meter test distance.
6. Emissions are investigated while operating on the center channel of the mode, band, and modulation that produced the worst case results during the transmitter spurious emissions testing.
7. No spurious emissions were detected within 20dB of the limit below 30MHz.
8. The results recorded using the broadband antenna is known to correlate with the results obtained by using a tuned dipole with an acceptable degree of accuracy. The VSWR for the measurement antenna was found to be less than 2:1.
9. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. There were no emissions detected in the 30MHz – 1GHz frequency range, as shown in the subsequent plots.

## Radiated Spurious Emissions Measurements (Below 1GHz)

**§15.209**




**Plot 7-489. Radiated Spurious Plot below 1GHz**

| Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|
| 42.11 | Quasi-Peak | V | - | - | -96.35 | 26.09 | 36.74 | 40.00 | -3.26 |

**Table 7-60. Radiated Spurious Data below 1GHz**

# 8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMF936B** is in compliance with Part 15 Subpart E (15.407) of the FCC Rules for operation as a client device.