

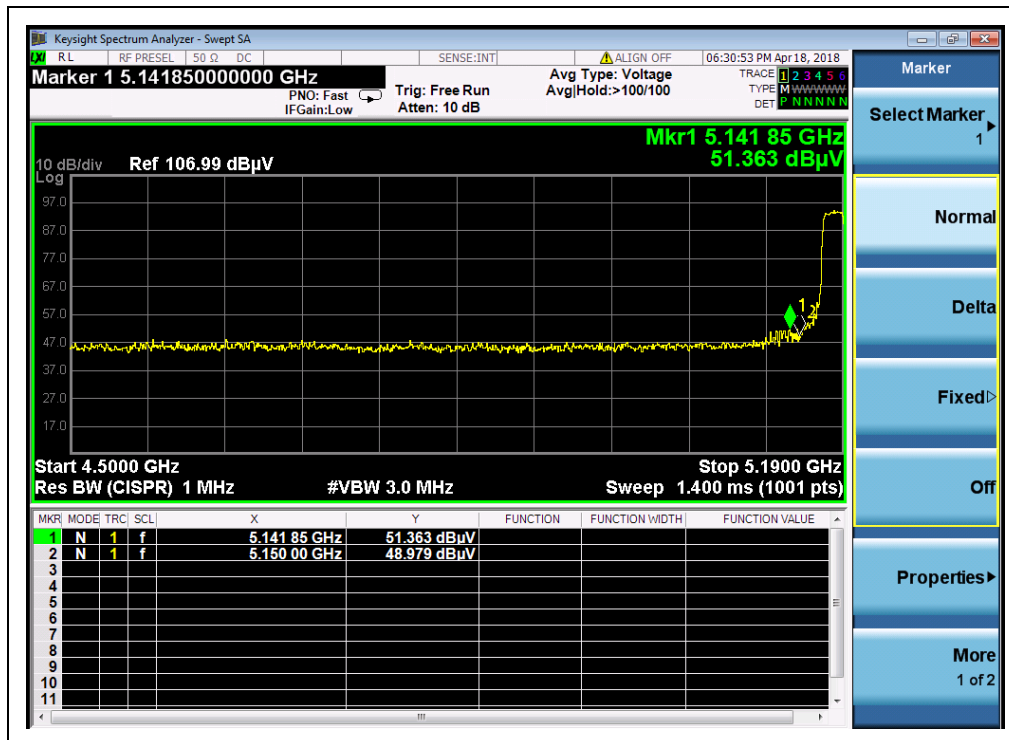


802.11 ac (VHT40) Test mode

A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
38	5141.85	PK	51.36	-50.65	32.11	32.82	74	PASS
38	5141.85	AV	36.99	-50.65	32.11	18.45	54	PASS
46	5360.58	PK	43.52	-50.65	32.11	24.98	74	PASS
46	5360.58	AV	34.40	-50.65	32.11	15.86	54	PASS
151	5723.14	PK	56.82	-50.65	32.11	38.28	117.99	PASS
151	5720.00	AV	44.98	-50.65	32.11	26.44	54	PASS
159	5858.35	PK	57.64	-50.65	32.11	39.10	101.45	PASS
159	5853.84	AV	37.51	-50.65	32.11	18.97	54	PASS

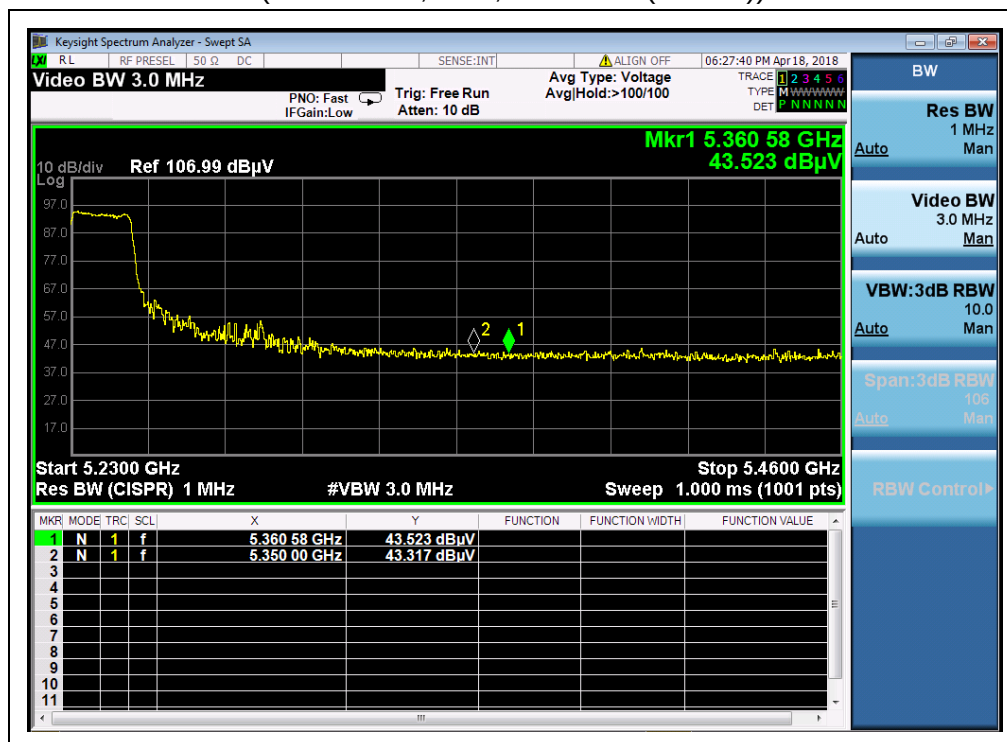
B. Test Plots:



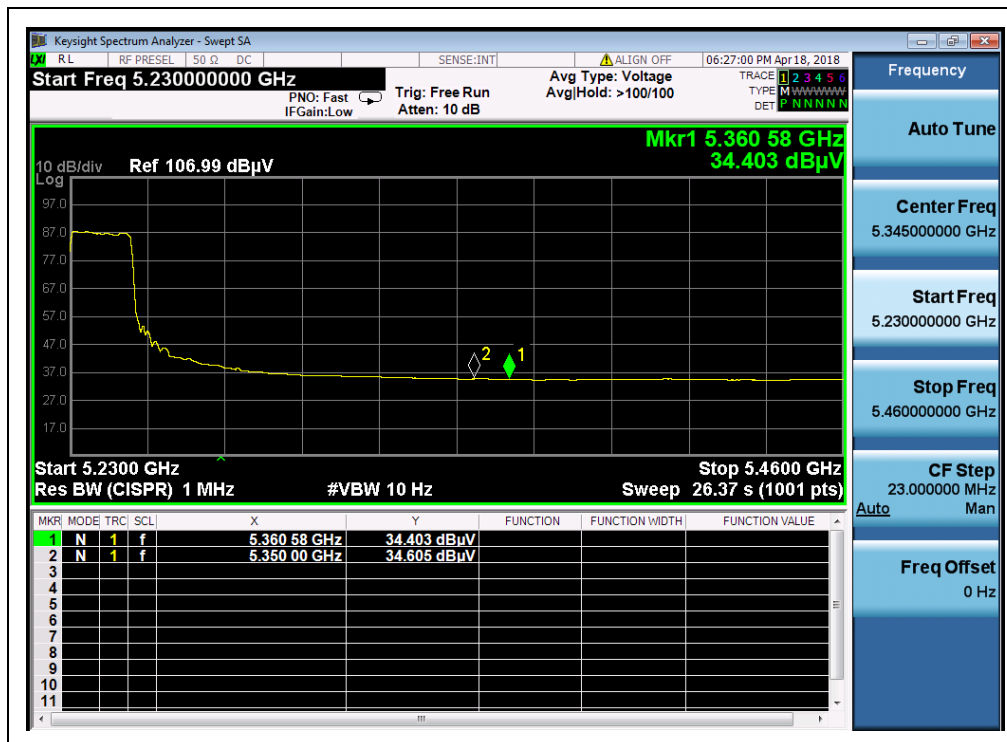
(Channel 38, PEAK, 802.11 ac (VHT40))



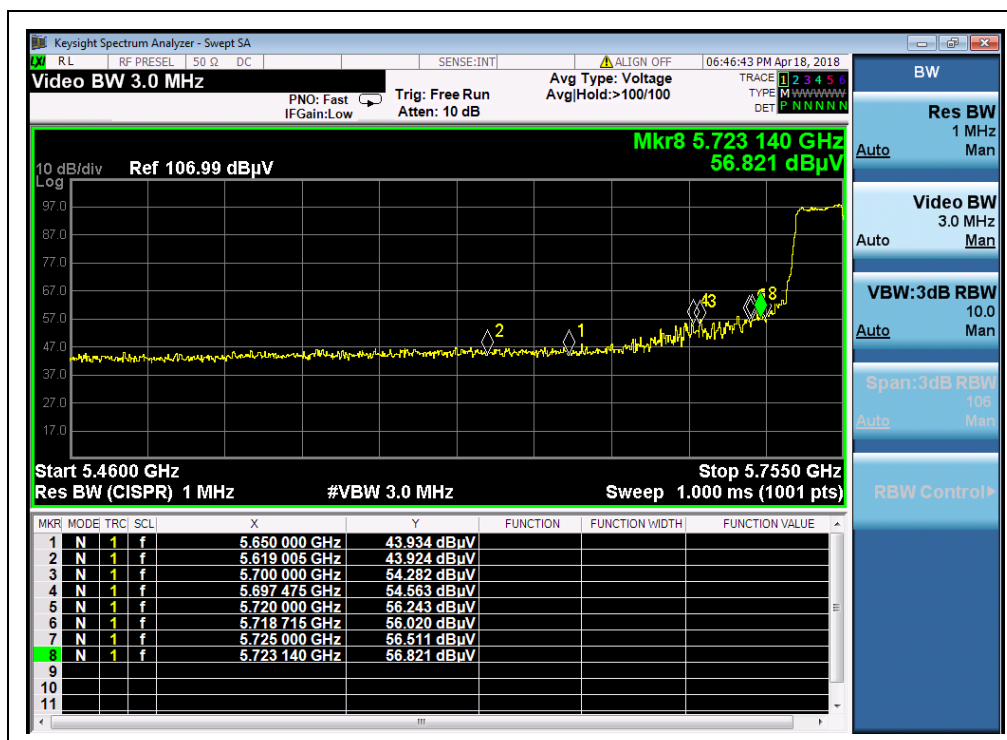
(Channel 38, AVG, 802.11 ac (VHT40))



(Channel 46, PEAK, 802.11 ac (VHT40))



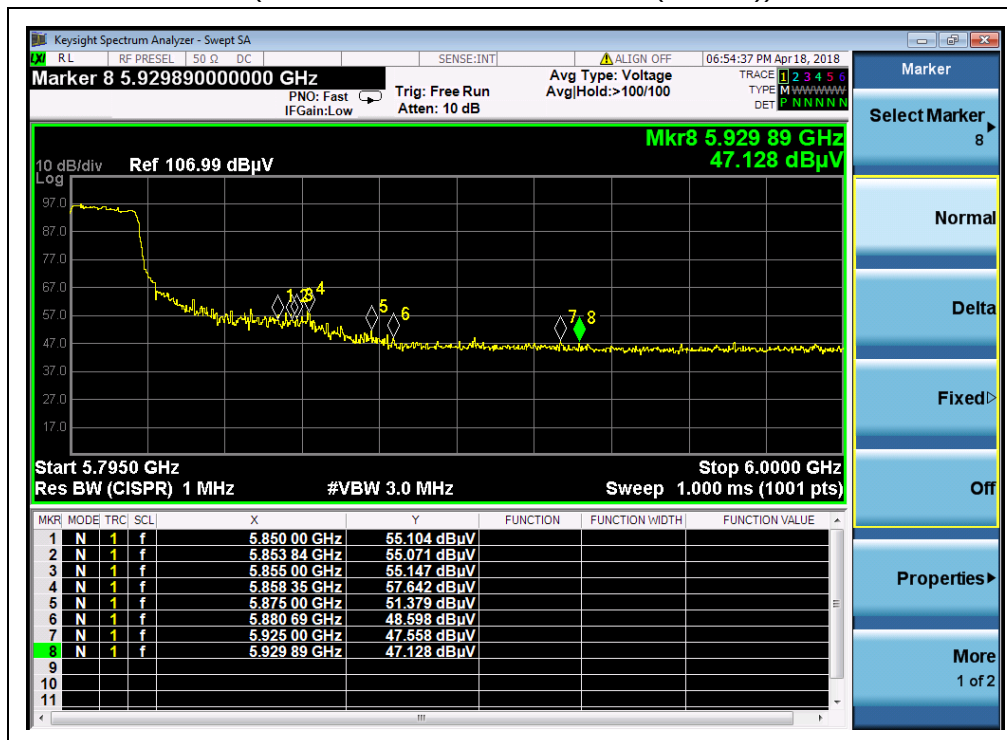
(Channel 46, AVG, 802.11 ac (VHT40))



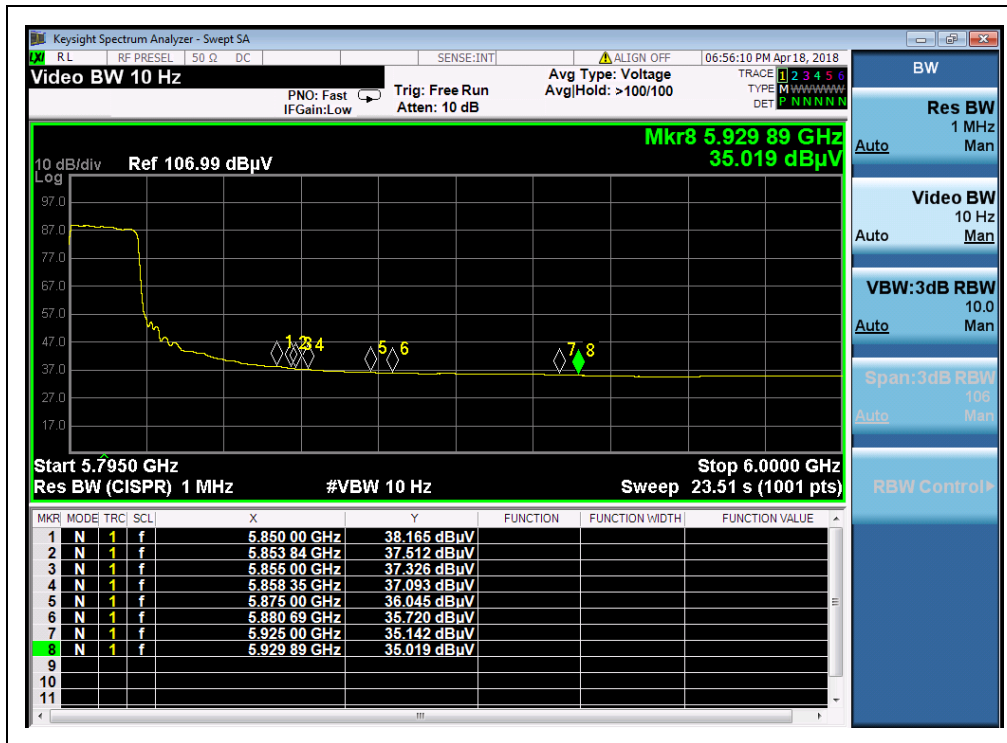
(Channel 151, PEAK, 802.11 ac (VHT40))



