(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	5.65	0.09	5.74	11	PASS
44	5220	5.91		6.00		
48	5240	5.86		5.95		
52	5260	6.14		6.23		
60	5300	6.93		7.02		
64	5320	7.16		7.25		
100	5500	6.76		6.85		
120	5600	5.85		5.94		
144	5720	6.60		6.69		
Channel	Frequency (MHz)	Measured PPSD (dBm/500KHz)	Duty Factor	Corrected (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
144	5720	3.84	0.09	3.93	30	PASS
149	5745	3.93		4.02		
157	5785	3.84		3.93		
165	5825	2.67		2.76		

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	3.00	0.37	3.37	11	PASS
46	5230	3.32		3.69		
54	5270	3.50		3.87		
62	5310	4.21		4.58		
102	5510	3.80		4.17		
126	5630	2.64		3.01		
142	5710	3.60		3.97		
Channel	Frequency (MHz)	Measured PPSD (dBm/500KHz)	Duty Factor	Corrected (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
142	5710	0.71	0.37	1.08	30	PASS
151	5755	1.05		1.42		
155	5795	0.66		1.03		

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	-0.41	0.21	-0.20	11	PASS
58	5290	0.32		0.53		
106	5530	0.30		0.51		
122	5610	-0.71		-0.50		
138	5690	-0.14		0.07		
Channel	Frequency (MHz)	Measured PPSD (dBm/500KHz)	Duty Factor	Corrected (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
138	5690	-2.99	0.21	-2.78	30	PASS
155	5775	-2.48		-2.27		

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) 5180MHz				
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	Fre. Dev. (kHz)	Deviation (ppm)
100%	5.00	+20(Ref)	22	4.247
100%		-30	28	5.405
100%		-20	25	4.826
100%		-10	29	5.598
100%		0	25	4.826
100%		+10	22	4.247
100%		+20	20	3.861
100%		+30	23	4.440
100%		+40	24	4.633
100%		+50	27	5.212
115%	5.75	+20	28	5.405
85%	4.25	+20	30	5.792

U-NII-2A (Ch. 52) 5260MHz				
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	Fre. Dev. (kHz)	Deviation (ppm)
100%	5.00	+20(Ref)	21	3.992
100%		-30	26	4.943
100%		-20	25	4.753
100%		-10	25	4.753
100%		0	19	3.612
100%		+10	18	3.422
100%		+20	21	3.992
100%		+30	24	4.563
100%		+40	30	5.703
100%		+50	25	4.753
115%	5.75	+20	19	3.612
85%	4.25	+20	21	3.992

U-NII-2C (Ch. 100) 5500MHz				
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	Fre. Dev. (kHz)	Deviation (ppm)
100%	5.00	+20(Ref)	21	3.818
100%		-30	25	4.545
100%		-20	30	5.455
100%		-10	30	5.455
100%		0	22	4.000
100%		+10	21	3.818
100%		+20	23	4.182
100%		+30	32	5.818
100%		+40	33	6.000
100%		+50	25	4.545
115%	5.75	+20	27	4.909
85%	4.25	+20	30	5.455

U-NII-3 (Ch. 149) 5745MHz				
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	Fre. Dev. (kHz)	Deviation (ppm)
100%	5.00	+20(Ref)	24	4.178
100%		-30	26	4.526
100%		-20	22	3.829
100%		-10	23	4.003
100%		0	30	5.222
100%		+10	25	4.352
100%		+20	26	4.526
100%		+30	26	4.526
100%		+40	28	4.874
100%		+50	28	4.874
115%	5.75	+20	31	5.396
85%	4.25	+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

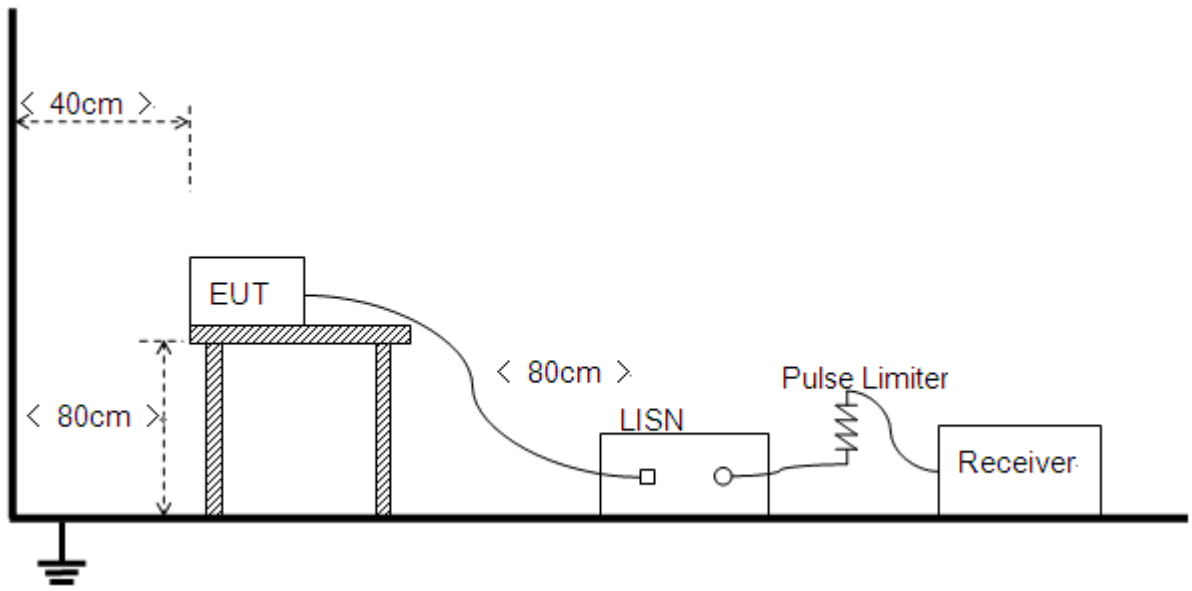
Note:

(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+ Adapter+Earphone +WIFI TX

Test Voltage: AC 120V/60Hz

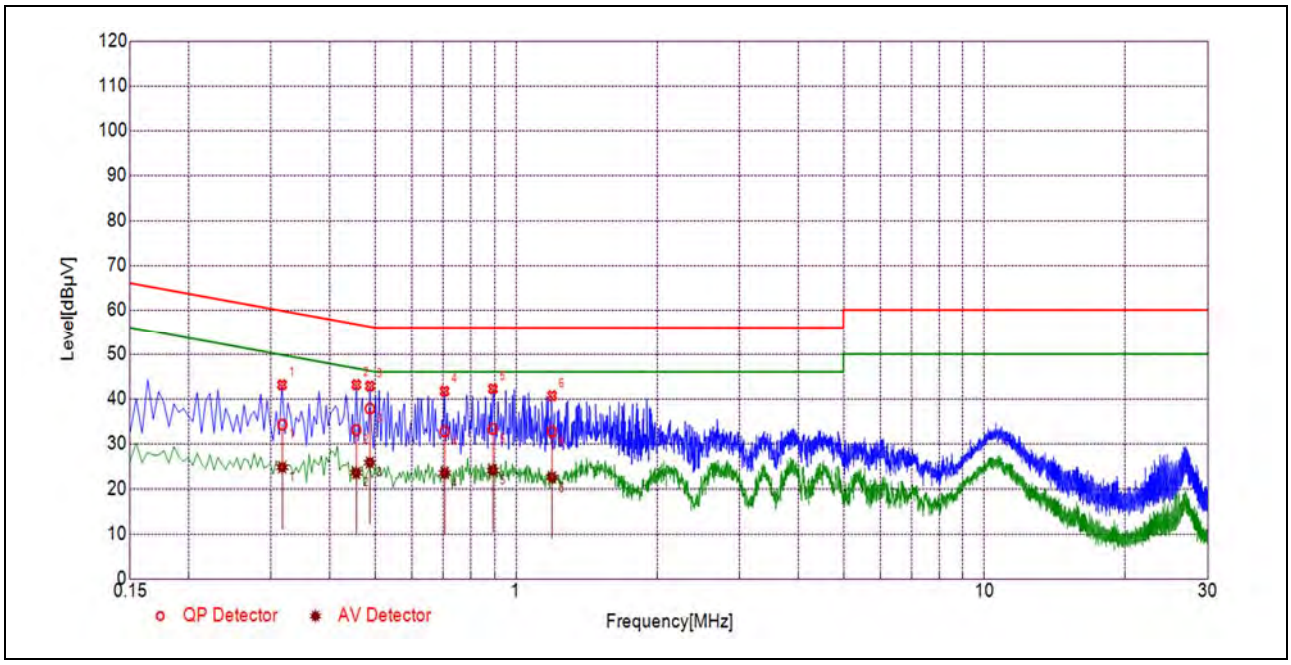
The measurement results are obtained as below:

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

U_R: Receiver Reading

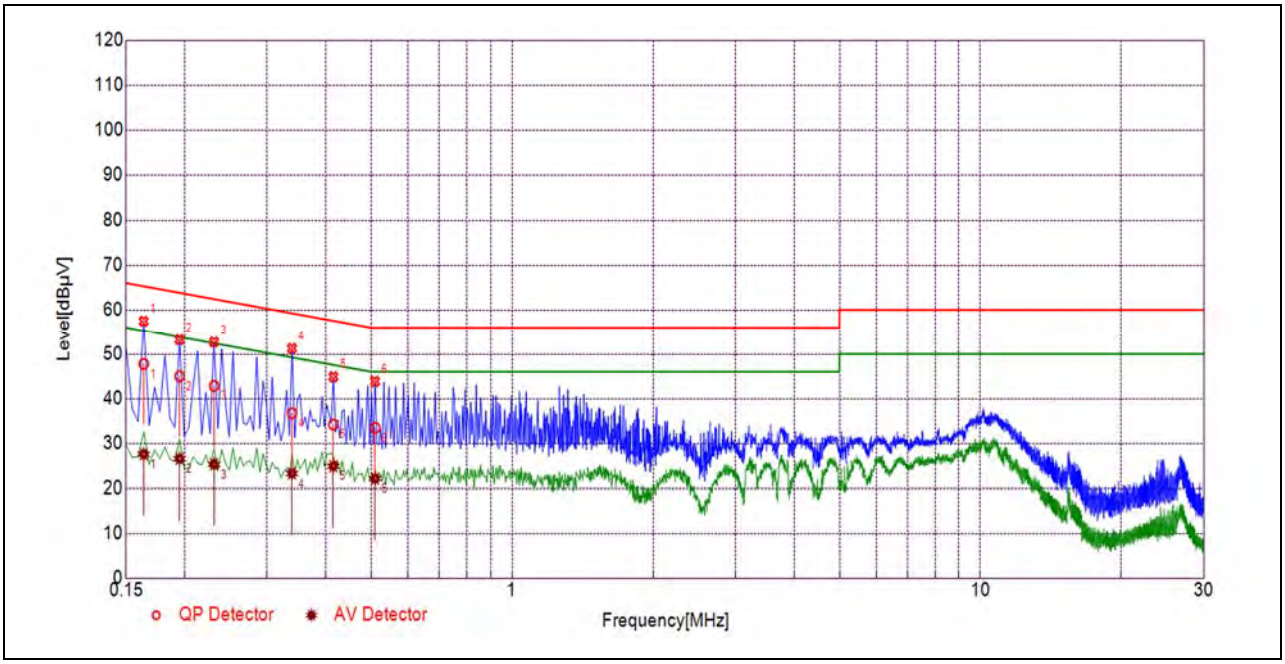
A_{Factor}: Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.3168	34.23	24.73	59.79	49.79	Line	PASS
2	0.4558	33.03	23.49	56.77	46.77		PASS
3	0.4873	37.80	25.77	56.21	46.21		PASS
4	0.7039	32.69	23.44	56.00	46.00		PASS
5	0.8919	33.23	24.03	56.00	46.00		PASS
6	1.1938	32.65	22.49	56.00	46.00		PASS



(N Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1635	47.75	27.53	65.29	55.29	Neutral	PASS
2	0.1950	44.99	26.54	63.82	53.82		PASS
3	0.2311	42.84	25.29	62.41	52.41		PASS
4	0.3389	36.72	23.24	59.23	49.23		PASS
5	0.4153	34.19	24.89	57.54	47.54		PASS
6	0.5102	33.47	22.12	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

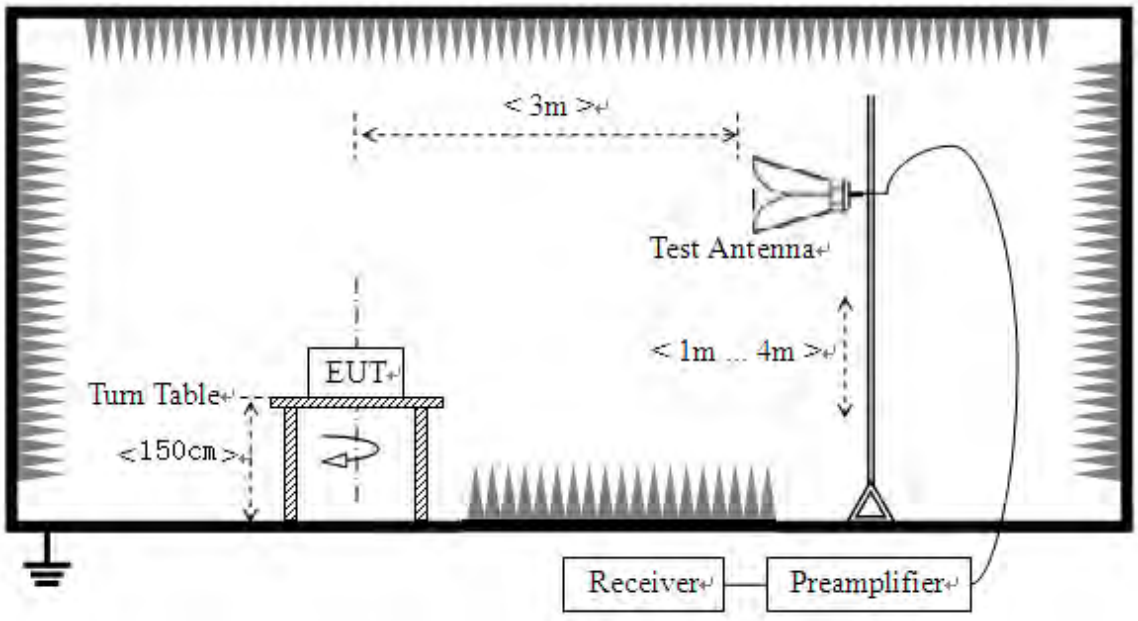
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following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

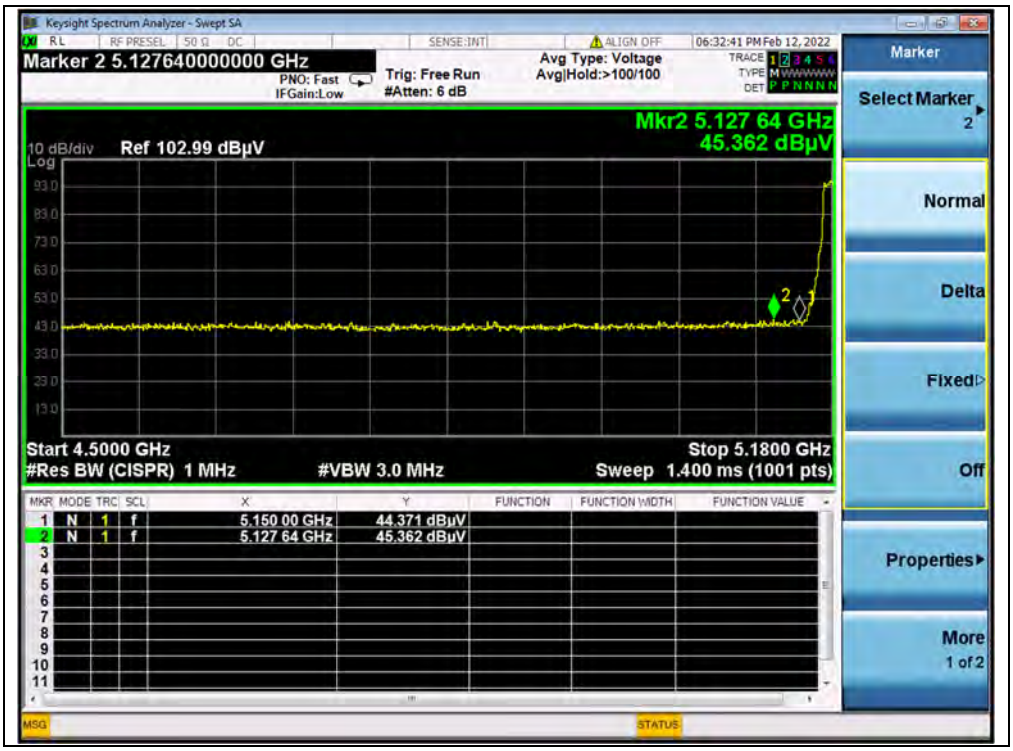
The lowest and highest channels are tested to verify Restricted Frequency Bands.
The measurement results are obtained as below:
E [dBμV/m] $=U_R + A_T + A_{Factor}$ [dB]; $A_T = L_{Cable\ loss}$ [dB]$-G_{preamp}$ [dB]
A_T: Total correction Factor except Antenna; U_R: Receiver Reading
G_{preamp}: Preamplifier 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

