



(Channel 126, 5630 MHz, 802.11n (HT40))



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



(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 PSD (dBm/MHz)	Duty Factor	Corrected PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
36	5180	6.81	0.15	6.96	11	PASS
44	5220	7.01		7.16		
48	5240	7.07		7.22		
52	5260	6.88		7.03		
60	5300	7.06		7.21		
64	5320	6.94		7.09		
100	5500	6.37		6.52		
120	5600	5.86		6.01		
144	5720	5.72		5.87		
Channel	Frequency (MHz)	Measured PSD (dBm/500KHz)	Duty Factor	Corrected (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
144	5720	3.12	0.15	3.27	30	PASS
149	5745	3.50		3.65		
157	5785	3.33		3.48		
165	5825	2.84		2.99		

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 PSD (dBm/MHz)	Duty Factor	Corrected PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
38	5190	4.06	0.29	4.35	11	PASS
46	5230	4.19		4.48		
54	5270	3.94		4.23		
62	5310	3.92		4.21		
102	5510	3.20		3.49		
126	5630	2.81		3.10		
142	5710	2.59		2.88		
Channel	Frequency (MHz)	Measured PSD (dBm/500KHz)	Duty Factor	Corrected (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
142	5710	-0.10	0.29	0.19	30	PASS
151	5755	0.27		0.56		
155	5795	-0.17		0.12		

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 PSD (dBm/MHz)	Duty Factor	Corrected PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
42	5210	-1.53	0.57	-0.96	11	PASS
58	5290	-1.51		-0.94		
106	5530	-2.49		-1.92		
122	5610	-2.65		-2.08		
138	5690	-2.74		-2.17		
Channel	Frequency (MHz)	Measured PSD (dBm/500KHz)	Duty Factor	Corrected (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
138	5690	-5.64	0.57	-5.07	30	PASS
155	5775	-5.34		-4.77		

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°C to 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)	23	4.440
100%		-30	31	5.985
100%		-20	29	5.598
100%		-10	27	5.212
100%		0	25	4.826
100%		+10	26	5.019
100%		+20	20	3.861
100%		+30	23	4.440
100%		+40	24	4.633
100%		+50	21	4.054
115%	5.75	+20	25	4.826
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)	19	3.612
100%		-30	22	4.183
100%		-20	25	4.753
100%		-10	25	4.753
100%		0	19	3.612
100%		+10	22	4.183
100%		+20	21	3.992
100%		+30	26	4.943
100%		+40	28	5.323
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	29	5.273
100%		0	25	4.545
100%		+10	20	3.636
100%		+20	23	4.182
100%		+30	32	5.818
100%		+40	31	5.636
100%		+50	25	4.545
115%	5.75	+20	27	4.909
85%	4.25	+20	26	4.727



U-NII-3 (Ch. 149) 5745MHz				
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	Fre. Dev. (kHz)	Deviation (ppm)
100%	5.00	+20(Ref)	22	3.829
100%		-30	26	4.526
100%		-20	27	4.700
100%		-10	21	3.655
100%		0	30	5.222
100%		+10	25	4.352
100%		+20	26	4.526
100%		+30	22	3.829
100%		+40	28	4.874
100%		+50	29	5.048
115%	5.75	+20	18	3.133
85%	4.25	+20	24	4.178

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).

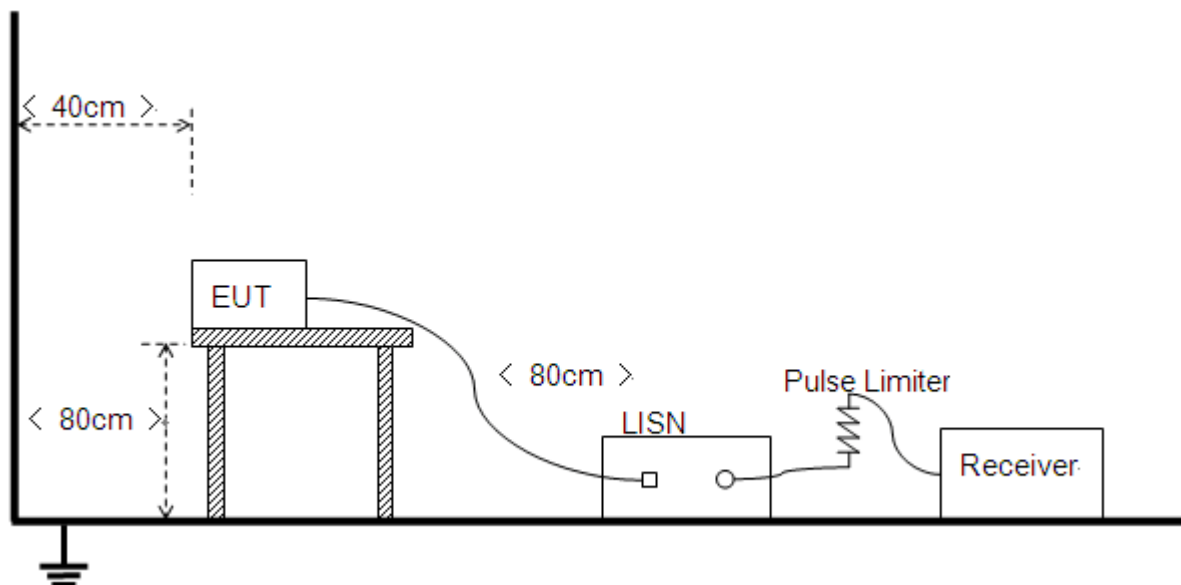
Frequency Range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

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

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/50Hz were considered and tested respectively, only the results of the worst case AC 120V/60Hz were recorded in this report.

A. Test Setup:

Test Mode: EUT+Adaptor+Earphone +WIFI TX

Test Voltage: AC 120V/60Hz

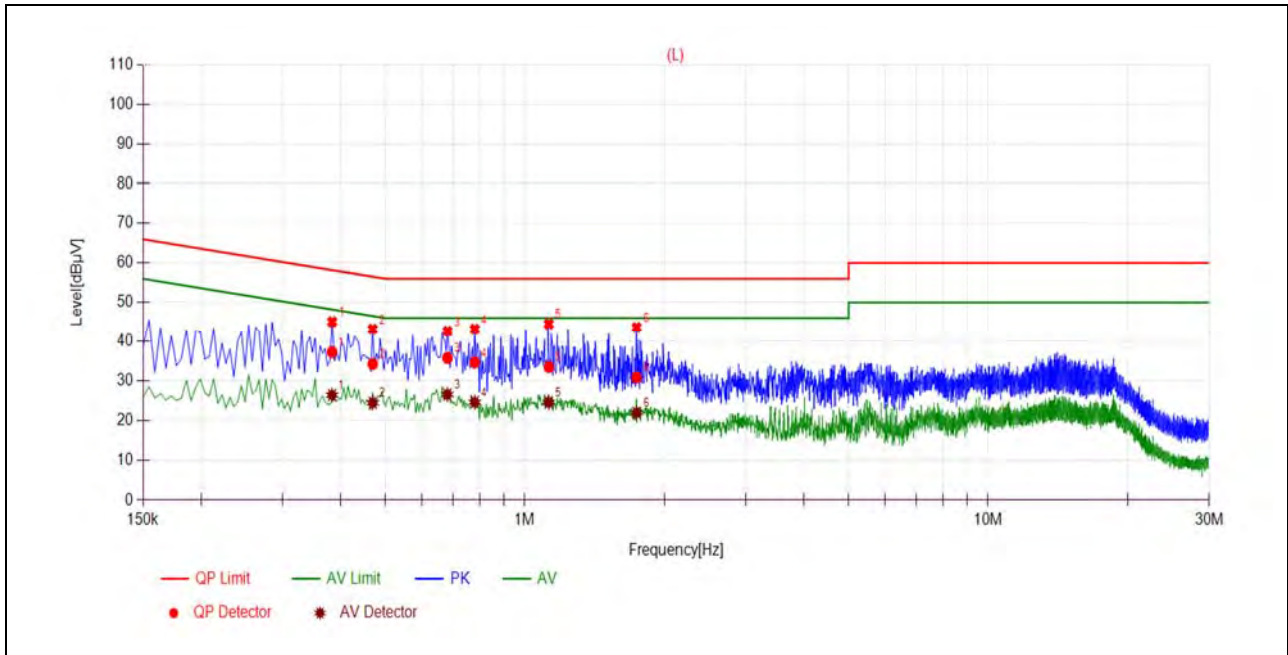
The measurement results are obtained as below:

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

U_R : Receiver Reading

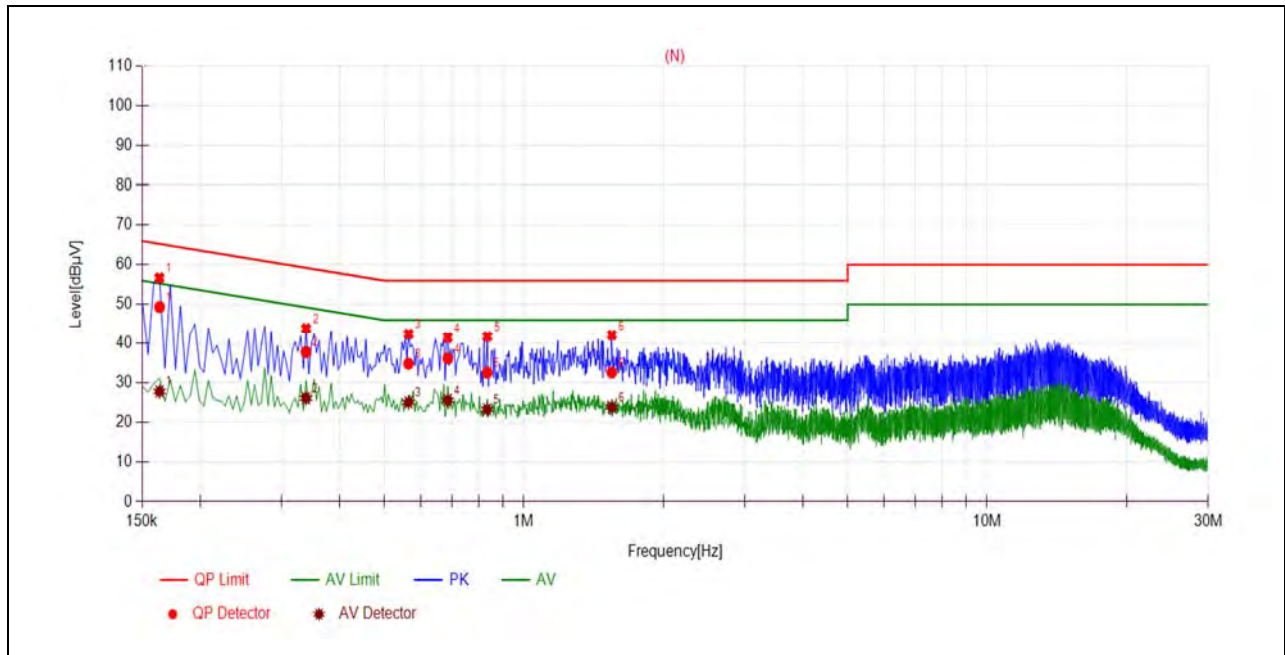
A_{Factor} : Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.3837	37.24	26.37	58.20	48.20	Line	PASS
2	0.4696	34.22	24.42	56.52	46.52		PASS
3	0.6807	35.75	26.51	56.00	46.00		PASS
4	0.7798	34.63	24.58	56.00	46.00		PASS
5	1.1270	33.45	24.49	56.00	46.00		PASS
6	1.7429	30.85	21.90	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	0.1636	49.32	27.77	65.28	55.28	Neutral	PASS
2	0.3387	37.77	26.04	59.23	49.23		PASS
3	0.5638	34.80	25.00	56.00	46.00		PASS
4	0.6852	36.16	25.51	56.00	46.00		PASS
5	0.8337	32.51	23.20	56.00	46.00		PASS
6	1.5487	32.56	23.79	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);

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

where P is the EIRP in Watts

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

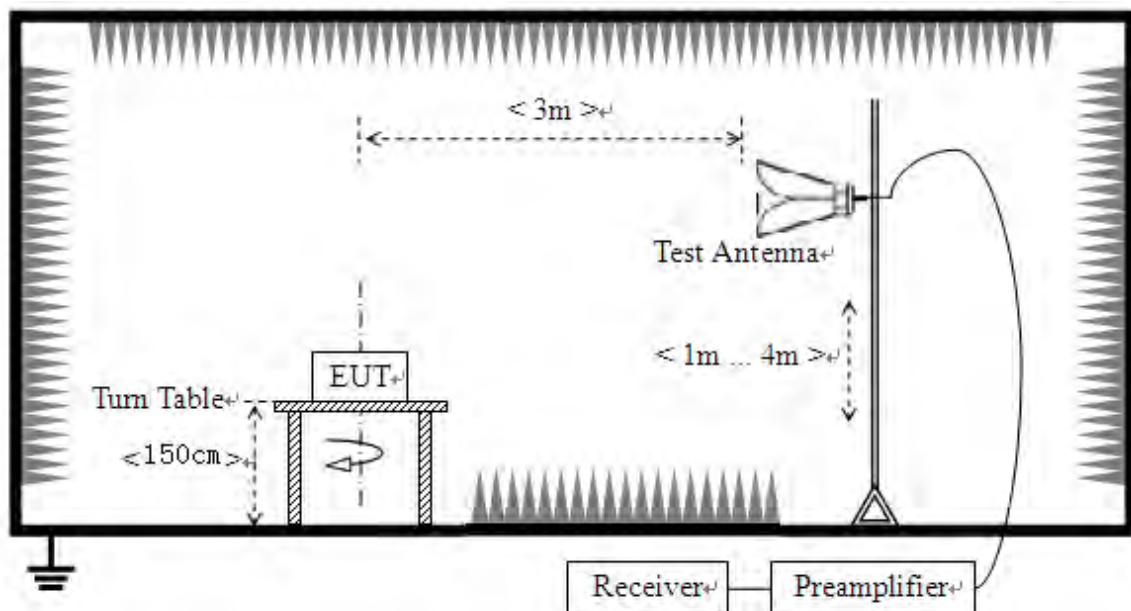
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following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

Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$)	Measurement Distance (m)
0.009 - 0.490	$2400/F(\text{kHz})$	300
0.490 - 1.705	$24000/F(\text{kHz})$	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:

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

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.

