(Channel 142, 5710MHz, 802.11n (HT40))

(Channel 151, 5755MHz, 802.11n (HT40))

(Channel 159, 5795MHz, 802.11n (HT40))

**802.11ac (VHT20) Mode**

**A. Test Verdict:**

| Channel | Frequency (MHz) | Measured PPSD (dBm/MHz) | Duty Factor | Corrected PPSD (dBm/MHz) | Limit (dBm/MHz) | Verdict |
|---|---|---|---|---|---|---|
| 36 | 5180 | 0.82 | 0.15 | 0.97 | 11 | PASS |
| 44 | 5220 | 0.95 | | 1.10 | | |
| 48 | 5240 | 1.08 | | 1.23 | | |
| 52 | 5260 | 1.12 | | 1.27 | | |
| 60 | 5300 | 1.49 | | 1.64 | | |
| 64 | 5320 | 1.51 | | 1.66 | | |
| 100 | 5500 | 1.18 | | 1.33 | | |
| 120 | 5600 | 1.06 | | 1.21 | | |
| 144 | 5720 | 1.04 | | 1.19 | | |
| Channel | Frequency (MHz) | Measured PPSD (dBm/500KHz) | Duty Factor | Corrected (dBm/500KHz) | Limit (dBm/500KHz) | Verdict |
| 144 | 5720 | -1.59 | 0.15 | -1.44 | 30 | PASS |
| 149 | 5745 | -1.61 | | -1.46 | | |
| 157 | 5785 | -1.63 | | -1.48 | | |
| 165 | 5825 | -2.31 | | -2.16 | | |

**B. Test Plot:**

(Channel 36, 5180MHz, 802.11ac (VHT20))

(Channel 44, 5220MHz, 802.11ac (VHT20))

(Channel 48, 5240MHz, 802.11ac (VHT20))

(Channel 52, 5260MHz, 802.11ac (VHT20))

(Channel 60, 5300MHz, 802.11ac (VHT20))

(Channel 64, 5320MHz, 802.11ac (VHT20))

(Channel 100, 5500MHz, 802.11ac (VHT20))

(Channel 120, 5600MHz, 802.11ac (VHT20))

(Channel 144, 5720MHz, 802.11ac (VHT20))

(Channel 144, 5720MHz, 802.11ac(VHT20))

(Channel 149, 5745MHz, 802.11ac (VHT20))

(Channel 157, 5785MHz, 802.11ac (VHT20))

(Channel 165, 5825MHz, 802.11ac (VHT20))

**802.11ac (VHT40) Mode**

**A. Test Verdict:**

| Channel | Frequency (MHz) | Measured PPSD (dBm/MHz) | Duty Factor | Corrected PPSD (dBm/MHz) | Limit (dBm/MHz) | Verdict |
|---|---|---|---|---|---|---|
| 38 | 5190 | -2.30 | 0.56 | -1.74 | 11 | PASS |
| 46 | 5230 | -2.06 | | -1.50 | | |
| 54 | 5270 | -1.88 | | -1.32 | | |
| 62 | 5310 | -1.70 | | -1.14 | | |
| 102 | 5510 | -1.97 | | -1.41 | | |
| 126 | 5630 | -2.28 | | -1.72 | | |
| 142 | 5710 | -2.12 | | -1.56 | | |
| Channel | Frequency (MHz) | Measured PPSD (dBm/500KHz) | Duty Factor | Corrected (dBm/500KHz) | Limit (dBm/500KHz) | Verdict |
| 142 | 5710 | -5.03 | 0.56 | -4.47 | 30 | PASS |
| 151 | 5755 | -5.07 | | -4.51 | | |
| 155 | 5795 | -4.92 | | -4.36 | | |

**B. Test Plot:**

(Channel 38, 5190MHz, 802.11ac (VHT40))

(Channel 46, 5230MHz, 802.11ac (VHT40))

(Channel 54, 5270MHz, 802.11ac (VHT40))

(Channel 62, 5310MHz, 802.11ac (VHT40))

(Channel 102, 5510MHz, 802.11ac (VHT40))

(Channel 126, 5630MHz, 802.11ac (VHT40))

(Channel 142, 5710MHz, 802.11ac (VHT40))

(Channel 142, 5710MHz, 802.11ac (VHT40))

(Channel 151, 5755MHz, 802.11ac (VHT40))

(Channel 159, 5795MHz, 802.11ac (VHT40))

**802.11ac (VHT80) Mode**

**A. Test Verdict:**

| Channel | Frequency (MHz) | Measured PPSD (dBm/MHz) | Duty Factor | Corrected PPSD (dBm/MHz) | Limit (dBm/MHz) | Verdict |
|---|---|---|---|---|---|---|
| 42 | 5210 | -5.43 | 0.56 | -4.87 | 11 | PASS |
| 58 | 5290 | -4.95 | | -4.39 | | |
| 106 | 5530 | -5.32 | | -4.76 | | |
| 122 | 5610 | -5.46 | | -4.90 | | |
| 138 | 5690 | -5.42 | | -4.86 | | |
| Channel | Frequency (MHz) | Measured PPSD (dBm/500KHz) | Duty Factor | Corrected (dBm/500KHz) | Limit (dBm/500KHz) | Verdict |
| 138 | 5690 | -8.04 | 0.56 | -7.48 | 30 | PASS |
| 155 | 5775 | -8.11 | | -7.55 | | |

**B. Test Plot:**

(Channel 42, 5210MHz, 802.11ac (VHT80))

(Channel 58, 5290MHz, 802.11ac (VHT80))

(Channel 106, 5530MHz, 802.11ac (VHT80))

(Channel 122, 5610MHz, 802.11ac (VHT80))

(Channel 138, 5690MHz, 802.11ac (VHT80))

(Channel 138, 5690MHz, 802.11ac (VHT80))

(Channel 155, 5775MHz, 802.11ac (VHT80))

# 2.6. Frequency Stability

### 2.6.1. Requirement

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

### 2.6.2. Test Procedure

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between 5°Cto 40°C. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

### 2.6.3. Test Result

| U-NII-1 (Ch. 36)<br>5180MHz | | | | |
|---|---|---|---|---|
| VOLTAGE (%) | POWER (VDC) | TEMP (°C) | Fre. Dev. (kHz) | Deviation (ppm) |
| 100% | 3.80 | +20(Ref) | 23 | 4.440 |
| 100% | | -30 | 27 | 5.212 |
| 100% | | -20 | 29 | 5.598 |
| 100% | | -10 | 24 | 4.633 |
| 100% | | 0 | 25 | 4.826 |
| 100% | | +10 | 22 | 4.247 |
| 100% | | +20 | 23 | 4.440 |
| 100% | | +30 | 23 | 4.440 |
| 100% | | +40 | 26 | 5.019 |
| 100% | | +50 | 25 | 4.826 |
| 115% | 4.35 | +20 | 28 | 5.405 |
| 85% | 3.00 | +20 | 30 | 5.792 |

| U-NII-2A (Ch. 52) 5260MHz | | | | |
|---|---|---|---|---|
| VOLTAGE (%) | POWER (VDC) | TEMP (°C) | Fre. Dev. (kHz) | Deviation (ppm) |
| 100% | 3.80 | +20(Ref) | 18 | 3.422 |
| 100% | | -30 | 22 | 4.183 |
| 100% | | -20 | 26 | 4.943 |
| 100% | | -10 | 27 | 5.133 |
| 100% | | 0 | 18 | 3.422 |
| 100% | | +10 | 19 | 3.612 |
| 100% | | +20 | 21 | 3.992 |
| 100% | | +30 | 26 | 4.943 |
| 100% | | +40 | 30 | 5.703 |
| 100% | | +50 | 25 | 4.753 |
| 115% | 4.35 | +20 | 20 | 3.802 |
| 85% | 3.00 | +20 | 21 | 3.992 |

| U-NII-2C (Ch. 100) 5500MHz | | | | |
|---|---|---|---|---|
| VOLTAGE (%) | POWER (VDC) | TEMP (°C) | Fre. Dev. (kHz) | Deviation (ppm) |
| 100% | 3.80 | +20(Ref) | 21 | 3.818 |
| 100% | | -30 | 25 | 4.545 |
| 100% | | -20 | 26 | 4.727 |
| 100% | | -10 | 29 | 5.273 |
| 100% | | 0 | 17 | 3.091 |
| 100% | | +10 | 19 | 3.455 |
| 100% | | +20 | 23 | 4.182 |
| 100% | | +30 | 32 | 5.818 |
| 100% | | +40 | 33 | 6.000 |
| 100% | | +50 | 25 | 4.545 |
| 115% | 4.35 | +20 | 27 | 4.909 |
| 85% | 3.00 | +20 | 29 | 5.273 |

| U-NII-3 (Ch. 149)<br>5745MHz | | | | |
|---|---|---|---|---|
| VOLTAGE (%) | POWER (VDC) | TEMP (°C) | Fre. Dev. (kHz) | Deviation (ppm) |
| 100% | 10.0 | +20(Ref) | 22 | 3.829 |
| 100% | | -30 | 26 | 4.526 |
| 100% | | -20 | 27 | 4.700 |
| 100% | | -10 | 21 | 3.655 |
| 100% | | 0 | 28 | 4.874 |
| 100% | | +10 | 25 | 4.352 |
| 100% | | +20 | 26 | 4.526 |
| 100% | | +30 | 30 | 5.222 |
| 100% | | +40 | 28 | 4.874 |
| 100% | | +50 | 28 | 4.874 |
| 115% | 11.5 | +20 | 31 | 5.396 |
| 85% | 8.5 | +20 | 29 | 5.048 |

# 2.7. Conducted Emission

### 2.7.1. Requirement

According to FCC section 15.207, 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 within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

| Frequency Range (MHz) | Conducted Limit (dBμV) | |
|---|---|---|
| | Quai-peak | Average |
| 0.15 - 0.50 | 66 to 56 | 56 to 46 |
| 0.50 - 5 | 56 | 46 |
| 5 - 30 | 60 | 50 |

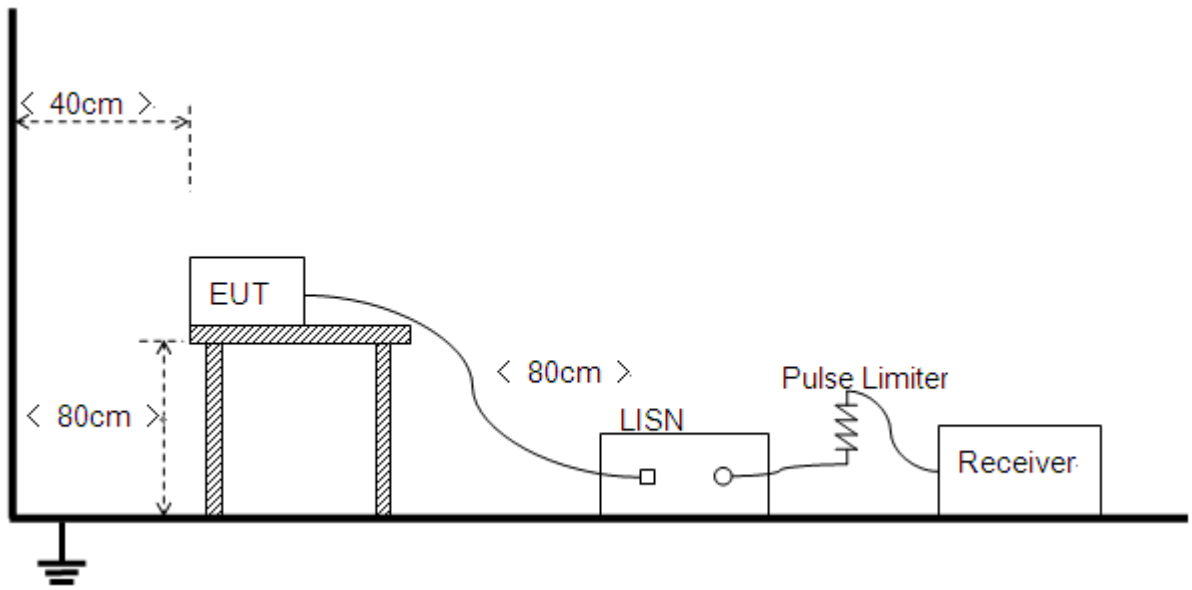
**Note:**

(a) The lower limit shall apply at the band edges.

(b) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

### 2.7.2. Test Description

**Test Setup:**




The Table-top EUT was placed upon a non-metallic table 0.8m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.10: 2013.

### 2.7.3. Test Result

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Set RBW=9kHz, VBW=30kHz. Refer to recorded points and Plot below.

**Note:** Both of the test voltage AC 120V/60Hz and AC 230V/50Hzwere considered and tested respectively, only the results of the worst case AC 120V/60Hz were recorded in this report.

**A. Test Setup:**

Test Mode: EUT+Adaptor+Earphone +WIFI TX

Test Voltage: AC 120V/60Hz

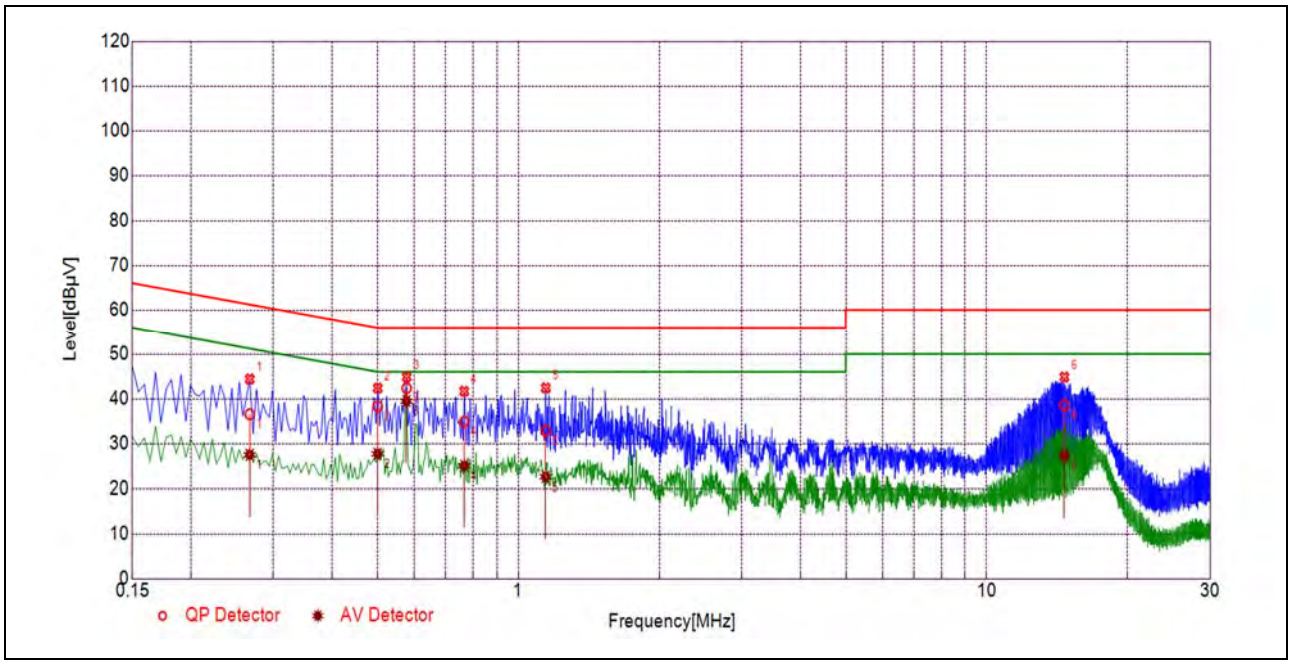
The measurement results are obtained as below:

E [dBμV] $=U_R + L_{Cable\ loss}$ [dB] + $A_{Factor}$

$U_R$: Receiver Reading

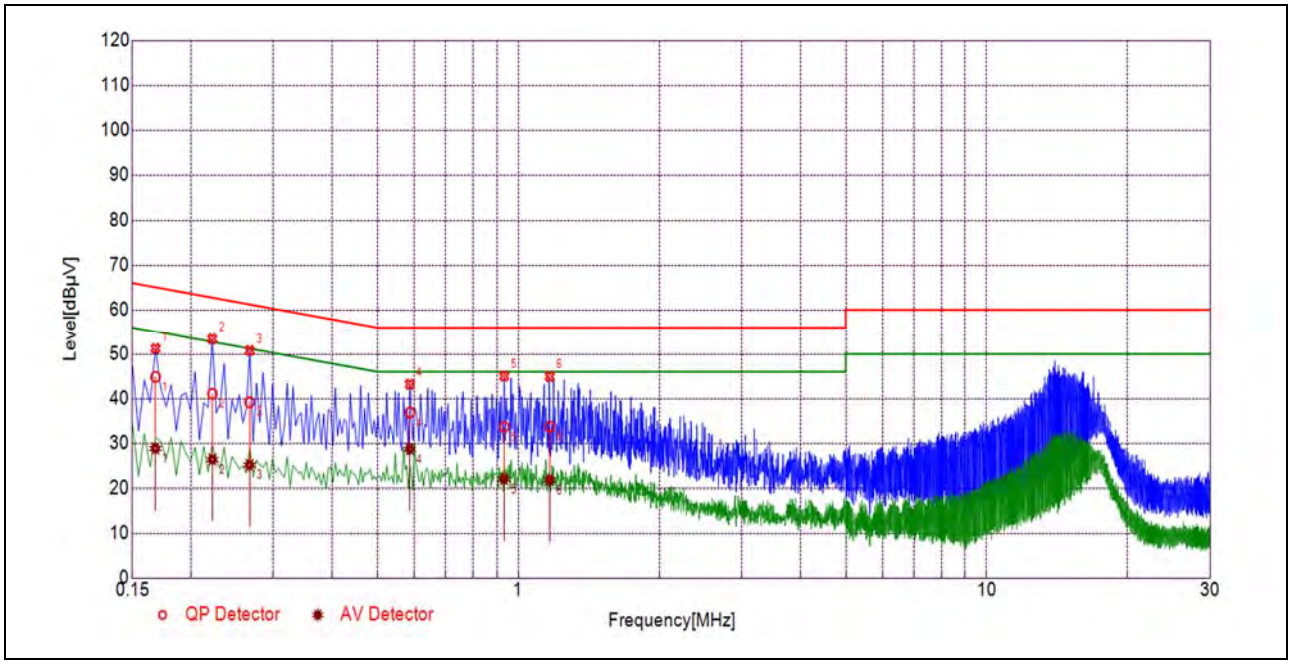
$A_{Factor}$: Voltage division factor of LISN

**B. Test Plot:**




(L Phase)

| No. | Fre. (MHz) | Emission Level (dBµV) | | Limit (dBµV) | | Power-line | Verdict |
|---|---|---|---|---|---|---|---|
| | | Quai-peak | Average | Quai-peak | Average | | |
| 1 | 0.2669 | 36.53 | 27.47 | 61.22 | 51.22 | Line | PASS |
| 2 | 0.5006 | 38.30 | 27.70 | 56.00 | 46.00 | | PASS |
| 3 | 0.5770 | 42.36 | 39.45 | 56.00 | 46.00 | | PASS |
| 4 | 0.7668 | 34.91 | 25.05 | 56.00 | 46.00 | | PASS |
| 5 | 1.1436 | 32.82 | 22.56 | 56.00 | 46.00 | | PASS |
| 6 | 14.6490 | 38.53 | 27.23 | 60.00 | 50.00 | | PASS |




(N Phase)

| No. | Fre. (MHz) | Emission Level (dBµV) | | Limit (dBµV) | | Power-line | Verdict |
|---|---|---|---|---|---|---|---|
| | | Quai-peak | Average | Quai-peak | Average | | |
| 1 | 0.1679 | 44.84 | 28.81 | 65.06 | 55.06 | Neutral | PASS |
| 2 | 0.2222 | 41.05 | 26.35 | 62.74 | 52.74 | | PASS |
| 3 | 0.2667 | 39.17 | 25.11 | 61.22 | 51.22 | | PASS |
| 4 | 0.5862 | 36.86 | 28.67 | 56.00 | 46.00 | | PASS |
| 5 | 0.9323 | 33.64 | 21.96 | 56.00 | 46.00 | | PASS |
| 6 | 1.1662 | 33.71 | 21.78 | 56.00 | 46.00 | | PASS |

# 2.8. Restricted Frequency Bands

### 2.8.1. Requirement

The peak 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 EIRP of -27dBm/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 EIRP of -27dBm/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 EIRP of -27dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

The following formula is used to convert the equipment isotropic radiated power(e.i.r.p.) to field strength (dBμV/m);

$$E = 1000000 \times \sqrt{30P} / 3 \ \mu V/m$$

where P is the EIRP in Watts

Therefore: -27 dBm/MHz = 68.23 dBuV/m

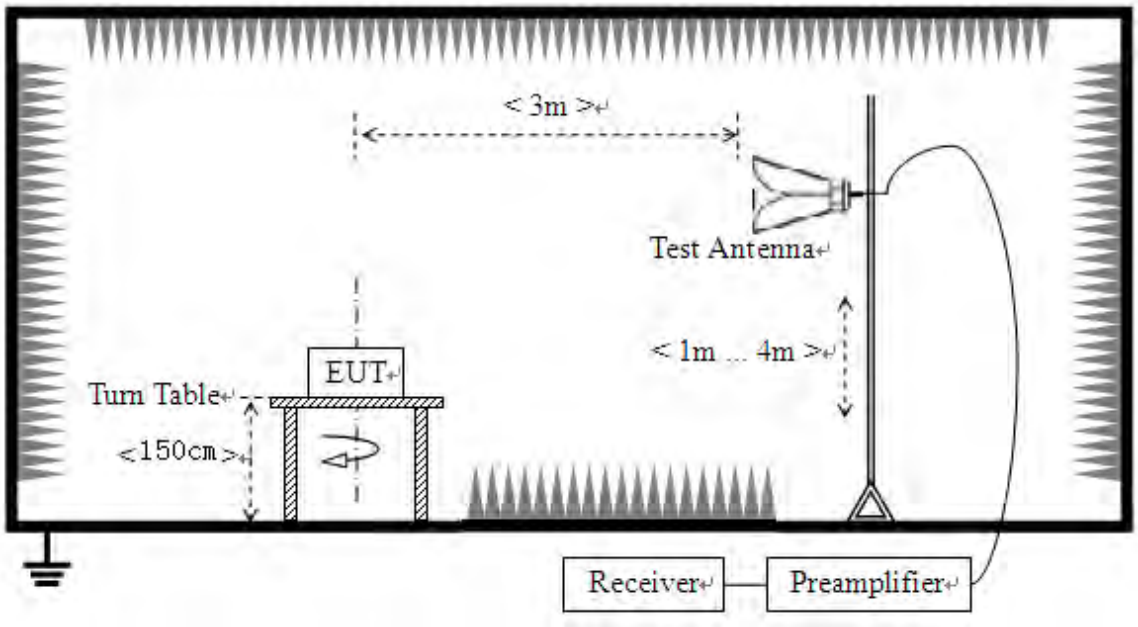
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (MHz) | Field Strength (μV/m) | Measurement Distance (m) |
|---|---|---|
| 0.009 - 0.490 | 2400/F(kHz) | 300 |
| 0.490 - 1.705 | 24000/F(kHz) | 30 |
| 1.705 - 30.0 | 30 | 30 |
| 30 - 88 | 100 | 3 |
| 88 - 216 | 150 | 3 |
| 216 - 960 | 200 | 3 |
| Above 960 | 500 | 3 |

For Above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), also should comply with the radiated emission limits specified in Section 15.209(a)(above table).