(Channel 151, AVG, 802.11 ac (VHT40))



(Channel 159, PEAK, 802.11 ac (VHT40))



(Channel 159, AVG, 802.11 ac (VHT40))

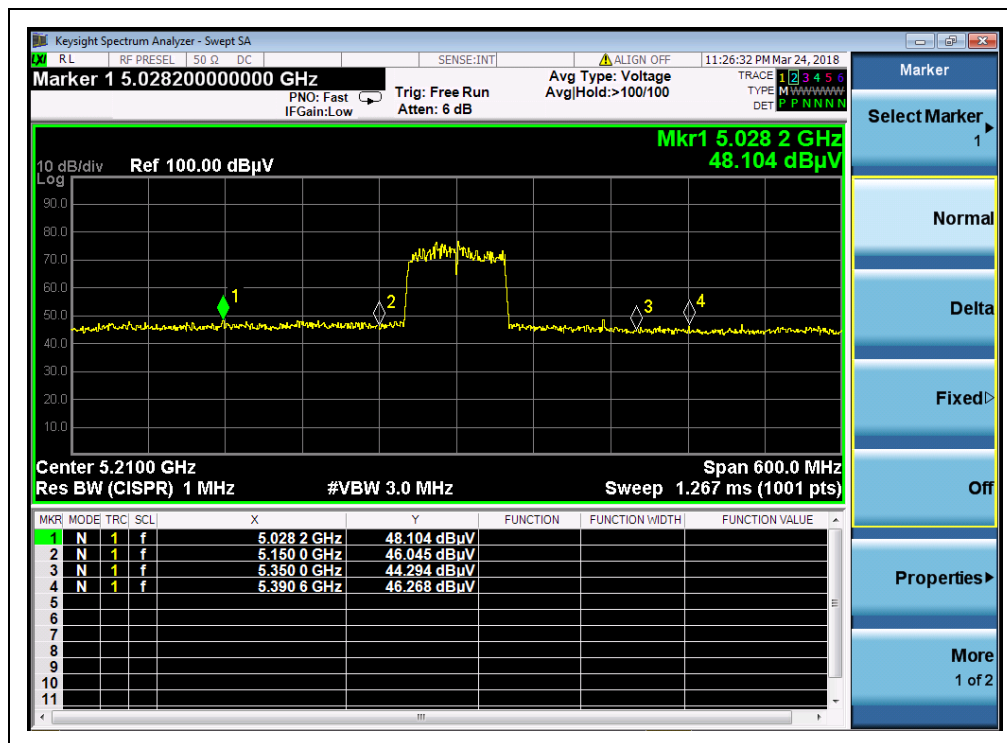


802.11ac (VHT80) Test mode

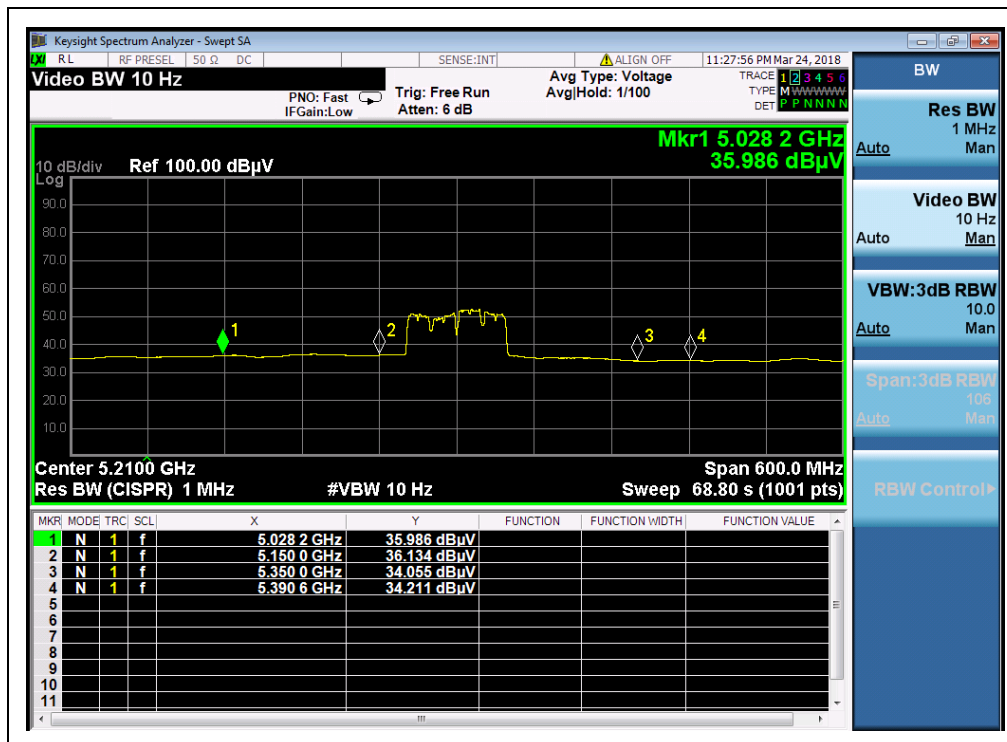
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
42	5028.20	PK	48.10	-50.65	32.11	29.56	74	PASS
42	5028.20	AV	35.99	-50.65	32.11	17.45	54	PASS
42	5390.60	PK	46.27	-50.65	32.11	27.73	74	PASS
42	5390.60	AV	34.21	-50.65	32.11	15.67	54	PASS
155	5622.00	PK	46.03	-50.65	32.11	27.49	47.51	PASS
155	5622.00	AV	35.28	-50.65	32.11	16.74	54	PASS
155	5923.80	PK	46.15	-50.65	32.11	27.61	69.12	PASS
155	5923.80	AV	34.73	-50.65	32.11	16.19	54	PASS

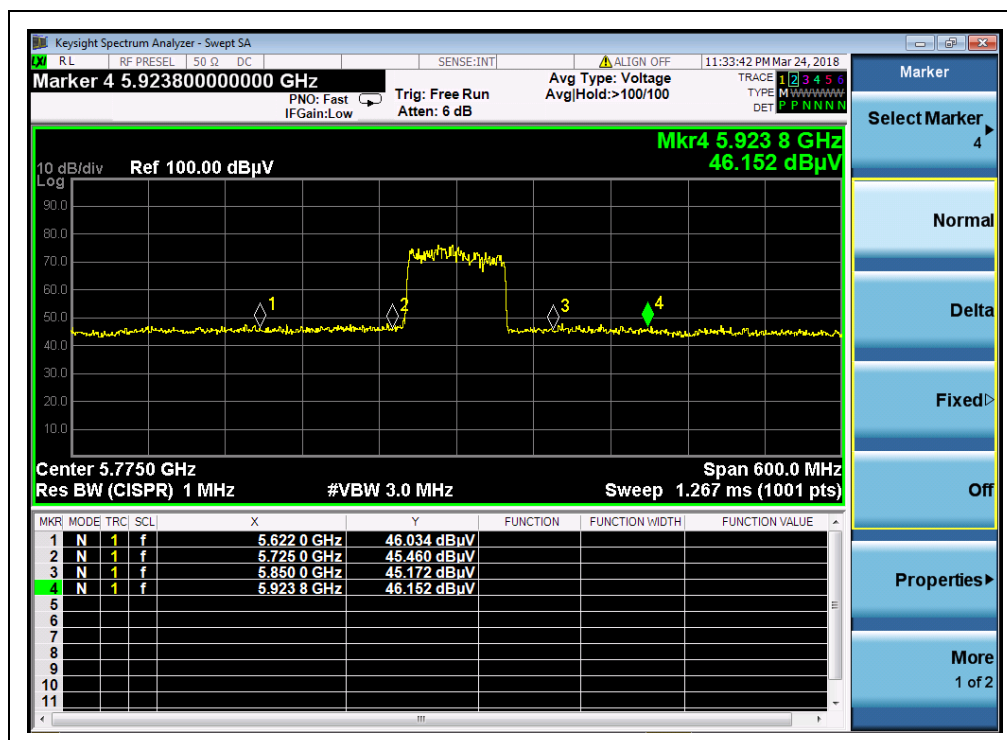
B. Test Plots:



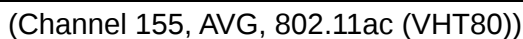
(Channel 42, PEAK, 802.11ac (VHT80))



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



(Channel 155, PEAK, 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. 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

Frequency Stability Measurements for UNII Band 1 (Ch. 36)

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq Dev. (Hz)	Deviation (%)
100%	12	+20(Ref)	5,179,999,988	12	0.0000002
100%		-30	5,180,000,014	14	0.0000003
100%		-20	5,180,000,041	41	0.0000008
100%		-10	5,179,999,998	2	0.0000000
100%		0	5,180,000,020	20	0.0000004
100%		+10	5,180,000,017	17	0.0000003
100%		+20	5,179,999,986	14	0.0000003
100%		+30	5,179,999,989	11	0.0000002
100%		+40	5,180,000,014	14	0.0000003
100%		+50	5,180,000,014	14	0.0000003
85%	11.4	+20	5,179,999,979	21	0.0000004
115%	12.6	+20	5,179,999,980	20	0.0000004



Frequency Stability Measurements for UNII Band 3 (Ch. 149)

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq Dev. (Hz)	Deviation (%)
100%	12	+20(Ref)	5,745,000,017	17	0.0000003
100%		-30	5,744,999,989	11	0.0000002
100%		-20	5,745,000,025	25	0.0000004
100%		-10	5,744,999,989	11	0.0000002
100%		0	5,745,000,014	14	0.0000002
100%		+10	5,744,999,983	17	0.0000003
100%		+20	5,745,000,012	12	0.0000002
100%		+30	5,745,000,024	24	0.0000004
100%		+40	5,744,999,987	13	0.0000002
100%		+50	5,745,000,024	24	0.0000004
85%	11.4	+20	5,745,000,021	21	0.0000004
115%	12.6	+20	5,745,000,028	28	0.0000005

Note: Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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 50 μ H/50 Ω line impedance stabilization network (LISN).

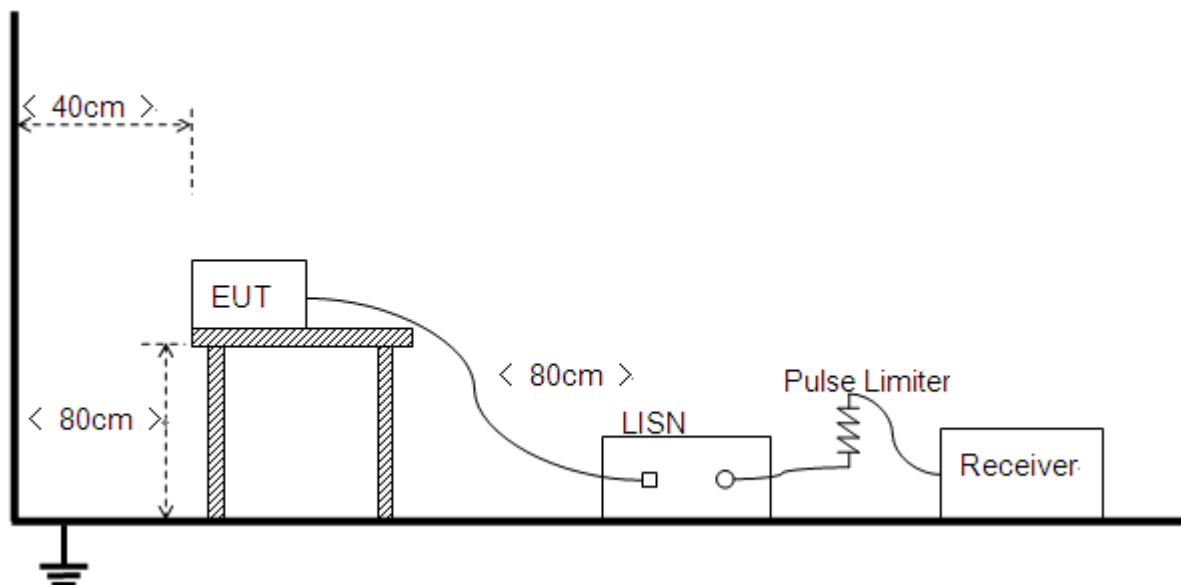
Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

NOTE:

- The lower limit shall apply at the band edges.
- The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

2.7.2. Test Description

A. 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. Refer to recorded points and plots below.

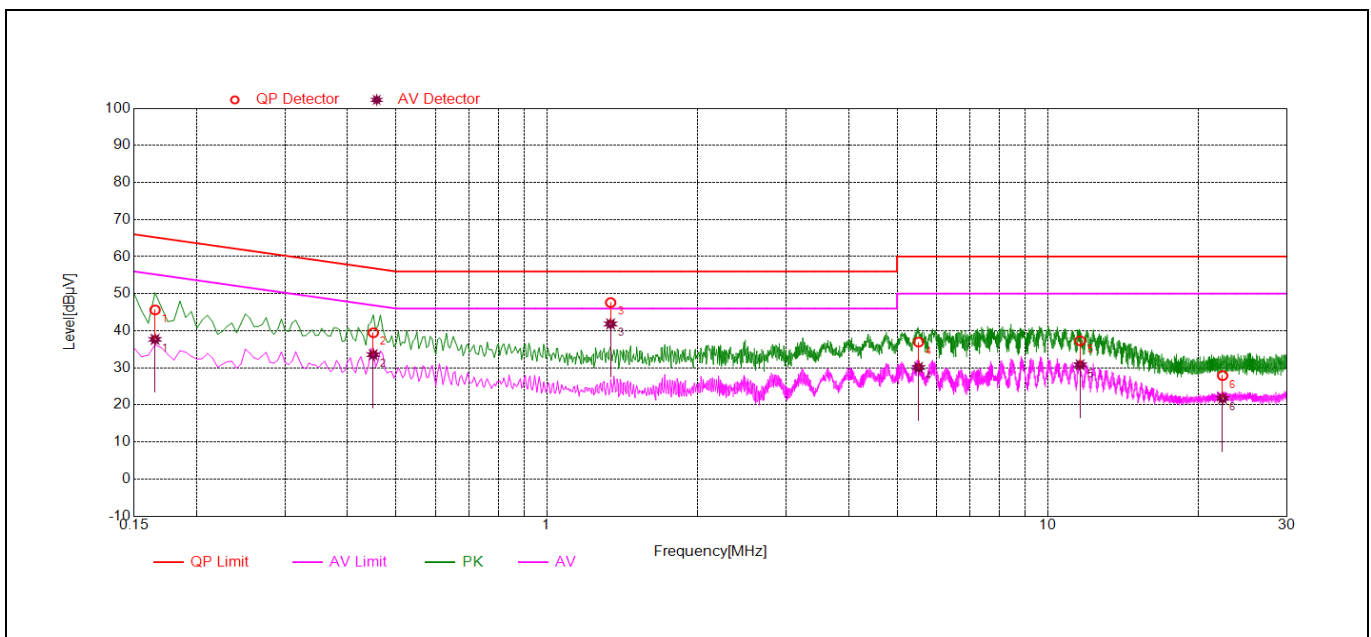
Note: All test modes are performed, only the worst case is recorded in this report.