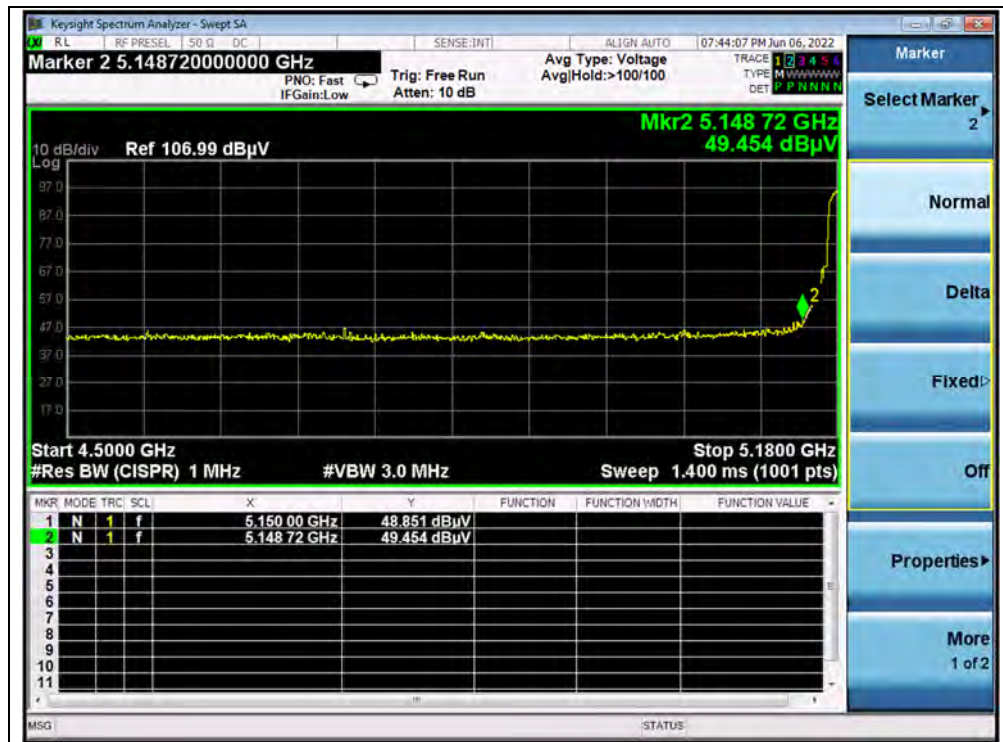
802.11a Mode

A.Test Verdict:

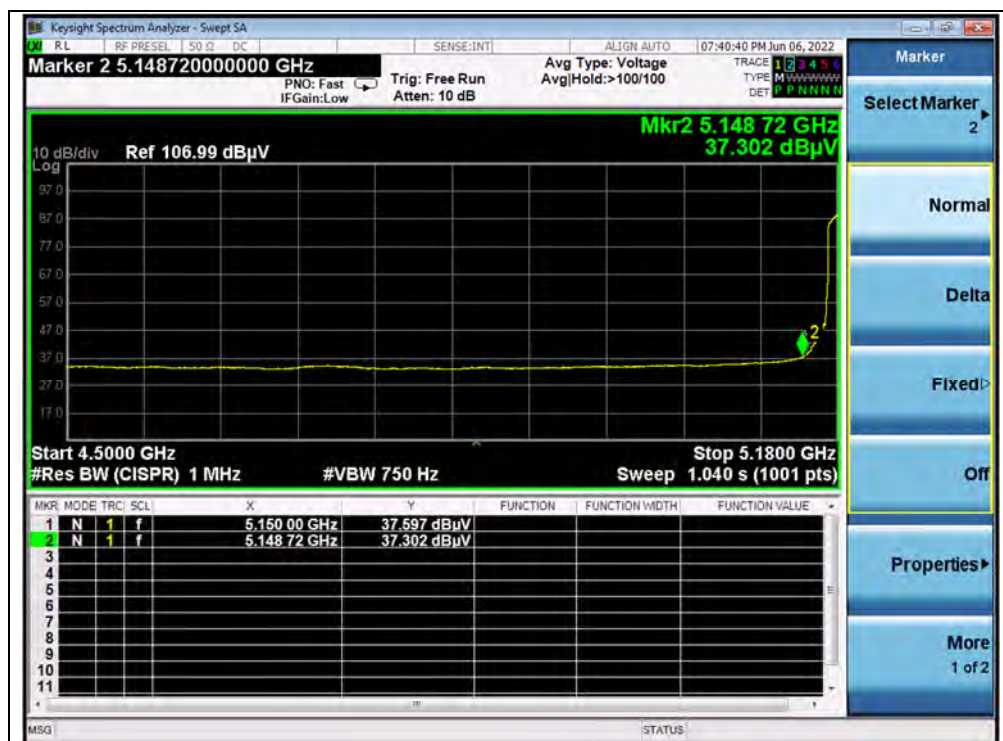
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
36	5148.72	PK	49.45	-19.54	32.20	62.11	74	PASS
36	5150.00	AV	37.60	-19.54	32.20	50.26	54	PASS
64	5352.76	PK	53.41	-18.80	32.20	66.81	74	PASS
64	5350.00	AV	36.97	-18.80	32.20	50.37	54	PASS
100	5462.06	PK	56.65	-19.20	32.20	69.65	68.23	PASS
100	5460.00	AV	37.55	-19.20	32.20	50.55	54	PASS
144	5730.00	PK	57.24	-19.20	32.20	70.24	68.23	PASS
149	5725.00	PK	64.23	-19.01	32.20	77.42	122.23	PASS
165	5850.00	PK	54.15	-19.01	32.20	67.34	122.23	PASS



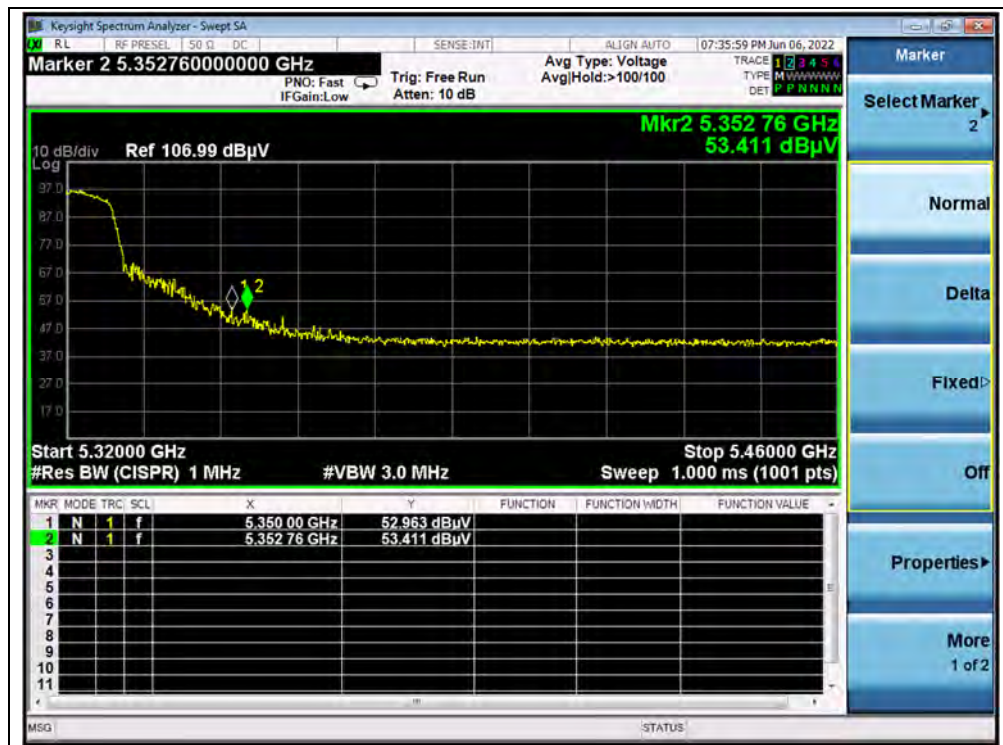
B.Test Plot:



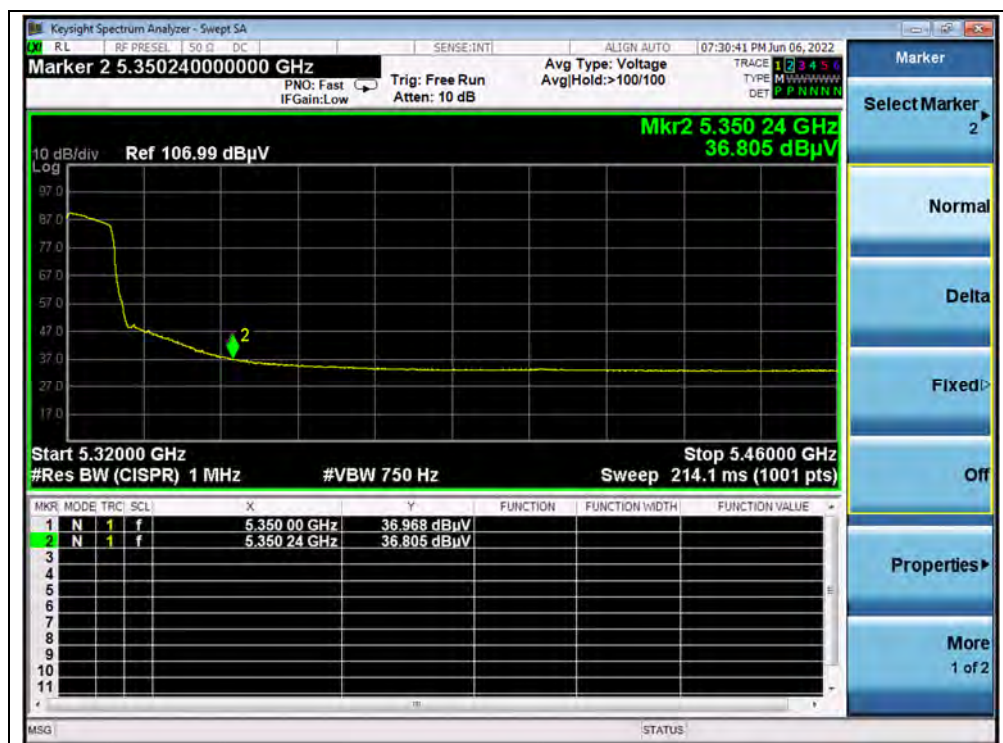
(PEAK, Channel 36, 802.11a)



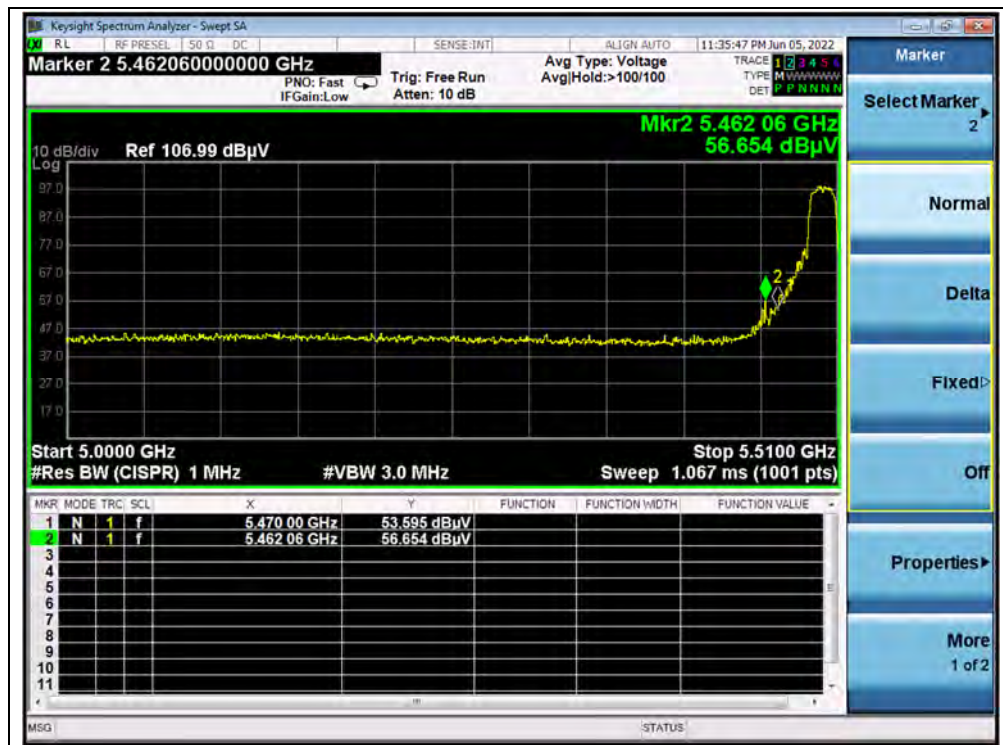
(AVERAGE, Channel 36, 802.11a)



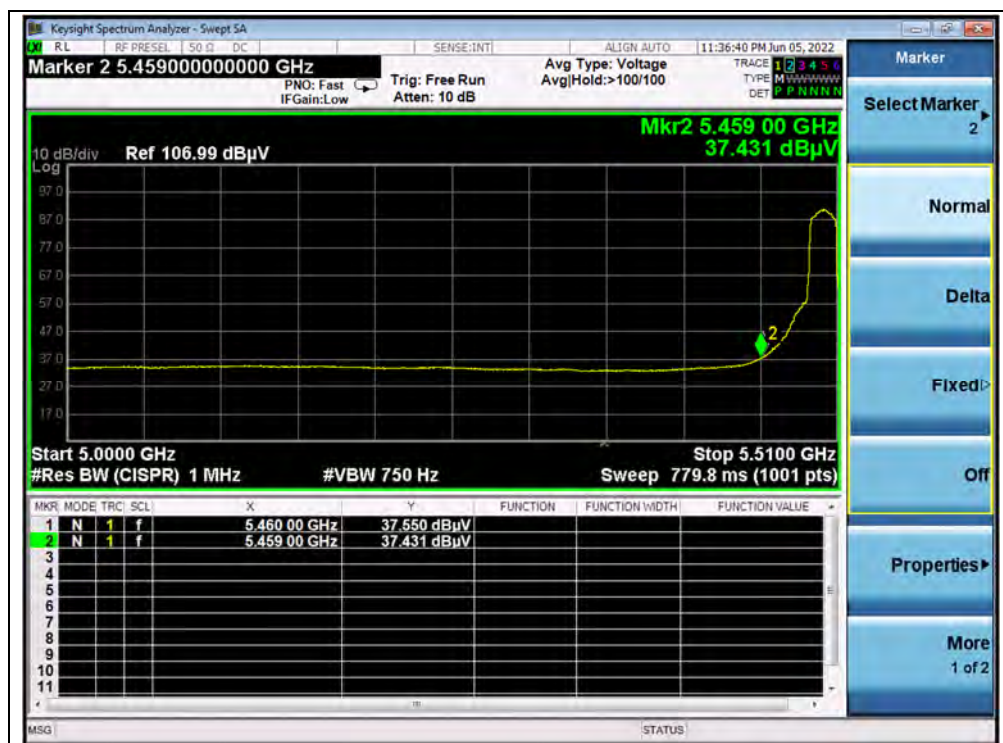
(PEAK, Channel 64, 802.11a)



