## 1.1. Radiated: Transmitter Spurious and Band-Edge

| Radiated Test Conditions for Radiated Spurious and Band-Edge Emissions | | | |
|---|---|---|---|
| **Standard:** | FCC CFR 47:15.407<br>ISED RSS-247 Issue 2<br>ISED RSS-Gen Issue 4 | **Ambient Temp. (ºC):** | 20.0 - 24.5 |
| **Test Heading:** | Radiated Spurious and Band-Edge Emissions | **Rel. Humidity (%):** | 32 - 45 |
| **Standard Section(s):** | 15.407 (b), 15.205, 15.209<br>RSS-247 6.2.4.2<br>RSS-Gen 8.10 | **Pressure (mBars):** | 999 - 1001 |
| **Reference Document(s):** | See Normative References | | |

**Test Procedure for Radiated Spurious and Band-Edge Emissions**
Radiated emissions for restricted bands above 1 GHz are measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarities. The emissions are recorded and maximized as a function of azimuth by rotation through 360° with a spectrum analyzer in peak hold mode. Depending on the frequency band spanned a notch filter was used to remove the fundamental frequency. The highest emissions relative to the limit are listed for each frequency spanned.
Measurements on any restricted band frequency or frequencies above 1 GHz are based on the use of measurement instrumentation employing peak and average detectors. All measurements were performed using a resolution bandwidth of 1 MHz.

Test configuration and setup for Undesirable Measurement were per the Radiated Test Set-up specified in this document.

15.407 (b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

(7) The provisions of §15.205 apply to intentional radiators operating under this section.

(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

**Limits for Restricted Bands (15.205, 15.209)**
**Peak emission: 74 dBuV/m**
**Average emission: 54 dBuV/m**

**Field Strength Calculation**
**The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.**
**FS = R + AF + CORR - FO**

**where:**
**FS = Field Strength**
**R = Measured Spectrum analyzer Input Amplitude**
**AF = Antenna Factor**
**CORR = Correction Factor = CL – AG + NFL**
**CL = Cable Loss**
**AG = Amplifier Gain**
**FO = Distance Falloff Factor**
**NFL = Notch Filter Loss**

**Example:**
**The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength (dBµV/m);**

$$E = \frac{1000000 \times \sqrt{30P}}{3}$$ µV/m

where P is the EIRP in Watts

Therefore: -27 dBm/MHz equates to 68.23 dBuV/m

Conversion between dBmV/m (or dBmV) and mV/m (or mV) are as follows:
Level (dBmV/m) = 20 * Log (level (mV/m))

40 dBmV/m = 100 mV/m
48 dBmV/m = 250 mV/m

**Restricted Bands of Operation (15.205)**
(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| Frequency Band | | | |
|---|---|---|---|
| **MHz** | **MHz** | **MHz** | **GHz** |
| 0.090-0.110 | 16.42-16.423 | 399.9-410 | 4.5-5.15 |
| 0.495-0.505 | 16.69475-16.69525 | 608-614 | 5.35-5.46 |
| 2.1735-2.1905 | 16.80425-16.80475 | 960-1240 | 7.25-7.75 |
| 4.125-4.128 | 25.5-25.67 | 1300-1427 | 8.025-8.5 |
| 4.17725-4.17775 | 37.5-38.25 | 1435-1626.5 | 9.0-9.2 |
| 4.20725-4.20775 | 73-74.6 | 1645.5-1646.5 | 9.3-9.5 |
| 6.215-6.218 | 74.8-75.2 | 1660-1710 | 10.6-12.7 |
| 6.26775-6.26825 | 108-121.94 | 1718.8-1722.2 | 13.25-13.4 |
| 6.31175-6.31225 | 123-138 | 2200-2300 | 14.47-14.5 |
| 8.291-8.294 | 149.9-150.05 | 2310-2390 | 15.35-16.2 |
| 8.362-8.366 | 156.52475-156.52525 | 2483.5-2500 | 17.7-21.4 |
| 8.37625-8.38675 | 156.7-156.9 | 2690-2900 | 22.01-23.12 |
| 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 | 23.6-24.0 |
| 12.29-12.293 | 167.72-173.2 | 3332-3339 | 31.2-31.8 |
| 12.51975-12.52025 | 240-285 | 3345.8-3358 | 36.43-36.5 |
| 12.57675-12.57725 | 322-335.4 | 3600-4400 | Above 38.6 |
| 13.36-13.41 | | | |

(b) Except as provided in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

(c) Except as provided in paragraphs (d) and (e) of this section, regardless of the field strength limits specified elsewhere in this subpart, the provisions of this section apply to emissions from any intentional radiator.

(d) The following devices are exempt from the requirements of this section:

(1) Swept frequency field disturbance sensors operating between 1.705 and 37 MHz provided their emissions only sweep through the bands listed in paragraph (a) of this section, the sweep is never stopped with the fundamental emission within the bands listed in paragraph (a) of this section, and the fundamental emission is outside of the bands listed in paragraph (a) of this section more than 99% of the time the device is actively transmitting, without compensation for duty cycle.

(2) Transmitters used to detect buried electronic markers at 101.4 kHz which are employed by telephone companies.

(3) Cable locating equipment operated pursuant to §15.213.

(4) Any equipment operated under the provisions of §15.253, 15.255, and 15.256 in the frequency band 75-85 GHz, or §15.257 of this part.

(5) Biomedical telemetry devices operating under the provisions of §15.242 of this part are not subject to the restricted band 608-614 MHz but are subject to compliance within the other restricted bands.

(6) Transmitters operating under the provisions of subparts D or F of this part.

(7) Devices operated pursuant to §15.225 are exempt from complying with this section for the 13.36-13.41 MHz band only.

(8) Devices operated in the 24.075-24.175 GHz band under §15.245 are exempt from complying with the requirements of this section for the 48.15-48.35 GHz and 72.225-72.525 GHz bands only, and shall not exceed the limits specified in §15.245(b).

(9) Devices operated in the 24.0-24.25 GHz band under §15.249 are exempt from complying with the requirements of this section for the 48.0-48.5 GHz and 72.0-72.75 GHz bands only, and shall not exceed the limits specified in §15.249(a).

(e) Harmonic emissions appearing in the restricted bands above 17.7 GHz from field disturbance sensors operating under the provisions of §15.245 shall not exceed the limits specified in §15.245(b).

### 1.1.1. TX Spurious & Restricted Band Emissions

#### 1.1.1.1. RADWIN AT0058760

| Equipment Configuration for TX Spurious & Restricted Band Emissions | | | |
|---|---|---|---|
| **Antenna:** | RADWIN AT0058760 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 17.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5490.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 18.5 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 4805.88 | 67.70 | 2.86 | -12.42 | 58.14 | Max Peak | Vertical | 149 | 13 | 68.2 | -10.1 | Pass |
| #2 | 4805.88 | 53.41 | 2.86 | -12.42 | 43.85 | Max Avg | Vertical | 149 | 13 | 54.0 | -10.2 | Pass |
| #3 | 4842.47 | 66.97 | 2.84 | -12.55 | 57.26 | Max Peak | Vertical | 158 | 356 | 68.2 | -11.0 | Pass |
| #4 | 4842.47 | 52.95 | 2.84 | -12.55 | 43.24 | Max Avg | Vertical | 158 | 356 | 54.0 | -10.8 | Pass |
| #5 | 5492.64 | 86.00 | 3.10 | -11.65 | 77.45 | Fundamental | Vertical | 151 | 6 | -- | -- | |
| #6 | 6217.59 | 58.41 | 3.31 | -9.63 | 52.09 | Peak (NRB) | Vertical | 151 | 0 | -- | -- | Pass |
| #7 | 7320.00 | 60.51 | 3.60 | -7.80 | 56.31 | Max Peak | Vertical | 198 | 22 | 68.2 | -11.9 | Pass |
| #8 | 7320.00 | 56.63 | 3.60 | -7.80 | 52.43 | Max Avg | Vertical | 198 | 22 | 54.0 | -1.6 | Pass |
| Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overload. PS reduced to 18.5 | | | | | | | | | | | | |

Spurious emissions were measured up to 40 GHz, no emissions were found.

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN AT0058760 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 17.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5590.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 21 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 4805.91 | 64.83 | 2.86 | -12.42 | 55.27 | Max Peak | Vertical | 178 | 353 | 68.2 | -13.0 | Pass |
| #2 | 4805.91 | 50.56 | 2.86 | -12.42 | 41.00 | Max Avg | Vertical | 178 | 353 | 54.0 | -13.0 | Pass |
| #3 | 4836.26 | 66.22 | 2.81 | -12.54 | 56.49 | Max Peak | Vertical | 160 | 352 | 68.2 | -11.7 | Pass |
| #4 | 4836.26 | 52.18 | 2.81 | -12.54 | 42.45 | Max Avg | Vertical | 160 | 352 | 54.0 | -11.6 | Pass |
| #5 | 5582.71 | 80.05 | 3.12 | -11.56 | 71.61 | Fundamental | Vertical | 100 | 0 | -- | -- | |
| #6 | 6216.34 | 55.56 | 3.30 | -9.63 | 49.23 | Peak (NRB) | Vertical | 151 | 0 | -- | -- | Pass |
| #7 | 7453.37 | 58.76 | 3.61 | -7.77 | 54.60 | Max Peak | Horizontal | 136 | 313 | 68.2 | -13.6 | Pass |
| #8 | 7453.37 | 54.06 | 3.61 | -7.77 | 49.90 | Max Avg | Horizontal | 136 | 313 | 54.0 | -4.1 | Pass |
| Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overload. | | | | | | | | | | | | |

Spurious emissions were measured up to 40 GHz, no emissions were found.

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN AT0058760 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 17.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5705.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 21 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 4837.85 | 64.32 | 2.81 | -12.55 | 54.58 | Max Peak | Vertical | 164 | 353 | 68.2 | -13.7 | Pass |
| #2 | 4837.85 | 50.39 | 2.81 | -12.55 | 40.65 | Max Avg | Vertical | 164 | 353 | 54.0 | -13.4 | Pass |
| #3 | 4866.19 | 63.78 | 2.93 | -12.53 | 54.18 | Max Peak | Vertical | 164 | 0 | 68.2 | -14.1 | Pass |
| #4 | 4866.19 | 49.68 | 2.93 | -12.53 | 40.08 | Max Avg | Vertical | 164 | 0 | 54.0 | -13.9 | Pass |
| #5 | 5700.36 | 77.21 | 3.19 | -11.35 | 69.05 | Fundamental | Vertical | 151 | 154 | -- | -- | |
| #6 | 6298.47 | 57.54 | 3.27 | -9.28 | 51.53 | Peak (NRB) | Vertical | 148 | 0 | -- | -- | Pass |
| Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overload. | | | | | | | | | | | | |

Spurious emissions were measured up to 40 GHz, no emissions were found.

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN AT0058760 | **Variant:** | 40 MHz |
| **Antenna Gain (dBi):** | 17.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | |
| **Channel Frequency (MHz):** | 5500.00 | **Data Rate:** | 13.50 Mbit/s |
| **Power Setting:** | 21 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 4776.76 | 63.69 | 2.89 | -12.46 | 54.12 | Max Peak | Vertical | 140 | 356 | 68.2 | -14.1 | Pass |
| #2 | 4776.76 | 49.30 | 2.89 | -12.46 | 39.73 | Max Avg | Vertical | 140 | 356 | 54.0 | -14.3 | Pass |
| #3 | 4806.62 | 65.79 | 2.86 | -12.43 | 56.22 | Max Peak | Vertical | 171 | 11 | 68.2 | -12.0 | Pass |
| #4 | 4806.62 | 51.21 | 2.86 | -12.43 | 41.64 | Max Avg | Vertical | 171 | 11 | 54.0 | -12.4 | Pass |
| #5 | 5487.24 | 77.15 | 3.17 | -11.70 | 68.62 | Fundamental | Horizontal | 100 | 0 | -- | -- | |
| #6 | 6217.74 | 55.98 | 3.31 | -9.63 | 49.66 | Peak (NRB) | Vertical | 149 | 0 | -- | -- | Pass |
| #7 | 7333.21 | 59.23 | 3.57 | -8.09 | 54.71 | Max Peak | Vertical | 99 | 12 | 68.2 | -13.5 | Pass |
| #8 | 7333.21 | 54.01 | 3.57 | -8.09 | 49.49 | Max Avg | Vertical | 99 | 12 | 54.0 | -4.5 | Pass |
| Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overload. | | | | | | | | | | | | |

Note: 40 MHz TX Spurious Included to show passing result with higher power for higher bandwidth emissions

Spurious emissions were measured up to 40 GHz, no emissions were found.

### 1.1.1.2. RADWIN RW-9105-5158

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9105-5158 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 18.0 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5490.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 21 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 4835.76 | 63.88 | 2.82 | -12.53 | 54.17 | Max Peak | Horizontal | 162 | 5 | 68.2 | -14.1 | Pass |
| #2 | 4835.76 | 49.69 | 2.82 | -12.53 | 39.98 | Max Avg | Horizontal | 162 | 5 | 54.0 | -14.0 | Pass |
| #3 | 4865.41 | 64.06 | 2.92 | -12.53 | 54.45 | Max Peak | Horizontal | 150 | 8 | 68.2 | -13.8 | Pass |
| #4 | 4865.41 | 50.03 | 2.92 | -12.53 | 40.42 | Max Avg | Horizontal | 150 | 8 | 54.0 | -13.6 | Pass |
| #5 | 5491.65 | 83.10 | 3.12 | -11.67 | 74.55 | Fundamental | Horizontal | 151 | 0 | -- | -- | |
| #6 | 6269.69 | 61.65 | 3.35 | -9.49 | 55.51 | Peak (NRB) | Vertical | 151 | 0 | -- | -- | Pass |
| #7 | 7319.98 | 59.61 | 3.60 | -7.80 | 55.41 | Max Peak | Vertical | 155 | 33 | 68.2 | -12.8 | Pass |
| #8 | 7319.98 | 55.42 | 3.60 | -7.80 | 51.22 | Max Avg | Vertical | 155 | 33 | 54.0 | -2.8 | Pass |
| Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overload. | | | | | | | | | | | | |

Spurious emissions were measured up to 40 GHz, no emissions were found.

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9105-5158 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 18.0 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5590.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 21 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 4836.30 | 63.36 | 2.81 | -12.54 | 53.63 | Max Peak | Horizontal | 169 | 353 | 68.2 | -14.6 | Pass |
| #2 | 4836.30 | 49.34 | 2.81 | -12.54 | 39.61 | Max Avg | Horizontal | 169 | 353 | 54.0 | -14.4 | Pass |
| #3 | 5586.13 | 79.96 | 3.13 | -11.56 | 71.53 | Fundamental | Vertical | 100 | 0 | -- | -- | |
| #4 | 6274.07 | 63.25 | 3.35 | -9.50 | 57.10 | Peak (NRB) | Vertical | 151 | 0 | -- | -- | Pass |
| #5 | 7453.37 | 56.48 | 3.61 | -7.77 | 52.32 | Max Peak | Horizontal | 164 | 288 | 68.2 | -15.9 | Pass |
| #6 | 7453.37 | 51.37 | 3.61 | -7.77 | 47.21 | Max Avg | Horizontal | 164 | 288 | 54.0 | -6.8 | Pass |
| Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overload. | | | | | | | | | | | | |

Spurious emissions were measured up to 40 GHz, no emissions were found.

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9105-5158 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 18.0 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5705.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 21 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5697.93 | 77.96 | 3.19 | -11.34 | 69.81 | Fundamental | Vertical | 148 | 0 | -- | -- | |
| #2 | 6070.48 | 60.27 | 3.23 | -10.10 | 53.40 | Peak (NRB) | Horizontal | 148 | 0 | -- | -- | Pass |
| #3 | 6325.27 | 60.58 | 3.31 | -9.29 | 54.60 | Peak (NRB) | Vertical | 148 | 0 | -- | -- | Pass |
| Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overload. | | | | | | | | | | | | |

Spurious emissions were measured up to 40 GHz, no emissions were found.

### 1.1.1.3. RADWIN RW-9314-5158

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9314-5158 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 13.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5490.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 21 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 4621.13 | 63.98 | 2.77 | -12.24 | 54.51 | Max Peak | Vertical | 174 | 1 | 68.2 | -13.7 | Pass |
| #2 | 4621.13 | 49.71 | 2.77 | -12.24 | 40.24 | Max Avg | Vertical | 174 | 1 | 54.0 | -13.8 | Pass |
| #3 | 4837.93 | 66.36 | 2.81 | -12.55 | 56.62 | Max Peak | Vertical | 188 | 354 | 68.2 | -11.6 | Pass |
| #4 | 4837.93 | 52.23 | 2.81 | -12.55 | 42.49 | Max Avg | Vertical | 188 | 354 | 54.0 | -11.5 | Pass |
| #5 | 5495.51 | 81.14 | 3.06 | -11.64 | 72.56 | Fundamental | Vertical | 200 | 0 | -- | -- | |
| #6 | 7320.02 | 57.58 | 3.59 | -7.82 | 53.35 | Max Peak | Vertical | 110 | 94 | 68.2 | -14.9 | Pass |
| #7 | 7320.02 | 52.75 | 3.59 | -7.82 | 48.52 | Max Avg | Vertical | 110 | 94 | 54.0 | -5.5 | Pass |
| Test Notes: EUT powered by POE. | | | | | | | | | | | | |

Spurious emissions were measured up to 40 GHz, no emissions were found.

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9314-5158 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 13.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5590.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 21 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 4833.87 | 66.17 | 2.83 | -12.52 | 56.48 | Max Peak | Vertical | 192 | 0 | 68.2 | -11.8 | Pass |
| #2 | 4833.87 | 51.75 | 2.83 | -12.52 | 42.06 | Max Avg | Vertical | 192 | 0 | 54.0 | -11.9 | Pass |
| #3 | 5585.91 | 85.94 | 3.13 | -11.56 | 77.51 | Fundamental | Vertical | 200 | 0 | -- | -- | |
| #4 | 7453.39 | 53.95 | 3.61 | -7.77 | 49.79 | Max Peak | Vertical | 101 | 13 | 68.2 | -18.4 | Pass |
| #5 | 7453.39 | 47.44 | 3.61 | -7.77 | 43.28 | Max Avg | Vertical | 101 | 13 | 54.0 | -10.7 | Pass |
| Test Notes: EUT powered by POE. 5G notch in front of amp to prevent overload. | | | | | | | | | | | | |

Spurious emissions were measured up to 40 GHz, no emissions were found.

