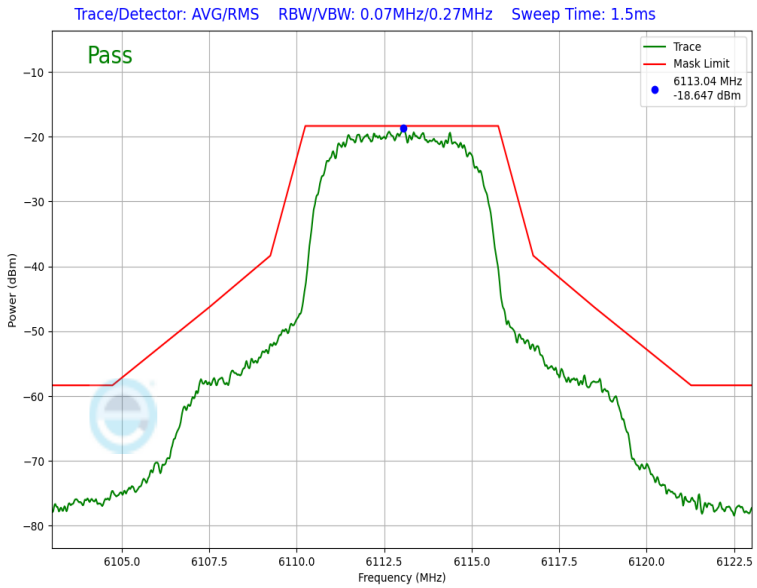
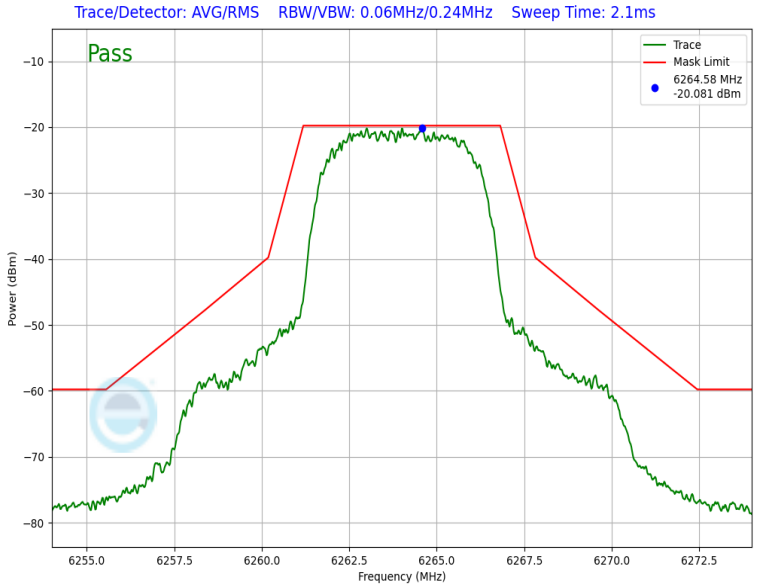
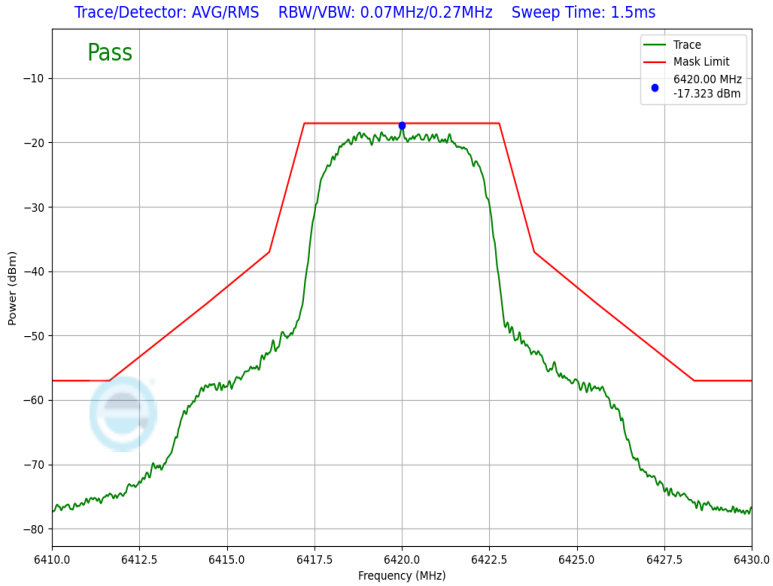



**Plot 7-61. In Band Emission Plot (NB UNII HDRp8 – 6108MHz)**




**Plot 7-62. In Band Emission Plot (NB UNII HDRp8 – 6264MHz)**




**Plot 7-63. In Band Emission Plot (NB UNII HDRp8 – 6420MHz)**

## 7.6 Contention Based Protocol

**§15.407(d.6); RSS-248 [4.7]**

**Test Overview and Limit**

Indoor access points, subordinate devices and client devices operating in the 5.925 – 7.125 GHz band (herein referred to as unlicensed devices) are required to use technologies that include a contention-based protocol to avoid co-channel interference with incumbent devices sharing the band. To ensure incumbent co-channel operations are detected in a technology-agnostic manner, unlicensed devices are required to detect co-channel radio frequency energy (energy detect) and avoid simultaneous transmission.

***Unlicensed indoor low-power devices must detect co-channel radio frequency power that is at least -62 dBm or lower. Upon detection of energy in the band, unlicensed low power indoor devices must vacate the channel and stay off the channel as long as detected radio frequency power is equal to or greater than the threshold (-62 dBm). The -62 dBm (or lower) threshold is referenced to a 0 dBi antenna gain.***

***To ensure incumbent operations are reliably detected in the band, low power indoor devices must detect RF energy throughout their intended operating channel.***

**Test Procedure Used**

KDB 987594 D02 v03 – Section I

**Test Settings**

1. Configure the EUT to transmit with a constant duty cycle.
2. Set the operating parameters of the EUT including power level, operating frequency, modulation and bandwidth
3. Set the signal analyzer center frequency to the nominal EUT channel center frequency. The span range of the signal analyzer shall be between two times and five times the OBW of the EUT.
4. Connect the output port of the EUT to the signal analyzer 2, as shown in Figure 2. Ensure that the attenuator 2 provides enough attenuation to not overload the signal analyzer 2 receiver.
5. Monitoring the signal analyzer 2, verify the EUT is operating and transmitting with the parameters set at step two.
6. Using an AWGN signal source, generate (but do not transmit, i.e., RF OFF) a 10 MHz-wide AWGN signal. Use Table 1 to determine the center frequency of the 10 MHz AWGN signal relative to the EUT's channel bandwidth and center frequency.
7. Set the AWGN signal power to an extremely low level (more than 20 dB below the -62 dBm threshold). Connect the AWGN signal source, via a 3-dB splitter, to the signal analyzer 1 and the EUT as shown in Figure 2.
8. Transmit the AWGN signal (RF ON) and verify its characteristics on the signal analyzer 1.
9. Monitor the signal analyzer 2 to verify if the AWGN signal has been detected and the EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.
10. Including all losses in the RF paths) Determine and record the AWGN signal power level (at the EUT's antenna port) at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect an AWGN signal with 90% (or better) level of certainty.
11. Refer to Table 1 to determine number of times the detection threshold testing needs to be repeated. If testing is required more than once, then go back to step 5, choose a different center frequency for the AWGN signal and repeat the process.

## Test Setup

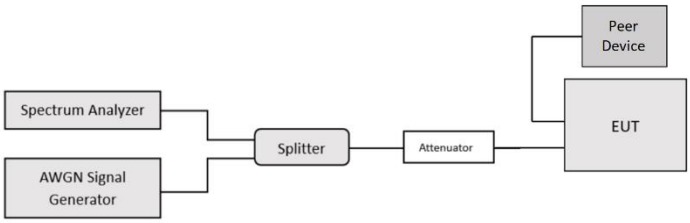



**Figure 7-5. Contention-based protocol test setup, conducted method**

## Test Notes

1. Peer devices used was model: A3416 (refer to Table 2.4)
2. Per guidance from KDB 987594 D02 v03, contention-based protocol was tested using an AWGN signal with a bandwidth of 10MHz. The amplitude of the signal was increased until detected by the EUT, signaled by the ceasing of transmission, marker indicates the point at which the AWGN signal is introduced.
3. Per KDB 987594 D04 v03, contention-based protocol was tested with receiver with the lowest antenna gain.
4. 15 trials were ran in order to assure that at least 90% of certainty was met.
5. Per manufacturer's declaration, after establishing communication between the EUT and the peer device, NB UNII HDR is used to maintain communication and traffic. NB UNII BDR and NB UNII LE are used for establishing the initial connection with the peer device.
6. EUT does not support channel puncturing

Detection Level = Injected AWGN Power (dBm) – Antenna Gain (dBi) + Path Loss (dB)

**Equation 7-1. Incumbent Detection Level Calculation**

| Band | Incumbent Frequency [MHz] | Injected (AWGN) [dBm] | Antenna Gain [dBi] | Adjusted Power Level [dBm] | Detection Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|
| UNII Band 5 | 6350 | -69.10 | -5.59 | -63.51 | -62.0 | -1.51 |

**Table 7-5. Contention Based Protocol – Incumbent Detection Results**

| Band | EUT Transmission Status | | |
|---|---|---|---|
| | Adjusted AWGN Power (dBm) | | |
| | Normal | Minimal | Ceased |
| UNII Band 5 | -74.69 | -64.76 | -63.51 |

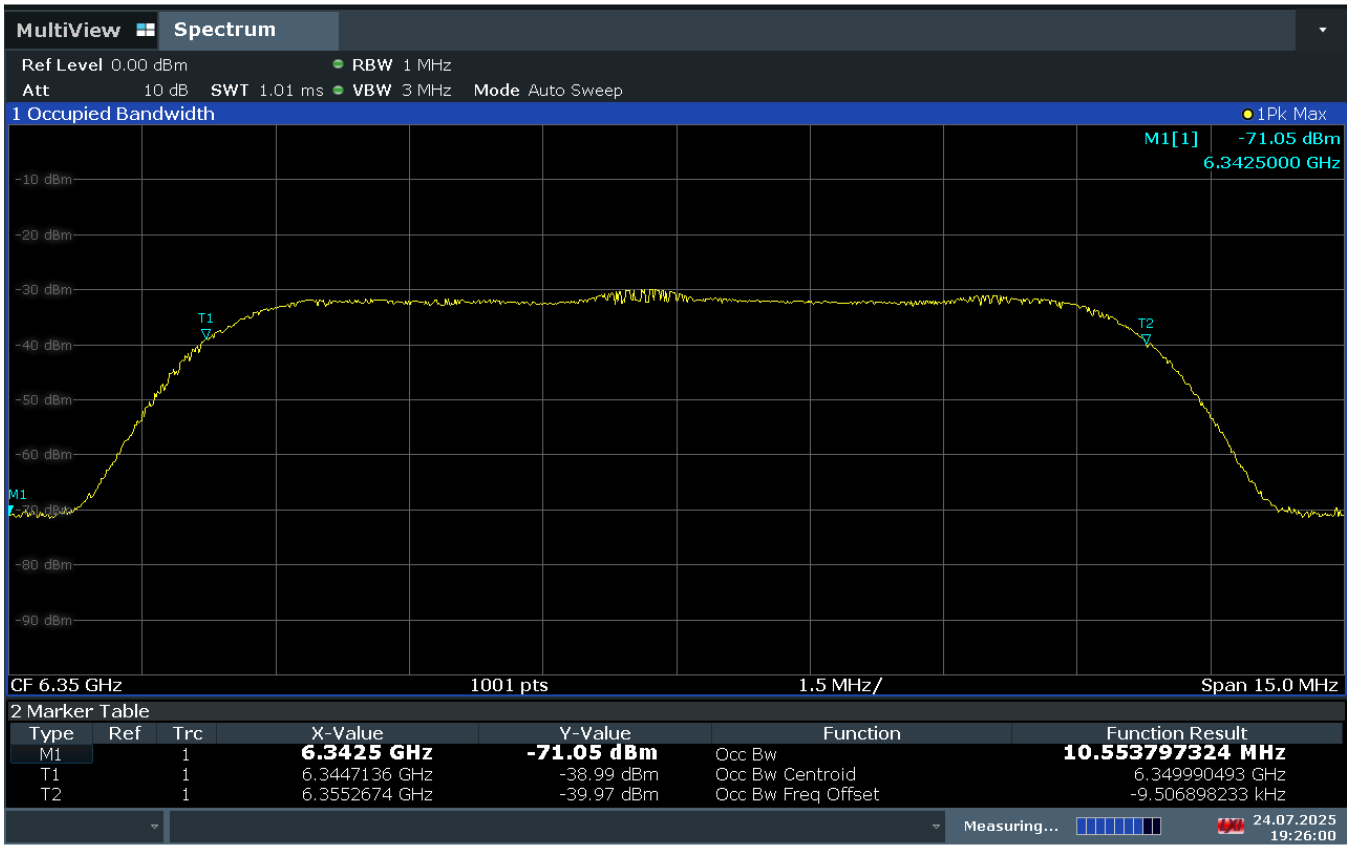
**Table 7-6. Contention Based Protocol – Detection Results**

| CBP Detection (1 = Detection, Blank = No Detection) | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Band | Trail 1 | Trail 2 | Trail 3 | Trail 4 | Trail 5 | Trail 6 | Trail 7 | Trail 8 | Trail 9 | Trail 10 | Trail 11 | Trail 12 | Trail 13 | Trail 14 | Trail 15 | Detection Rate [%] | Limit [%] | Pass/Fail |
| UNII Band 5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 100.0 | 90 | Pass |

**Table 7-7. Contention Based Protocol – Incumbent Detection Trials**

## AWGN Plots

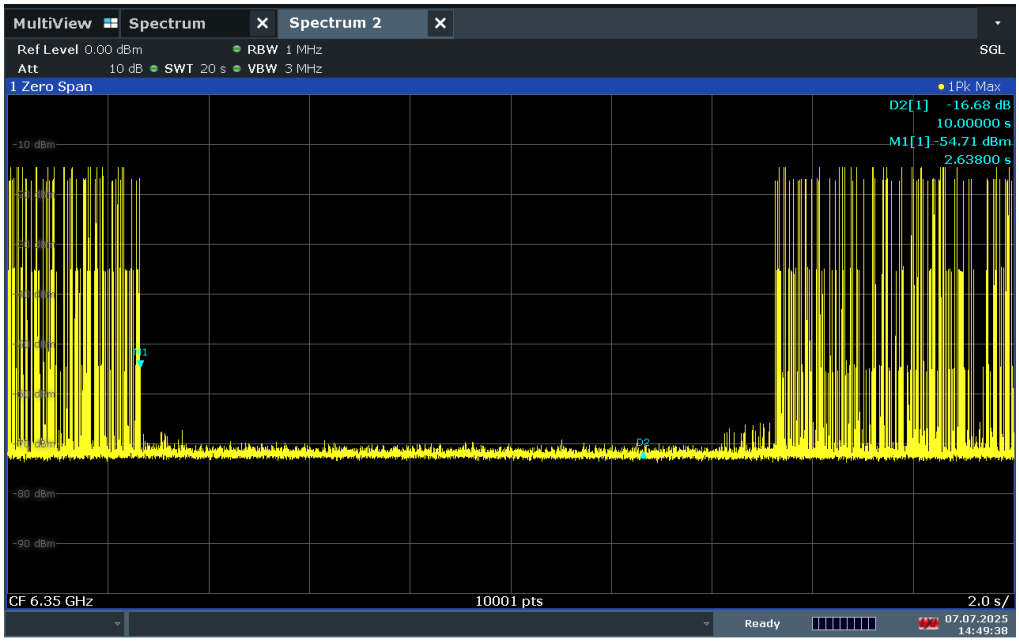
**Peak**




**19:26:01 24.07.2025**

**Plot 7-64. AWGN Signal**

## Contention-Based Protocol Timing Plots



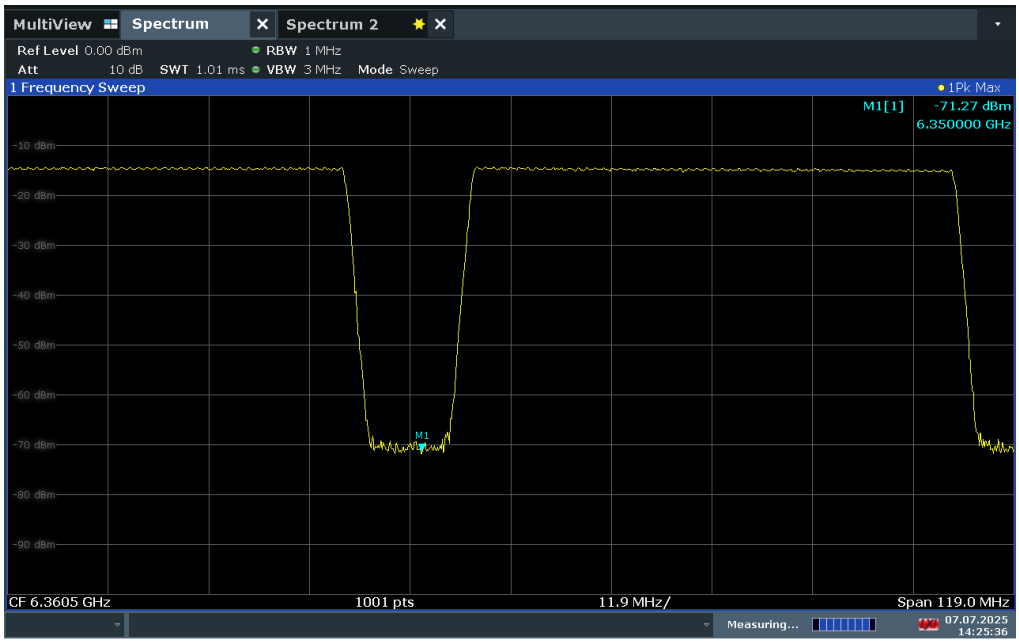

19:49:39 07.07.2025

**Plot 7-65. CBP Timing Plot**

## Bandwidth Reduction Plots


14:23:59 07.07.2025

**Plot 7-66. Before AWGN Signal Injected**




14:25:37 07.07.2025

**Plot 7-67. After AWGN Signal Injected at 6140MHz**

## 7.7 Transmit Power Control (TPC)

**§15.407(d.10); RSS-248 [4.6]**

**Test Overview and Limit**

Very low power devices operating in the 5.925-7.125 GHz bands shall employ a transmit power control (TPC) mechanism. A very low power device is required to have the capability to operate at least 6 dB below the maximum EIRP power spectral density (PSD) value of −5 dBm/MHz.