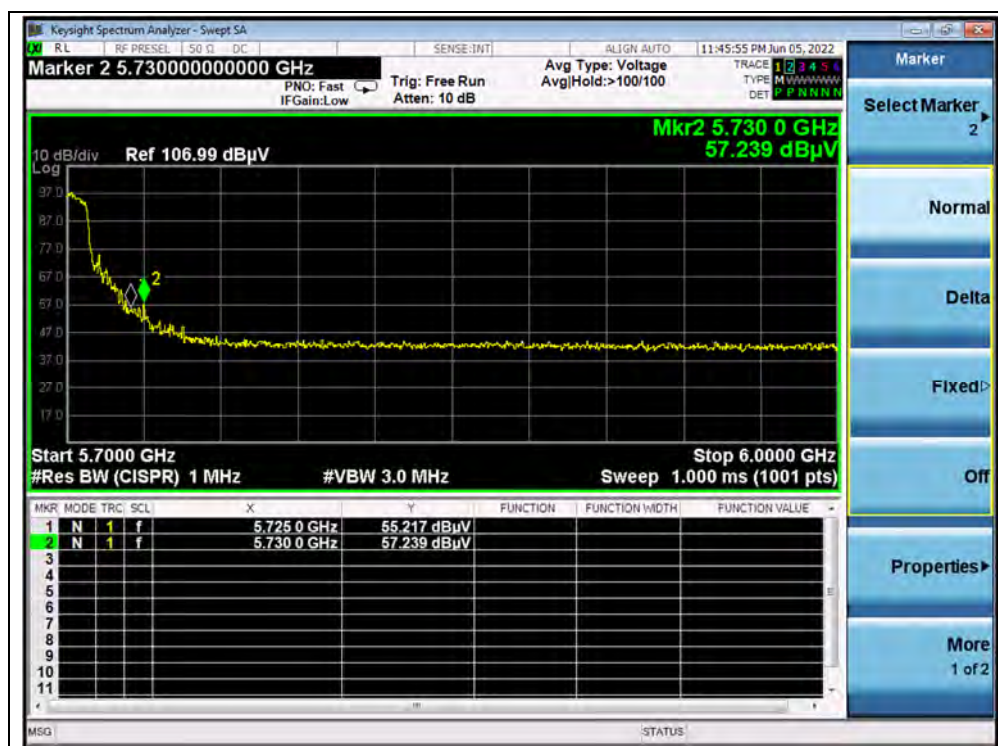
(AVERAGE, Channel 64, 802.11a)



(PEAK, Channel 100, 802.11a)



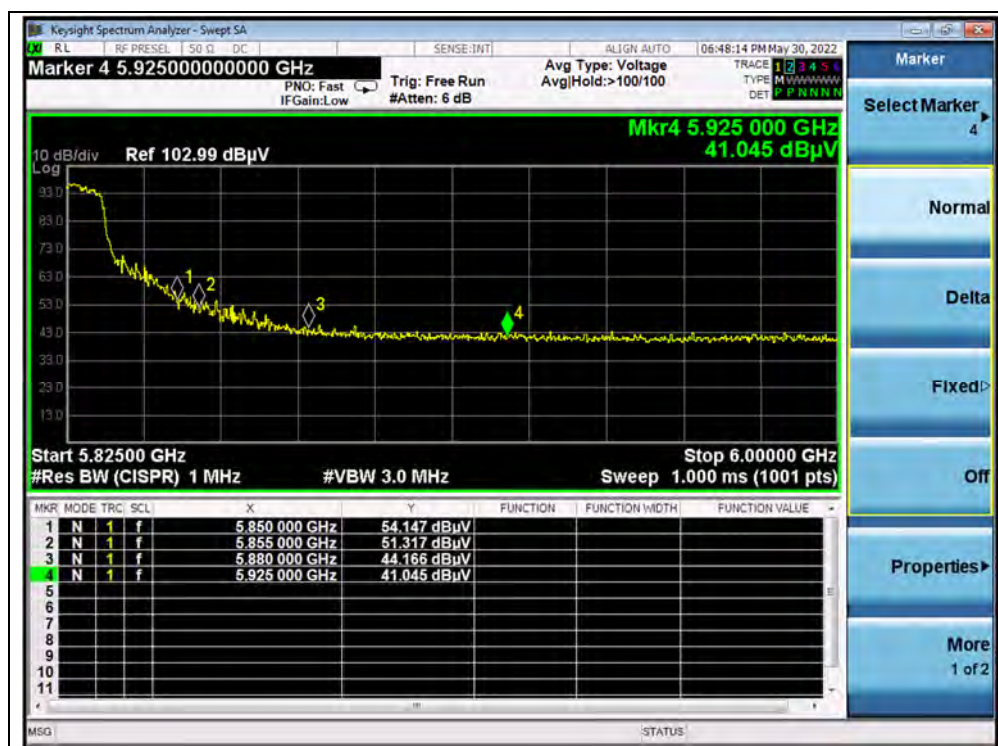
(AVERAGE, Channel 100, 802.11a)



(PEAK, Channel 144, 802.11a)



(PEAK, Channel 149, 802.11a)



(PEAK, Channel 165, 802.11a)

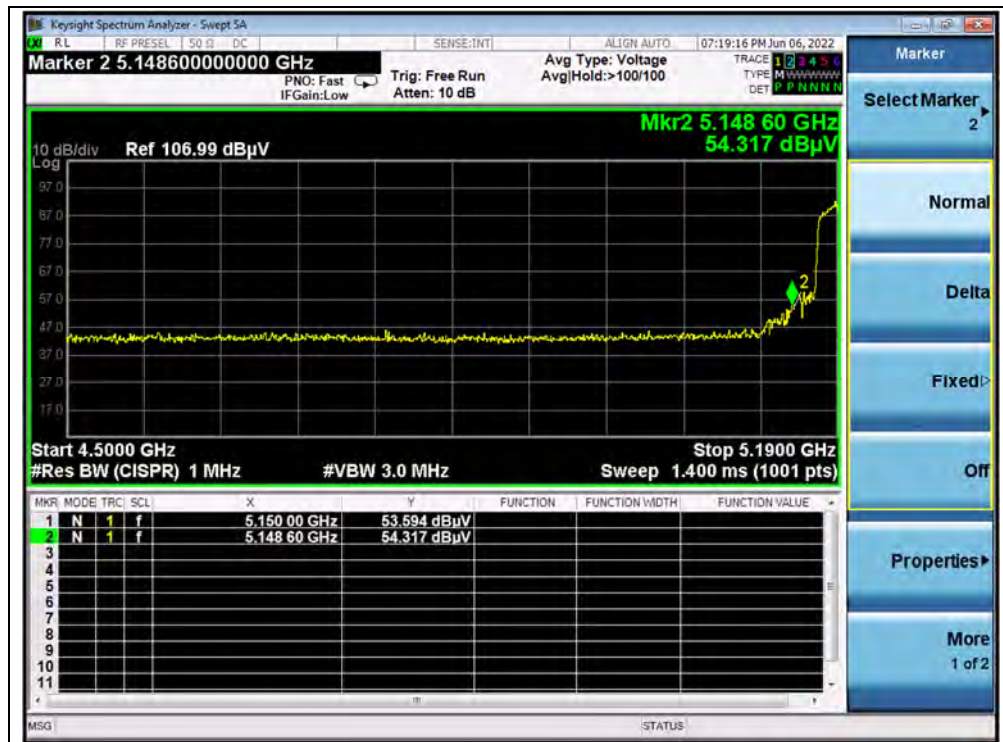


802.11n (HT40) Mode

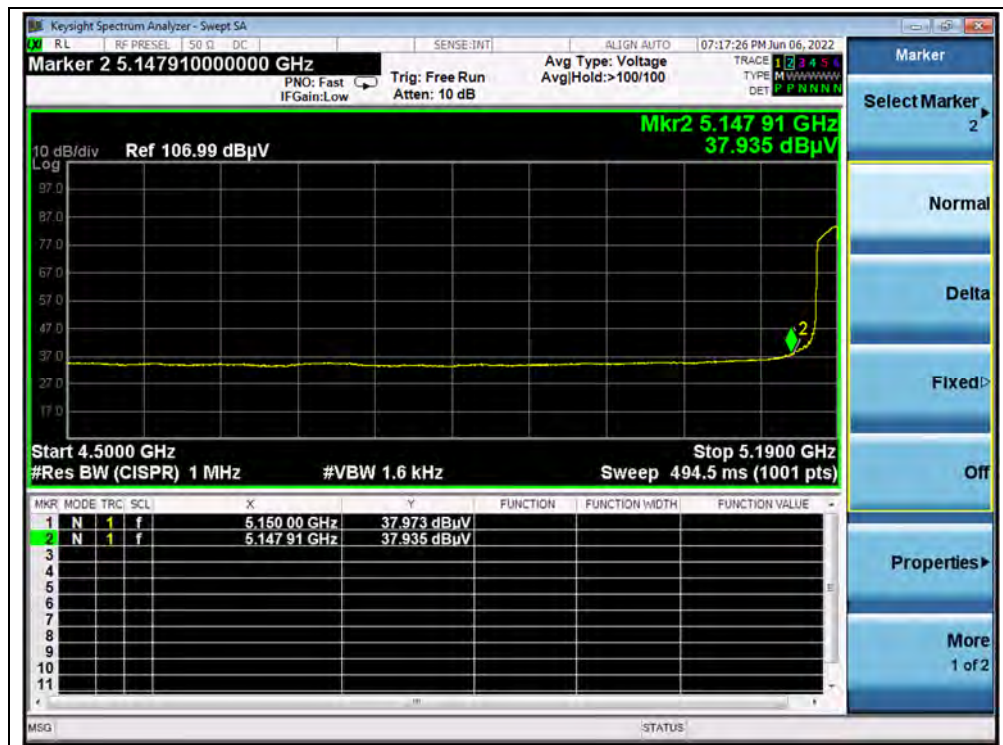
A.Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
38	5148.60	PK	54.32	-19.54	32.20	66.98	74	PASS
38	5150.00	AV	37.97	-19.54	32.20	50.63	54	PASS
62	5350.20	PK	54.75	-18.80	32.20	68.15	74	PASS
62	5350.00	AV	37.17	-18.80	32.20	50.57	54	PASS
102	5468.69	PK	55.51	-19.20	32.20	68.51	68.23	PASS
102	5460.00	AV	37.76	-19.20	32.20	50.76	54	PASS
142	5732.70	PK	51.46	-19.20	32.20	64.46	68.23	PASS
151	5720.00	PK	64.50	-19.01	32.20	77.69	110.83	PASS
159	5850.00	PK	51.67	-19.01	32.20	64.86	122.23	PASS

B.Test Plot:



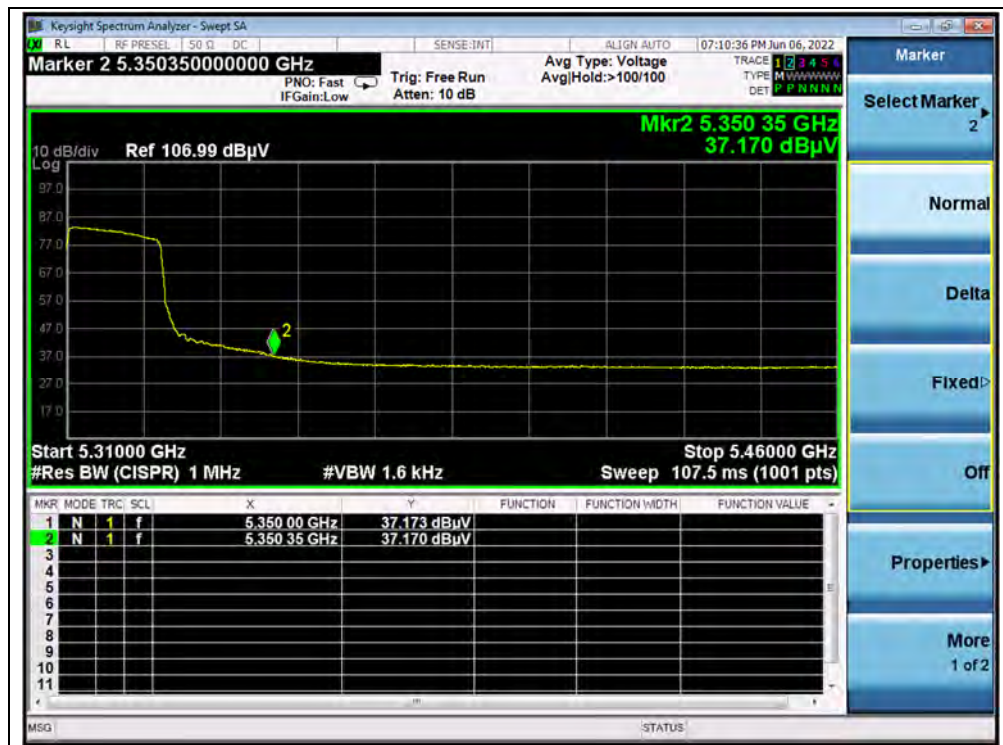
(PEAK, Channel 38, 802.11n (HT40))



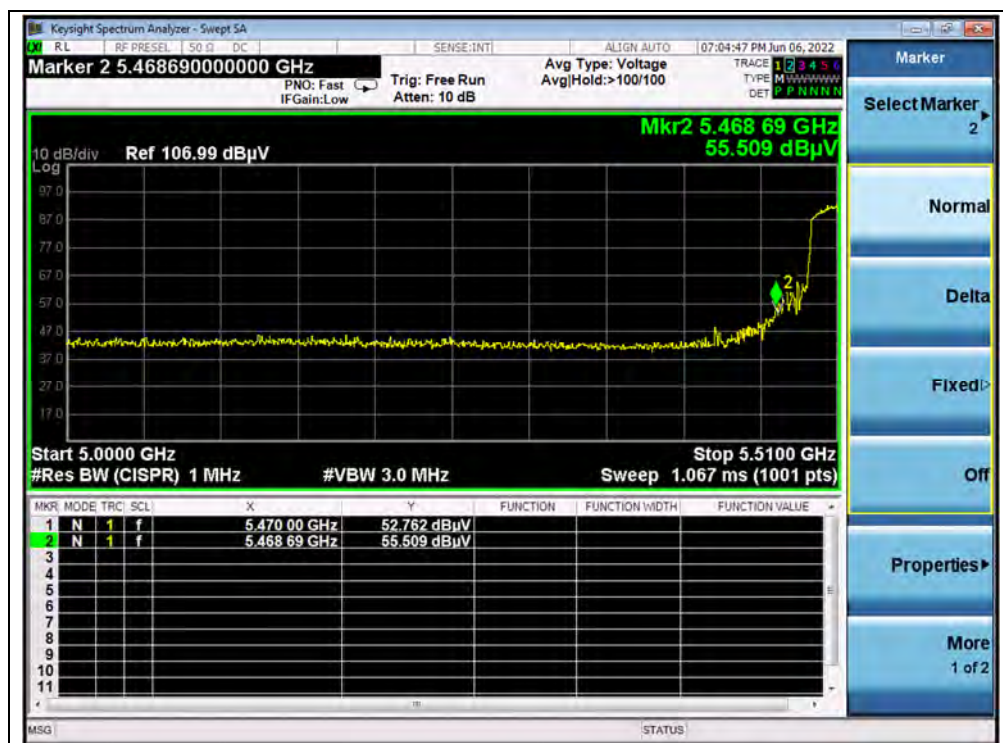
(AVERAGE, Channel 38, 802.11n (HT40))