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9314-5158 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 13.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5705.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 21 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 4806.19 | 63.06 | 2.86 | -12.43 | 53.49 | Max Peak | Vertical | 189 | 1 | 68.2 | -14.7 | Pass |
| #2 | 4806.19 | 48.94 | 2.86 | -12.43 | 39.37 | Max Avg | Vertical | 189 | 1 | 54.0 | -14.6 | Pass |
| #3 | 5702.89 | 75.06 | 3.18 | -11.34 | 66.90 | Fundamental | Vertical | 151 | 1 | -- | -- | |
| Test Notes: EUT powered by POE. 5G notch in front of amp to prevent overload. | | | | | | | | | | | | |

Spurious emissions were measured up to 40 GHz, no emissions were found.

### 1.1.1.4. RADWIN RW-9401-5004

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9401-5004 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 12.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5490.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 21 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 4743.80 | 60.84 | 2.87 | -12.34 | 51.37 | Max Peak | Vertical | 166 | 19 | 68.2 | -16.9 | Pass |
| #2 | 4743.80 | 47.15 | 2.87 | -12.34 | 37.68 | Max Avg | Vertical | 166 | 19 | 54.0 | -16.3 | Pass |
| #3 | 5494.73 | 78.38 | 3.07 | -11.64 | 69.81 | Fundamental | Vertical | 151 | 0 | -- | -- | |
| #4 | 6189.88 | 57.59 | 3.27 | -9.69 | 51.17 | Peak (NRB) | Vertical | 151 | 0 | -- | -- | Pass |
| #5 | 7320.13 | 58.99 | 3.59 | -7.82 | 54.76 | Max Peak | Vertical | 196 | 240 | 68.2 | -13.5 | Pass |
| #6 | 7320.13 | 54.05 | 3.59 | -7.82 | 49.82 | Max Avg | Vertical | 196 | 240 | 54.0 | -4.2 | Pass |
| Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overload. | | | | | | | | | | | | |

Spurious emissions were measured up to 40 GHz, no emissions were found.

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9401-5004 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 12.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5590.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 21 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 4835.41 | 62.06 | 2.82 | -12.53 | 52.35 | Max Peak | Vertical | 192 | 352 | 68.2 | -15.9 | Pass |
| #2 | 4835.41 | 48.53 | 2.82 | -12.53 | 38.82 | Max Avg | Vertical | 192 | 352 | 54.0 | -15.2 | Pass |
| #3 | 5586.46 | 82.87 | 3.13 | -11.56 | 74.44 | Fundamental | Vertical | 200 | 0 | -- | -- | |
| #4 | 6273.56 | 57.74 | 3.35 | -9.50 | 51.59 | Peak (NRB) | Vertical | 200 | 0 | -- | -- | Pass |
| #5 | 7453.42 | 54.50 | 3.61 | -7.77 | 50.34 | Max Peak | Vertical | 196 | 286 | 68.2 | -17.9 | Pass |
| #6 | 7453.42 | 46.84 | 3.61 | -7.77 | 42.68 | Max Avg | Vertical | 196 | 286 | 54.0 | -11.3 | Pass |
| Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overload. | | | | | | | | | | | | |

Spurious emissions were measured up to 40 GHz, no emissions were found.

**Equipment Configuration for TX Spurious & Restricted Band Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9401-5004 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 12.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 99 |
| **Channel Frequency (MHz):** | 5705.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 21 | **Tested By:** | JMH |

**Test Measurement Results**

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5702.56 | 73.83 | 3.18 | -11.34 | 65.67 | Fundamental | Vertical | 200 | 0 | -- | -- | |
| #2 | 6043.28 | 57.20 | 3.22 | -10.04 | 50.38 | Peak (NRB) | Vertical | 200 | 0 | -- | -- | Pass |
| #3 | 6275.70 | 54.72 | 3.35 | -9.48 | 48.59 | Peak (NRB) | Vertical | 200 | 0 | -- | -- | Pass |
| Test Notes: EUT powered by POE. 5G Notch in front of amp to prevent overload. | | | | | | | | | | | | |

Spurious emissions were measured up to 40 GHz, no emissions were found.

### 1.1.2. Restricted Edge & Band-Edge Emissions

#### 1.1.2.5. RADWIN AT0058760

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5470 - 5725 MHz

| RADWIN AT0058760 | | Restricted-Edge Freq | Limit 68.23 | Limit 54.0 | Power Setting |
|---|---|---|---|---|---|
| Operational Mode | Operating Frequency (MHz) | MHz | dBµV/m | dBµV/m | |
| 20 MHz | 5490.00 | 5460.00 | 67.56 | 44.11 | 4.5 |
| 40 MHz | 5500.00 | 5460.00 | 68.12 | 44.21 | 1.5 |
| 80 MHz | 5525.00 | 5460.00 | 67.79 | 46.13 | 2.5 |

Click on the links to view the data.

**Equipment Configuration for Restricted Lower Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN AT0058760 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 17.0 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 86 |
| **Channel Frequency (MHz):** | 5490.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 4.5 | **Tested By:** | JMH |

**Test Measurement Results**

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5460.00 | 6.52 | 3.06 | 34.53 | 44.11 | Max Avg | Vertical | 164 | 4 | 54.0 | -9.9 | Pass |
| #3 | 5469.40 | 29.95 | 3.06 | 34.55 | 67.56 | Max Peak | Vertical | 164 | 4 | 68.2 | -0.7 | Pass |
| #2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| #4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT powered by POE.PS reduced to 4.5 to meet band edge limit. *Includes Duty Cycle correction for Avg Measurement. | | | | | | | | | | | | |

## Equipment Configuration for Restricted Lower Band-Edge Emissions

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN AT0058760 | **Variant:** | 40 MHz |
| **Antenna Gain (dBi):** | 17.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 78 |
| **Channel Frequency (MHz):** | 5500.00 | **Data Rate:** | 13.50 Mbit/s |
| **Power Setting:** | 1.5 | **Tested By:** | JMH |

## Test Measurement Results

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5460.00 | 5.54 | 3.06 | 34.53 | 44.21 | Max Avg | Vertical | 164 | 4 | 54.0 | -9.8 | Pass |
| #3 | 5470.00 | 30.51 | 3.06 | 34.55 | 68.12 | Max Peak | Vertical | 164 | 4 | 68.2 | -0.1 | Pass |
| #2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| #4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT powered by POE. PS reduced to 1.5 to meet band edge limit. *Includes Duty Cycle correction for Avg Measurement. | | | | | | | | | | | | |

## Equipment Configuration for Restricted Lower Band-Edge Emissions

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN AT0058760 | **Variant:** | 80 MHz |
| **Antenna Gain (dBi):** | 17.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 66 |
| **Channel Frequency (MHz):** | 5525.00 | **Data Rate:** | 29.30 Mbit/s |
| **Power Setting:** | 2.5 | **Tested By:** | JMH |

## Test Measurement Results

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5460.00 | 6.74 | 3.06 | 34.53 | 46.13 | Max Avg | Vertical | 164 | 4 | 54.0 | -7.9 | Pass |
| #3 | 5469.02 | 30.18 | 3.06 | 34.55 | 67.79 | Max Peak | Vertical | 164 | 4 | 68.2 | -0.4 | Pass |
| #2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| #4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT powered by POE. PS reduced to 2.5 to meet band edge limit. *Includes Duty Cycle correction for Avg Measurement. | | | | | | | | | | | | |

### 1.1.2.6. RADWIN RW-9105-5158

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5470 - 5725 MHz

| RADWIN RW-9105-5158 | | Restricted-Edge Freq | Limit 68.23 | Limit 54.0 | Power Setting |
|---|---|---|---|---|---|
| Operational Mode | Operating Frequency (MHz) | dBµV/m | dBµV/m | dBµV/m | |
| 20 MHz | 5490.00 | 5460.00 | 68.10 | 44.71 | 4.0 |
| 40 MHz | 5500.00 | 5460.00 | 67.97 | 45.13 | 0 |
| 80 MHz | 5525.00 | 5460.00 | 67.48 | 46.13 | 1 |

Click on the links to view the data.

**Equipment Configuration for Restricted Lower Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9105-5158 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 18.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 86 |
| **Channel Frequency (MHz):** | 5490.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 4.0 | **Tested By:** | JMH |

**Test Measurement Results**

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5460.00 | 7.12 | 3.06 | 34.53 | 44.71 | Max Avg | Horizontal | 198 | 1 | 54.0 | -9.3 | Pass |
| #3 | 5470.00 | 30.49 | 3.06 | 34.55 | 68.10 | Max Peak | Horizontal | 198 | 1 | 68.2 | -0.1 | Pass |
| #2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| #4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT powered by POE. Power reduced to meet limit. *Includes Duty Cycle correction for Avg Measurement. | | | | | | | | | | | | |

## Equipment Configuration for Restricted Lower Band-Edge Emissions

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9105-5158 | **Variant:** | 40 MHz |
| **Antenna Gain (dBi):** | 18.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 78 |
| **Channel Frequency (MHz):** | 5500.00 | **Data Rate:** | 13.50 Mbit/s |
| **Power Setting:** | 0 | **Tested By:** | JMH |

## Test Measurement Results

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5460.00 | 7.54 | 3.06 | 34.53 | 45.13 | Max Avg | Horizontal | 198 | 1 | 54.0 | -8.9 | Pass |
| #3 | 5469.70 | 30.36 | 3.06 | 34.55 | 67.97 | Max Peak | Horizontal | 198 | 1 | 68.2 | -0.3 | Pass |
| #2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| #4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT powered by POE. Power reduced to meet limit. *Includes Duty Cycle correction for Avg Measurement. | | | | | | | | | | | | |





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## Equipment Configuration for Restricted Lower Band-Edge Emissions

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9105-5158 | **Variant:** | 80 MHz |
| **Antenna Gain (dBi):** | 18.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 66 |
| **Channel Frequency (MHz):** | 5525.00 | **Data Rate:** | 29.30 Mbit/s |
| **Power Setting:** | 1 | **Tested By:** | JMH |

## Test Measurement Results

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5460.00 | 8.54 | 3.06 | 34.53 | 46.13 | Max Avg | Horizontal | 198 | 1 | 54.0 | -7.9 | Pass |
| #3 | 5470.00 | 29.87 | 3.06 | 34.55 | 67.48 | Max Peak | Horizontal | 198 | 1 | 68.2 | -0.8 | Pass |
| #2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| #4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT powered by POE. Power reduced to meet limit. *Includes Duty Cycle correction for Avg Measurement. | | | | | | | | | | | | |

### 1.1.2.7. RADWIN RW-9314-5158

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5470 - 5725 MHz

| RADWIN RW-9314-5158 | | Restricted-Edge Freq | Limit 68.23 | Limit 54.0 | Power Setting |
|---|---|---|---|---|---|
| Operational Mode | Operating Frequency (MHz) | dBµV/m | dBµV/m | dBµV/m | |
| 20 MHz | 5490.00 | 5460.00 | 67.97 | 44.41 | 5.5 |
| 40 MHz | 5500.00 | 5460.00 | 67.77 | 44.53 | 1.5 |
| 80 MHz | 5525.00 | 5460.00 | 68.05 | 46.13 | 1.5 |

Click on the links to view the data.

**Equipment Configuration for Restricted Lower Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9314-5158 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 13.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 86 |
| **Channel Frequency (MHz):** | 5490.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 5.5 | **Tested By:** | JMH |

**Test Measurement Results**

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5460.00 | 6.82 | 3.06 | 34.53 | 44.41 | Max Avg | Vertical | 177 | 352 | 54.0 | -9.6 | Pass |
| #3 | 5470.00 | 30.36 | 3.06 | 34.55 | 67.97 | Max Peak | Vertical | 177 | 352 | 68.2 | -0.3 | Pass |
| #2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| #4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT Powered by POE. Power reduced to meet Peak Limit. *Includes Duty Cycle correction for Avg Measurement. | | | | | | | | | | | | |

**Equipment Configuration for Restricted Lower Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9314-5158 | **Variant:** | 40 MHz |
| **Antenna Gain (dBi):** | 13.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 78 |
| **Channel Frequency (MHz):** | 5500.00 | **Data Rate:** | 13.50 Mbit/s |
| **Power Setting:** | 1.5 | **Tested By:** | JMH |

**Test Measurement Results**

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5460.00 | 6.94 | 3.06 | 34.53 | 44.53 | Max Avg | Vertical | 177 | 352 | 54.0 | -9.5 | Pass |
| #3 | 5469.70 | 30.16 | 3.06 | 34.55 | 67.77 | Max Peak | Vertical | 177 | 352 | 68.2 | -0.5 | Pass |
| #2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| #4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT Powered by POE. Power reduced to meet Peak Limit. *Includes Duty Cycle correction for Avg Measurement. | | | | | | | | | | | | |

**Equipment Configuration for Restricted Lower Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9314-5158 | **Variant:** | 80 MHz |
| **Antenna Gain (dBi):** | 13.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 66 |
| **Channel Frequency (MHz):** | 5525.00 | **Data Rate:** | 29.30 Mbit/s |
| **Power Setting:** | 1.5 | **Tested By:** | JMH |

**Test Measurement Results**

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5460.00 | 8.54 | 3.06 | 34.53 | 46.13 | Max Avg | Vertical | 177 | 352 | 54.0 | -7.9 | Pass |
| #3 | 5467.60 | 30.43 | 3.07 | 34.55 | 68.05 | Max Peak | Vertical | 177 | 352 | 68.2 | -0.2 | Pass |
| #2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| #4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT Powered by POE. Power reduced to meet Peak Limit. *Includes Duty Cycle correction for Avg Measurement. | | | | | | | | | | | | |

### 1.1.2.8. RADWIN RW-9401-5004

RESULTS SUMMARY FOR RADIATED BAND-EDGE EMISSIONS

5470 - 5725 MHz

| RADWIN RW-9401-5004 | | Restricted-Edge Freq | Limit 68.23 | Limit 54.0 | Power Setting |
|---|---|---|---|---|---|
| Operational Mode | Operating Frequency (MHz) | MHz | dBµV/m | dBµV/m | |
| 20 MHz | 5490.00 | 5460.00 | 68.14 | 46.29 | 8 |
| 40 MHz | 5500.00 | 5460.00 | 67.90 | 44.53 | 3.5 |
| 80 MHz | 5525.00 | 5460.00 | 67.77 | 45.55 | 2.5 |

Click on the links to view the data.

**Equipment Configuration for Restricted Lower Band-Edge Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9401-5004 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 12.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 86 |
| **Channel Frequency (MHz):** | 5490.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 8 | **Tested By:** | JMH |

**Test Measurement Results**

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5460.00 | 8.70 | 3.06 | 34.53 | 46.29 | Max Avg | Vertical | 185 | 3 | 54.0 | -7.7 | Pass |
| #3 | 5470.00 | 30.53 | 3.06 | 34.55 | 68.14 | Max Peak | Vertical | 185 | 3 | 68.2 | -0.1 | Pass |
| #2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| #4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT powered by POE. Power reduced to meet Peak Limit. *Includes Duty Cycle correction for Avg Measurement. | | | | | | | | | | | | |

## Equipment Configuration for Restricted Lower Band-Edge Emissions

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9401-5004 | **Variant:** | 40 MHz |
| **Antenna Gain (dBi):** | 12.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | |
| **Channel Frequency (MHz):** | 5500.00 | **Data Rate:** | 13.50 Mbit/s |
| **Power Setting:** | 3.5 | **Tested By:** | JMH |

## Test Measurement Results

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5460.00 | 6.94 | 3.06 | 34.53 | 44.53 | Max Avg | Vertical | 185 | 3 | 54.0 | -9.5 | Pass |
| #3 | 5470.00 | 30.29 | 3.06 | 34.55 | 67.90 | Max Peak | Vertical | 185 | 3 | 68.2 | -0.3 | Pass |
| #2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| #4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT powered by POE. Power reduced to meet Peak Limit. *Includes Duty Cycle correction for Avg Measurement. | | | | | | | | | | | | |

## Equipment Configuration for Restricted Lower Band-Edge Emissions

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN RW-9401-5004 | **Variant:** | 80 MHz |
| **Antenna Gain (dBi):** | 12.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 66 |
| **Channel Frequency (MHz):** | 5525.00 | **Data Rate:** | 29.30 Mbit/s |
| **Power Setting:** | 2.5 | **Tested By:** | JMH |

## Test Measurement Results

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 5460.00 | 6.16 | 3.06 | 34.53 | 45.55 | Max Avg | Vertical | 185 | 3 | 54.0 | -8.5 | Pass |
| #3 | 5469.70 | 30.16 | 3.06 | 34.55 | 67.77 | Max Peak | Vertical | 185 | 3 | 68.2 | -0.5 | Pass |
| #2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| #4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |
| Test Notes: EUT powered by POE. Power reduced to meet Peak Limit. *Includes Duty Cycle correction for Avg Measurement. | | | | | | | | | | | | |

### 1.1.3. Digital Emissions

| Radiated Test Conditions for Radiated Digital Emissions (0.03 – 1 GHz) | | | |
|---|---|---|---|
| **Standard:** | FCC CFR 47:15.247<br>RSS-Gen Issue 4 | **Ambient Temp. (ºC):** | 20.0 - 24.5 |
| **Test Heading:** | Digital Emissions | **Rel. Humidity (%):** | 32 - 45 |
| **Standard Section(s):** | 15.209<br>RSS-Gen: 8.9 | **Pressure (mBars):** | 999 - 1001 |
| **Reference Document(s):** | See Normative References | | |

**Test Procedure for Radiated Digital Emissions (0.03 – 1 GHz)**
Testing 30M-1 GHz was performed in a 3-meter anechoic chamber using a CISPR compliant receiver. Preliminary radiated emissions were measured on every azimuth and with the receiving antenna in both horizontal and vertical polarizations. To further maximize emissions the receive antenna was varied between 1 and 4 meters. The emissions are recorded with receiver in peak hold mode. Emissions closest to the limits are measured in the quasi-peak mode with the tuned receiver using a bandwidth of 120 kHz. Only the highest emissions relative to the limit are listed.

Test configuration and setup for Radiated Spurious and Band-Edge Measurement were per the Radiated Test Set-up specified in this document.

Field Strength Calculation
The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. In this test facility, the Antenna Factor, Cable Loss, and Amplifier Gains are loaded into the Rohde & Schwarz Receiver and the corrected field strength can be read directly on the receiver.