**Test Procedure Used**

ANSI C63.10-2020 – Section 12.4.2.7
KDB 789033 D02 v02r01 – Section F

**Test Settings**

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 99% OBW of the signal
3. RBW = 1MHz
4. VBW ≥ 1 / *T*, (*T* refers to the minimum transmissions duration over which the transmitter is on)
5. Number of sweep points > 2 x (span/RBW)
6. Sweep time = No faster than couples (auto) time
7. Detector = peak
8. Trace mode = max hold
9. Trigger was set to free run for all modes
10. Compute power by integrating the spectrum across the 99 %OBW of the signal using the instrument's band-power measurement function with band limits set equal to the OBW band-edges.

**Test Setup**

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

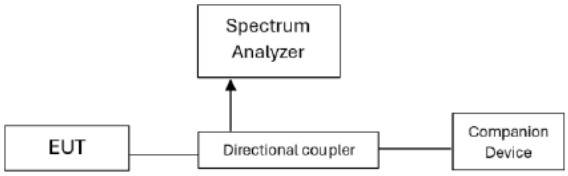



**Figure 7-6. Test Instrument & Measurement Setup**

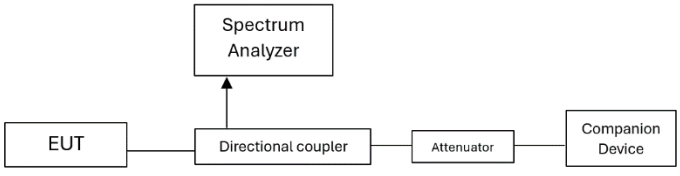



**Figure 7-7. Test Instrument & Measurement Setup (With Attenuation)**

This test demonstrates the ability of the device to increase and decrease power by the required 6dB as the RSSI is decreased and increased.

1. Configure EUT and companion device for peer-to-peer communication as shown in Figure 7-6. (no attenuation for noise free spectral environment, high RSSI simulation)
2. Establish a link and start communication between EUT and companion device
3. Capture PSD spectrum analyzer
4. Add a 20dB attenuator to the setup as shown in Figure 7-7 (noisy spectral environment, low RSSI simulation)
5. Capture PSD spectrum analyzer
6. Compare the highest PSD captured in step 3 to the highest PSD on step 5 and determine the delta.

**Test Notes**

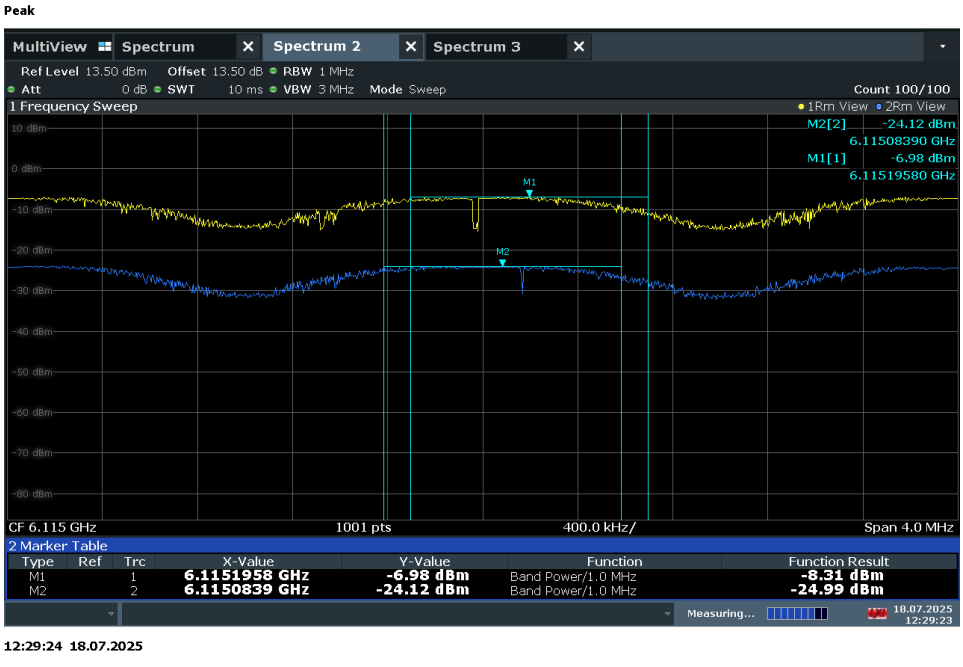
1. Companion device used was model: A2117 (refer to Table 2.4)
2. Per manufacturer's declaration, after establishing communication between the EUT and the companion device, NB UNII HDR is used to maintain communication and traffic. NB UNII BDR and NB UNII LE are used for establishing the initial connection with the companion device.
3. TPC is triggered when a high RSSI is detected. As RSSI detected signal decreases, the transmitters output power will increase back to maximum allowed power.

| Frequency [MHz] | Measured Power Density [dBm/MHz] | Antenna Gain [dBi] | e.i.r.p. Power Density [dBm/MHz] | e.i.r.p. Power Density Limit [dBm/MHz] | Pass/Fail |
|---|---|---|---|---|---|
| 6115 | -8.31 | -1.67 | -9.98 | -5.00 | Pass |
| 6236 | -7.96 | -2.03 | -9.99 | -5.00 | Pass |
| 6337 | -7.59 | -3.15 | -10.74 | -5.00 | Pass |

**Table 7-8. PSD Measurements (no TPC)**

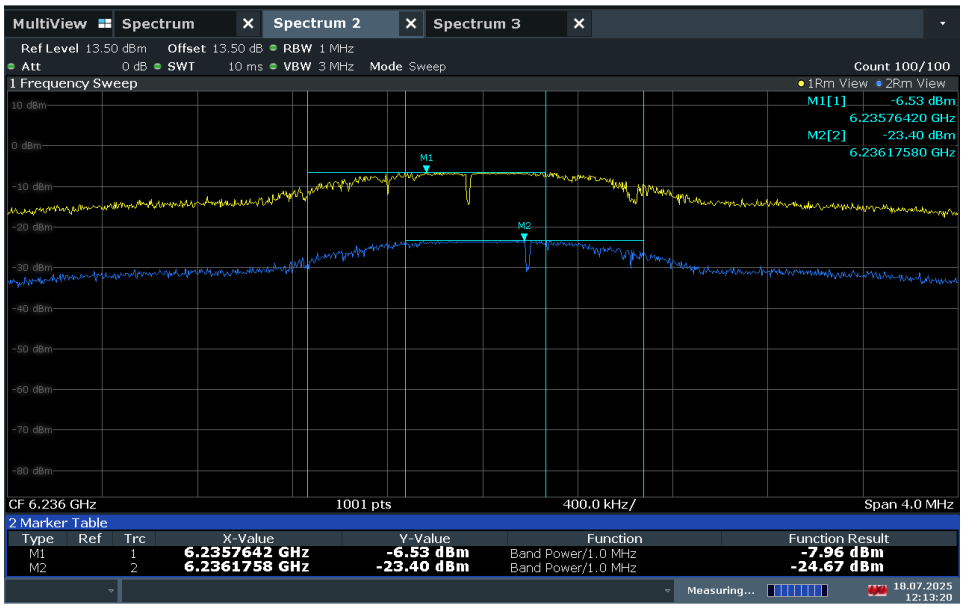
| Frequency [MHz] | Summed Power Density [dBm/MHz] | Antenna Gain [dBi] | e.i.r.p. Power Density [dBm/MHz] | e.i.r.p. Power Density Limit [dBm/MHz] | Pass/Fail |
|---|---|---|---|---|---|
| 6115 | -24.99 | -1.67 | -26.66 | -11.00 | Pass |
| 6236 | -24.67 | -2.03 | -26.70 | -11.00 | Pass |
| 6337 | -20.39 | -3.15 | -23.54 | -11.00 | Pass |

**Table 7-9. PSD Measurements (with TPC)**




**Plot 7-68. Power Spectral Density Plot (NB UNII BDR, 6115MHz)**

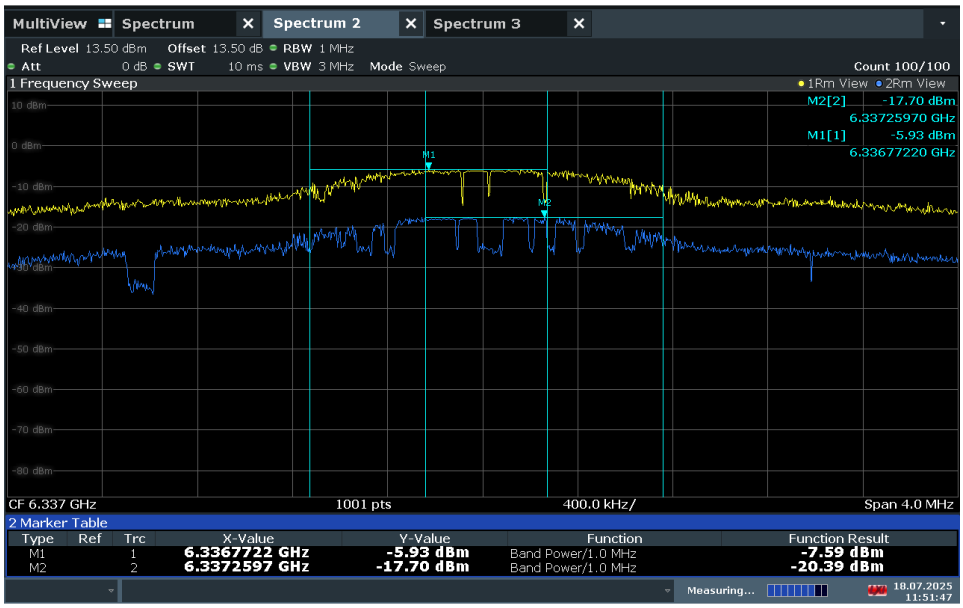
Peak




12:13:20 18.07.2025

**Plot 7-69. Power Spectral Density Plot (NB UNII BDR, 6236MHz)**

Peak




11:51:47 18.07.2025

**Plot 7-70. Power Spectral Density Plot (NB UNII BDR, 6377MHz)**

## 7.8 Radiated Spurious Emission – Above 1GHz

**§15.407(b) §15.205 §15.209; RS-Gen [8.9], RSS-248 [4.6.2]**

### 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 C63.10-2020 and KDB 789033 D02 v02r01, and at the appropriate frequencies. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

***For transmitters operating in the 5.925-7.125 GHz band: All emissions outside of the 5.925-7.125 GHz band shall not exceed an EIRP of −27 dBm/MHz. Emissions found in a restricted band are subject to the limits of 15.209 and RSS-Gen (8.9) as shown in the table below.***

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

**Table 7-10. Radiated Limits**

### Test Procedures Used

ANSI C63.10-2020 – Sections 12.7.7, 12.7.6
KDB 789033 D02 v02r01 – Section G

### Test Settings

#### Average Field Strength Measurements

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 Field Strength Measurements

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

## Test Setup

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

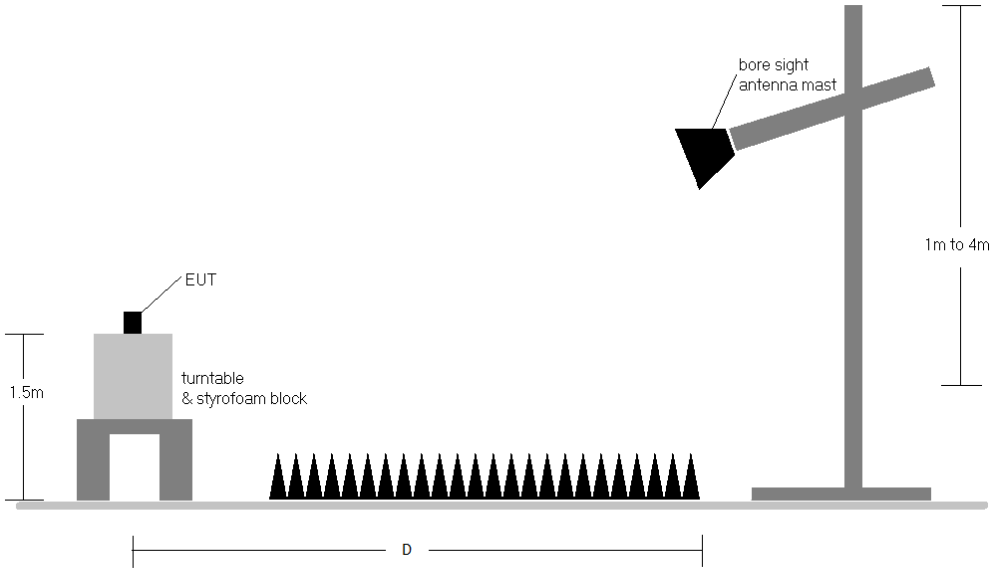



**Figure 7-8. Test Instrument & Measurement Setup**

## Test Notes

1. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 and section 8.10 of RSS-Gen are below the limit shown in Table 7-10.
2. All spurious emissions lying in restricted bands specified in §15.205 and section 8.10 of RSS-Gen are below the limit shown in Table 7-10. All spurious emissions that do not lie in a restricted band are subject to a 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. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. This unit was tested with its standard battery.
5. 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.
6. D is the measurement test distance and emissions 1-18GHz were measured at a 3 meters test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
7. The "-" shown in the following RSE tables are used to denote a noise floor measurement.
8. All supported modulation have been tested on the unit and only worst case configuration is reported.

## Sample Calculations

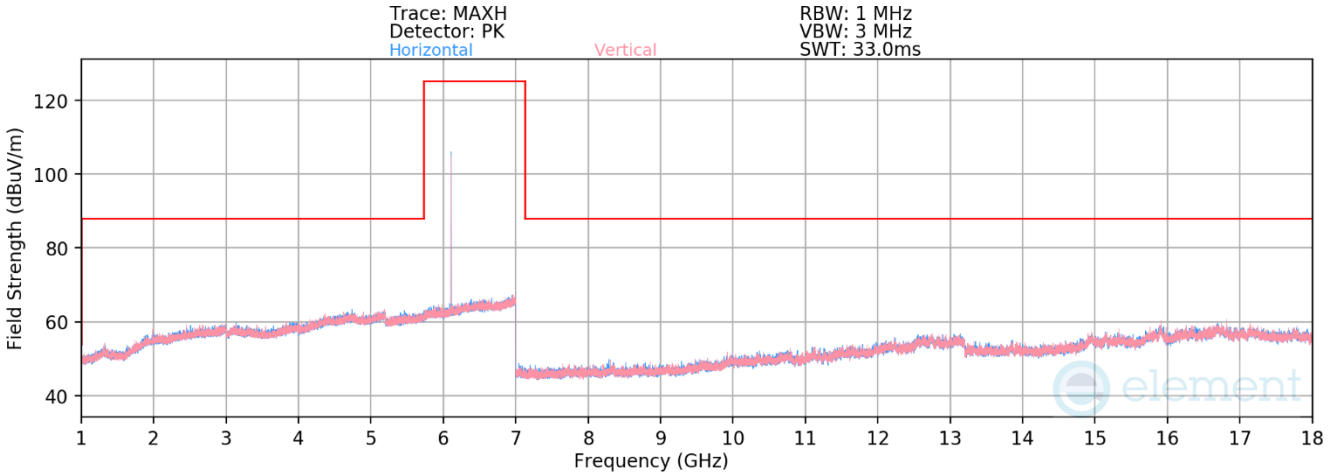
### Determining Spurious Emissions Levels

- Field Strength Level $_{[dB\mu V/m]}$ = Analyzer Level $_{[dBm]}$ + 107 + AFCL $_{[dB/m]}$
- AFCL $_{[dB/m]}$ = Antenna Factor $_{[dB/m]}$ + Cable Loss $_{[dB]}$ – Preamplifier Gain $_{[dB]}$
- 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 in Section 7.8.2 was calculated using the formula:
  Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