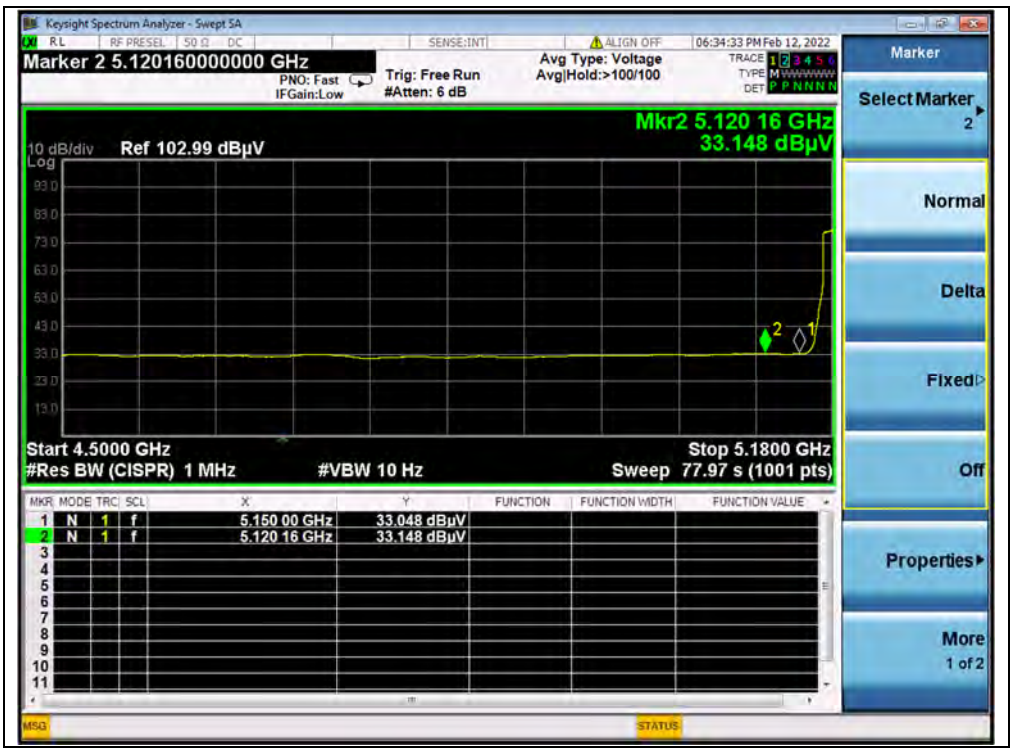
A.Test Verdict:

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	5127.64	PK	45.36	-19.54	32.20	58.02	74	PASS
36	5120.16	AV	33.15	-19.54	32.20	45.81	54	PASS
64	5350.66	PK	44.24	-18.80	32.20	57.64	74	PASS
64	5350.52	AV	32.09	-18.80	32.20	45.49	54	PASS
100	5470.00	PK	42.23	-19.20	32.20	55.23	68.23	PASS
100	5168.28	AV	33.07	-19.20	32.20	46.07	54	PASS
144	5727.90	PK	46.50	-19.20	32.20	59.50	68.23	PASS
149	5725.00	PK	56.09	-19.01	32.20	69.28	122.23	PASS
165	5855.00	PK	43.60	-19.01	32.20	56.79	110.83	PASS

B.Test Plot:

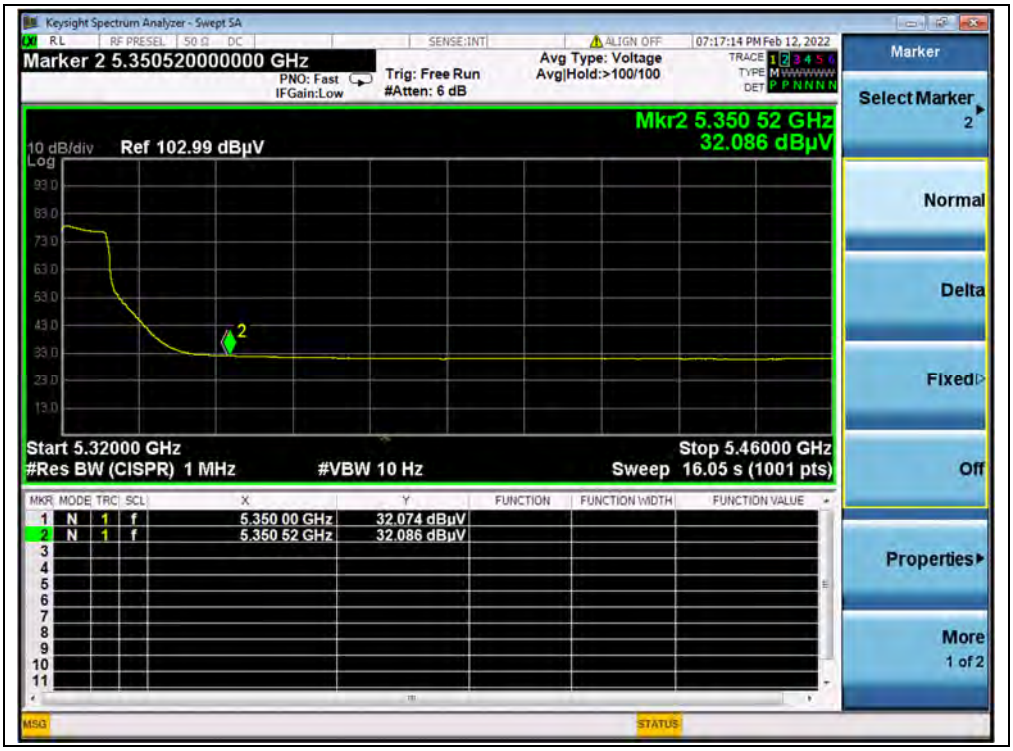


(PEAK, Channel 36, 802.11a)

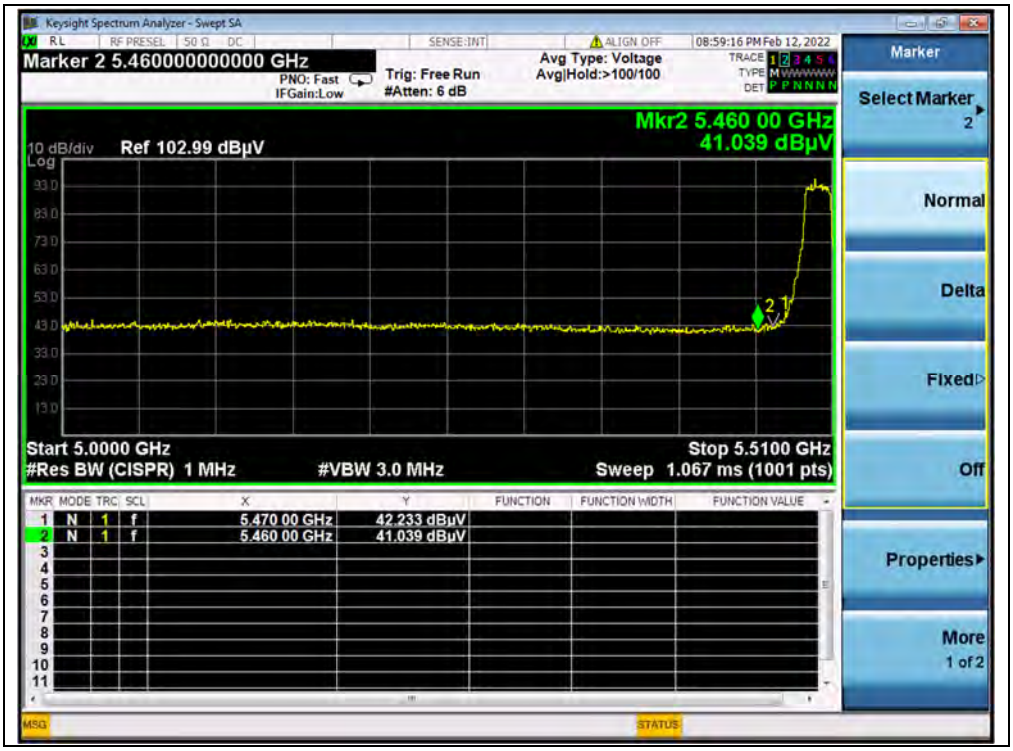


(AVERAGE, Channel 36, 802.11a)

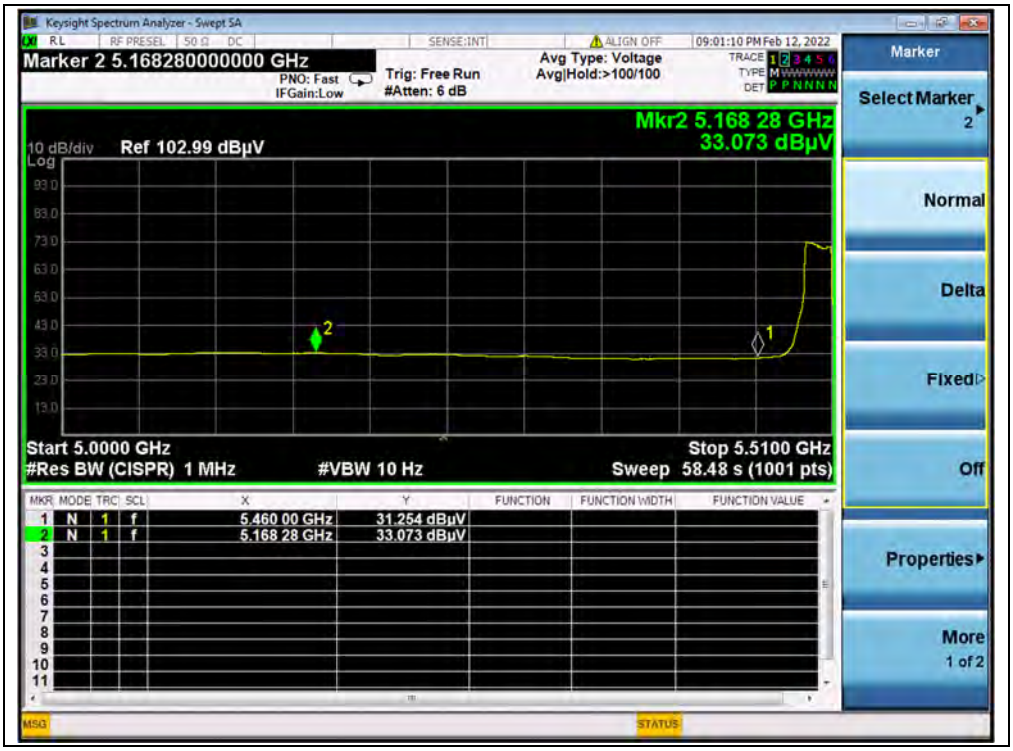
(PEAK, Channel 64, 802.11a)



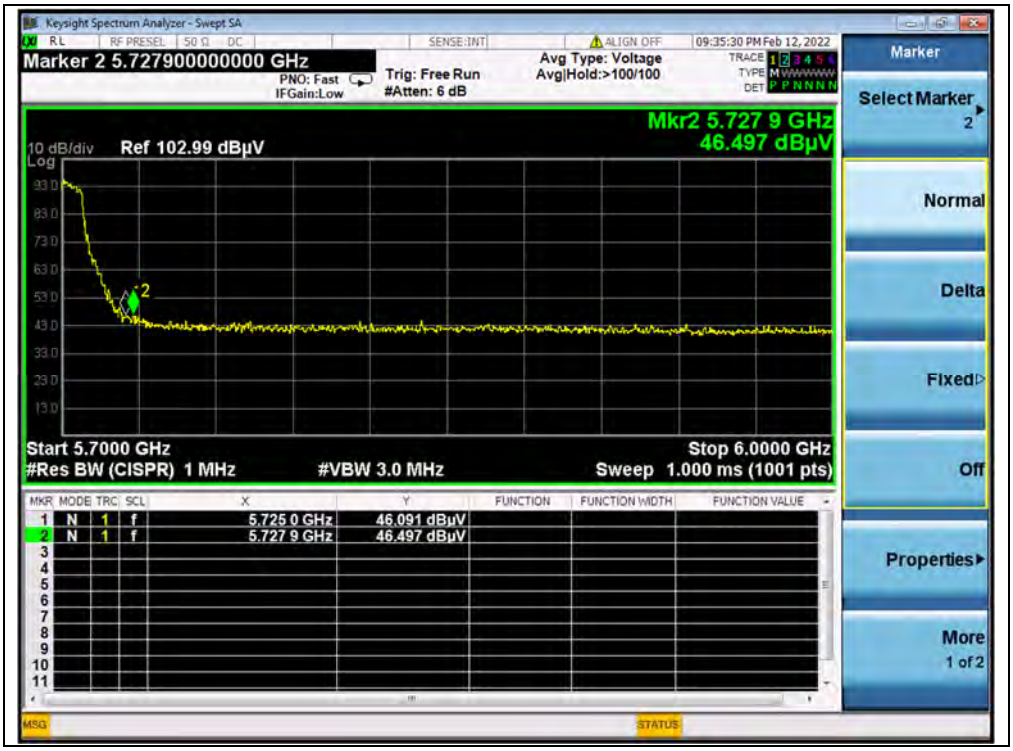
(AVERAGE, Channel 64, 802.11a)



(PEAK, Channel 100, 802.11a)



(AVERAGE, Channel 100, 802.11a)



(PEAK, Channel 144, 802.11a)

(PEAK, Channel 149, 802.11a)

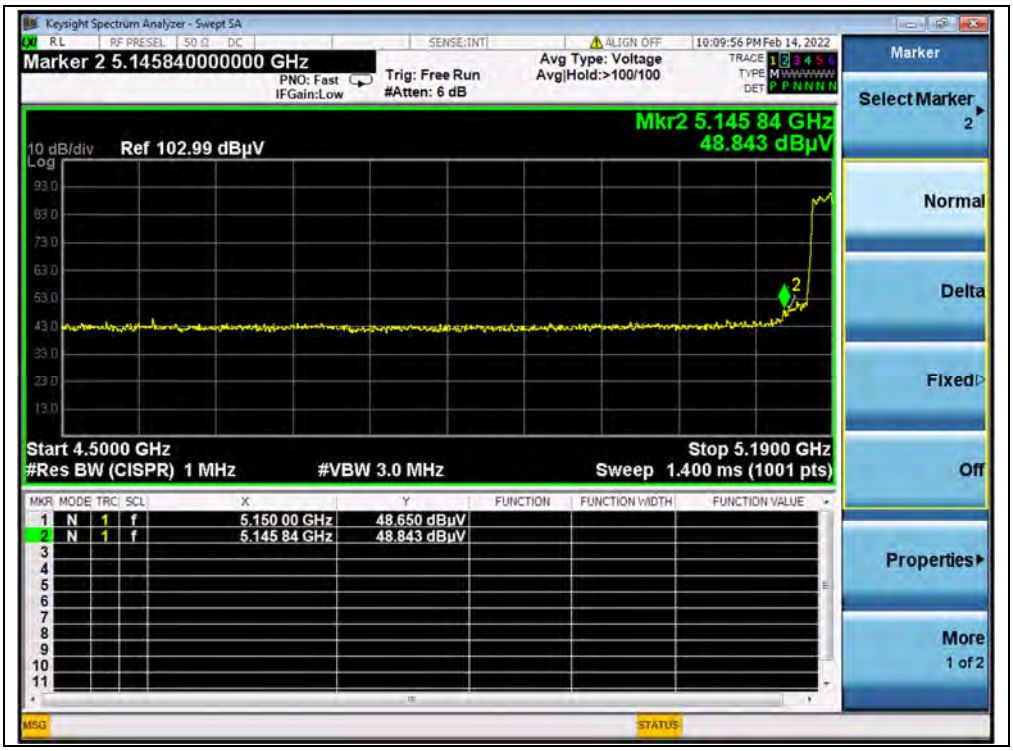
(PEAK, Channel 165, 802.11a)