FS = R + AF + CORR

where:
FS = Field Strength
R = Measured Receiver Input Amplitude
AF = Antenna Factor
CORR = Correction Factor = CL – AG + NFL
CL = Cable Loss
AG = Amplifier Gain

For example:
Given a Receiver input reading of 51.5dBmV; Antenna Factor of 8.5dB; Cable Loss of 1.3dB; Falloff Factor of 0dB, an Amplifier Gain of 26dB and Notch Filter Loss of 1dB. The Field Strength of the measured emission is:

FS = 51.5 + 8.5 + 1.3 - 26.0 +1 = 36.3dBmV/m

Conversion between dBmV/m (or dBmV) and mV/m (or mV) are done as:

Level (dBmV/m) = 20 * Log (level (mV/m))

40 dBmV/m = 100mV/m
48 dBmV/m = 250mV/m

Limits for Radiated Digital Emissions (0.03 – 1 GHz) (15.209)

(a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (MHz) | Field Strength | | Measurement Distance (m) |
|---|---|---|---|
| | µV/m (microvolts/meter) | dBµV/m (dB microvolts/meter) | |
| 0.009-0.490 | 2400/F(kHz) | -- | 300 |
| 0.490-1.705 | 24000/F(kHz) | -- | 30 |

| | | | |
|---|---|---|---|
| 1.705-30.0 | 30 | 29.5 | 30 |
| 30-88 | 100** | 40 | 3 |
| 88-216 | 150** | 43.5 | 3 |
| 216-960 | 200** | 46.0 | 3 |
| Above 960 | 500 | 54.0 | 3 |

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

(b) In the emission table above, the tighter limit applies at the band edges. (c) The level of any unwanted emissions from an intentional radiator operating under these general provisions shall not exceed the level of the fundamental emission. For intentional radiators which operate under the provisions of other sections within this part and which are required to reduce their unwanted emissions to the limits specified in this table, the limits in this table are based on the frequency of the unwanted emission and not the fundamental frequency. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency. (d) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. (e) The provisions in §§15.31, 15.33, and 15.35 for measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part. (f) In accordance with §15.33(a), in some cases the emissions from an intentional radiator must be measured to beyond the tenth harmonic of the highest fundamental frequency designed to be emitted by the intentional radiator because of the incorporation of a digital device. If measurements above the tenth harmonic are so required, the radiated emissions above the tenth harmonic shall comply with the general radiated emission limits applicable to the incorporated digital device, as shown in §15.109 and as based on the frequency of the emission being measured, or, except for emissions contained in the restricted frequency bands shown in §15.205, the limit on spurious emissions specified for the intentional radiator, whichever is the higher limit. Emissions which must be measured above the tenth harmonic of the highest fundamental frequency designed to be emitted by the intentional radiator and which fall within the restricted bands shall comply with the general radiated emission limits in §15.109 that are applicable to the incorporated digital device. (g) Perimeter protection systems may operate in the 54-72 MHz and 76-88 MHz bands under the provisions of this section. The use of such perimeter protection systems is limited to industrial, business and commercial applications.

**Equipment Configuration for Digital Emissions**

| | | | |
|---|---|---|---|
| **Antenna:** | RADWIN AT0058760 | **Variant:** | 20 MHz |
| **Antenna Gain (dBi):** | 17.00 | **Modulation:** | OFDM |
| **Beam Forming Gain (Y):** | Not Applicable | **Duty Cycle (%):** | 86 |
| **Channel Frequency (MHz):** | 5590.00 | **Data Rate:** | 6.50 Mbit/s |
| **Power Setting:** | 21 | **Tested By:** | JMH |

**Test Measurement Results**

| 30.00 - 1000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| #1 | 30.52 | 38.78 | 3.54 | -8.20 | 34.12 | MaxQP | Vertical | 111 | 328 | 40.0 | -5.9 | Pass |
| #2 | 80.93 | 55.95 | 3.94 | -20.89 | 39.00 | MaxQP | Horizontal | 380 | 262 | 40.0 | -1.0 | Pass |
| #3 | 133.75 | 45.61 | 4.23 | -14.82 | 35.02 | MaxQP | Vertical | 102 | 355 | 43.0 | -8.0 | Pass |
| #4 | 159.44 | 50.54 | 4.36 | -15.90 | 39.00 | MaxQP | Horizontal | 175 | 131 | 43.0 | -4.0 | Pass |
| #5 | 320.00 | 51.98 | 4.99 | -13.78 | 43.19 | MaxQP | Horizontal | 101 | 295 | 46.0 | -2.8 | Pass |
| #6 | 700.01 | 35.74 | 6.20 | -7.22 | 34.72 | MaxQP | Horizontal | 111 | 174 | 46.0 | -11.3 | Pass |
| #7 | 899.97 | 33.09 | 6.76 | -4.92 | 34.93 | MaxQP | Horizontal | 102 | 139 | 46.0 | -11.1 | Pass |
| Test Notes: EUT Powered by POE. | | | | | | | | | | | | |

## 1.1.4. ac Wireline Emissions

| Test Conditions for ac Wireline Emissions (0.15 – 30 MHz) | | | |
|---|---|---|---|
| Standard: | FCC CFR 47:15.247<br>RSS-Gen Issue 4 | Ambient Temp. (ºC): | 20.0 - 24.5 |
| Test Heading: | Conducted (ac Wireline Emissions) | Rel. Humidity (%): | 32 - 45 |
| Standard Section(s): | 15.207<br>RSS-Gen 8.8 | Pressure (mBars): | 999 - 1001 |
| Reference Document(s): | See Normative References | | |

Test Procedure for ac Wireline Emissions (0.15 – 30 MHz)
The EUT is configured in accordance with ANSI C63.4. The conducted emissions are measured in a shielded room with a spectrum analyzer in peak hold in the first instance. Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation. The highest emissions relative to the limit are listed.

Test configuration and setup for ac Wireline Emission Measurement were per the ac Wireline Test Set-up specified in this document.

**Limits for ac Wireline Emissions**

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Limits for conducted disturbance at the mains ports of class B ITE

| Frequency of emission (MHz) | Quasi-peak dBuV | Average dBuV |
|---|---|---|
| 0.15–0.5 | 66 to 56* | 56 to 46* |
| 0.5–5 | 56 | 46 |
| 5–30 | 60 | 50 |
| Note 1 | * Decreases with the logarithm of the frequency | |
| Note 2 | * The lower limit applies at the boundary between frequency ranges | |

Limits for conducted disturbance at the mains ports of class A ITE

| Frequency of emission (MHz) | Quasi-peak dBuV | Average dBuV |
|---|---|---|
| 0.15–0.5 | 79 | 66 |
| 0.5–30 | 73 | 60 |
| Note 1 | * The lower limit shall apply at the transition frequency. | |

The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 µV within the frequency band 535-1705 kHz, as measured using a 50 µH/50 ohms LISN.

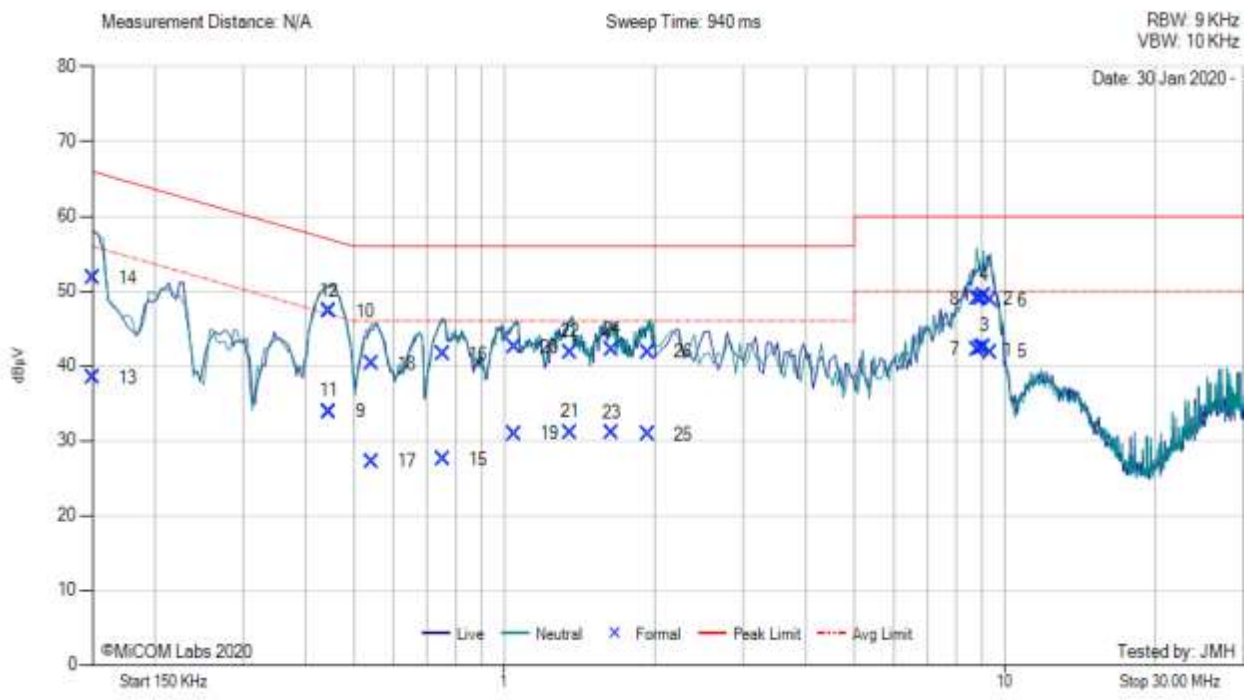
(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in §15.205, §15.209, §15.221, §15.223, or §15.227, as appropriate.

Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

## Measurement Results for ac Wireline Conducted Emissions (150 kHz – 30 MHz)

| Model: | AP0168031 | Configuration tested: | AC/DC |
|---|---|---|---|
| Input power: | 120$V_{AC}$/60Hz | Application | AC Mains |

Variant: , Test Freq: 0.00 MHz




| Num | Frequency MHz | Raw dBµV | Cable Loss dB | Factor dB | Total Correction dBµV | Corrected Value dBµV | Measurement Type | Line | Limit dBµV/m | Margin dB | Pass /Fail |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.816 | 31.51 | 0.44 | 10.21 | 10.65 | 42.16 | Max Avg | Neutral | 50.0 | -7.8 | Pass |
| 2 | 8.816 | 38.34 | 0.44 | 10.21 | 10.65 | 48.99 | Max Qp | Neutral | 60.0 | -11.0 | Pass |
| 3 | 9.101 | 31.92 | 0.44 | 10.22 | 10.66 | 42.58 | Max Avg | Neutral | 50.0 | -7.4 | Pass |
| 4 | 9.101 | 38.69 | 0.44 | 10.22 | 10.66 | 49.35 | Max Qp | Neutral | 60.0 | -10.7 | Pass |
| 5 | 9.386 | 31.18 | 0.44 | 10.21 | 10.65 | 41.83 | Max Avg | Live | 50.0 | -8.2 | Pass |
| 6 | 9.386 | 38.12 | 0.44 | 10.21 | 10.65 | 48.77 | Max Qp | Live | 60.0 | -11.2 | Pass |
| 7 | 8.958 | 31.64 | 0.44 | 10.20 | 10.64 | 42.28 | Max Avg | Live | 50.0 | -7.7 | Pass |
| 8 | 8.958 | 38.30 | 0.44 | 10.20 | 10.64 | 48.94 | Max Qp | Live | 60.0 | -11.1 | Pass |
| 9 | 0.447 | 23.86 | 0.06 | 9.93 | 9.99 | 33.85 | Max Avg | Live | 47.5 | -13.7 | Pass |
| 10 | 0.447 | 37.31 | 0.06 | 9.93 | 9.99 | 47.30 | Max Qp | Live | 57.5 | -10.2 | Pass |
| 11 | 0.447 | 23.88 | 0.06 | 9.93 | 9.99 | 33.87 | Max Avg | Neutral | 47.5 | -13.6 | Pass |
| 12 | 0.447 | 37.26 | 0.06 | 9.93 | 9.99 | 47.25 | Max Qp | Neutral | 57.5 | -10.3 | Pass |
| 13 | 0.150 | 28.44 | 0.05 | 9.92 | 9.97 | 38.41 | Max Avg | Live | 56.0 | -17.6 | Pass |
| 14 | 0.150 | 41.79 | 0.05 | 9.92 | 9.97 | 51.76 | Max Qp | Live | 66.0 | -14.2 | Pass |
| 15 | 0.753 | 17.39 | 0.12 | 9.93 | 10.05 | 27.44 | Max Avg | Live | 46.0 | -18.6 | Pass |
| 16 | 0.753 | 31.51 | 0.12 | 9.93 | 10.05 | 41.56 | Max Qp | Live | 56.0 | -14.4 | Pass |
| 17 | 0.541 | 17.18 | 0.09 | 9.92 | 10.01 | 27.19 | Max Avg | Live | 46.0 | -18.8 | Pass |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 0.541 | 30.30 | 0.09 | 9.92 | 10.01 | 40.31 | Max Qp | Live | 56.0 | -15.7 | Pass |
| 19 | 1.048 | 20.92 | 0.08 | 9.94 | 10.02 | 30.94 | Max Avg | Live | 46.0 | -15.1 | Pass |
| 20 | 1.048 | 32.41 | 0.08 | 9.94 | 10.02 | 42.43 | Max Qp | Live | 56.0 | -13.6 | Pass |
| 21 | 1.353 | 21.03 | 0.11 | 9.94 | 10.05 | 31.08 | Max Avg | Live | 46.0 | -14.9 | Pass |
| 22 | 1.353 | 31.81 | 0.11 | 9.94 | 10.05 | 41.86 | Max Qp | Live | 56.0 | -14.1 | Pass |
| 23 | 1.635 | 20.95 | 0.15 | 9.97 | 10.12 | 31.07 | Max Avg | Live | 46.0 | -14.9 | Pass |
| 24 | 1.635 | 32.04 | 0.15 | 9.97 | 10.12 | 42.16 | Max Qp | Live | 56.0 | -13.8 | Pass |
| 25 | 1.931 | 20.69 | 0.18 | 9.97 | 10.15 | 30.84 | Max Avg | Live | 46.0 | -15.2 | Pass |
| 26 | 1.931 | 31.69 | 0.18 | 9.97 | 10.15 | 41.84 | Max Qp | Live | 56.0 | -14.2 | Pass |
| 32 | 0.000 | 0.05 | -- | -- | -- | -- | | -- | -- | -- | -- |

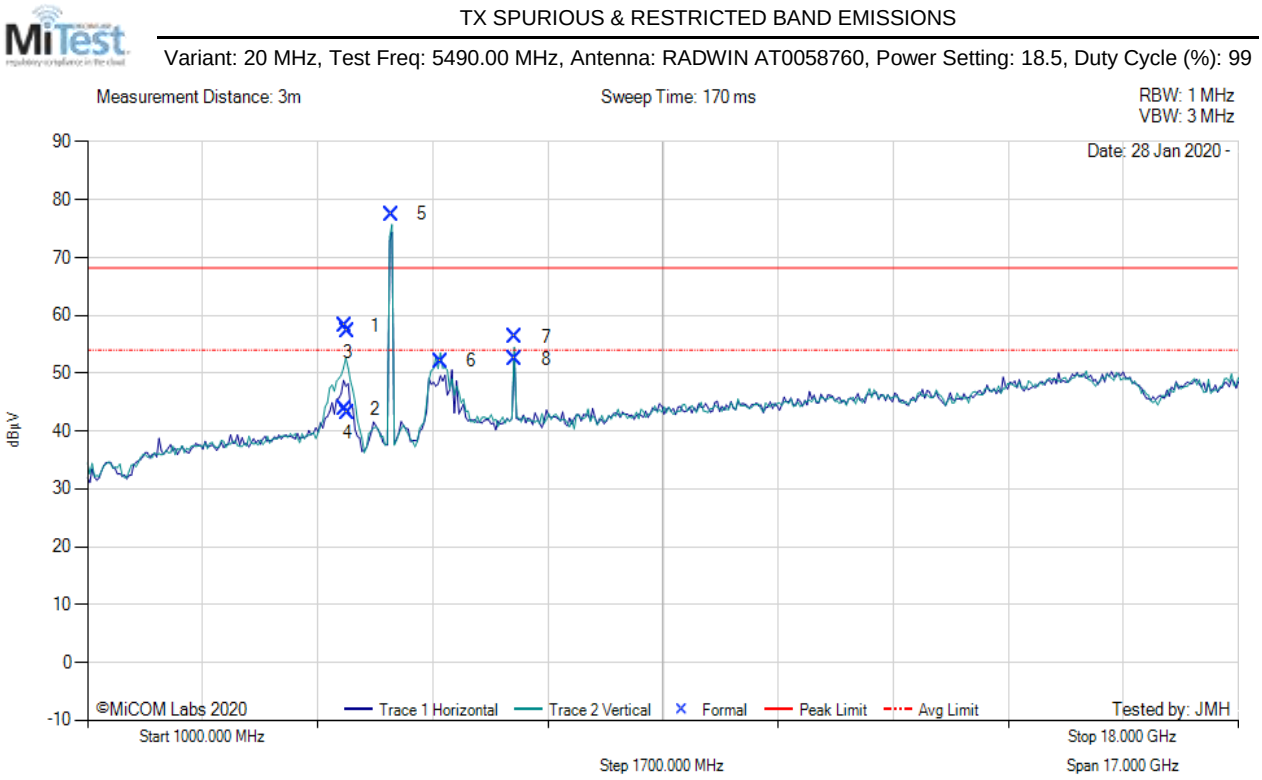
**Test Notes:** EUT powered by POE. 120V 60 Hz