## 7.8.1 Radiated Spurious Emission (Above 1GHz)

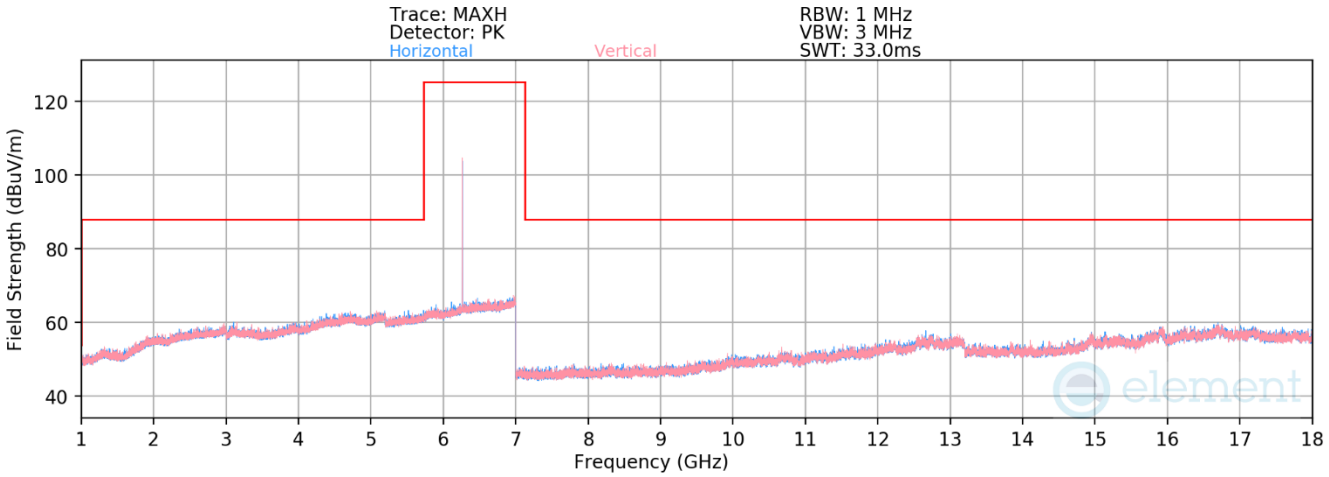



**Plot 7-71. Radiated Spurious Emissions 1-18GHz (NB UNII BDR – 6108MHz)**

| | |
|---|---|
| Mode: | NB UNII BDR |
| Data Rate: | 1Mbps |
| Distance of Measurements: | 3 Meters |
| Operating Frequency: | 6108MHz |

| | 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] |
|---|---|---|---|---|---|---|---|---|---|---|
| * | 12216.00 | Avg | V | - | - | -82.78 | 19.16 | 43.39 | 53.98 | -10.59 |
| * | 12216.00 | Peak | V | - | - | -72.33 | 19.16 | 53.83 | 73.98 | -20.15 |

**Table 7-11. Radiated Spurious Emissions Measurements**

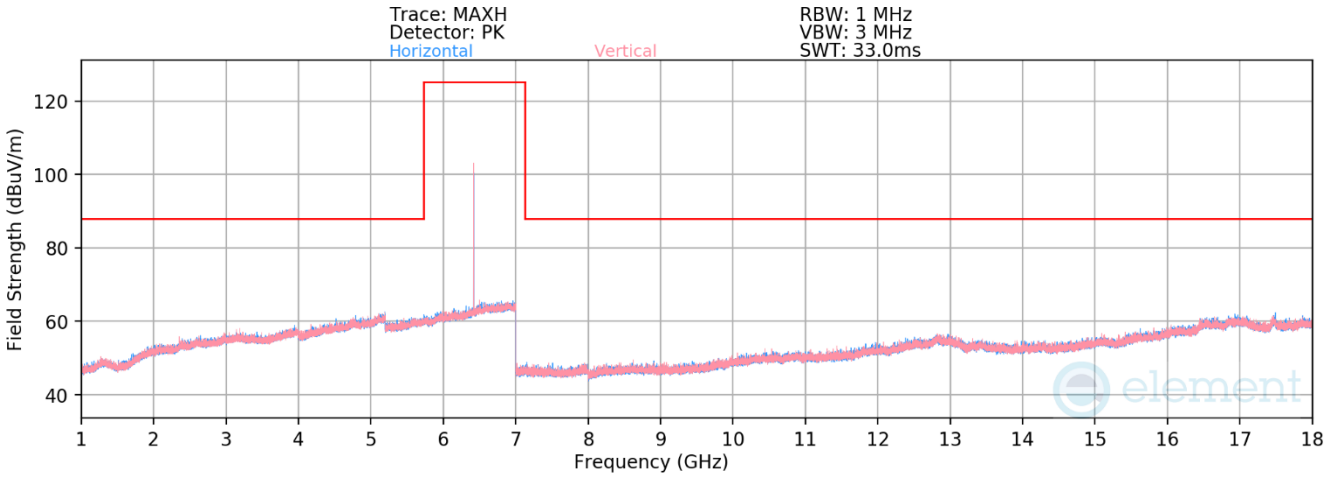



**Plot 7-72. Radiated Spurious Emissions 1-18GHz (NB UNII BDR – 6264MHz)**

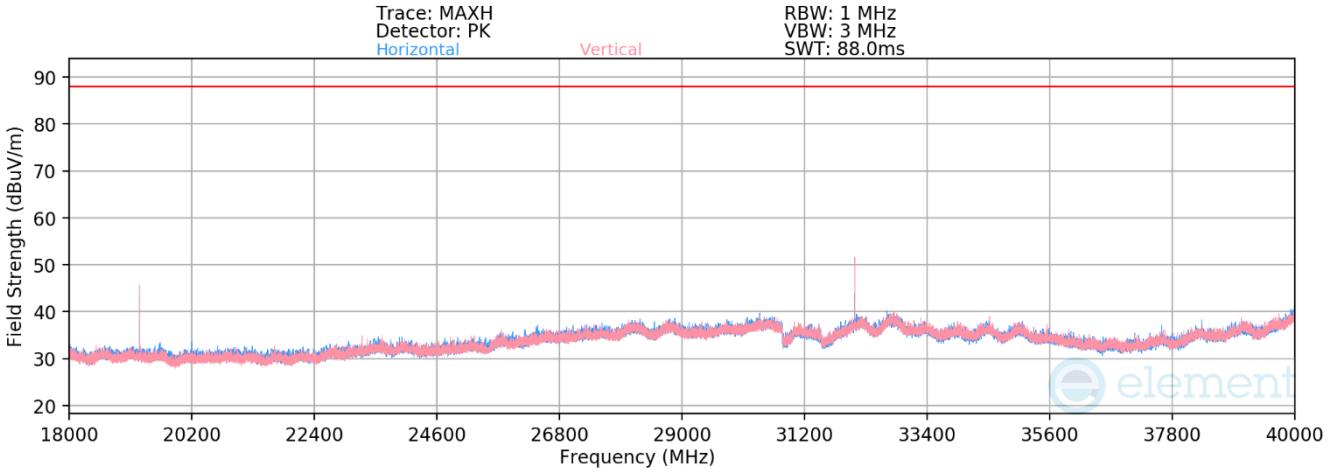
| | |
|---|---|
| Mode: | NB UNII BDR |
| Data Rate: | 1Mbps |
| Distance of Measurements: | 3 Meters |
| Operating Frequency: | 6264MHz |

| | 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] |
|---|---|---|---|---|---|---|---|---|---|---|
| * | 12528.00 | Avg | V | - | - | -83.21 | 19.50 | 43.29 | 53.98 | -10.69 |
| * | 12528.00 | Peak | V | - | - | -71.85 | 19.50 | 54.65 | 73.98 | -19.33 |

**Table 7-12. Radiated Spurious Emissions Measurements**




**Plot 7-73. Radiated Spurious Emissions 1-18GHz (NB UNII BDR – 6420MHz)**

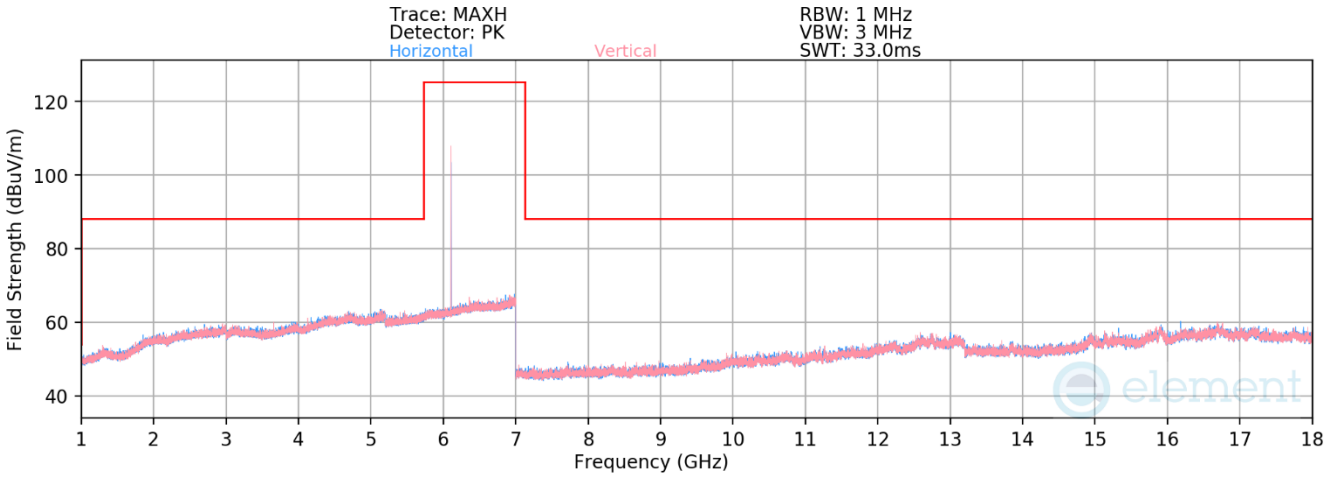



**Plot 7-74. Radiated Spurious Emissions 18-40GHz (NB UNII BDR– 6420MHz)**

Mode: NB UNII BDR
Data Rate: 1Mbps
Distance of Measurements: 3 Meters
Operating Frequency: 6420MHz

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Duty Cycle Correction [dB] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12840.00 | Avg | V | - | - | -85.42 | 22.53 | 1.18 | 0.00 | 45.29 | 68.23 | -22.94 |
| | 12840.00 | Peak | V | - | - | -74.50 | 22.53 | 0.00 | 0.00 | 55.03 | 88.23 | -33.20 |
| * | 19260.00 | Avg | V | 150 | 123 | -45.43 | -5.73 | 1.17 | -9.54 | 47.47 | 53.98 | -6.51 |
| * | 19260.00 | Peak | V | 150 | 123 | -39.89 | -5.73 | 0.00 | -9.54 | 51.84 | 73.98 | -22.14 |
| | 25680.00 | Avg | V | 150 | 225 | -61.18 | -5.89 | 1.17 | -9.54 | 31.56 | 68.23 | -36.67 |
| | 25680.00 | Peak | V | 150 | 225 | -50.49 | -5.89 | 0.00 | -9.54 | 41.08 | 88.23 | -47.15 |
| | 32100.00 | Avg | V | 150 | 262 | -46.65 | -2.73 | 1.17 | -9.54 | 49.25 | 68.23 | -18.98 |
| | 32100.00 | Peak | V | 150 | 262 | -40.74 | -2.73 | 0.00 | -9.54 | 53.99 | 88.23 | -34.24 |
| | 38520.00 | Avg | V | 150 | 106 | -59.33 | -4.96 | 0.00 | -9.54 | 33.17 | 68.23 | -35.06 |
| | 38520.00 | Peak | V | 150 | 106 | -49.15 | -4.96 | 0.00 | -9.54 | 43.35 | 88.23 | -44.88 |

**Table 7-13. Radiated Spurious Emissions Measurements**

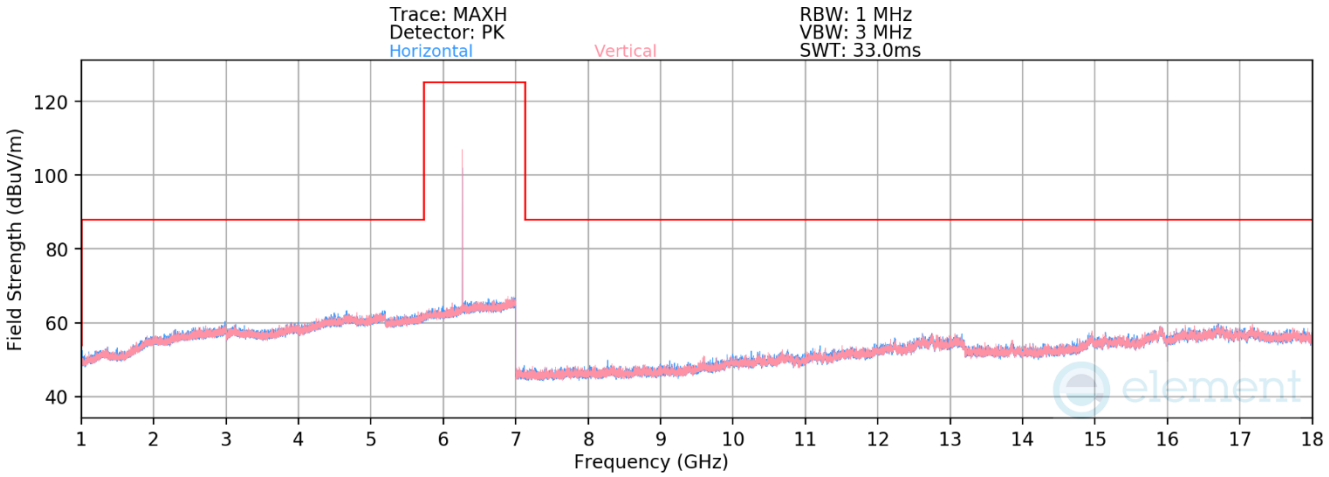



**Plot 7-75. Radiated Spurious Emissions 1-18GHz (NB UNII LE1M – 6108MHz)**

| | |
|---|---|
| Mode: | NB UNII LE |
| Data Rate: | 1Mbps |
| Distance of Measurements: | 3 Meters |
| Operating Frequency: | 6108MHz |

| | 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] |
|---|---|---|---|---|---|---|---|---|---|---|
| * | 12216.00 | Avg | V | - | - | -82.82 | 19.16 | 43.35 | 53.98 | -10.63 |
| * | 12216.00 | Peak | V | - | - | -71.38 | 19.16 | 54.78 | 73.98 | -19.20 |

**Table 7-14. Radiated Spurious Emissions Measurements**

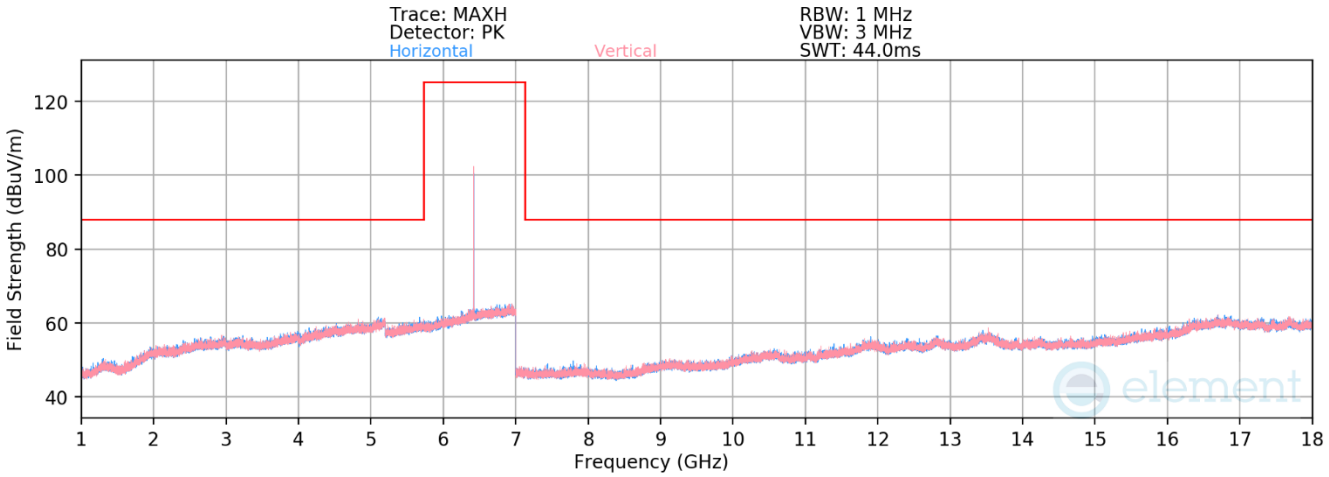



**Plot 7-76. Radiated Spurious Emissions 1-18GHz (NB UNII LE1M – 6264MHz)**

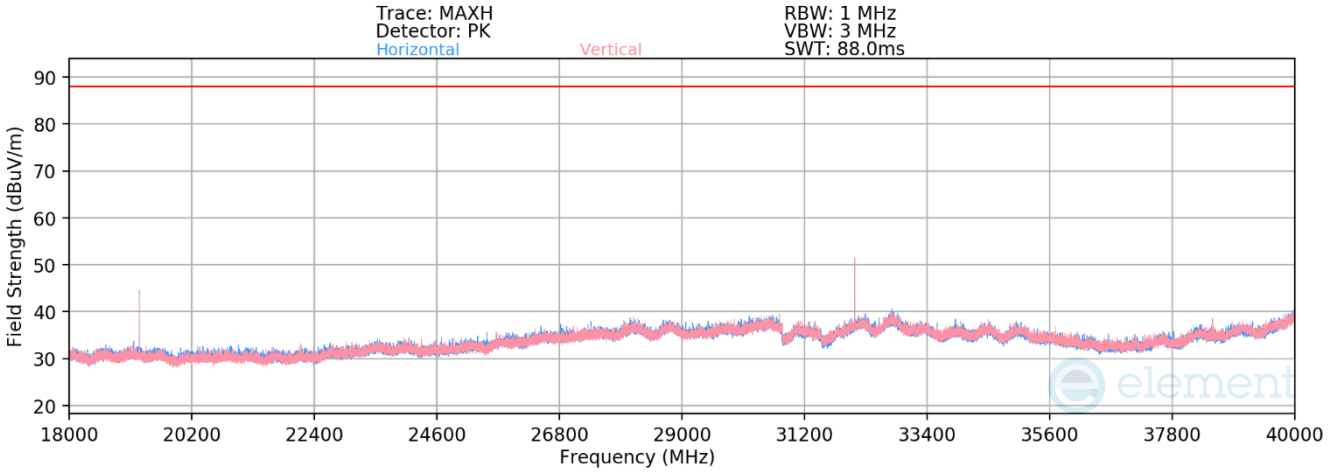
| | |
|---|---|
| Mode: | NB UNII LE |
| Data Rate: | 1Mbps |
| Distance of Measurements: | 3 Meters |
| Operating Frequency: | 6264MHz |

| | 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] |
|---|---|---|---|---|---|---|---|---|---|---|
| * | 12528.00 | Avg | V | - | - | -83.03 | 19.50 | 43.47 | 53.98 | -10.51 |
| * | 12528.00 | Peak | V | - | - | -71.50 | 19.50 | 54.99 | 73.98 | -18.99 |