802.11n (HT40) Mode

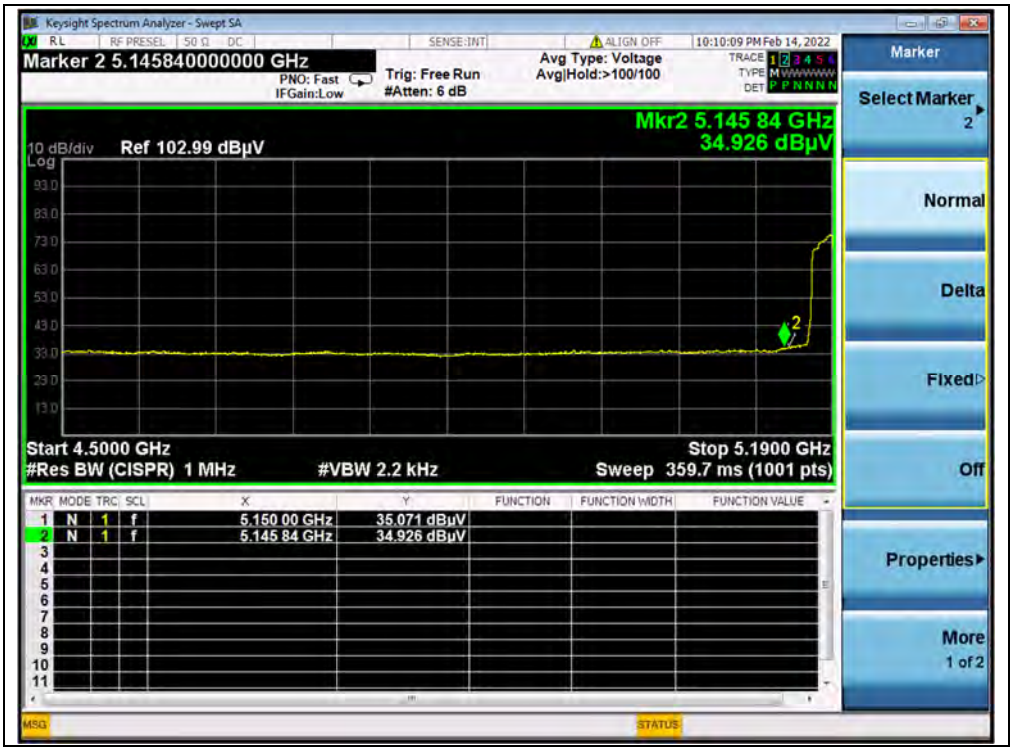
A.Test Verdict:

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	5145.84	PK	48.84	-19.54	32.20	61.50	74	PASS
38	5150.00	AV	35.07	-19.54	32.20	47.73	54	PASS
62	5354.71	PK	48.80	-18.80	32.20	62.20	74	PASS
62	5350.00	AV	34.41	-18.80	32.20	47.81	54	PASS
102	5470.00	PK	49.15	-19.20	32.20	62.15	68.23	PASS
102	5103.51	AV	34.05	-19.20	32.20	47.05	54	PASS
142	5725.00	PK	45.97	-19.20	32.20	58.97	68.23	PASS
151	5725.00	PK	62.10	-19.01	32.20	75.29	122.23	PASS
159	5850.00	PK	45.49	-19.01	32.20	58.68	122.23	PASS

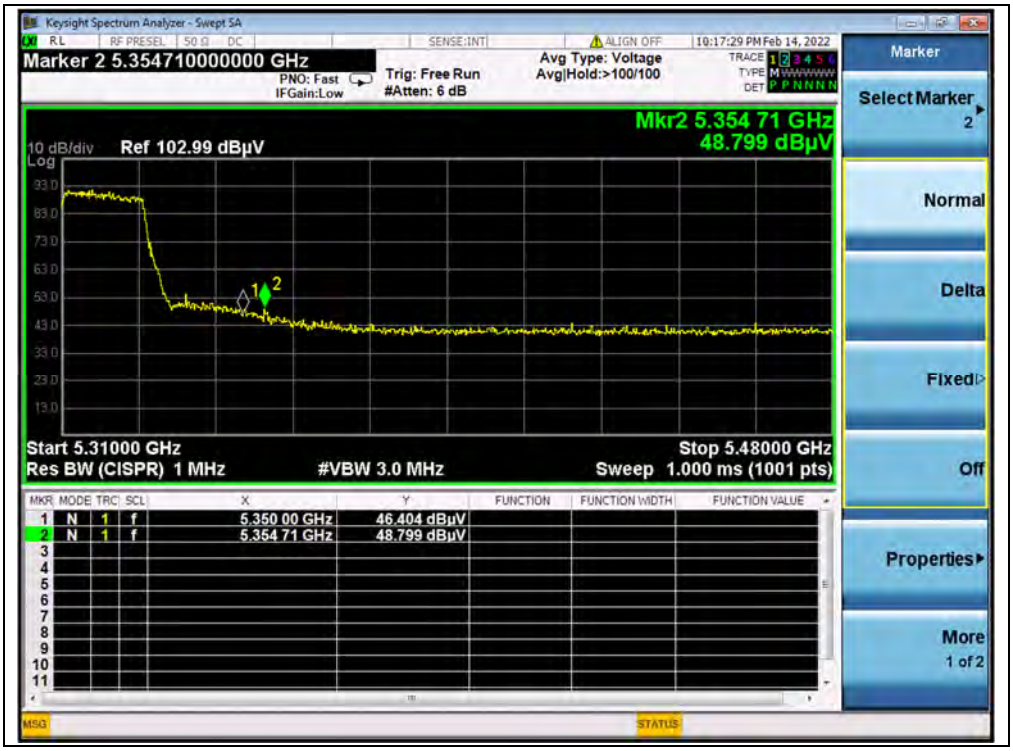
B.Test Plot:



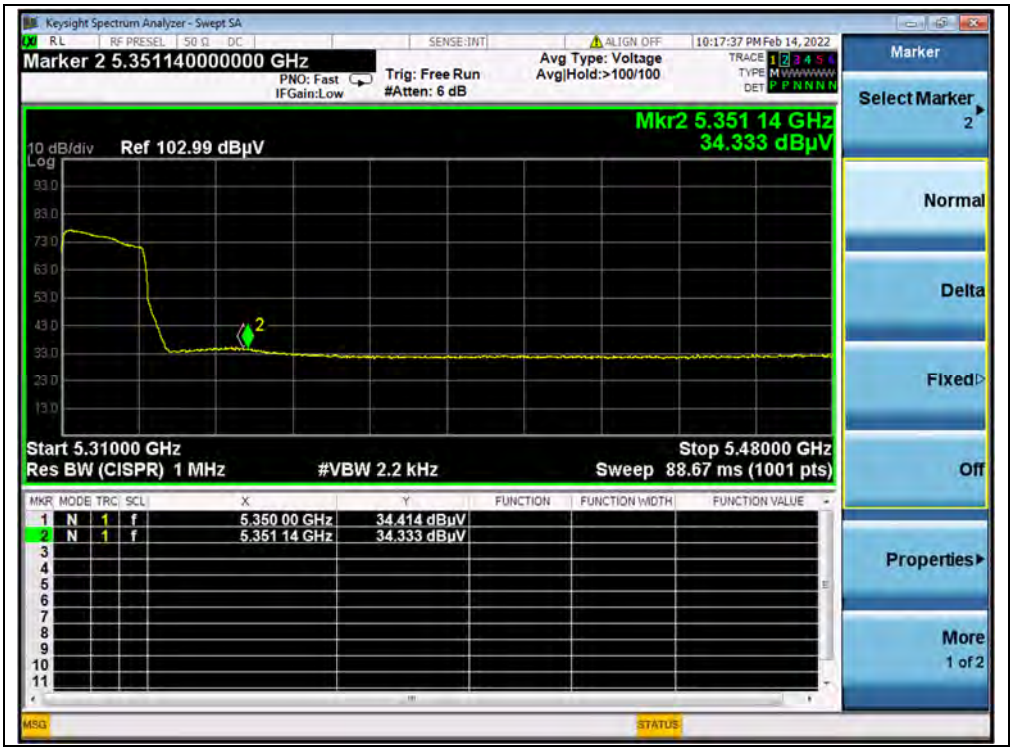
(PEAK, Channel 38, 802.11n (HT40))



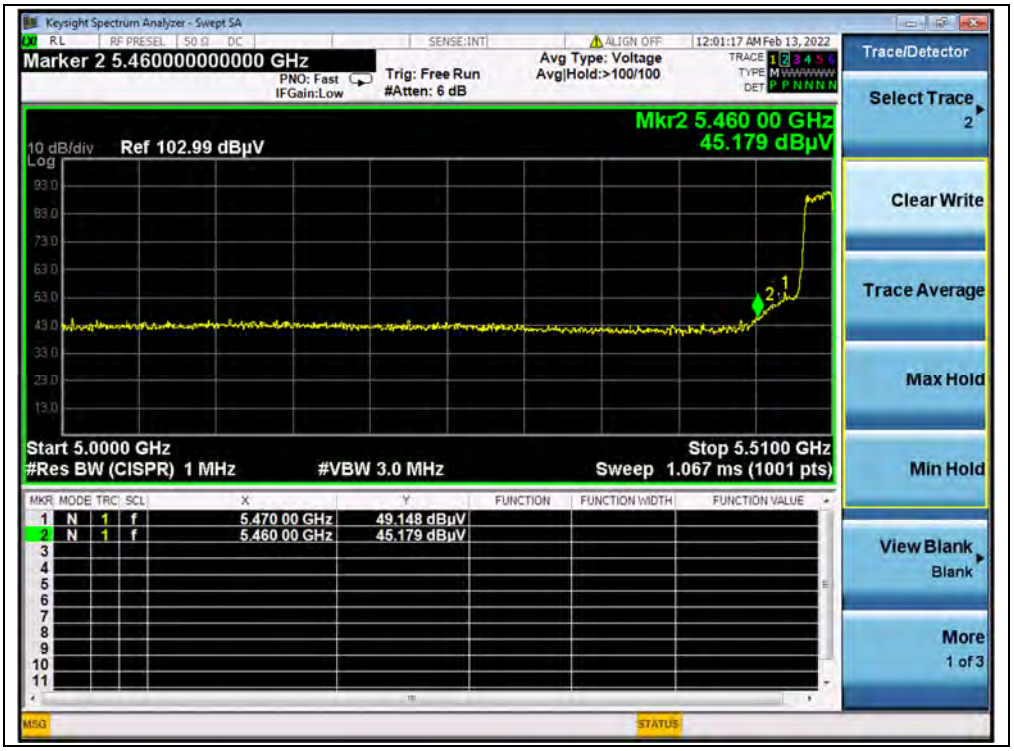
(AVERAGE, Channel 38, 802.11n (HT40))



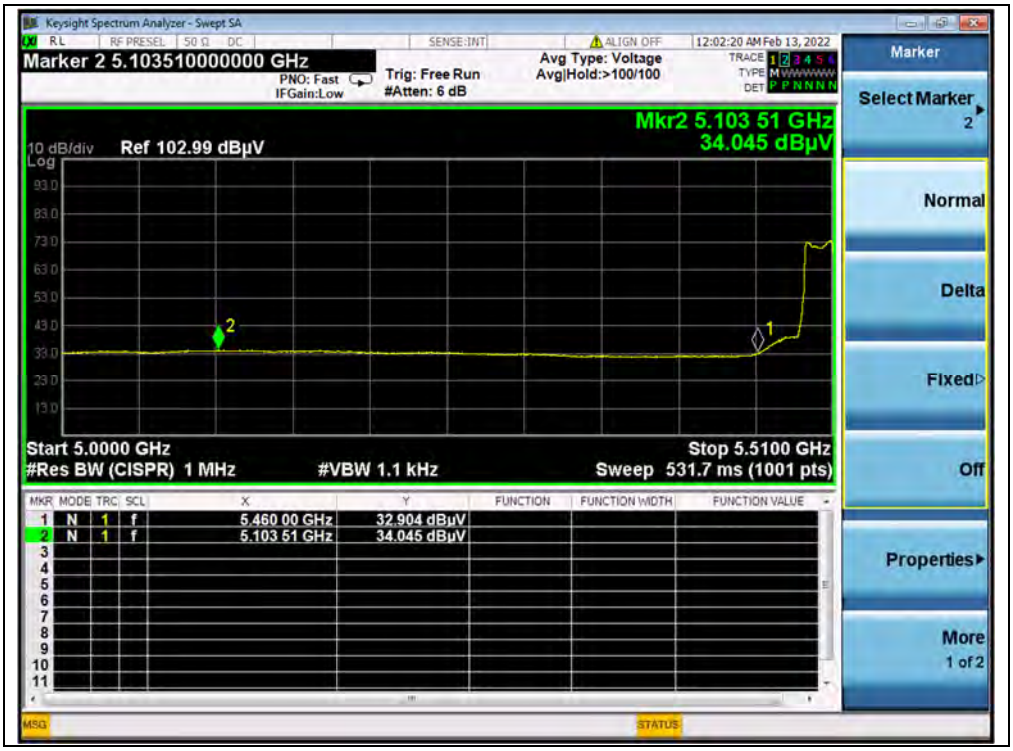
(PEAK, Channel 62, 802.11n (HT40))



(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))

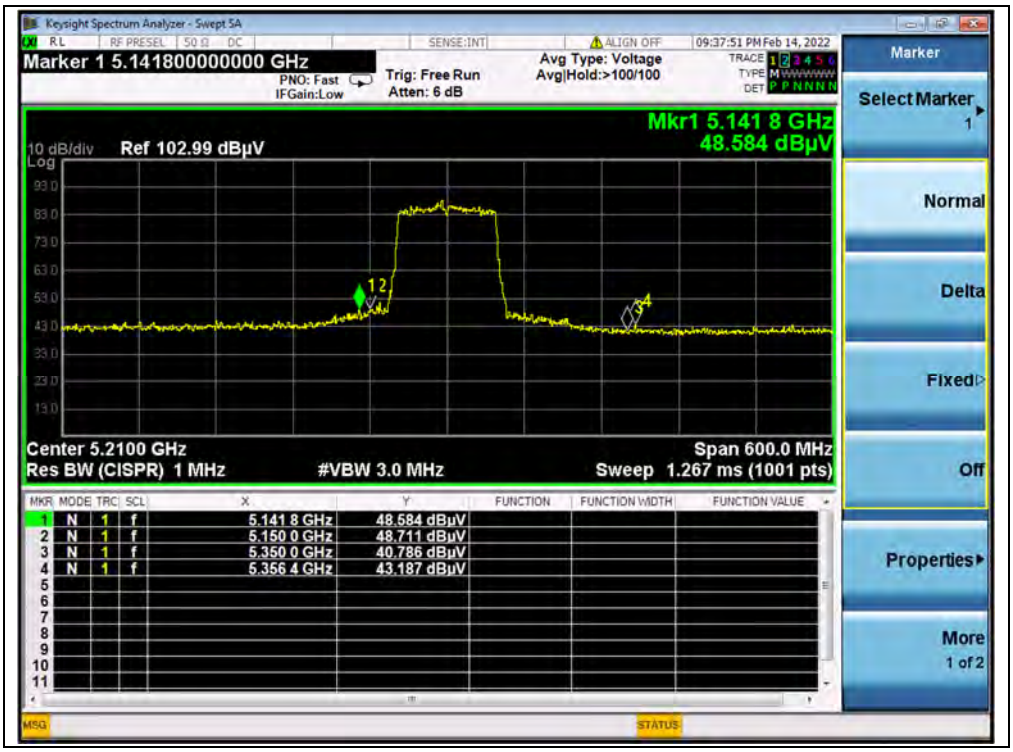
(PEAK, Channel 159, 802.11n (HT40))

802.11ac (VHT80) Mode

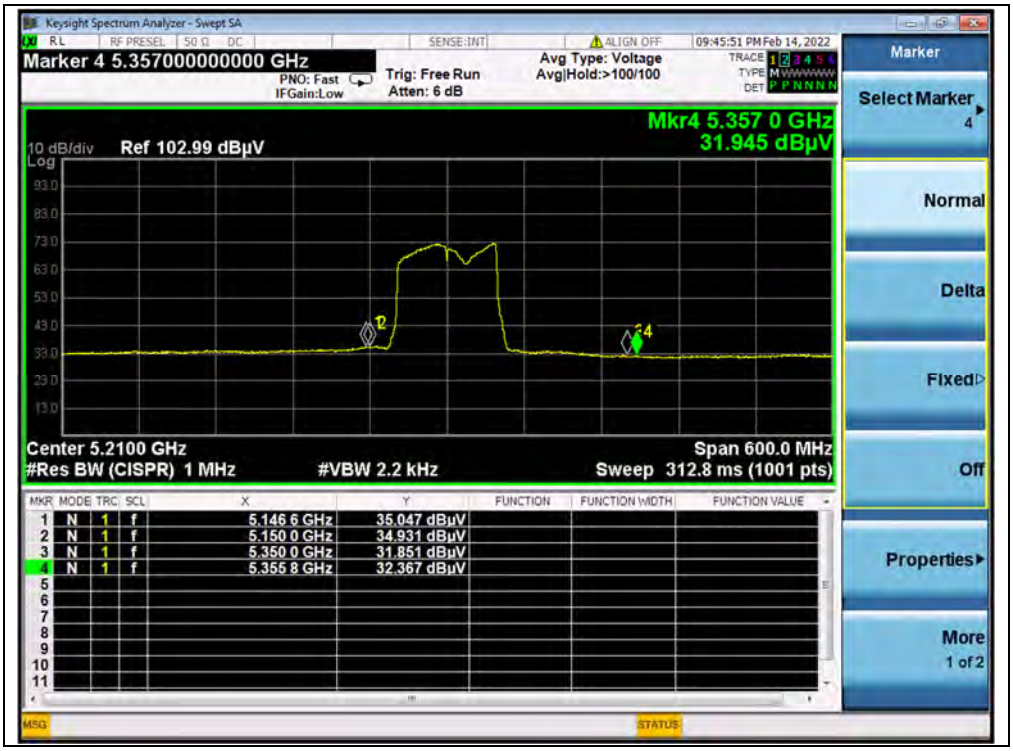
A.Test Verdict:

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	5150.00	PK	48.71	-19.54	32.20	61.37	74	PASS
42	5146.60	AV	35.05	-19.54	32.20	47.71	54	PASS
58	5366.60	PK	47.43	-18.80	32.20	60.83	74	PASS
58	5119.60	AV	34.37	-18.80	32.20	47.77	54	PASS
106	5470.00	PK	50.02	-19.20	32.20	63.02	68.23	PASS
106	5460.00	AV	35.66	-19.20	32.20	48.66	54	PASS
138	5742.21	PK	44.18	-19.20	32.20	57.18	68.23	PASS
155	5725.00	PK	62.36	-19.01	32.20	75.55	122.23	PASS
155	5850.00	PK	51.53	-19.01	32.20	64.72	122.23	PASS

B.Test Plot:

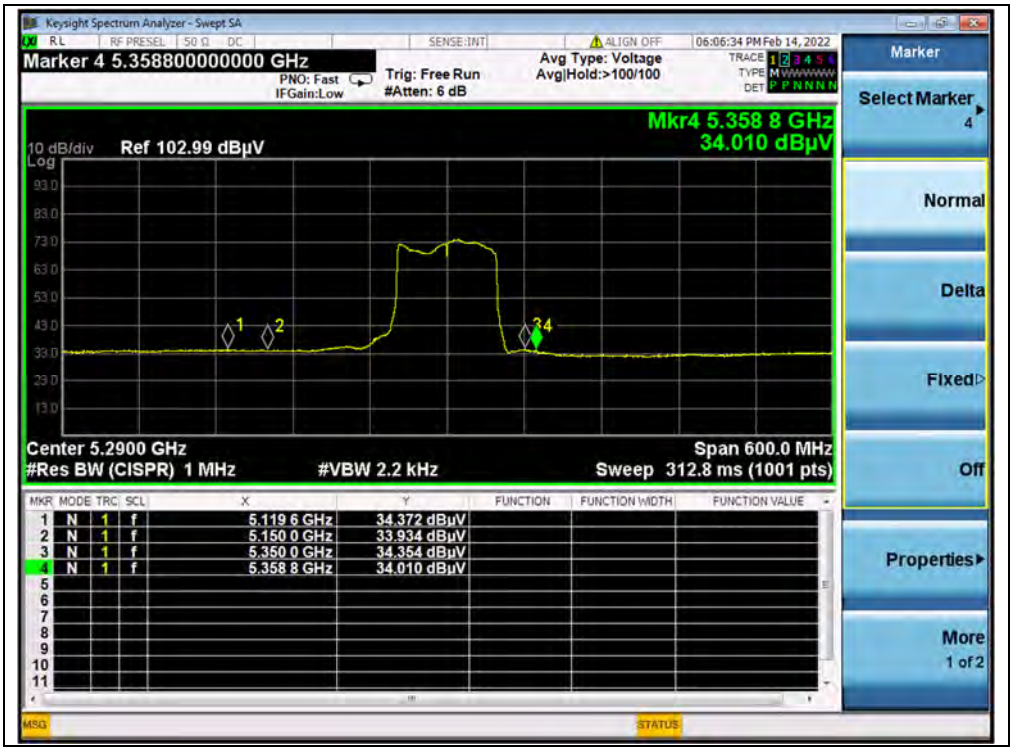


(PEAK, Channel 42, 802.11ac (VHT80))



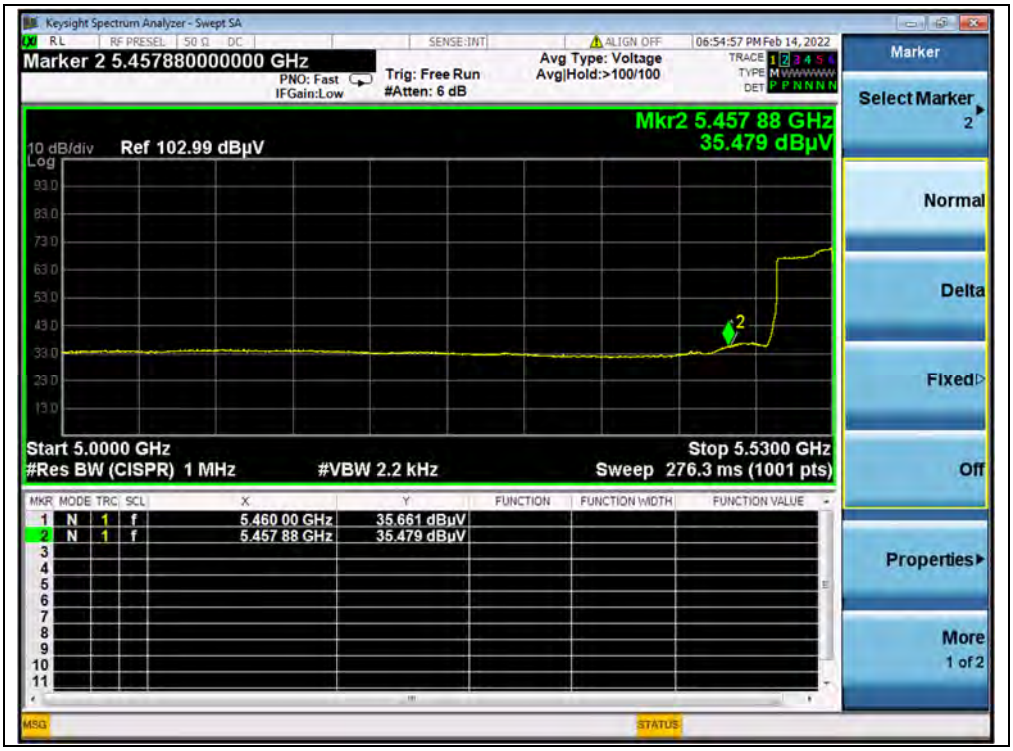
(AVERAGE, Channel 42, 802.11ac (VHT80))

(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:

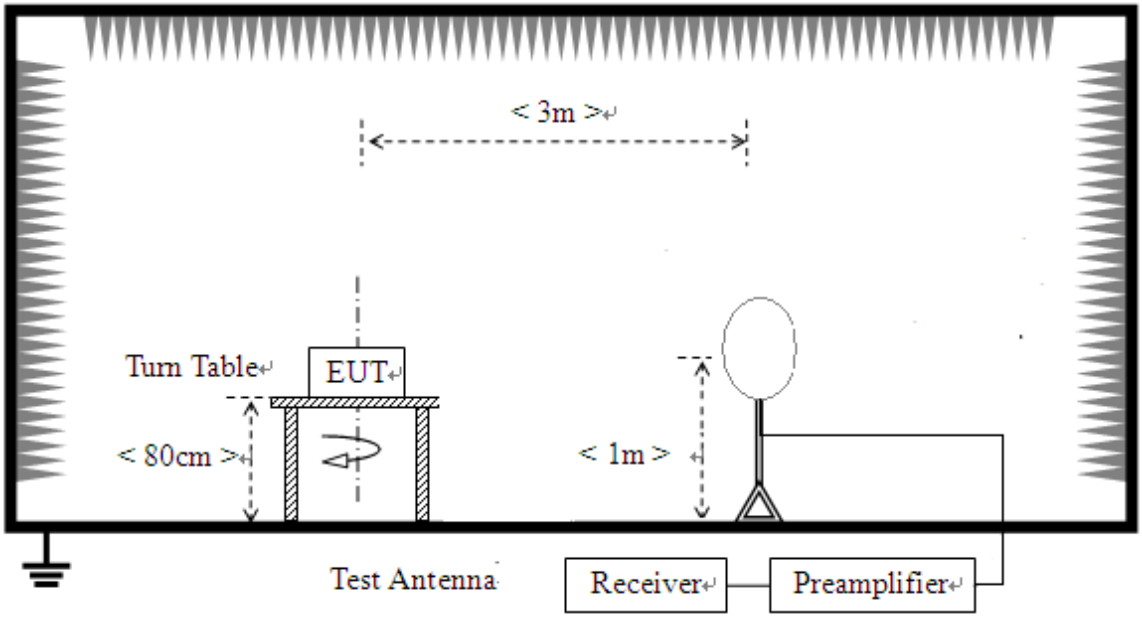
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

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).

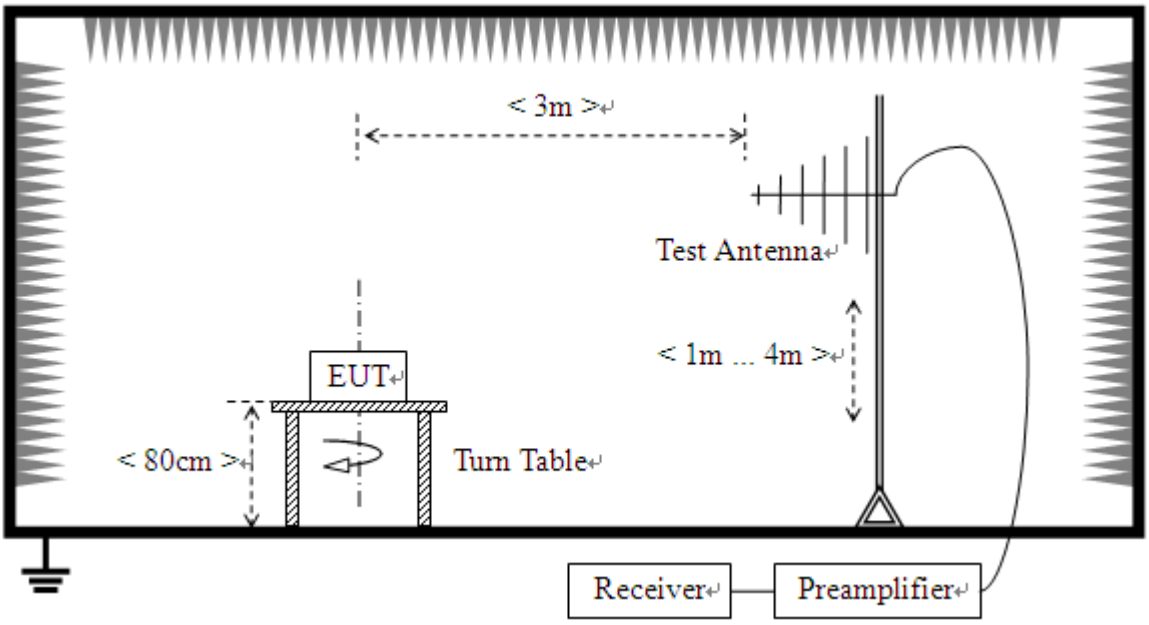
2.9.2. Test Description

Test Setup:

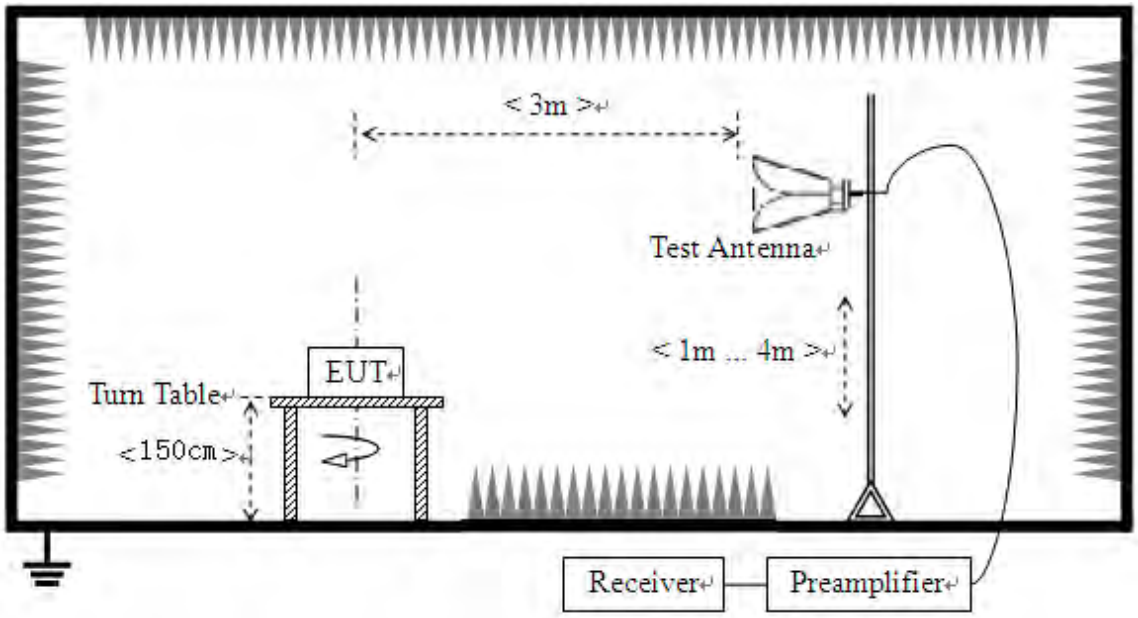
1) For radiated emissions from 9kHz to 30MHz



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.

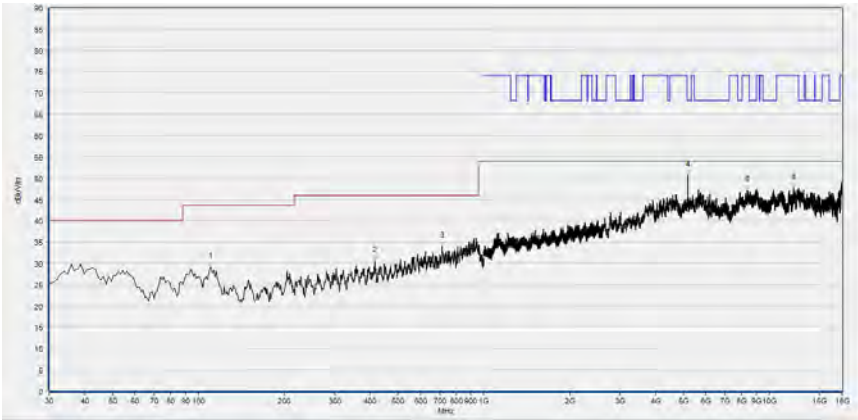
Note 2: For the frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

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.