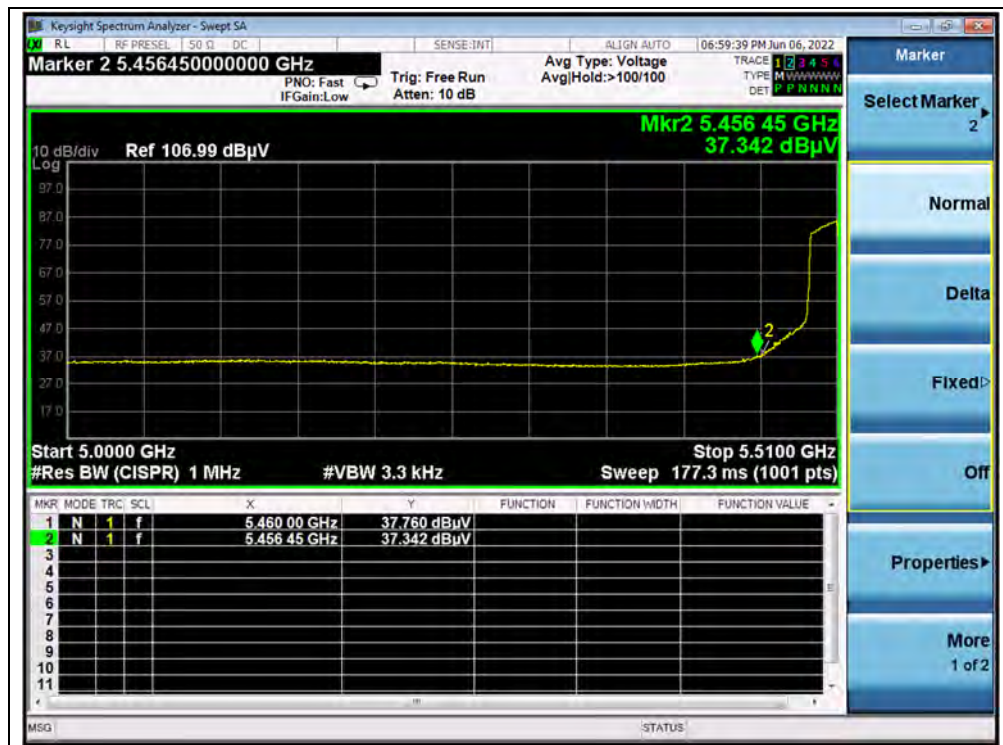
(PEAK, Channel 62, 802.11n (HT40))



(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))

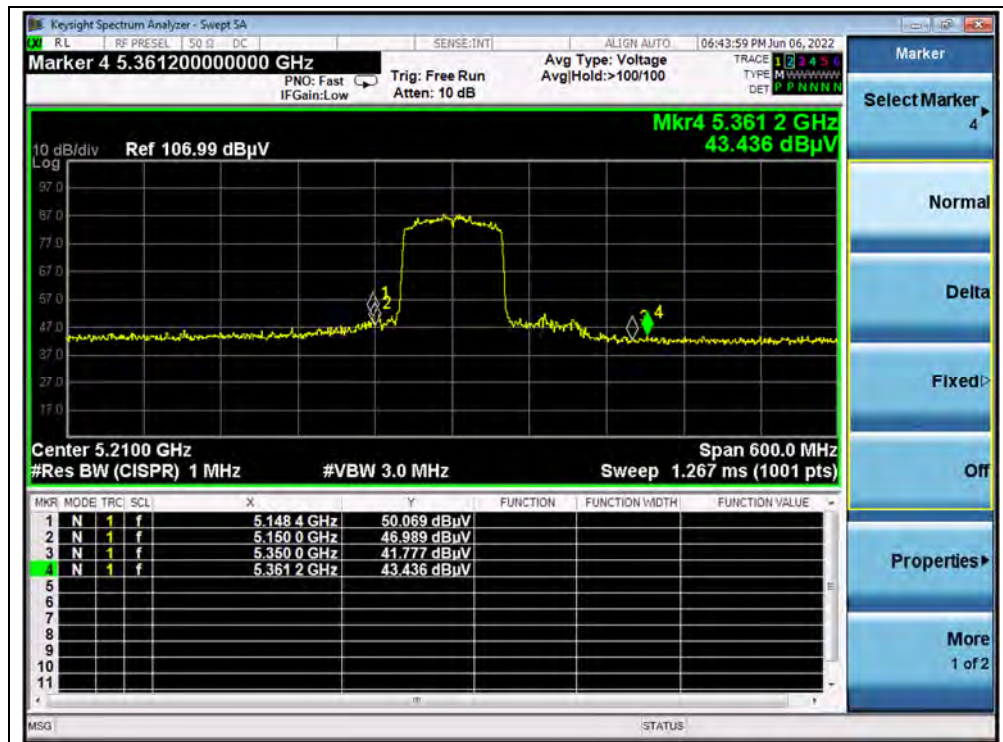


802.11ac (VHT80) Mode

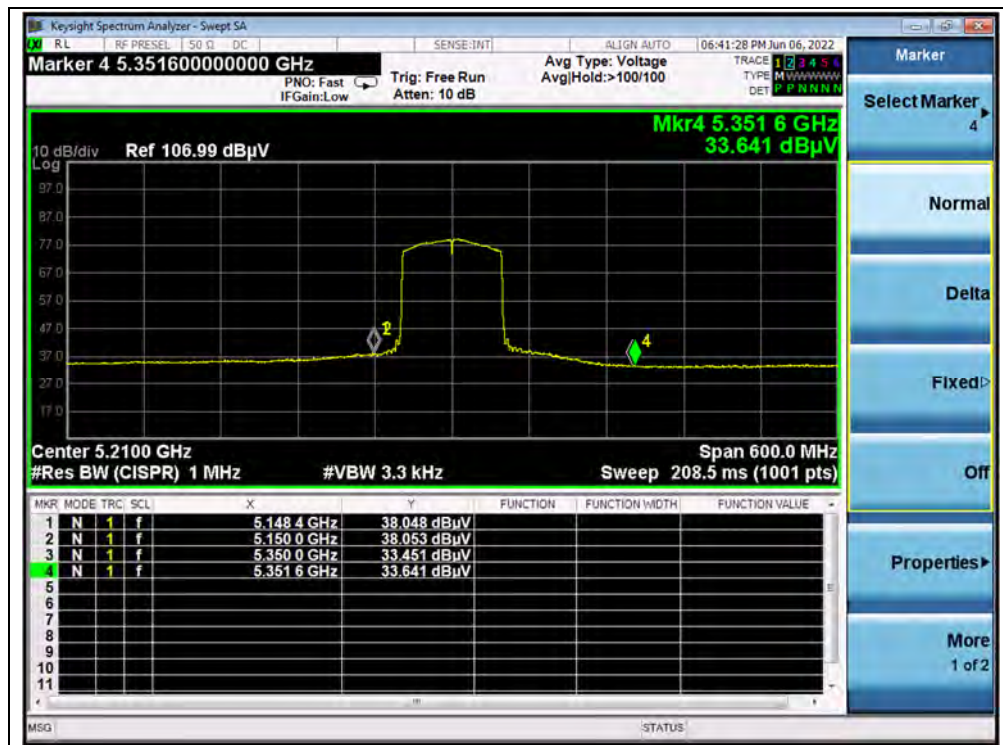
A.Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
42	5148.40	PK	50.07	-19.54	32.20	62.73	74	PASS
42	5150.00	AV	38.05	-19.54	32.20	50.71	54	PASS
58	5353.40	PK	47.27	-18.80	32.20	60.67	74	PASS
58	5350.00	AV	37.58	-18.80	32.20	50.98	54	PASS
106	5465.87	PK	50.08	-19.20	32.20	63.08	68.23	PASS
106	5458.45	AV	37.57	-19.20	32.20	50.57	54	PASS
138	5727.59	PK	46.56	-19.20	32.20	59.56	68.23	PASS
155	5725.00	PK	56.54	-19.01	32.20	69.73	122.23	PASS
155	5850.00	PK	48.82	-19.01	32.20	62.01	122.23	PASS

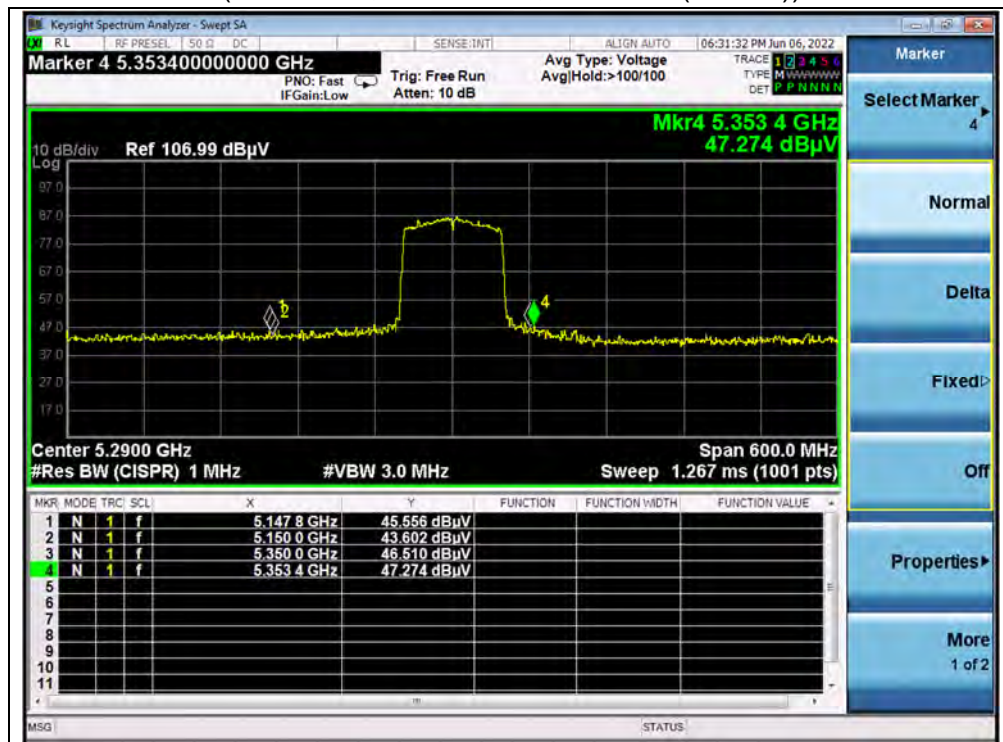
B.Test Plot:



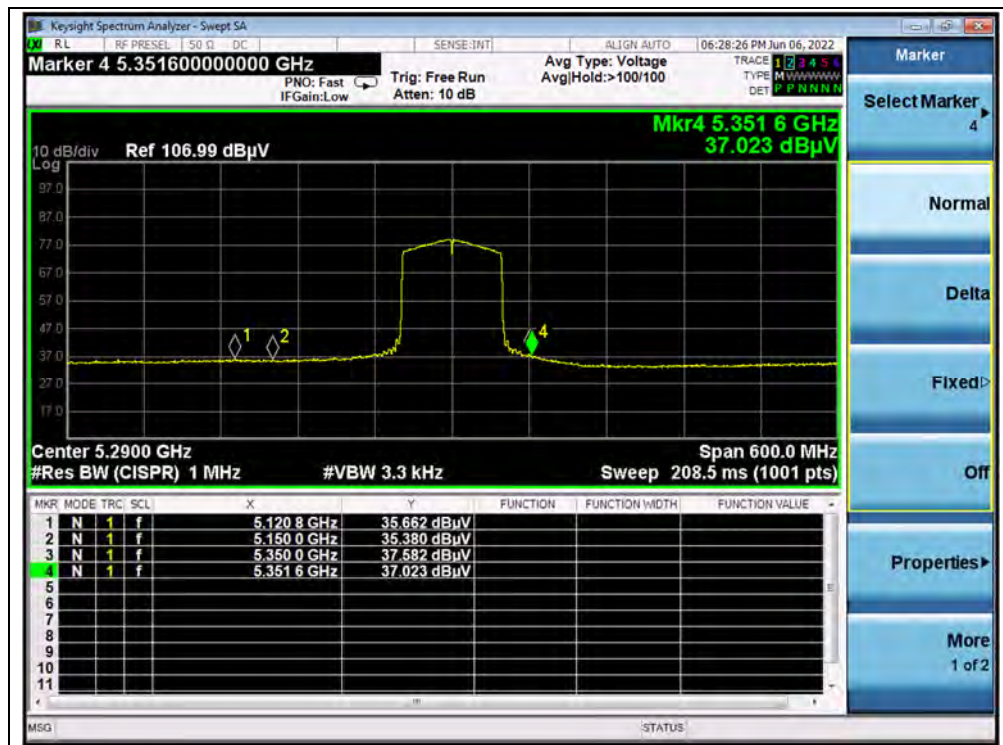
(PEAK, Channel 42, 802.11ac (VHT80))



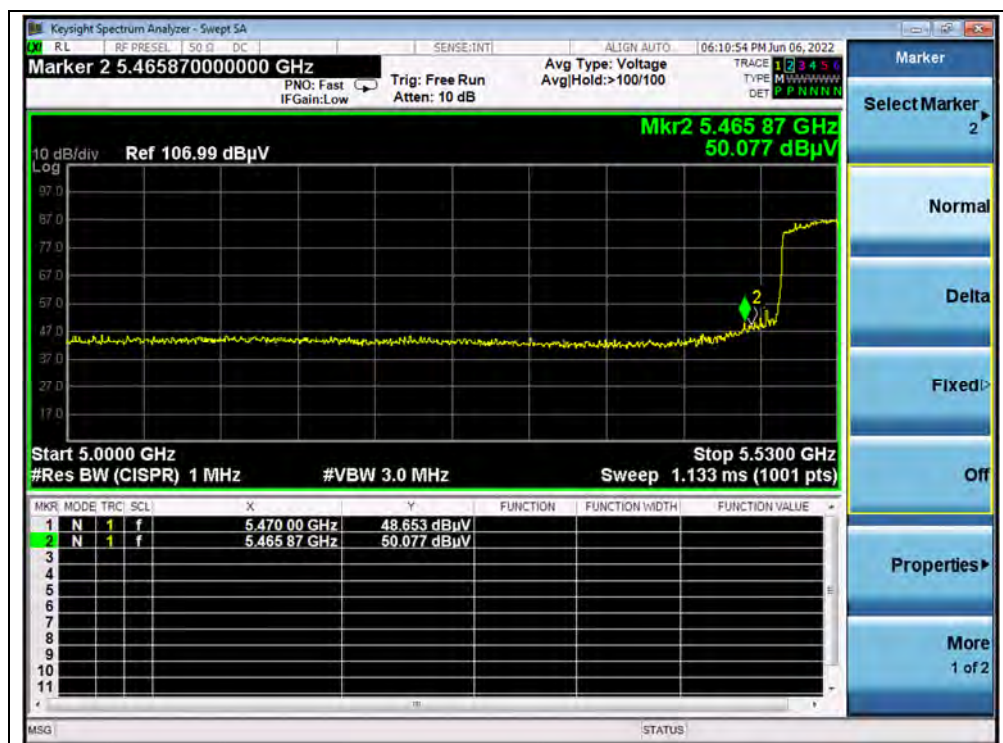
(AVERAGE, Channel 42, 802.11ac (VHT80))