**Table 7-15. Radiated Spurious Emissions Measurements**




**Plot 7-77. Radiated Spurious Emissions 1-18GHz (NB UNII LE1M – 6420MHz)**

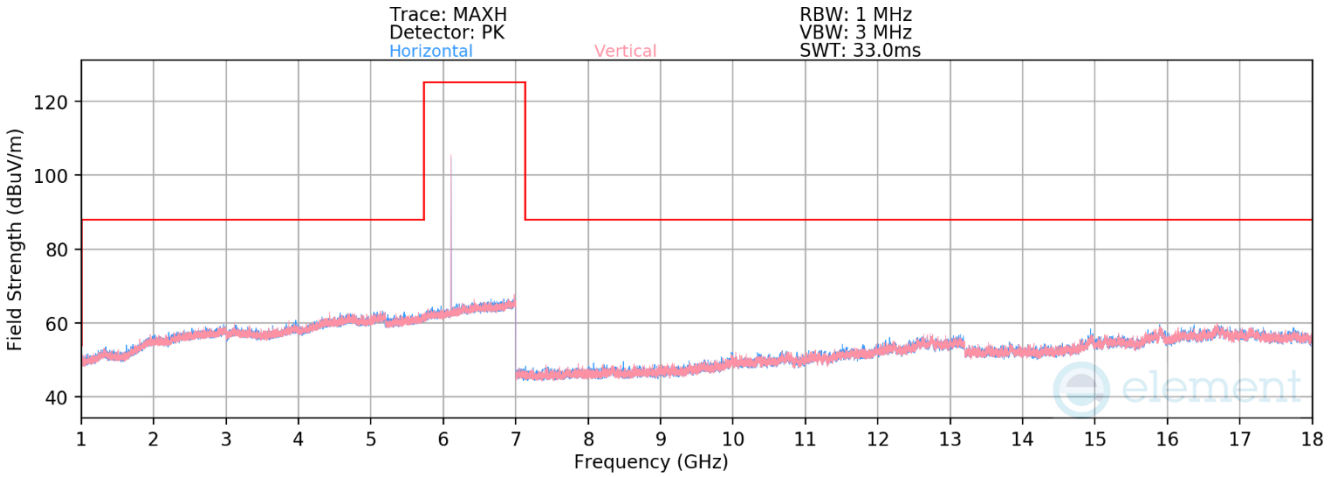



**Plot 7-78. Radiated Spurious Emissions 18-40GHz (NB UNII LE1M– 6420MHz)**

Mode: NB UNII LE
Data Rate: 1Mbps
Distance of Measurements: 3 Meters
Operating Frequency: 6420MHz

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Duty Cycle Correction [dB] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12840.00 | Avg | V | - | - | -84.87 | 22.53 | 0.00 | 0.00 | 44.65 | 68.23 | -23.58 |
| | 12840.00 | Peak | V | - | - | -72.31 | 22.53 | 0.00 | 0.00 | 57.22 | 88.23 | -31.01 |
| * | 19260.00 | Avg | H | 150 | 335 | -64.10 | -5.73 | 1.17 | -9.54 | 47.88 | 53.98 | -6.10 |
| * | 19260.00 | Peak | H | 150 | 335 | -57.21 | -5.73 | 0.00 | -9.54 | 53.60 | 73.98 | -20.38 |
| | 25680.00 | Avg | V | 150 | 13 | -78.43 | -5.89 | 1.17 | -9.54 | 33.39 | 68.23 | -34.84 |
| | 25680.00 | Peak | V | 150 | 13 | -68.68 | -5.89 | 0.00 | -9.54 | 41.97 | 88.23 | -46.26 |
| | 32100.00 | Avg | V | 150 | 196 | -63.96 | -2.73 | 1.17 | -9.54 | 51.02 | 68.23 | -17.21 |
| | 32100.00 | Peak | V | 150 | 196 | -58.66 | -2.73 | 0.00 | -9.54 | 55.15 | 88.23 | -33.08 |
| | 38520.00 | Avg | V | 150 | 23 | -78.03 | -4.96 | 0.00 | -9.54 | 33.55 | 68.23 | -34.68 |
| | 38520.00 | Peak | V | 150 | 23 | -67.79 | -4.96 | 0.00 | -9.54 | 43.79 | 88.23 | -44.44 |

**Table 7-16. Radiated Spurious Emissions Measurements**

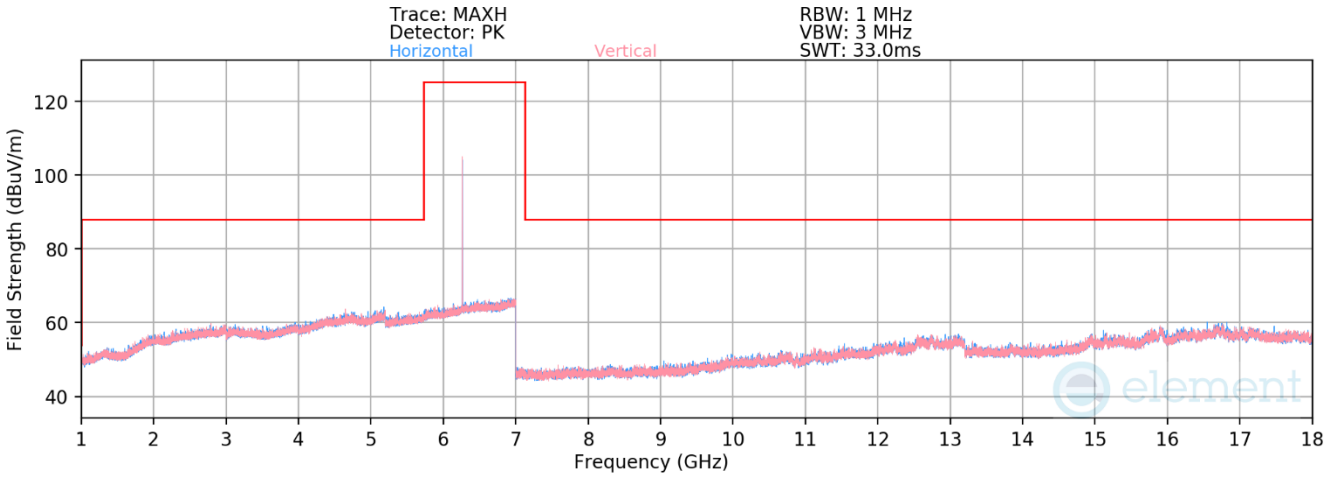



**Plot 7-79. Radiated Spurious Emissions 1-18GHz (NB UNII HDR4 – 6108MHz)**

| | |
|---|---|
| Mode: | NB UNII HDR4 |
| Data Rate: | 4Mbps |
| Distance of Measurements: | 3 Meters |
| Operating Frequency: | 6108MHz |

| | 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] |
|---|---|---|---|---|---|---|---|---|---|---|
| * | 12216.00 | Avg | - | - | - | -82.95 | 19.16 | 43.22 | 53.98 | -10.76 |
| * | 12216.00 | Peak | - | - | - | -71.87 | 19.16 | 54.29 | 73.98 | -19.69 |

**Table 7-17. Radiated Spurious Emissions Measurements**

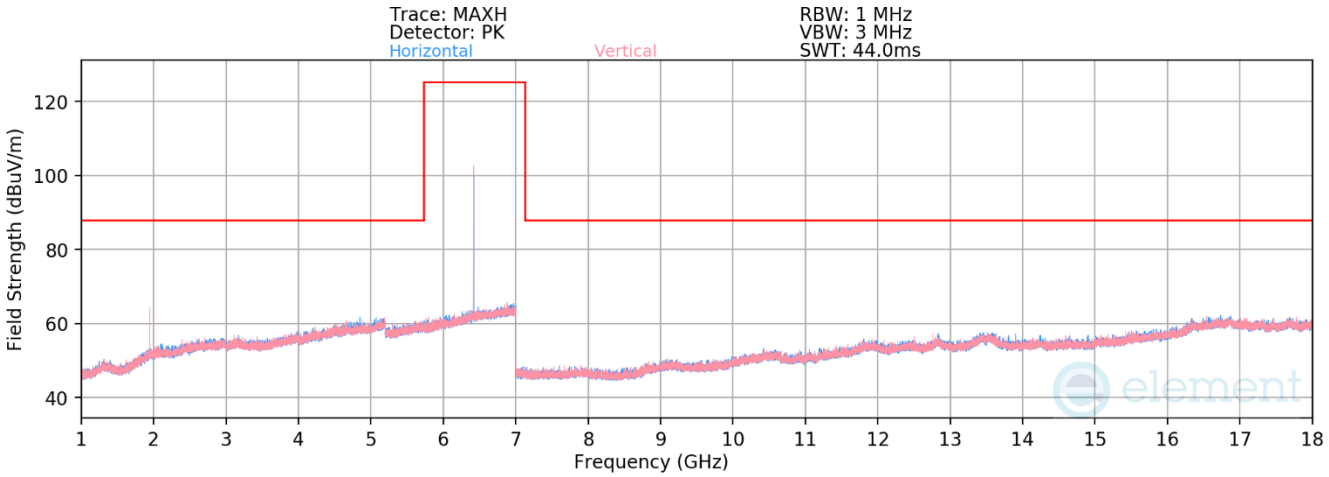



**Plot 7-80. Radiated Spurious Emissions 1-18GHz (NB UNII HDR4 – 6264MHz)**

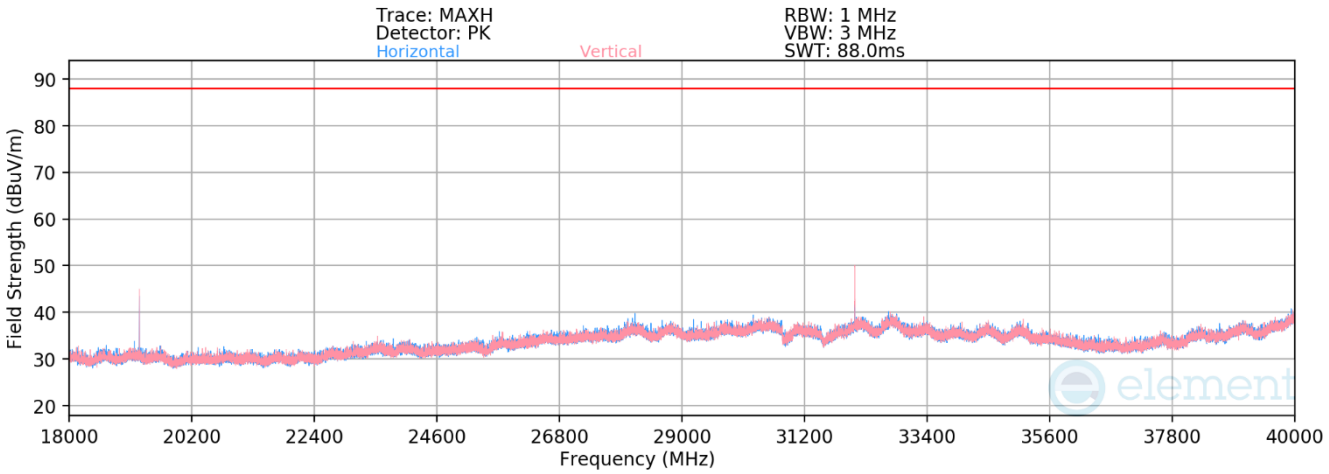
| | |
|---|---|
| Mode: | NB UNII HDR4 |
| Data Rate: | 4Mbps |
| Distance of Measurements: | 3 Meters |
| Operating Frequency: | 6264MHz |

| | 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] |
|---|---|---|---|---|---|---|---|---|---|---|
| * | 12528.00 | Avg | - | - | - | -83.16 | 19.50 | 43.34 | 53.98 | -10.64 |
| * | 12528.00 | Peak | - | - | - | -72.14 | 19.50 | 54.35 | 73.98 | -19.63 |

**Table 7-18. Radiated Spurious Emissions Measurements**




**Plot 7-81. Radiated Spurious Emissions 1-18GHz (NB UNII HDR4 – 6420MHz)**

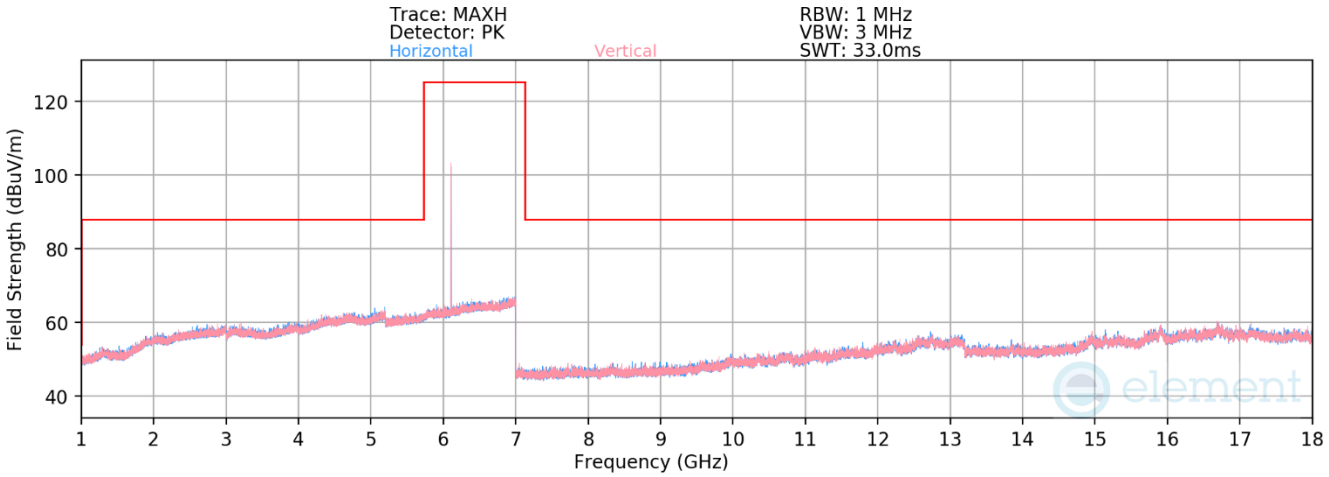



**Plot 7-82. Radiated Spurious Emissions Above 18GHz (NB UNII HDR4 – 6420MHz)**

Mode: NB UNII HDR4
Data Rate: 4Mbps
Distance of Measurements: 3 Meters
Operating Frequency: 6420MHz

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Duty Cycle Correction [dB] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12840.00 | Avg | - | - | - | -84.89 | 22.53 | 0.00 | 0.00 | 44.64 | 68.23 | -23.59 |
| | 12840.00 | Peak | - | - | - | -73.81 | 22.53 | 0.00 | 0.00 | 55.72 | 88.23 | -32.52 |
| * | 19260.00 | Avg | H | 150 | 166 | -35.37 | -7.50 | 1.17 | -9.54 | 46.22 | 53.98 | -7.76 |
| * | 19260.00 | Peak | H | 150 | 166 | -25.86 | -7.50 | 0.00 | -9.54 | 54.56 | 73.98 | -19.42 |
| | 25680.00 | Avg | - | - | - | -52.05 | -5.89 | 0.00 | -9.54 | 29.98 | 68.23 | -38.25 |
| | 25680.00 | Peak | - | - | - | -40.16 | -5.89 | 0.00 | -9.54 | 41.87 | 88.23 | -46.36 |
| | 32100.00 | Avg | V | 150 | 253 | -38.72 | -2.73 | 1.17 | -9.54 | 47.64 | 68.23 | -20.59 |
| | 32100.00 | Peak | V | 150 | 253 | -29.41 | -2.73 | 0.00 | -9.54 | 55.78 | 88.23 | -32.45 |
| | 38520.00 | Avg | V | 150 | 98 | -51.38 | -4.96 | 0.00 | -9.54 | 31.58 | 68.23 | -36.65 |
| | 38520.00 | Peak | V | 150 | 98 | -40.38 | -4.96 | 0.00 | -9.54 | 42.58 | 88.23 | -45.65 |