# A. APPENDIX - GRAPHICAL IMAGES

# A.1. Radiated

## A.1.1. TX Spurious & Restricted Band Emissions

### A.1.1.1. RADWIN AT0058760



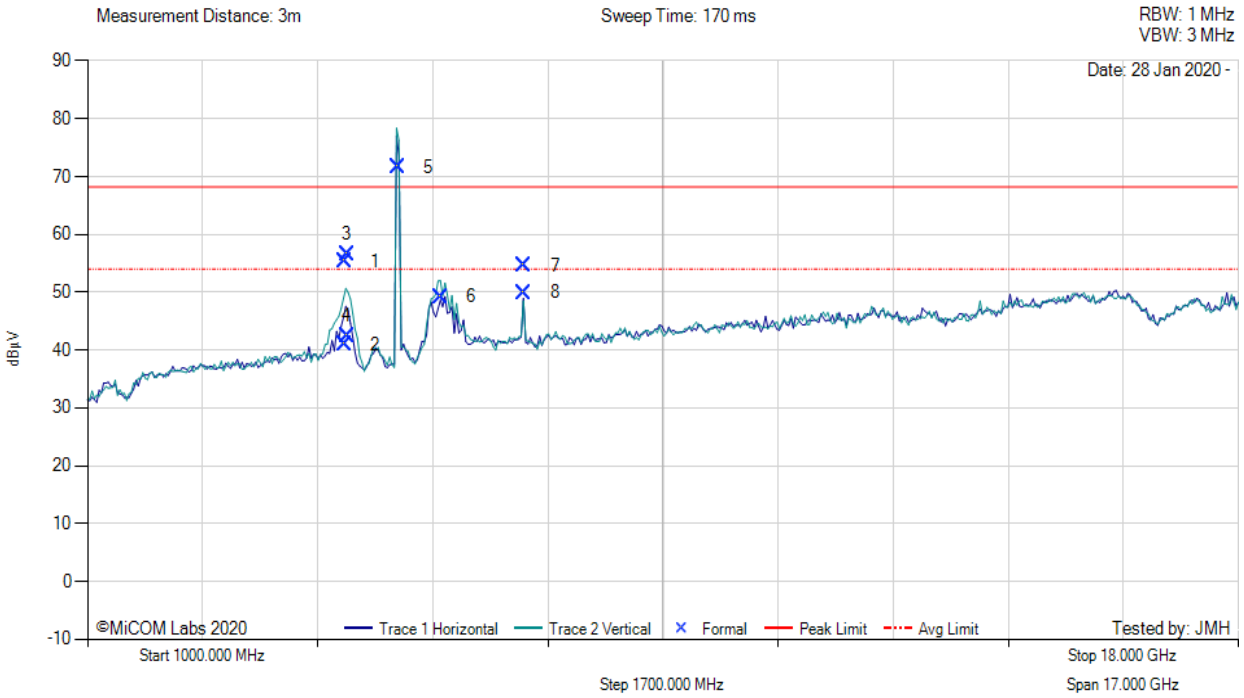

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB/m | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail |
| 1 | 4805.88 | 67.70 | 2.86 | -12.42 | 58.14 | Max Peak | Vertical | 149 | 13 | 68.2 | -10.1 | Pass |
| 2 | 4805.88 | 53.41 | 2.86 | -12.42 | 43.85 | Max Avg | Vertical | 149 | 13 | 54.0 | -10.2 | Pass |
| 3 | 4842.47 | 66.97 | 2.84 | -12.55 | 57.26 | Max Peak | Vertical | 158 | 356 | 68.2 | -11.0 | Pass |
| 4 | 4842.47 | 52.95 | 2.84 | -12.55 | 43.24 | Max Avg | Vertical | 158 | 356 | 54.0 | -10.8 | Pass |
| 5 | 5492.64 | 86.00 | 3.10 | -11.65 | 77.45 | Fundamental | Vertical | 151 | 6 | -- | -- | |
| 6 | 6217.59 | 58.41 | 3.31 | -9.63 | 52.09 | Peak (NRB) | Vertical | 151 | 0 | -- | -- | Pass |
| 7 | 7320.00 | 60.51 | 3.60 | -7.80 | 56.31 | Max Peak | Vertical | 198 | 22 | 68.2 | -11.9 | Pass |
| 8 | 7320.00 | 56.63 | 3.60 | -7.80 | 52.43 | Max Avg | Vertical | 198 | 22 | 54.0 | -1.6 | Pass |

**Test Notes:** EUT powered by POE. 5G Notch in front of amp to prevent overload. PS reduced to 18.5

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5590.00 MHz, Antenna: RADWIN AT0058760, Power Setting: 21, Duty Cycle (%): 99



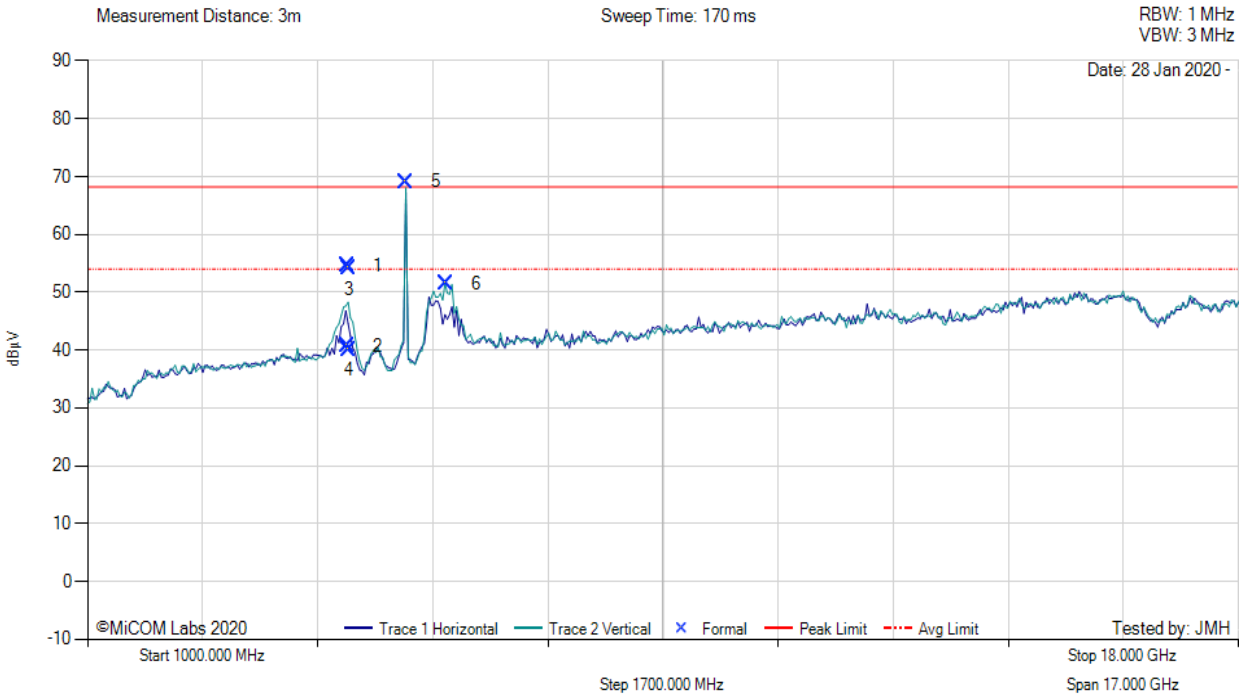

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 4805.91 | 64.83 | 2.86 | -12.42 | 55.27 | Max Peak | Vertical | 178 | 353 | 68.2 | -13.0 | Pass |
| 2 | 4805.91 | 50.56 | 2.86 | -12.42 | 41.00 | Max Avg | Vertical | 178 | 353 | 54.0 | -13.0 | Pass |
| 3 | 4836.26 | 66.22 | 2.81 | -12.54 | 56.49 | Max Peak | Vertical | 160 | 352 | 68.2 | -11.7 | Pass |
| 4 | 4836.26 | 52.18 | 2.81 | -12.54 | 42.45 | Max Avg | Vertical | 160 | 352 | 54.0 | -11.6 | Pass |
| 5 | 5582.71 | 80.05 | 3.12 | -11.56 | 71.61 | Fundamental | Vertical | 100 | 0 | -- | -- | |
| 6 | 6216.34 | 55.56 | 3.30 | -9.63 | 49.23 | Peak (NRB) | Vertical | 151 | 0 | -- | -- | Pass |
| 7 | 7453.37 | 58.76 | 3.61 | -7.77 | 54.60 | Max Peak | Horizontal | 136 | 313 | 68.2 | -13.6 | Pass |
| 8 | 7453.37 | 54.06 | 3.61 | -7.77 | 49.90 | Max Avg | Horizontal | 136 | 313 | 54.0 | -4.1 | Pass |

**Test Notes:** EUT powered by POE. 5G Notch in front of amp to prevent overload.

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5705.00 MHz, Antenna: RADWIN AT0058760, Power Setting: 21, Duty Cycle (%): 99



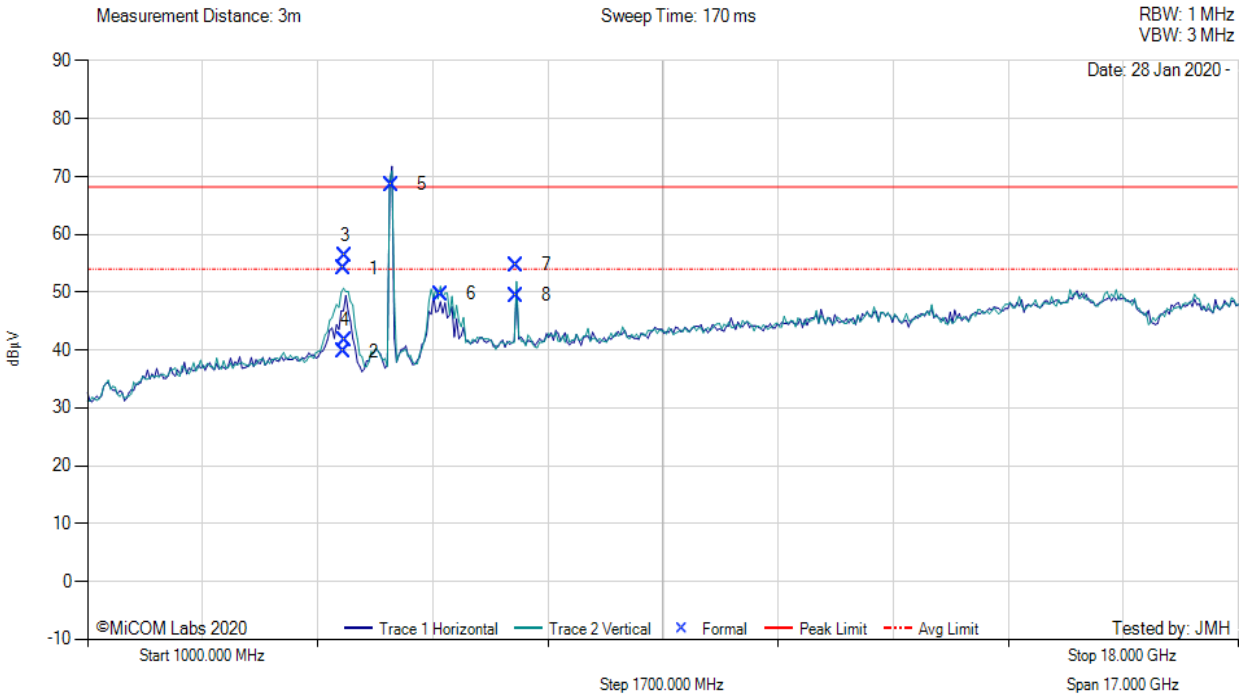

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 4837.85 | 64.32 | 2.81 | -12.55 | 54.58 | Max Peak | Vertical | 164 | 353 | 68.2 | -13.7 | Pass |
| 2 | 4837.85 | 50.39 | 2.81 | -12.55 | 40.65 | Max Avg | Vertical | 164 | 353 | 54.0 | -13.4 | Pass |
| 3 | 4866.19 | 63.78 | 2.93 | -12.53 | 54.18 | Max Peak | Vertical | 164 | 0 | 68.2 | -14.1 | Pass |
| 4 | 4866.19 | 49.68 | 2.93 | -12.53 | 40.08 | Max Avg | Vertical | 164 | 0 | 54.0 | -13.9 | Pass |
| 5 | 5700.36 | 77.21 | 3.19 | -11.35 | 69.05 | Fundamental | Vertical | 151 | 154 | -- | -- | |
| 6 | 6298.47 | 57.54 | 3.27 | -9.28 | 51.53 | Peak (NRB) | Vertical | 148 | 0 | -- | -- | Pass |

**Test Notes:** EUT powered by POE. 5G Notch in front of amp to prevent overload.

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 40 MHz, Test Freq: 5500.00 MHz, Antenna: RADWIN AT0058760, Power Setting: 21




| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB/m | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail |
| 1 | 4776.76 | 63.69 | 2.89 | -12.46 | 54.12 | Max Peak | Vertical | 140 | 356 | 68.2 | -14.1 | Pass |
| 2 | 4776.76 | 49.30 | 2.89 | -12.46 | 39.73 | Max Avg | Vertical | 140 | 356 | 54.0 | -14.3 | Pass |
| 3 | 4806.62 | 65.79 | 2.86 | -12.43 | 56.22 | Max Peak | Vertical | 171 | 11 | 68.2 | -12.0 | Pass |
| 4 | 4806.62 | 51.21 | 2.86 | -12.43 | 41.64 | Max Avg | Vertical | 171 | 11 | 54.0 | -12.4 | Pass |
| 5 | 5487.24 | 77.15 | 3.17 | -11.70 | 68.62 | Fundamental | Horizontal | 100 | 0 | -- | -- | |
| 6 | 6217.74 | 55.98 | 3.31 | -9.63 | 49.66 | Peak (NRB) | Vertical | 149 | 0 | -- | -- | Pass |
| 7 | 7333.21 | 59.23 | 3.57 | -8.09 | 54.71 | Max Peak | Vertical | 99 | 12 | 68.2 | -13.5 | Pass |
| 8 | 7333.21 | 54.01 | 3.57 | -8.09 | 49.49 | Max Avg | Vertical | 99 | 12 | 54.0 | -4.5 | Pass |

**Test Notes:** EUT powered by POE. 5G Notch in front of amp to prevent overload.

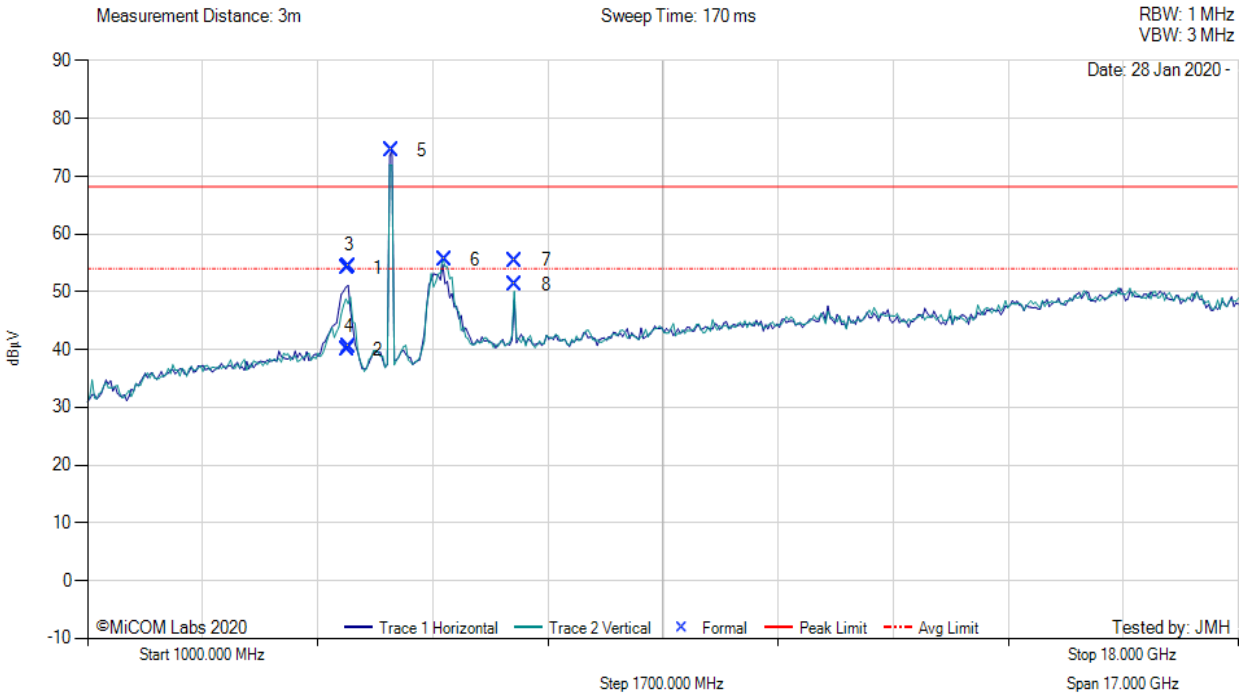
Note: 40 MHz TX Spurious Included to show passing result with higher power for higher bandwidth emissions

back to matrix

## A.1.1.2. RADWIN RW-9105-5158

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5490.00 MHz, Antenna: RADWIN RW-9105-5158, Power Setting: 21, Duty Cycle (%): 99



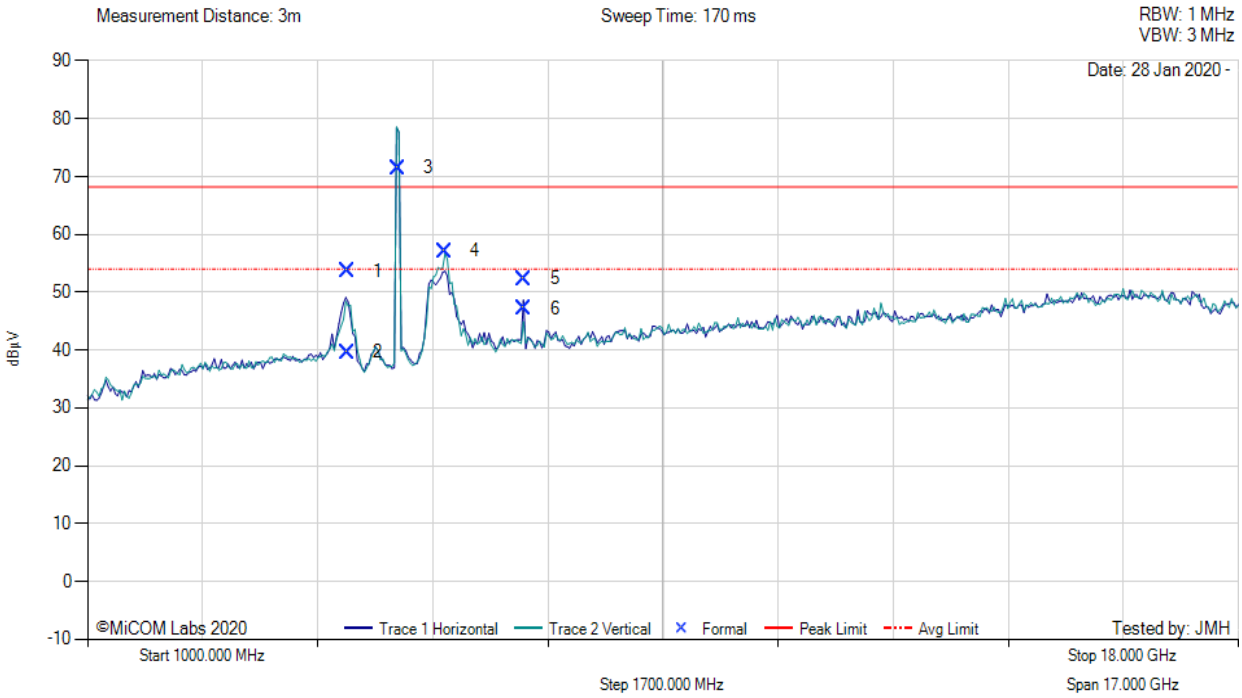

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB/m | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail |
| 1 | 4835.76 | 63.88 | 2.82 | -12.53 | 54.17 | Max Peak | Horizontal | 162 | 5 | 68.2 | -14.1 | Pass |
| 2 | 4835.76 | 49.69 | 2.82 | -12.53 | 39.98 | Max Avg | Horizontal | 162 | 5 | 54.0 | -14.0 | Pass |
| 3 | 4865.41 | 64.06 | 2.92 | -12.53 | 54.45 | Max Peak | Horizontal | 150 | 8 | 68.2 | -13.8 | Pass |
| 4 | 4865.41 | 50.03 | 2.92 | -12.53 | 40.42 | Max Avg | Horizontal | 150 | 8 | 54.0 | -13.6 | Pass |
| 5 | 5491.65 | 83.10 | 3.12 | -11.67 | 74.55 | Fundamental | Horizontal | 151 | 0 | -- | -- | |
| 6 | 6269.69 | 61.65 | 3.35 | -9.49 | 55.51 | Peak (NRB) | Vertical | 151 | 0 | -- | -- | Pass |
| 7 | 7319.98 | 59.61 | 3.60 | -7.80 | 55.41 | Max Peak | Vertical | 155 | 33 | 68.2 | -12.8 | Pass |
| 8 | 7319.98 | 55.42 | 3.60 | -7.80 | 51.22 | Max Avg | Vertical | 155 | 33 | 54.0 | -2.8 | Pass |