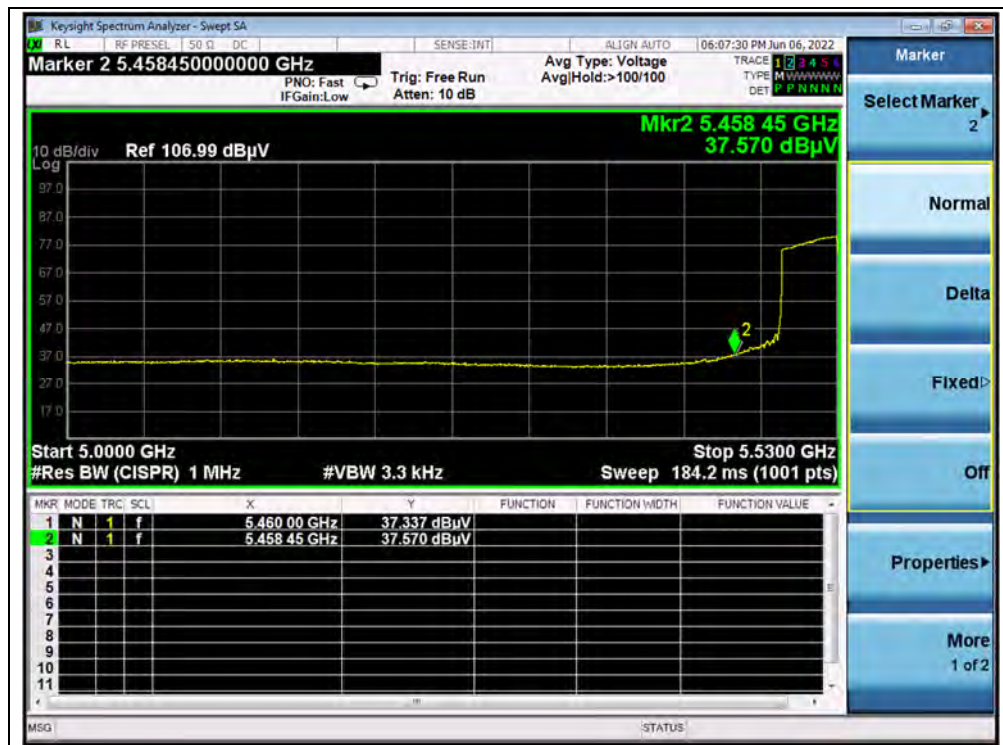
(PEAK, Channel 58, 802.11ac (VHT80))



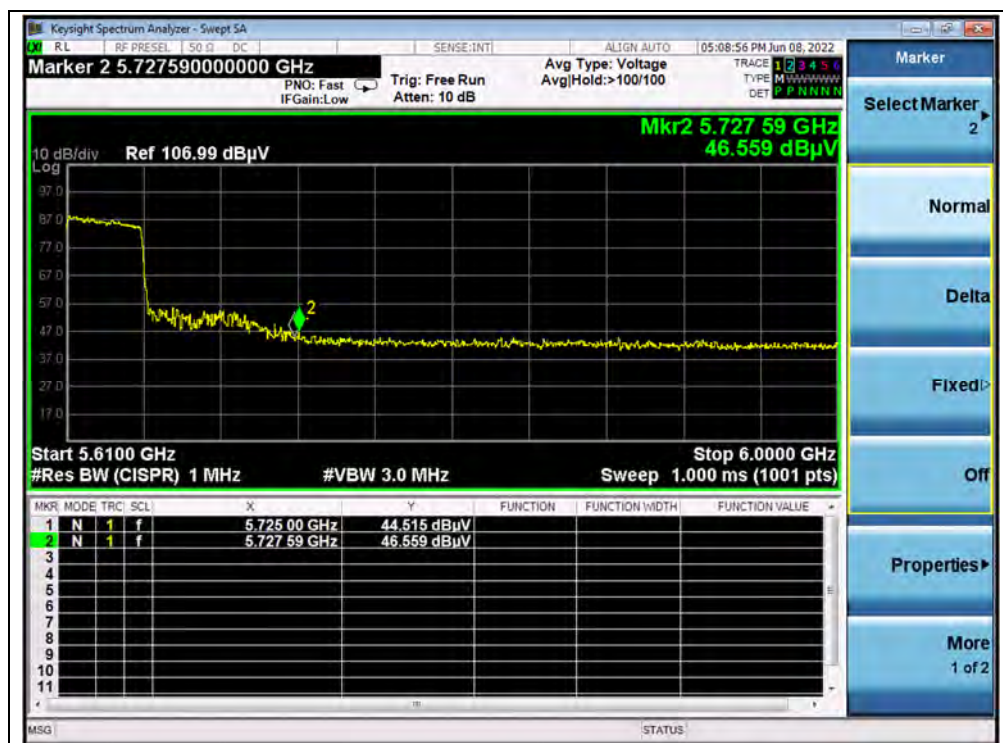
(AVERAGE, Channel 58, 802.11ac (VHT80))



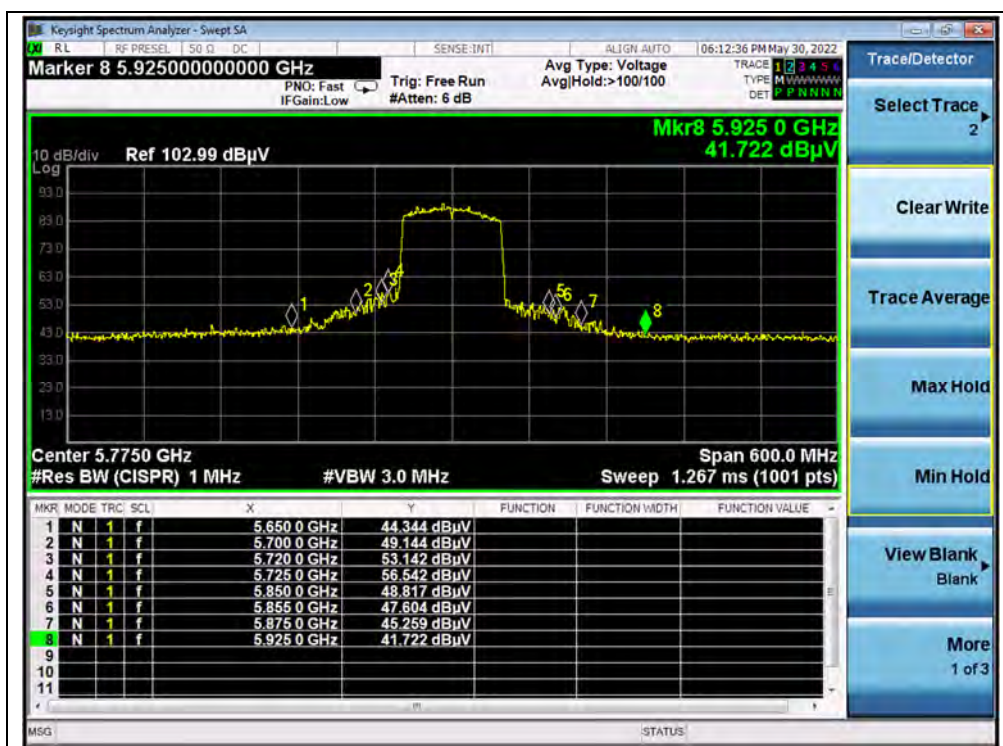
(PEAK, Channel 106, 802.11ac (VHT80))



(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);

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

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. 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:

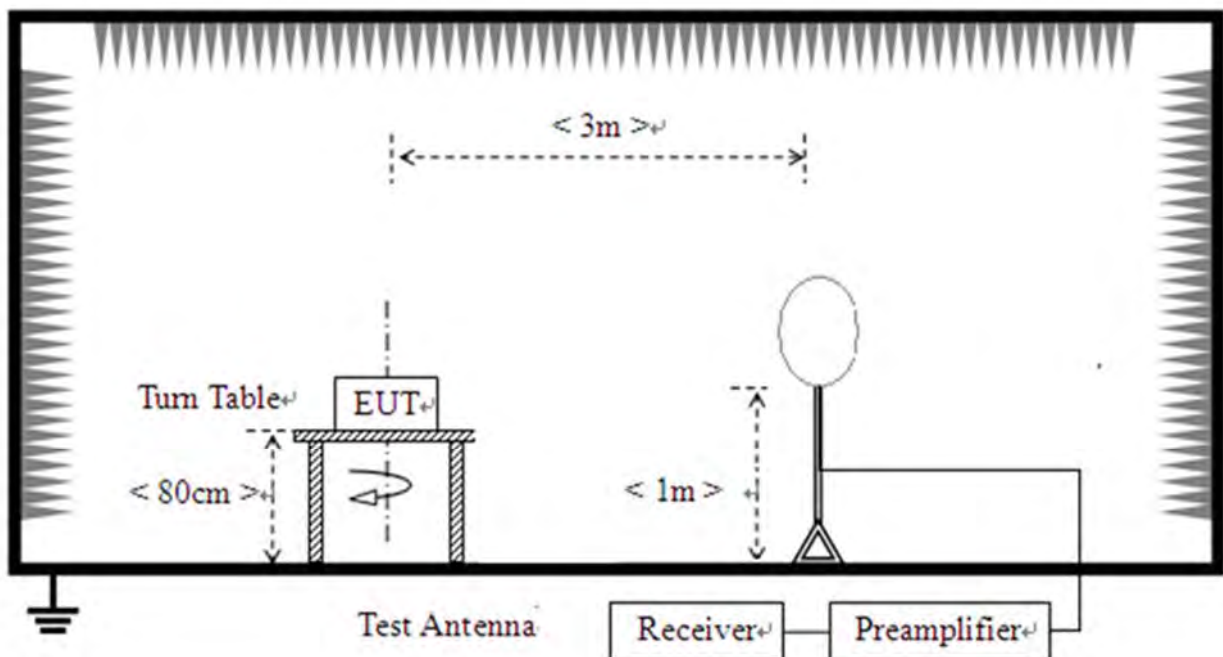
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

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).

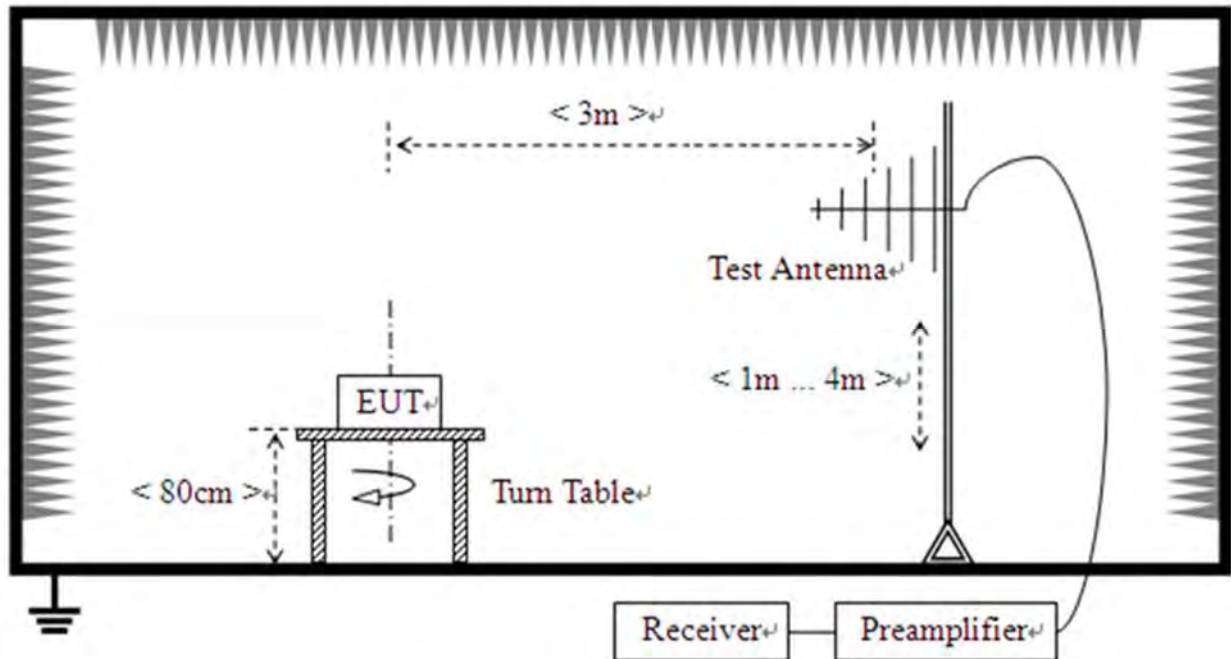
2.9.2. Test Description

Test Setup:

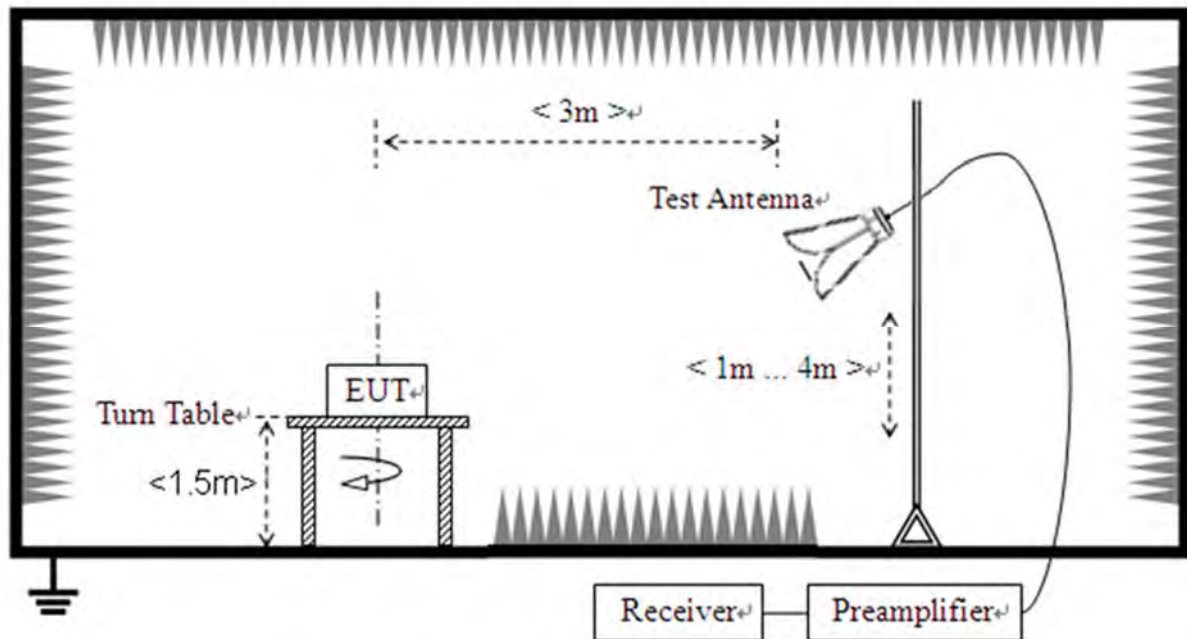
- 1) For radiated emissions from 9kHz to 30MHz



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 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. For measurements above 1 GHz, keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.

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:

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

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.

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.