### 2.8.2. Test Description

**Test Setup**



The EUT is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading.
KDB 789033 Section H) 3)5)6(d)) was used in order to prove compliance
For the Test Antenna:
Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength.

### 2.8.3. Test Result

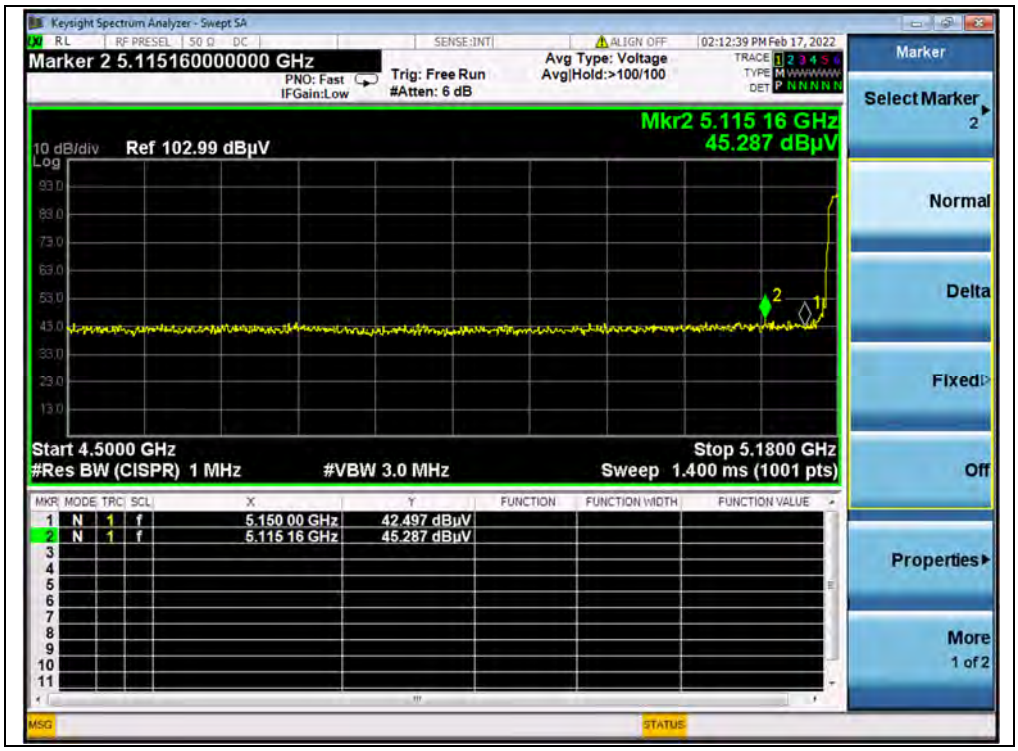
The lowest and highest channels are tested to verify Restricted Frequency Bands.
The measurement results are obtained as below:
E [dBμV/m] $=U_R + A_T + A_{Factor}$ [dB]; $A_T = L_{Cable\ loss}$ [dB]$-G_{preamp}$ [dB]
$A_T$: Total correction Factor except Antenna; $U_R$: Receiver Reading
$G_{preamp}$: Preamplifier Gain; $A_{Factor}$: Antenna Factor at 3m
**Note 1:** Restricted Frequency Bands were performed when antenna was at vertical and horizontal polarity, and only the worse test condition (vertical) was recorded in this test report.
**Note 2** All test modes and bandwidth were considered and evaluated respectively by performing full test, only the worst data were recorded for each bandwidth.

**802.11a Mode**

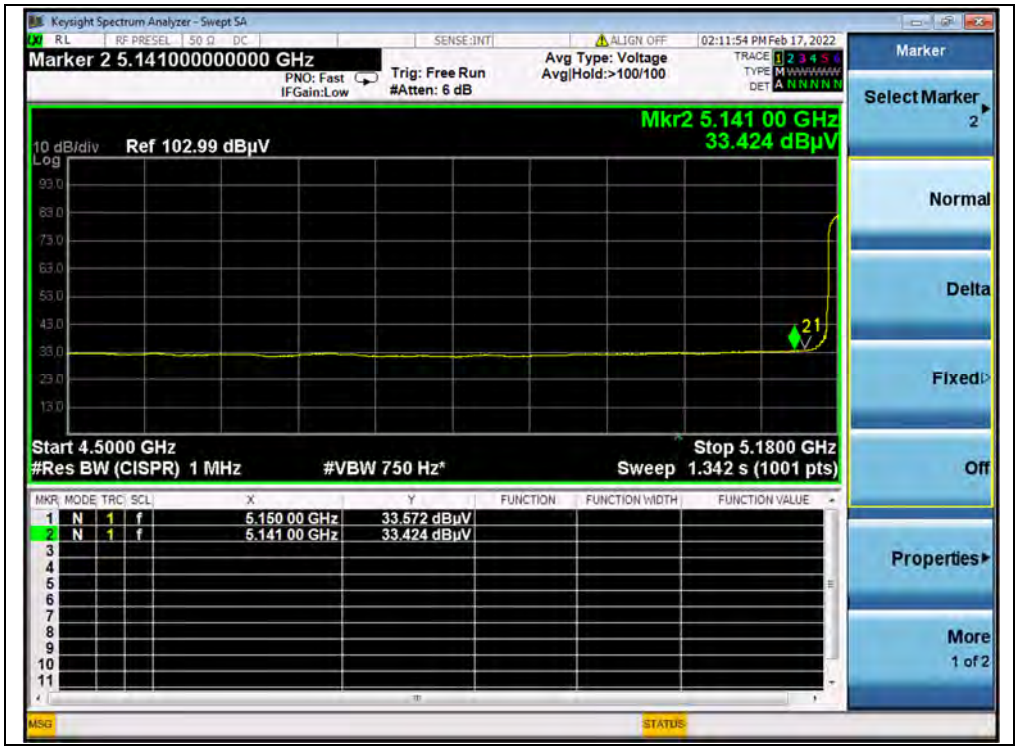
**A.Test Verdict:**

| Channel | Frequency (MHz) | Detector PK/ AV | Receiver Reading $U_R$ (dBμV) | $A_T$ (dB) | $A_{Factor}$ (dB@3m) | Max. Emission E (dBμV/m) | Limit (dBμV/m) | Verdict |
|---|---|---|---|---|---|---|---|---|
| 36 | 5115.16 | PK | 45.29 | -19.54 | 32.20 | 57.95 | 74 | PASS |
| 36 | 5150.00 | AV | 33.57 | -19.54 | 32.20 | 46.23 | 54 | PASS |
| 64 | 5360.50 | PK | 43.37 | -18.80 | 32.20 | 56.77 | 74 | PASS |
| 64 | 5350.00 | AV | 32.72 | -18.80 | 32.20 | 46.12 | 54 | PASS |
| 100 | 5246.84 | PK | 44.72 | -19.20 | 32.20 | 57.72 | 68.23 | PASS |
| 100 | 5459.00 | AV | 34.91 | -19.20 | 32.20 | 47.91 | 54 | PASS |
| 144 | 5725.00 | PK | 46.27 | -19.20 | 32.20 | 59.27 | 68.23 | PASS |
| 149 | 5725.00 | PK | 43.54 | -19.01 | 32.20 | 56.73 | 122.23 | PASS |
| 165 | 5850.00 | PK | 43.88 | -19.01 | 32.20 | 57.07 | 122.23 | PASS |

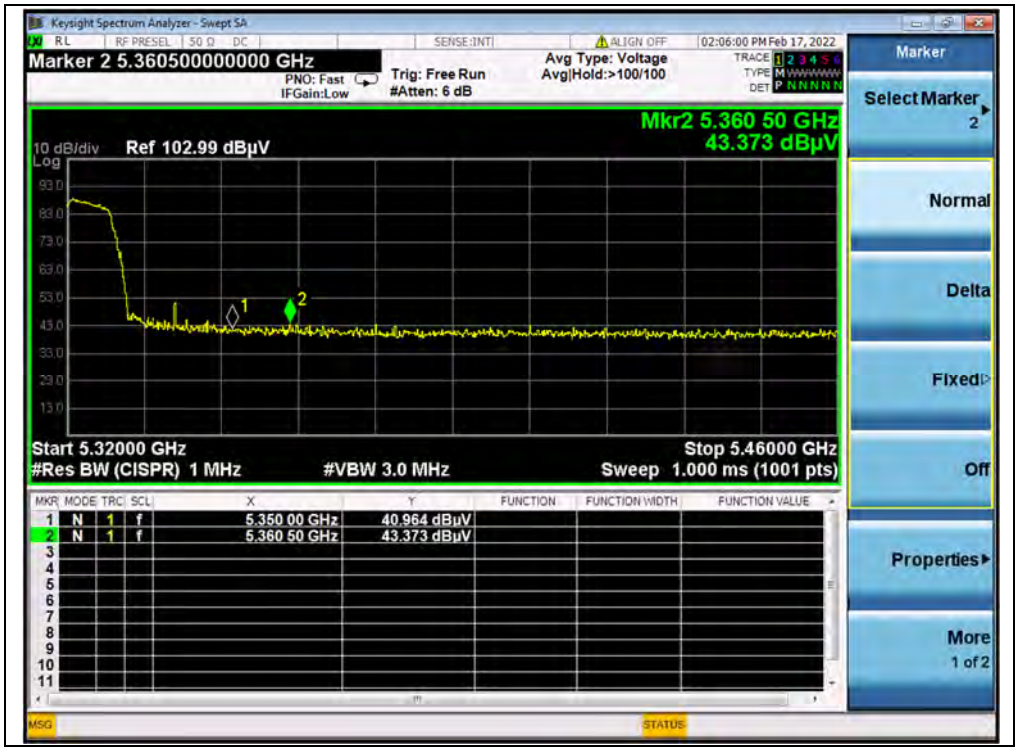
**B.Test Plot:**



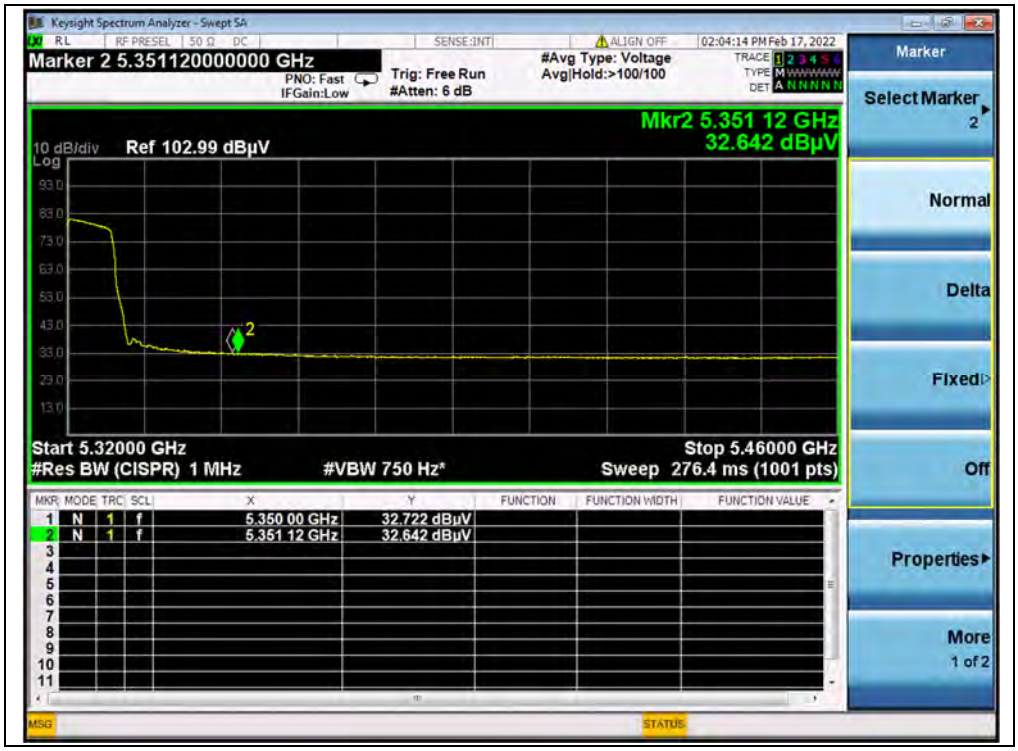

(PEAK, Channel 36, 802.11a)



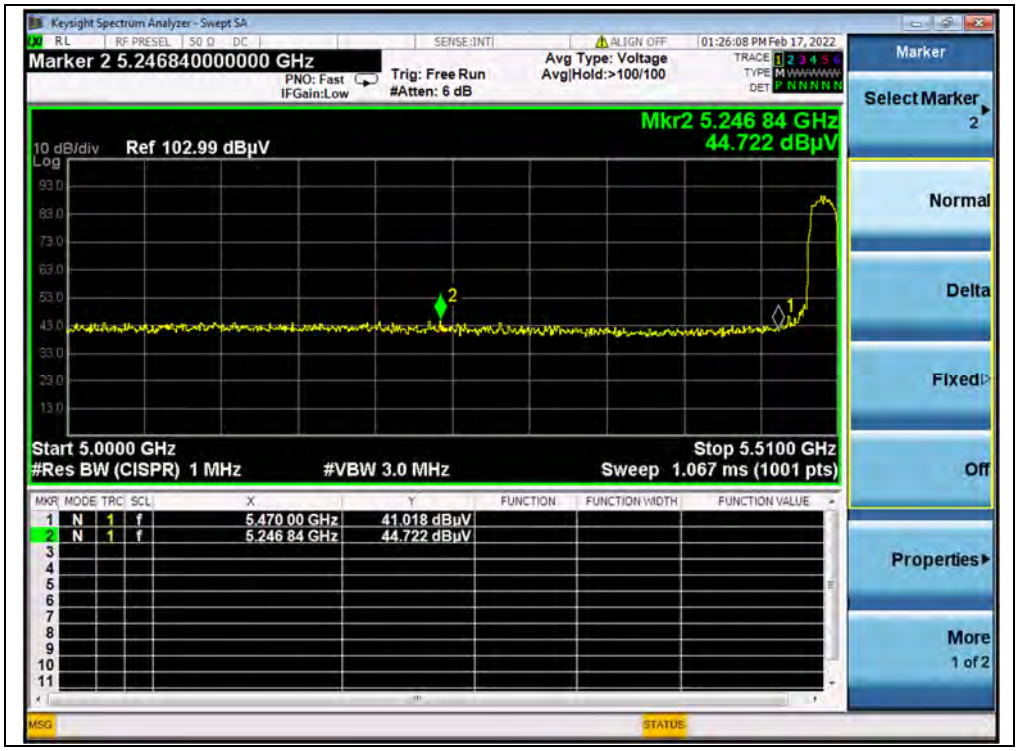

(AVERAGE, Channel 36, 802.11a)



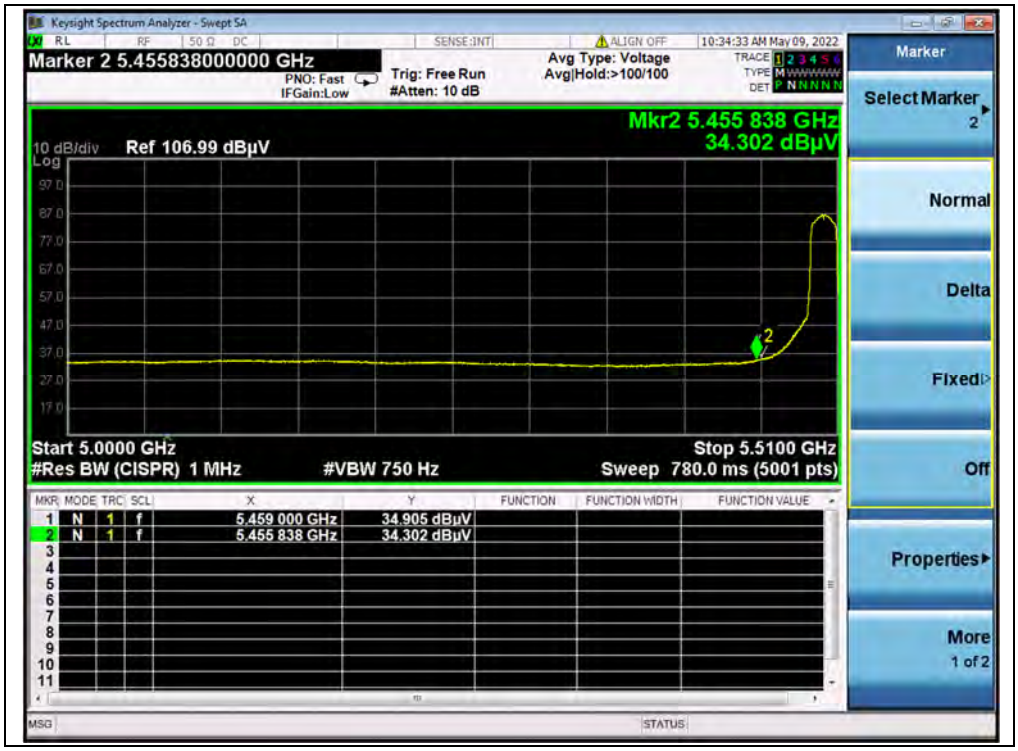

(PEAK, Channel 64, 802.11a)



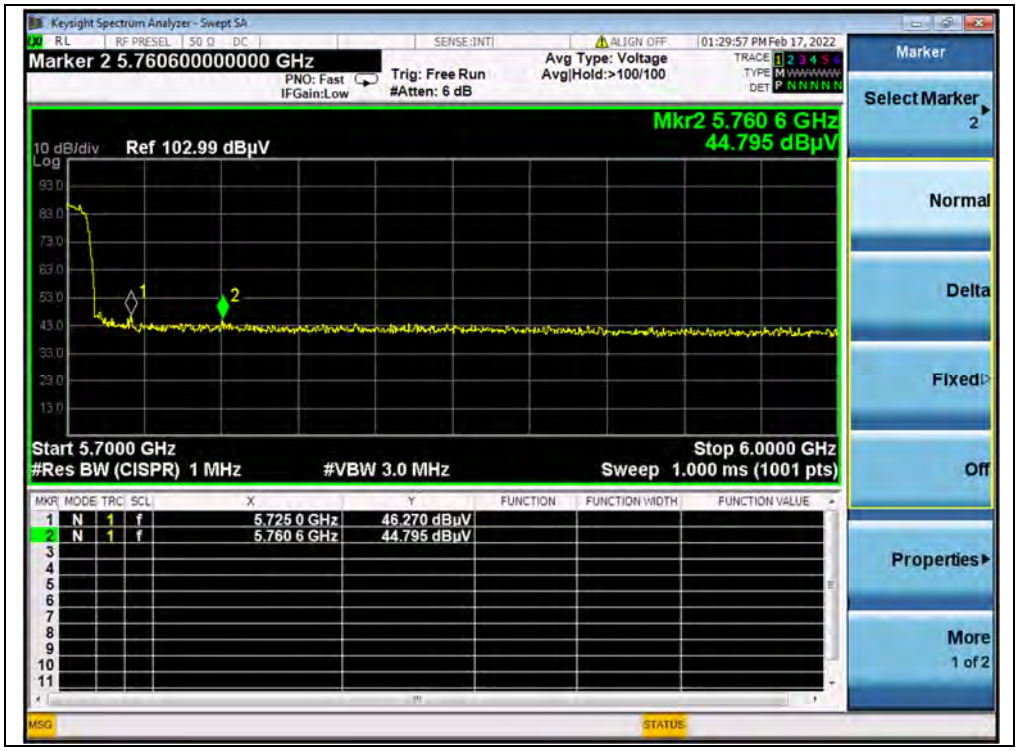

(AVERAGE, Channel 64, 802.11a)