**Test Notes:** EUT powered by POE. 5G Notch in front of amp to prevent overload.

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5590.00 MHz, Antenna: RADWIN RW-9105-5158, Power Setting: 21, Duty Cycle (%): 99



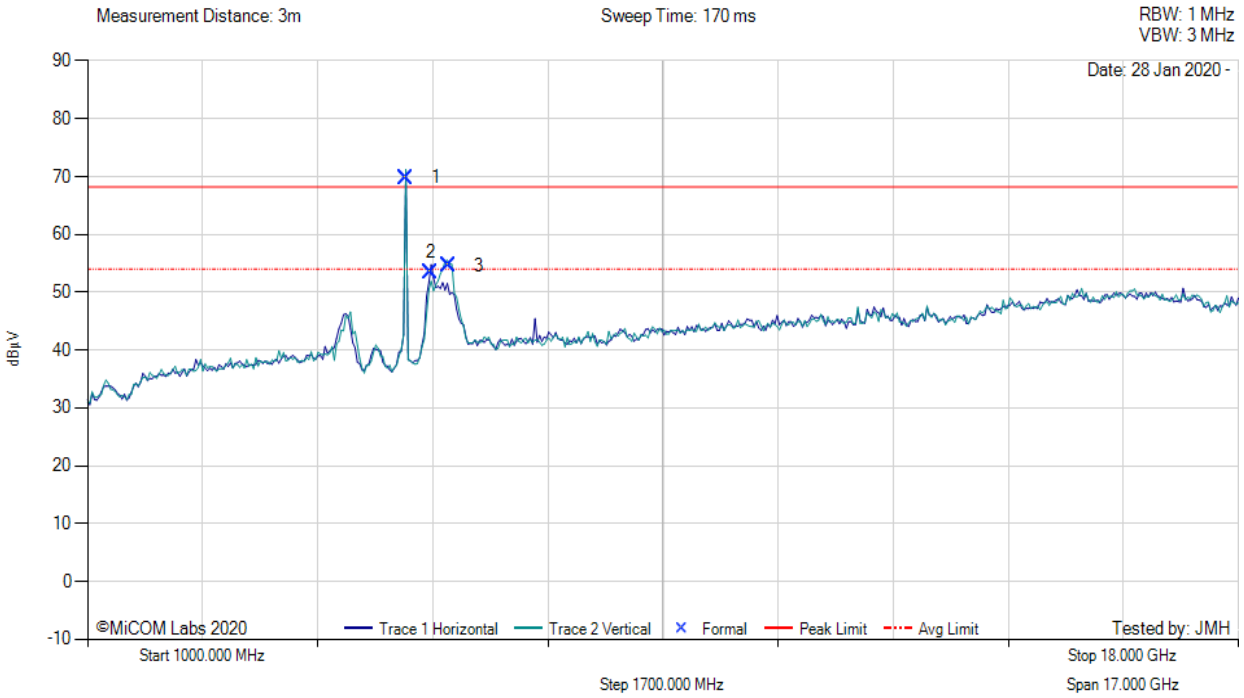

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB/m | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail |
| 1 | 4836.30 | 63.36 | 2.81 | -12.54 | 53.63 | Max Peak | Horizontal | 169 | 353 | 68.2 | -14.6 | Pass |
| 2 | 4836.30 | 49.34 | 2.81 | -12.54 | 39.61 | Max Avg | Horizontal | 169 | 353 | 54.0 | -14.4 | Pass |
| 3 | 5586.13 | 79.96 | 3.13 | -11.56 | 71.53 | Fundamental | Vertical | 100 | 0 | -- | -- | |
| 4 | 6274.07 | 63.25 | 3.35 | -9.50 | 57.10 | Peak (NRB) | Vertical | 151 | 0 | -- | -- | Pass |
| 5 | 7453.37 | 56.48 | 3.61 | -7.77 | 52.32 | Max Peak | Horizontal | 164 | 288 | 68.2 | -15.9 | Pass |
| 6 | 7453.37 | 51.37 | 3.61 | -7.77 | 47.21 | Max Avg | Horizontal | 164 | 288 | 54.0 | -6.8 | Pass |

**Test Notes:** EUT powered by POE. 5G Notch in front of amp to prevent overload.

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5705.00 MHz, Antenna: RADWIN RW-9105-5158, Power Setting: 21, Duty Cycle (%): 99




| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB/m | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail |
| 1 | 5697.93 | 77.96 | 3.19 | -11.34 | 69.81 | Fundamental | Vertical | 148 | 0 | -- | -- | |
| 2 | 6070.48 | 60.27 | 3.23 | -10.10 | 53.40 | Peak (NRB) | Horizontal | 148 | 0 | -- | -- | Pass |
| 3 | 6325.27 | 60.58 | 3.31 | -9.29 | 54.60 | Peak (NRB) | Vertical | 148 | 0 | -- | -- | Pass |

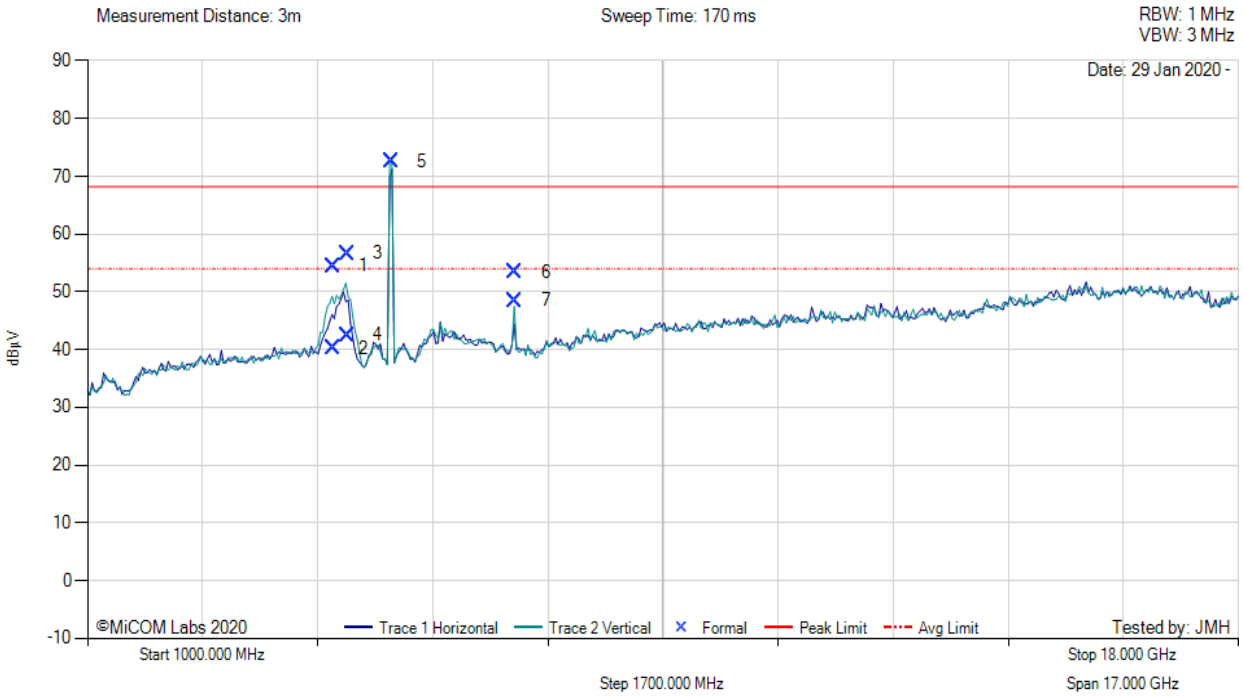
**Test Notes:** EUT powered by POE. 5G Notch in front of amp to prevent overload.

back to matrix

## A.1.1.3. RADWIN RW-9314-5158

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5490.00 MHz, Antenna: RADWIN RW-9314-5158, Power Setting: 21, Duty Cycle (%): 99



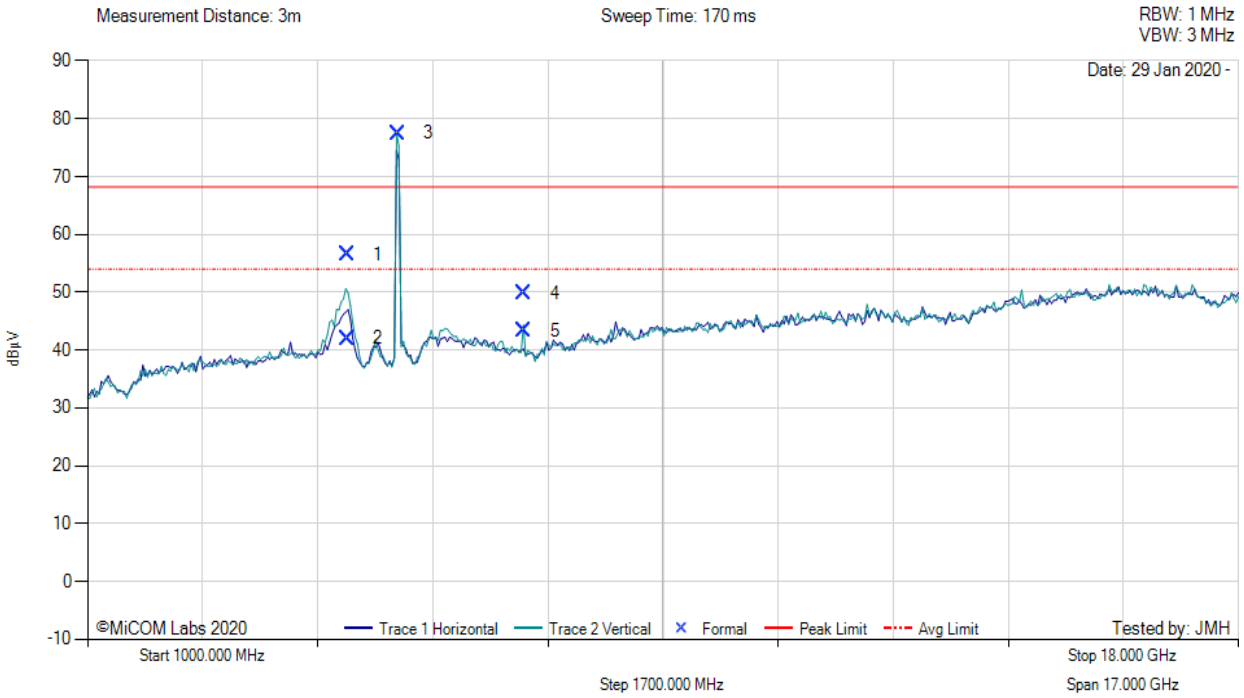

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB/m | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail |
| 1 | 4621.13 | 63.98 | 2.77 | -12.24 | 54.51 | Max Peak | Vertical | 174 | 1 | 68.2 | -13.7 | Pass |
| 2 | 4621.13 | 49.71 | 2.77 | -12.24 | 40.24 | Max Avg | Vertical | 174 | 1 | 54.0 | -13.8 | Pass |
| 3 | 4837.93 | 66.36 | 2.81 | -12.55 | 56.62 | Max Peak | Vertical | 188 | 354 | 68.2 | -11.6 | Pass |
| 4 | 4837.93 | 52.23 | 2.81 | -12.55 | 42.49 | Max Avg | Vertical | 188 | 354 | 54.0 | -11.5 | Pass |
| 5 | 5495.51 | 81.14 | 3.06 | -11.64 | 72.56 | Fundamental | Vertical | 200 | 0 | -- | -- | |
| 6 | 7320.02 | 57.58 | 3.59 | -7.82 | 53.35 | Max Peak | Vertical | 110 | 94 | 68.2 | -14.9 | Pass |
| 7 | 7320.02 | 52.75 | 3.59 | -7.82 | 48.52 | Max Avg | Vertical | 110 | 94 | 54.0 | -5.5 | Pass |

**Test Notes:** EUT powered by POE.

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5590.00 MHz, Antenna: RADWIN RW-9314-5158, Power Setting: 21, Duty Cycle (%): 99



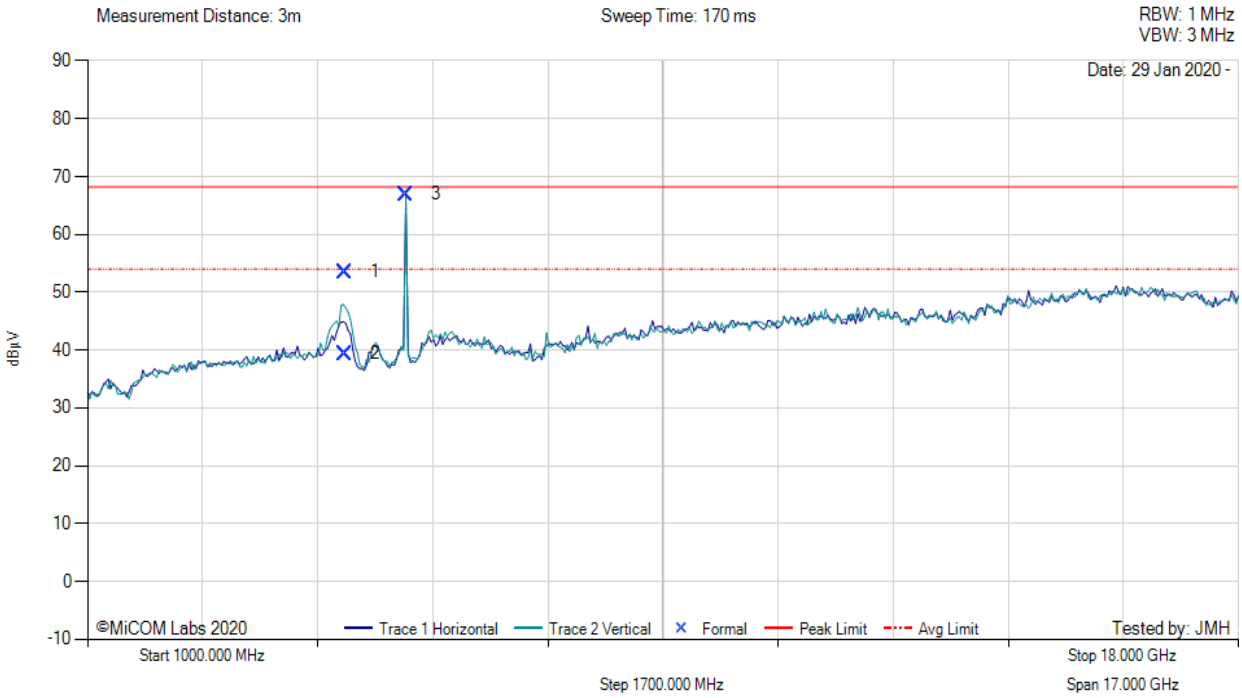

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 4833.87 | 66.17 | 2.83 | -12.52 | 56.48 | Max Peak | Vertical | 192 | 0 | 68.2 | -11.8 | Pass |
| 2 | 4833.87 | 51.75 | 2.83 | -12.52 | 42.06 | Max Avg | Vertical | 192 | 0 | 54.0 | -11.9 | Pass |
| 3 | 5585.91 | 85.94 | 3.13 | -11.56 | 77.51 | Fundamental | Vertical | 200 | 0 | -- | -- | |
| 4 | 7453.39 | 53.95 | 3.61 | -7.77 | 49.79 | Max Peak | Vertical | 101 | 13 | 68.2 | -18.4 | Pass |
| 5 | 7453.39 | 47.44 | 3.61 | -7.77 | 43.28 | Max Avg | Vertical | 101 | 13 | 54.0 | -10.7 | Pass |

**Test Notes:** EUT powered by POE. 5G notch in front of amp to prevent overload.

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5705.00 MHz, Antenna: RADWIN RW-9314-5158, Power Setting: 21, Duty Cycle (%): 99




| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 4806.19 | 63.06 | 2.86 | -12.43 | 53.49 | Max Peak | Vertical | 189 | 1 | 68.2 | -14.7 | Pass |
| 2 | 4806.19 | 48.94 | 2.86 | -12.43 | 39.37 | Max Avg | Vertical | 189 | 1 | 54.0 | -14.6 | Pass |
| 3 | 5702.89 | 75.06 | 3.18 | -11.34 | 66.90 | Fundamental | Vertical | 151 | 1 | -- | -- | |

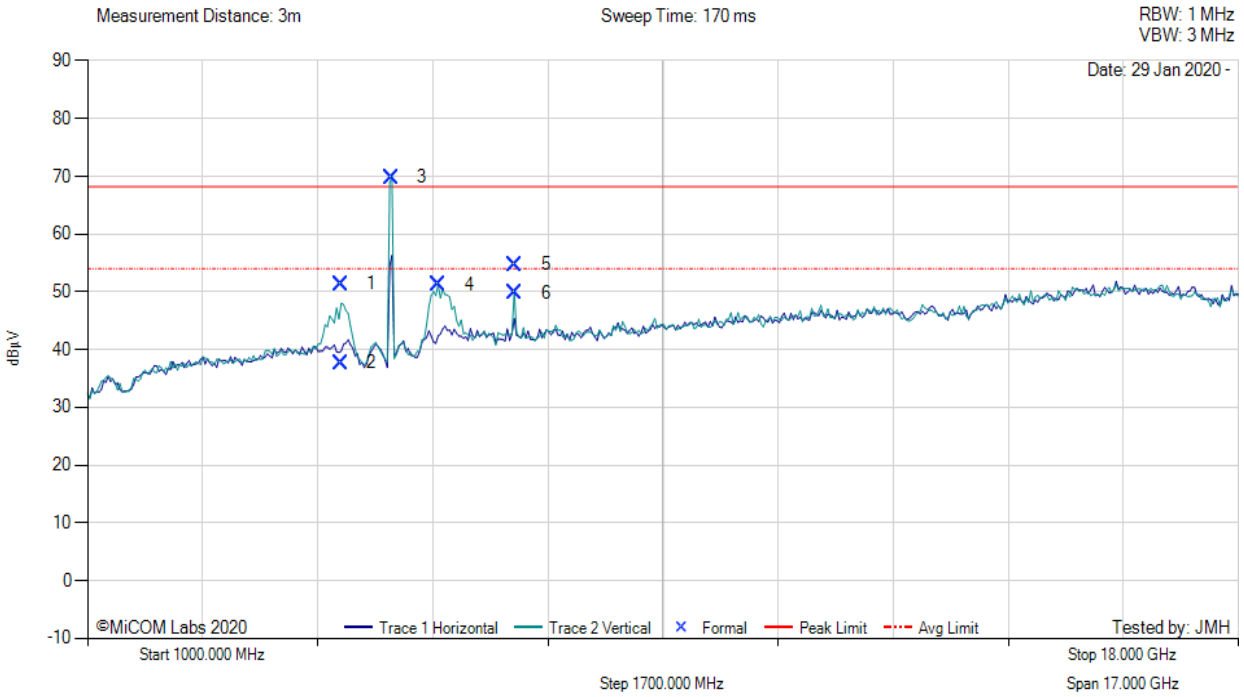
**Test Notes:** EUT powered by POE. 5G notch in front of amp to prevent overload.