A. Test setup:

The EUT configuration of the emission tests is EUT + Link.

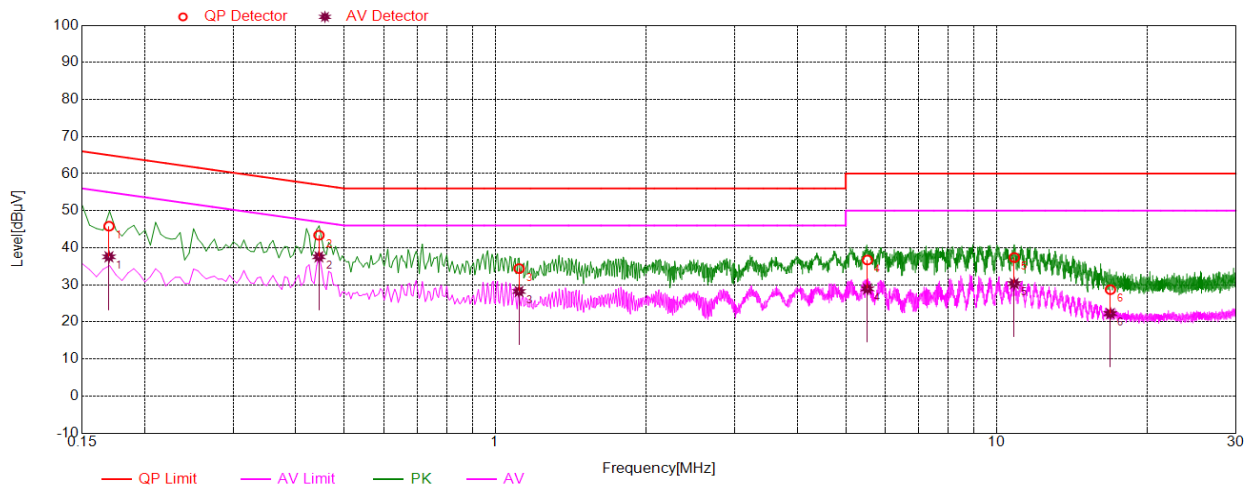
Note: The test voltage is AC 120V/60Hz.

B. Test Plots:



(Plot A: L Phase)

NO.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.17	45.63	37.68	65.21	55.21	Line	PASS
2	0.45	39.48	33.55	56.88	46.88		PASS
3	1.34	47.61	41.85	56.00	46.00		PASS
4	5.52	36.94	30.10	60.00	50.00		PASS
5	11.60	37.32	30.81	60.00	50.00		PASS
6	22.33	27.90	21.75	60.00	50.00		PASS



(Plot B: N Phase)

NO.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.17	45.82	37.56	64.98	54.98	Neutral	PASS
2	0.44	43.39	37.56	56.97	46.97		PASS
3	1.11	34.39	28.21	56.00	46.00		PASS
4	5.52	36.70	28.92	60.00	50.00		PASS
5	10.84	37.37	30.34	60.00	50.00		PASS
6	16.87	28.71	22.26	60.00	50.00		PASS

2.8. Radiated Emission

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: 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(eirp) to field strength (dBμV/m);

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

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 (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

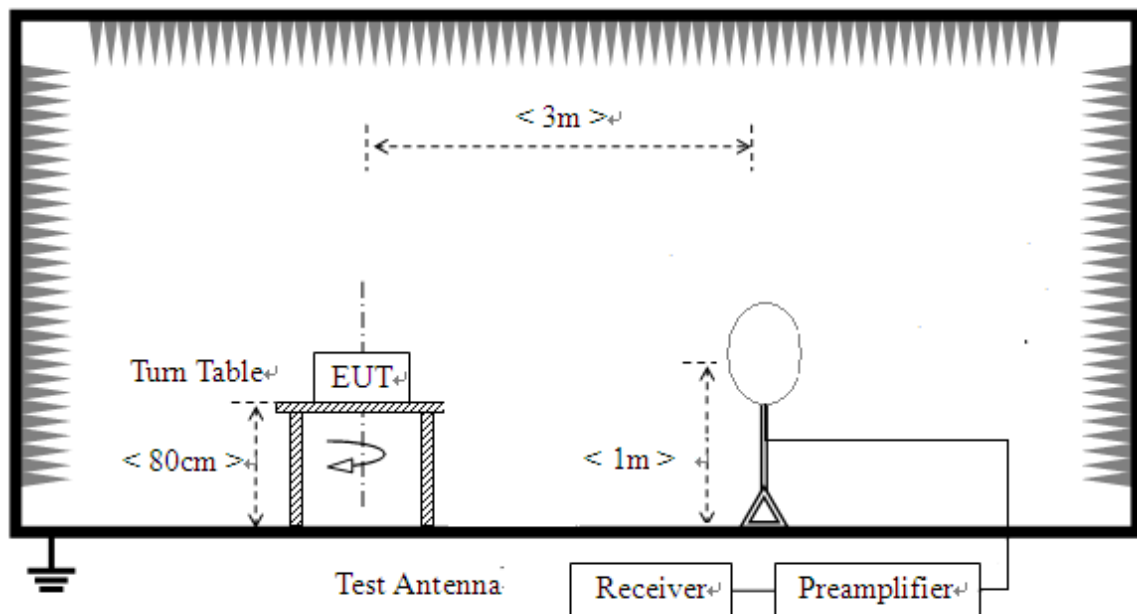
For Above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.

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)

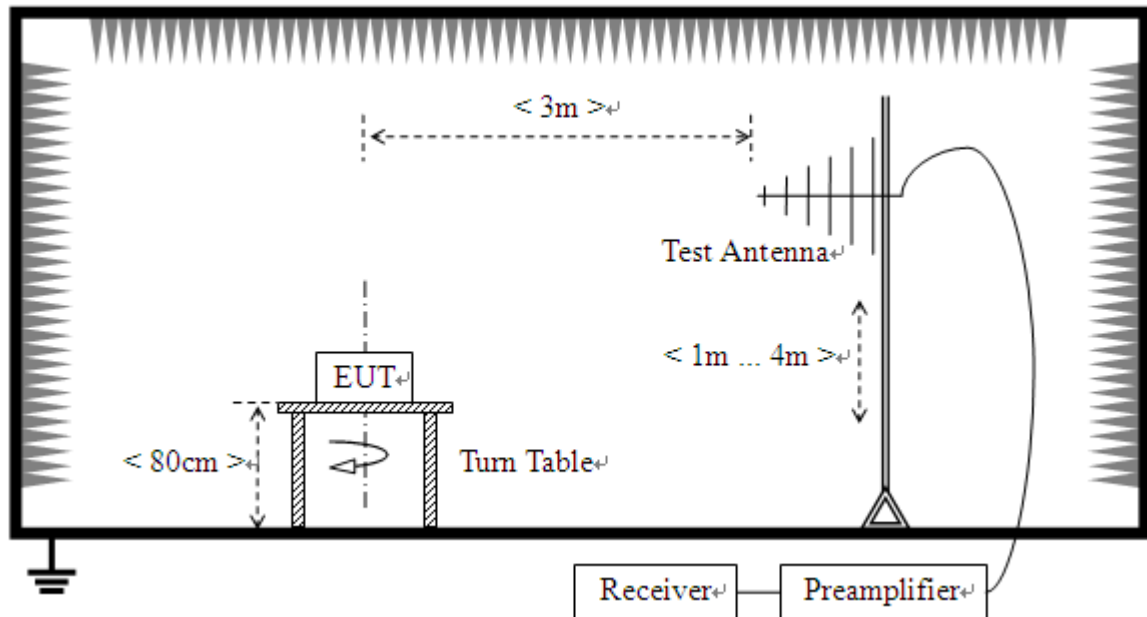
2.8.2. Test Description

A. Test Setup:

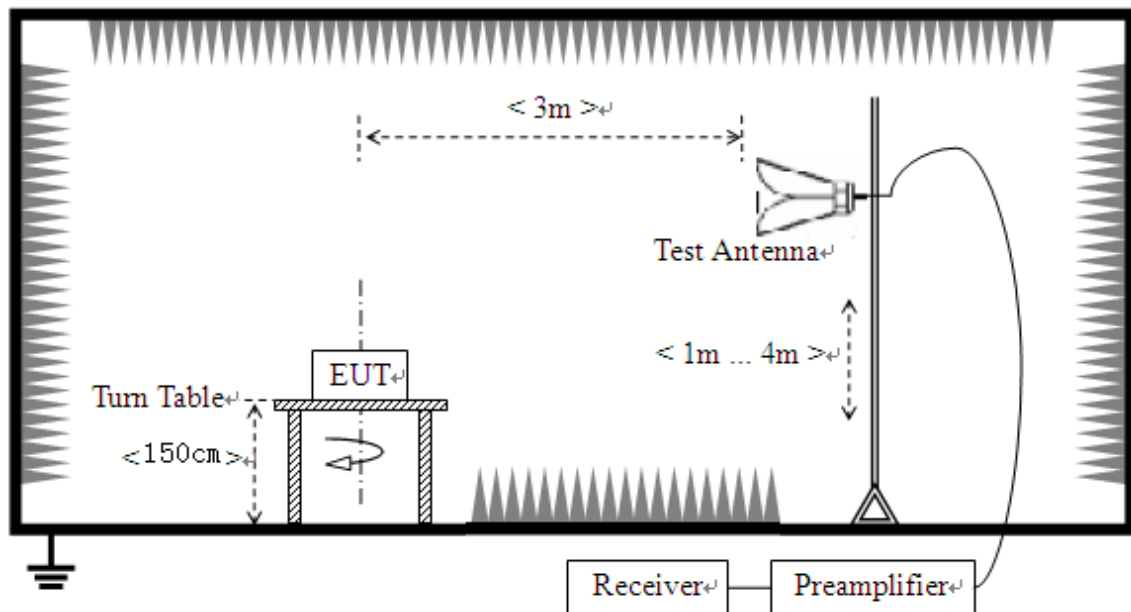
- 1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz to 1GHz



3) For radiated emissions above 1GHz



The RF absorbing material used on the reference ground plane and on the turntable have a maximum height (thickness) of 30 cm (12 in) and have a minimum-rated attenuation of 20 dB at all frequencies from 1 GHz to 18 GHz.

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.10 (2013). For radiated emissions below or equal to 1GHz, The EUT was set-up on insulator 80cm above the Ground Plane, For radiated emissions above 1GHz, The EUT



was set-up on insulator 150cm above the Ground Plane. The set-up and test methods were according to ANSI C63.10

For the radiated emission test above 1GHz:

Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

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

For the Test Antenna:

(a) In the frequency range of 9kHz to 30MHz, magnetic field is measured with Loop Test Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.

(b) In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Place the test antenna at 3m away from area of the EUT, while keeping the test antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The test antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final test antenna elevation shall be that which maximizes the emissions. The test antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. The emission levels at both horizontal and vertical polarizations should be tested.



2.8.3. Test Result

According to ANSI C63.4 selection 4.2.2, 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 limit, it is unnecessary to perform an quasi-peak measurement.

The measurement results are obtained as below:

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

A_T : Total correction Factor except Antenna

U_R : Receiver Reading

G_{preamp} : Preamplifier Gain

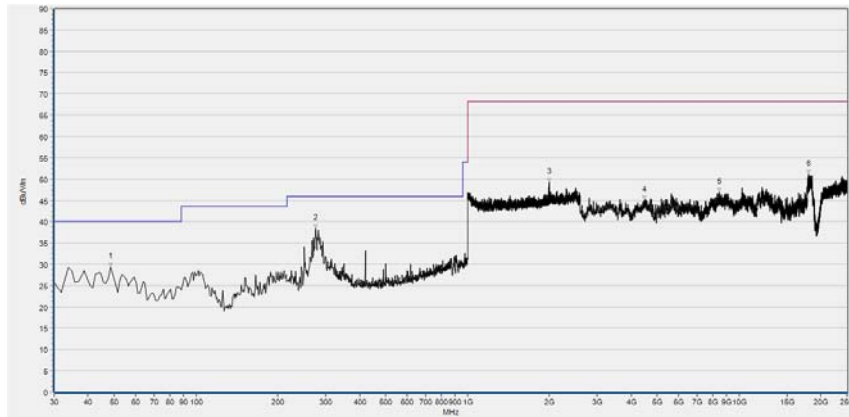
A_{Factor} : Antenna Factor at 3m

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

Note1: 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.

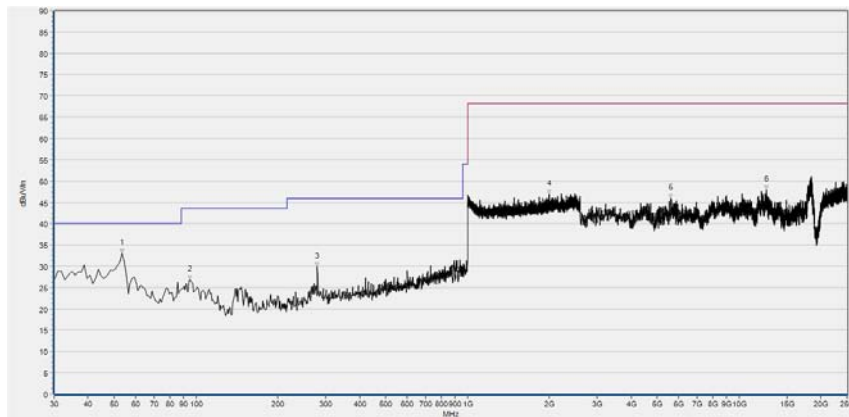
Note2: For the frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not recorded.

Note3: 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.