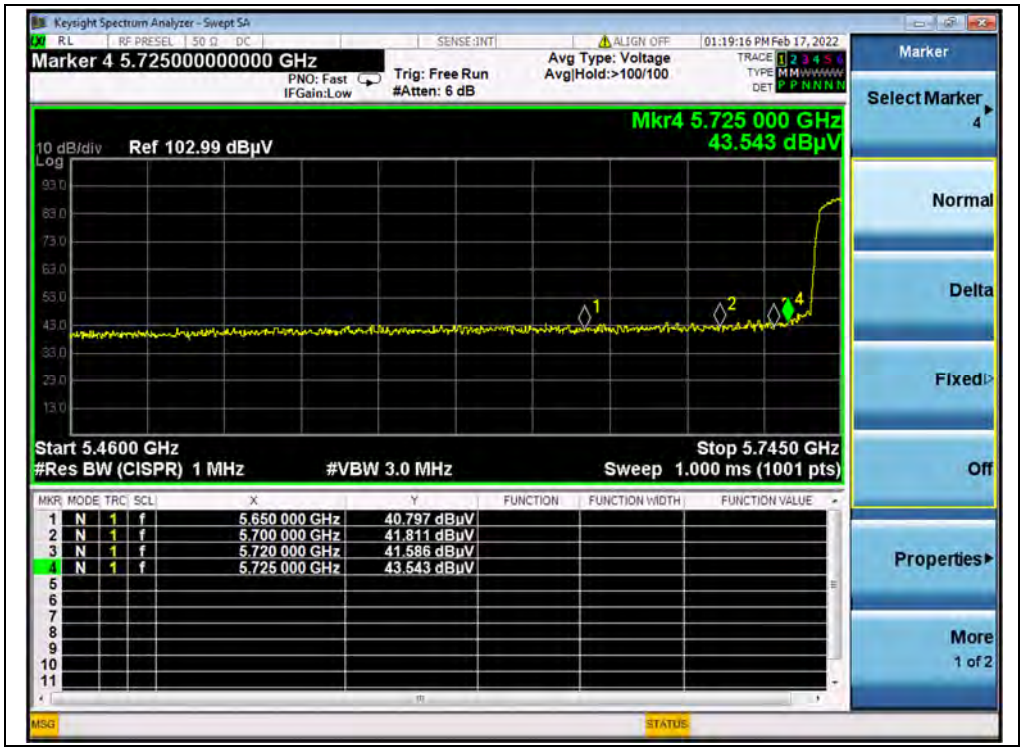

(PEAK, Channel 100, 802.11a)




(AVERAGE, Channel 100, 802.11a)




(PEAK, Channel 144, 802.11a)




(PEAK, Channel 149, 802.11a)

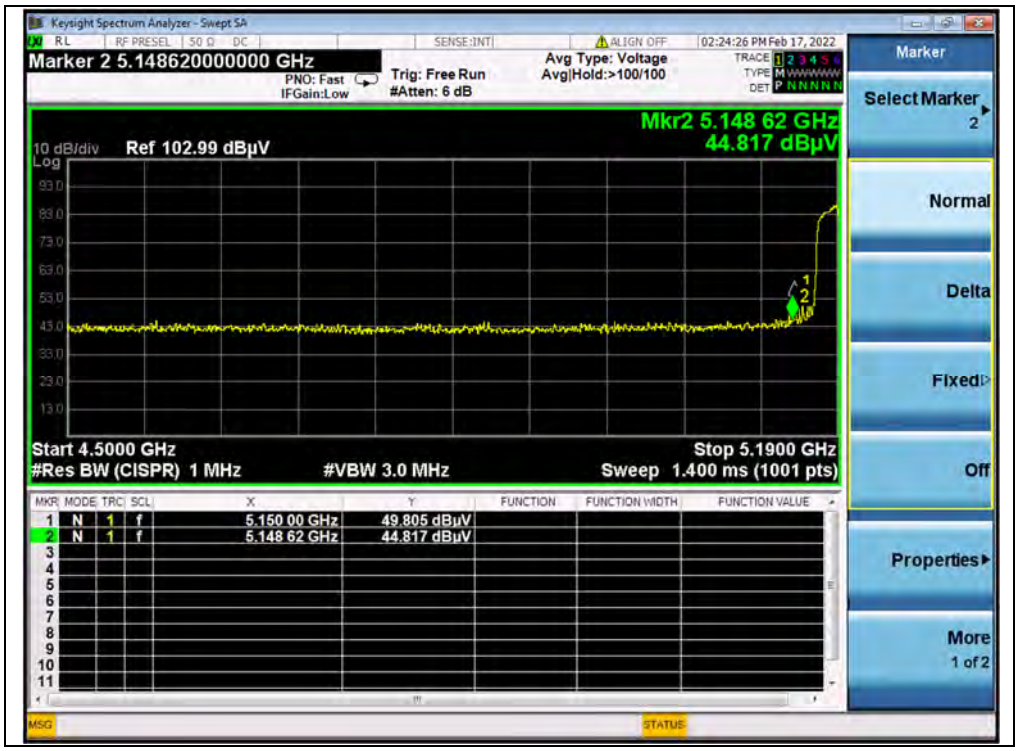
(PEAK, Channel 165, 802.11a)

**802.11n (HT40) Mode**

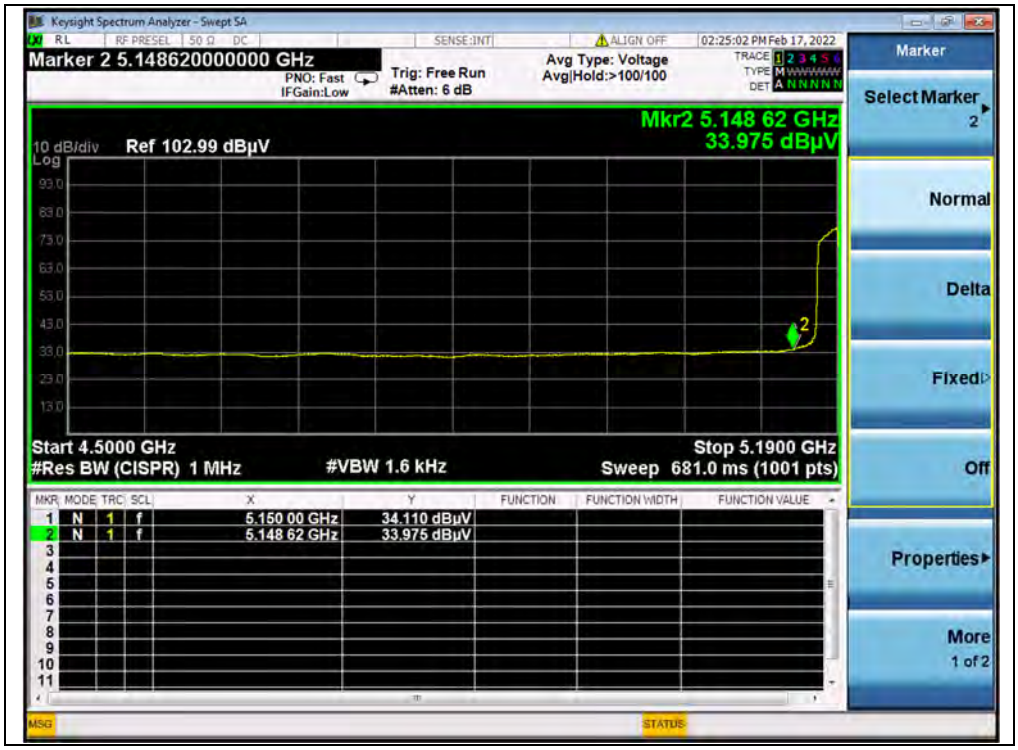
**A.Test Verdict:**

| Channel | Frequency (MHz) | Detector PK/ AV | Receiver Reading $U_R$ (dBμV) | $A_T$ (dB) | $A_{Factor}$ (dB@3m) | Max. Emission E (dBμV/m) | Limit (dBμV/m) | Verdict |
|---|---|---|---|---|---|---|---|---|
| 38 | 5150.00 | PK | 49.81 | -19.54 | 32.20 | 62.47 | 74 | PASS |
| 38 | 5150.00 | AV | 34.11 | -19.54 | 32.20 | 46.77 | 54 | PASS |
| 62 | 5365.25 | PK | 42.56 | -18.80 | 32.20 | 55.96 | 74 | PASS |
| 62 | 5350.00 | AV | 32.41 | -18.80 | 32.20 | 45.81 | 54 | PASS |
| 102 | 5126.99 | PK | 45.23 | -19.20 | 32.20 | 58.23 | 74 | PASS |
| 102 | 5459.00 | AV | 37.63 | -19.20 | 32.20 | 50.63 | 54 | PASS |
| 142 | 5744.81 | PK | 43.95 | -19.20 | 32.20 | 56.95 | 68.23 | PASS |
| 151 | 5725.00 | PK | 45.01 | -19.01 | 32.20 | 58.20 | 122.23 | PASS |
| 159 | 5850.00 | PK | 42.81 | -19.01 | 32.20 | 56.00 | 122.23 | PASS |

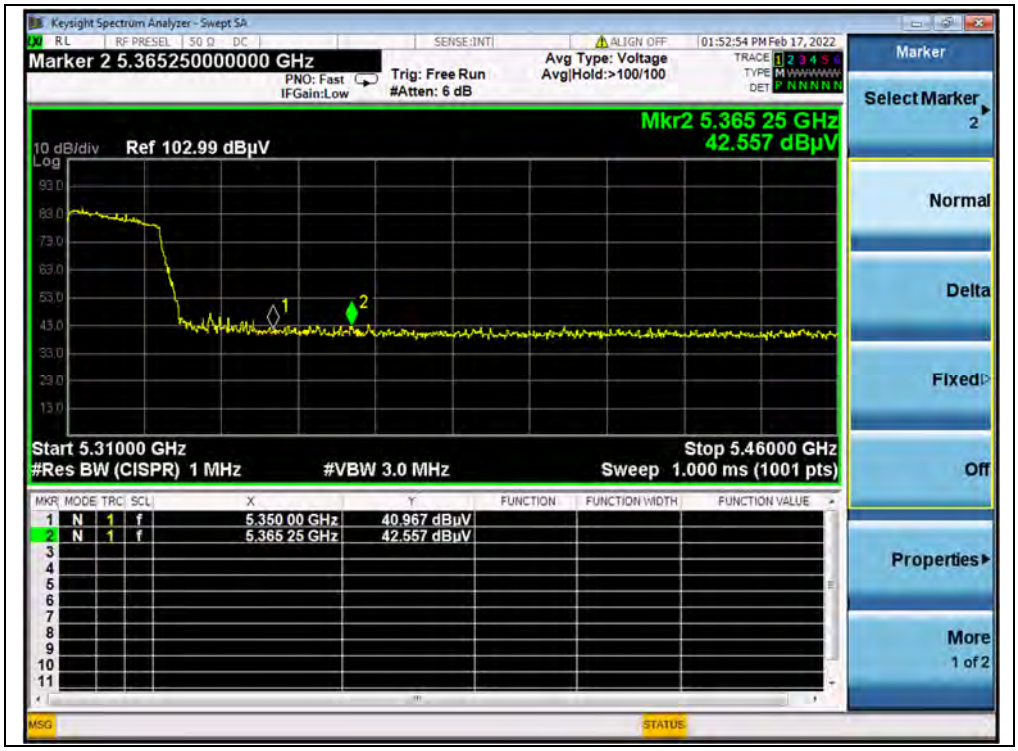
**B.Test Plot:**



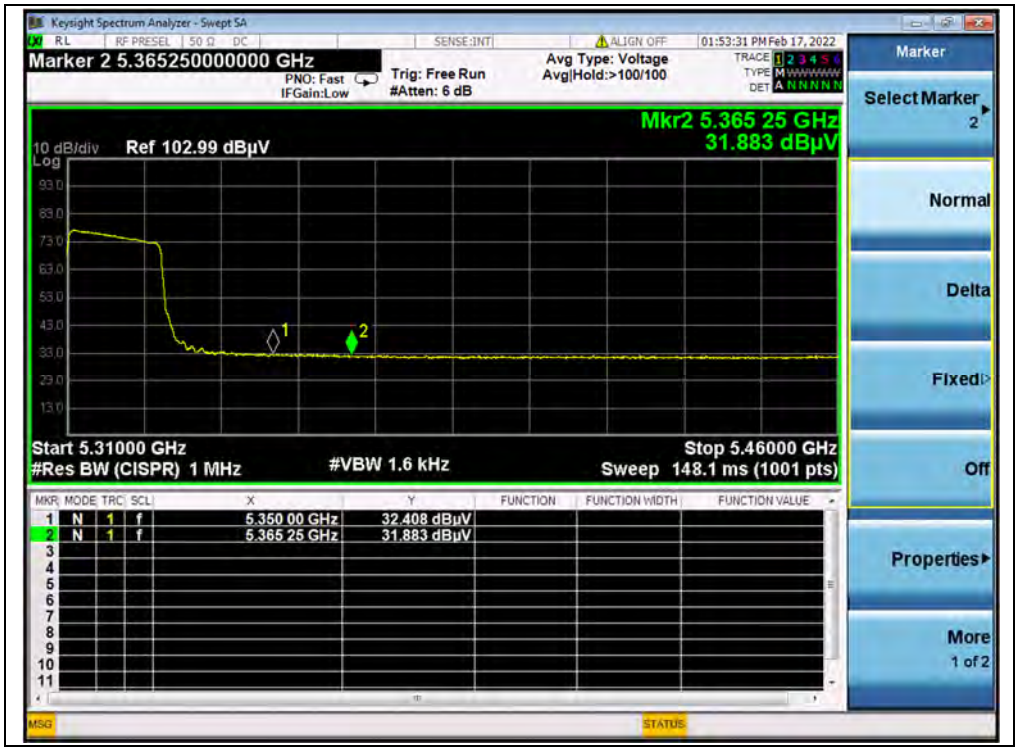

(PEAK, Channel 38, 802.11n (HT40))



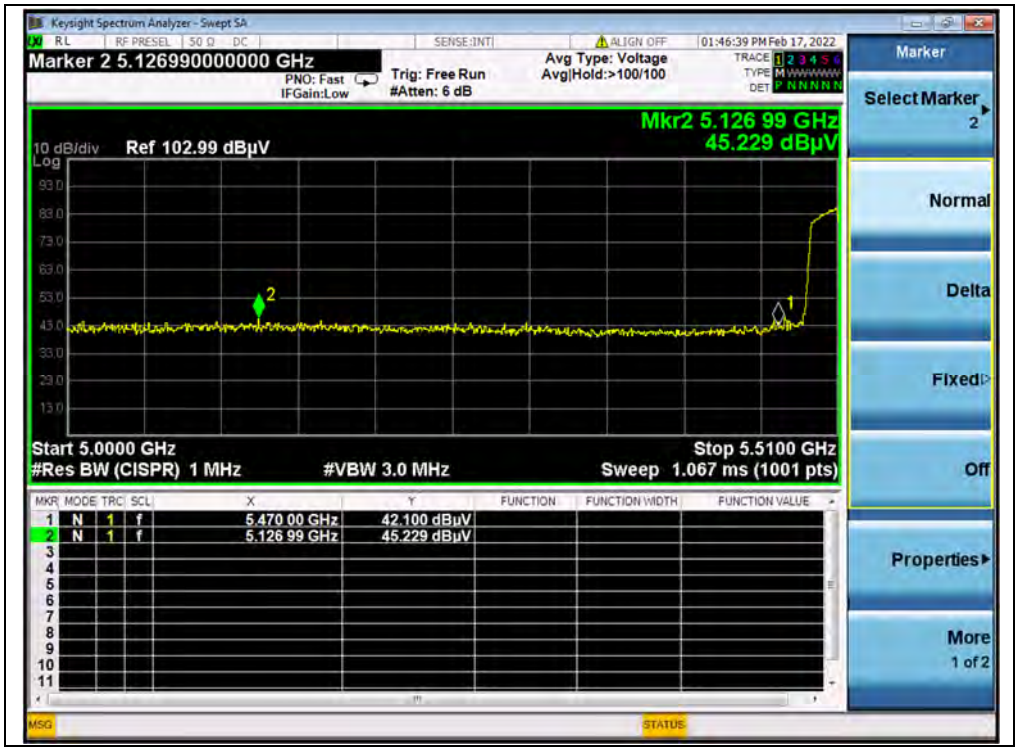

(AVERAGE, Channel 38, 802.11n (HT40))



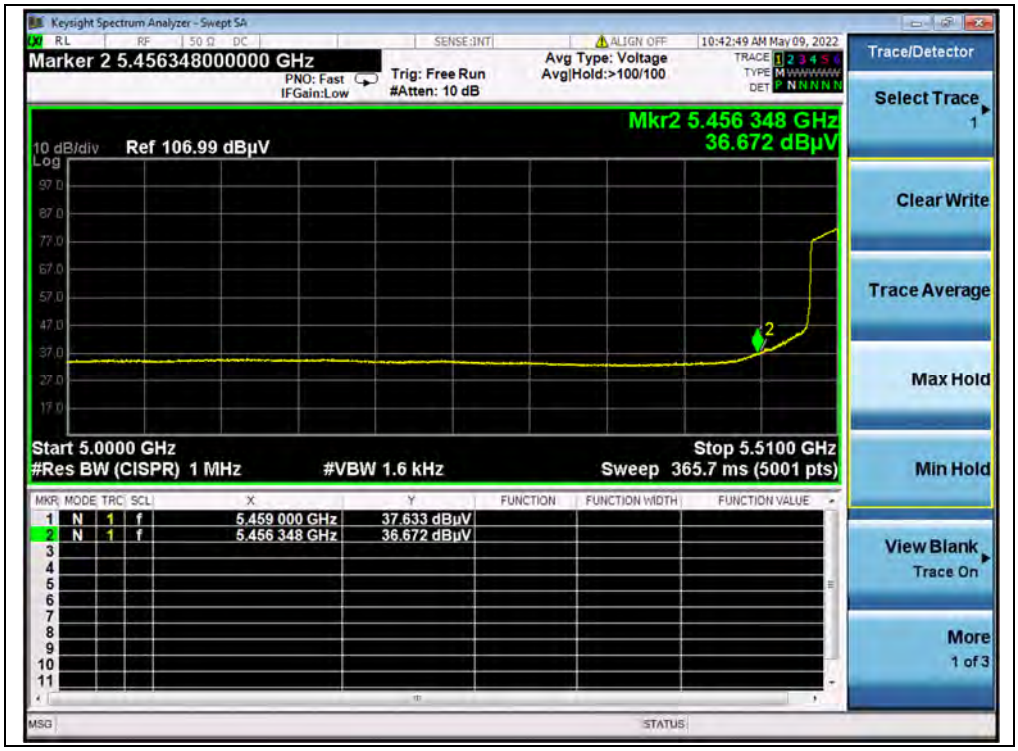

(PEAK, Channel 62, 802.11n (HT40))




(AVERAGE, Channel 62, 802.11n (HT40))

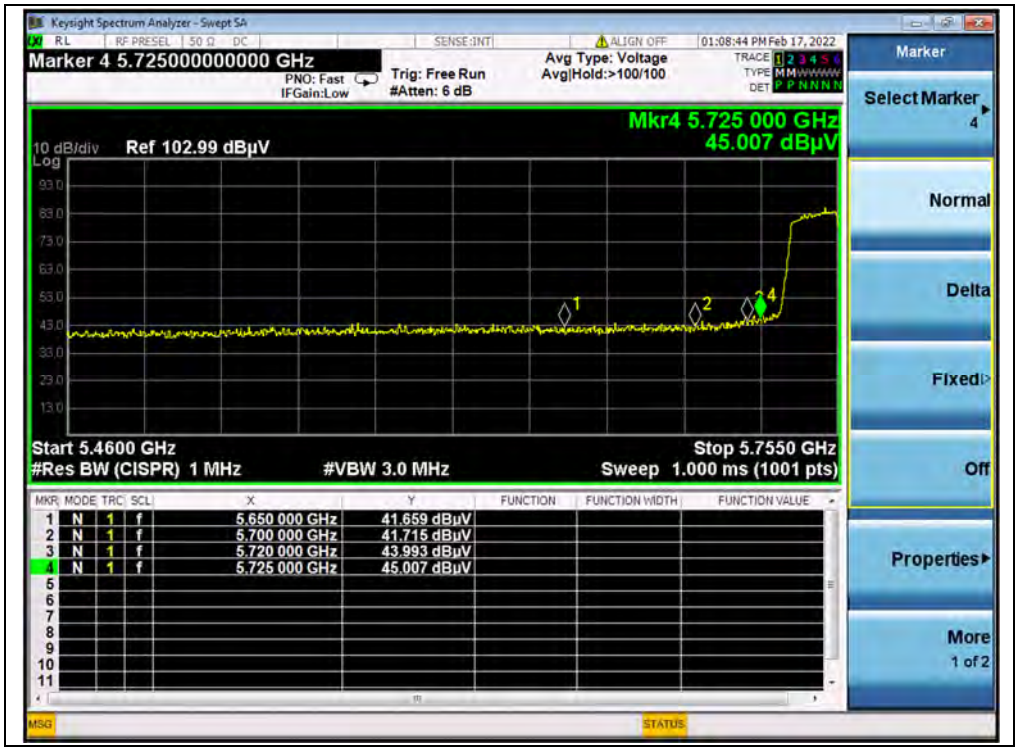



(PEAK, Channel 102, 802.11n (HT40))