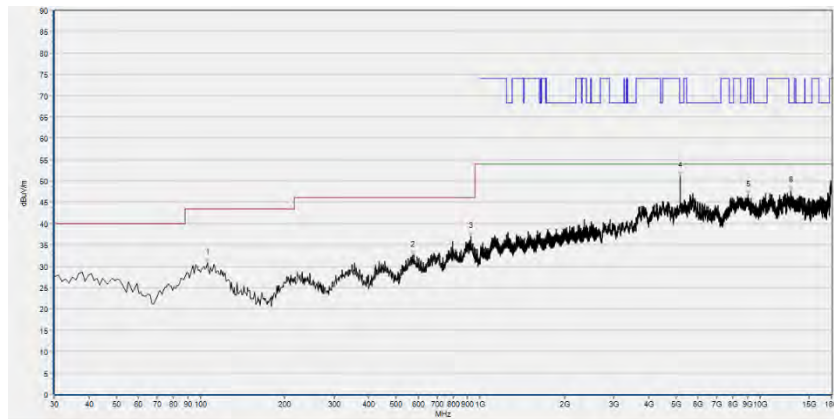
Note 2: For the frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

Note 3: For the frequency, which started from 18GHz to 10th harmonic of the highest frequency, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

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

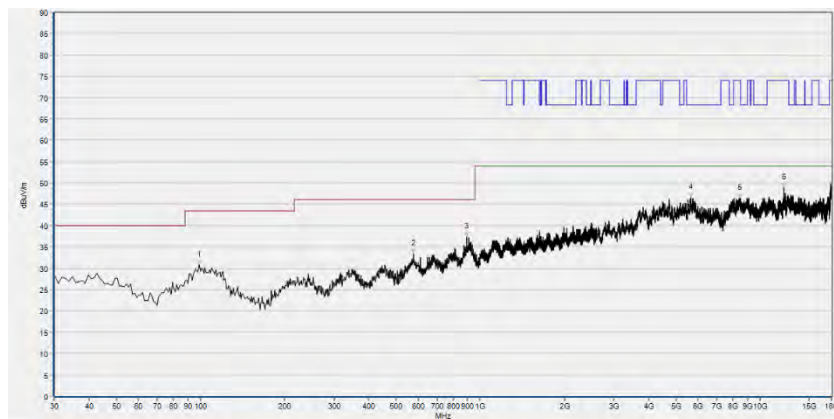
**802.11a Mode**

Plot for Channel 36



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
105.736	30.74	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
572.773	32.50	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
924.264	37.02	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5181.556	51.12	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
9078.536	46.81	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12889.258	47.74	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

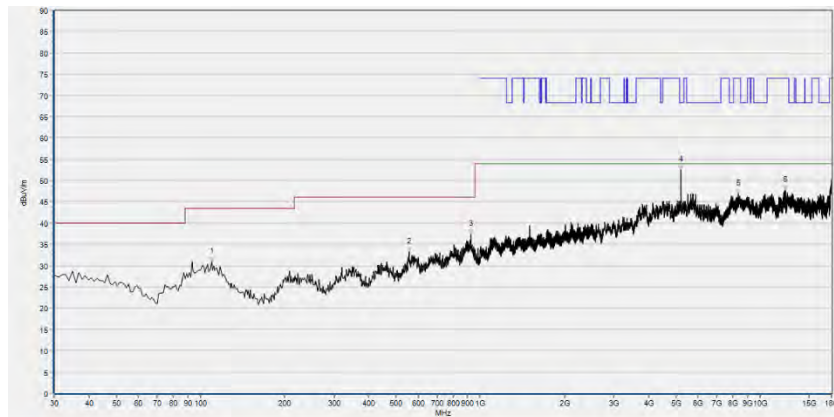


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
98.939	30.69	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
576.657	33.42	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
894.164	37.31	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5649.810	46.54	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8459.332	46.36	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12189.958	48.87	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

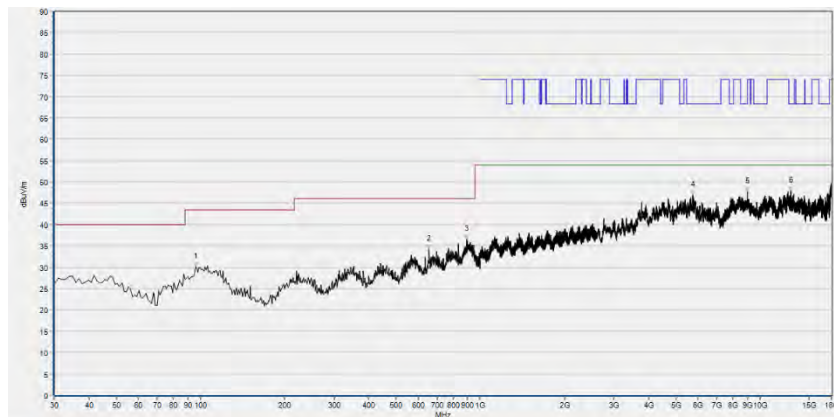


Plot for Channel 44



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
109.620	30.97	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
556.266	33.25	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
925.235	37.29	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5218.524	52.40	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8351.510	46.86	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12276.215	47.66	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

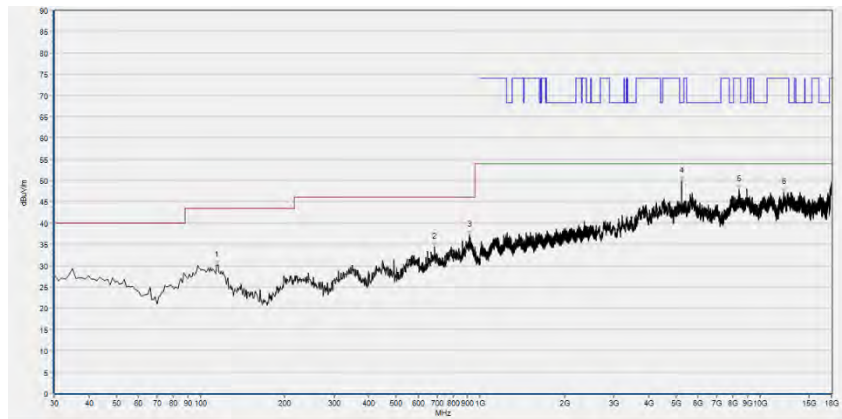
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
96.026	30.09	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
656.276	34.19	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
893.193	36.57	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5748.390	46.89	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
9007.682	47.68	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12886.177	47.96	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

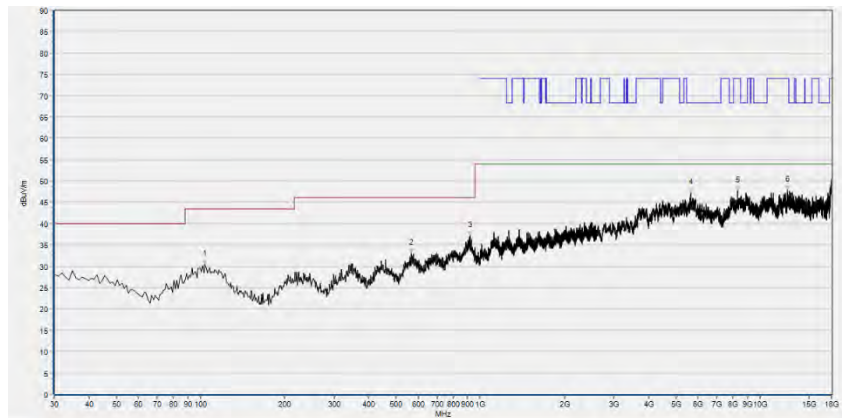
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 48



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
114.474	30.09	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
687.347	34.45	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
912.613	37.14	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5243.169	49.89	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8406.961	47.91	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12193.039	47.26	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

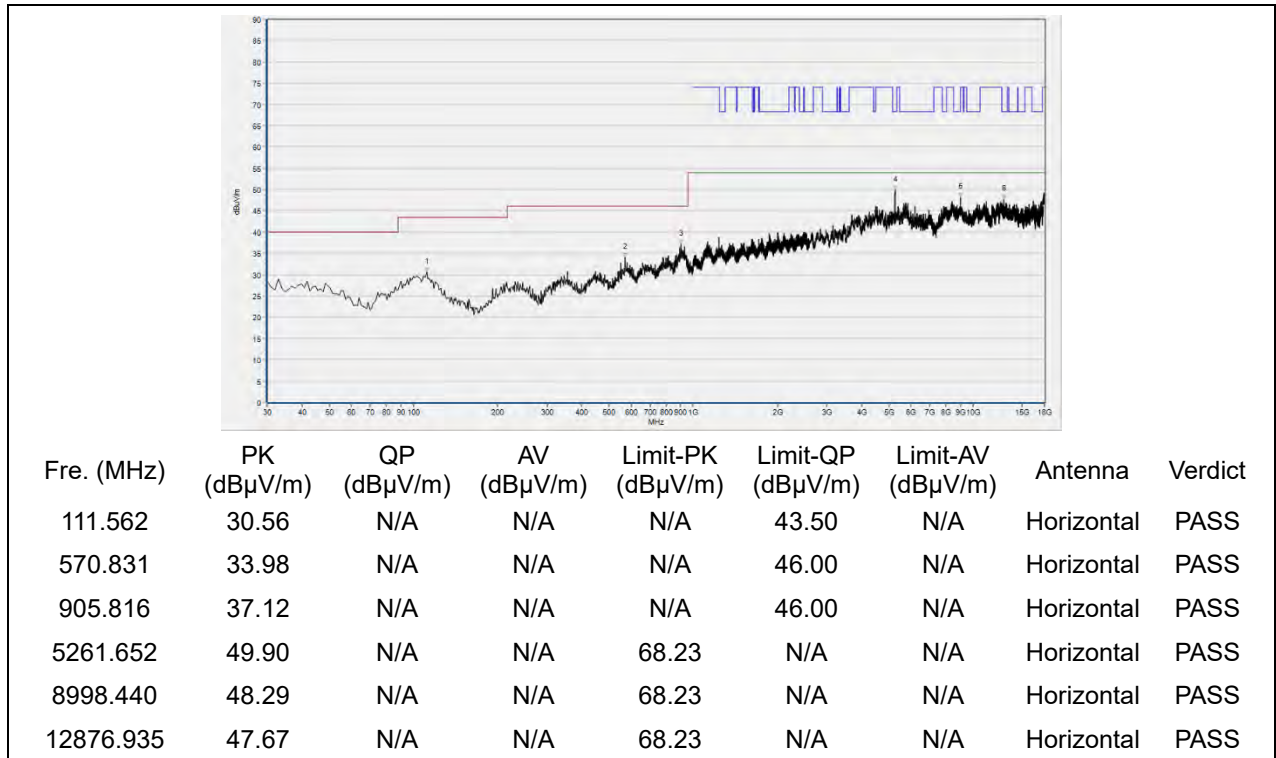
(Antenna Horizontal, 30MHz to 18GHz)



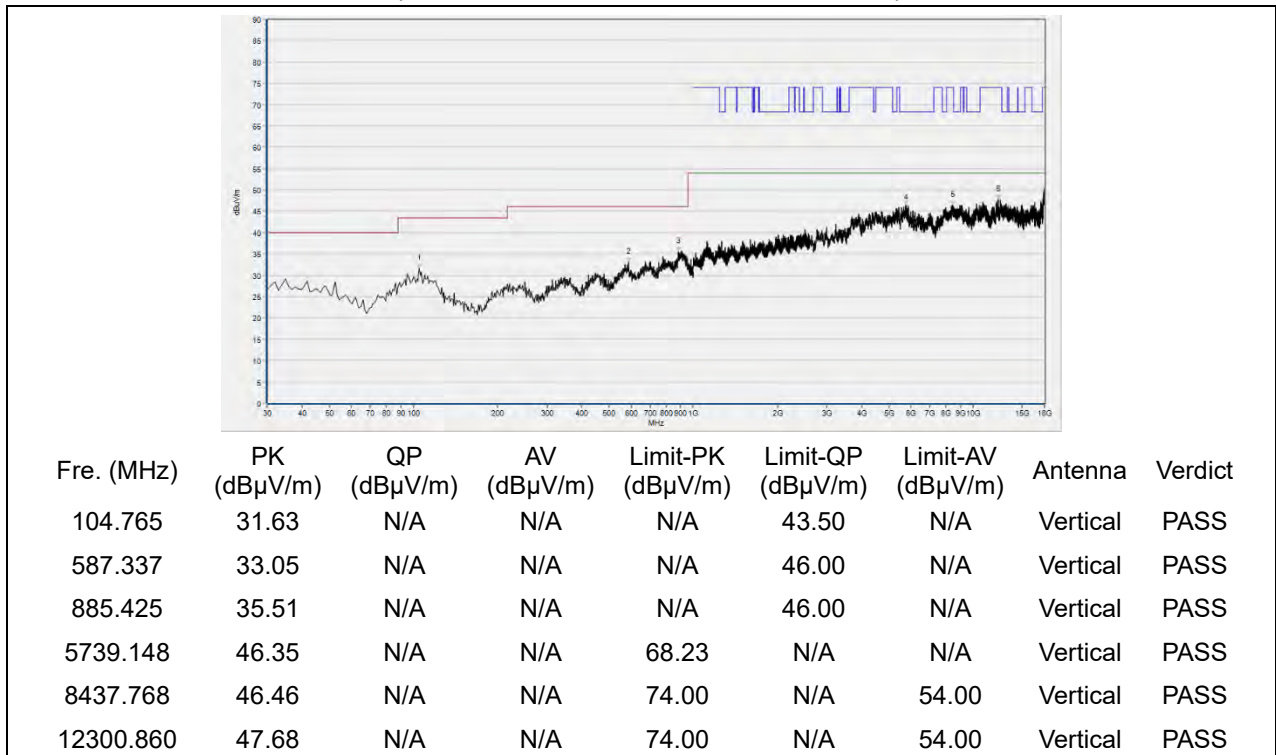
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
103.794	30.50	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
567.918	33.04	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
917.467	37.20	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5646.729	47.22	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8311.462	47.73	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12522.665	47.87	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 52



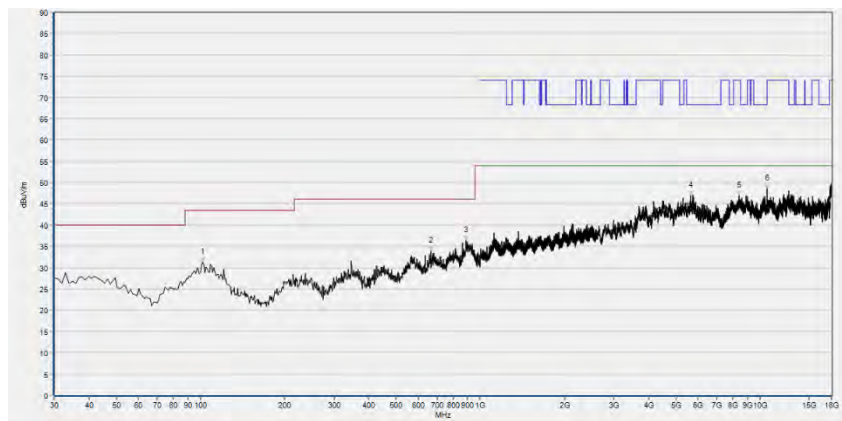
(Antenna Horizontal, 30MHz to 18GHz)



(Antenna Vertical, 30MHz to 18GHz)

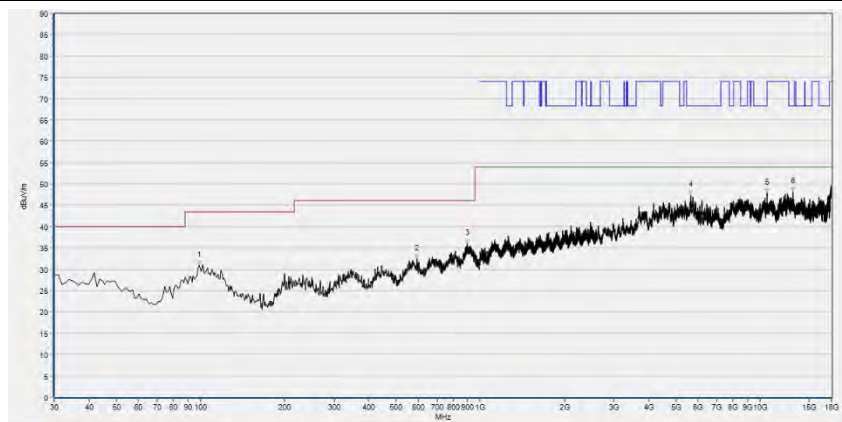


Plot for Channel 60



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
101.852	31.21	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
665.015	33.88	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
889.309	36.42	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5637.487	46.85	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8416.203	46.95	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10597.279	48.46	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