**802.11a Test mode****Plots 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
48.448	29.33	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
275.656	38.31	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1995.532	49.30	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
4477.495	45.02	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
8443.089	46.98	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
17996.359	51.10	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

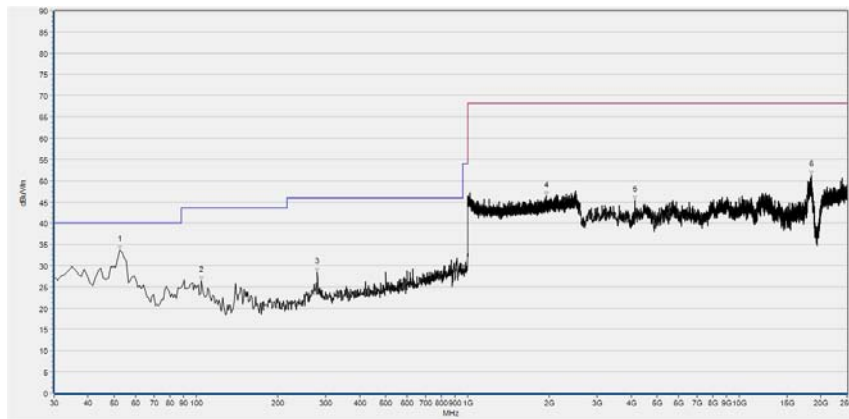
(Antenna Horizontal, 30MHz to 18GHz)



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
53.303	33.08	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
95.055	26.79	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
279.540	29.78	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1993.398	46.91	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5611.162	45.94	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
12632.727	47.91	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

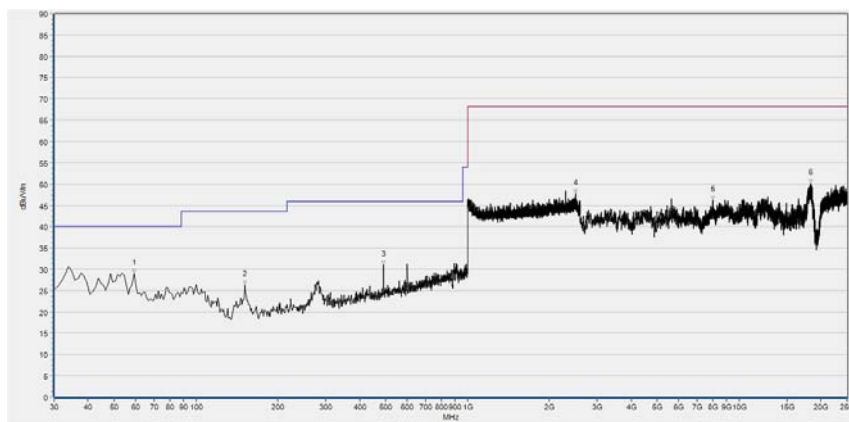
(Antenna Vertical, 30MHz to 18GHz)

Plots 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
52.332	33.61	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
104.765	26.41	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
279.540	28.43	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1953.918	46.38	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
4127.986	45.48	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
18426.525	51.29	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

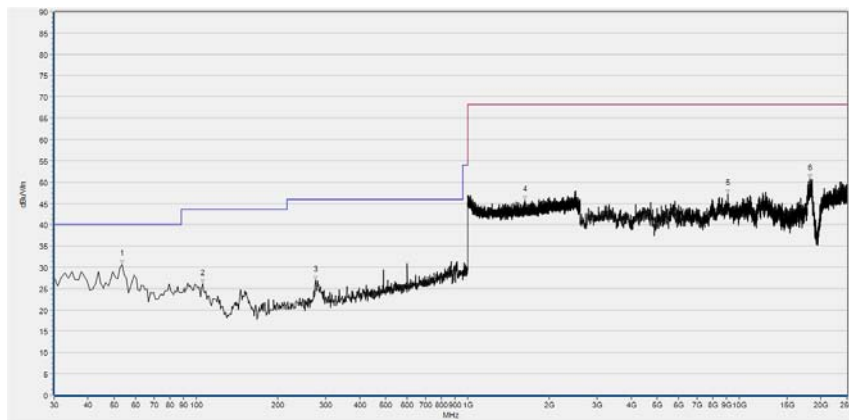


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
59.129	29.05	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
151.371	26.31	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
490.240	31.02	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2499.166	47.81	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8003.961	46.27	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
18381.716	50.17	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

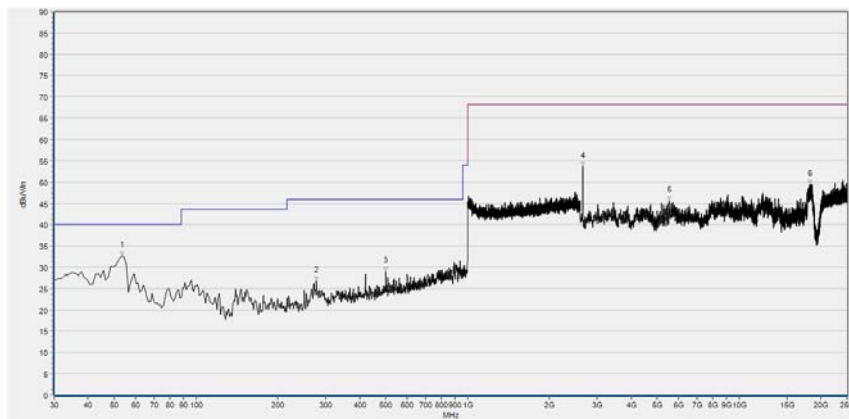


Plot for Channel = 48



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
53.303	30.65	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
105.736	26.15	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
275.656	27.02	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1624.208	45.75	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
9074.895	47.23	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
18269.694	50.77	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

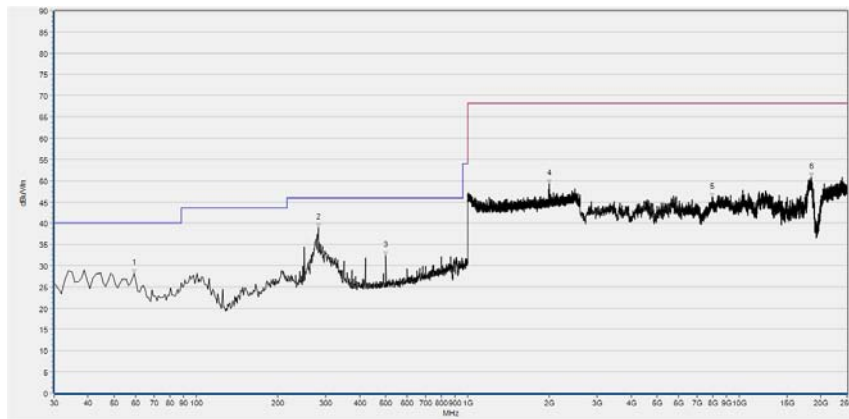


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
53.303	32.76	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
277.598	26.81	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
499.950	28.96	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2653.771	53.69	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5530.506	45.57	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
18229.366	49.37	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

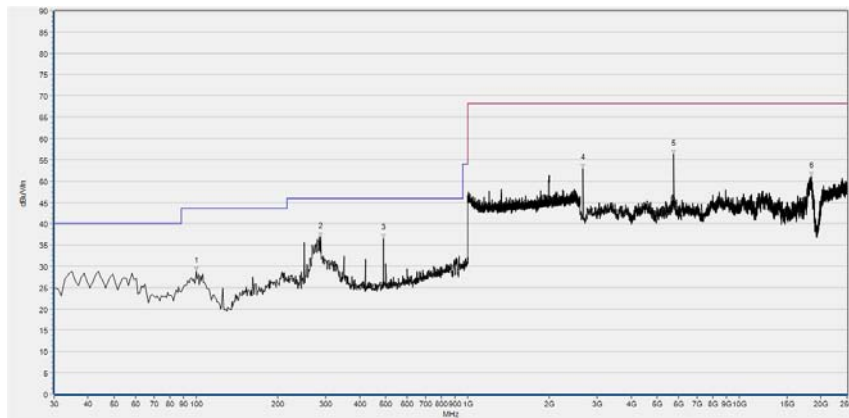


Plots for Channel = 149



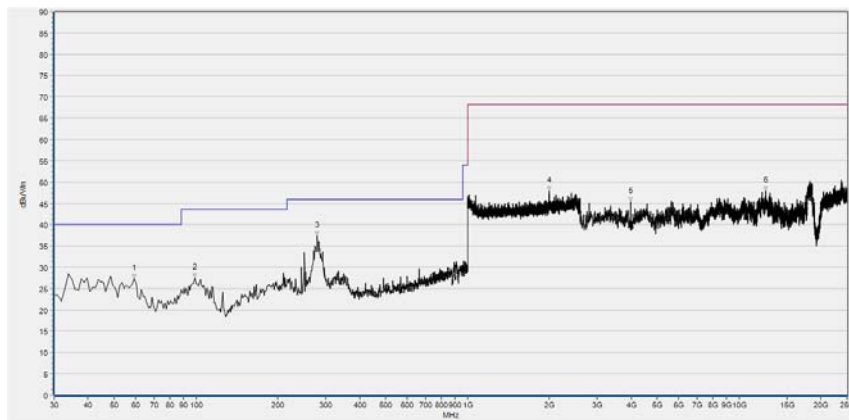
Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
59.129	28.18	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
281.481	38.94	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
499.950	32.39	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1997.666	49.24	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
7936.747	46.14	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
18493.739	50.71	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)



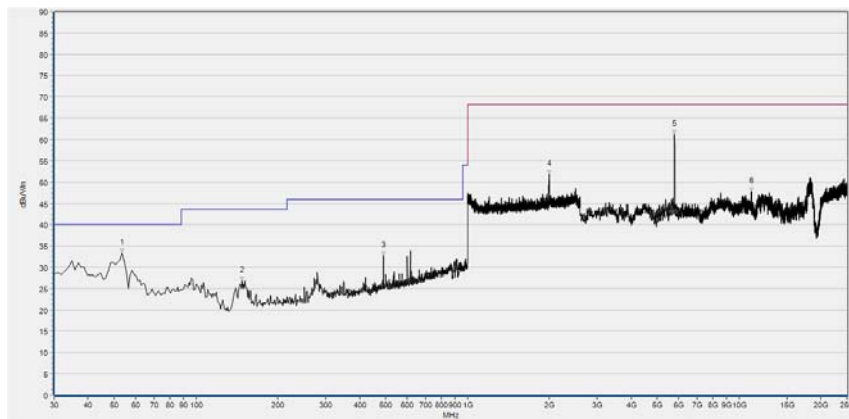
Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
99.910	28.88	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
288.278	36.92	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
490.240	36.53	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2658.252	52.99	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5745.589	56.30	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
18480.296	51.19	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
59.129	27.32	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
98.939	27.46	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
279.540	37.32	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1993.398	47.93	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
3989.078	45.40	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12507.261	47.89	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

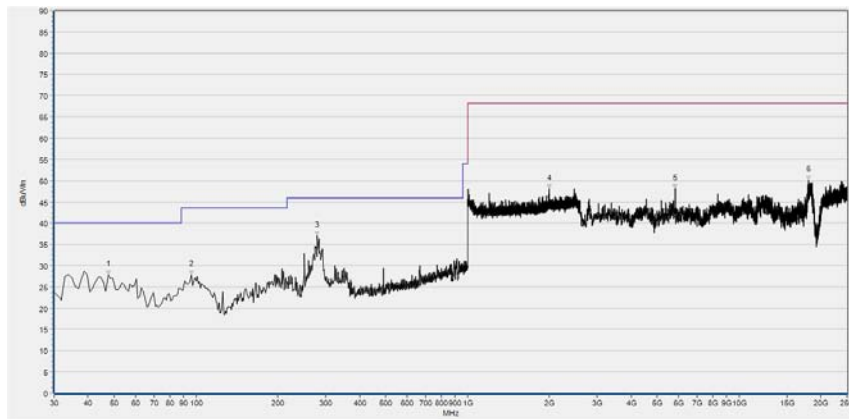
(Antenna Horizontal, 30MHz to 18GHz)



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
53.303	33.37	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
147.487	26.87	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
490.240	32.76	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1994.465	51.78	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5782.300	62.05	N/A	53.14	68.23	N/A	54.00	Vertical	PASS
11091.298	47.79	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

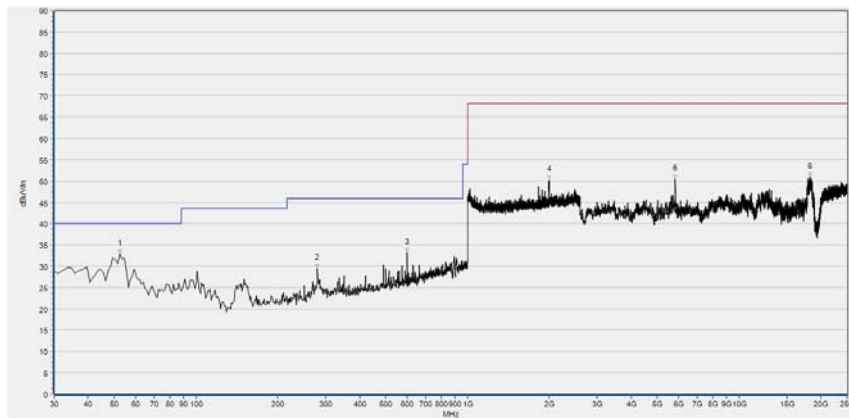
(Antenna Vertical, 30MHz to 18GHz)

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
47.477	27.79	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
96.026	27.80	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
279.540	37.08	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1992.331	48.04	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
5821.764	48.13	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
17996.359	50.14	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

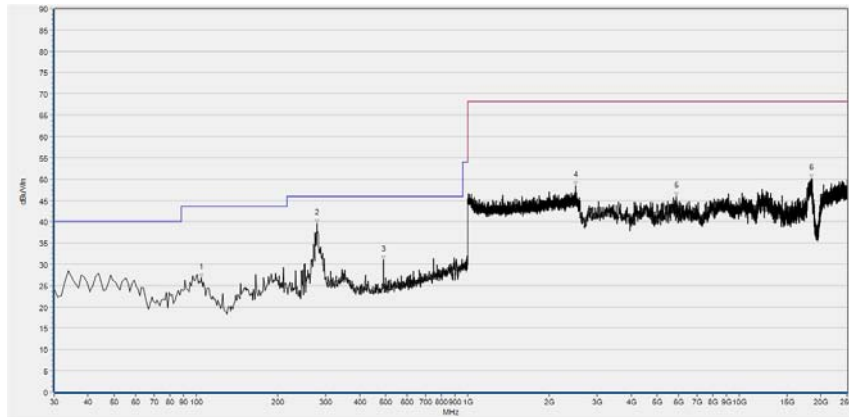


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
52.332	32.81	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
279.540	29.45	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
598.989	33.24	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1992.331	50.21	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5821.764	50.50	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
18211.442	51.03	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

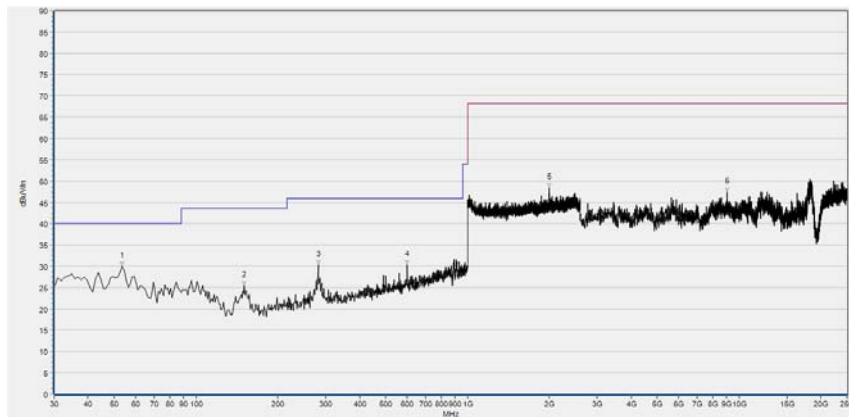
**802.11n (HT20) Test mode**

Plots 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
104.765	26.89	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
278.569	39.47	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
490.240	31.00	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2498.633	48.48	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5884.497	45.85	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
18448.930	50.07	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