**Table 7-19. Radiated Spurious Emissions Measurements**

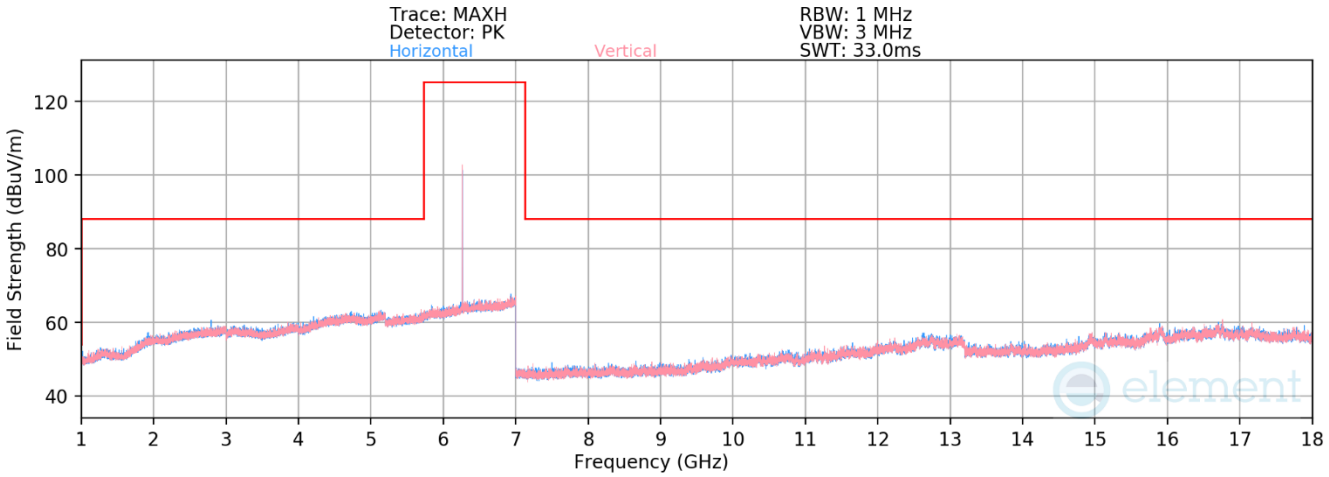



**Plot 7-83. Radiated Spurious Emissions 1-18GHz (NB UNII HDRp4 – 6108MHz)**

| | |
|---|---|
| Mode: | NB UNII HDRp4 |
| Data Rate: | 4Mbps |
| Distance of Measurements: | 3 Meters |
| Operating Frequency: | 6108MHz |

| | 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] |
|---|---|---|---|---|---|---|---|---|---|---|
| * | 12216.00 | Avg | - | - | - | -82.86 | 19.16 | 43.30 | 53.98 | -10.68 |
| * | 12216.00 | Peak | - | - | - | -72.21 | 19.16 | 53.95 | 73.98 | -20.03 |

**Table 7-20. Radiated Spurious Emissions Measurements**

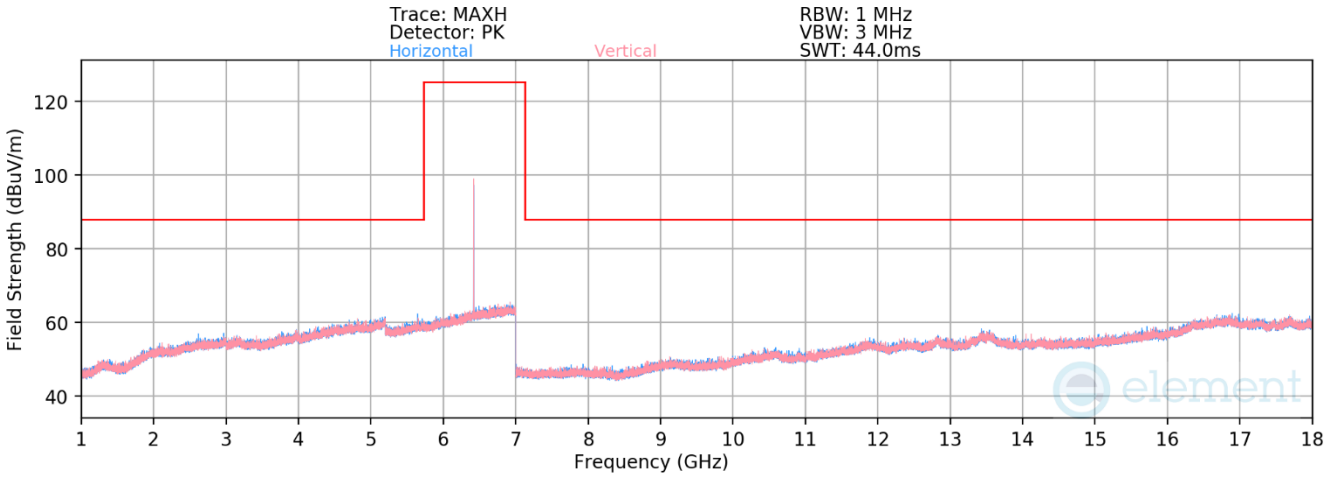



**Plot 7-84. Radiated Spurious Emissions 1-18GHz (NB UNII HDRp4 – 6264MHz)**

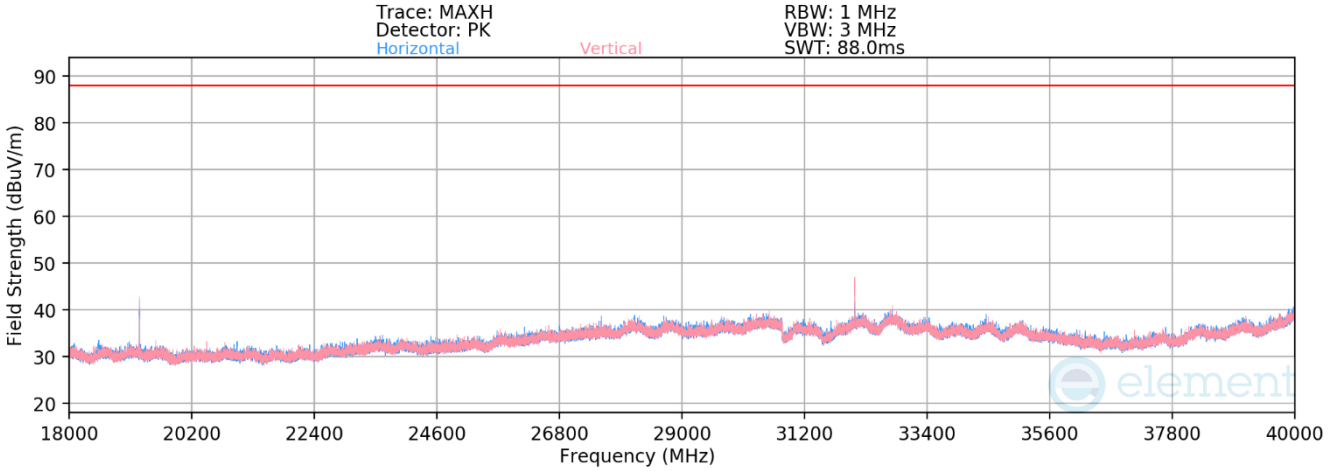
| | |
|---|---|
| Mode: | NB UNII HDRp4 |
| Data Rate: | 4Mbps |
| Distance of Measurements: | 3 Meters |
| Operating Frequency: | 6264MHz |

| | 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] |
|---|---|---|---|---|---|---|---|---|---|---|
| * | 12528.00 | Avg | - | - | - | -82.99 | 19.50 | 43.50 | 53.98 | -10.48 |
| * | 12528.00 | Peak | - | - | - | -72.26 | 19.50 | 54.24 | 73.98 | -19.74 |

**Table 7-21. Radiated Spurious Emissions Measurements**




**Plot 7-85. Radiated Spurious Emissions 1-18GHz (NB UNII HDRp4 – 6420MHz)**




**Plot 7-86. Radiated Spurious Emissions Above 18GHz (NB UNII HDRp4 – 6420MHz)**

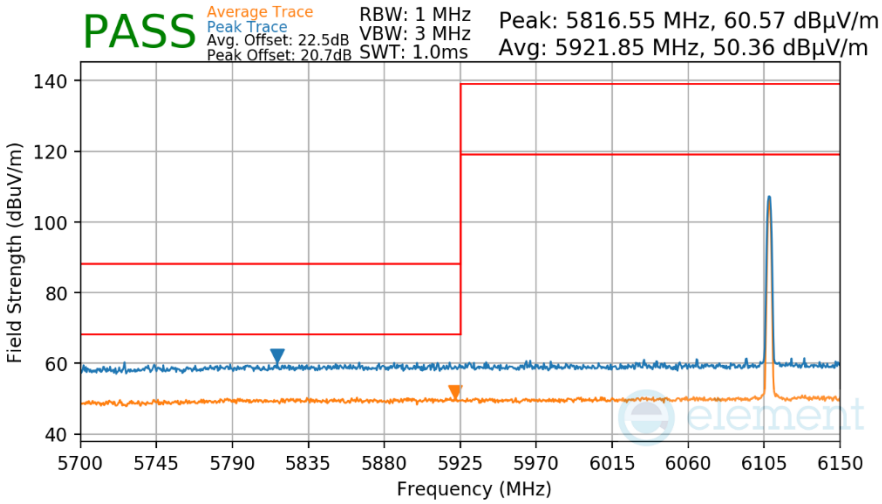
Mode: NB UNII HDRp4
Data Rate: 4Mbps
Distance of Measurements: 3 Meters
Operating Frequency: 6420MHz

| | Frequency [MHz] | Detector | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Analyzer Level [dBm] | AFCL [dB/m] | Duty Cycle Correction [dB] | Distance Correction Factor [dB] | Field Strength [dBµV/m] | Limit [dBµV/m] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12840.00 | Avg | - | - | - | -81.76 | 17.25 | 0.00 | 0.00 | 42.49 | 68.23 | -25.74 |
| | 12840.00 | Peak | - | - | - | -71.03 | 17.25 | 0.00 | 0.00 | 53.22 | 88.23 | -35.01 |
| * | 19260.00 | Avg | H | 150 | 54 | -44.73 | -7.50 | 1.17 | -9.54 | 46.40 | 53.98 | -7.58 |
| * | 19260.00 | Peak | H | 150 | 54 | -37.64 | -7.50 | 0.00 | -9.54 | 52.32 | 73.98 | -21.66 |
| | 25680.00 | Avg | _ | - | - | -61.63 | -5.89 | 0.00 | -9.54 | 29.94 | 68.23 | -38.29 |
| | 25680.00 | Peak | _ | - | - | -50.04 | -5.89 | 0.00 | -9.54 | 41.53 | 88.23 | -46.70 |
| | 32100.00 | Avg | V | 150 | 253 | -48.74 | -2.73 | 1.17 | -9.54 | 47.16 | 68.23 | -21.07 |
| | 32100.00 | Peak | V | 150 | 253 | -40.87 | -2.73 | 0.00 | -9.54 | 53.86 | 88.23 | -34.37 |
| | 38520.00 | Avg | - | - | - | -61.41 | -4.96 | 0.00 | -9.54 | 31.09 | 68.23 | -37.14 |
| | 38520.00 | Peak | - | - | - | -49.68 | -4.96 | 0.00 | -9.54 | 42.82 | 88.23 | -45.41 |

**Table 7-22. Radiated Spurious Emissions Measurements**

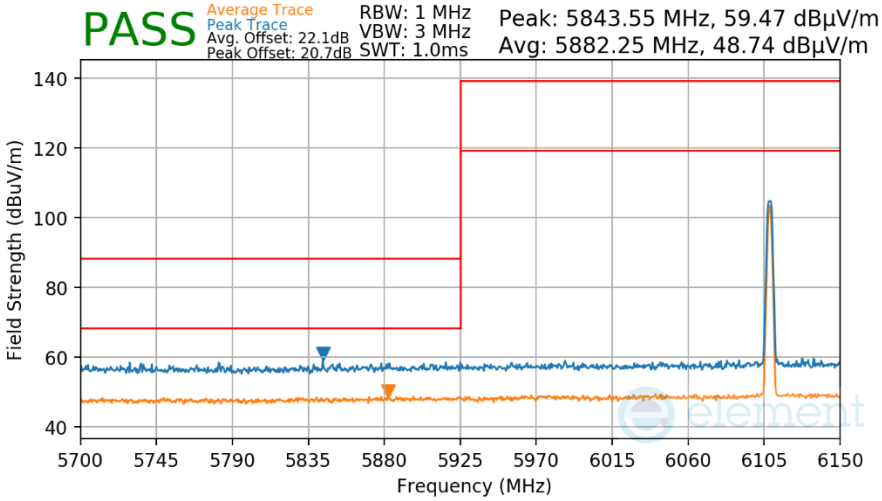
## 7.8.2 Radiated Band Edge Measurements

| | |
|---|---|
| Mode: | NB UNII BDR |
| Measurement Distance: | 3 Meters |
| Operating Frequency: | 6108MHz |



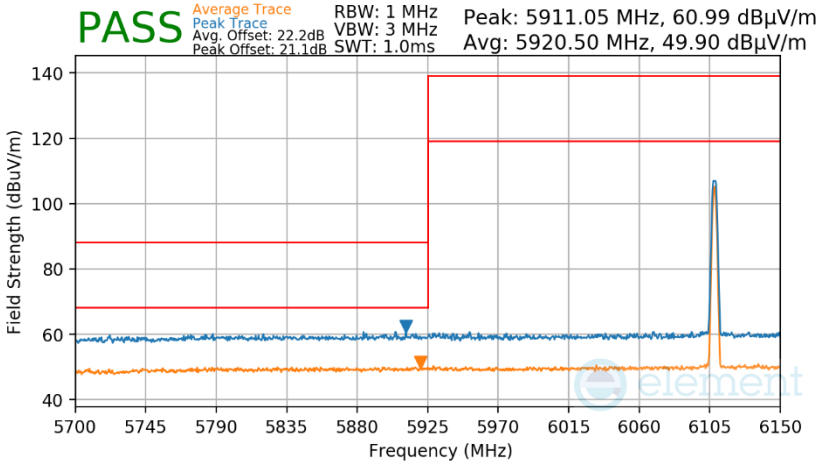

**Plot 7-87. Radiated Lower Band Edge Measurement**

| | |
|---|---|
| Mode: | NB UNII LE |
| Data Rate: | 1Mbps |
| Measurement Distance: | 3 Meters |
| Operating Frequency: | 6108MHz |



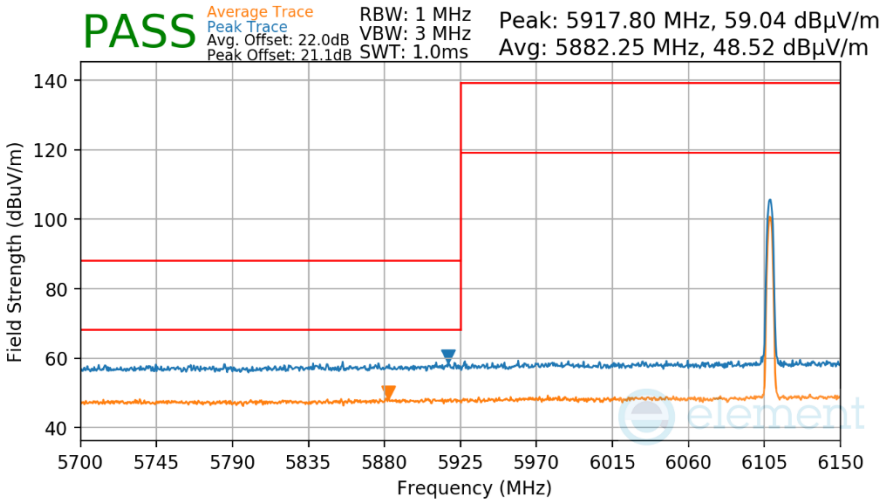

**Plot 7-88. Radiated Lower Band Edge Measurement**

| | |
|---|---|
| Mode: | NB UNII LE |
| Data Rate: | 2Mbps |
| Measurement Distance: | 3 Meters |
| Operating Frequency: | 6108MHz |



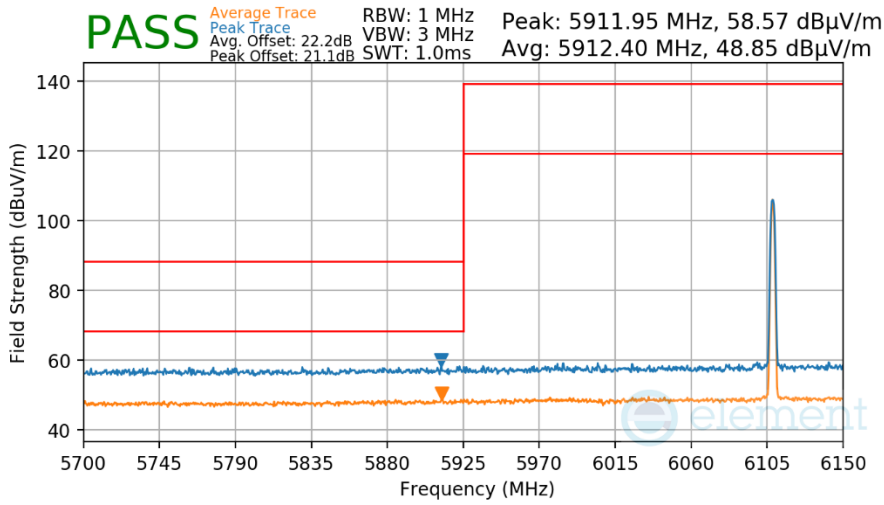

**Plot 7-89. Radiated Lower Band Edge Measurement**

| | |
|---|---|
| Mode: | NB UNII HDR4 |
| Measurement Distance: | 3 Meters |
| Operating Frequency: | 6108MHz |



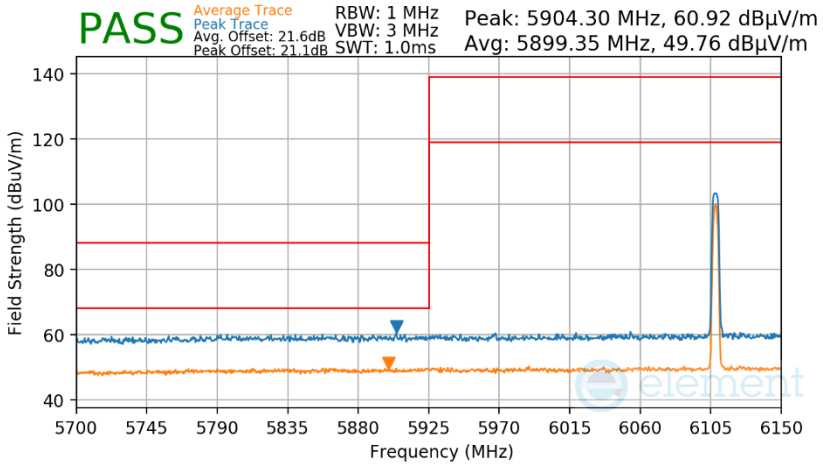

**Plot 7-90. Radiated Lower Band Edge Measurement**

| | |
|---|---|
| Mode: | NB UNII HDR8 |
| Measurement Distance: | 3 Meters |
| Operating Frequency: | 6108MHz |