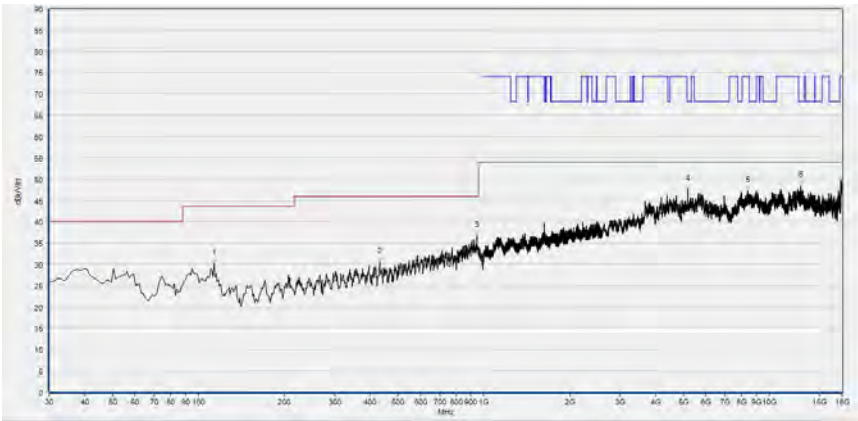
802.11a Mode

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
110.591	29.23	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
415.475	30.45	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
714.535	33.98	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5181.556	50.60	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8385.397	47.06	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12193.039	47.70	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

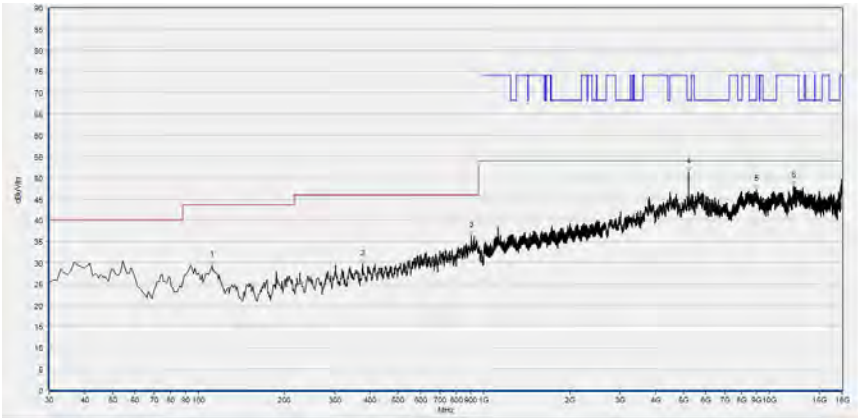
(Antenna Horizontal, 30MHz to 18GHz)



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
113.504	30.14	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
431.982	30.44	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
944.655	36.73	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5184.637	47.59	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8406.961	47.20	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12898.500	48.40	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

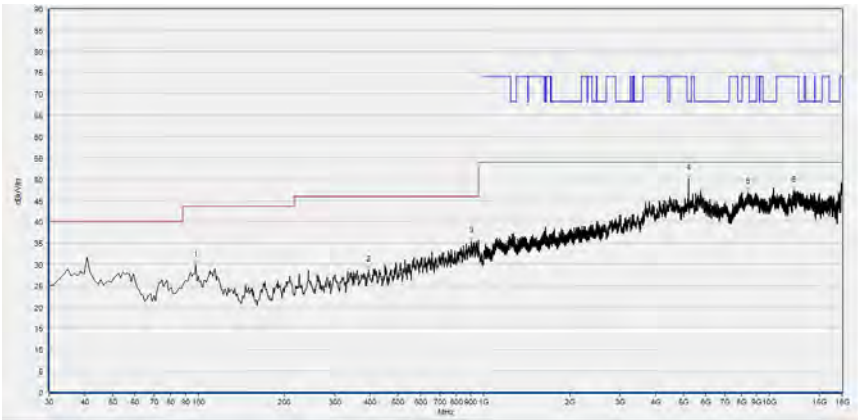
(Antenna Vertical, 30MHz to 18GHz)

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
111.562	29.40	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
376.637	29.66	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
903.874	36.35	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5218.524	51.22	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
9001.520	47.30	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12140.668	48.12	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

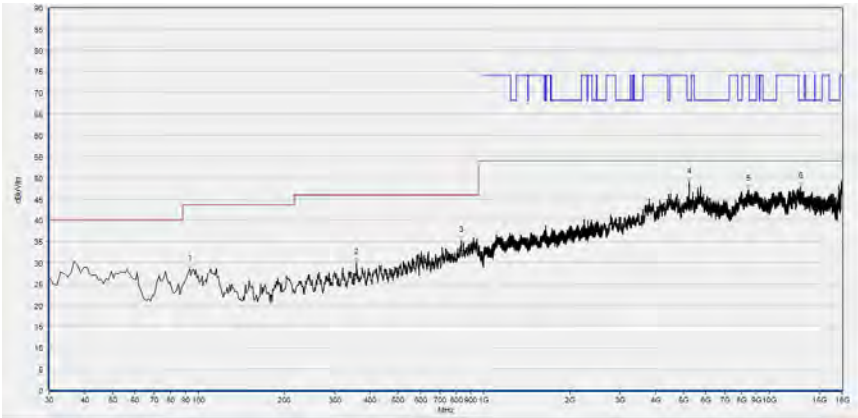
(Antenna Horizontal, 30MHz to 18GHz)



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
97.968	29.84	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
395.085	28.69	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
902.903	35.43	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5215.443	50.09	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8416.203	47.00	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12156.071	47.25	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

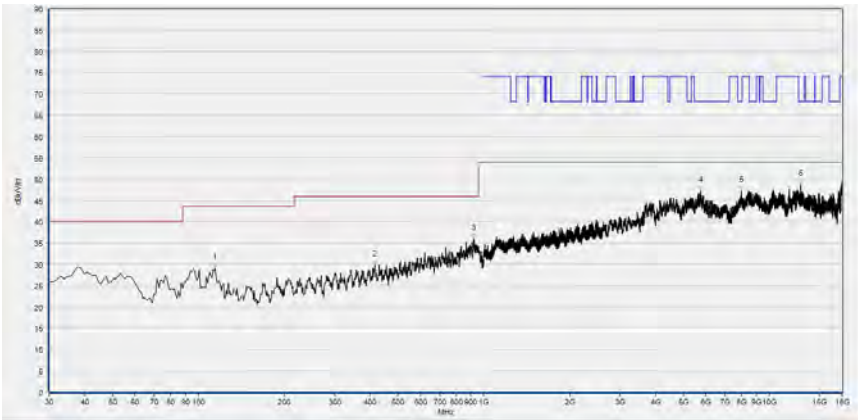
(Antenna Vertical, 30MHz to 18GHz)

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
93.113	28.56	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
358.188	29.97	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
833.964	35.20	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5243.169	48.91	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8465.493	47.28	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12889.258	47.99	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

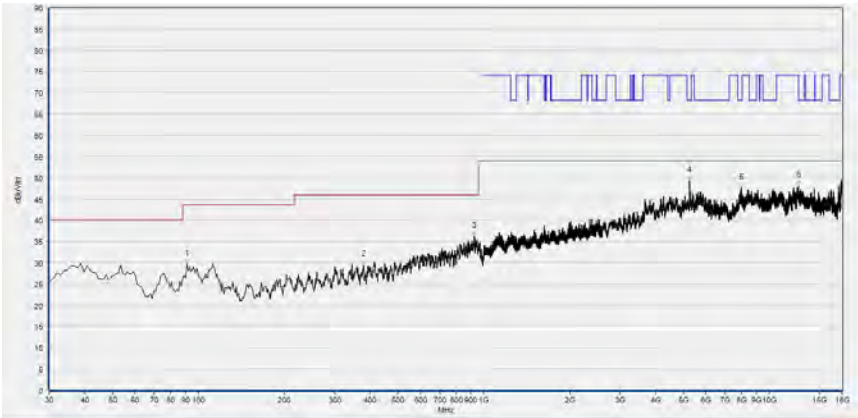
(Antenna Horizontal, 30MHz to 18GHz)



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
114.474	29.19	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
414.505	29.85	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
922.322	36.07	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5739.148	47.22	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
7966.433	47.21	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12886.177	48.71	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

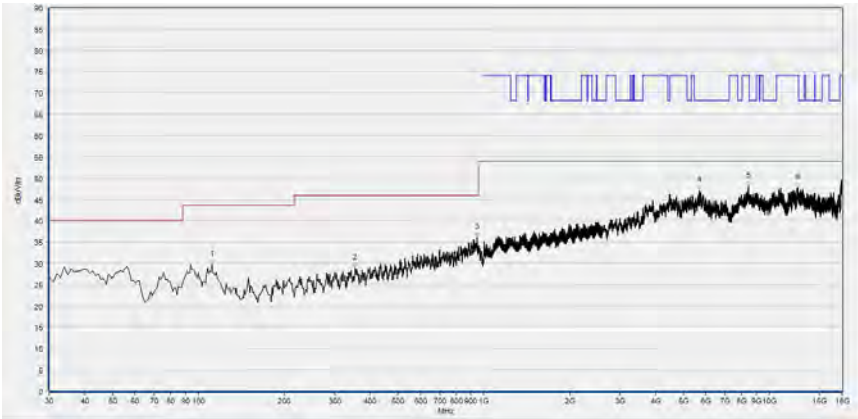
(Antenna Vertical, 30MHz to 18GHz)

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
91.171	29.60	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
379.550	29.42	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
924.264	36.16	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5258.572	49.34	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
7991.078	47.57	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12630.486	48.18	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

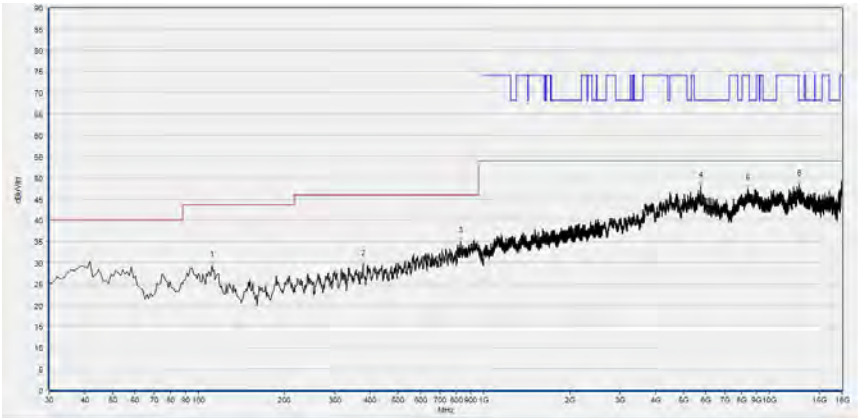
(Antenna Horizontal, 30MHz to 18GHz)



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
111.562	29.72	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
354.304	28.80	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
948.539	35.98	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5689.858	47.04	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8443.929	48.10	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12608.922	47.76	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

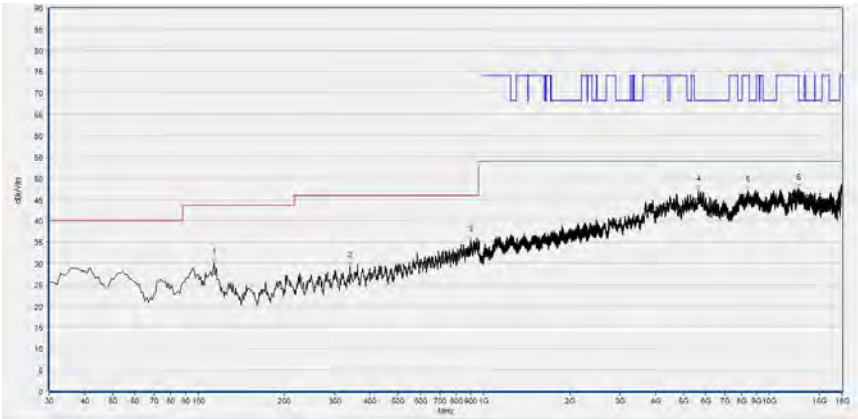
(Antenna Vertical, 30MHz to 18GHz)

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
111.562	29.34	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
378.579	29.65	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
827.167	35.03	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5766.873	48.14	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8434.687	47.41	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12707.502	48.40	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

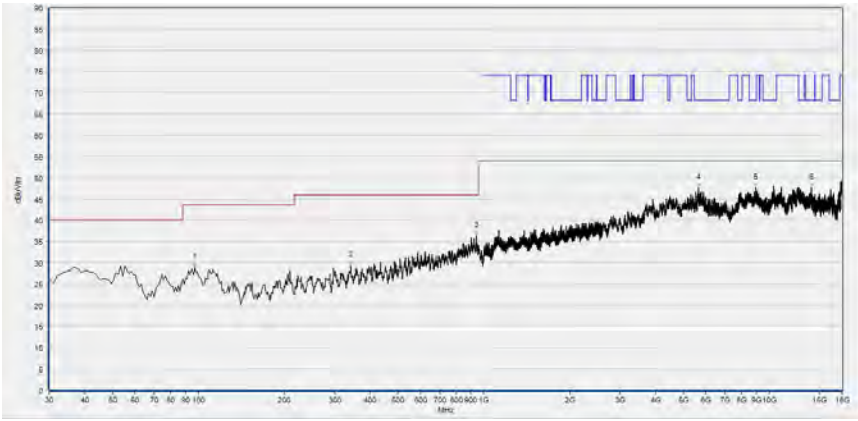
(Antenna Horizontal, 30MHz to 18GHz)



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
113.504	30.17	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
339.740	29.35	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
897.077	35.37	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5646.729	47.23	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8422.364	47.05	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12636.647	47.57	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

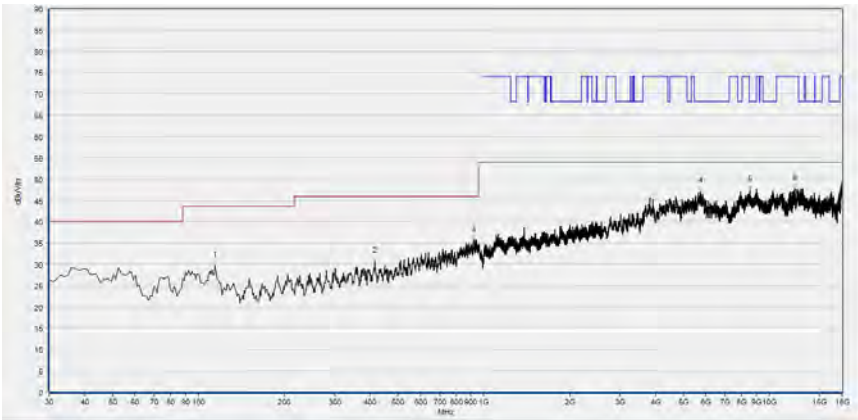
(Antenna Vertical, 30MHz to 18GHz)

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
96.997	28.89	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
341.682	29.29	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
943.684	36.31	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5662.132	47.66	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8983.037	47.55	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
14026.005	47.53	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

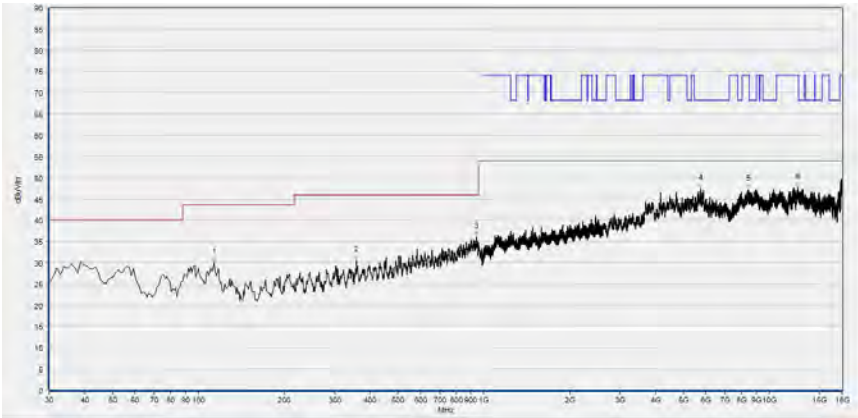
(Antenna Horizontal, 30MHz to 18GHz)



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
114.474	29.73	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
414.505	30.61	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
922.322	35.77	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5754.551	47.02	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8579.476	47.50	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12282.376	47.76	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

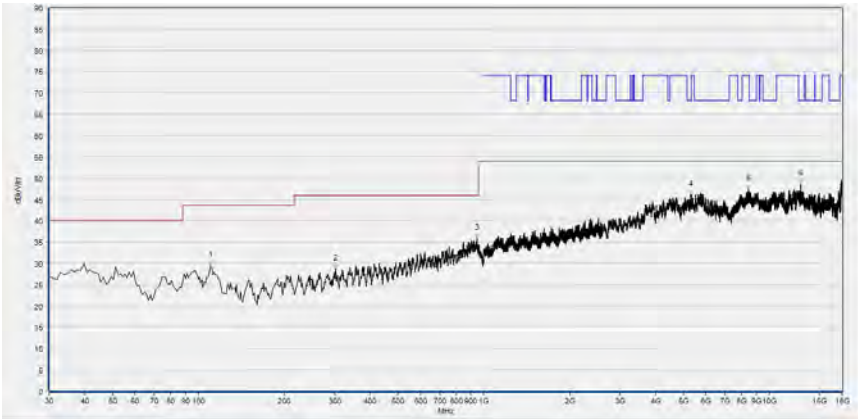
(Antenna Vertical, 30MHz to 18GHz)

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
113.504	30.00	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
358.188	30.45	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
943.684	36.03	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5751.470	47.39	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8447.009	47.26	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12612.002	47.78	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

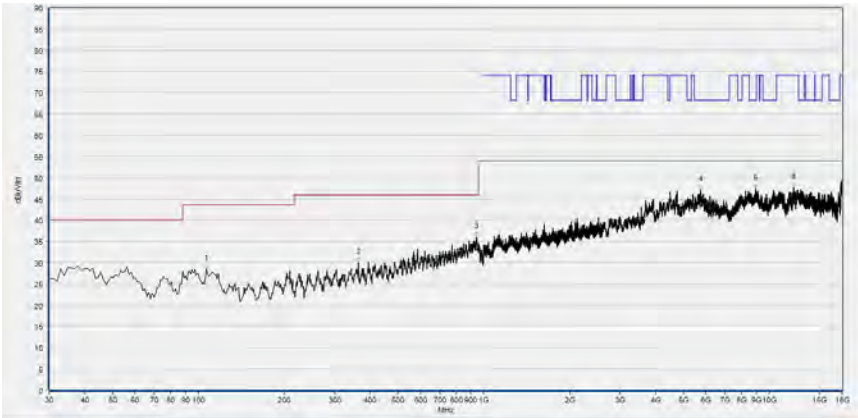
(Antenna Horizontal, 30MHz to 18GHz)