back to matrix

## A.1.1.4. RADWIN RW-9401-5004

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5490.00 MHz, Antenna: RADWIN RW-9401-5004, Power Setting: 21, Duty Cycle (%): 99



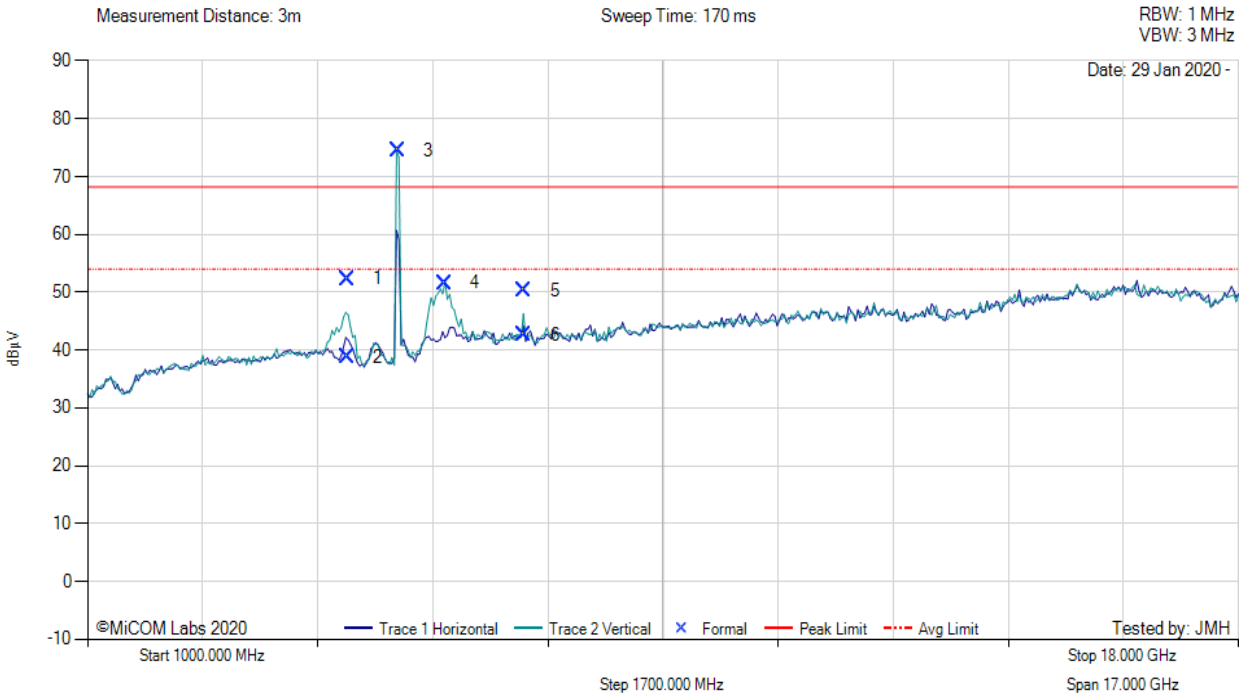

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB/m | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail |
| 1 | 4743.80 | 60.84 | 2.87 | -12.34 | 51.37 | Max Peak | Vertical | 166 | 19 | 68.2 | -16.9 | Pass |
| 2 | 4743.80 | 47.15 | 2.87 | -12.34 | 37.68 | Max Avg | Vertical | 166 | 19 | 54.0 | -16.3 | Pass |
| 3 | 5494.73 | 78.38 | 3.07 | -11.64 | 69.81 | Fundamental | Vertical | 151 | 0 | -- | -- | |
| 4 | 6189.88 | 57.59 | 3.27 | -9.69 | 51.17 | Peak (NRB) | Vertical | 151 | 0 | -- | -- | Pass |
| 5 | 7320.13 | 58.99 | 3.59 | -7.82 | 54.76 | Max Peak | Vertical | 196 | 240 | 68.2 | -13.5 | Pass |
| 6 | 7320.13 | 54.05 | 3.59 | -7.82 | 49.82 | Max Avg | Vertical | 196 | 240 | 54.0 | -4.2 | Pass |

**Test Notes:** EUT powered by POE. 5G Notch in front of amp to prevent overload.

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5590.00 MHz, Antenna: RADWIN RW-9401-5004, Power Setting: 21, Duty Cycle (%): 99



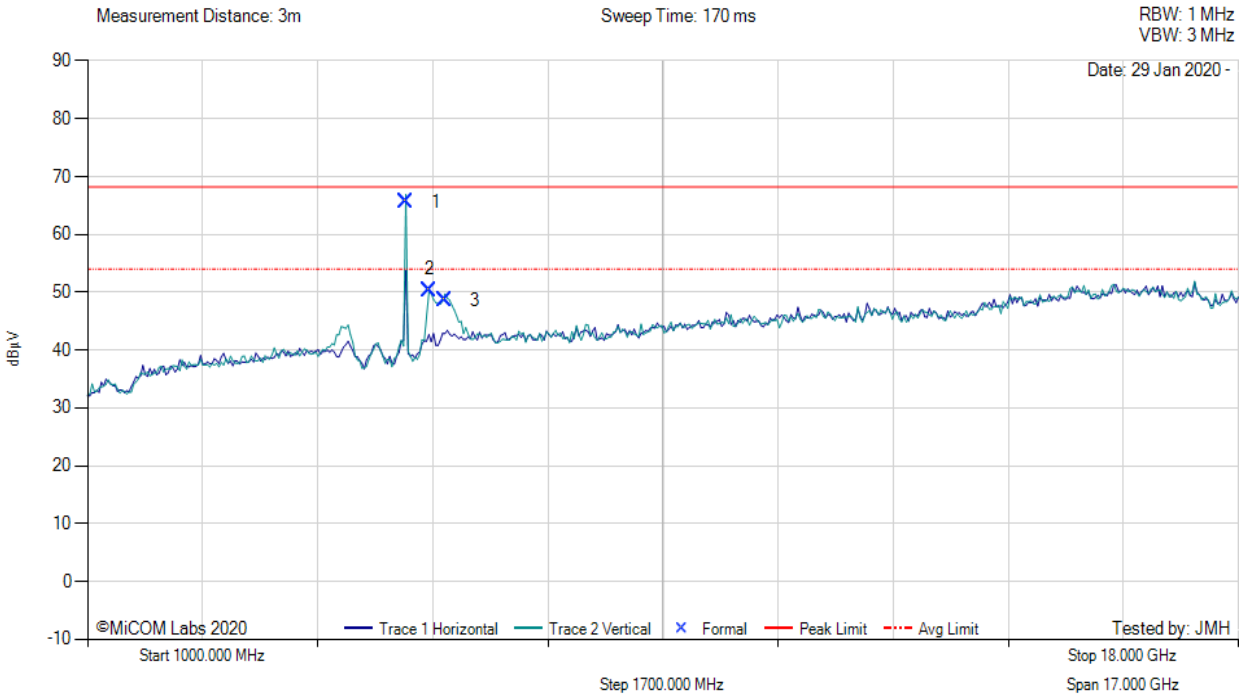

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 4835.41 | 62.06 | 2.82 | -12.53 | 52.35 | Max Peak | Vertical | 192 | 352 | 68.2 | -15.9 | Pass |
| 2 | 4835.41 | 48.53 | 2.82 | -12.53 | 38.82 | Max Avg | Vertical | 192 | 352 | 54.0 | -15.2 | Pass |
| 3 | 5586.46 | 82.87 | 3.13 | -11.56 | 74.44 | Fundamental | Vertical | 200 | 0 | -- | -- | |
| 4 | 6273.56 | 57.74 | 3.35 | -9.50 | 51.59 | Peak (NRB) | Vertical | 200 | 0 | -- | -- | Pass |
| 5 | 7453.42 | 54.50 | 3.61 | -7.77 | 50.34 | Max Peak | Vertical | 196 | 286 | 68.2 | -17.9 | Pass |
| 6 | 7453.42 | 46.84 | 3.61 | -7.77 | 42.68 | Max Avg | Vertical | 196 | 286 | 54.0 | -11.3 | Pass |

**Test Notes:** EUT powered by POE. 5G Notch in front of amp to prevent overload.

back to matrix

TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 20 MHz, Test Freq: 5705.00 MHz, Antenna: RADWIN RW-9401-5004, Power Setting: 21, Duty Cycle (%): 99



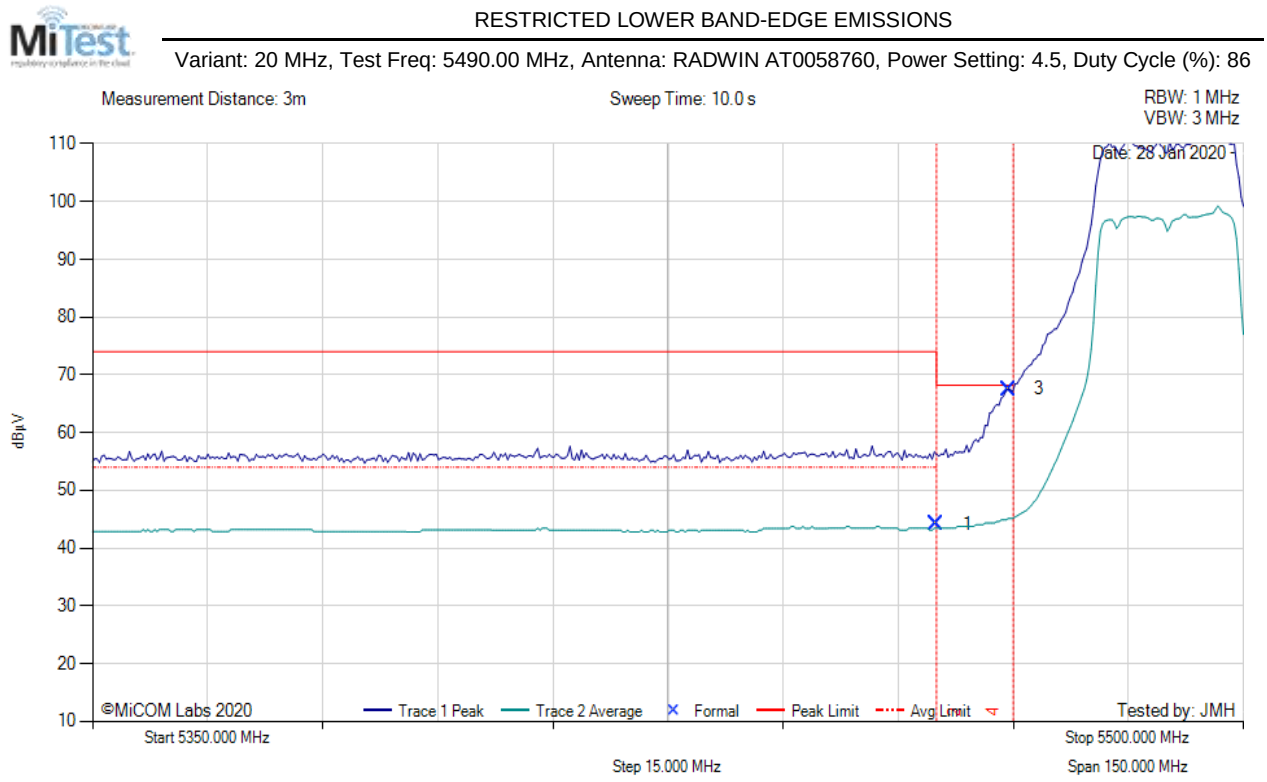

| 1000.00 - 18000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB/m | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail |
| 1 | 5702.56 | 73.83 | 3.18 | -11.34 | 65.67 | Fundamental | Vertical | 200 | 0 | -- | -- | |
| 2 | 6043.28 | 57.20 | 3.22 | -10.04 | 50.38 | Peak (NRB) | Vertical | 200 | 0 | -- | -- | Pass |
| 3 | 6275.70 | 54.72 | 3.35 | -9.48 | 48.59 | Peak (NRB) | Vertical | 200 | 0 | -- | -- | Pass |

**Test Notes:** EUT powered by POE. 5G Notch in front of amp to prevent overload.

back to matrix

## A.1.2. Restricted Edge & Band-Edge Emissions

### A.1.2.5. RADWIN AT0058760



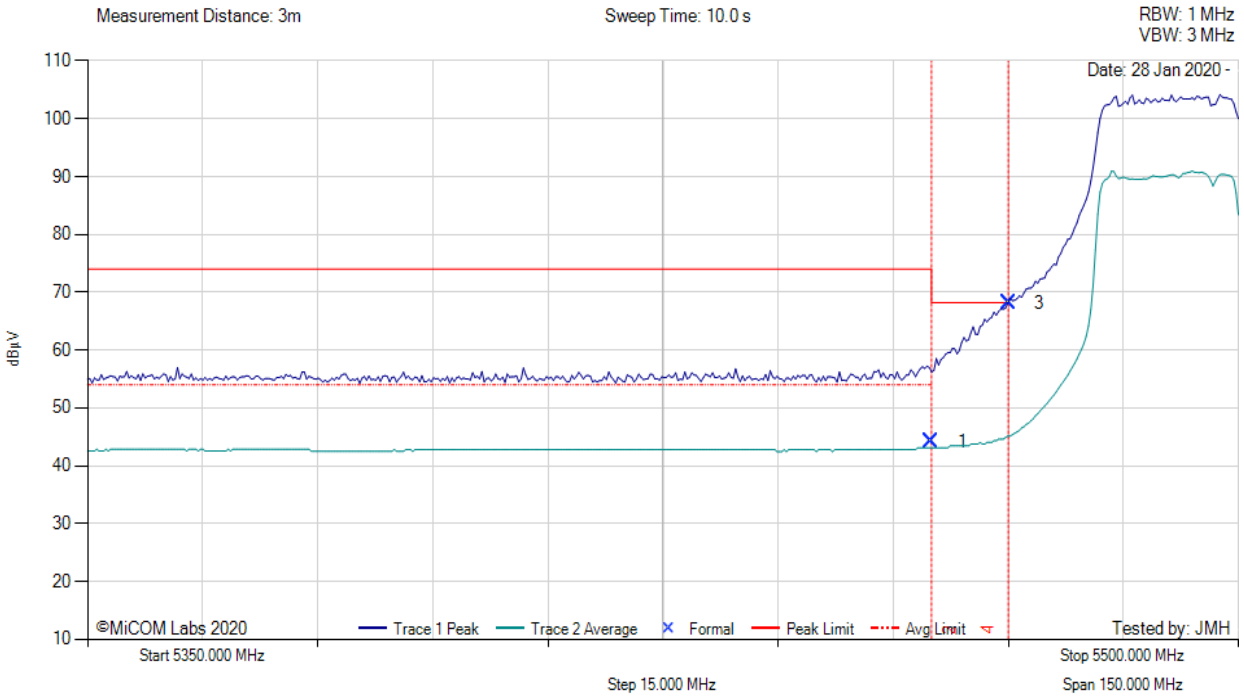

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5460.00 | 6.52 | 3.06 | 34.53 | 44.11 | Max Avg | Vertical | 164 | 4 | 54.0 | -9.9 | Pass |
| 3 | 5469.40 | 29.95 | 3.06 | 34.55 | 67.56 | Max Peak | Vertical | 164 | 4 | 68.2 | -0.7 | Pass |
| 2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| 4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT powered by POE.PS reduced to 4.5 to meet band edge limit. *Includes Duty Cycle correction for Avg Measurement.

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 40 MHz, Test Freq: 5500.00 MHz, Antenna: RADWIN AT0058760, Power Setting: 1.5, Duty Cycle (%): 78



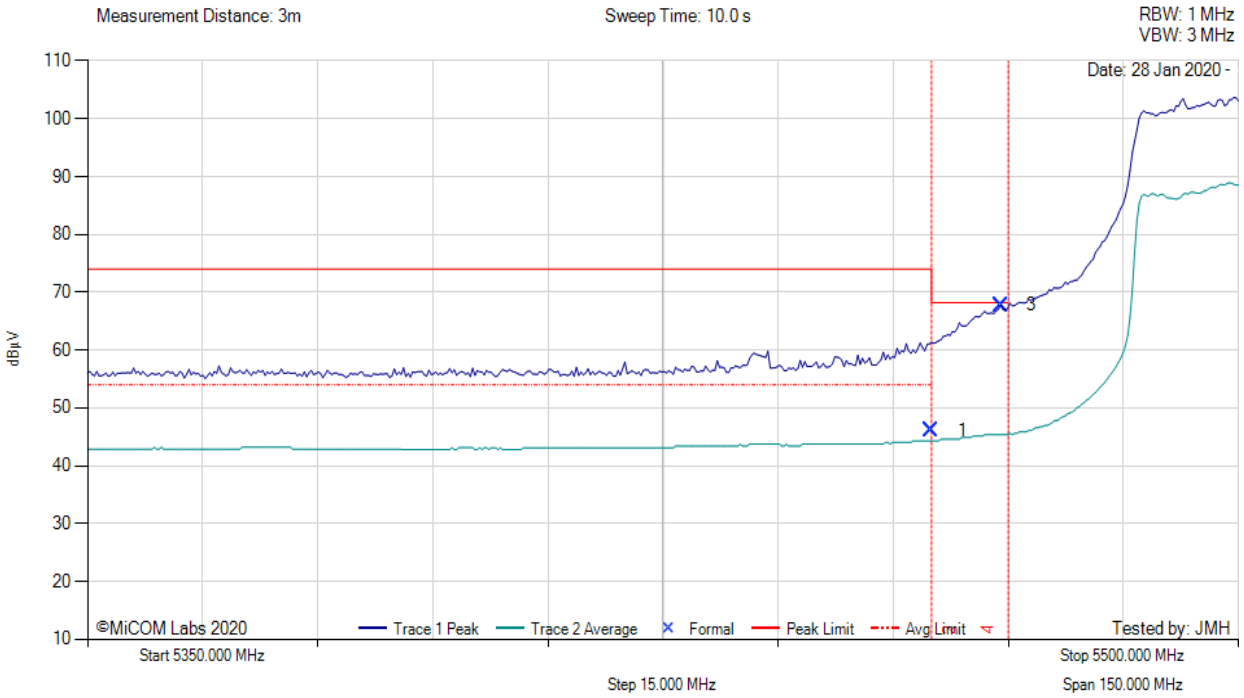

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5460.00 | 6.62 | 3.06 | 34.53 | 44.21 | Max Avg | Vertical | 164 | 4 | 54.0 | -9.8 | Pass |
| 3 | 5470.00 | 30.51 | 3.06 | 34.55 | 68.12 | Max Peak | Vertical | 164 | 4 | 68.2 | -0.1 | Pass |
| 2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| 4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT powered by POE. PS reduced to 1.5 to meet band edge limit. *Includes Duty Cycle correction for Avg Measurement.