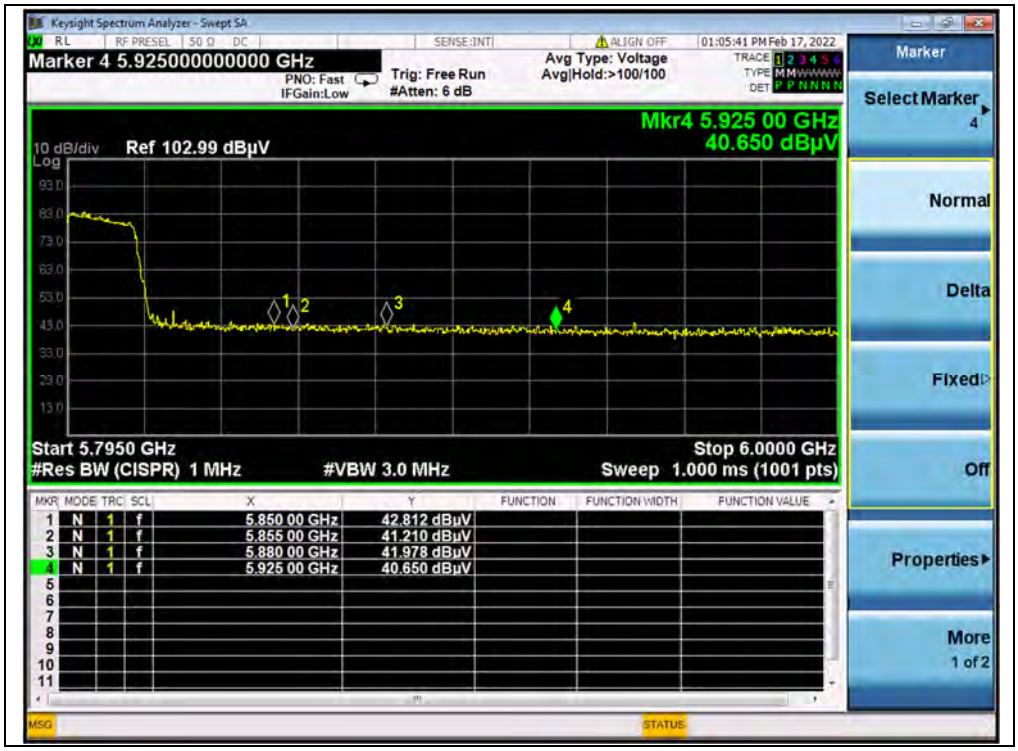



(AVERAGE, Channel 102, 802.11n (HT40))

(PEAK, Channel 142, 802.11n (HT40))




(PEAK, Channel 151, 802.11n (HT40))



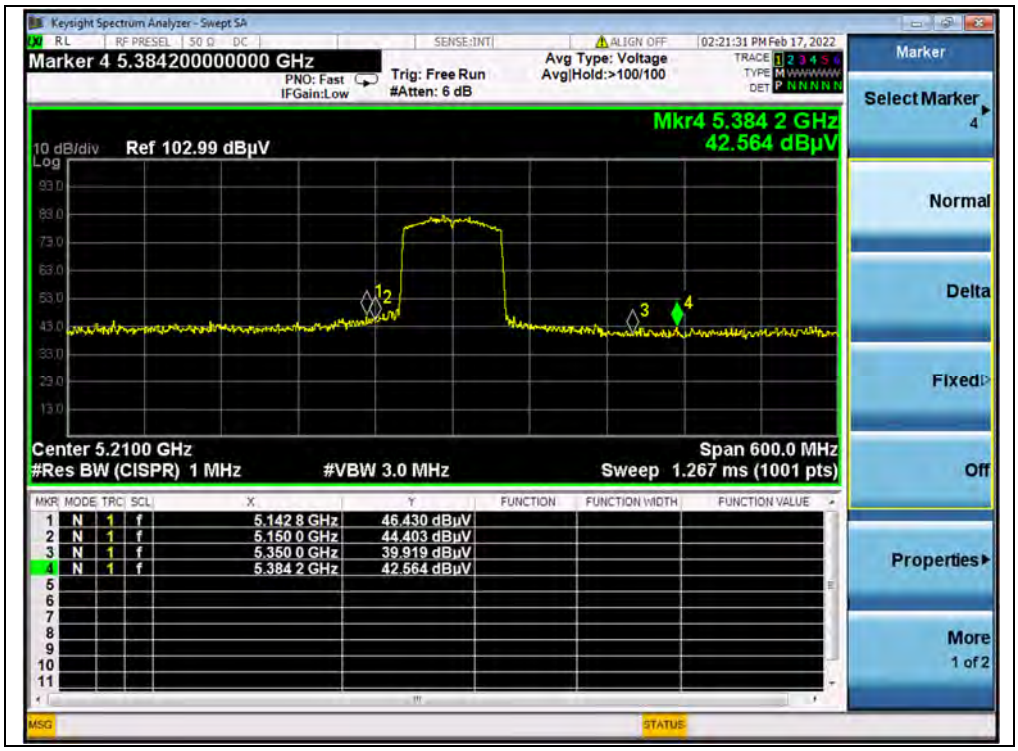

(PEAK, Channel 159, 802.11n (HT40))

**802.11ac (VHT80) Mode**

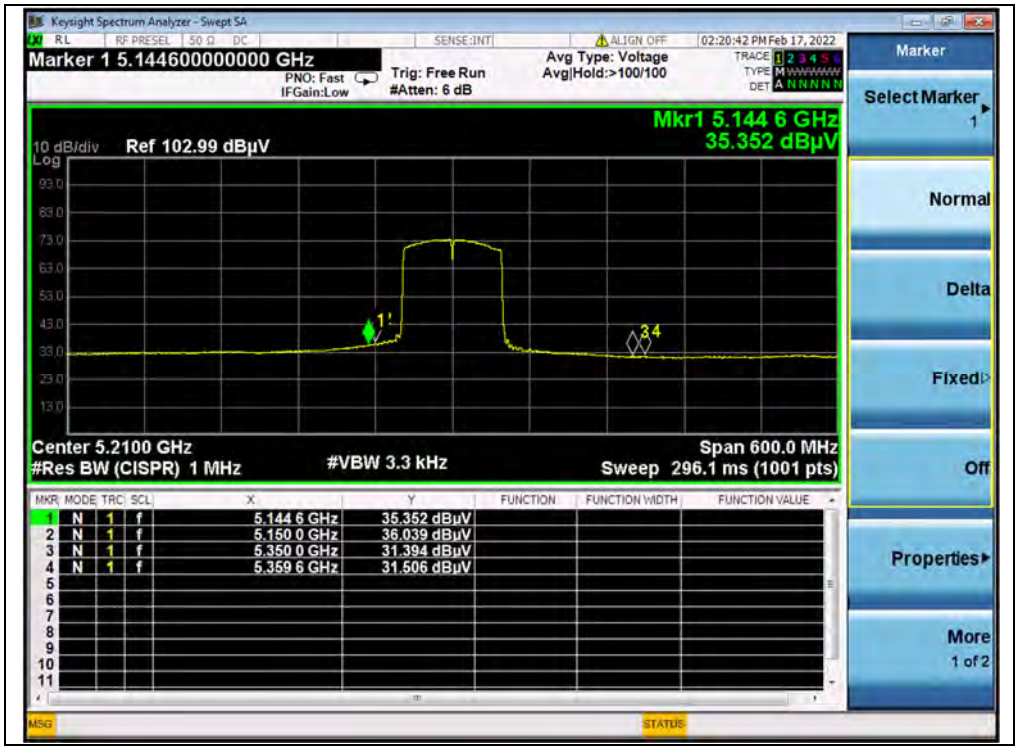
**A.Test Verdict:**

| Channel | Frequency (MHz) | Detector PK/ AV | Receiver Reading $U_R$ (dBμV) | $A_T$ (dB) | $A_{Factor}$ (dB@3m) | Max. Emission E (dBμV/m) | Limit (dBμV/m) | Verdict |
|---|---|---|---|---|---|---|---|---|
| 42 | 5142.80 | PK | 46.43 | -19.54 | 32.20 | 59.09 | 74 | PASS |
| 42 | 5150.00 | AV | 36.04 | -19.54 | 32.20 | 48.70 | 54 | PASS |
| 58 | 5350.00 | PK | 42.99 | -18.80 | 32.20 | 56.39 | 74 | PASS |
| 58 | 5350.00 | AV | 32.87 | -18.80 | 32.20 | 46.27 | 54 | PASS |
| 106 | 5304.71 | PK | 43.70 | -19.20 | 32.20 | 56.70 | 68.23 | PASS |
| 106 | 5460.00 | AV | 33.15 | -19.20 | 32.20 | 46.15 | 54 | PASS |
| 138 | 5767.35 | PK | 43.29 | -19.20 | 32.20 | 56.29 | 68.23 | PASS |
| 155 | 5725.00 | PK | 45.47 | -19.01 | 32.20 | 58.66 | 122.23 | PASS |
| 155 | 5855.00 | PK | 43.14 | -19.01 | 32.20 | 56.33 | 110.83 | PASS |

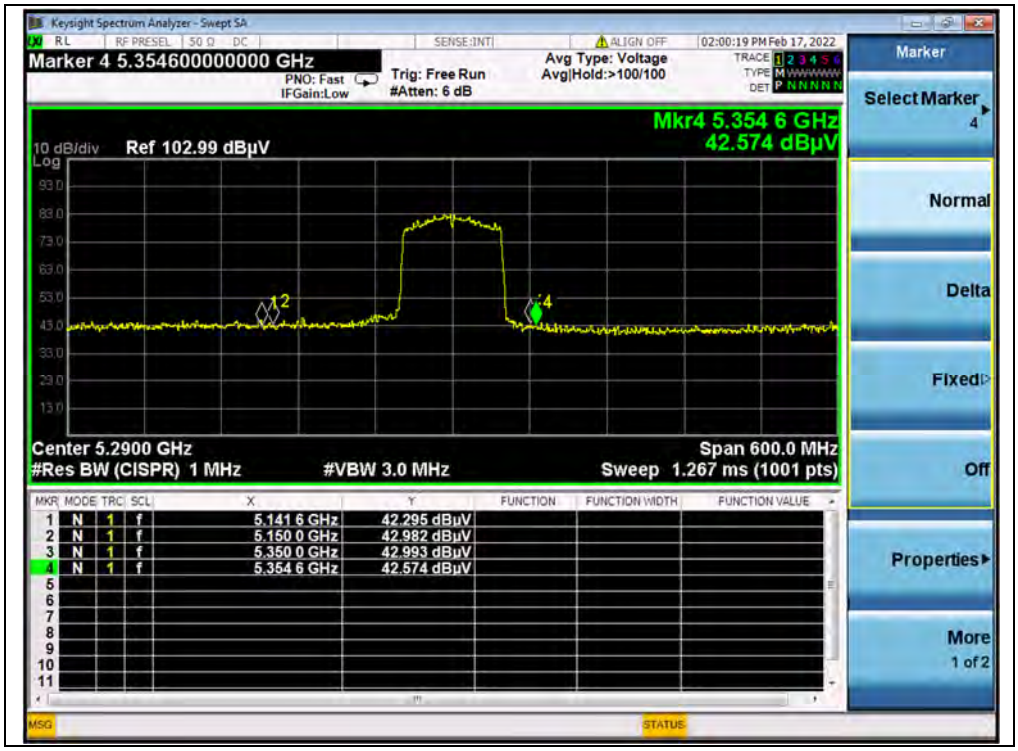
**B.Test Plot:**



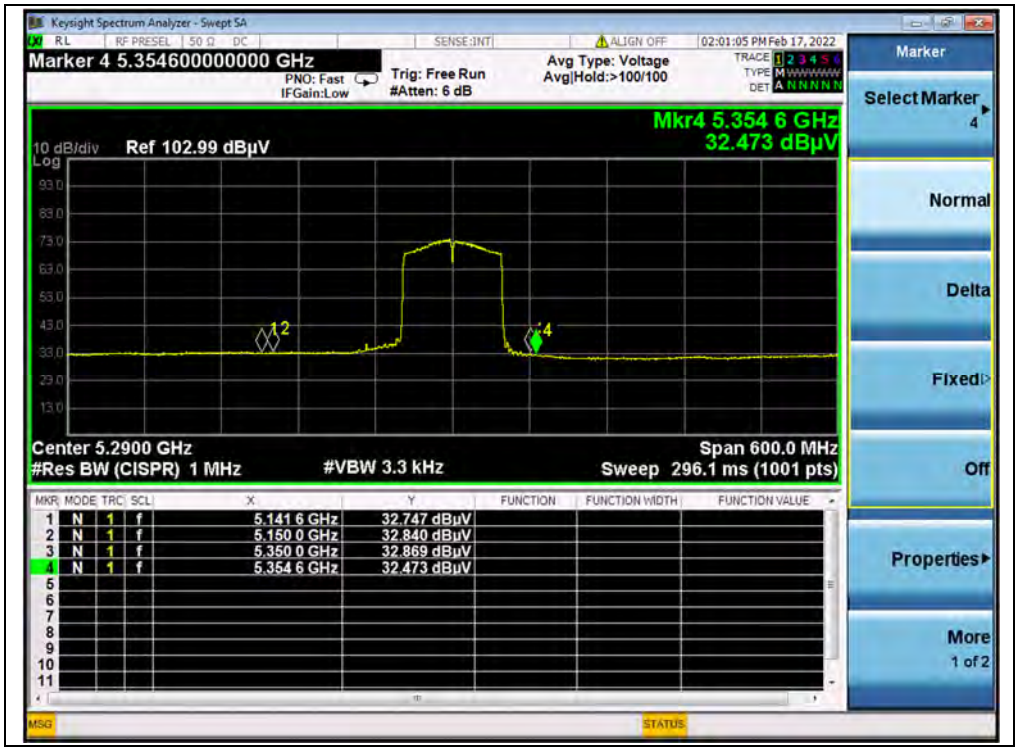

(PEAK, Channel 42, 802.11ac (VHT80))



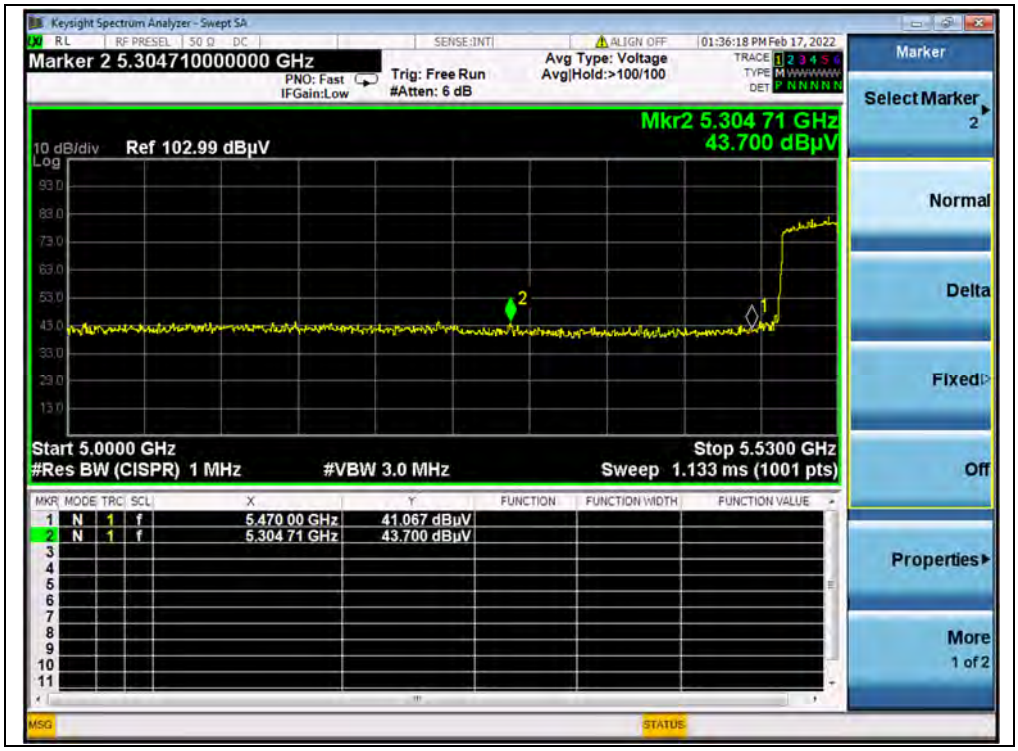

(AVERAGE, Channel 42, 802.11ac (VHT80))



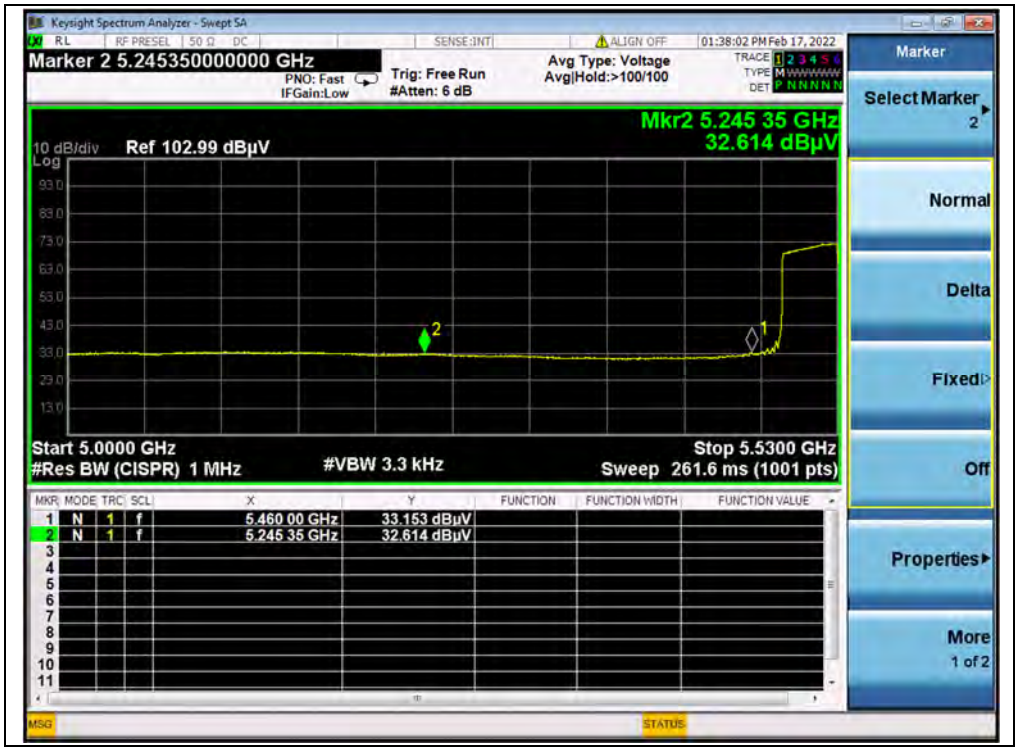

(PEAK, Channel 58, 802.11ac (VHT80))



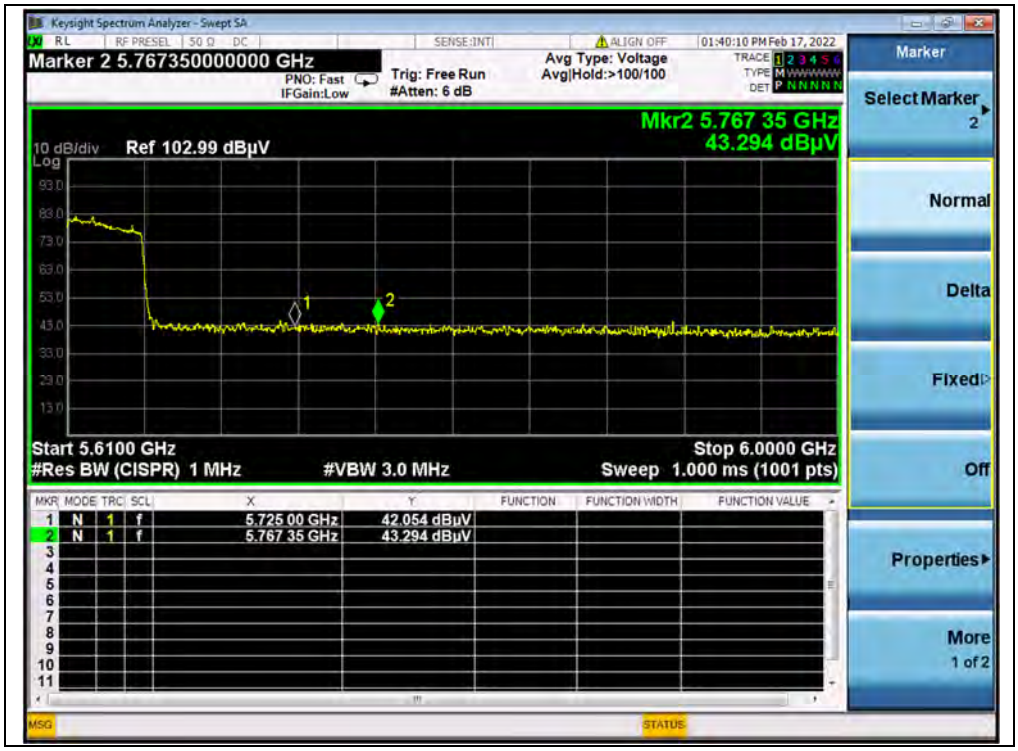

(AVERAGE, Channel 58, 802.11ac (VHT80))




(PEAK, Channel 106, 802.11ac (VHT80))




(AVERAGE, Channel 106, 802.11ac (VHT80))




(PEAK, Channel 138, 802.11ac (VHT80))

(PEAK, Channel 155, 802.11ac (VHT80))

# 2.9. Radiated Emission

### 2.9.1. Requirement

The peak 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 EIRP of -27dBm/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 EIRP of -27dBm/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 EIRP of -27dBm/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.
The following formula is used to convert the equipment isotropic radiated power(e.i.r.p.) to field strength (dBμV/m);

$$E = 1000000 \times \sqrt{30P} / 3 \ \mu V/m$$

where P is the EIRP in Watts

Therefore: -27 dBm/MHz = 68.23 dBuV/m

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. According to FCC section 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:

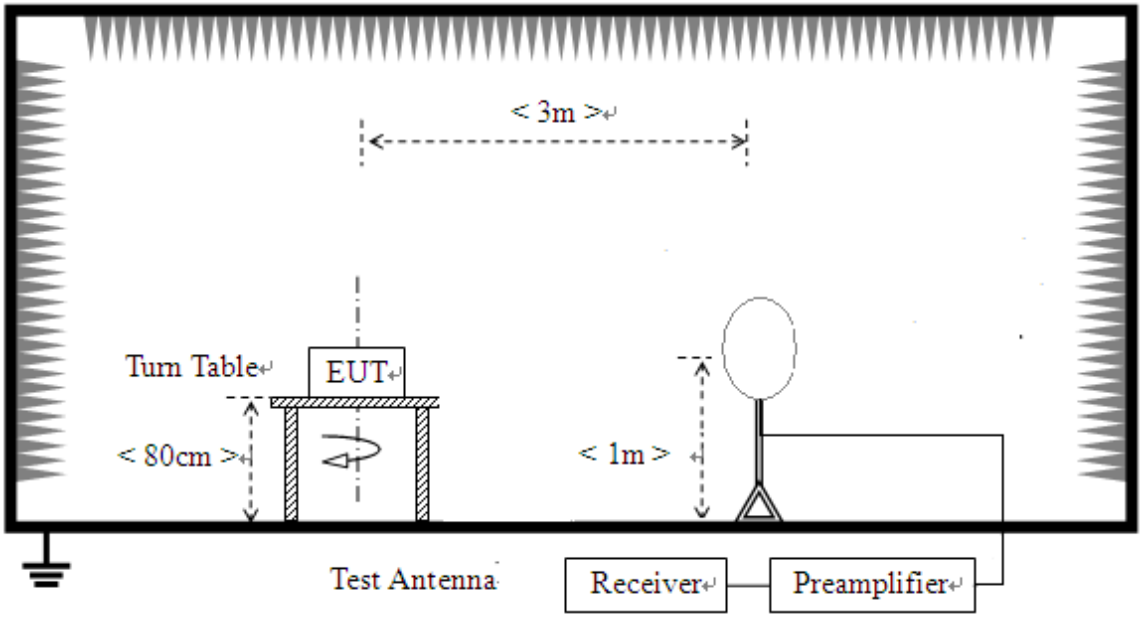
| Frequency (MHz) | Field Strength (μV/m) | Measurement Distance (m) |
|---|---|---|
| 0.009 - 0.490 | 2400/F(kHz) | 300 |
| 0.490 - 1.705 | 24000/F(kHz) | 30 |
| 1.705 - 30.0 | 30 | 30 |
| 30 - 88 | 100 | 3 |
| 88 - 216 | 150 | 3 |
| 216 - 960 | 200 | 3 |
| Above 960 | 500 | 3 |

For Above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), also should comply with the radiated emission limits specified in Section 15.209(a)(above table).