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
110.591	29.42	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
302.843	28.73	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
945.626	35.89	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5317.103	46.14	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8447.009	47.35	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12898.500	48.56	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

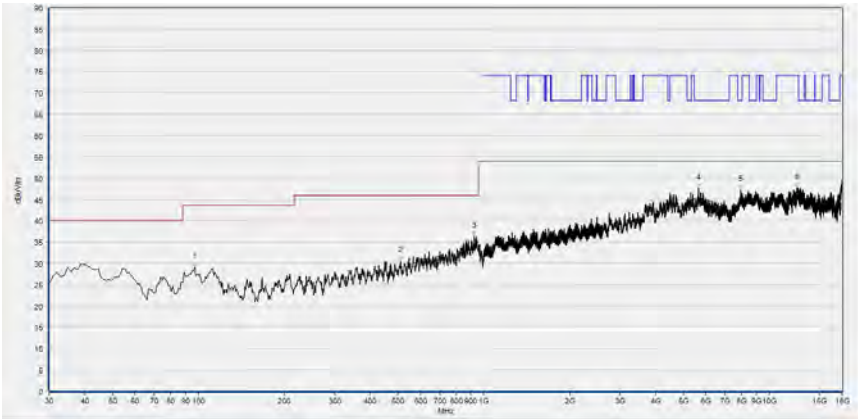
(Antenna Vertical, 30MHz to 18GHz)

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
106.707	28.57	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
363.043	30.02	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
943.684	36.12	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5757.632	47.12	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8986.117	47.38	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12134.507	47.70	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

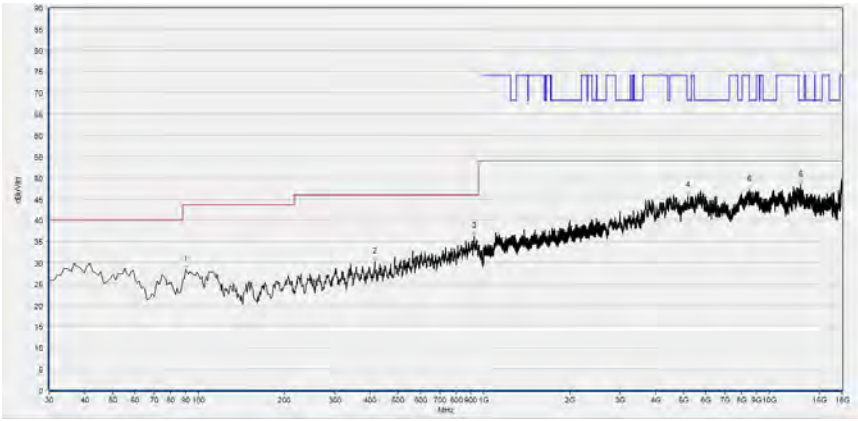
(Antenna Horizontal, 30MHz to 18GHz)



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
96.997	28.92	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
511.602	30.50	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
927.177	36.40	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5640.568	47.60	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
7954.111	47.23	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12544.229	47.81	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

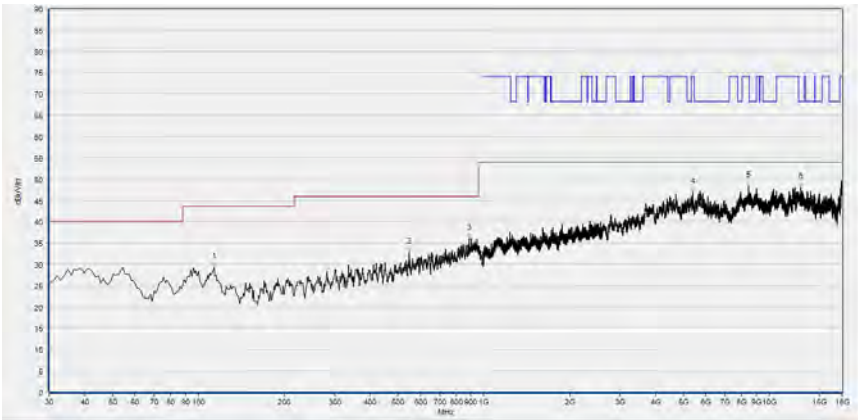
(Antenna Vertical, 30MHz to 18GHz)

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
90.200	28.35	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
415.475	30.12	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
925.235	36.23	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5178.476	45.68	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8493.219	47.10	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12892.338	48.20	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

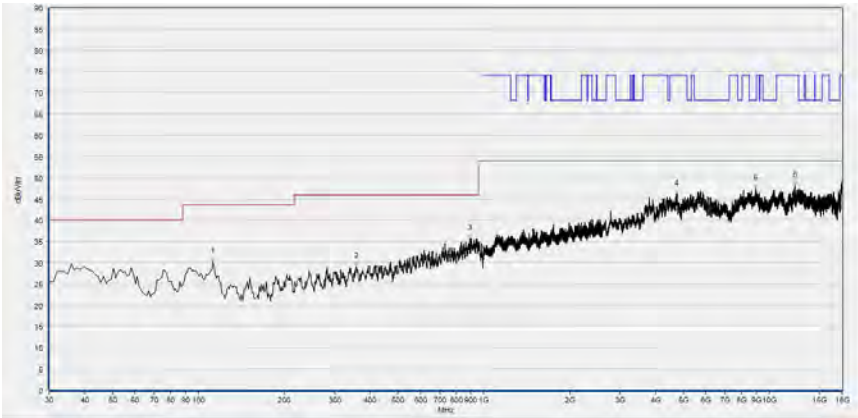
(Antenna Horizontal, 30MHz to 18GHz)



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
113.504	29.30	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
547.528	32.77	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
887.367	36.05	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5394.119	46.94	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8443.929	48.51	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12883.097	48.18	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

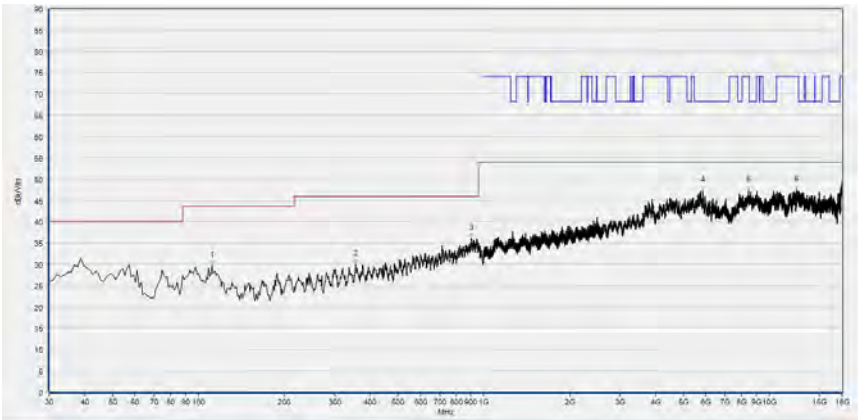
(Antenna Vertical, 30MHz to 18GHz)

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
112.533	30.11	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
358.188	29.04	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
892.222	35.72	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
4737.948	46.01	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8952.230	47.45	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12294.699	48.18	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

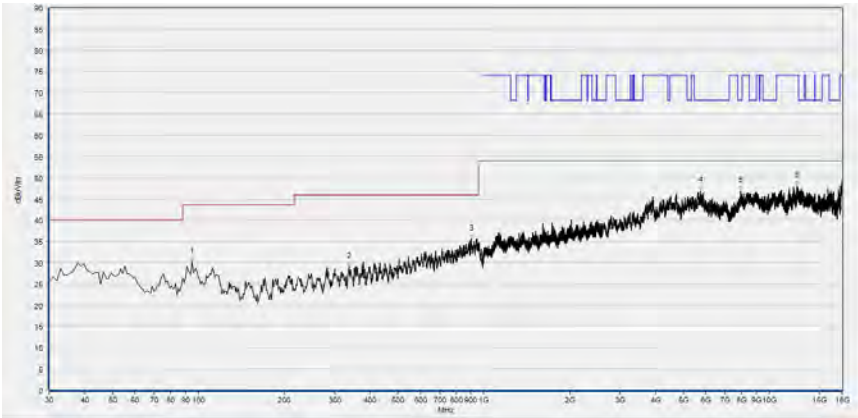
(Antenna Horizontal, 30MHz to 18GHz)



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
111.562	29.67	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
355.275	29.94	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
904.845	35.99	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5843.889	47.22	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8459.332	47.48	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12479.536	47.48	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

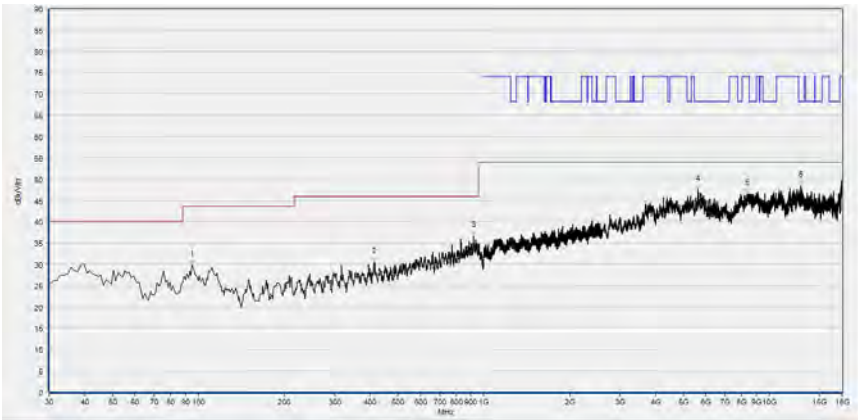
(Antenna Vertical, 30MHz to 18GHz)

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
95.055	30.25	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
336.827	28.92	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
905.816	35.51	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5748.390	46.85	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
7926.385	46.91	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12513.423	48.12	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

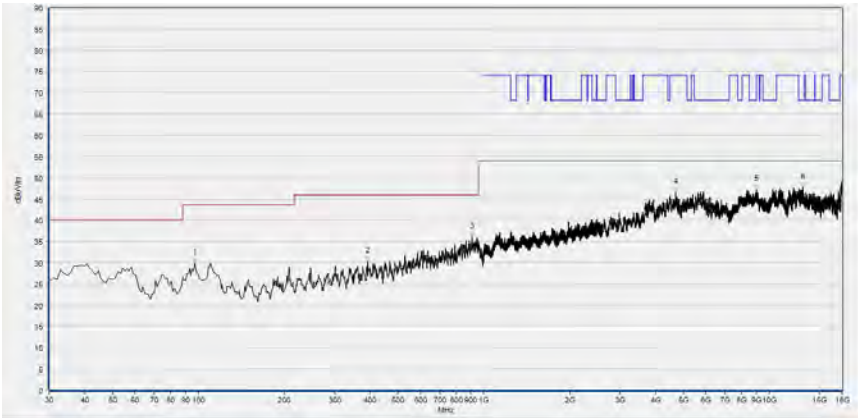
(Antenna Horizontal, 30MHz to 18GHz)



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
95.055	29.81	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
412.563	30.47	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
920.380	36.79	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5634.407	47.59	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8379.236	46.51	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12895.419	48.35	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

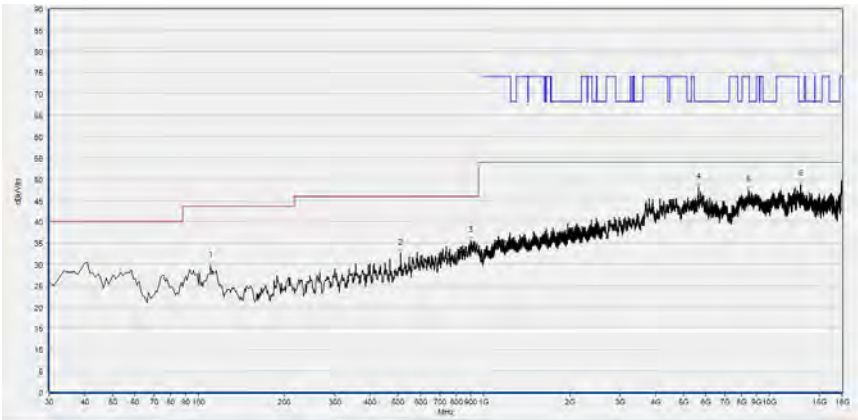
(Antenna Vertical, 30MHz to 18GHz)

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
96.997	29.85	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
391.201	30.26	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
909.700	36.01	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
4707.141	46.56	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
9004.601	47.31	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
13098.740	47.74	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

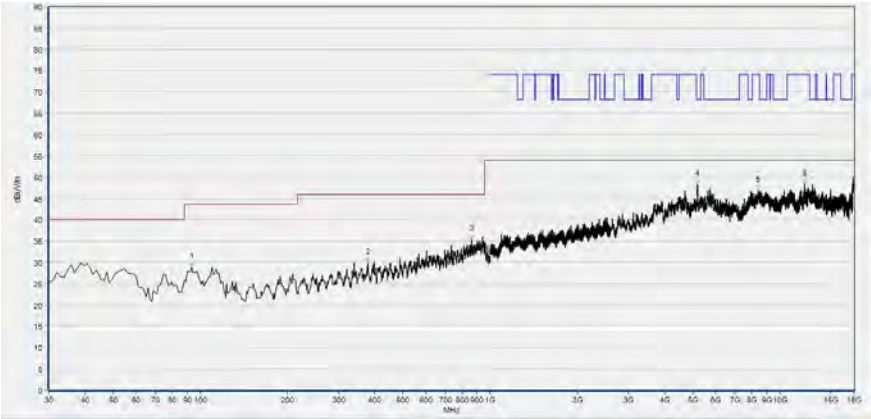


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
110.591	29.68	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
510.631	32.47	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
900.961	35.48	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5649.810	48.16	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8440.848	47.40	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12883.097	48.82	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

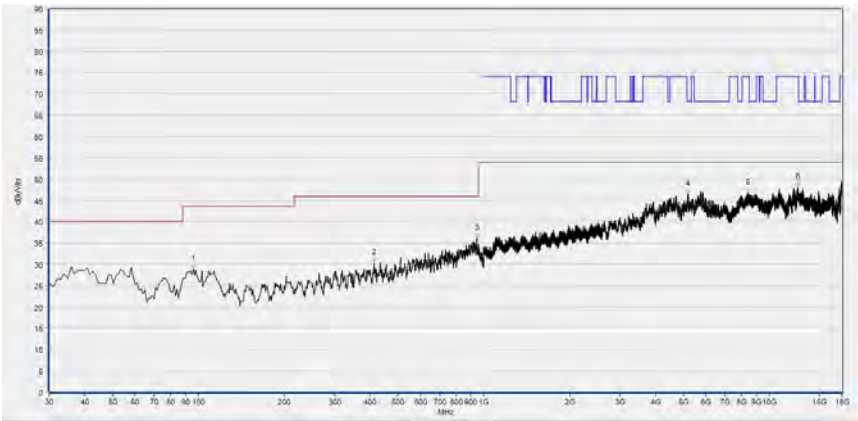
802.11n (HT40) mode

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
93.113	28.76	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
378.579	29.76	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
862.122	35.29	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5187.718	48.35	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8410.042	46.91	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12137.588	48.28	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

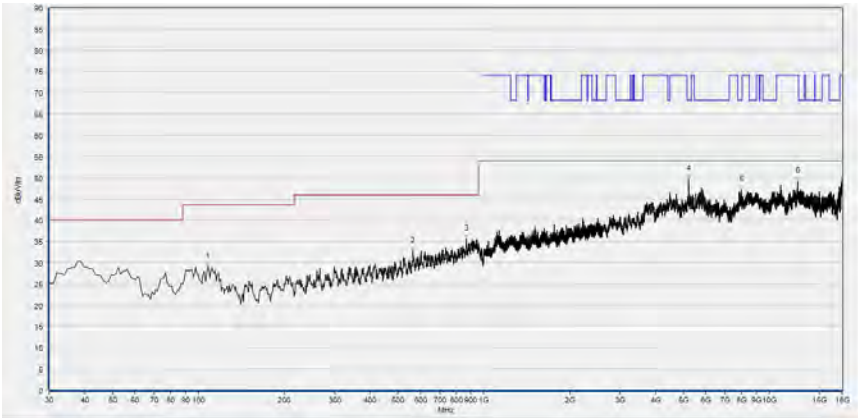
(Antenna Horizontal, 30MHz to 18GHz)



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
96.026	28.78	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
412.563	30.31	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
944.655	35.97	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5184.637	46.37	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8434.687	46.75	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12602.761	48.17	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