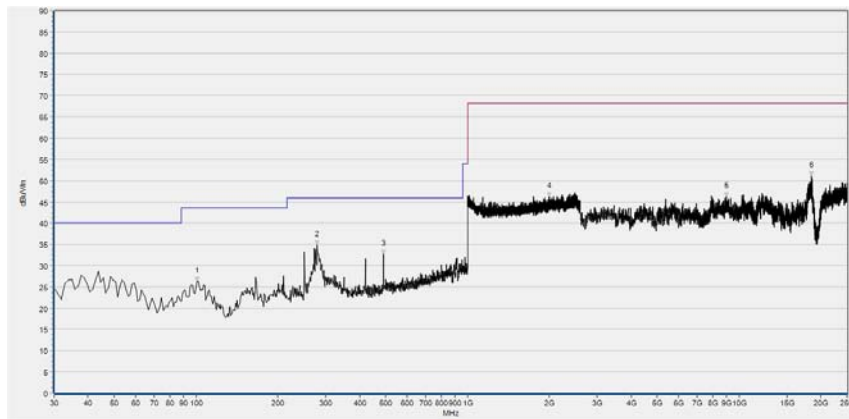
(Antenna Horizontal, 30MHz to 18GHz)



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
53.303	30.03	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
150.400	25.52	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
281.481	30.41	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
599.960	30.31	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1996.599	48.50	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
9043.529	47.38	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

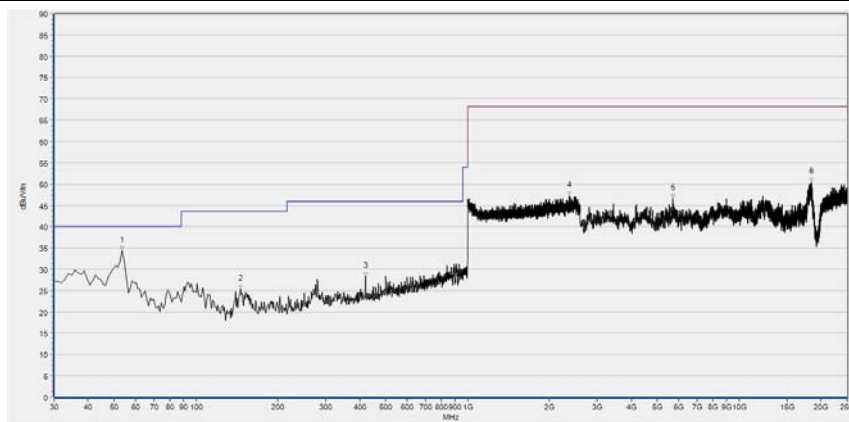
(Antenna Vertical, 30MHz to 18GHz)

Plots 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
100.881	26.32	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
279.540	34.83	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
490.240	32.68	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1994.998	46.25	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
8953.911	46.23	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
18489.258	51.06	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

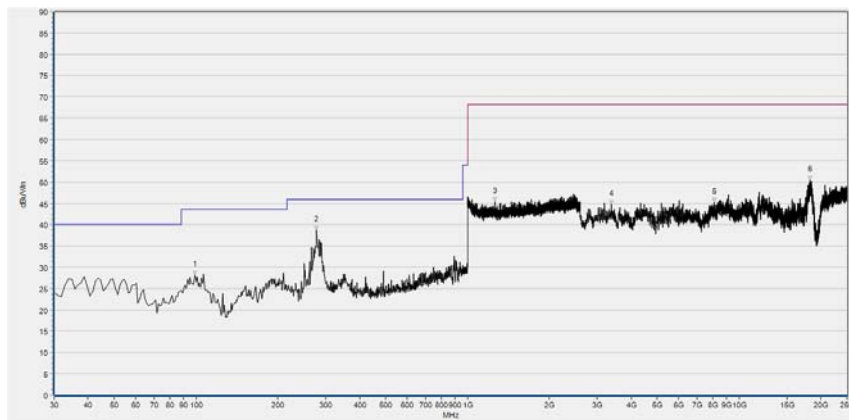


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
53.303	34.41	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
145.546	25.35	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
420.330	28.28	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2370.057	47.32	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5705.261	46.67	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
18489.258	50.43	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

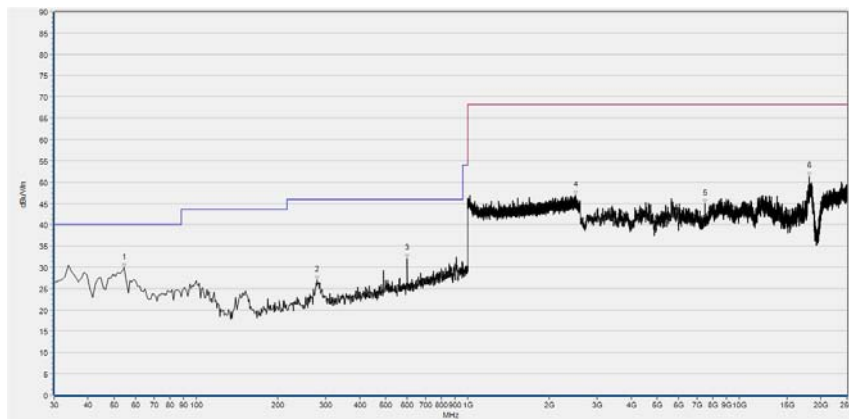


Plot for Channel = 48



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
98.939	28.10	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
277.598	38.71	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1263.555	45.36	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
3388.638	44.72	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
8080.136	45.22	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
18242.809	50.39	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

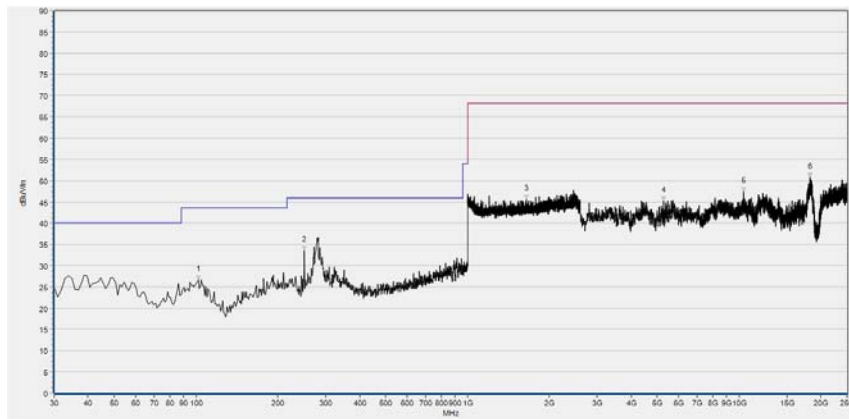


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
54.274	29.80	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
279.540	26.95	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
598.989	31.96	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2499.166	46.85	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7479.696	44.92	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
18157.672	51.25	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

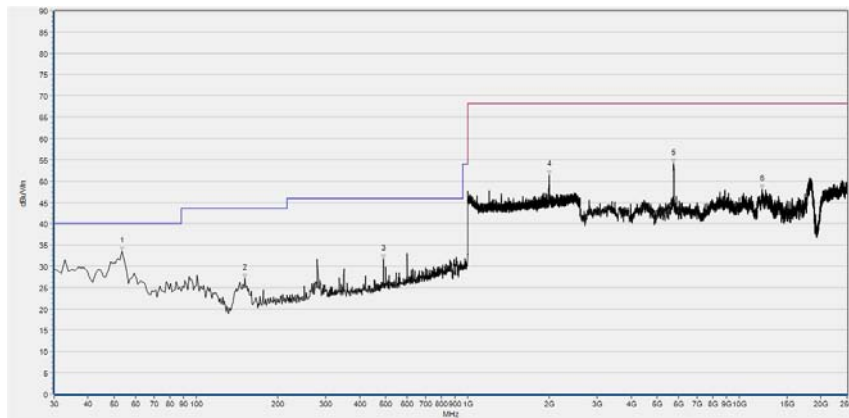


Plots for Channel = 149



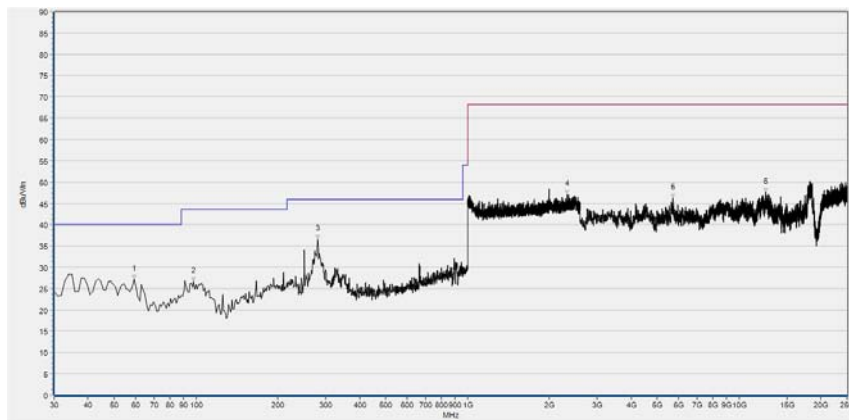
Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
101.852	26.62	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
250.410	33.60	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1646.082	45.54	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5270.614	45.18	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
10405.721	47.44	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
18251.770	50.73	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)



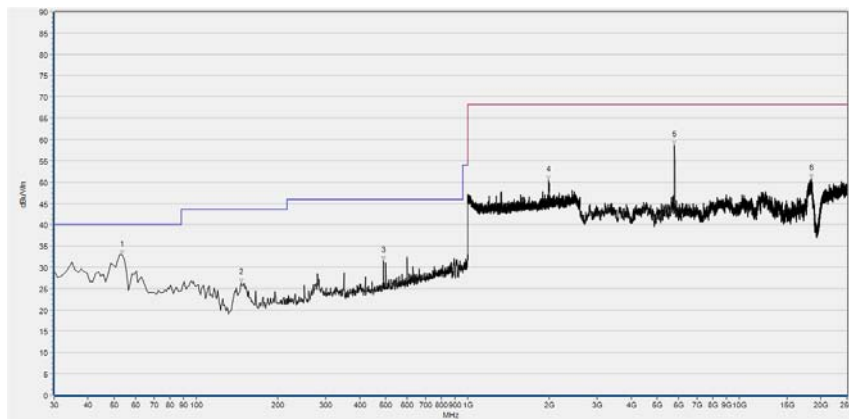
Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
53.303	33.46	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
151.371	27.22	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
490.240	31.70	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1999.266	51.45	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5750.070	54.19	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
12135.347	48.02	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
59.129	27.11	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
97.968	26.61	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
280.511	36.52	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2325.242	47.11	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5714.223	46.27	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
12502.781	47.60	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

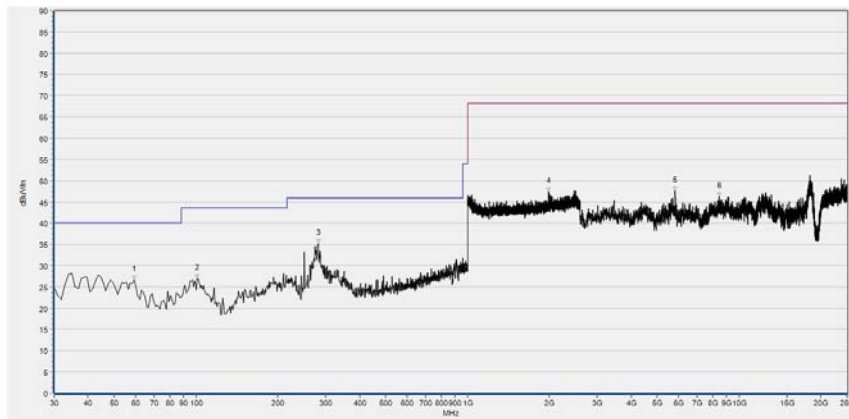
(Antenna Horizontal, 30MHz to 18GHz)



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
53.303	32.91	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
146.517	26.38	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
490.240	31.52	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1991.797	50.39	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5785.917	58.58	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
18475.815	50.79	N/A	N/A	74.00	N/A	N/A	Vertical	PASS

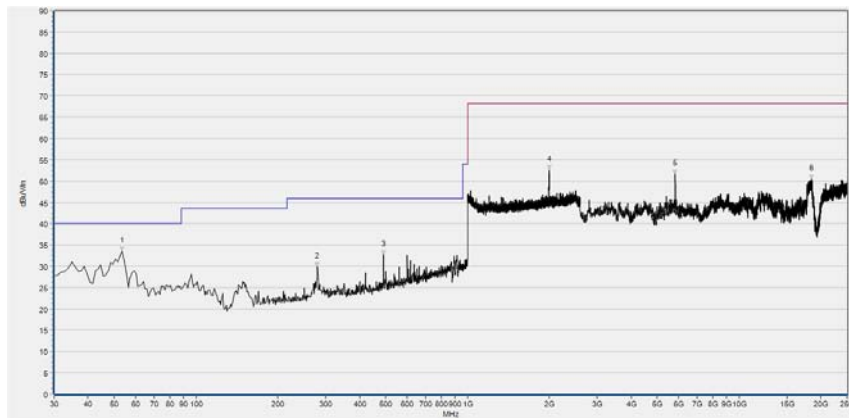
(Antenna Vertical, 30MHz to 18GHz)

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
59.129	26.62	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
100.881	26.91	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
281.481	35.16	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1991.264	47.45	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
5817.283	47.62	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
8461.012	46.22	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

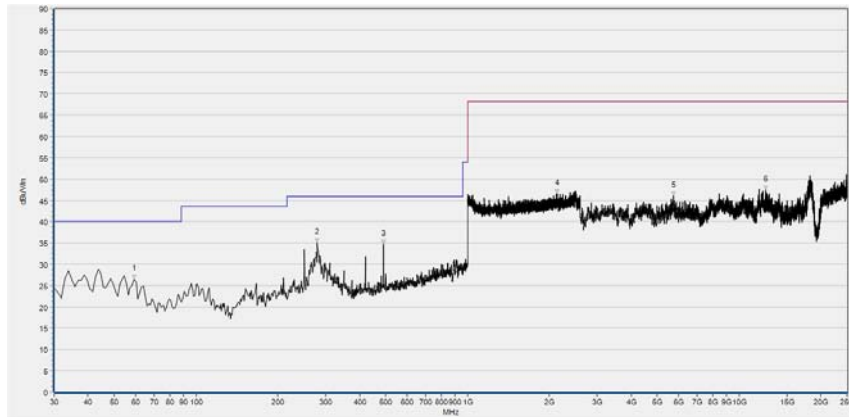


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
53.303	33.53	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
279.540	29.89	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
490.240	32.69	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1996.065	52.64	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5821.764	51.61	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
18453.411	50.38	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