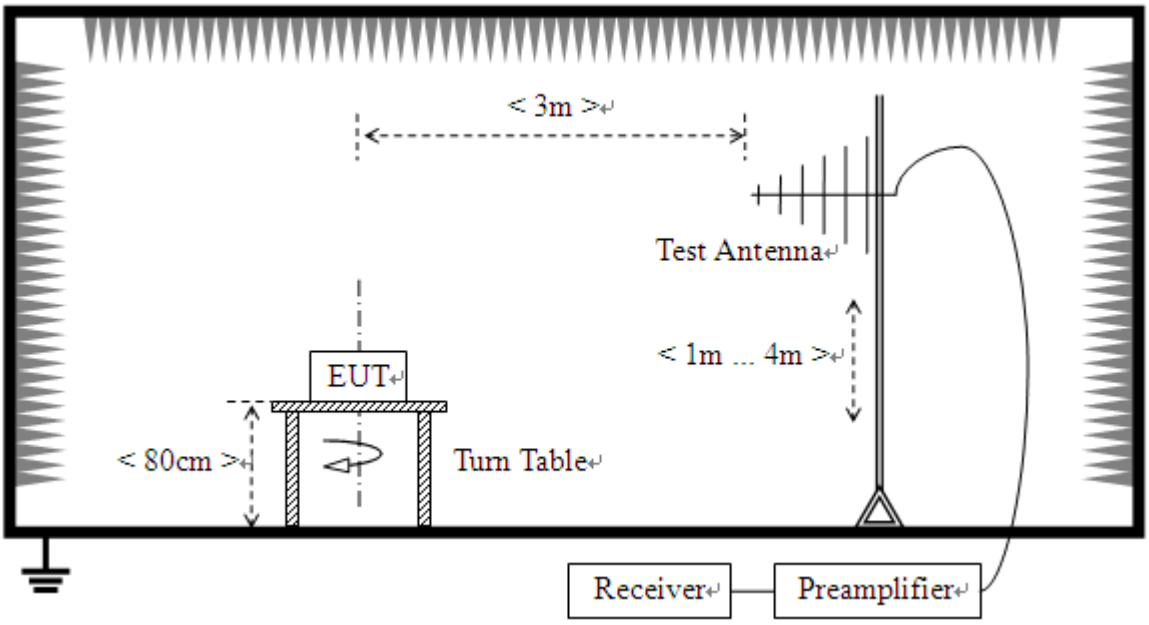
### 2.9.2. Test Description

**Test Setup:**

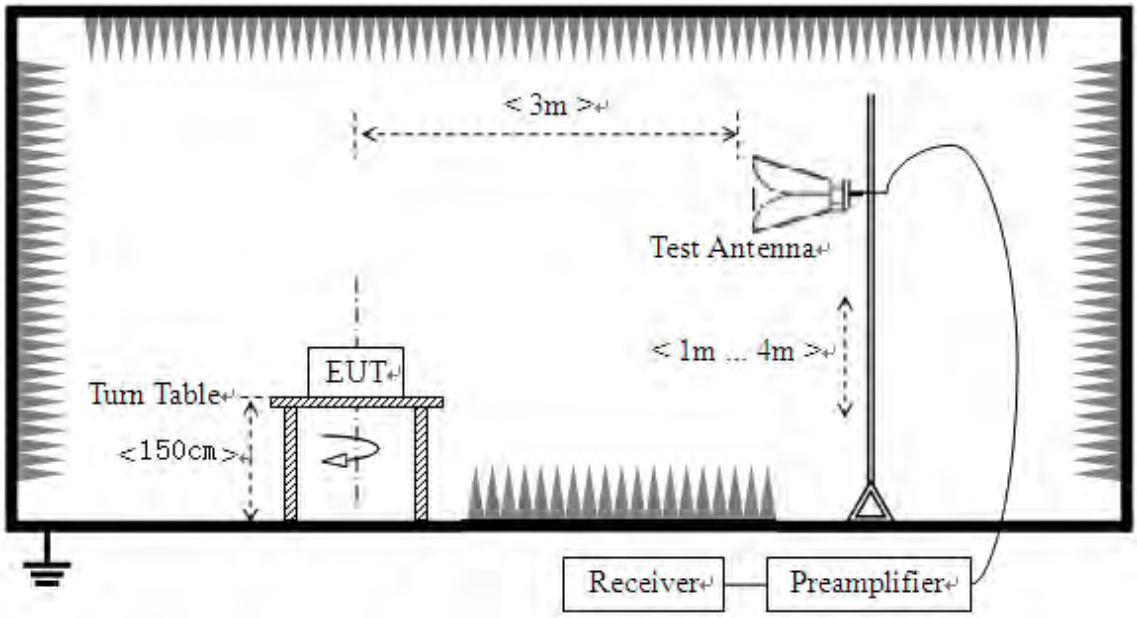
1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz to1GHz




3) For radiated emissions above 1GHz




The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz.The antenna to EUT distance is 3meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 30MHz, the emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9kHz-90 kHz, 110kHz-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

For measurements below 1GHz the resolution bandwidth is set to 100kHz for peak detection measurements or 120kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1GHz the resolution bandwidth is set to 1MHz, the video band width is set to 3MHz for peak measurements and as applicable for average measurements.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

### 2.9.3. Test Result

According to ANSI C63.10, because of peak detection will yield amplitudes equal to or greater than amplitudes measured with the quasi-peak (or average) detector, the measurement data from a spectrum analyzer peak detector will represent the worst-case results, if the peak measured value complies with the quasi-peak (or average) limit, it is unnecessary to perform an quasi-peak measurement (or average).

The measurement results are obtained as below:

$E$ [dBμV/m] $= U_R + A_T + A_{Factor}$ [dB]; $A_T = L_{Cable\ loss}$ [dB]$-G_{preamp}$ [dB]

$A_T$: Total correction Factor except Antenna

$U_R$: Receiver Reading

$G_{preamp}$: Preamplifier Gain

$A_{Factor}$: Antenna Factor at 3m

During the test, the total correction Factor $A_T$ and $A_{Factor}$ were built in test software.

**Note 1:** All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

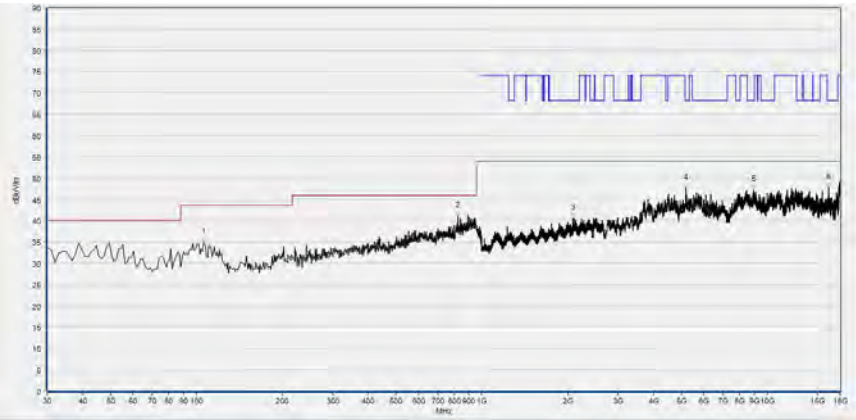
**Note 2:** For the frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

**Note 3:** For the frequency, which started from 18GHz to 40GHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

**Note 4:** All test modes and bandwidth were considered and evaluated respectively by performing full test, only the worst data were recorded for each bandwidth.

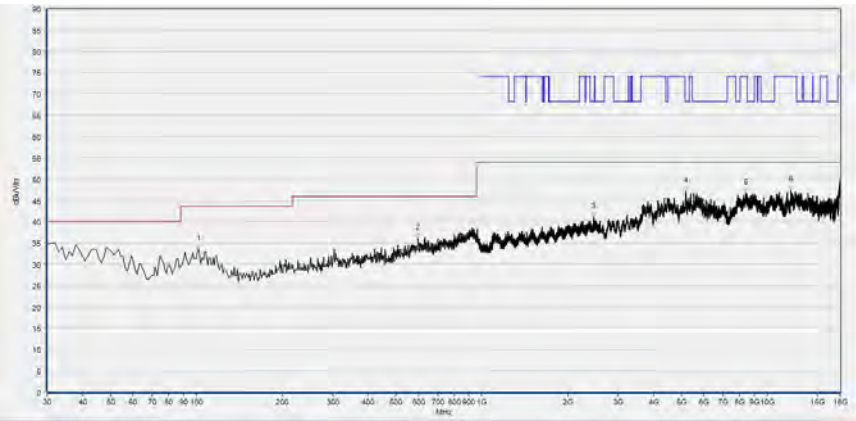
**802.11a Mode**

Plot for Channel 36



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 105.736 | 34.93 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 822.312 | 41.14 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 2087.296 | 40.58 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 5181.556 | 47.63 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 8961.472 | 47.24 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 16407.321 | 47.78 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |

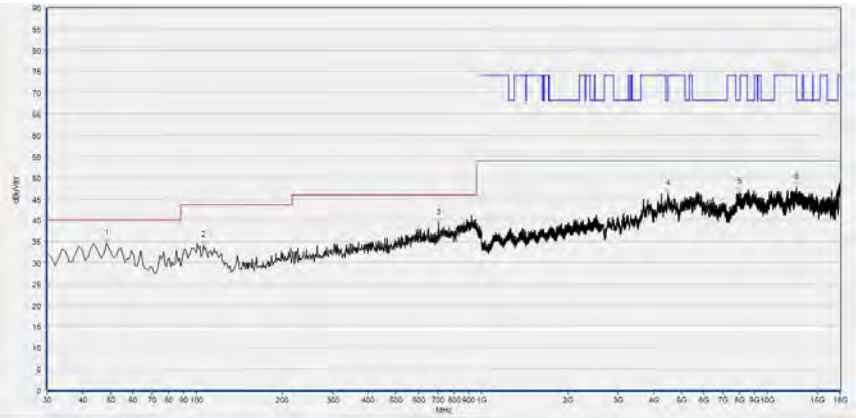
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 101.852 | 33.54 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 598.018 | 36.10 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 2471.957 | 40.99 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 5178.476 | 47.01 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8428.526 | 46.73 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 12063.653 | 47.40 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |

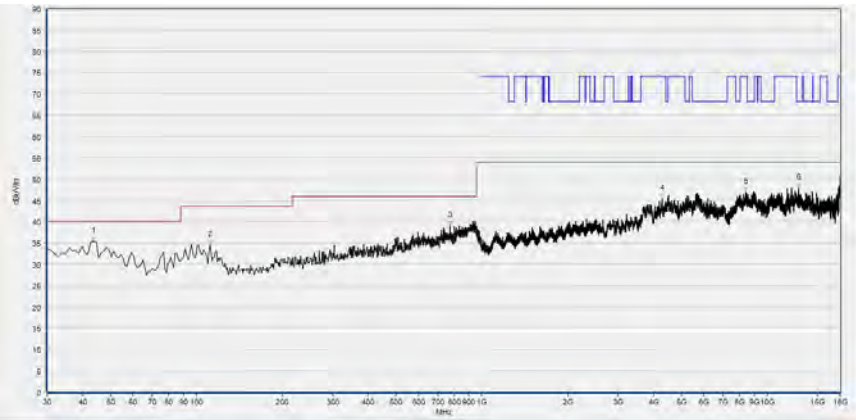
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 44



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 48.448 | 34.58 | N/A | N/A | N/A | 40.00 | N/A | Horizontal | PASS |
| 105.736 | 34.01 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 706.767 | 39.33 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 4497.660 | 46.23 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 8003.401 | 46.53 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 12676.695 | 47.75 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

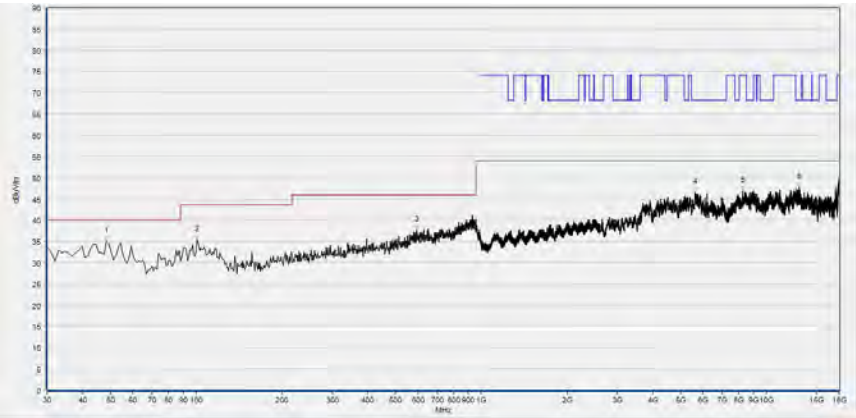
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 43.594 | 35.28 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 111.562 | 34.46 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 772.793 | 39.13 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 4282.016 | 45.42 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 8400.800 | 46.90 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 12895.419 | 47.86 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |

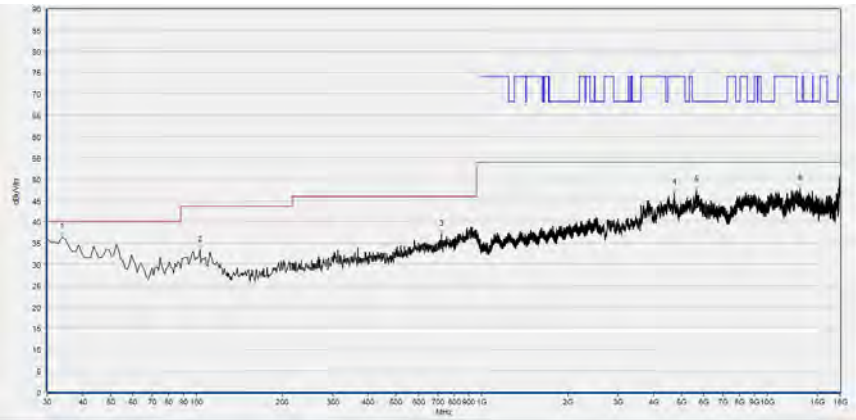
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 48



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 48.448 | 34.96 | N/A | N/A | N/A | 40.00 | N/A | Horizontal | PASS |
| 100.881 | 35.36 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 592.192 | 37.74 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 5622.084 | 46.60 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 8274.495 | 46.86 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 13064.853 | 47.77 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |

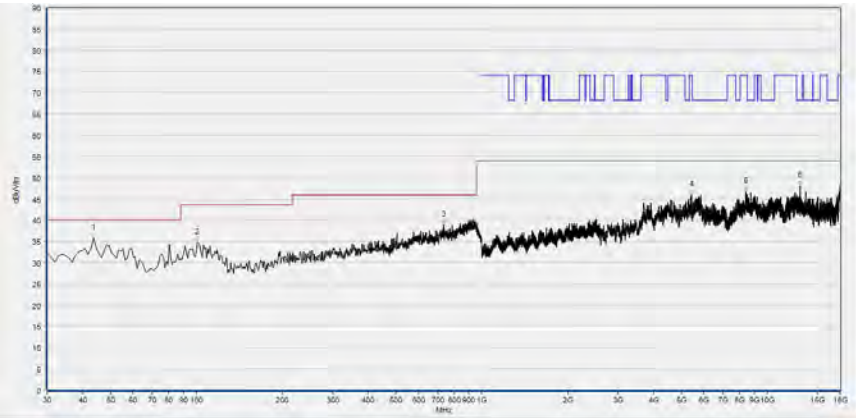
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 33.884 | 36.42 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 102.823 | 33.32 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 721.331 | 36.98 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 4731.786 | 46.74 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 5649.810 | 47.48 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 13055.611 | 47.71 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |

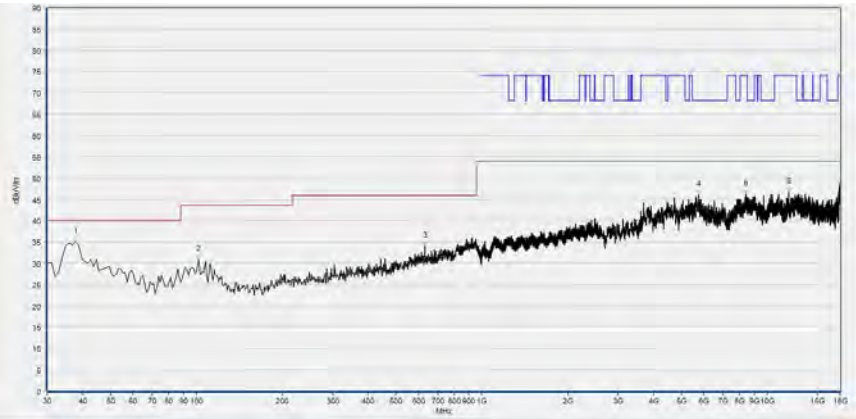
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 52



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 43.594 | 35.63 | N/A | N/A | N/A | 40.00 | N/A | Horizontal | PASS |
| 100.881 | 34.62 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 733.954 | 38.94 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 5421.844 | 45.89 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 8406.961 | 46.68 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 13052.531 | 48.05 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |

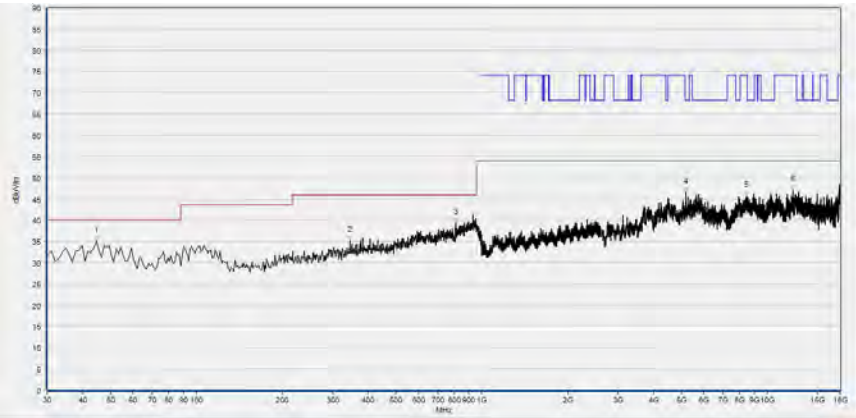
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 37.768 | 34.95 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 101.852 | 30.90 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 631.031 | 33.96 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5745.309 | 46.14 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8413.123 | 46.28 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 11866.493 | 46.75 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |

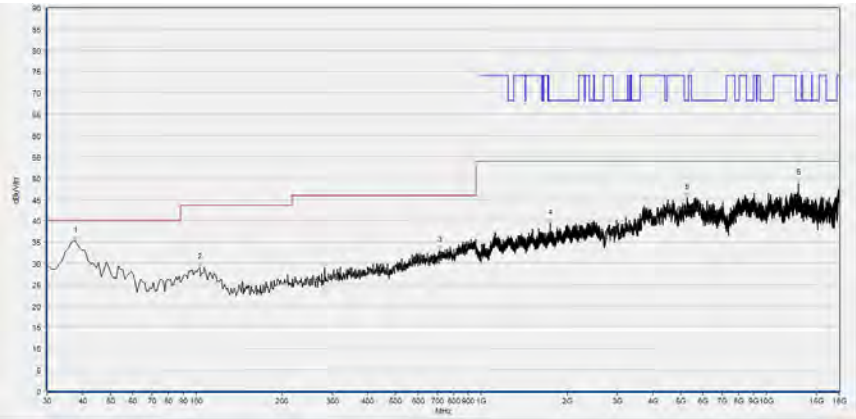
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 60



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 44.565 | 35.10 | N/A | N/A | N/A | 40.00 | N/A | Horizontal | PASS |
| 345.566 | 35.20 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 809.690 | 39.31 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 5184.637 | 46.67 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 8471.654 | 45.77 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 12313.183 | 47.03 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

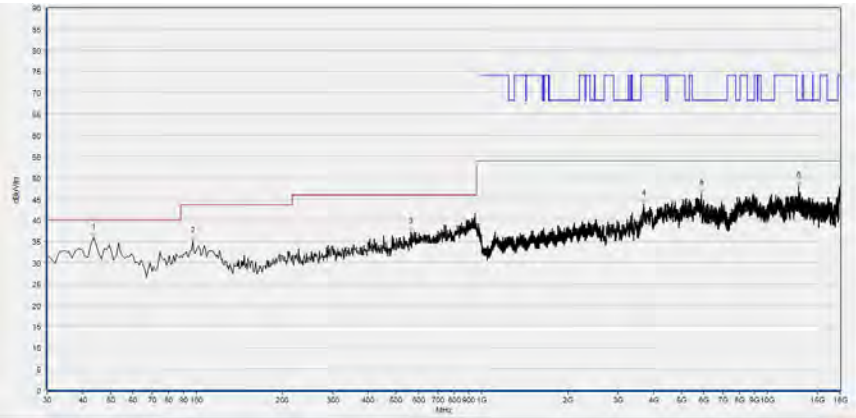
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 37.768 | 35.19 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 102.823 | 28.94 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 715.506 | 33.07 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 1744.782 | 39.47 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 5289.378 | 45.36 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 12926.225 | 48.82 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |

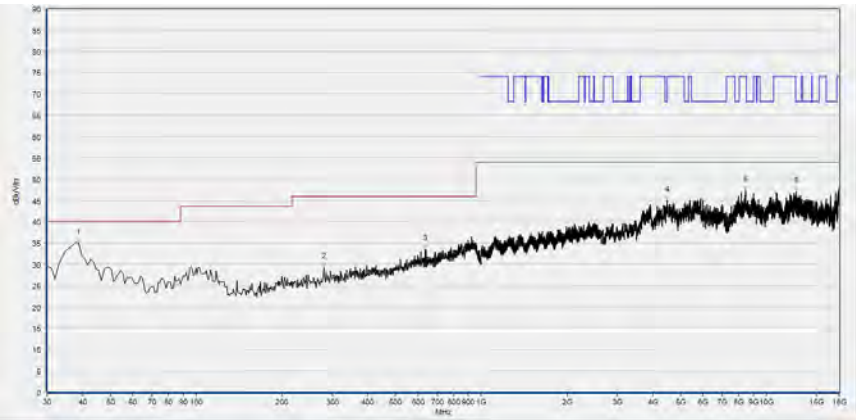
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 64



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 43.594 | 35.82 | N/A | N/A | N/A | 40.00 | N/A | Horizontal | PASS |
| 96.997 | 35.02 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 564.034 | 37.25 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 3693.619 | 43.77 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 5868.534 | 46.23 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 12913.903 | 48.18 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |

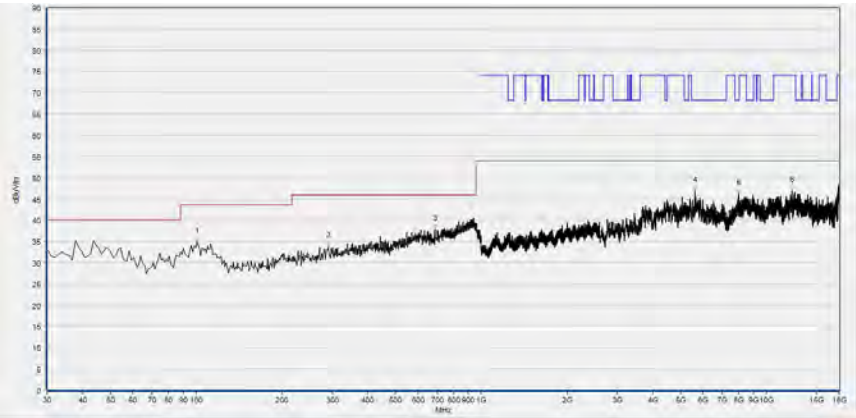
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 38.739 | 35.03 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 280.511 | 29.26 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 634.915 | 33.44 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 4497.660 | 45.08 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8443.929 | 47.37 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 12735.227 | 47.01 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |

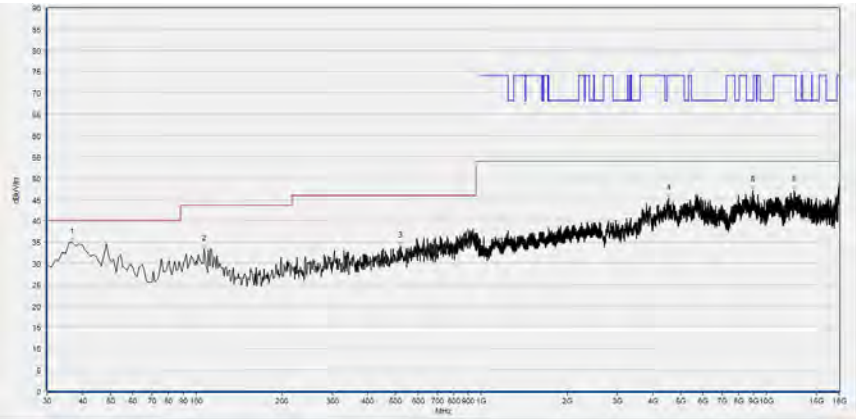
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 100



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 100.881 | 34.79 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 291.191 | 33.85 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 688.318 | 37.84 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 5615.923 | 46.98 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 7978.756 | 46.21 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 12285.457 | 46.96 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

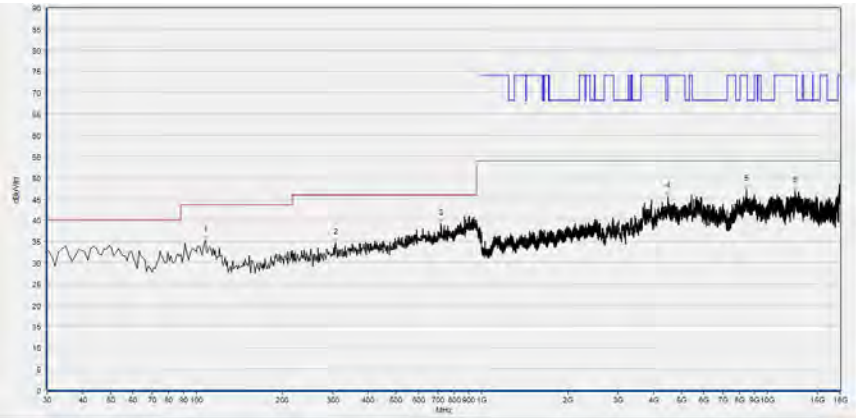
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 36.797 | 34.91 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 106.707 | 33.30 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 520.340 | 34.01 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 4531.546 | 45.26 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 8973.795 | 47.07 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 12498.020 | 47.10 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |

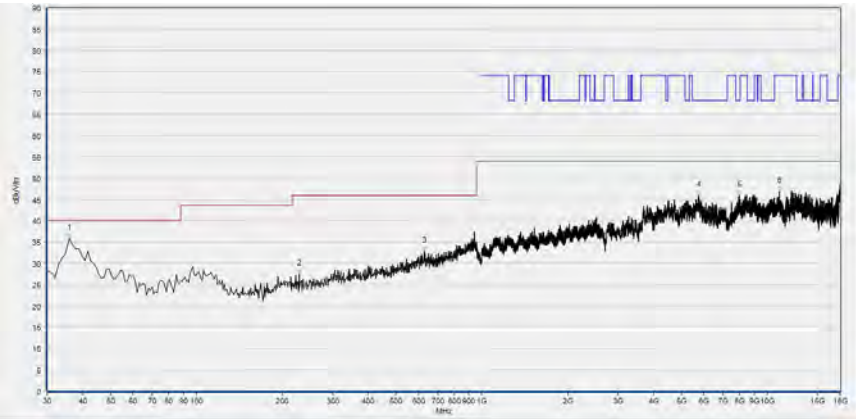
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 120



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 107.678 | 35.15 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 307.698 | 34.70 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 717.447 | 39.23 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 4500.740 | 45.61 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 8462.412 | 47.27 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 12525.745 | 46.92 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

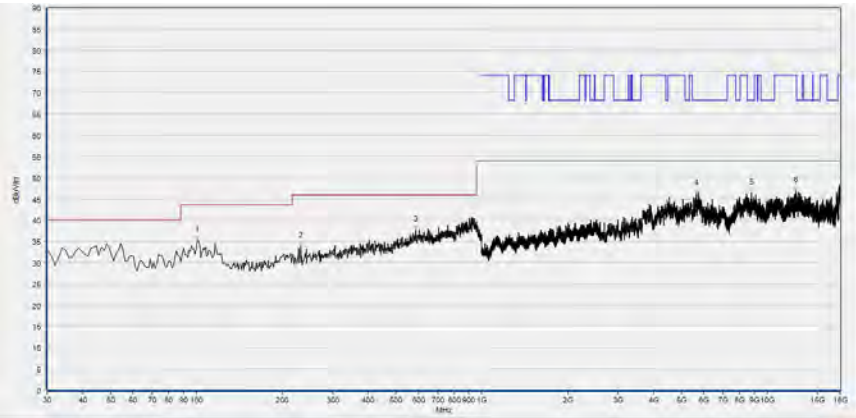
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 35.826 | 35.87 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 229.049 | 27.53 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 627.147 | 32.83 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5763.793 | 45.92 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 7984.917 | 45.99 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 11050.130 | 46.93 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |

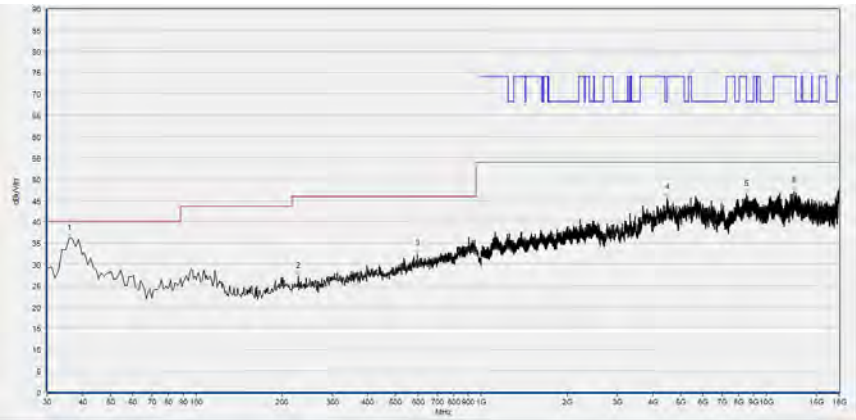
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 144



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 100.881 | 35.24 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 231.962 | 33.88 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 587.337 | 37.79 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 5646.729 | 46.22 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 8813.603 | 46.40 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 12581.196 | 46.89 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

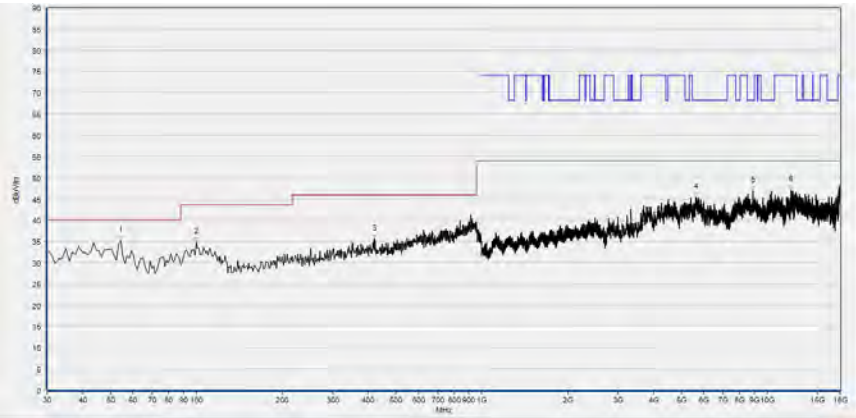
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 35.826 | 35.96 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 228.078 | 27.20 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 596.076 | 32.38 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 4497.660 | 45.58 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8496.299 | 46.50 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 12538.068 | 47.08 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |

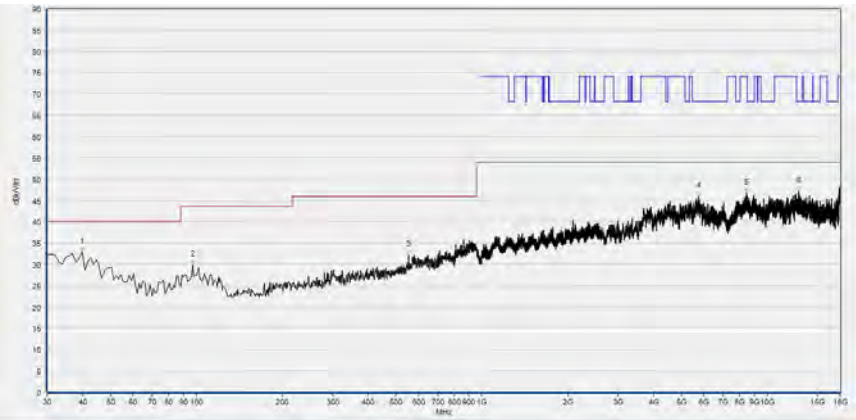
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 149



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 54.274 | 35.19 | N/A | N/A | N/A | 40.00 | N/A | Horizontal | PASS |
| 99.910 | 34.90 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 419.359 | 35.54 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 5612.843 | 45.45 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 8909.102 | 46.89 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 12128.346 | 47.16 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

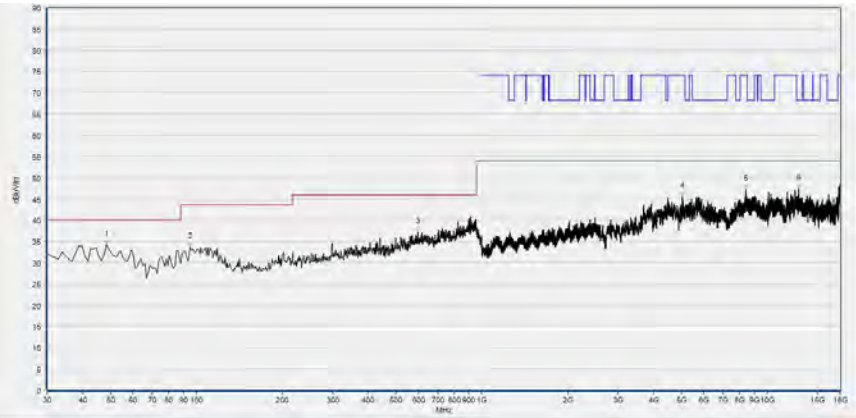
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 39.710 | 32.79 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 96.997 | 29.80 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 554.324 | 32.12 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5754.551 | 45.96 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8443.929 | 46.75 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 12901.580 | 47.08 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |

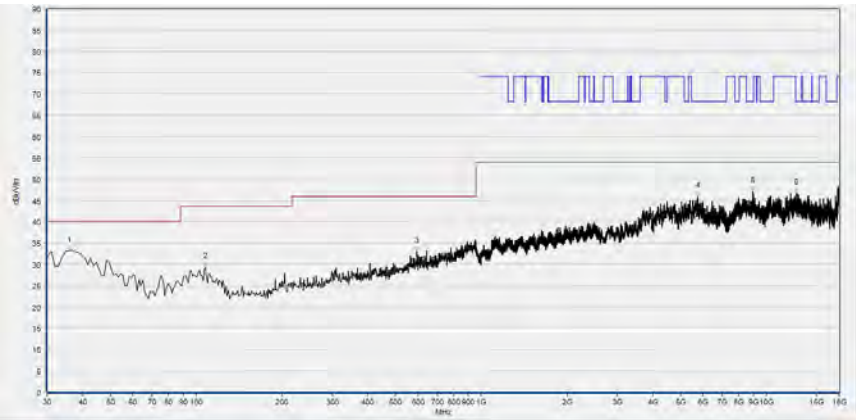
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 157



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 48.448 | 34.13 | N/A | N/A | N/A | 40.00 | N/A | Horizontal | PASS |
| 95.055 | 33.68 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 597.047 | 37.13 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 5033.687 | 45.53 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 8406.961 | 47.30 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 12880.016 | 47.38 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |

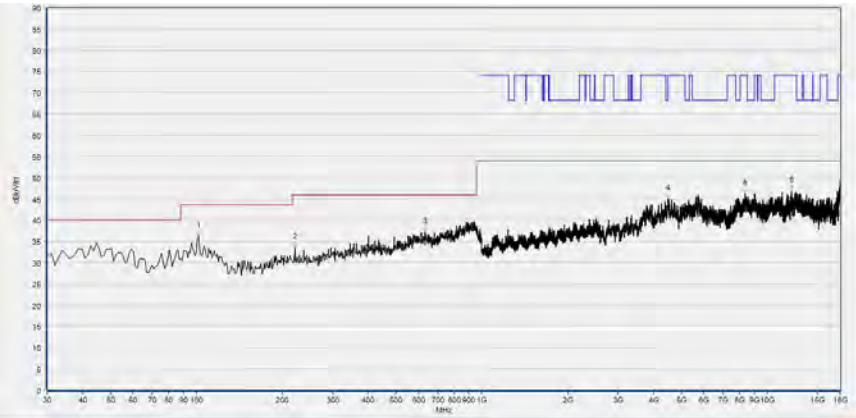
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 35.826 | 33.14 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 107.678 | 29.36 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 595.105 | 32.98 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5748.390 | 45.90 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8976.875 | 47.05 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 12750.630 | 46.78 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |

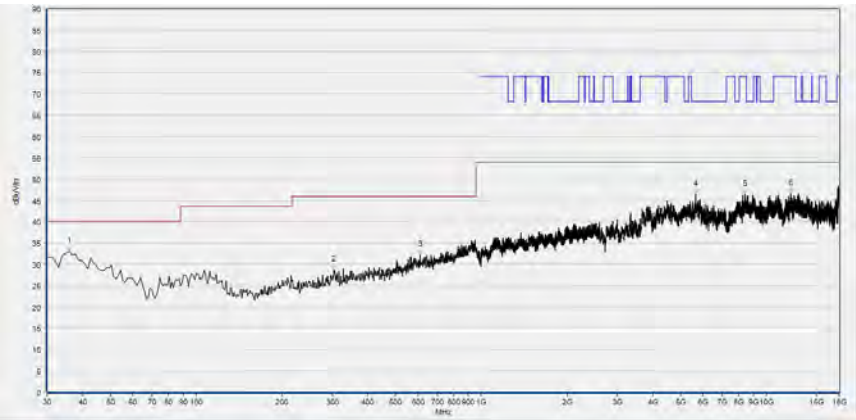
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 165



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 101.852 | 36.14 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 222.252 | 33.59 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 631.031 | 37.25 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 4491.498 | 45.06 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 8348.430 | 46.25 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 12193.039 | 46.88 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

(Antenna Horizontal, 30MHz to 18GHz)

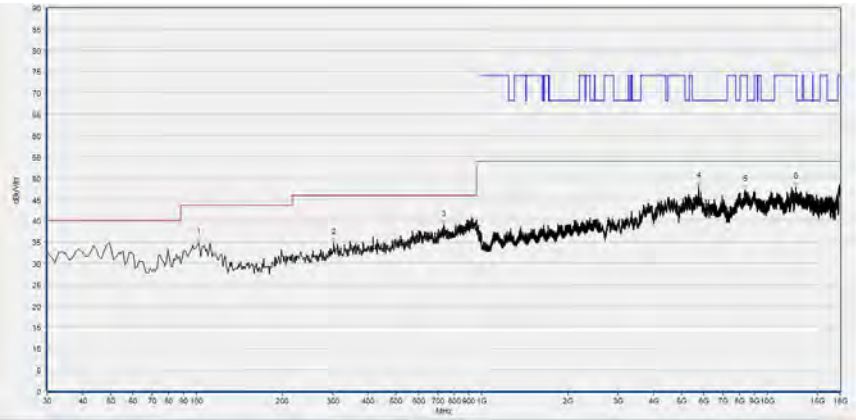


| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 35.826 | 32.99 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 303.814 | 28.68 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 611.612 | 32.15 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5649.810 | 46.40 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8413.123 | 46.44 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 12140.668 | 46.54 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |

(Antenna Vertical, 30MHz to 18GHz)