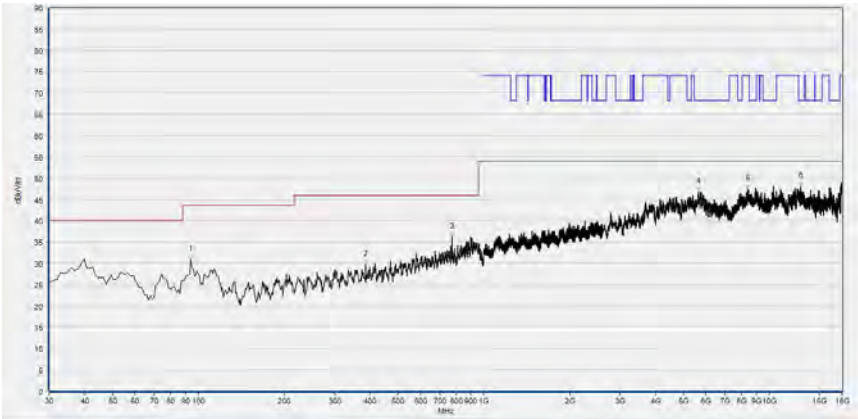
(Antenna Vertical, 30MHz to 18GHz)

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	28.94	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
565.005	32.62	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
867.948	35.50	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5227.443	49.63	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
7969.514	47.11	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12599.680	49.10	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

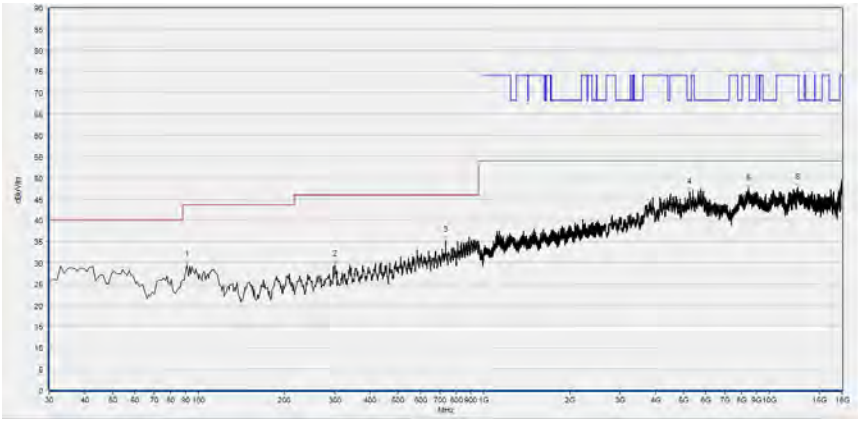
(Antenna Horizontal, 30MHz to 18GHz)



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
94.084	30.88	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
385.375	29.69	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
772.793	36.26	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5668.294	46.75	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8428.526	47.37	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12880.016	48.02	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

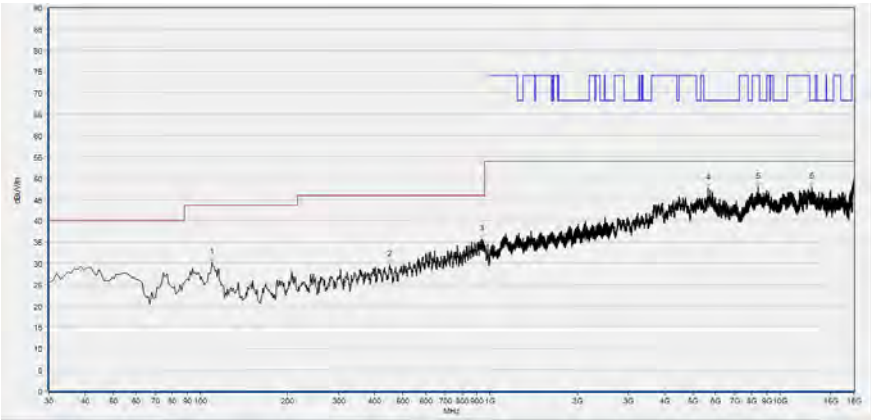
(Antenna Vertical, 30MHz to 18GHz)

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
91.171	29.48	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
300.901	29.52	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
735.896	35.19	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5258.572	46.51	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8437.768	47.47	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12593.519	47.53	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

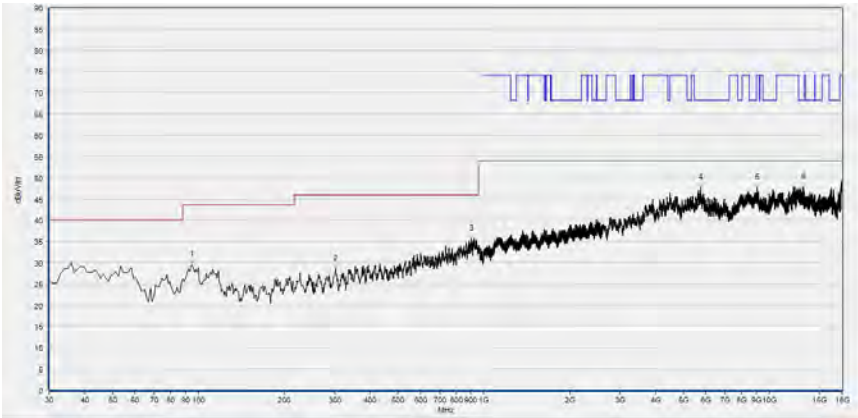
(Antenna Horizontal, 30MHz to 18GHz)



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
109.620	30.17	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
449.459	29.67	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
934.945	35.73	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5643.649	47.56	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8416.203	47.89	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12883.097	47.99	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

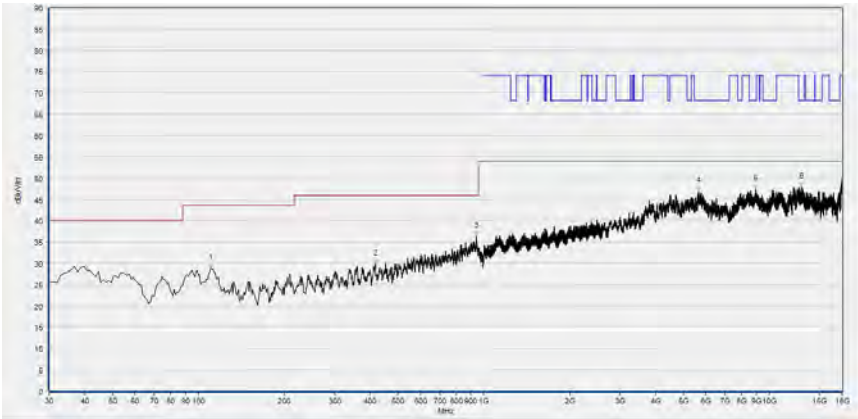
(Antenna Vertical, 30MHz to 18GHz)

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
95.055	29.43	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
302.843	28.55	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
906.787	35.54	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5748.390	47.62	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
9090.858	47.52	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
13218.884	47.71	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

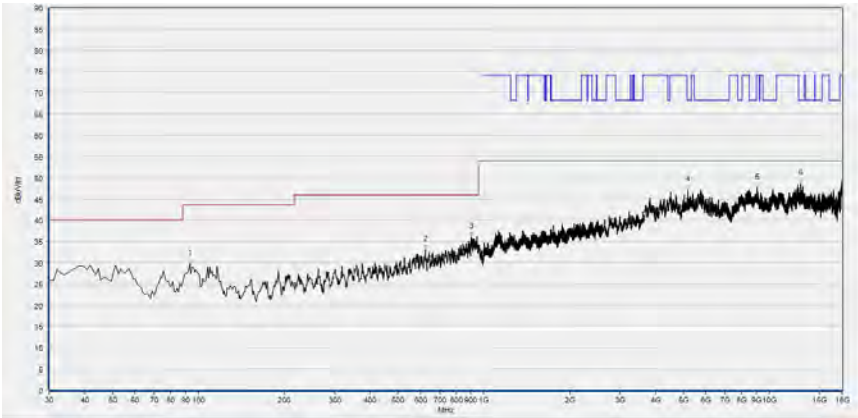
(Antenna Horizontal, 30MHz to 18GHz)



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
110.591	28.78	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
417.417	29.75	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
940.771	36.30	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5643.649	46.98	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8986.117	47.45	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12941.628	47.88	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

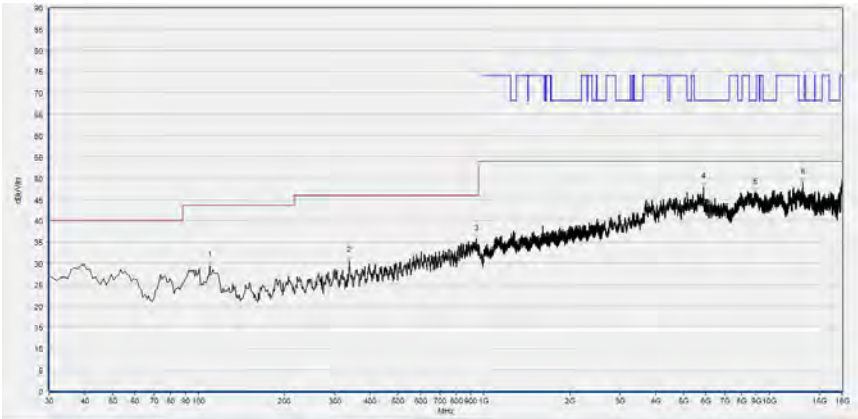
(Antenna Vertical, 30MHz to 18GHz)

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
93.113	29.61	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
624.234	32.97	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
903.874	36.00	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5190.798	47.12	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
9078.536	47.59	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12867.694	48.55	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

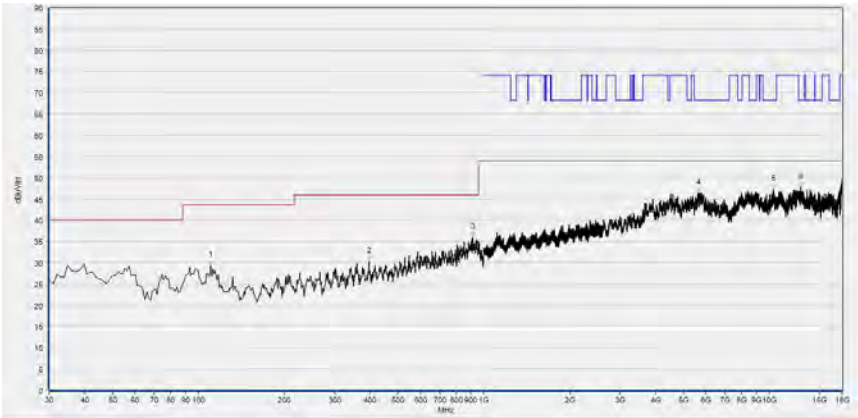
(Antenna Horizontal, 30MHz to 18GHz)



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
109.620	29.48	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
337.798	30.52	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
941.742	35.62	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5874.695	47.88	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8899.860	46.57	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
13083.337	48.96	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

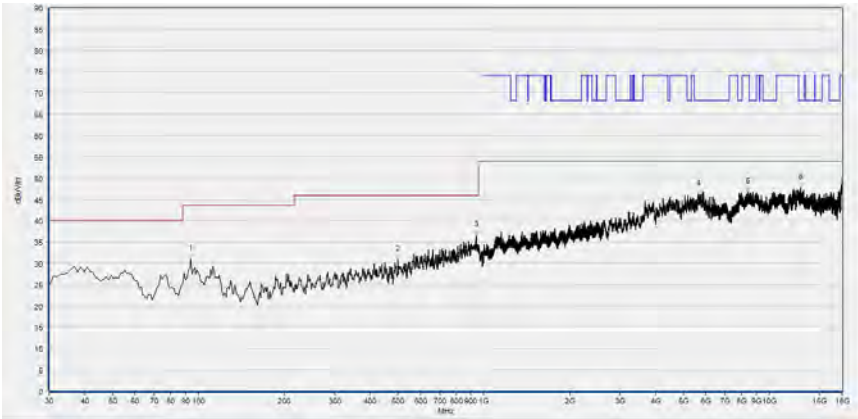
(Antenna Vertical, 30MHz to 18GHz)

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
110.591	29.28	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
396.056	30.29	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
913.584	35.95	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5643.649	46.44	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
10363.153	47.22	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12904.661	47.73	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

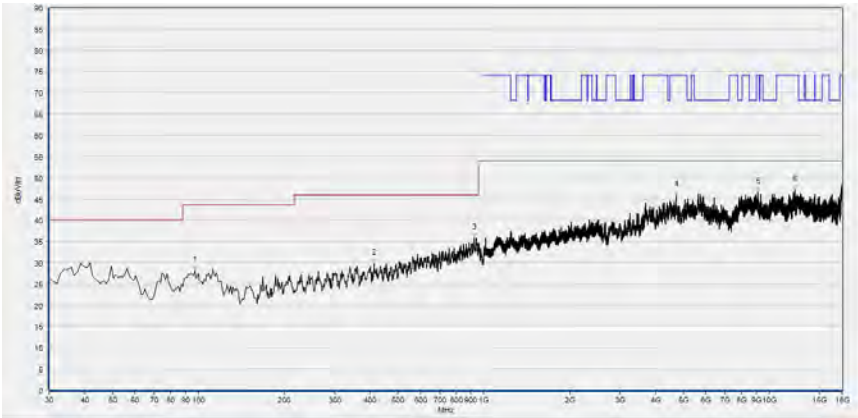
(Antenna Horizontal, 30MHz to 18GHz)



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
94.084	31.05	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
499.950	30.85	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
940.771	36.47	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5637.487	46.28	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8413.123	46.74	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12883.097	47.80	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

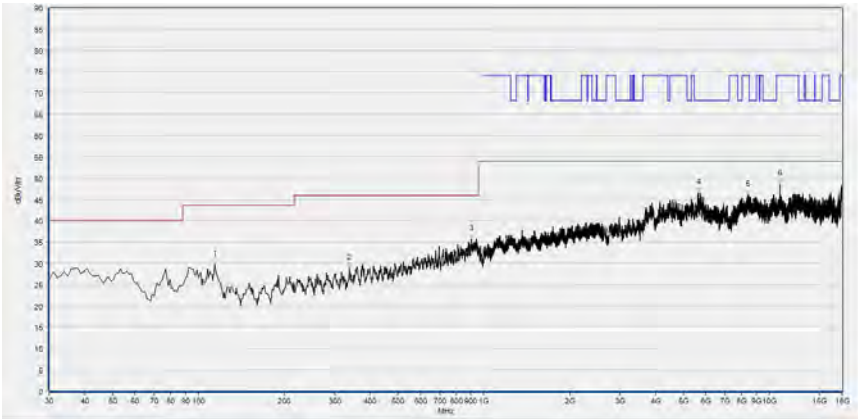
(Antenna Vertical, 30MHz to 18GHz)

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
96.997	28.08	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
412.563	29.88	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
927.177	35.94	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
4716.383	45.85	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
9106.261	46.52	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12294.699	47.17	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

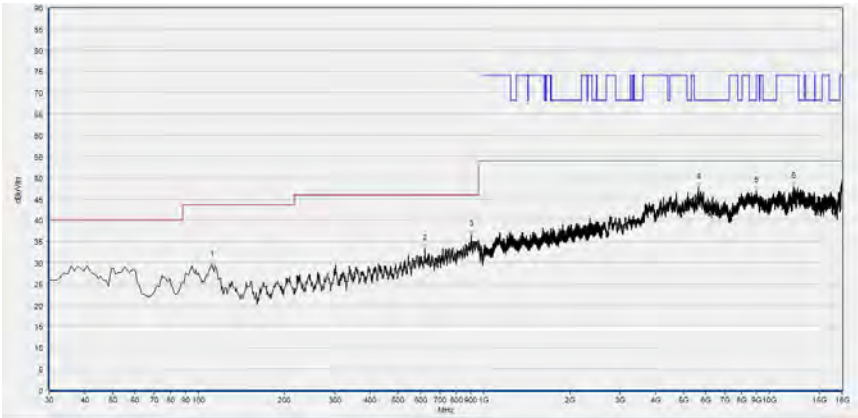
(Antenna Horizontal, 30MHz to 18GHz)



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
114.474	29.72	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
337.798	28.75	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
906.787	35.76	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5649.810	46.60	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8419.284	46.11	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
10908.422	48.55	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

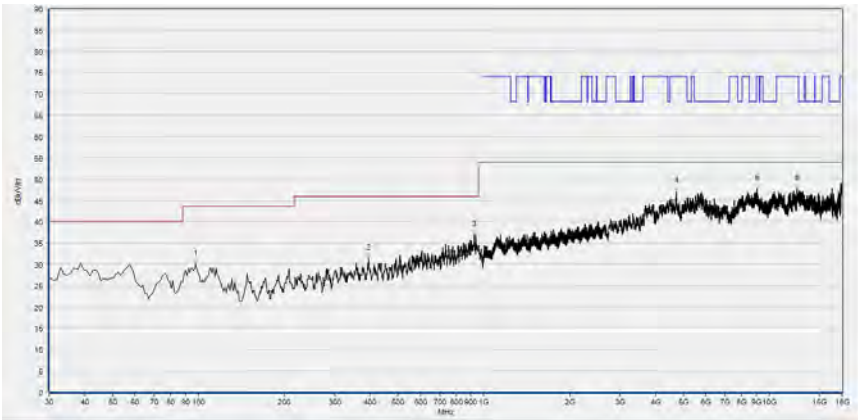
(Antenna Vertical, 30MHz to 18GHz)