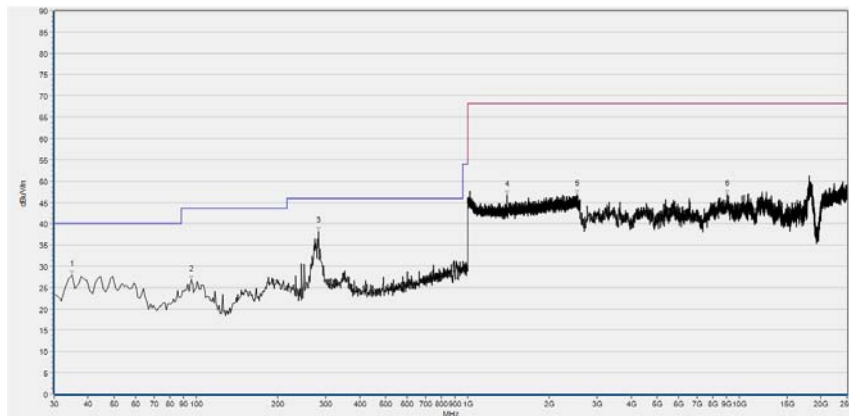
**802.11n (HT40) Test mode**

Plots 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
59.129	26.44	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
279.540	34.98	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
490.240	34.72	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2133.711	46.64	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
5723.185	46.13	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
12520.704	47.50	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

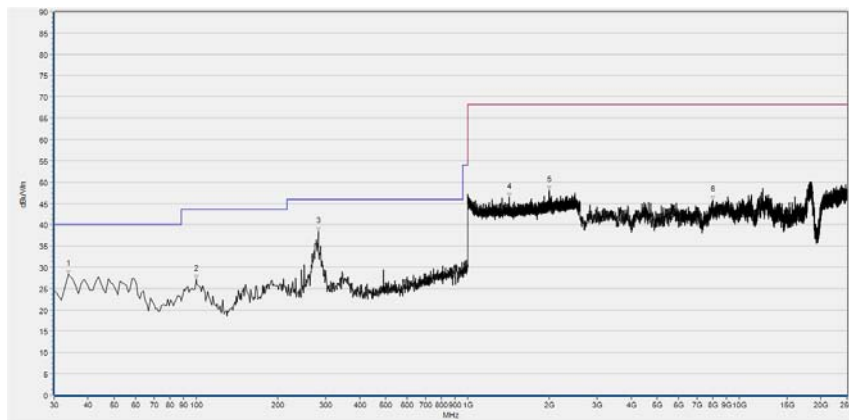


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
34.855	27.91	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
96.026	26.84	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
282.452	38.16	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1397.999	46.74	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2525.842	46.91	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
9052.490	46.87	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

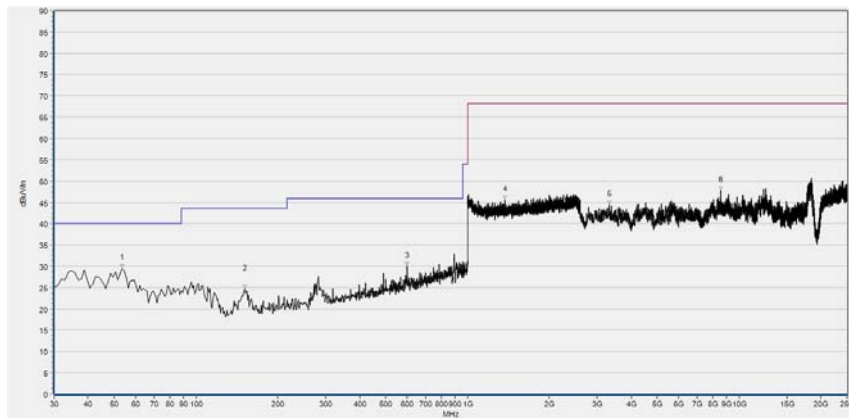


Plot for Channel = 46



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
33.884	28.34	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
99.910	27.16	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
281.481	38.40	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1420.407	46.48	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
1992.864	48.11	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
7994.999	45.69	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

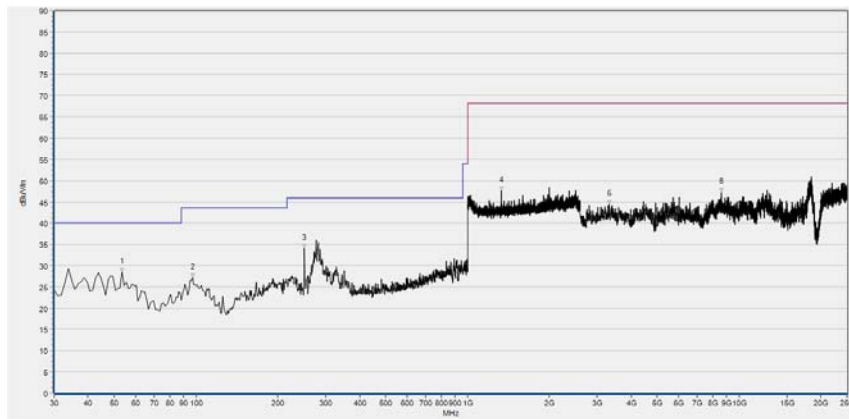
(Antenna Horizontal, 30MHz to 18GHz)



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
53.303	29.51	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
151.371	24.61	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
598.989	30.08	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1371.857	45.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3316.943	44.38	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
8564.073	47.70	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

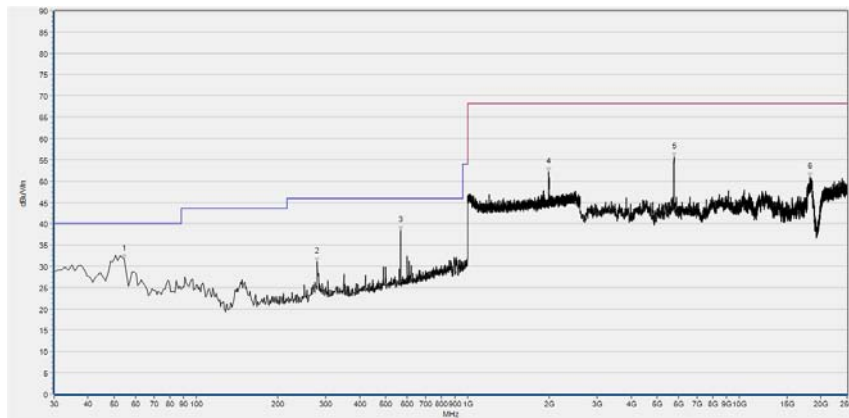
(Antenna Vertical, 30MHz to 18GHz)

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
53.303	28.53	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
96.997	27.21	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
250.410	33.94	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1332.377	47.68	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3325.905	44.48	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
8613.363	47.32	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

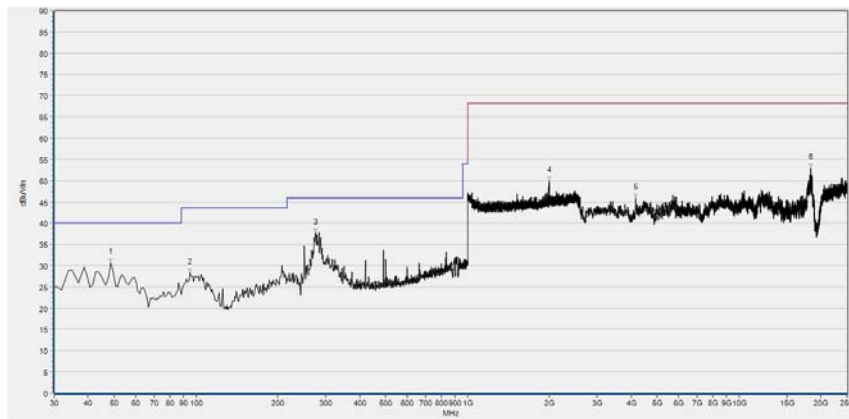
(Antenna Horizontal, 30MHz to 18GHz)



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
54.274	31.71	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
279.540	31.07	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
566.947	38.41	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1991.264	52.04	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5759.032	55.59	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
18202.480	51.00	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

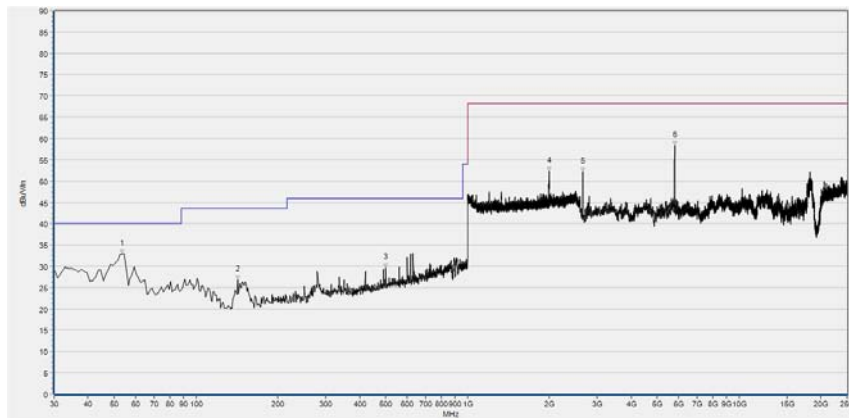
(Antenna Vertical, 30MHz to 18GHz)

Plots 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
48.448	30.68	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
95.055	28.28	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
275.656	37.78	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1996.599	50.00	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
4154.871	45.84	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
18408.602	52.95	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

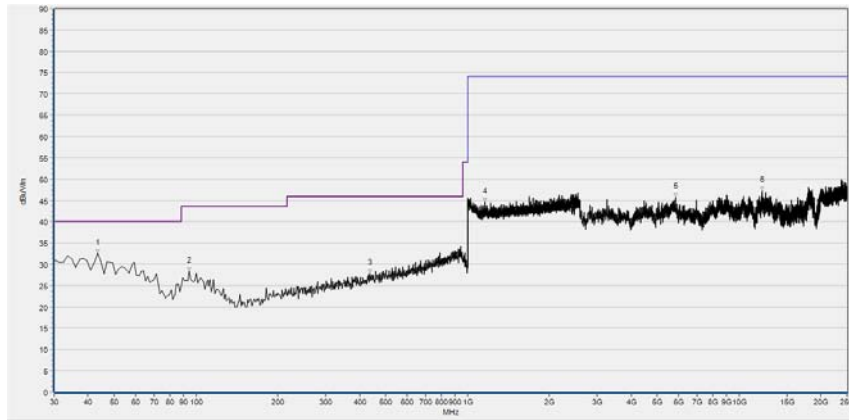


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
53.303	32.87	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
142.633	26.82	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
499.950	29.71	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1999.266	52.32	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
2658.252	52.05	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5794.879	58.35	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

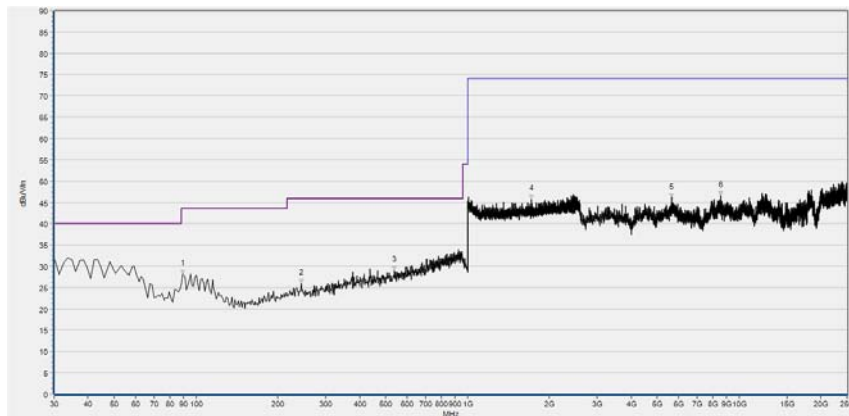
**802.11ac (VHT20) Test mode**

Plots 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
43.354	32.51	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
94.343	28.25	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
437.910	27.90	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1154.942	44.54	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5830.260	45.76	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
12152.282	47.20	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

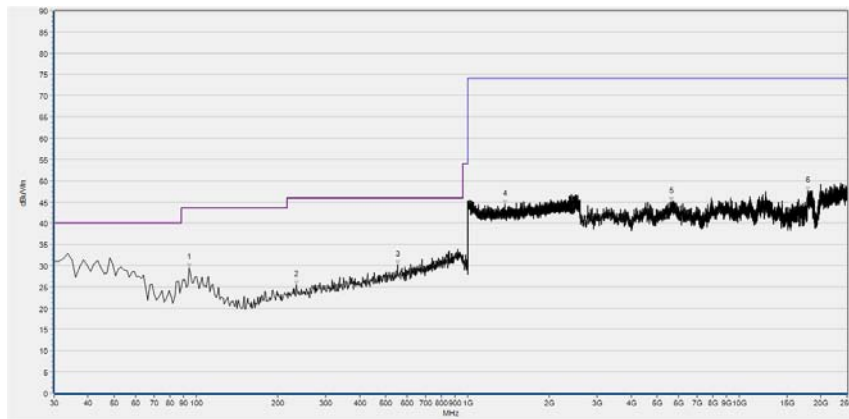


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
89.487	28.11	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
243.667	26.05	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
537.459	29.08	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1713.886	45.68	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5646.954	46.03	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
8539.116	46.57	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

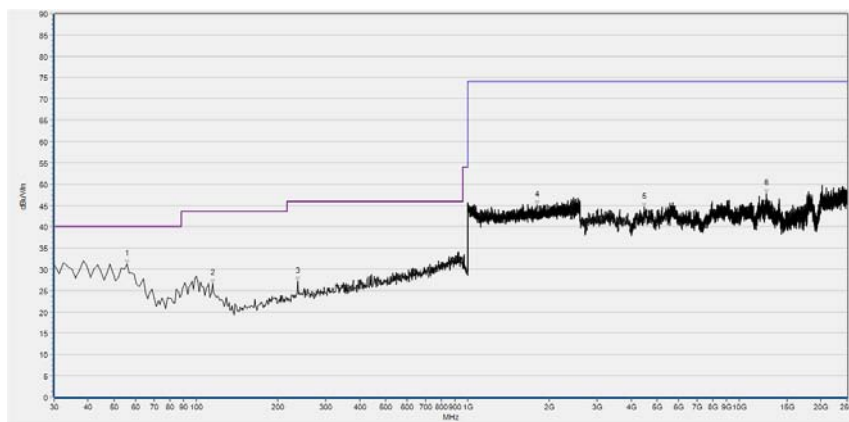


Plots for Channel = 44



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
94.343	29.55	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
233.955	25.53	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
552.028	30.22	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1370.068	44.35	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5618.440	45.06	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
17948.827	47.55	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