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 80 MHz, Test Freq: 5525.00 MHz, Antenna: RADWIN AT0058760, Power Setting: 2.5, Duty Cycle (%): 66




| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5460.00 | 6.74 | 3.06 | 34.53 | 46.13 | Max Avg | Vertical | 164 | 4 | 54.0 | -7.9 | Pass |
| 3 | 5469.02 | 30.18 | 3.06 | 34.55 | 67.79 | Max Peak | Vertical | 164 | 4 | 68.2 | -0.4 | Pass |
| 2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| 4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

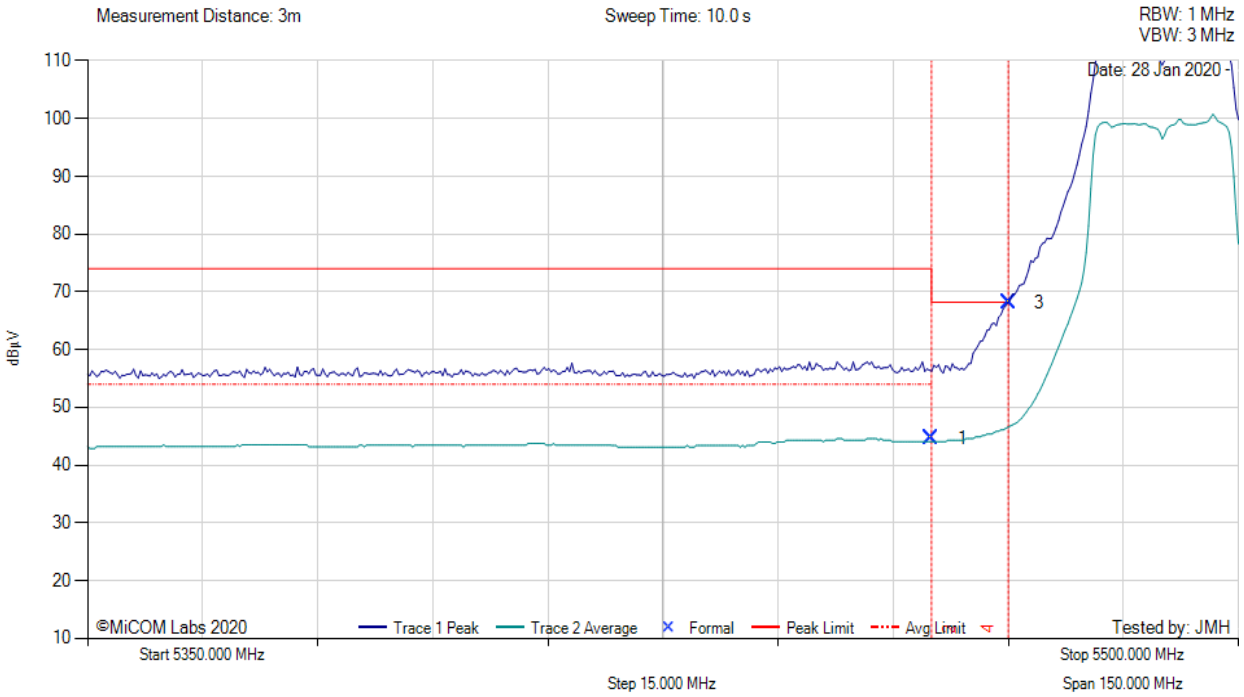
**Test Notes:** EUT powered by POE. PS reduced to 2.5 to meet band edge limit. *Includes Duty Cycle correction for Avg Measurement.

back to matrix

## A.1.2.6. RADWIN RW-9105-5158

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 20 MHz, Test Freq: 5490.00 MHz, Antenna: RADWIN RW-9105-5158, Power Setting: 4.0, Duty Cycle (%): 86



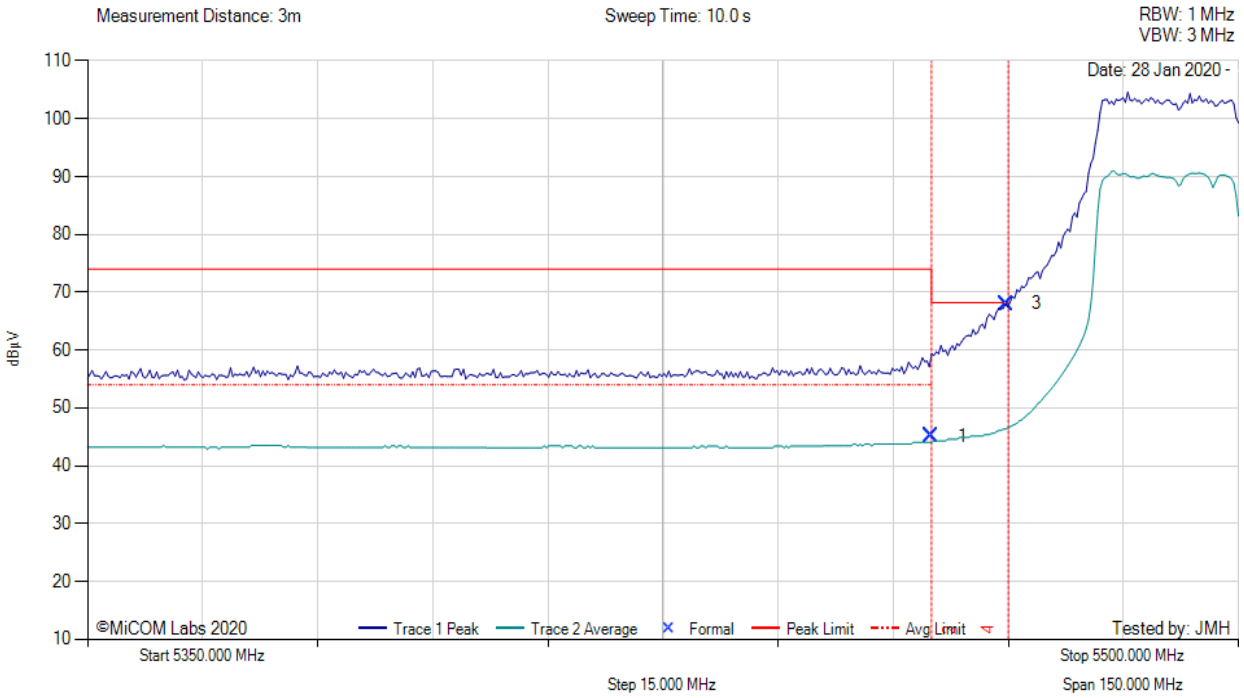

| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB/m | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail |
| 1 | 5460.00 | 7.12 | 3.06 | 34.53 | 44.71 | Max Avg | Horizontal | 198 | 1 | 54.0 | -9.3 | Pass |
| 3 | 5470.00 | 30.49 | 3.06 | 34.55 | 68.10 | Max Peak | Horizontal | 198 | 1 | 68.2 | -0.1 | Pass |
| 2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| 4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT powered by POE. Power reduced to meet limit. *Includes Duty Cycle correction for Avg Measurement.

back to matrix

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 40 MHz, Test Freq: 5500.00 MHz, Antenna: RADWIN RW-9105-5158, Power Setting: 0, Duty Cycle (%): 78




| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5460.00 | 6.46 | 3.06 | 34.53 | 45.13 | Max Avg | Horizontal | 198 | 1 | 54.0 | -8.9 | Pass |
| 3 | 5469.70 | 30.36 | 3.06 | 34.55 | 67.97 | Max Peak | Horizontal | 198 | 1 | 68.2 | -0.3 | Pass |
| 2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| 4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT powered by POE. Power reduced to meet limit. *Includes Duty Cycle correction for Avg Measurement.

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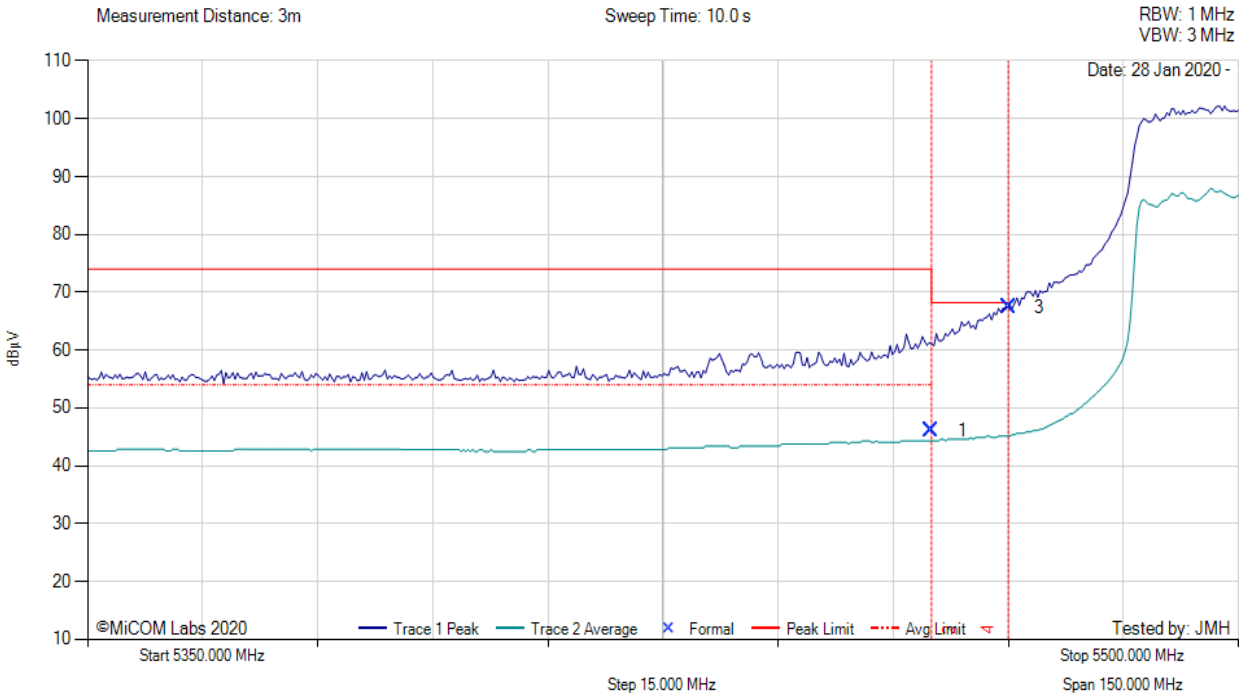
RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 80 MHz, Test Freq: 5525.00 MHz, Antenna: RADWIN RW-9105-5158, Power Setting: 1, Duty Cycle (%): 66




| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5460.00 | 8.54 | 3.06 | 34.53 | 46.13 | Max Avg | Horizontal | 198 | 1 | 54.0 | -7.9 | Pass |
| 3 | 5470.00 | 29.87 | 3.06 | 34.55 | 67.48 | Max Peak | Horizontal | 198 | 1 | 68.2 | -0.8 | Pass |
| 2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| 4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT powered by POE. Power reduced to meet limit. *Includes Duty Cycle correction for Avg Measurement.

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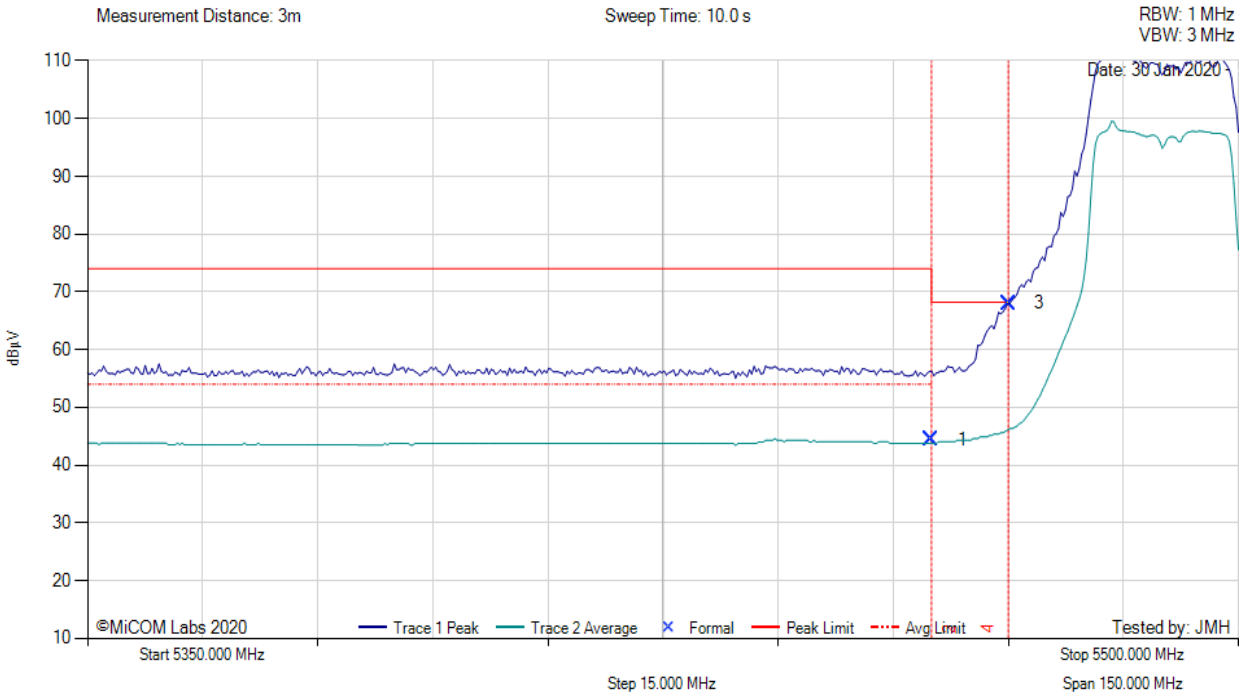
## A.1.2.7. RADWIN RW-9314-5158

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 20 MHz, Test Freq: 5490.00 MHz, Antenna: RADWIN RW-9314-5158, Power Setting: 5.5, Duty Cycle (%): 86




| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB/m | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail |
| 1 | 5460.00 | 6.82 | 3.06 | 34.53 | 44.41 | Max Avg | Vertical | 177 | 352 | 54.0 | -9.6 | Pass |
| 3 | 5470.00 | 30.36 | 3.06 | 34.55 | 67.97 | Max Peak | Vertical | 177 | 352 | 68.2 | -0.3 | Pass |
| 2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| 4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT Powered by POE. Power reduced to meet Peak Limit. *Includes Duty Cycle correction for Avg Measurement.

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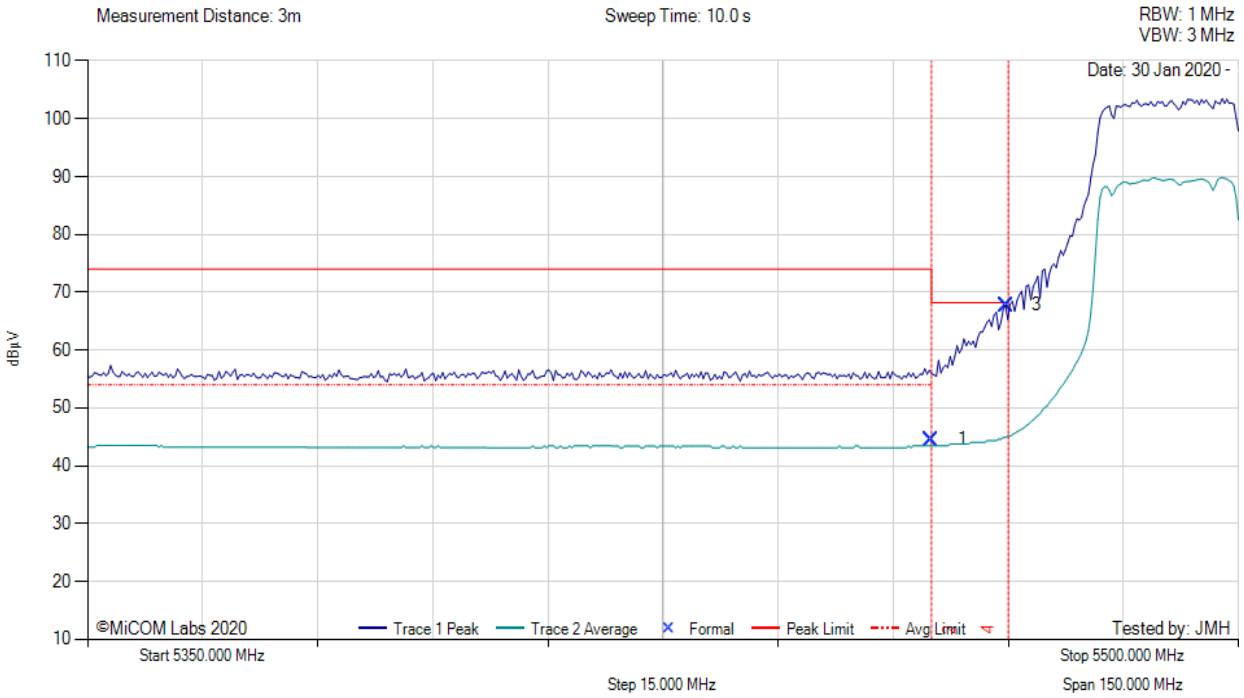
RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 40 MHz, Test Freq: 5500.00 MHz, Antenna: RADWIN RW-9314-5158, Power Setting: 1.5, Duty Cycle (%): 78




| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5460.00 | 6.94 | 3.06 | 34.53 | 44.53 | Max Avg | Vertical | 177 | 352 | 54.0 | -9.5 | Pass |
| 3 | 5469.70 | 30.16 | 3.06 | 34.55 | 67.77 | Max Peak | Vertical | 177 | 352 | 68.2 | -0.5 | Pass |
| 2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| 4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT Powered by POE. Power reduced to meet Peak Limit. *Includes Duty Cycle correction for Avg Measurement.