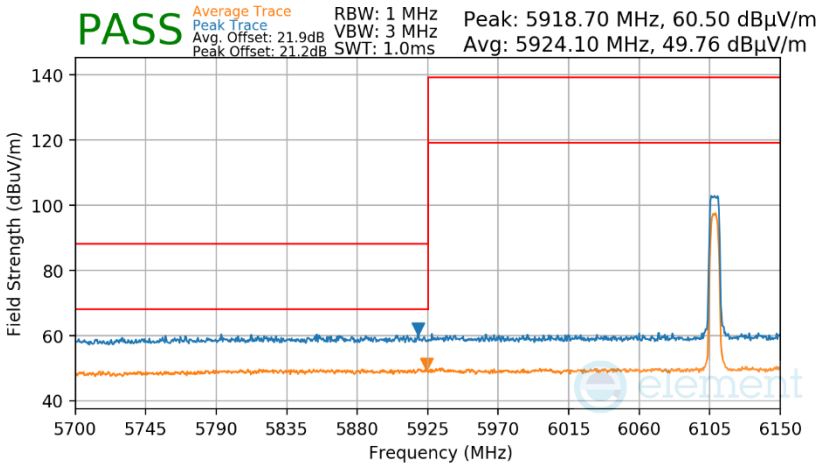

**Plot 7-91. Radiated Lower Band Edge Measurement**

| | |
|---|---|
| Mode: | NB UNII HDRp4 |
| Measurement Distance: | 3 Meters |
| Operating Frequency: | 6108MHz |




**Plot 7-92. Radiated Lower Band Edge Measurement**

| | |
|---|---|
| Mode: | NB UNII HDRp8 |
| Measurement Distance: | 3 Meters |
| Operating Frequency: | 6108MHz |




**Plot 7-93. Radiated Lower Band Edge Measurement**

## 7.9 Radiated Spurious Emissions – Below 1GHz

**§15.209; RSS-Gen [8.9]**

### 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 CFR must not exceed the limits shown in Table 7-23 per Section 15.209 and RSS-Gen (8.9).***

| 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 7-23. Radiated Limits**

### Test Procedures Used

ANSI C63.10-2020

### 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

#### 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. VBW = 300kHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

## Test Setup

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

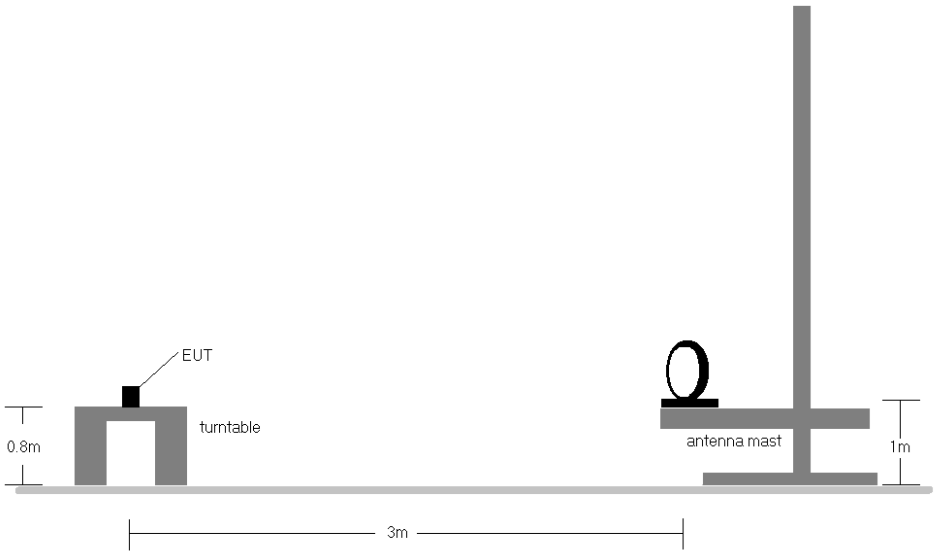



**Figure 7-9. Radiated Test Setup < 30MHz**

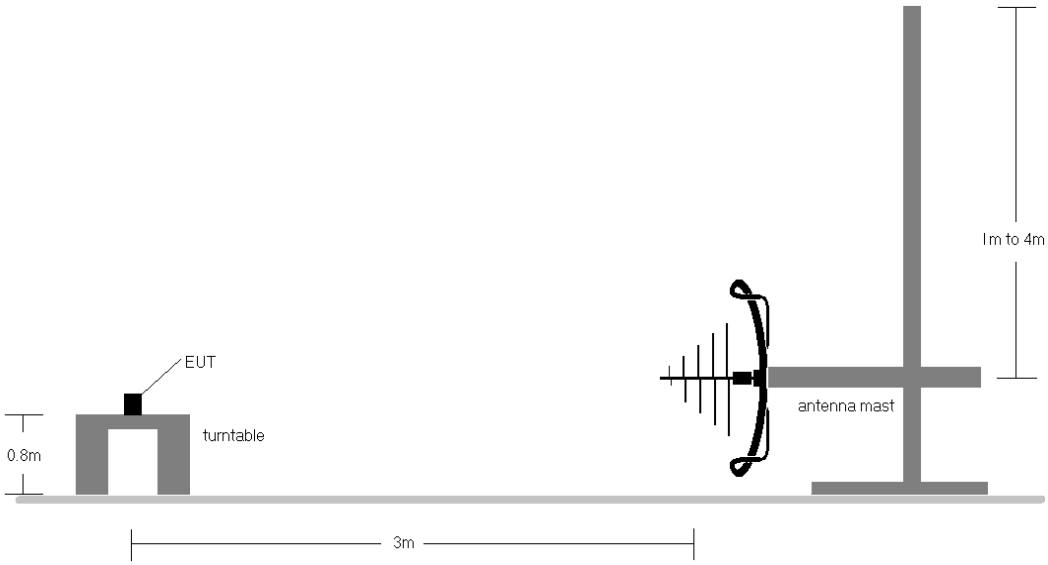



**Figure 7-10. Radiated Test Setup < 1GHz**

## Test Notes

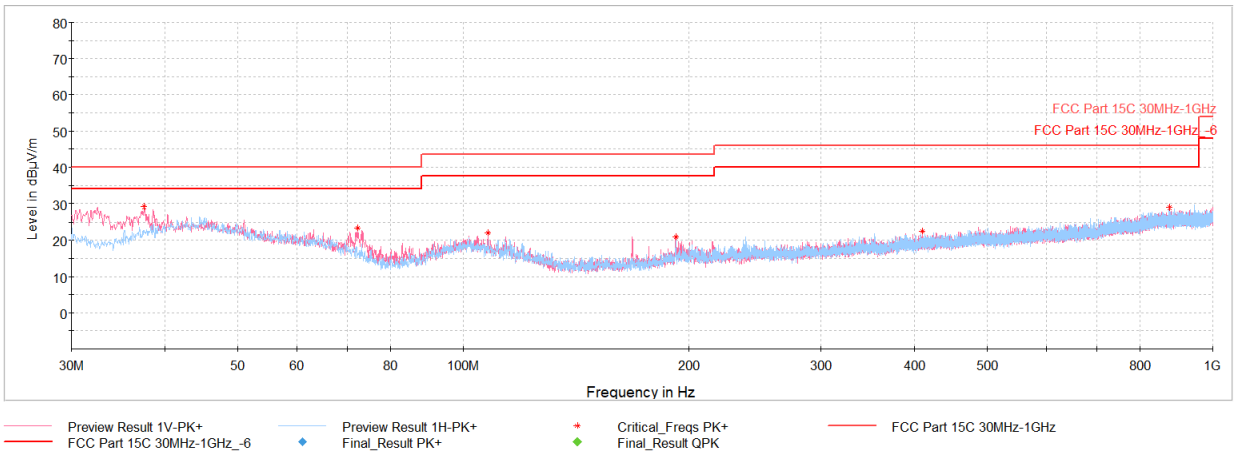
1. All emissions lying in restricted bands specified in §15.205 and RSS-Gen (8.10) are below the limit shown in Table 7-23.
2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes. For below 30MHz the loop antenna was positioned in 3 orthogonal planes (X front, Y side, Z top) to determine the orientation resulting in the worst case emissions.
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 for emissions within 6dB of the limit.
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. Both configurations below were investigated, and the worst case has been reported.
    a. EUT charged by charging case and powered by AC/DC adaptor with USB-C cable.
    b. EUT charged by charging case and powered by host PC with USB-C cable.

## 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 $_{[dB]}$ – Preamplifier Gain $_{[dB]}$
- Margin $_{[dB]}$ = Field Strength Level $_{[dB\mu V/m]}$ – Limit $_{[dB\mu V/m]}$

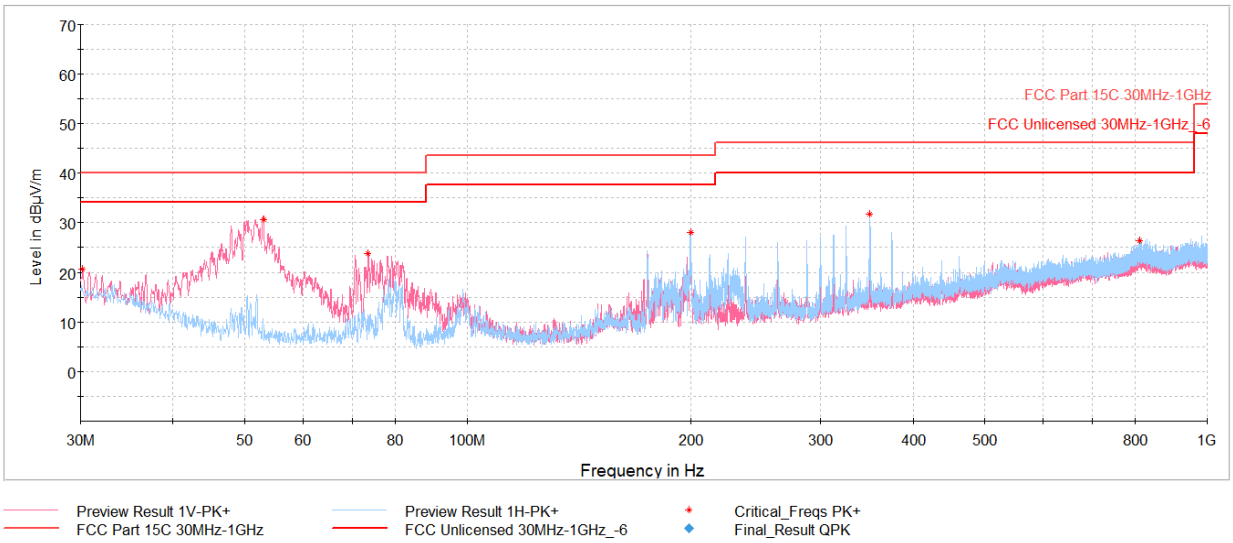
## Radiated Spurious Emissions (Below 1GHz)




**Plot 7-94. Radiated Spurious Emissions Below 1GHz (NB UNII BDR – 6420MHz), with AC/DC Adapter and USB-C Cable**

| 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] |
|---|---|---|---|---|---|---|---|---|---|
| 37.57 | Max-Peak | V | 100 | 282 | -61.14 | -16.62 | 29.24 | 40.00 | -10.76 |
| 72.39 | Max-Peak | V | 100 | 256 | -63.74 | -19.95 | 23.31 | 40.00 | -16.69 |
| 108.09 | Max-Peak | V | 100 | 39 | -68.27 | -16.62 | 22.11 | 43.52 | -21.41 |
| 191.84 | Max-Peak | V | 100 | 266 | -69.75 | -16.32 | 20.93 | 43.52 | -22.59 |
| 409.56 | Max-Peak | V | 300 | 80 | -74.40 | -10.19 | 22.41 | 46.02 | -23.61 |
| 876.03 | Max-Peak | H | 200 | 66 | -75.95 | -2.13 | 28.92 | 46.02 | -17.10 |

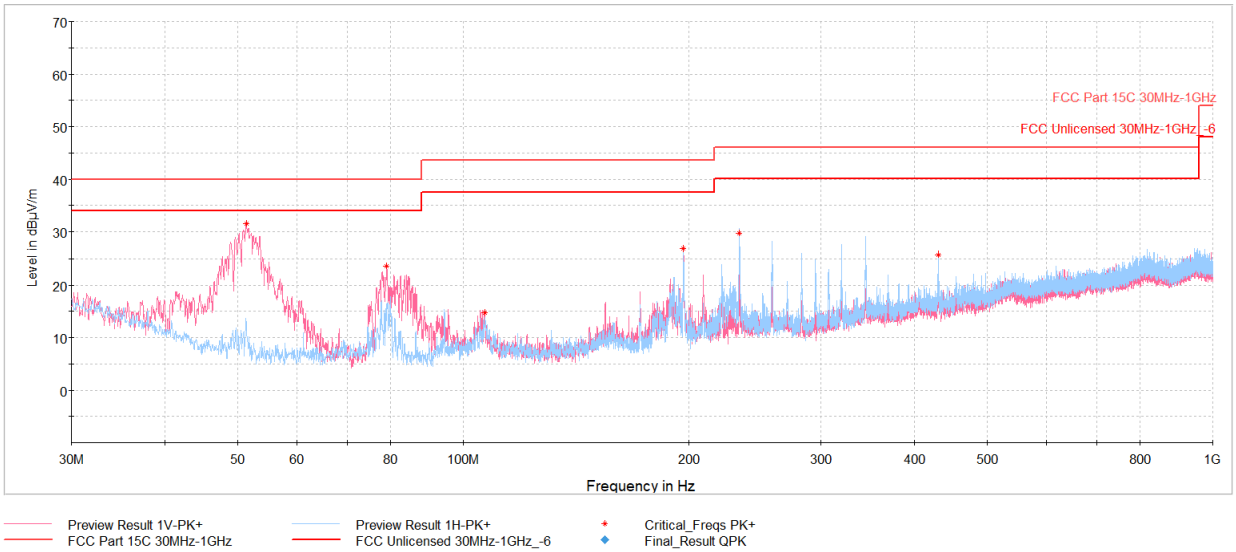
**Table 7-24. Radiated Spurious Emissions Below 1GHz (NB UNII BDR – 6420MHz), with AC/DC Adapter and USB-C Cable**




**Plot 7-95. Radiated Spurious Emissions Below 1GHz (NB UNII LE1M – 6420MHz), with AC/DC Adapter and USB-C Cable**

| 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] |
|---|---|---|---|---|---|---|---|---|---|
| 30.19 | Max-Peak | V | 100 | 307 | -71.40 | -14.80 | 20.80 | 40.00 | -19.20 |
| 53.04 | Max-Peak | V | 100 | 4 | -54.02 | -22.48 | 30.50 | 40.00 | -9.50 |
| 73.51 | Max-Peak | V | 100 | 4 | -59.88 | -23.22 | 23.90 | 40.00 | -16.10 |
| 199.94 | Max-Peak | H | 200 | 234 | -61.14 | -17.88 | 27.98 | 43.52 | -15.54 |
| 349.66 | Max-Peak | H | 100 | 265 | -62.62 | -12.75 | 31.63 | 46.02 | -14.39 |
| 810.56 | Max-Peak | H | 300 | 231 | -77.50 | -3.28 | 26.22 | 46.02 | -19.80 |

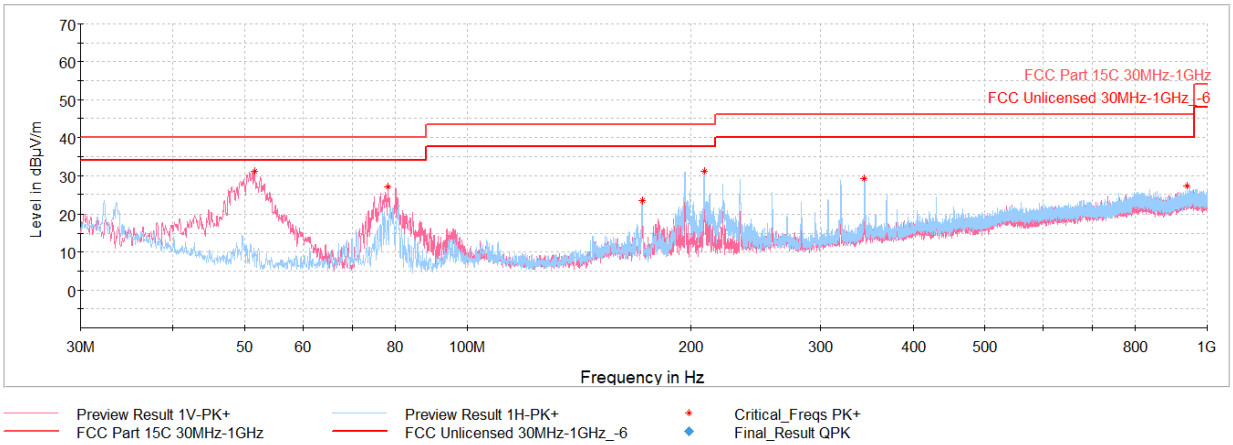
**Table 7-25. Radiated Spurious Emissions Below 1GHz (NB UNII LE1M – 6420MHz), with AC/DC Adapter and USB-C Cable**




**Plot 7-96. Radiated Spurious Emissions Below 1GHz (NB UNII HDR4 – 6420MHz), with AC/DC Adapter and USB-C Cable**

| 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] |
|---|---|---|---|---|---|---|---|---|---|
| 51.39 | Max-Peak | V | 100 | 0 | -52.49 | -22.99 | 31.52 | 40.00 | -8.48 |
| 79.08 | Max-Peak | V | 200 | 284 | -60.45 | -23.03 | 23.52 | 40.00 | -16.48 |
| 106.92 | Max-Peak | V | 200 | 325 | -71.83 | -20.37 | 14.80 | 43.52 | -28.72 |
| 196.40 | Max-Peak | V | 100 | 0 | -62.04 | -18.17 | 26.79 | 43.52 | -16.73 |
| 233.26 | Max-Peak | H | 100 | 206 | -60.62 | -16.72 | 29.66 | 46.02 | -16.36 |
| 430.13 | Max-Peak | H | 100 | 30 | -69.97 | -11.29 | 25.74 | 46.02 | -20.28 |

**Table 7-26. Radiated Spurious Emissions Below 1GHz (NB UNII HDR4 – 6420MHz), with AC/DC Adapter and USB-C Cable**




**Plot 7-97. Radiated Spurious Emissions Below 1GHz (NB UNII HDRp4 – 6420MHz), with AC/DC Adapter and USB-C Cable**

| 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] |
|---|---|---|---|---|---|---|---|---|---|
| 51.58 | Max-Peak | V | 100 | 317 | -53.02 | -22.93 | 31.05 | 40.00 | -8.95 |
| 78.16 | Max-Peak | V | 100 | 194 | -57.15 | -22.98 | 26.87 | 40.00 | -13.13 |
| 172.01 | Max-Peak | H | 200 | 2 | -64.34 | -19.30 | 23.36 | 43.52 | -20.16 |
| 208.67 | Max-Peak | H | 100 | 193 | -58.84 | -17.06 | 31.10 | 43.52 | -12.42 |
| 343.94 | Max-Peak | H | 100 | 92 | -64.78 | -13.09 | 29.13 | 46.02 | -16.89 |
| 939.08 | Max-Peak | H | 200 | 356 | -76.79 | -3.09 | 27.12 | 46.02 | -18.90 |

**Table 7-27. Radiated Spurious Emissions Below 1GHz (NB UNII HDRp4 – 6420MHz), with AC/DC Adapter and USB-C Cable**

## 7.10 AC Line Conducted Emissions Measurement

**§15.207; RSS-Gen [8.8]**

### Test Overview and Limit

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN 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 AC Line conducted spurious emissions. All data rates and modes were investigated for AC Line conducted spurious emissions.