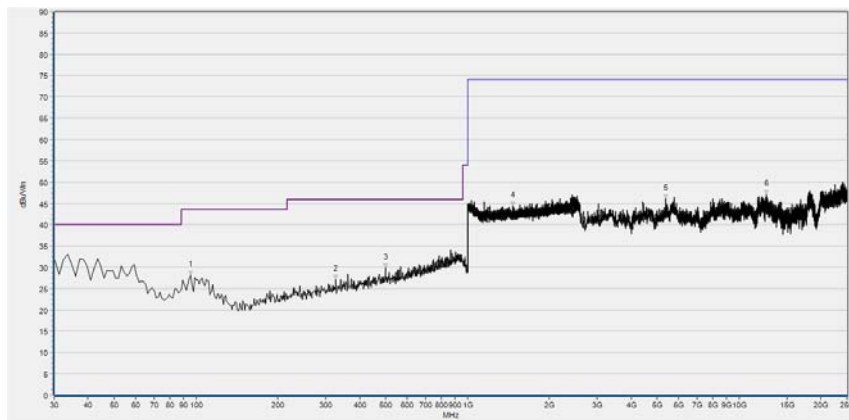


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
55.494	31.20	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
114.981	26.58	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
236.383	27.18	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1797.759	45.09	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
4481.942	44.53	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
12612.584	47.68	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

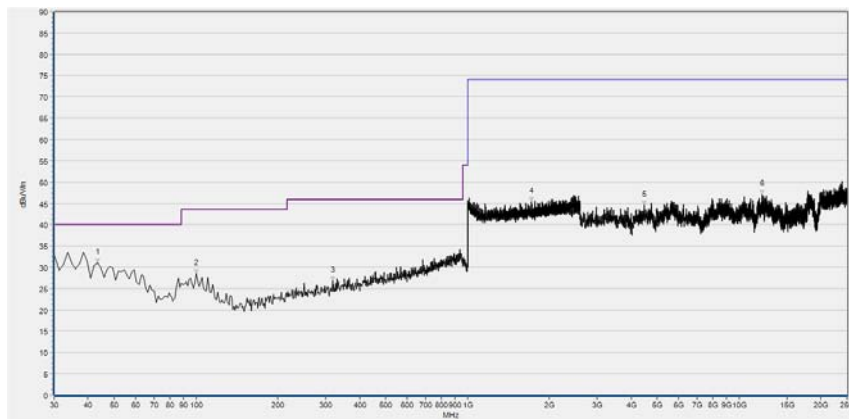


Plot for Channel = 48



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
95.557	28.20	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
327.434	27.07	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
498.611	29.90	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1468.667	44.42	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5374.032	46.05	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12600.364	47.01	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

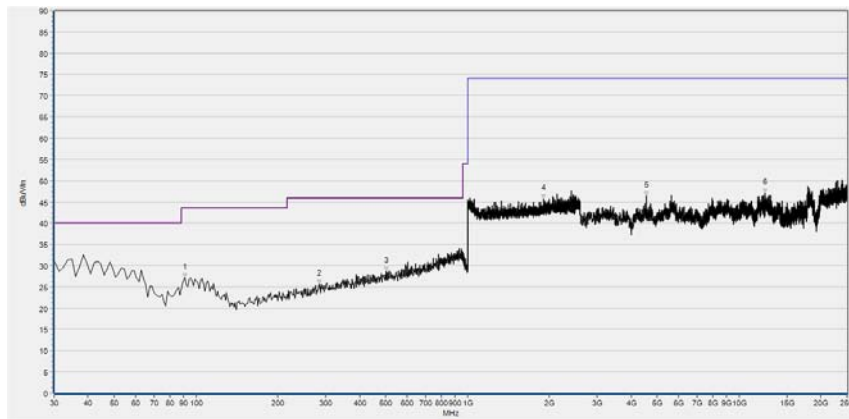


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
43.354	31.01	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
100.413	28.45	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
317.722	26.74	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1717.087	45.45	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
4465.648	44.53	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
12152.282	47.12	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

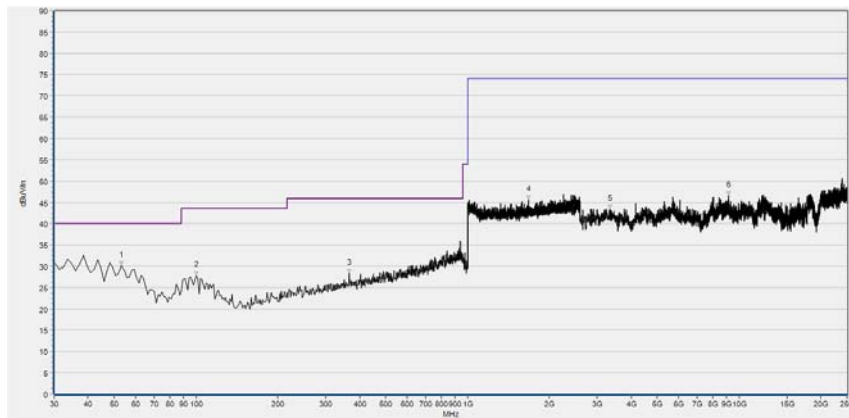


Plots for Channel = 149



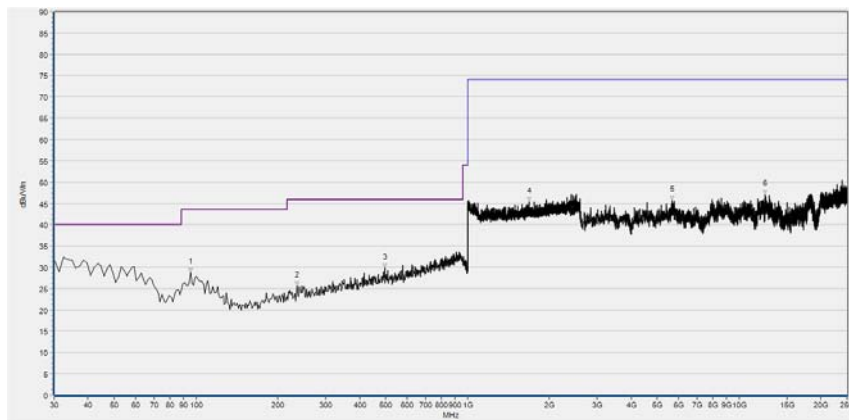
Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
90.701	27.15	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
283.730	25.61	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
501.039	28.64	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1905.962	45.82	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
4563.412	46.48	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12490.380	47.03	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)



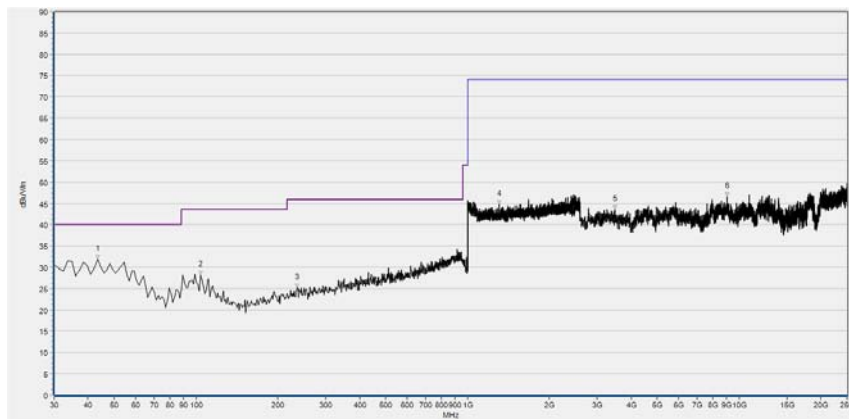
Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
53.066	30.22	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
100.413	27.90	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
366.283	28.33	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1679.312	45.55	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3353.592	43.46	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
9158.283	46.62	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
95.557	28.91	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
235.169	25.60	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
494.969	29.90	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1684.434	45.44	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5667.321	45.67	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
12490.380	47.13	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

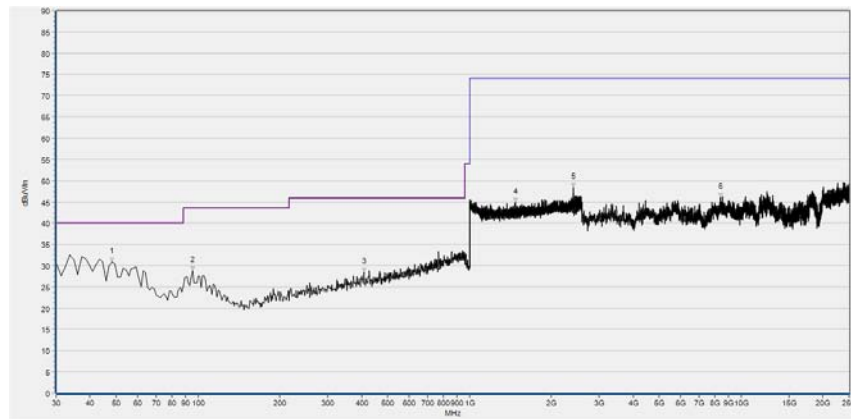
(Antenna Horizontal, 30MHz to 18GHz)



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
43.354	31.87	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
104.055	28.09	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
235.169	25.17	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1304.122	44.76	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3488.016	43.53	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
9048.300	46.57	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

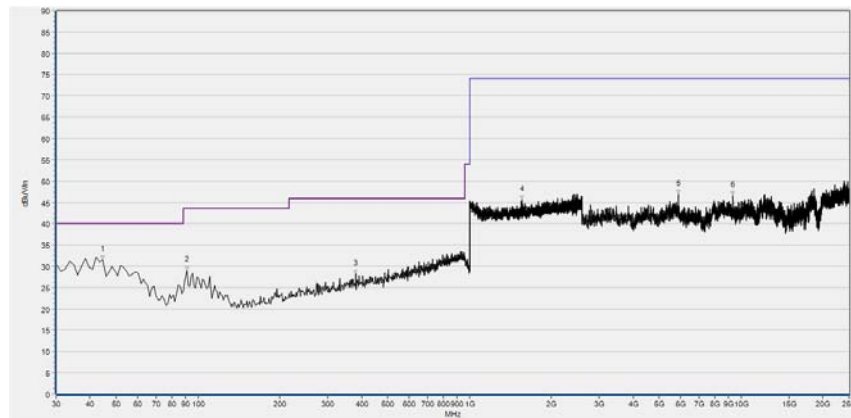
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 165



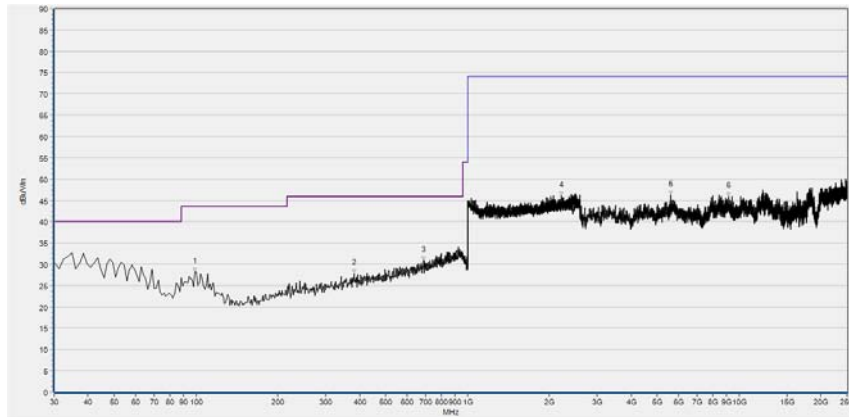
Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
48.210	30.85	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
95.557	28.77	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
407.559	28.49	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1478.912	44.85	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2411.765	48.50	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
8396.545	46.06	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)



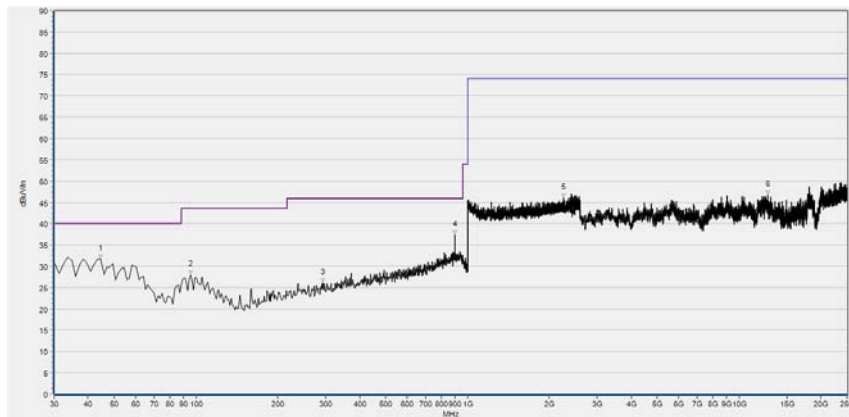
Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
44.568	31.50	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
90.701	28.92	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
380.851	28.15	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1555.102	45.59	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5883.215	46.95	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
9337.516	46.54	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

**802.11ac (VHT40) Test mode****Plots 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
99.199	28.09	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
382.065	27.86	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
689.212	30.83	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2209.444	46.11	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5610.293	46.24	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
9170.504	45.91	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

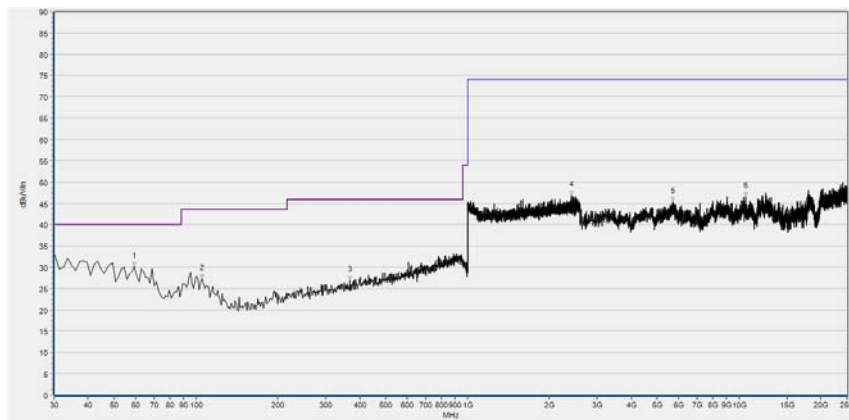


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
44.568	31.69	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
95.557	27.92	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
293.442	26.09	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
898.023	37.43	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2252.981	46.16	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12726.641	46.69	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

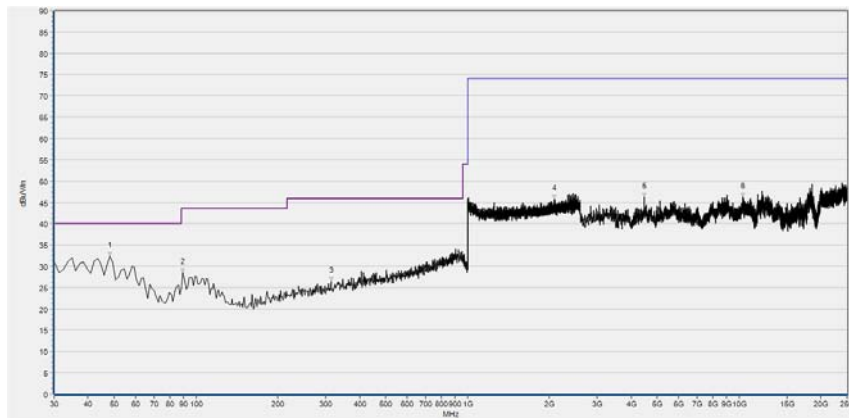


Plot for Channel = 46



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
59.136	30.23	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
105.269	27.33	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
367.497	26.91	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2413.045	46.92	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
5695.836	45.34	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
10567.703	46.58	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