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
111.562	29.53	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
622.292	33.34	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
901.932	36.51	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5640.568	47.78	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
9007.682	46.85	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12162.232	47.87	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

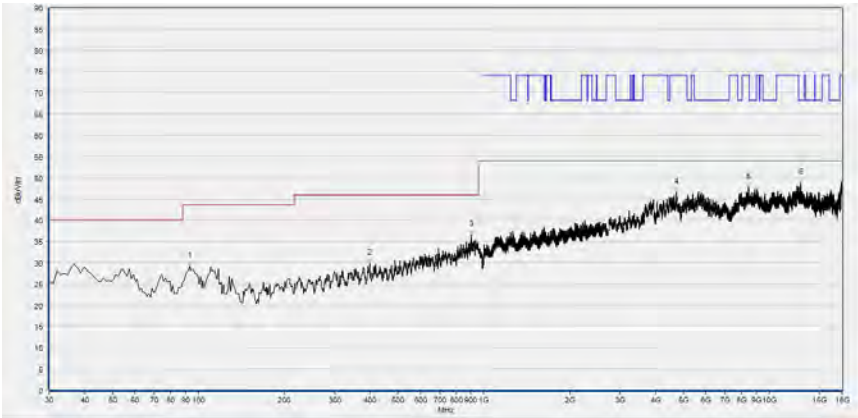
(Antenna Horizontal, 30MHz to 18GHz)



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
97.968	29.94	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
395.085	31.36	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
924.264	36.95	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
4728.706	47.04	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
9084.697	47.75	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12544.229	47.69	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

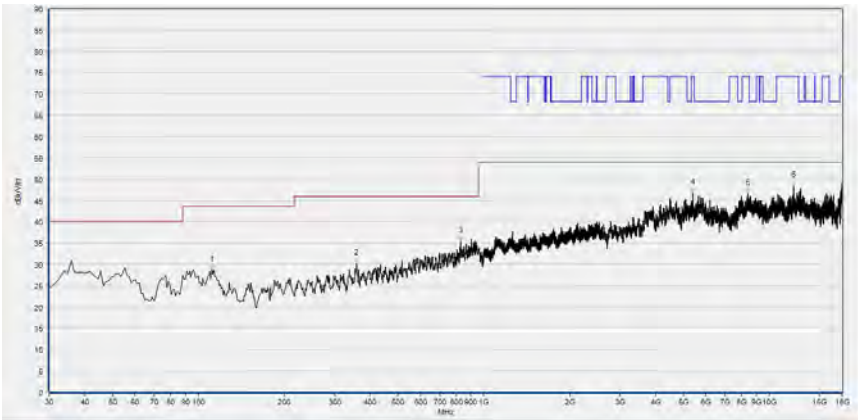
(Antenna Vertical, 30MHz to 18GHz)

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
93.113	29.21	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
397.998	29.86	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
903.874	36.51	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
4728.706	46.61	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8453.171	47.77	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12916.983	48.71	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

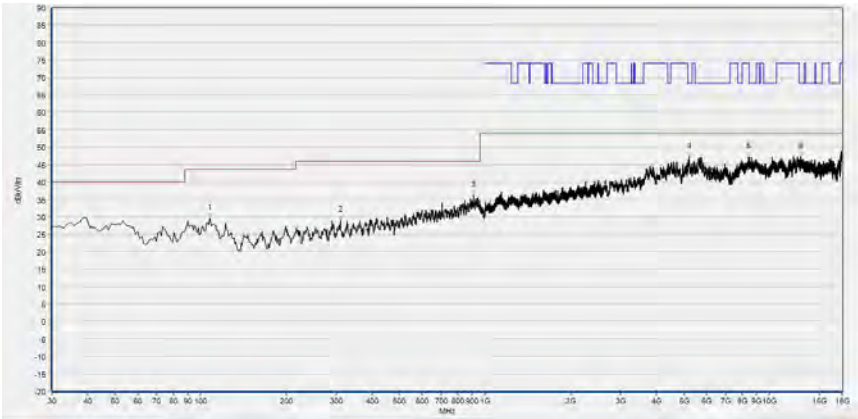


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
111.562	28.59	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
358.188	30.22	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
830.080	35.29	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5397.199	46.71	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8431.606	46.54	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12152.991	48.52	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

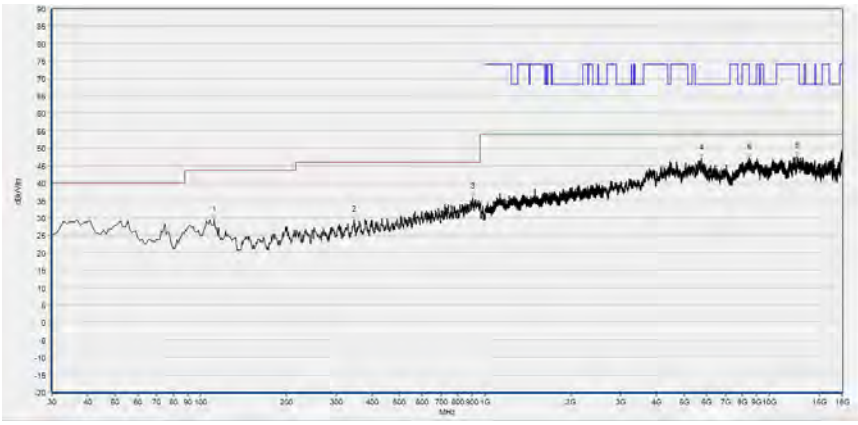
802.11ac (VHT80) Mode

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
107.678	29.48	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
309.640	29.00	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
908.729	36.23	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5212.362	47.19	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8437.768	47.14	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12898.500	47.17	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

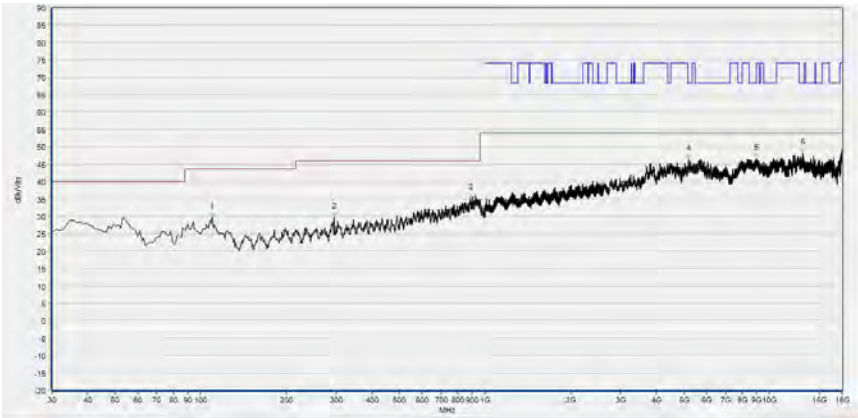
(Antenna Horizontal, 30MHz to 18GHz)



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
111.562	29.39	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
345.566	29.47	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
905.816	35.98	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5754.551	46.97	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8462.412	47.26	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12516.503	47.60	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

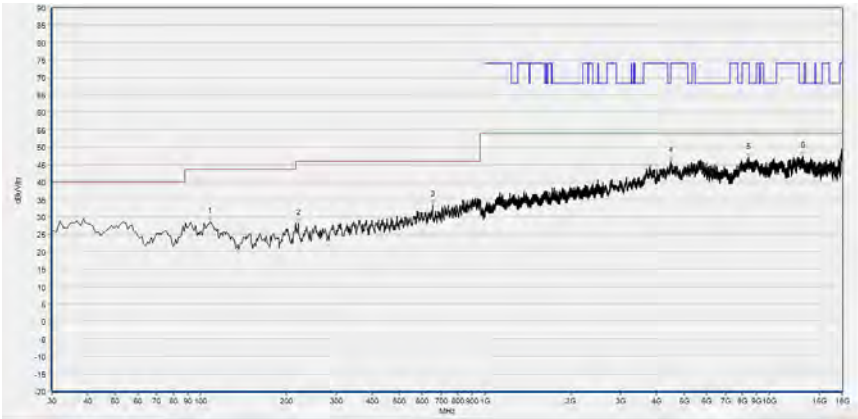
(Antenna Vertical, 30MHz to 18GHz)

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
109.620	29.72	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
295.075	29.75	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
888.338	35.32	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5193.879	46.36	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8979.956	46.53	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
13074.095	48.23	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

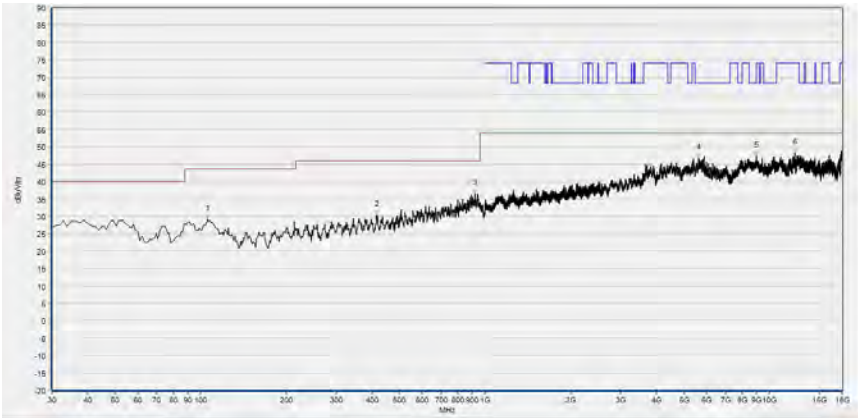
(Antenna Horizontal, 30MHz to 18GHz)



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
107.678	28.49	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
220.310	28.13	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
653.363	33.47	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
4488.418	45.91	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8434.687	46.94	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
13071.014	47.31	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

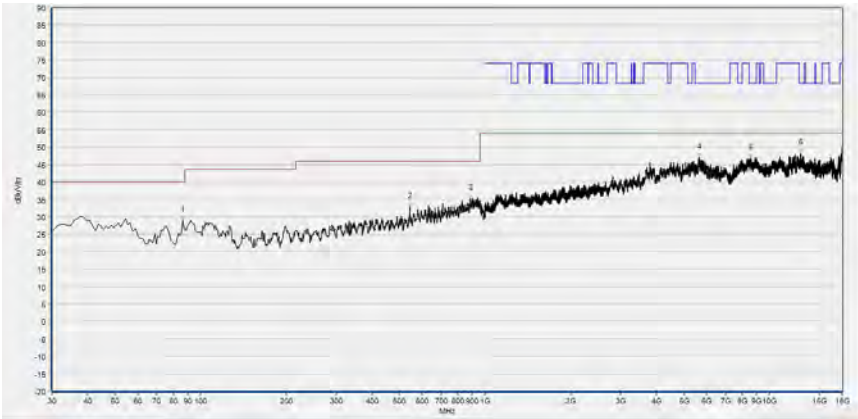
(Antenna Vertical, 30MHz to 18GHz)

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
105.736	29.13	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
416.446	30.49	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
923.293	36.48	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5634.407	46.73	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8986.117	47.43	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12285.457	48.23	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

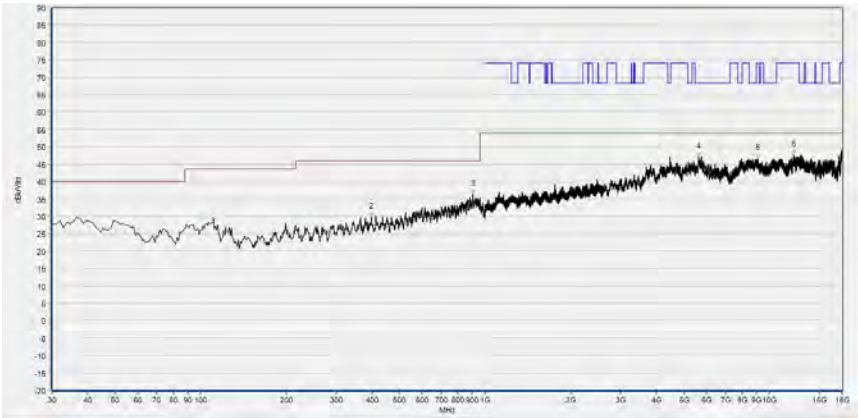
(Antenna Horizontal, 30MHz to 18GHz)



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
86.316	28.99	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
542.673	32.78	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
887.367	35.39	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5665.213	46.89	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8579.476	46.78	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12895.419	48.12	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

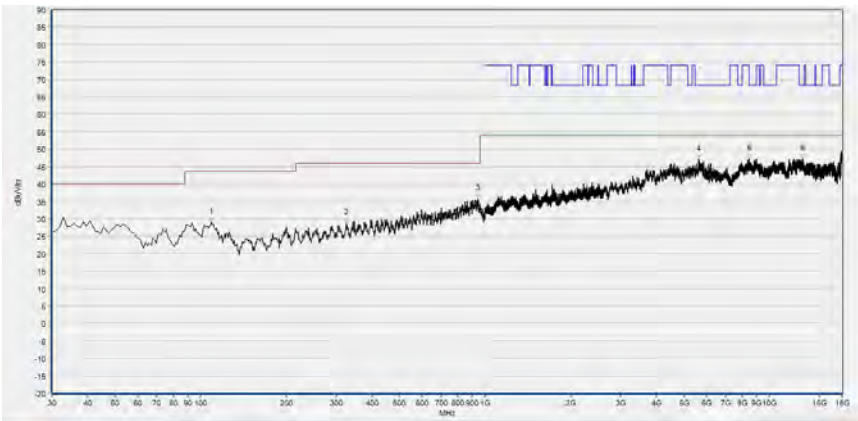
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 122



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
110.591	28.32	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
397.998	29.86	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
902.903	36.23	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5643.649	47.07	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
9106.261	46.67	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12180.716	47.60	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

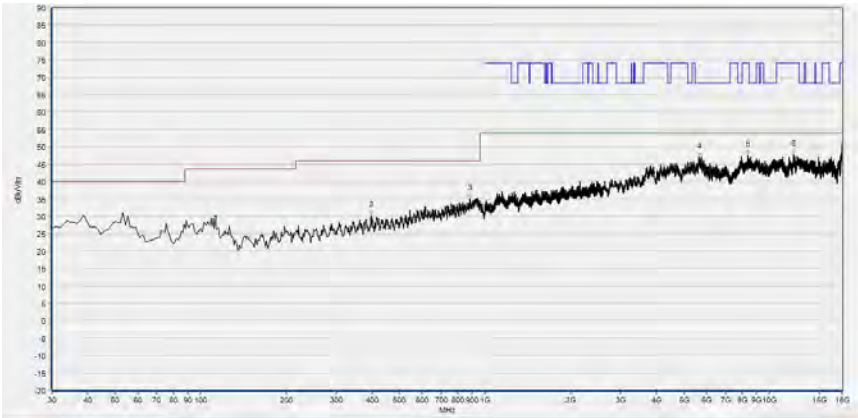
(Antenna Horizontal, 30MHz to 18GHz)



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
108.649	28.93	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
324.204	28.81	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
939.800	35.66	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5643.649	47.07	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8468.574	47.16	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
13107.982	47.13	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

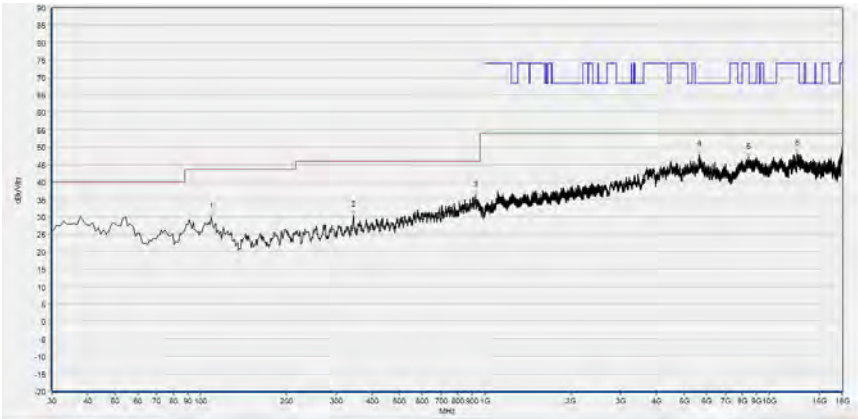
(Antenna Vertical, 30MHz to 18GHz)

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
112.533	29.24	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
398.969	30.20	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
886.396	35.10	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5649.810	46.96	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8388.478	47.51	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12168.394	47.87	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
108.649	30.06	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
344.595	30.33	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
924.264	36.18	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5646.729	47.72	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8437.768	46.94	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12501.100	48.03	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
USB Wideband Power Sensor	MY54180008	U2021XA	Agilent	2021.03.25	2022.03.24
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
LISN	812744	NSLK 8127	Schwarzbeck	2021.03.09	2022.03.08
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
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