***All conducted emissions must not exceed the limits shown in the table below, per Section 15.207 and RSS-Gen (8.8).***

| Frequency of emission (MHz) | Conducted Limit (dBμV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15 – 0.5 | 66 to 56* | 56 to 46* |
| 0.5 – 5 | 56 | 46 |
| 5 – 30 | 60 | 50 |

**Table 7-28. Conducted Limits**

*Decreases with the logarithm of the frequency.

### Test Procedures Used

ANSI C63.10-2020, Section 6.2

### Test Settings

#### Quasi-Peak Measurements

1. Analyzer center frequency was set to the frequency of the spurious emission of interest
2. RBW = 9kHz (for emissions from 150kHz – 30MHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

#### Average Measurements

1. Analyzer center frequency was set to the frequency of the spurious emission of interest
2. RBW = 9kHz (for emissions from 150kHz – 30MHz)
3. Detector = RMS
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 diagram below.

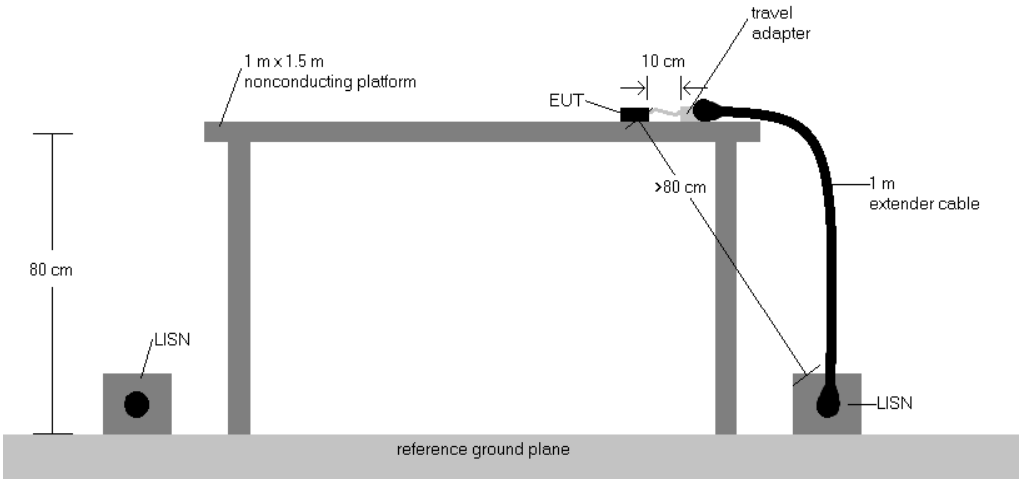
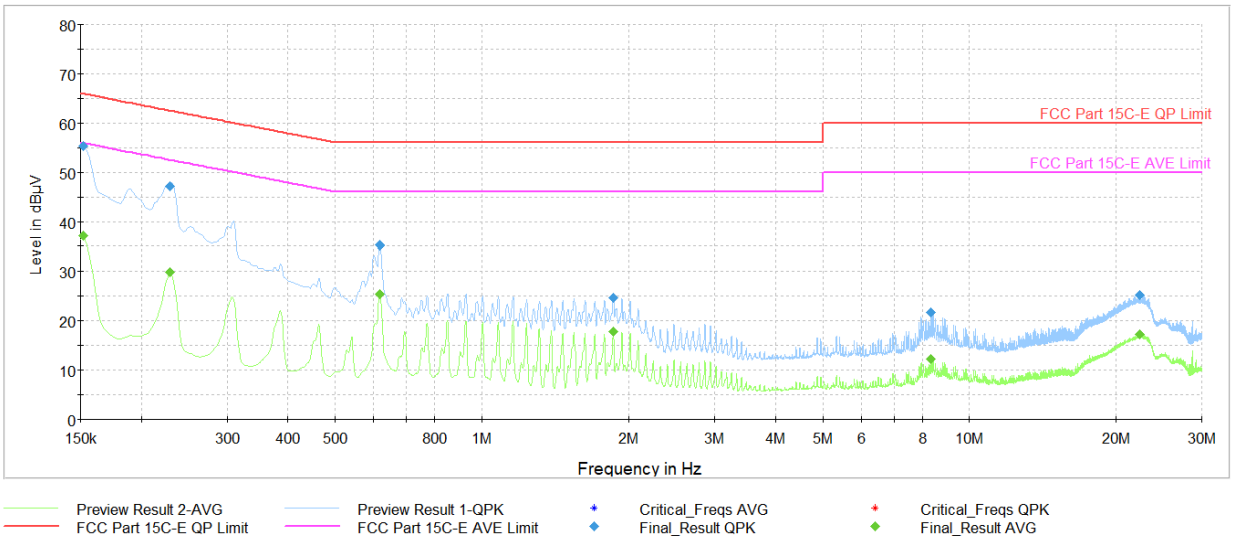



**Figure 7-11. Test Instrument & Measurement Setup**

## Test Notes

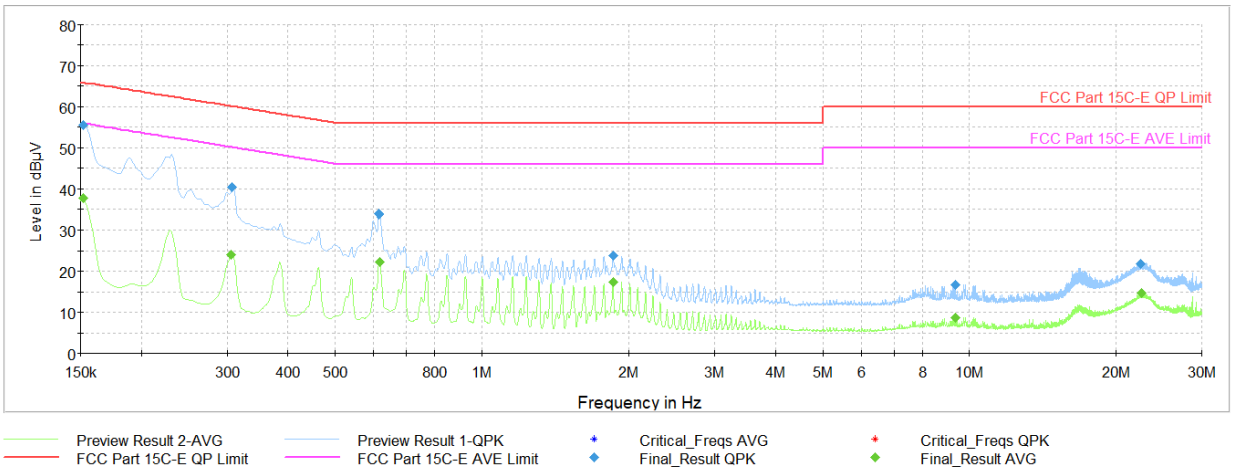
1. All modes of operation were investigated and the worst-case emissions are reported. The emissions found were not affected by the choice of channel used during testing.
2. Both configurations below were investigated, and the worst case has been reported.
    a. EUT charged by charging case and powered by AC/DC adaptor with USB-C cable.
    b. EUT charged by charging case and powered by host PC with USB-C cable.
3. The limit for an intentional radiator from 150kHz to 30MHz are specified in 15.207 and RSS-Gen (8.8).
4. Corr. (dB) = Cable loss (dB) + LISN insertion factor (dB)
5. QP/AV Level (dBμV) = QP/AV Analyzer/Receiver Level (dBμV) + Correction Factor (dB)
6. Margin (dB) = QP/AV Level (dBμV) - QP/AV Limit (dBμV)
7. Traces shown in plots are made using quasi-peak and average detectors.
8. Deviations to the Specifications: None.




**Plot 7-98. AC Line Conducted Plot (NB UNII BDR – 6420MHz) (L1) with host PC with USB-C cable**

| Frequency [MHz] | Process State | QuasiPeak [dBµV] | Average [dBµV] | Limit [dBµV] | Margin [dB] | Line | PE |
|---|---|---|---|---|---|---|---|
| 0.152 | FINAL | — | 37.08 | 55.88 | -18.80 | L1 | GND |
| 0.152 | FINAL | 55.3 | — | 65.88 | -10.60 | L1 | GND |
| 0.229 | FINAL | — | 29.83 | 52.50 | -22.66 | L1 | GND |
| 0.229 | FINAL | 47.2 | — | 62.50 | -15.28 | L1 | GND |
| 0.618 | FINAL | — | 25.40 | 46.00 | -20.60 | L1 | GND |
| 0.618 | FINAL | 35.3 | — | 56.00 | -20.71 | L1 | GND |
| 1.853 | FINAL | 24.6 | — | 56.00 | -31.36 | L1 | GND |
| 1.856 | FINAL | — | 17.76 | 46.00 | -28.24 | L1 | GND |
| 8.342 | FINAL | 21.7 | — | 60.00 | -38.28 | L1 | GND |
| 8.347 | FINAL | — | 12.19 | 50.00 | -37.81 | L1 | GND |
| 22.324 | FINAL | — | 17.22 | 50.00 | -32.78 | L1 | GND |
| 22.324 | FINAL | 25.3 | — | 60.00 | -34.72 | L1 | GND |

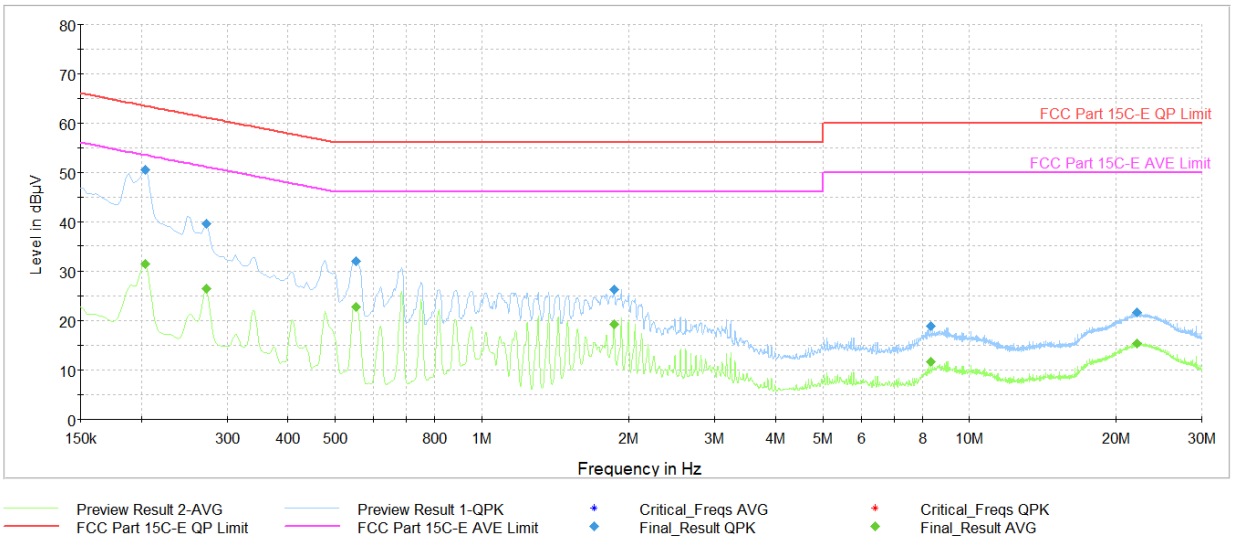
**Table 7-29. AC Line Conducted Data (NB UNII BDR – 6420MHz) (L1) with host PC with USB-C cable**




**Plot 7-99. AC Line Conducted Plot (NB UNII BDR – 6420MHz) (N) with host PC with USB-C cable**

| Frequency [MHz] | Process State | QuasiPeak [dBµV] | Average [dBµV] | Limit [dBµV] | Margin [dB] | Line | PE |
|---|---|---|---|---|---|---|---|
| 0.152 | FINAL | — | 37.74 | 55.88 | -18.14 | N | GND |
| 0.152 | FINAL | 55.5 | — | 65.88 | -10.34 | N | GND |
| 0.305 | FINAL | — | 24.04 | 50.10 | -26.06 | N | GND |
| 0.308 | FINAL | 40.3 | — | 60.04 | -19.78 | N | GND |
| 0.616 | FINAL | 33.9 | — | 56.00 | -22.15 | N | GND |
| 0.618 | FINAL | — | 22.36 | 46.00 | -23.65 | N | GND |
| 1.853 | FINAL | — | 17.38 | 46.00 | -28.62 | N | GND |
| 1.856 | FINAL | 23.9 | — | 56.00 | -32.10 | N | GND |
| 9.344 | FINAL | — | 8.59 | 50.00 | -41.41 | N | GND |
| 9.346 | FINAL | 16.8 | — | 60.00 | -43.21 | N | GND |
| 22.515 | FINAL | 21.9 | — | 60.00 | -38.08 | N | GND |
| 22.522 | FINAL | — | 14.67 | 50.00 | -35.33 | N | GND |

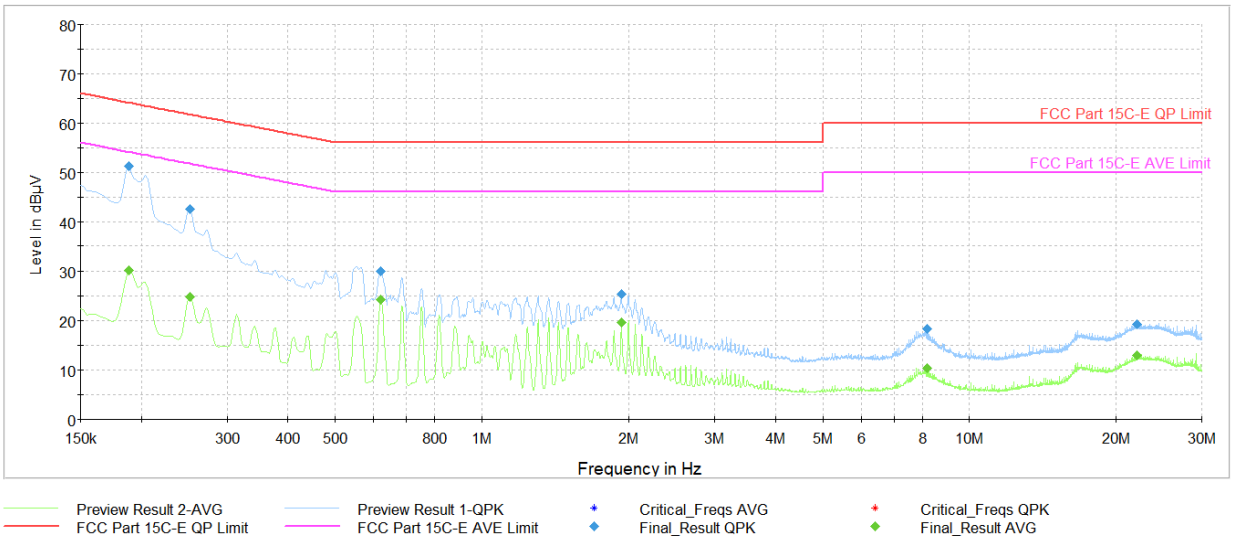
**Table 7-30. AC Line Conducted Data (NB UNII BDR – 6420MHz) (N) with host PC with USB-C cable**