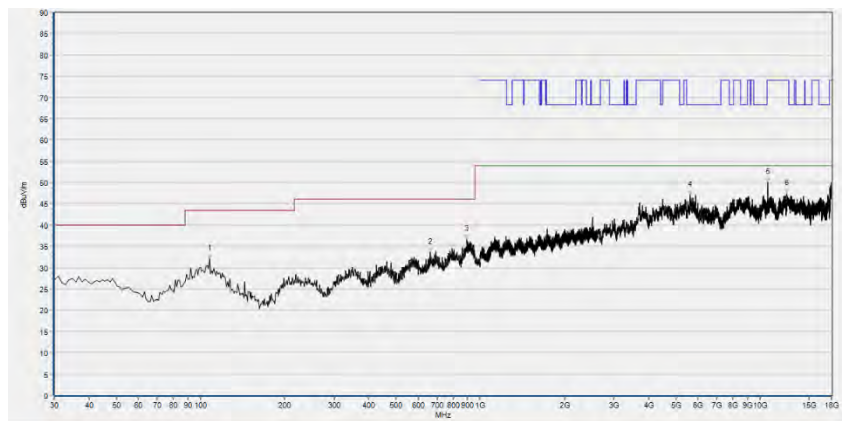


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
98.939	30.98	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
592.192	32.34	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
898.048	36.09	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5659.052	47.39	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10600.360	47.95	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
13077.175	48.21	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

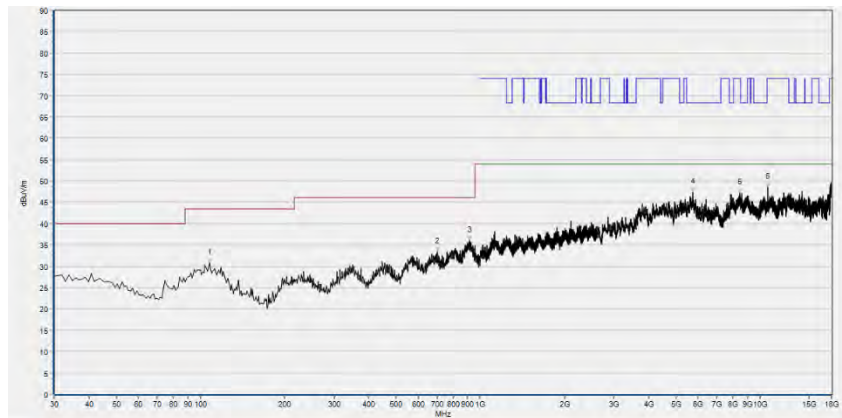


Plot for Channel 64



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
107.678	32.09	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
661.131	33.49	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
896.106	36.64	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5631.326	46.99	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
10637.327	50.05	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12482.617	47.41	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

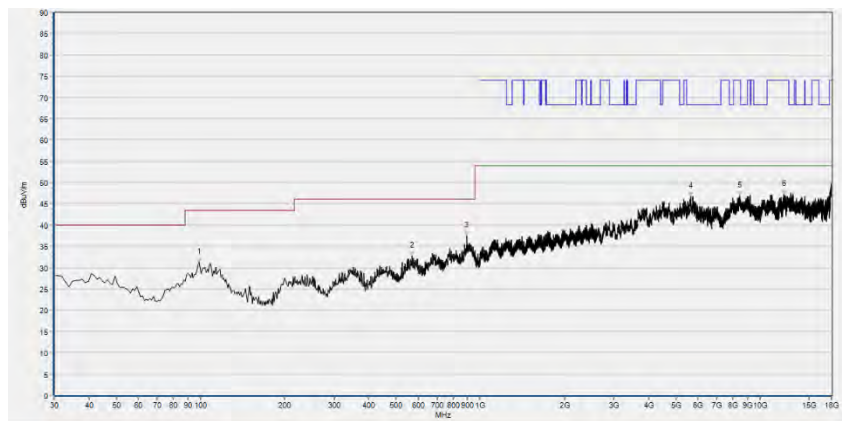


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
107.678	30.83	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
701.912	33.40	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
915.526	35.96	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5751.470	47.39	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8462.412	47.26	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
10637.327	48.49	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

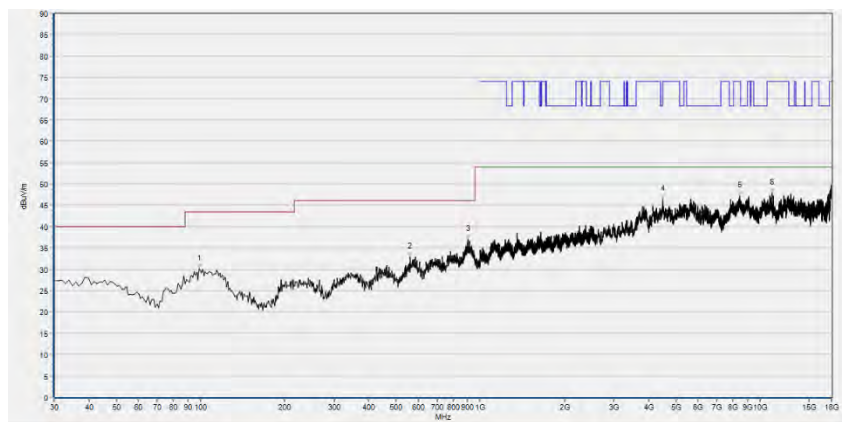


Plot for Channel 100



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
98.939	31.30	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
571.802	32.72	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
896.106	37.58	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5652.891	46.73	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8453.171	46.84	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12159.152	47.22	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

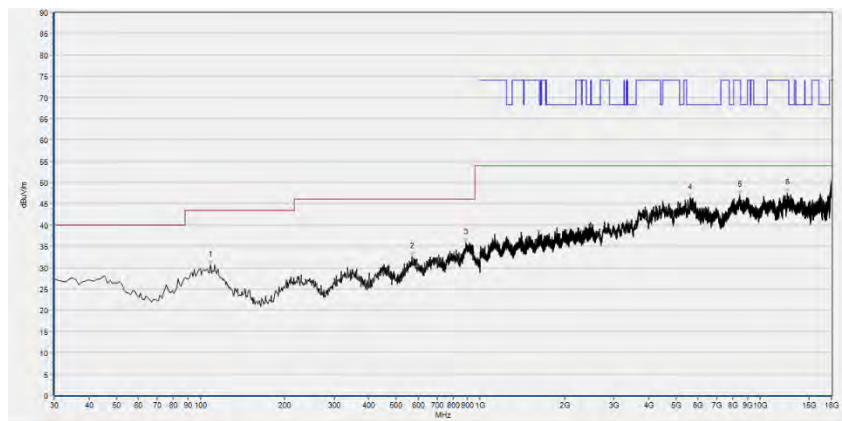
(Antenna Horizontal, 30MHz to 18GHz)



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
98.939	30.09	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
562.092	32.96	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
904.845	36.98	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
4479.176	46.41	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8480.896	47.19	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
11000.840	47.95	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

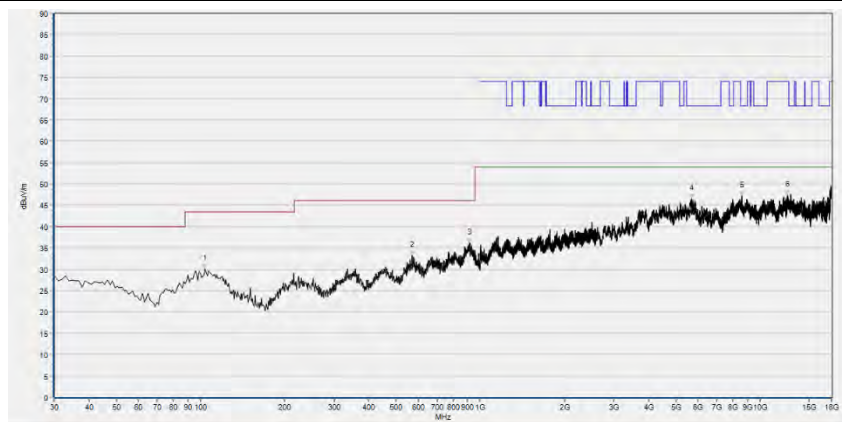
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 120



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
108.649	30.56	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
568.889	32.51	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
890.280	35.91	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5619.004	46.40	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8474.735	46.99	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12522.665	47.61	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

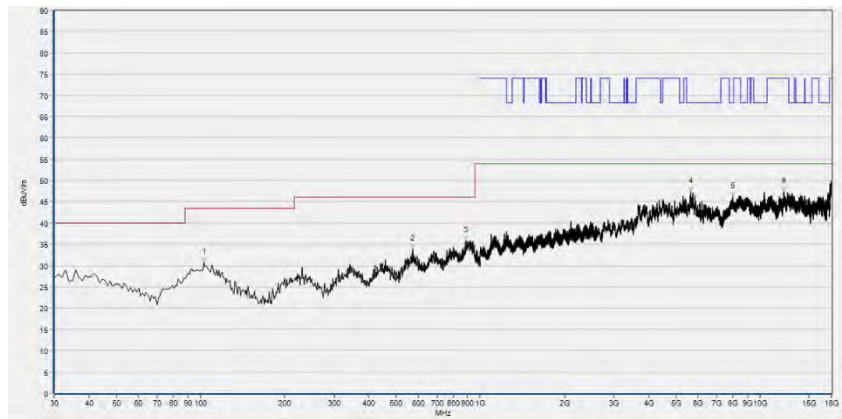


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
103.794	30.11	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
568.889	33.27	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
913.584	36.19	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5674.455	46.50	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8616.443	47.27	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12541.148	47.31	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

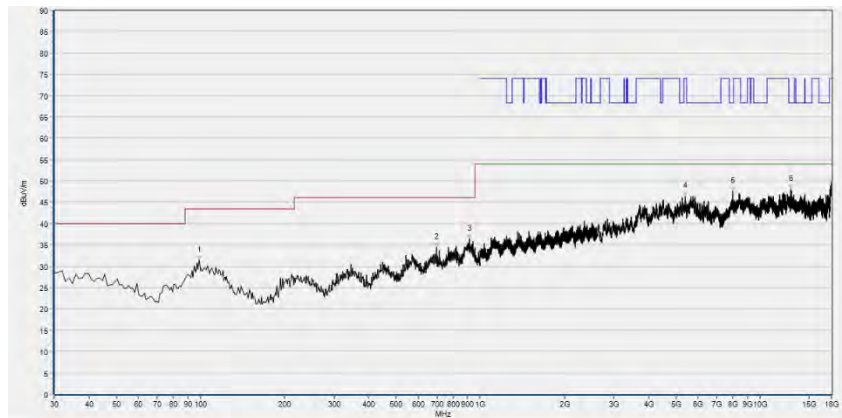


Plot for Channel 144



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
102.823	30.73	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
574.715	33.95	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
887.367	35.93	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5659.052	47.33	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8000.320	46.18	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12143.749	47.32	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

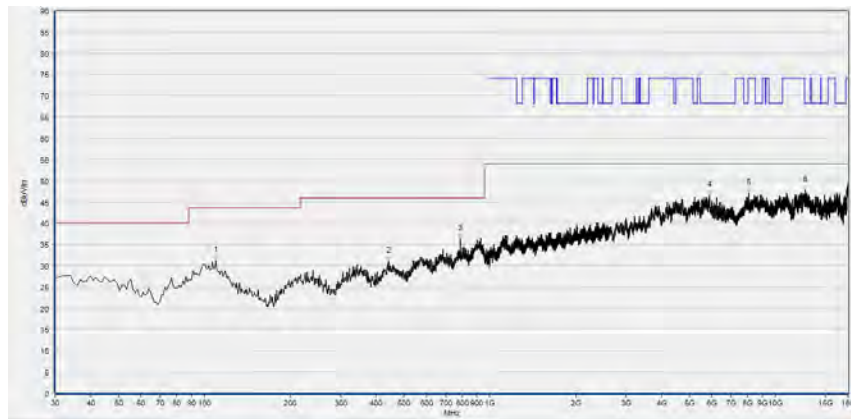


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
98.939	31.44	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
697.057	34.36	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
914.555	36.36	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5412.603	46.34	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7978.756	47.56	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12898.500	48.00	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

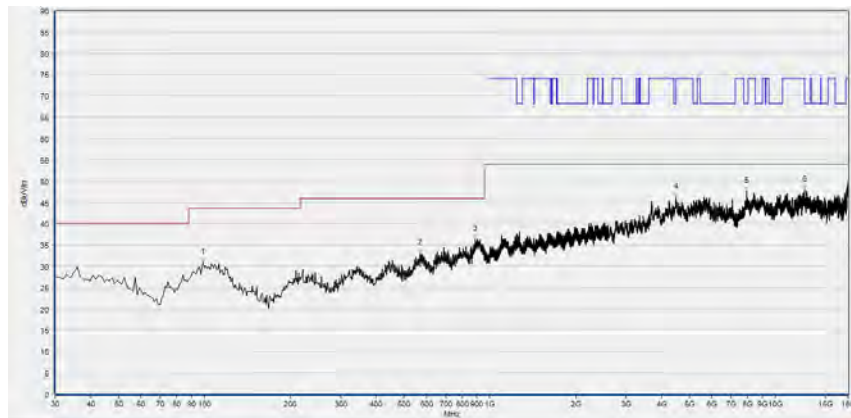


Plot for Channel 149



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
109.620	31.19	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
441.692	30.99	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
789.299	36.29	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5887.017	46.58	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8086.577	47.16	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12750.630	47.74	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

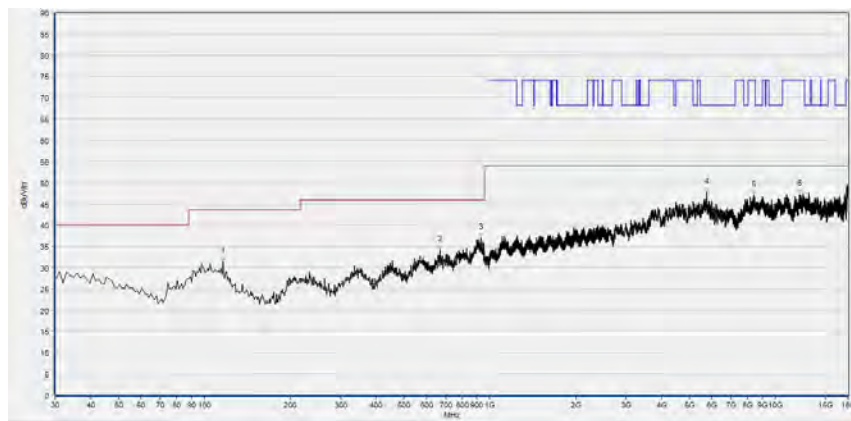
(Antenna Horizontal, 30MHz to 18GHz)



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
98.939	30.77	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
568.889	33.05	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
891.251	36.37	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
4497.660	46.19	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
7935.627	47.58	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12670.534	48.00	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