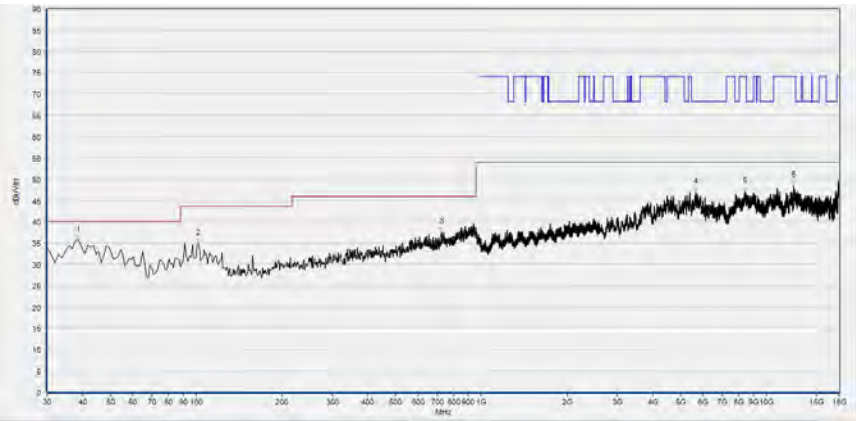
**802.11n (HT40) mode**

Plot for Channel 38



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 101.852 | 34.89 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 302.843 | 34.85 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 732.983 | 39.02 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 5763.793 | 48.09 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 8366.913 | 47.28 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 12608.922 | 47.90 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

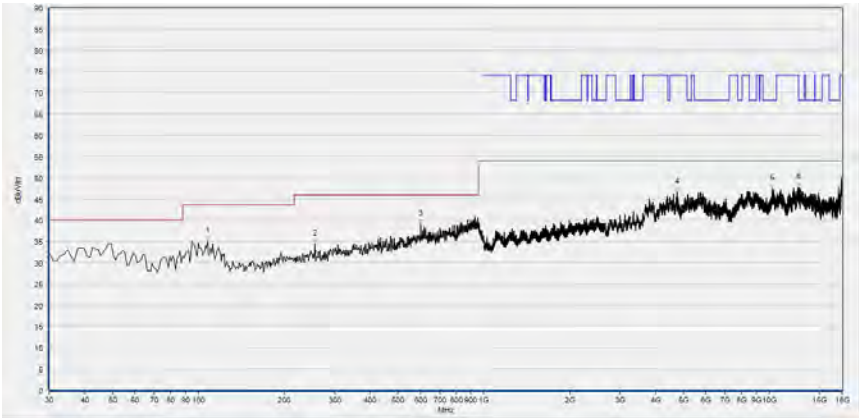
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 38.739 | 35.70 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 101.852 | 34.85 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 726.186 | 37.53 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5640.568 | 46.90 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8425.445 | 47.01 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 12482.617 | 48.39 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |

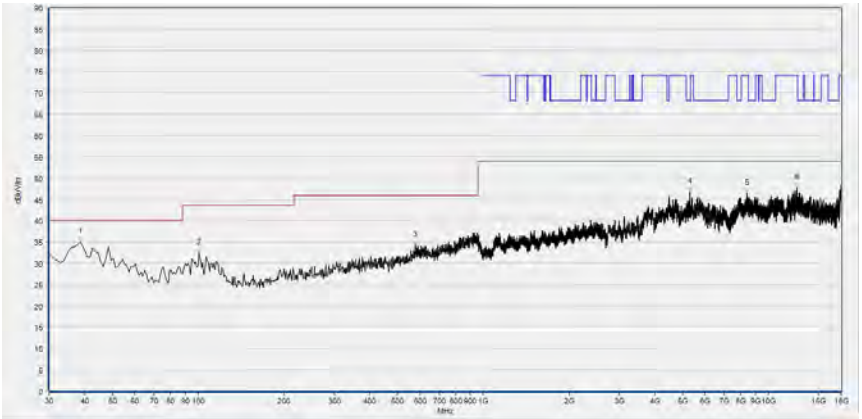
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 46



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 107.678 | 34.98 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 255.265 | 34.44 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 601.902 | 39.06 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 4747.189 | 46.61 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 10224.525 | 47.36 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 12673.615 | 47.76 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

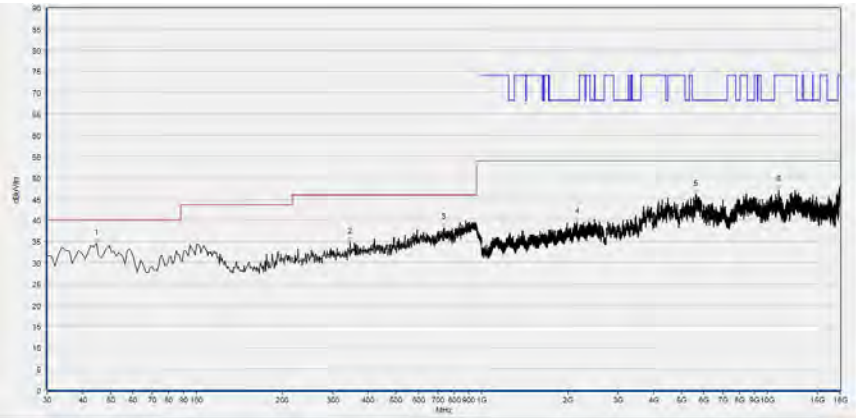
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 38.739 | 34.97 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 100.881 | 32.35 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 577.628 | 34.18 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5307.862 | 46.81 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8416.203 | 46.41 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 12615.083 | 47.69 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |

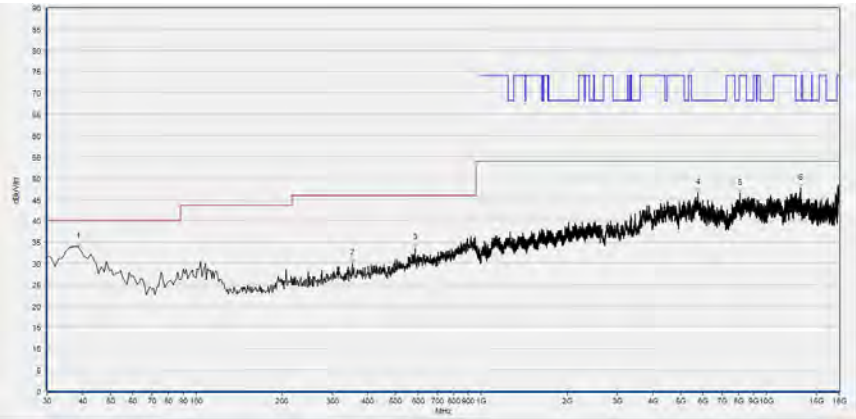
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 54



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 44.565 | 34.53 | N/A | N/A | N/A | 40.00 | N/A | Horizontal | PASS |
| 345.566 | 34.80 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 732.983 | 38.18 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 2152.918 | 39.47 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 5631.326 | 46.03 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 10963.873 | 47.03 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

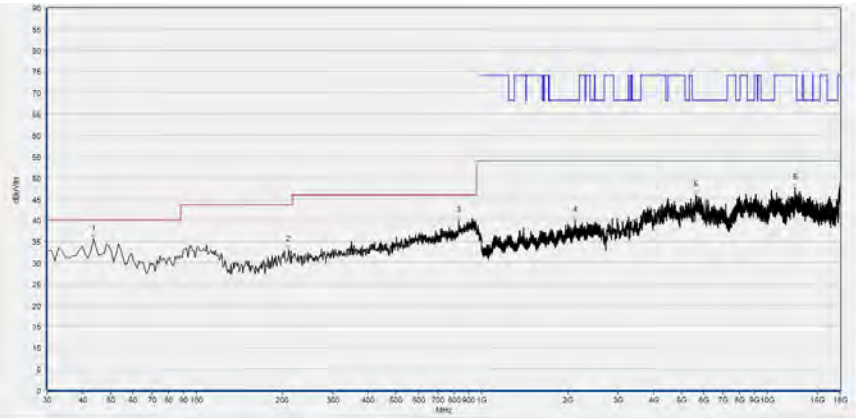
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 38.739 | 33.82 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 353.333 | 29.97 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 586.366 | 33.53 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5766.873 | 46.65 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8068.094 | 46.42 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 13166.513 | 47.58 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |

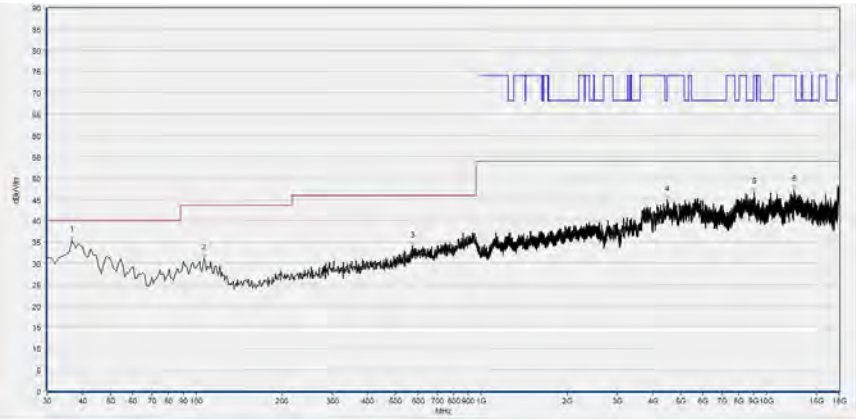
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 62



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 43.594 | 35.52 | N/A | N/A | N/A | 40.00 | N/A | Horizontal | PASS |
| 210.601 | 32.95 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 830.080 | 39.96 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 2126.242 | 39.81 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 5609.762 | 45.99 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 12485.697 | 47.66 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

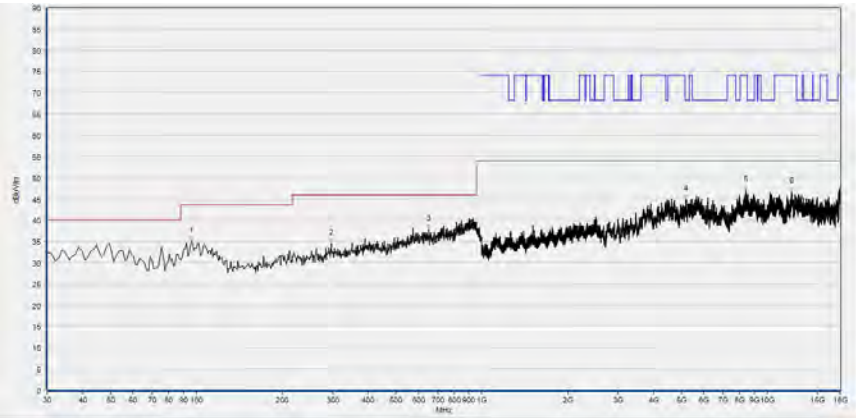
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 36.797 | 35.32 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 106.707 | 31.23 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 574.715 | 33.97 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 4500.740 | 44.88 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 9050.810 | 46.69 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 12488.778 | 47.18 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |

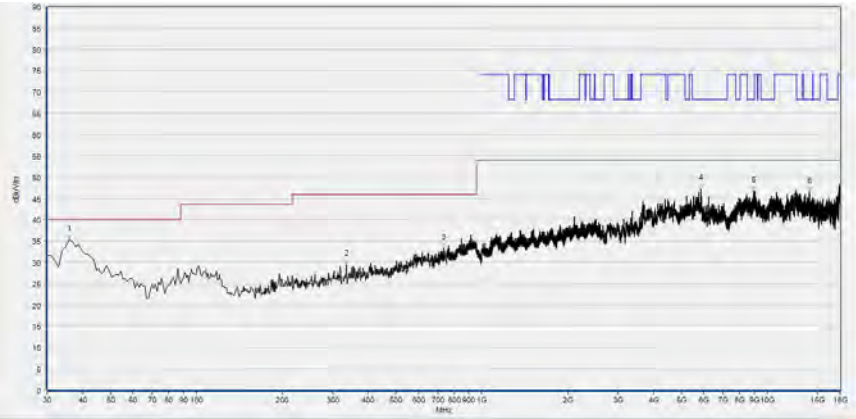
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 102



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 96.026 | 34.98 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 297.017 | 34.46 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 652.392 | 37.83 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 5190.798 | 44.89 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 8416.203 | 47.04 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 12168.394 | 46.68 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

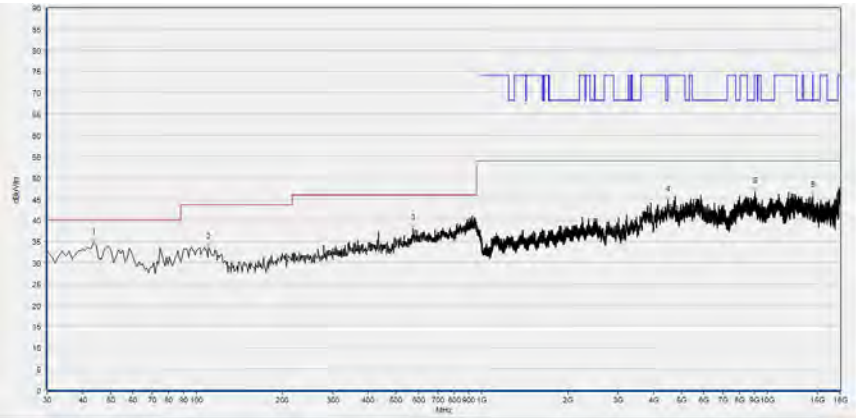
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 35.826 | 35.29 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 334.885 | 29.52 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 736.867 | 33.40 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5859.292 | 47.19 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8983.037 | 46.83 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 14081.456 | 46.53 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |

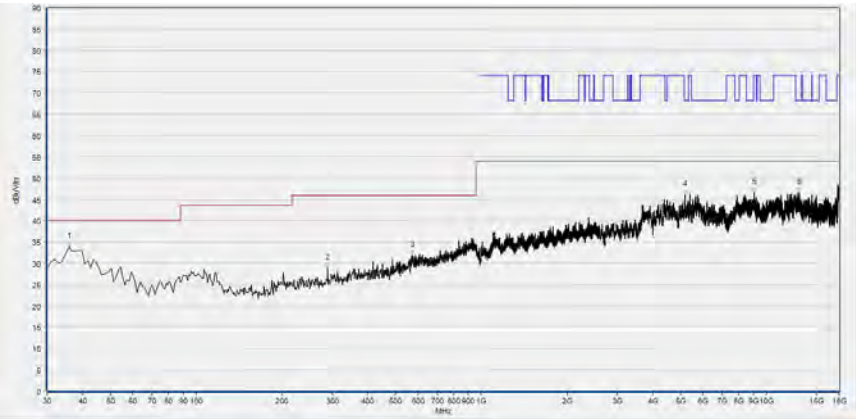
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 126



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 43.594 | 34.70 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 110.591 | 33.46 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 573.744 | 38.03 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 4482.256 | 44.82 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 9053.891 | 46.76 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 14423.405 | 45.74 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |

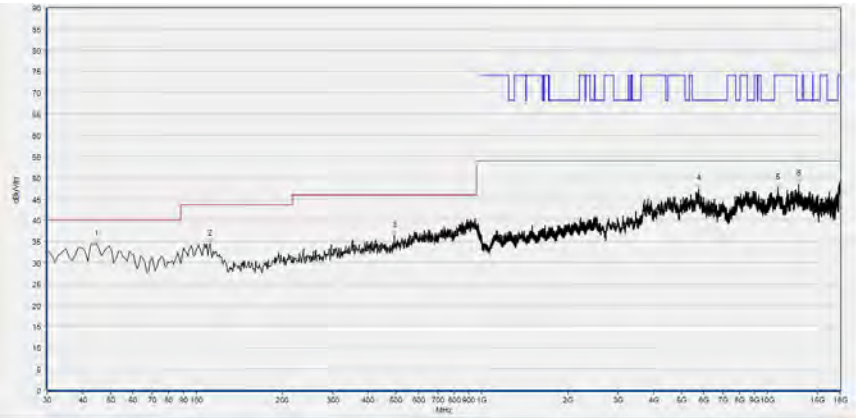
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 35.826 | 33.79 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 289.249 | 28.84 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 572.773 | 31.76 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5187.718 | 46.05 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 9060.052 | 46.67 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 13071.014 | 46.54 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |

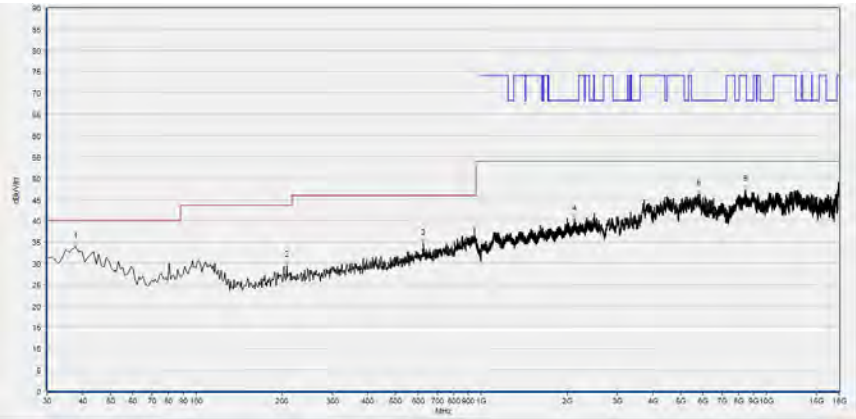
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 142



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 44.565 | 34.29 | N/A | N/A | N/A | 40.00 | N/A | Horizontal | PASS |
| 111.562 | 34.30 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 494.124 | 36.31 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 5760.712 | 47.45 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 10917.664 | 47.55 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 12876.935 | 48.48 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |

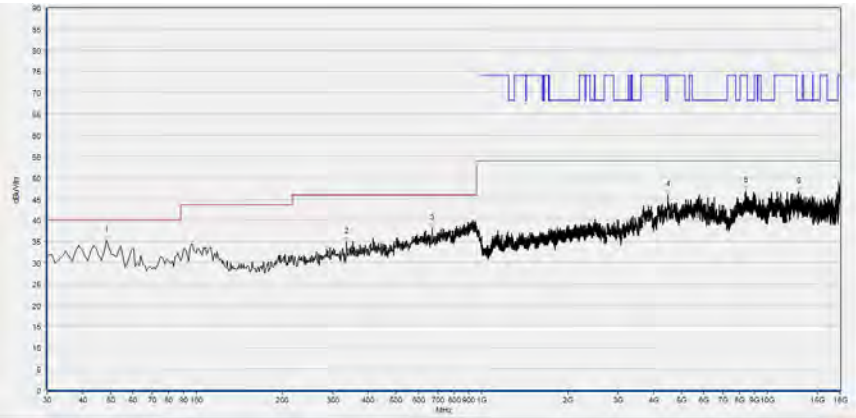
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 37.768 | 33.80 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 207.688 | 29.54 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 626.176 | 34.66 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 2123.041 | 40.33 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 5776.115 | 46.24 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8465.493 | 47.20 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |

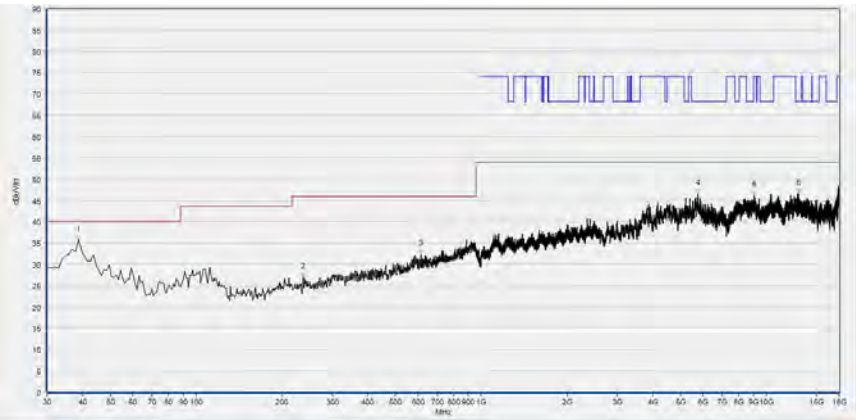
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 151



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 48.448 | 35.22 | N/A | N/A | N/A | 40.00 | N/A | Horizontal | PASS |
| 335.856 | 34.87 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 671.812 | 37.99 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 4497.660 | 45.95 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 8428.526 | 46.86 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 12901.580 | 46.79 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |

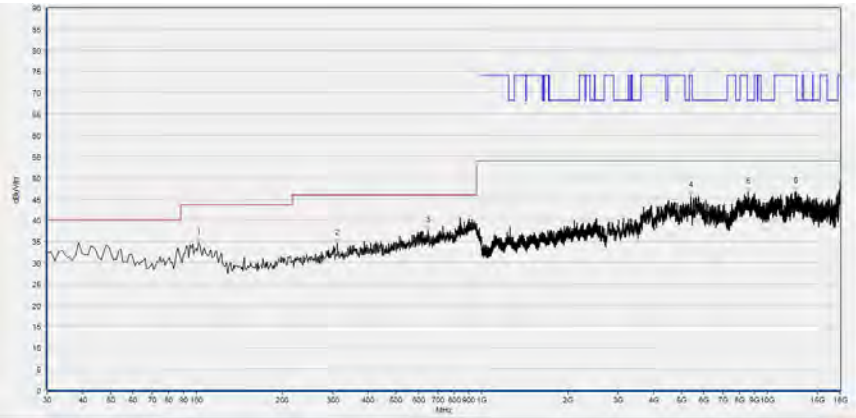
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 38.739 | 35.71 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 236.817 | 26.94 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 614.525 | 32.40 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5766.873 | 46.59 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 9053.891 | 46.18 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 12984.757 | 46.60 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |

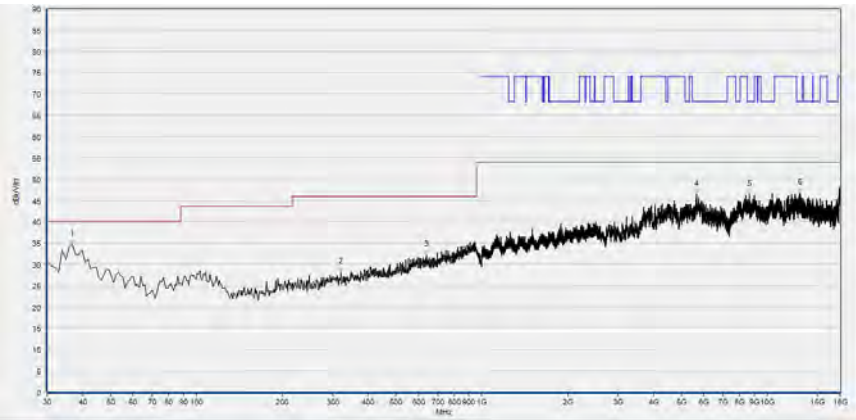
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 159



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 101.852 | 34.70 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 311.582 | 34.57 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 646.567 | 37.47 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 5397.199 | 45.84 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 8548.670 | 46.65 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 12621.244 | 46.70 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

(Antenna Horizontal, 30MHz to 18GHz)

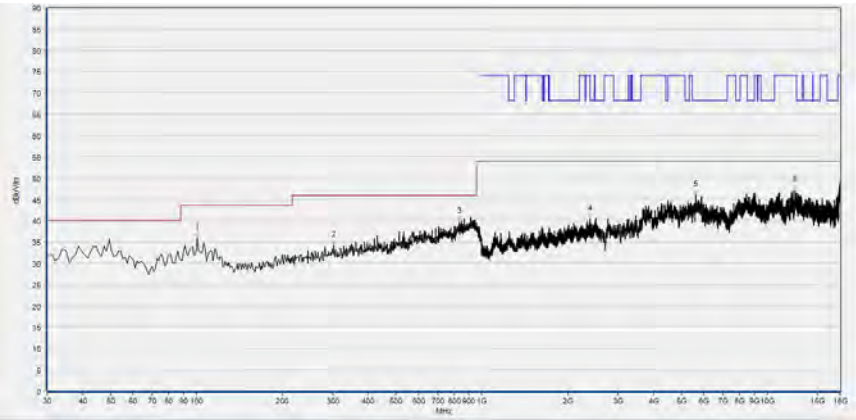


| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 36.797 | 34.70 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 321.291 | 28.09 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 641.712 | 32.12 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5668.294 | 46.48 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8641.088 | 46.41 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 13055.611 | 46.70 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |

(Antenna Vertical, 30MHz to 18GHz)

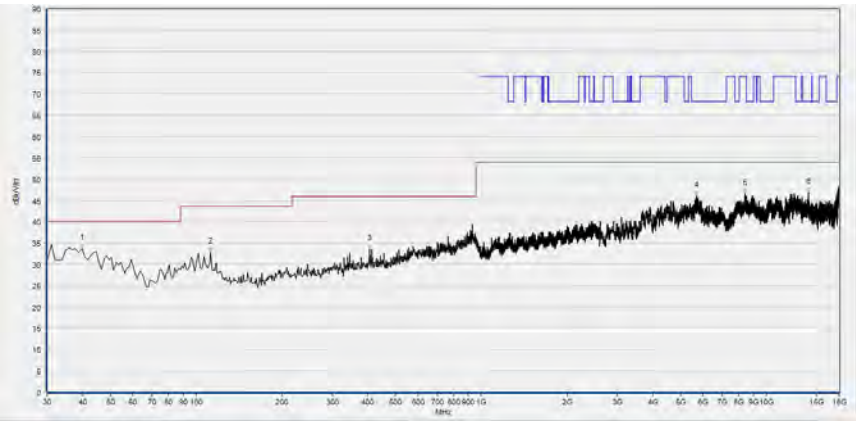
**802.11ac (VHT80) Mode**

Plot for Channel 42



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 100.881 | 35.80 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 302.843 | 34.17 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 832.022 | 39.77 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 2399.400 | 40.34 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 5631.326 | 46.13 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 12513.423 | 47.07 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

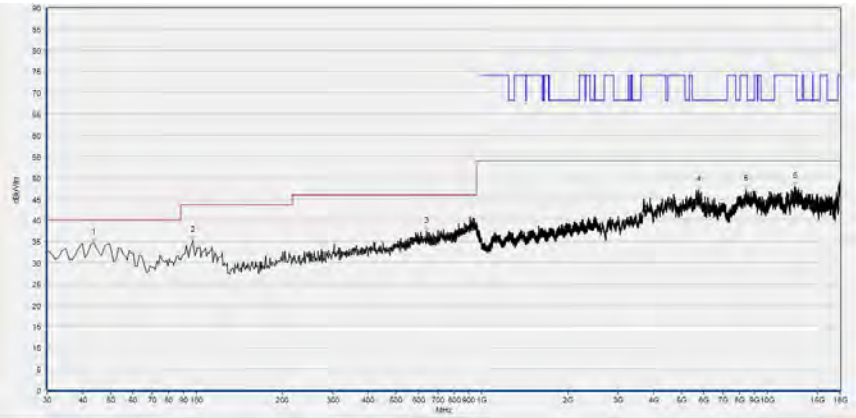
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 39.710 | 33.73 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 112.533 | 32.79 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 405.766 | 33.45 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5686.777 | 46.04 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8428.526 | 46.62 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 14053.731 | 46.93 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |

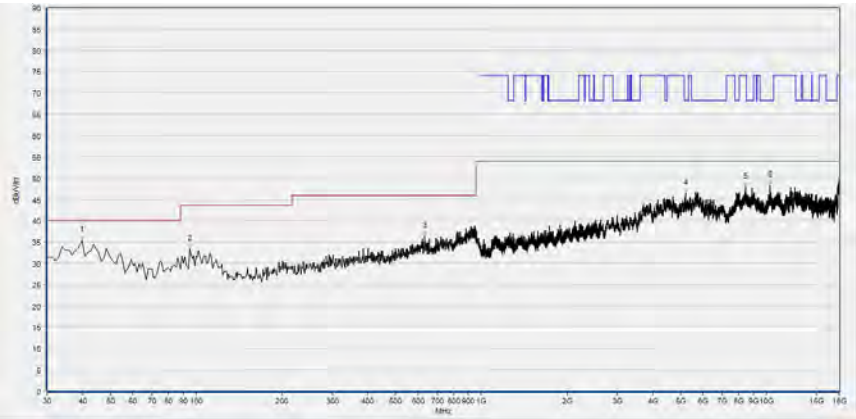
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 58



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 43.594 | 34.66 | N/A | N/A | N/A | 40.00 | N/A | Horizontal | PASS |
| 96.997 | 35.18 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 638.799 | 37.39 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 5766.873 | 47.08 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 8416.203 | 47.26 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 12516.503 | 47.88 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

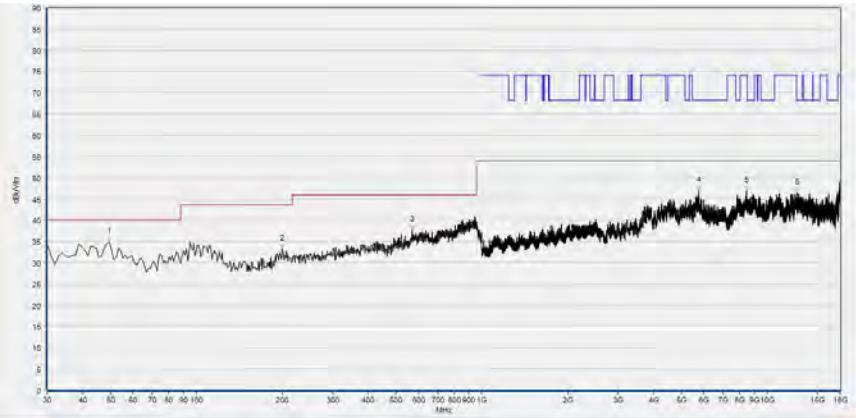
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 39.710 | 35.32 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 95.055 | 33.30 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 633.944 | 36.30 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5200.040 | 46.42 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 8443.929 | 47.90 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 10304.621 | 48.25 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |

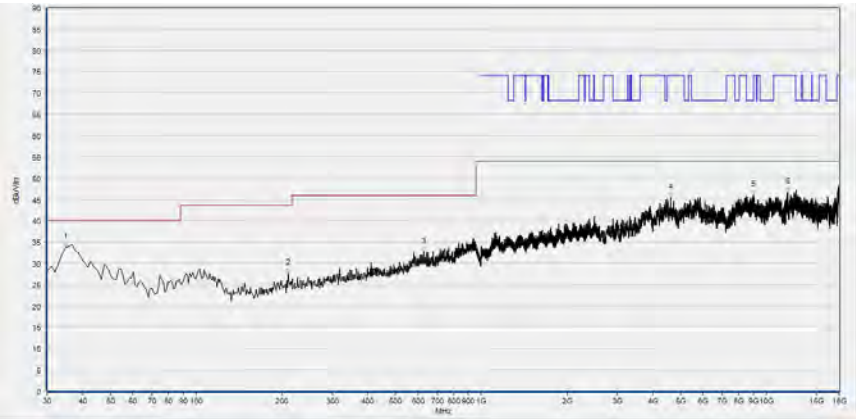
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 106



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 49.419 | 34.80 | N/A | N/A | N/A | 40.00 | N/A | Horizontal | PASS |
| 199.920 | 33.11 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 570.831 | 37.76 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 5751.470 | 47.00 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 8437.768 | 46.91 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 12744.469 | 46.38 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |

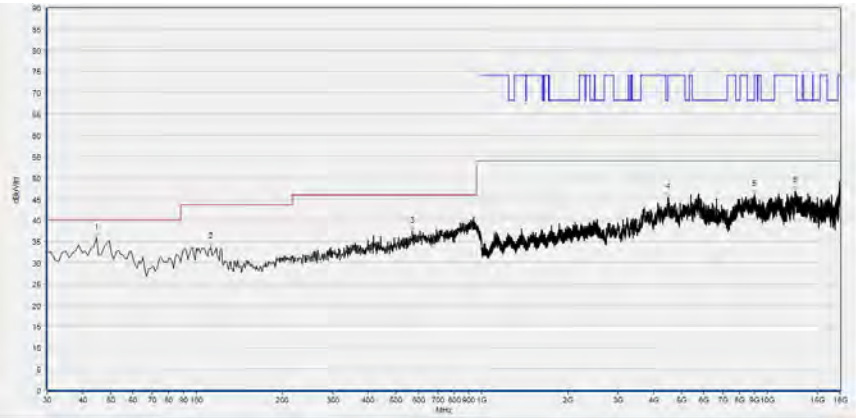
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 34.855 | 33.67 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 210.601 | 27.71 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 628.118 | 32.72 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 4620.884 | 45.44 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 9001.520 | 46.02 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 11872.655 | 46.84 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |

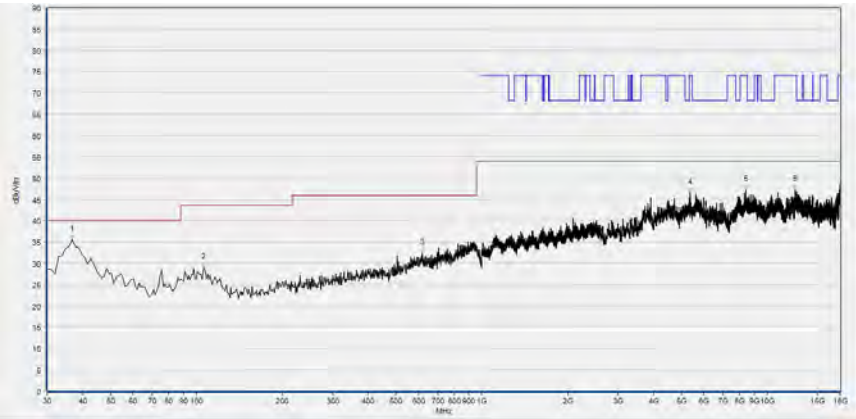
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 138



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 44.565 | 35.82 | N/A | N/A | N/A | 40.00 | N/A | Horizontal | PASS |
| 112.533 | 33.70 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 571.802 | 37.43 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 4485.337 | 45.36 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 8995.359 | 46.14 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 12491.858 | 47.01 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |

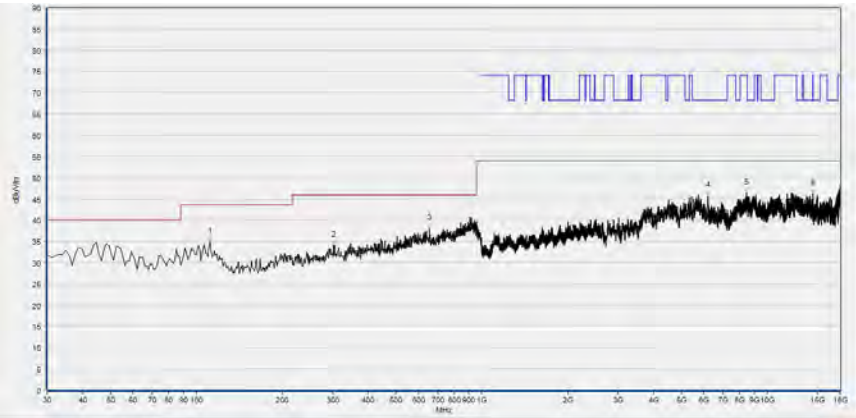
(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 36.797 | 35.49 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 105.736 | 28.98 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 619.379 | 32.30 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5366.393 | 46.54 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 8422.364 | 47.31 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 12507.261 | 47.25 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |

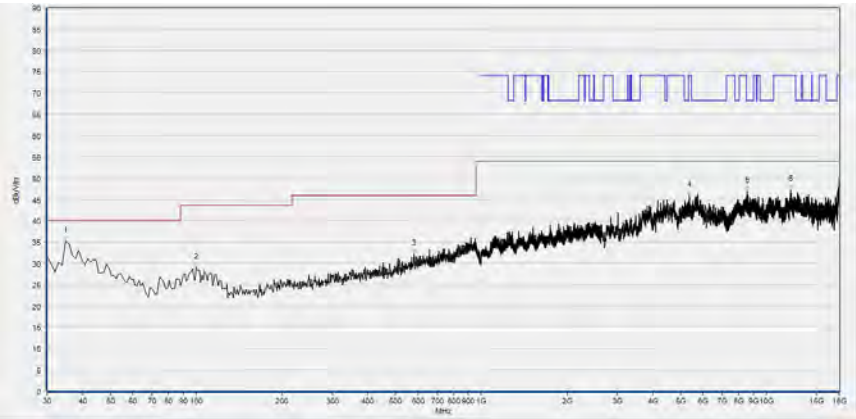
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 155



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 111.562 | 34.90 | N/A | N/A | N/A | 43.50 | N/A | Horizontal | PASS |
| 301.872 | 33.96 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 654.334 | 38.01 | N/A | N/A | N/A | 46.00 | N/A | Horizontal | PASS |
| 6201.240 | 45.75 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |
| 8453.171 | 46.50 | N/A | N/A | 74.00 | N/A | 54.00 | Horizontal | PASS |
| 14426.485 | 46.27 | N/A | N/A | 68.23 | N/A | N/A | Horizontal | PASS |

(Antenna Horizontal, 30MHz to 18GHz)



| Fre. (MHz) | PK (dBμV/m) | QP (dBμV/m) | AV (dBμV/m) | Limit-PK (dBμV/m) | Limit-QP (dBμV/m) | Limit-AV (dBμV/m) | Antenna | Verdict |
|---|---|---|---|---|---|---|---|---|
| 34.855 | 35.16 | N/A | N/A | N/A | 40.00 | N/A | Vertical | PASS |
| 99.910 | 29.00 | N/A | N/A | N/A | 43.50 | N/A | Vertical | PASS |
| 579.570 | 32.23 | N/A | N/A | N/A | 46.00 | N/A | Vertical | PASS |
| 5381.796 | 45.91 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |
| 8579.476 | 46.96 | N/A | N/A | 68.23 | N/A | N/A | Vertical | PASS |
| 12149.910 | 47.23 | N/A | N/A | 74.00 | N/A | 54.00 | Vertical | PASS |

(Antenna Vertical, 30MHz to 18GHz)

# Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

| Test Items | Uncertainty |
|---|---|
| Peak Output Power | ±2.22dB |
| Power Spectral Density | ±2.22dB |
| Bandwidth | ±5% |
| Restricted Frequency Bands | ±5% |
| Radiated Emission | ±2.95dB |
| Conducted Emission | ±2.44dB |

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

# Annex B Testing Laboratory Information

## 1. Identification of the Responsible Testing Laboratory

| | |
|---|---|
| **Laboratory Name:** | Shenzhen Morlab Communications Technology Co., Ltd. |
| **Laboratory Address:** | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China |
| **Telephone:** | +86 755 36698555 |
| **Facsimile:** | +86 755 36698525 |

## 2. Identification of the Responsible Testing Location

| | |
|---|---|
| **Name:** | Shenzhen Morlab Communications Technology Co., Ltd. |
| **Address:** | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China |

## 3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013and CISPR Publication 22; the FCC designation number is CN1192, the test firm registration number is 226174.

## 4. Test Equipments Utilized

### 4.1 Conducted Test Equipments

| Equipment | Serial No. | Type | Manufacturer | Cal. Date | Due Date |
|---|---|---|---|---|---|
| Attenuator 1 | N/A | 10dB | Resnet | N/A | N/A |
| EXA Signal Analzyer | MY53470836 | N9010A | Agilent | 2021.03.25 | 2022.03.24 |
| | | | | 2022.03.01 | 2023.02.28 |
| USB Wideband Power Sensor | MY54180008 | U2021XA | Agilent | 2021.03.25 | 2022.03.24 |
| | | | | 2022.03.01 | 2023.02.28 |
| RF Cable (30MHz-26GHz) | CB01 | RF01 | Morlab | N/A | N/A |
| Coaxial Cable | CB02 | RF02 | Morlab | N/A | N/A |
| SMA Connector | CN01 | RF03 | HUBER-SUHNER | N/A | N/A |
| Temperature Chamber | 12108015 | DTL-003S101 | YOMA | 2020.10.26 | 2021.10.25 |

### 4.2 Conducted Emission Test Equipments

| Equipment Name | Serial No. | Type | Manufacturer | Cal. Date | Due Date |
|---|---|---|---|---|---|
| Receiver | MY56400093 | N9038A | KEYSIGHT | 2021.03.09 | 2022.03.08 |
| | | | | 2022.03.03 | 2023.03.02 |
| LISN | 812744 | NSLK 8127 | Schwarzbeck | 2021.03.09 | 2022.03.08 |
| | | | | 2022.03.03 | 2023.03.02 |
| Pulse Limiter (10dB) | VTSD 9561 F-B #206 | VTSD 9561-F | Schwarzbeck | 2021.07.21 | 2022.07.20 |
| Coaxial Cable(BNC) (30MHz-26GHz) | CB01 | EMC01 | Morlab | N/A | N/A |

### 4.3 List of Software Used

| Description | Manufacturer | Software Version |
|---|---|---|
| Test System | Tonscend | V2.5.77.0418 |
| Morlab EMCR V1.2 | Morlab | V1.0 |
| TS+ -[JS32-CE] | Tonscend | V2.5.0.0 |

**4.4Radiated Test Equipments**

| Equipment Name | Serial No. | Type | Manufacturer | Cal. Date | Due Date |
|---|---|---|---|---|---|
| Receiver | MY54130016 | N9038A | Agilent | 2021.07.16 | 2022.07.15 |
| Test Antenna - Bi-Log | 9163-519 | VULB 9163 | Schwarzbeck | 2019.05.24 | 2022.05.23 |
| Test Antenna - Horn | BBHA9170 #774 | BBHA 9170 | Schwarzbeck | 2019.07.26 | 2022.07.25 |
| Test Antenna - Loop | 1519-022 | FMZB1519 | Schwarzbeck | 2019.02.14 | 2022.02.13 |
| | | | | 2022.02.11 | 2025.02.10 |
| Test Antenna - Horn | 01774 | BBHA 9120D | Schwarzbeck | 2019.07.26 | 2022.07.25 |
| Coaxial Cable (N male) (9KHz-30MHz) | CB04 | EMC04 | Morlab | N/A | N/A |
| Coaxial Cable (N male) (30MHz-26GHz) | CB02 | EMC02 | Morlab | N/A | N/A |
| Coaxial Cable (N male) (30MHz-26GHz) | CB03 | EMC03 | Morlab | N/A | N/A |
| Coaxial Cable (N male) (30MHz-40GHz) | CB05 | EMC05 | Morlab | N/A | N/A |
| 1-18GHz pre-Amplifier | 61171/61172 | S020180L3203 | Tonscend | 2021.07.16 | 2022.07.15 |
| 18-26.5GHz pre-Amplifier | 46732 | S10M100L3802 | Tonscend | 2021.07.16 | 2022.07.15 |
| 26-40GHz pre-Amplifier | 56774 | S40M400L4002 | Tonscend | 2021.07.16 | 2022.07.15 |
| Notch Filter | N/A | WRCG-5150-5350 | Wainwright | 2021.07.16 | 2022.07.15 |
| Notch Filter | N/A | WRCG-5470-5725 | Wainwright | 2021.07.16 | 2022.07.15 |
| Notch Filter | N/A | WRCG-5725-5850 | Wainwright | 2021.07.16 | 2022.07.15 |

| Equipment Name | Serial No. | Type | Manufacturer | Cal. Date | Due Date |
|---|---|---|---|---|---|
| Anechoic Chamber | N/A | 9m*6m*6m | CRT | 2020.01.06 | 2023.01.05 |

END OF REPORT