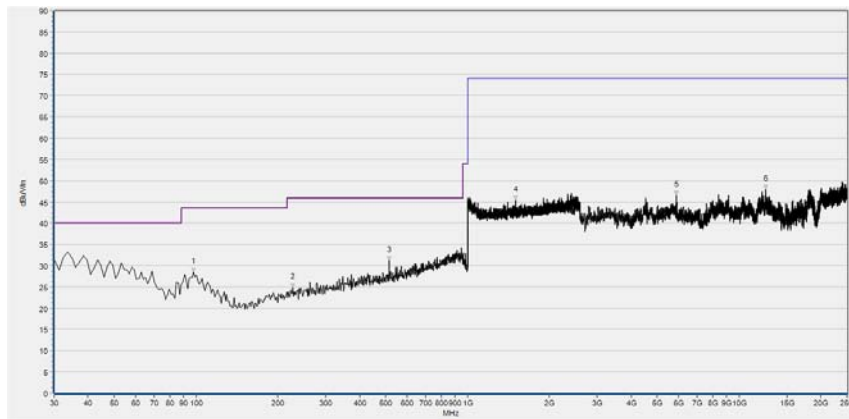
(Antenna Horizontal, 30MHz to 18GHz)



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
48.210	32.39	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
89.487	28.47	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
314.080	26.44	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2081.393	45.75	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
4465.648	46.19	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
10331.442	46.21	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

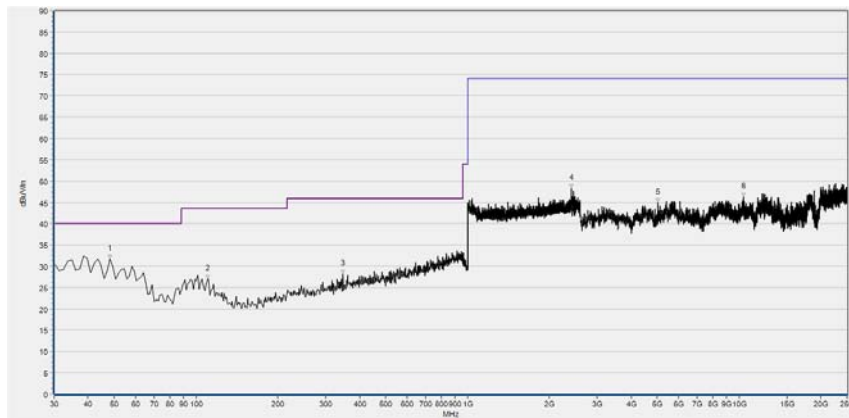
(Antenna Vertical, 30MHz to 18GHz)

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
97.985	28.53	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
226.671	24.74	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
514.393	31.11	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1500.040	45.43	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5870.995	46.66	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
12502.600	47.99	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

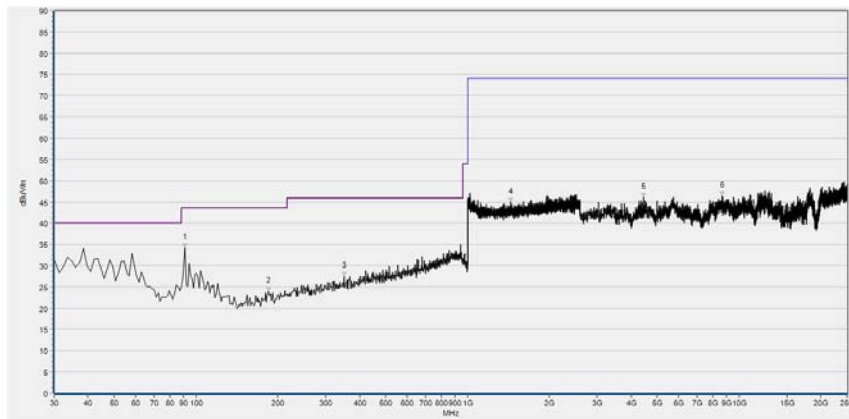
(Antenna Horizontal, 30MHz to 18GHz)



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
48.210	31.63	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
110.125	27.04	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
346.859	28.11	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2410.484	48.24	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5015.566	44.89	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
10376.250	46.25	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

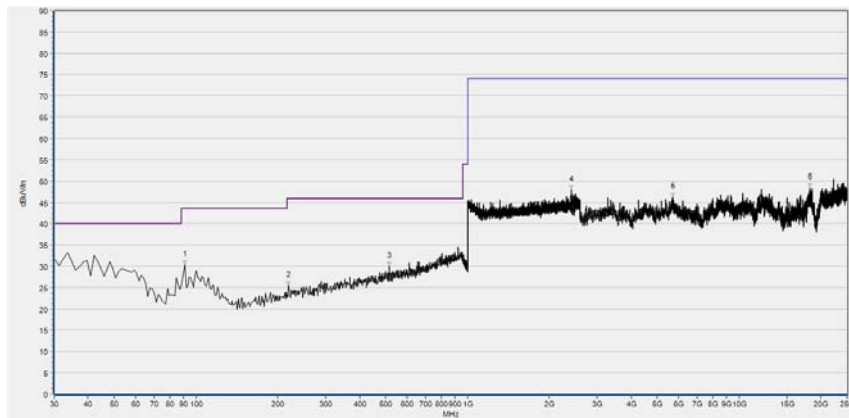
(Antenna Vertical, 30MHz to 18GHz)

Plots 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
90.701	34.13	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
184.180	24.00	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
350.501	27.55	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1437.935	44.89	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4433.061	46.16	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
8640.953	46.38	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

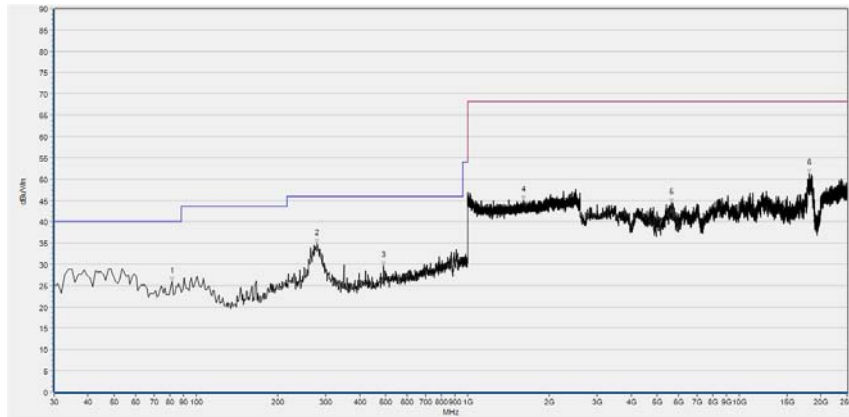


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
90.701	30.33	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
219.387	25.52	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
515.607	30.06	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2408.563	47.93	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5687.689	46.18	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
18197.309	48.47	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

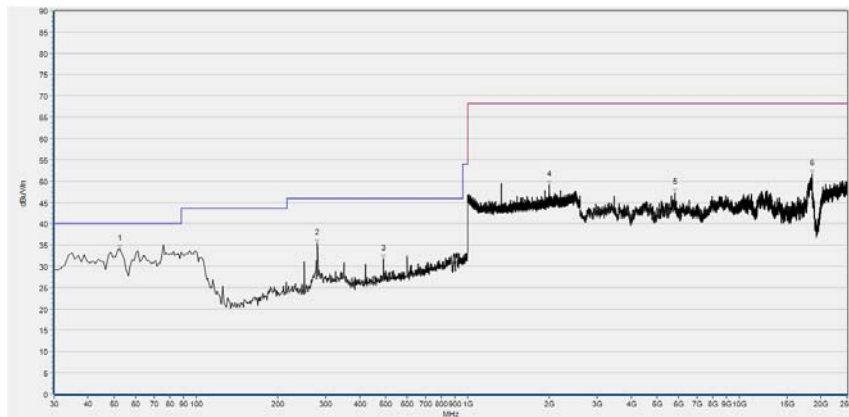
**802.11ac (VHT80) Test mode**

Plots 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
81.461	25.90	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
279.540	34.79	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
490.240	29.62	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1607.669	45.00	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5638.048	44.39	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
18148.710	51.20	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

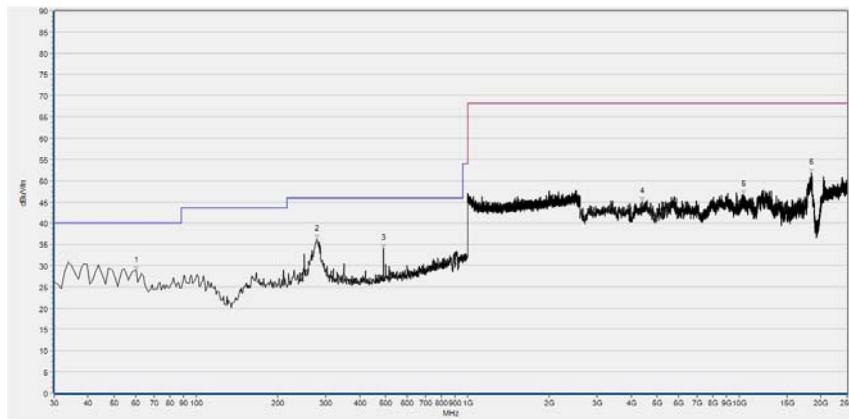


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
52.332	34.08	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
279.540	35.35	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
490.240	31.64	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1996.599	49.04	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5794.879	47.21	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
18560.952	51.54	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

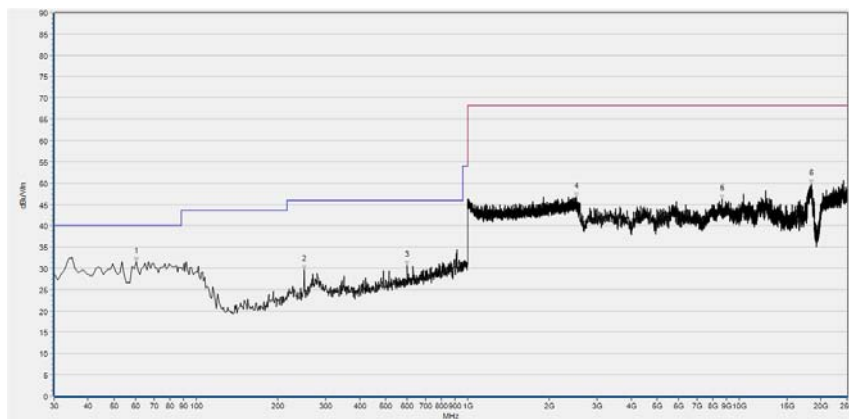


Plots for Channel = 155



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
60.100	28.76	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
278.569	36.26	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
490.240	33.96	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
4401.320	45.00	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
10410.202	46.77	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
18475.815	51.86	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
60.100	31.53	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
250.410	29.75	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
599.960	30.63	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2517.306	46.81	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
8640.248	46.28	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
18466.853	49.84	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)



2.9. Automatically discontinue transmission requirement

2.9.1. Requirement

According to 15.407(c), the device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met

2.9.2. Result

The EUT will automatically discontinue transmission in case of either absence of information to transmit or operational failure.



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	$\pm 2.22\text{dB}$
Power spectral density (PSD)	$\pm 2.22\text{dB}$
Bandwidth	$\pm 5\%$
Restricted Frequency Bands	$\pm 5\%$
Radiated Emission	$\pm 2.95\text{dB}$
Conducted Emission	$\pm 2.44\text{dB}$

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

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Department:	Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, Guangdong Province, P. R. China
Responsible Test Lab Manager:	Mr. Su Feng
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
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 C63.10-2013 and CISPR Publication 22; the FCC designation number is CN1192.



4. Test Equipments Utilized

4.1 Conducted Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Power Splitter	NW521	1506A	Weinschel	2017.05.24	2018.05.23
Attenuator 1	(N/A.)	10dB	Resnet	2017.05.24	2018.05.23
Attenuator 2	(N/A.)	3dB	Resnet	2017.05.24	2018.05.23
EXA Signal Analyzer	MY53470836	N9010A	Agilent	2017.12.03	2018.12.02
USB Wideband Power Sensor	MY54210011	U2021XA	Agilent	2017.05.24	2018.05.23
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

4.2 Conducted Emission Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Receiver	MY56400093	N9038A	KEYSIGHT	2017.07.13	2018.07.12
LISN	812744	NSLK 8127	Schwarzbeck	2017.05.17	2018.05.16
Pulse Limiter (20dB)	9391	VTSD 9561-D	Schwarzbeck	2017.05.17	2018.05.16
Coaxial cable(BNC) (30MHz-26GHz)	CB01	EMC01	Morlab	N/A	N/A

4.3 Auxiliary Test Equipment

Equipment Name	Model No.	Brand Name	Manufacturer	Cal.Date	Cal. Due
Computer	T430i	Think Pad	Lenovo	N/A	N/A

4.4 List of Software Used

Description	Manufacturer	Software Version
Test system	Tonscend	V2.6
Power Panel	Agilent	V3.8
MORLAB EMCR V1.2	MORLAB	V 1.0

**4.4 Radiated Test Equipments**

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Receiver (10Hz-44GHz)	MY54130016	N9038A	Agilent	2017.05.17	2018.05.16
Test Antenna - Bi-Log (30MHz-3GHz)	9163-519	VULB 9163	Schwarzbeck	2017.05.14	2018.05.13
Test Antenna – Horn (1G-18GHz)	01774	BBHA 9120D	Schwarzbeck	2017.09.13	2018.09.12
Test Antenna – Horn (18G-40GHz)	9170C-531	BBHA9170	Schwarzbeck	2017.09.13	2018.09.12
Test Antenna – Loop (9 kHz-30MHz)	1519-022	FMZB1519	Schwarzbeck	2018.03.02	2019.03.01
Coaxial cable (N male) (9KHz-30MHz)	CB04	EMC04	Morlab	N/A	N/A
Coaxial cable (N male) (30MHz-40GHz)	CB02	EMC02	Morlab	N/A	N/A
1-18GHz pre-Amplifier	MA02	TS-PR18	Rohde& Schwarz	2017.05.17	2018.05.16
18-26.5GHz pre-Amplifier	MA03	TS-PR18	Rohde& Schwarz	2017.05.17	2018.05.16
18-40GHz pre-Amplifier	C00990	NSP4000- SP2	Miteq	2017.05.17	2018.05.16
Anechoic Chamber	N/A	9m*6m*6m	CRT	2017.11.19	2020.11.18

_____ END OF REPORT _____