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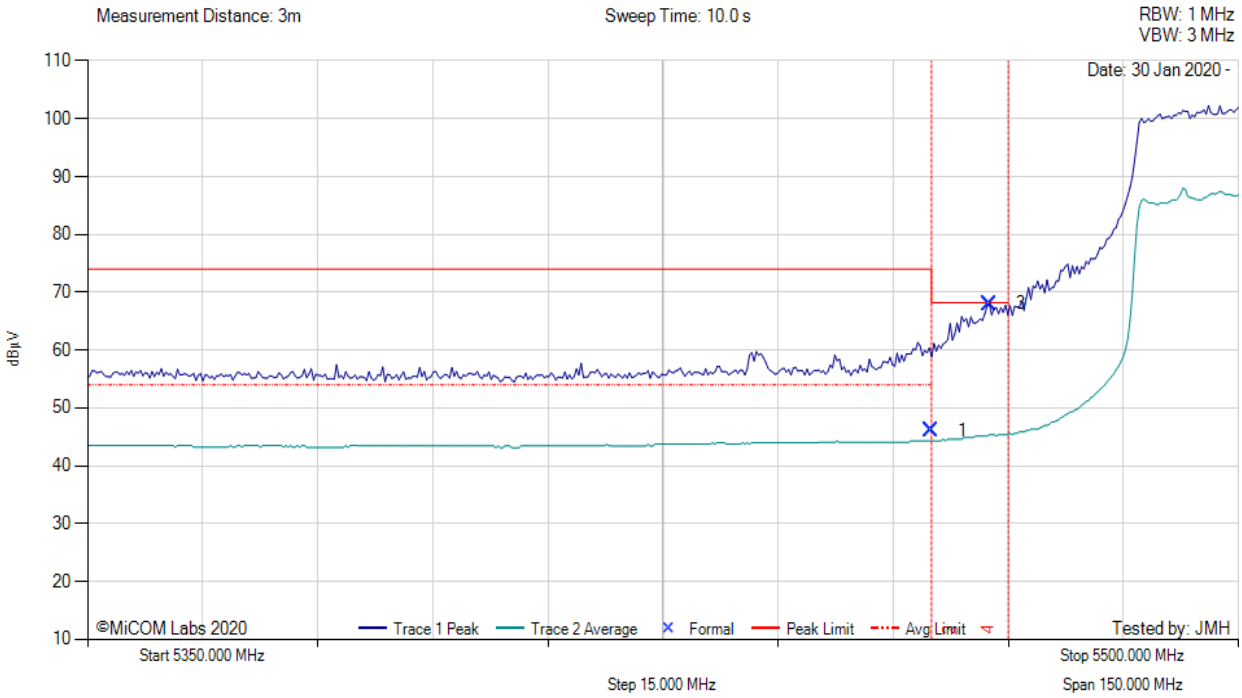
RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 80 MHz, Test Freq: 5525.00 MHz, Antenna: RADWIN RW-9314-5158, Power Setting: 1.5, Duty Cycle (%): 66




| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB/m | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail |
| 1 | 5460.00 | 8.54 | 3.06 | 34.53 | 46.13 | Max Avg | Vertical | 177 | 352 | 54.0 | -7.9 | Pass |
| 3 | 5467.60 | 30.43 | 3.07 | 34.55 | 68.05 | Max Peak | Vertical | 177 | 352 | 68.2 | -0.2 | Pass |
| 2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| 4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT Powered by POE. Power reduced to meet Peak Limit. *Includes Duty Cycle correction for Avg Measurement.

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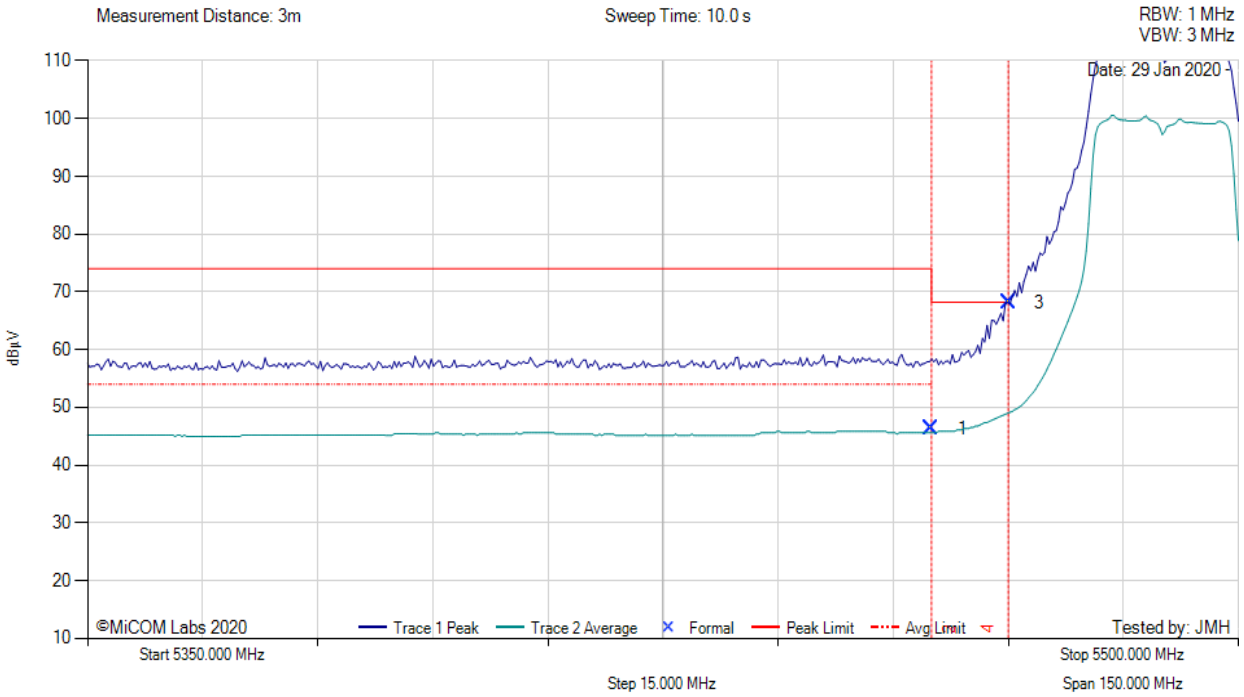
## A.1.2.8. RADWIN RW-9401-5004

RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 20 MHz, Test Freq: 5490.00 MHz, Antenna: RADWIN RW-9401-5004, Power Setting: 8, Duty Cycle (%): 86




| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5460.00 | 8.70 | 3.06 | 34.53 | 46.29 | Max Avg | Vertical | 185 | 3 | 54.0 | -7.7 | Pass |
| 3 | 5470.00 | 30.53 | 3.06 | 34.55 | 68.14 | Max Peak | Vertical | 185 | 3 | 68.2 | -0.1 | Pass |
| 2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| 4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT powered by POE. Power reduced to meet Peak Limit. *Includes Duty Cycle correction for Avg Measurement.

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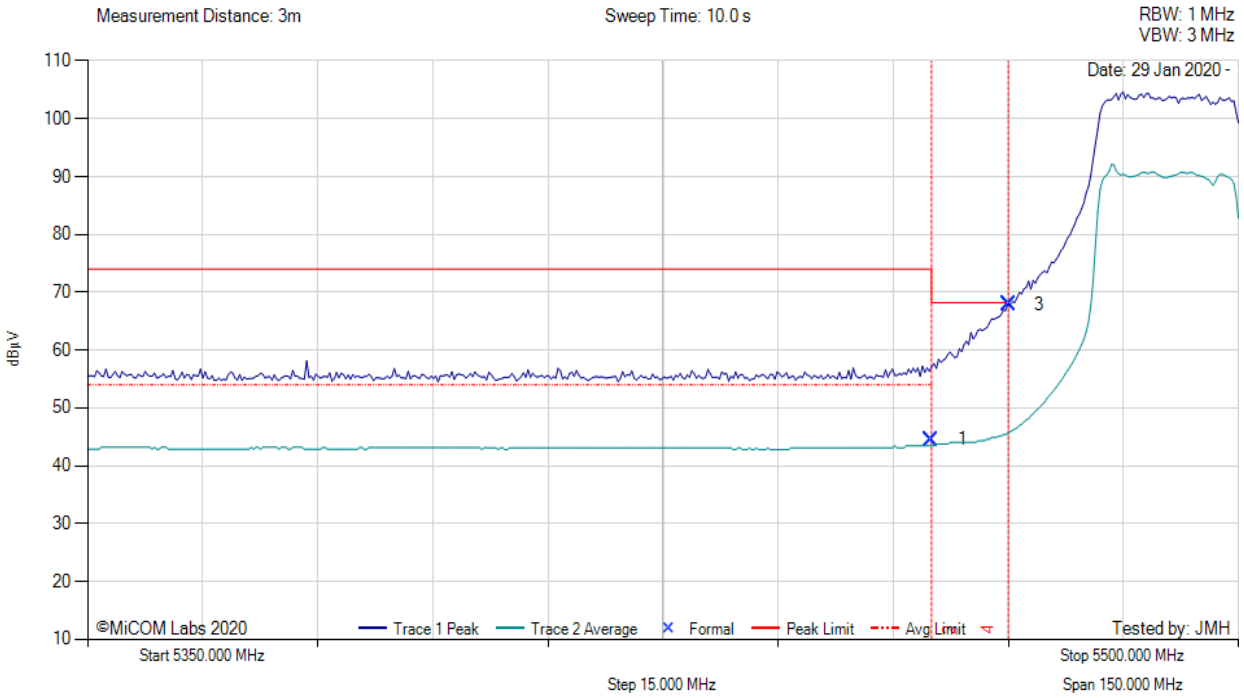
RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 40 MHz, Test Freq: 5500.00 MHz, Antenna: RADWIN RW-9401-5004, Power Setting: 3.5




| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB/m | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail |
| 1 | 5460.00 | 6.94 | 3.06 | 34.53 | 44.53 | Max Avg | Vertical | 185 | 3 | 54.0 | -9.5 | Pass |
| 3 | 5470.00 | 30.29 | 3.06 | 34.55 | 67.90 | Max Peak | Vertical | 185 | 3 | 68.2 | -0.3 | Pass |
| 2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| 4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT powered by POE. Power reduced to meet Peak Limit. *Includes Duty Cycle correction for Avg Measurement.

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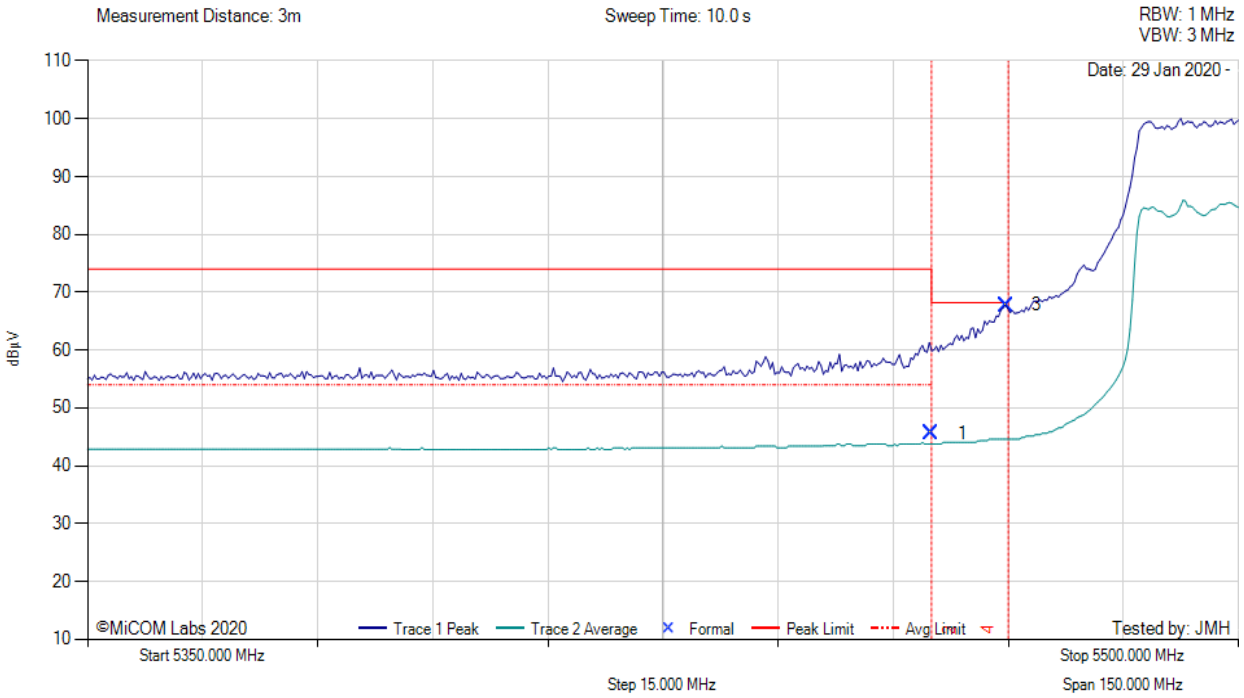
RESTRICTED LOWER BAND-EDGE EMISSIONS

Variant: 80 MHz, Test Freq: 5525.00 MHz, Antenna: RADWIN RW-9401-5004, Power Setting: 2.5, Duty Cycle (%): 66




| 5350.00 - 5500.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Num** | **Frequency MHz** | **Raw dBµV** | **Cable Loss dB** | **AF dB/m** | **Level dBµV/m** | **Measurement Type** | **Pol** | **Hgt cm** | **Azt Deg** | **Limit dBµV/m** | **Margin dB** | **Pass /Fail** |
| 1 | 5460.00 | 6.16 | 3.06 | 34.53 | 45.55 | Max Avg | Vertical | 185 | 3 | 54.0 | -8.5 | Pass |
| 3 | 5469.70 | 30.16 | 3.06 | 34.55 | 67.77 | Max Peak | Vertical | 185 | 3 | 68.2 | -0.5 | Pass |
| 2 | 5460.00 | -- | -- | -- | -- | Restricted-Band | -- | -- | -- | -- | -- | -- |
| 4 | 5470.00 | -- | -- | -- | -- | Band-Edge | -- | -- | -- | -- | -- | -- |

**Test Notes:** EUT powered by POE. Power reduced to meet Peak Limit. *Includes Duty Cycle correction for Avg Measurement.

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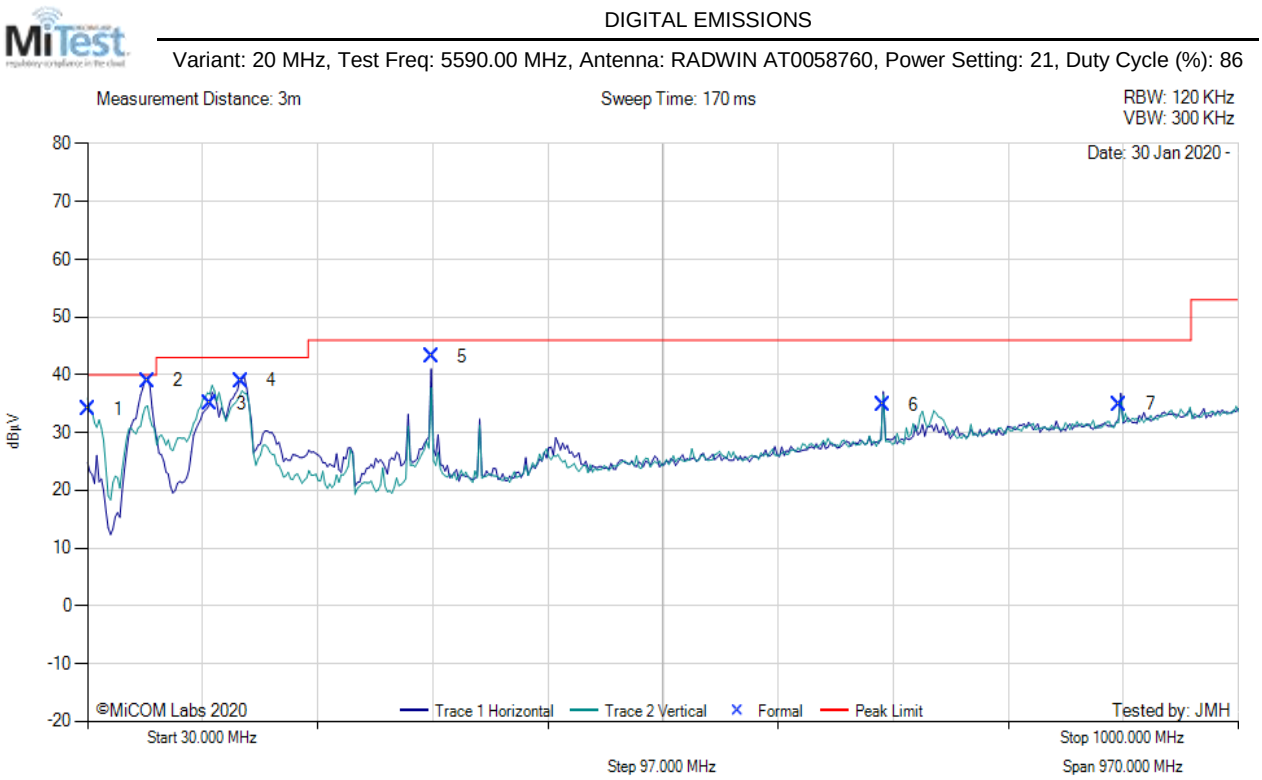
## A.1.3. Digital Emissions




| 30.00 - 1000.00 MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Num | Frequency MHz | Raw dBµV | Cable Loss dB | AF dB/m | Level dBµV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBµV/m | Margin dB | Pass /Fail |
| 1 | 30.52 | 38.78 | 3.54 | -8.20 | 34.12 | MaxQP | Vertical | 111 | 328 | 40.0 | -5.9 | Pass |
| 2 | 80.93 | 55.95 | 3.94 | -20.89 | 39.00 | MaxQP | Horizontal | 380 | 262 | 40.0 | -1.0 | Pass |
| 3 | 133.75 | 45.61 | 4.23 | -14.82 | 35.02 | MaxQP | Vertical | 102 | 355 | 43.0 | -8.0 | Pass |
| 4 | 159.44 | 50.54 | 4.36 | -15.90 | 39.00 | MaxQP | Horizontal | 175 | 131 | 43.0 | -4.0 | Pass |
| 5 | 320.00 | 51.98 | 4.99 | -13.78 | 43.19 | MaxQP | Horizontal | 101 | 295 | 46.0 | -2.8 | Pass |
| 6 | 700.01 | 35.74 | 6.20 | -7.22 | 34.72 | MaxQP | Horizontal | 111 | 174 | 46.0 | -11.3 | Pass |
| 7 | 899.97 | 33.09 | 6.76 | -4.92 | 34.93 | MaxQP | Horizontal | 102 | 139 | 46.0 | -11.1 | Pass |

**Test Notes:** EUT Powered by POE.

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