**Plot 7-100. AC Line Conducted Plot (NB UNII LE1M – 6420MHz) (L1) with host PC and USB-C Cable**

| Frequency [MHz] | Process State | QuasiPeak [dBµV] | Average [dBµV] | Limit [dBµV] | Margin [dB] | Line | PE |
|---|---|---|---|---|---|---|---|
| 0.204 | FINAL | — | 31.58 | 53.45 | -21.86 | L1 | GND |
| 0.204 | FINAL | 50.5 | — | 63.45 | -12.90 | L1 | GND |
| 0.272 | FINAL | — | 26.61 | 51.07 | -24.46 | L1 | GND |
| 0.272 | FINAL | 39.5 | — | 61.07 | -21.55 | L1 | GND |
| 0.553 | FINAL | — | 22.88 | 46.00 | -23.12 | L1 | GND |
| 0.553 | FINAL | 32.1 | — | 56.00 | -23.94 | L1 | GND |
| 1.860 | FINAL | 26.4 | — | 56.00 | -29.61 | L1 | GND |
| 1.862 | FINAL | — | 19.34 | 46.00 | -26.66 | L1 | GND |
| 8.331 | FINAL | 19.0 | — | 60.00 | -40.98 | L1 | GND |
| 8.333 | FINAL | — | 11.75 | 50.00 | -38.25 | L1 | GND |
| 22.043 | FINAL | — | 15.48 | 50.00 | -34.52 | L1 | GND |
| 22.043 | FINAL | 21.6 | — | 60.00 | -38.37 | L1 | GND |

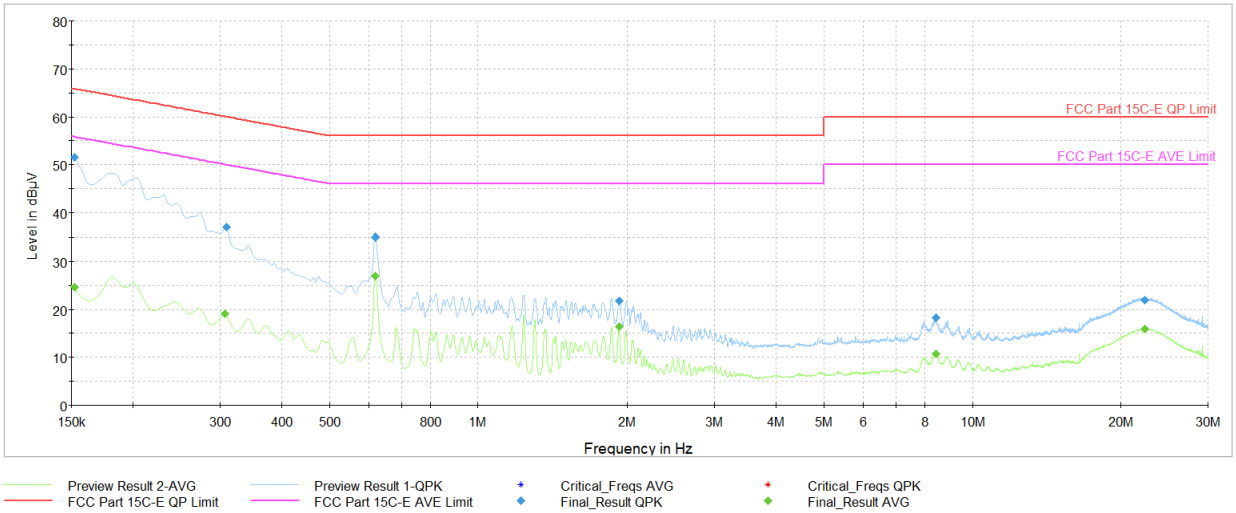
**Table 7-31. AC Line Conducted Data (NB UNII LE1M – 6420MHz) (L1) with host PC and USB-C Cable**




**Plot 7-101. AC Line Conducted Data (NB UNII LE1M – 6420MHz) (N) with host PC and USB-C Cable**

| Frequency [MHz] | Process State | QuasiPeak [dBµV] | Average [dBµV] | Limit [dBµV] | Margin [dB] | Line | PE |
|---|---|---|---|---|---|---|---|
| 0.188 | FINAL | — | 30.20 | 54.11 | -23.91 | N | GND |
| 0.188 | FINAL | 51.3 | — | 64.11 | -12.86 | N | GND |
| 0.251 | FINAL | — | 24.82 | 51.72 | -26.90 | N | GND |
| 0.251 | FINAL | 42.5 | — | 61.72 | -19.26 | N | GND |
| 0.620 | FINAL | 30.2 | — | 56.00 | -25.85 | N | GND |
| 0.620 | FINAL | — | 24.25 | 46.00 | -21.75 | N | GND |
| 1.928 | FINAL | 25.5 | — | 56.00 | -30.54 | N | GND |
| 1.928 | FINAL | — | 19.61 | 46.00 | -26.39 | N | GND |
| 8.201 | FINAL | — | 10.36 | 50.00 | -39.64 | N | GND |
| 8.203 | FINAL | 18.4 | — | 60.00 | -41.60 | N | GND |
| 22.047 | FINAL | 19.4 | — | 60.00 | -40.61 | N | GND |
| 22.049 | FINAL | — | 13.06 | 50.00 | -36.94 | N | GND |

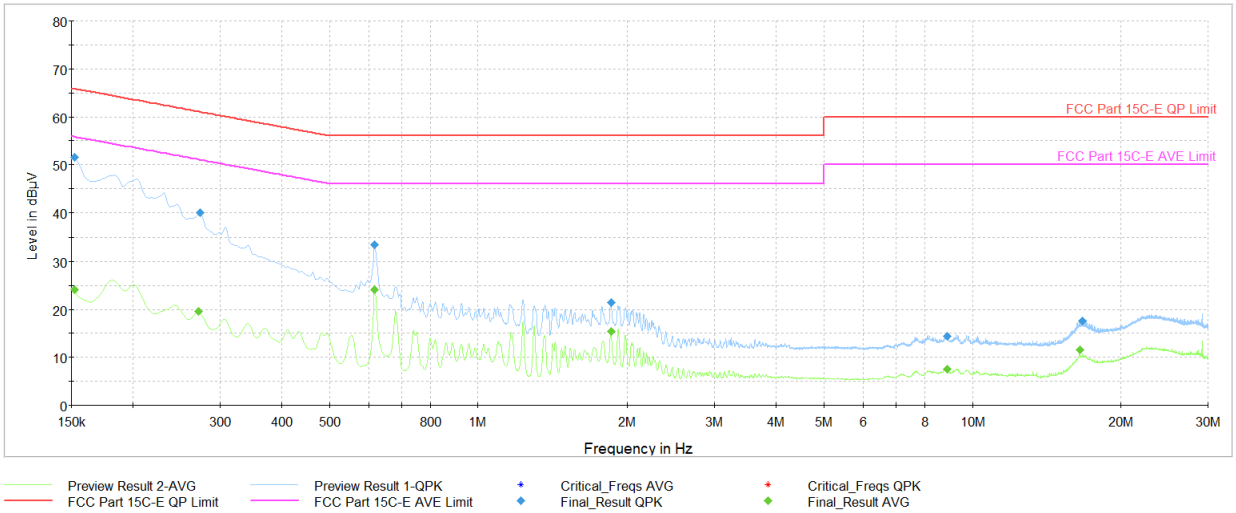
**Table 7-32. AC Line Conducted Data (NB UNII LE1M – 6420MHz) (N) with host PC and USB-C Cable**




**Plot 7-102. AC Line Conducted Plot (NB UNII HDR4 – 6420MHz) (L1) with host PC with USB-C cable**

| Frequency [MHz] | Process State | QuasiPeak [dBµV] | Average [dBµV] | Limit [dBµV] | Margin [dB] | Line | PE |
|---|---|---|---|---|---|---|---|
| 0.152 | FINAL | — | 24.68 | 55.88 | -31.20 | L1 | GND |
| 0.152 | FINAL | 51.6 | — | 65.88 | -14.25 | L1 | GND |
| 0.308 | FINAL | — | 19.04 | 50.04 | -30.99 | L1 | GND |
| 0.310 | FINAL | 36.9 | — | 59.98 | -23.04 | L1 | GND |
| 0.620 | FINAL | 35.0 | — | 56.00 | -21.03 | L1 | GND |
| 0.620 | FINAL | — | 26.99 | 46.00 | -19.01 | L1 | GND |
| 1.923 | FINAL | 21.8 | — | 56.00 | -34.24 | L1 | GND |
| 1.923 | FINAL | — | 16.42 | 46.00 | -29.58 | L1 | GND |
| 8.446 | FINAL | — | 10.67 | 50.00 | -39.33 | L1 | GND |
| 8.450 | FINAL | 18.2 | — | 60.00 | -41.84 | L1 | GND |
| 22.313 | FINAL | — | 15.86 | 50.00 | -34.14 | L1 | GND |
| 22.319 | FINAL | 22.0 | — | 60.00 | -38.00 | L1 | GND |

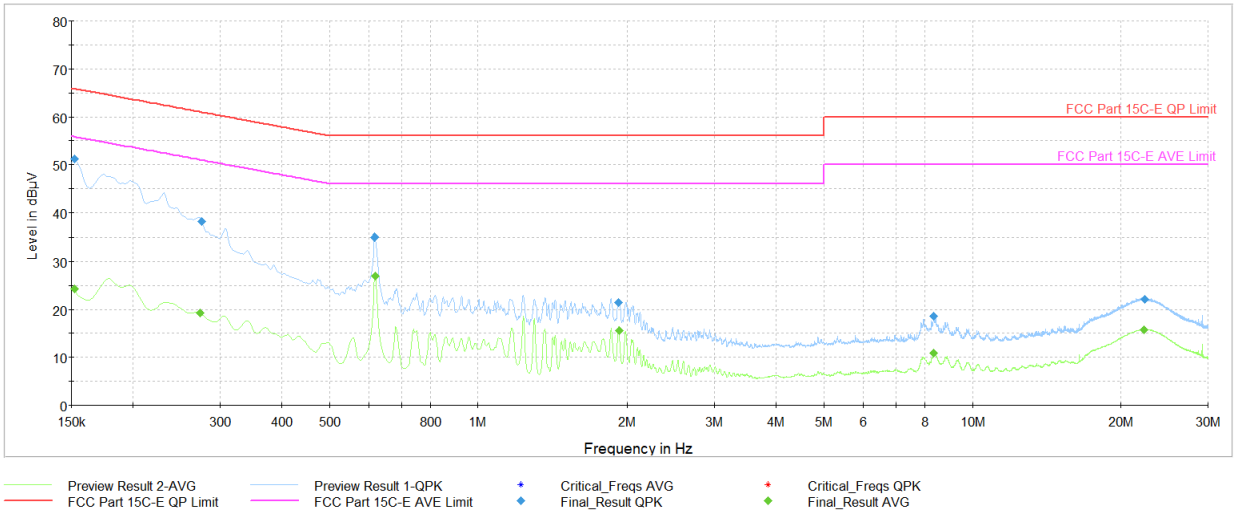
**Table 7-33. AC Line Conducted Data (NB UNII HDR4 – 6420MHz) (L1) with host PC with USB-C cable**




**Plot 7-103. AC Line Conducted Plot (NB UNII HDR4 – 6420MHz) (N) with host PC with USB-C cable**

| Frequency [MHz] | Process State | QuasiPeak [dBµV] | Average [dBµV] | Limit [dBµV] | Margin [dB] | Line | PE |
|---|---|---|---|---|---|---|---|
| 0.152 | FINAL | — | 24.18 | 55.88 | -31.70 | N | GND |
| 0.152 | FINAL | 51.5 | — | 65.88 | -14.35 | N | GND |
| 0.272 | FINAL | — | 19.57 | 51.07 | -31.50 | N | GND |
| 0.274 | FINAL | 40.0 | — | 61.00 | -20.96 | N | GND |
| 0.618 | FINAL | — | 24.17 | 46.00 | -21.83 | N | GND |
| 0.618 | FINAL | 33.5 | — | 56.00 | -22.47 | N | GND |
| 1.853 | FINAL | 21.5 | — | 56.00 | -34.53 | N | GND |
| 1.853 | FINAL | — | 15.37 | 46.00 | -30.63 | N | GND |
| 8.882 | FINAL | 14.4 | — | 60.00 | -45.61 | N | GND |
| 8.889 | FINAL | — | 7.49 | 50.00 | -42.51 | N | GND |
| 16.485 | FINAL | — | 11.48 | 50.00 | -38.52 | N | GND |
| 16.728 | FINAL | 17.6 | — | 60.00 | -42.45 | N | GND |

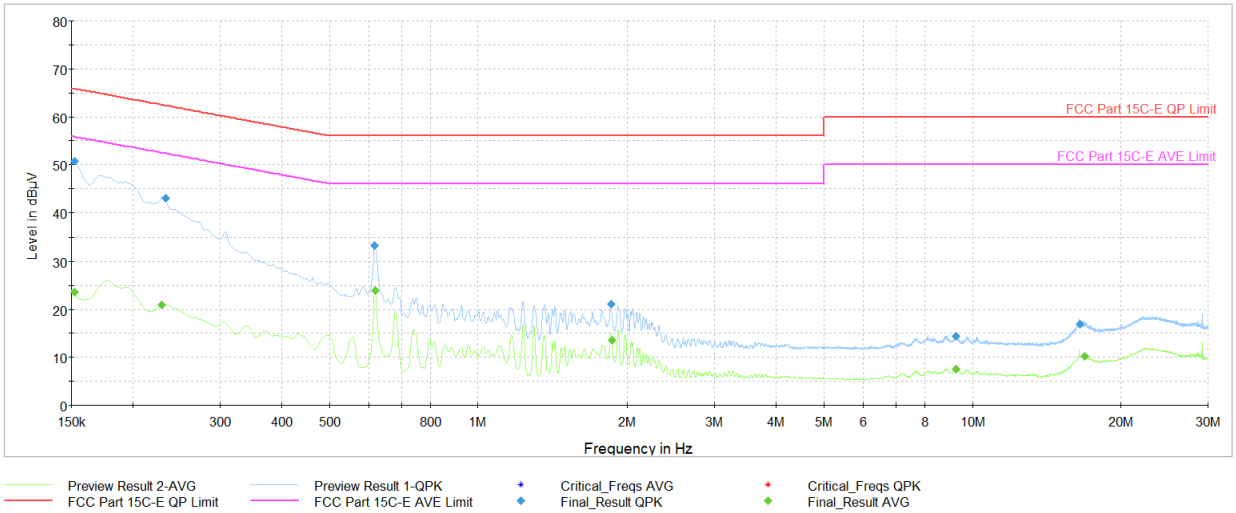
**Table 7-34. AC Line Conducted Data (NB UNII HDR4 – 6420MHz) (N) with host PC with USB-C cable**




**Plot 7-104. AC Line Conducted Plot (NB UNII HDRp4 – 6420MHz) (L1) with host PC with USB-C cable**

| Frequency [MHz] | Process State | QuasiPeak [dBµV] | Average [dBµV] | Limit [dBµV] | Margin [dB] | Line | PE |
|---|---|---|---|---|---|---|---|
| 0.152 | FINAL | — | 24.23 | 55.88 | -31.64 | L1 | GND |
| 0.152 | FINAL | 51.1 | — | 65.88 | -14.74 | L1 | GND |
| 0.274 | FINAL | — | 19.23 | 51.00 | -31.77 | L1 | GND |
| 0.276 | FINAL | 38.2 | — | 60.94 | -22.70 | L1 | GND |
| 0.618 | FINAL | 35.0 | — | 56.00 | -21.04 | L1 | GND |
| 0.620 | FINAL | — | 26.89 | 46.00 | -19.11 | L1 | GND |
| 1.916 | FINAL | 21.5 | — | 56.00 | -34.54 | L1 | GND |
| 1.923 | FINAL | — | 15.57 | 46.00 | -30.43 | L1 | GND |
| 8.349 | FINAL | 18.5 | — | 60.00 | -41.47 | L1 | GND |
| 8.349 | FINAL | — | 10.84 | 50.00 | -39.16 | L1 | GND |
| 22.238 | FINAL | — | 15.81 | 50.00 | -34.19 | L1 | GND |
| 22.333 | FINAL | 22.1 | — | 60.00 | -37.86 | L1 | GND |

**Table 7-35. AC Line Conducted Data (NB UNII HDRp4 – 6420MHz) (L1) with host PC with USB-C cable**




**Plot 7-105. AC Line Conducted Plot (NB UNII HDRp4 – 6420MHz) (N) with host PC with USB-C cable**

| Frequency [MHz] | Process State | QuasiPeak [dBµV] | Average [dBµV] | Limit [dBµV] | Margin [dB] | Line | PE |
|---|---|---|---|---|---|---|---|
| 0.152 | FINAL | — | 23.62 | 55.88 | -32.25 | N | GND |
| 0.152 | FINAL | 50.7 | — | 65.88 | -15.22 | N | GND |
| 0.229 | FINAL | — | 20.92 | 52.50 | -31.57 | N | GND |
| 0.233 | FINAL | 43.0 | — | 62.33 | -19.39 | N | GND |
| 0.618 | FINAL | 33.3 | — | 56.00 | -22.68 | N | GND |
| 0.620 | FINAL | — | 23.95 | 46.00 | -22.05 | N | GND |
| 1.853 | FINAL | 21.1 | — | 56.00 | -34.91 | N | GND |
| 1.860 | FINAL | — | 13.62 | 46.00 | -32.38 | N | GND |
| 9.247 | FINAL | 14.4 | — | 60.00 | -45.61 | N | GND |
| 9.265 | FINAL | — | 7.53 | 50.00 | -42.47 | N | GND |
| 16.523 | FINAL | 17.0 | — | 60.00 | -43.05 | N | GND |
| 16.877 | FINAL | — | 10.28 | 50.00 | -39.72 | N | GND |

**Table 7-36. AC Line Conducted Data (NB UNII HDRp4 – 6420MHz) (N) with host PC with USB-C cable**

# 8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Apple Wireless Right Earbud FCC ID: BCG-A3063** and **IC: 579C-A3063** is in compliance with Part 15 Subpart E (15.407) of the FCC Rules and RSS-248 of the Innovation, Science and Economic Development Canada Rules.