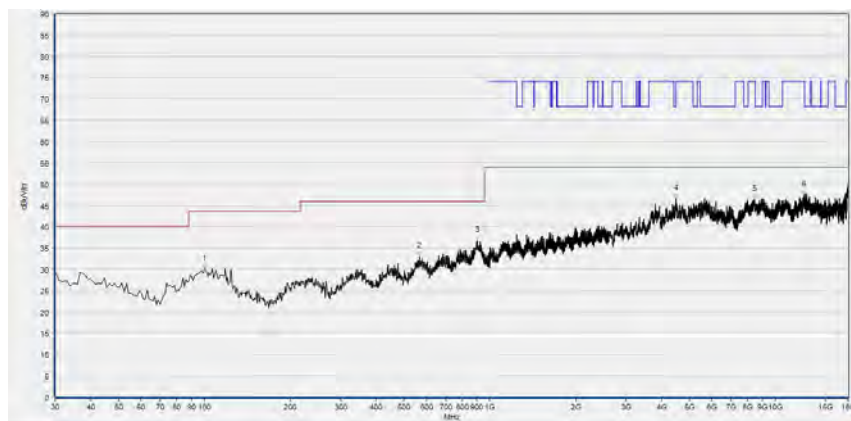
(Antenna Vertical, 30MHz to 18GHz)

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
116.416	31.39	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
668.899	34.27	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
929.119	36.96	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5748.390	47.77	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8428.526	47.14	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12174.555	47.20	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

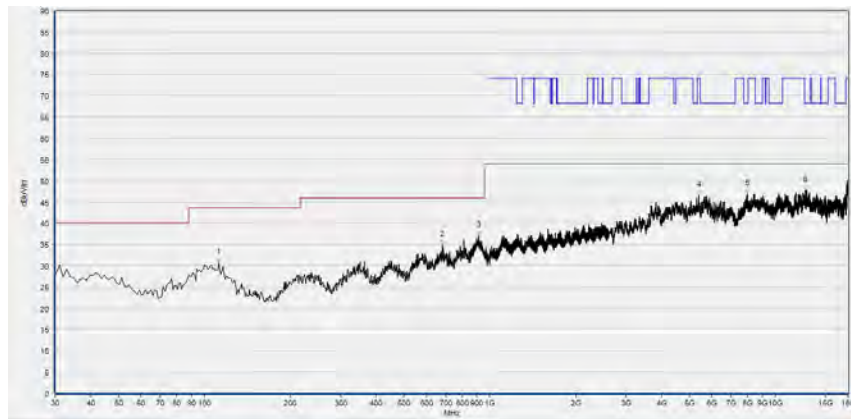


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
99.910	29.95	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
566.947	33.02	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
902.903	36.63	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
4497.660	46.64	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8465.493	46.36	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12593.519	47.46	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

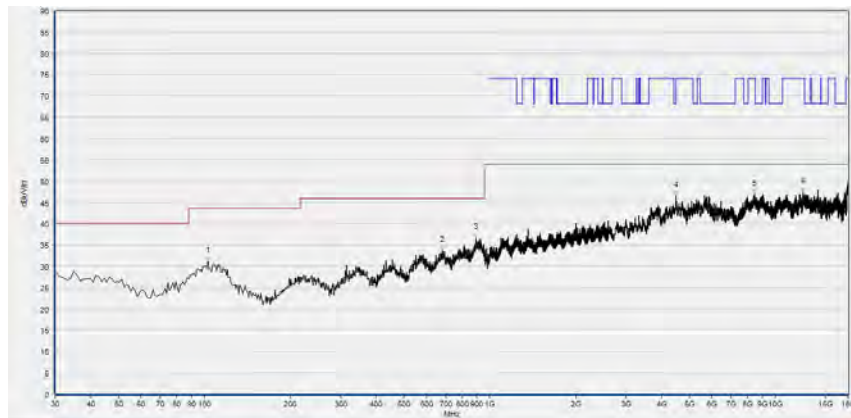


Plot for Channel 165



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
112.533	30.64	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
682.492	34.80	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
913.584	36.99	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5400.280	46.61	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
7975.675	46.95	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12756.791	47.73	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

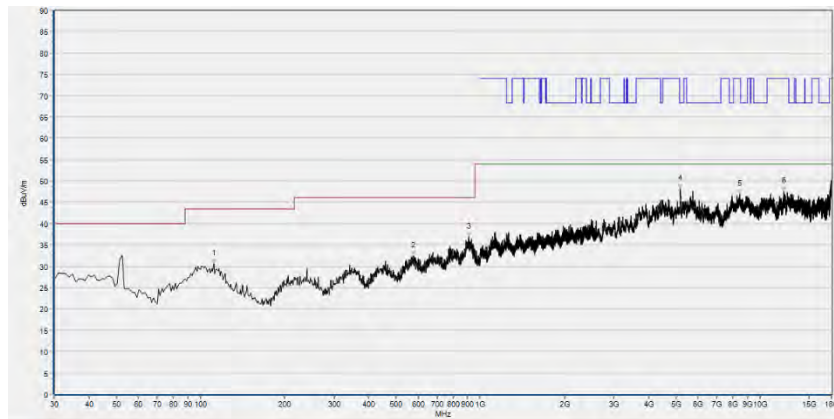


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
102.823	31.12	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
680.551	33.73	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
895.135	36.67	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
4491.498	46.60	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8465.493	47.00	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12541.148	47.49	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

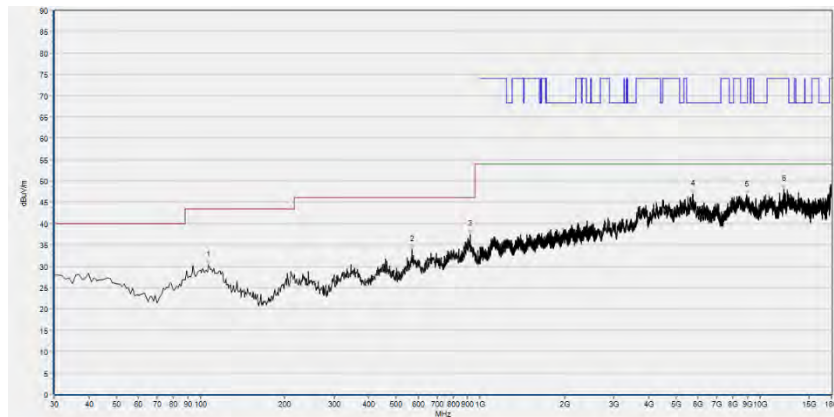
**802.11n (HT40) mode**

Plot for Channel 38



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
111.562	30.61	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
577.628	32.48	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
907.758	36.80	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5187.718	48.23	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8450.090	46.90	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12162.232	47.62	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

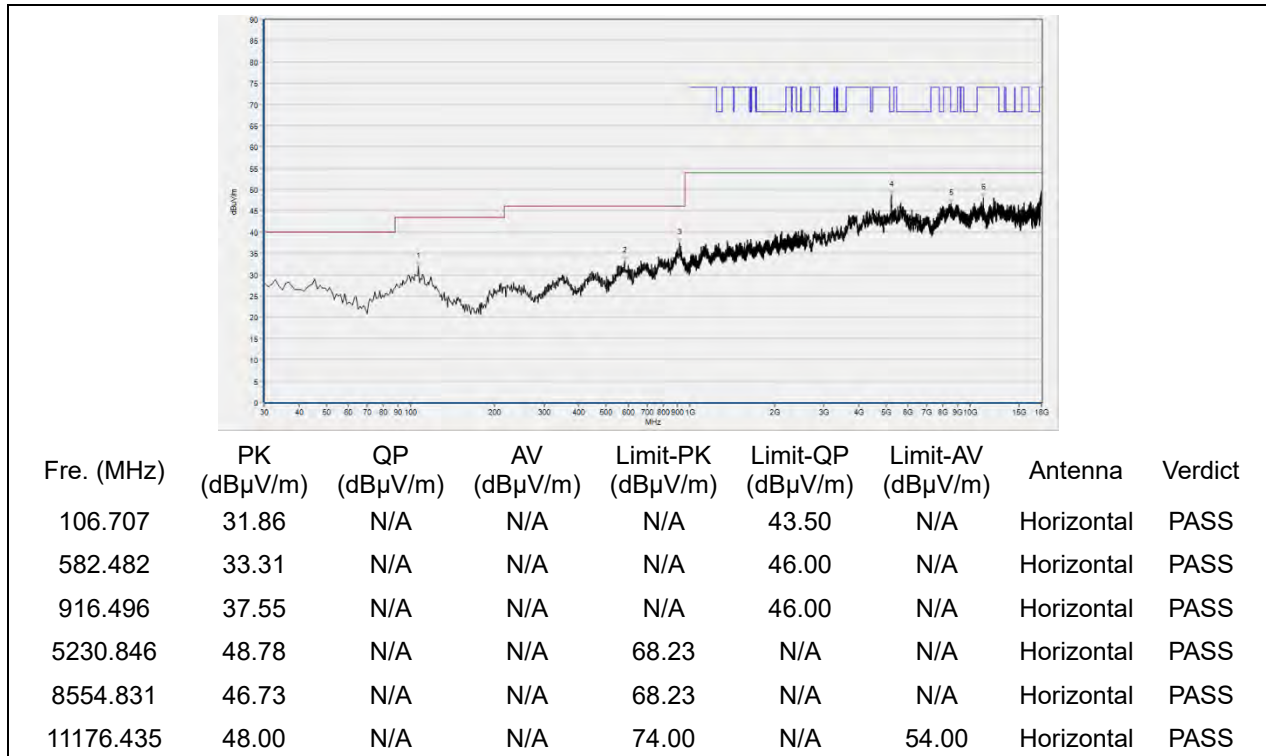
(Antenna Horizontal, 30MHz to 18GHz)



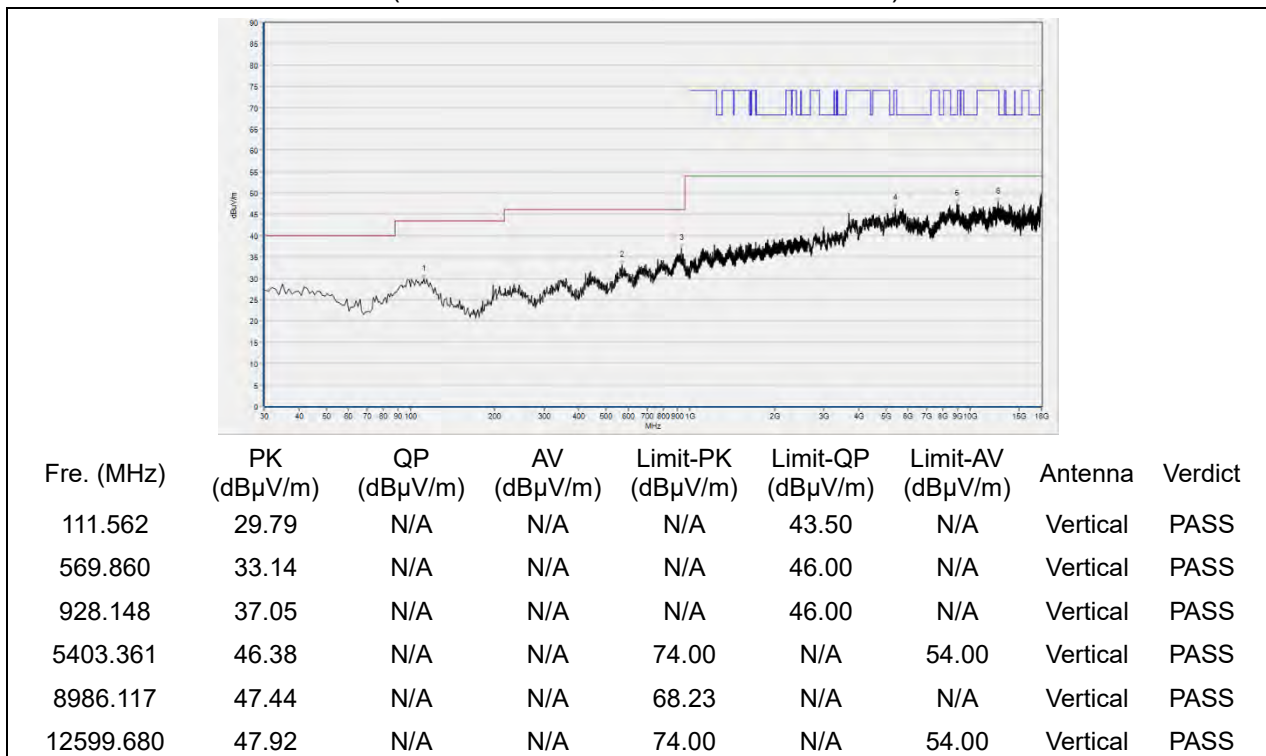
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
106.707	30.21	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
570.831	33.97	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
918.438	37.54	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5763.793	46.81	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8973.795	46.72	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12196.119	47.97	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 46



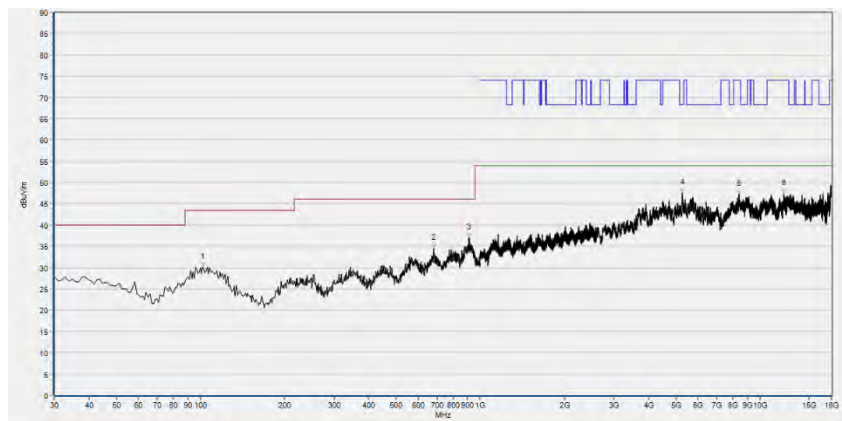
(Antenna Horizontal, 30MHz to 18GHz)



(Antenna Vertical, 30MHz to 18GHz)

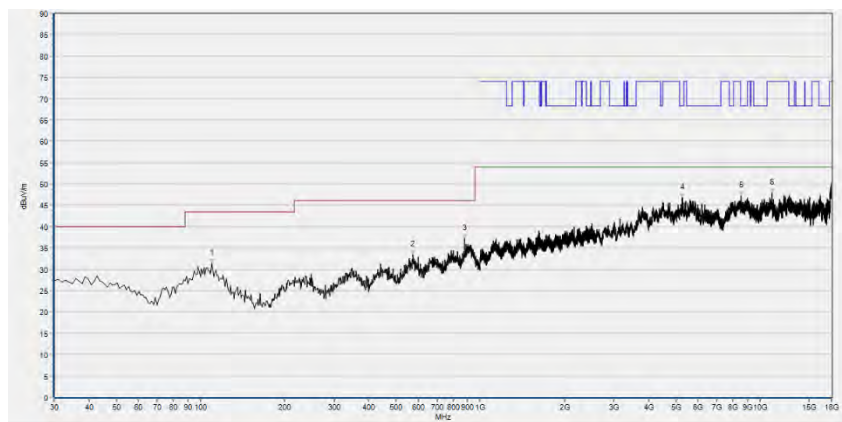


Plot for Channel 54



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
101.852	30.09	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
680.551	34.63	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
911.642	36.96	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5273.975	47.57	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8410.042	47.17	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12180.716	47.41	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

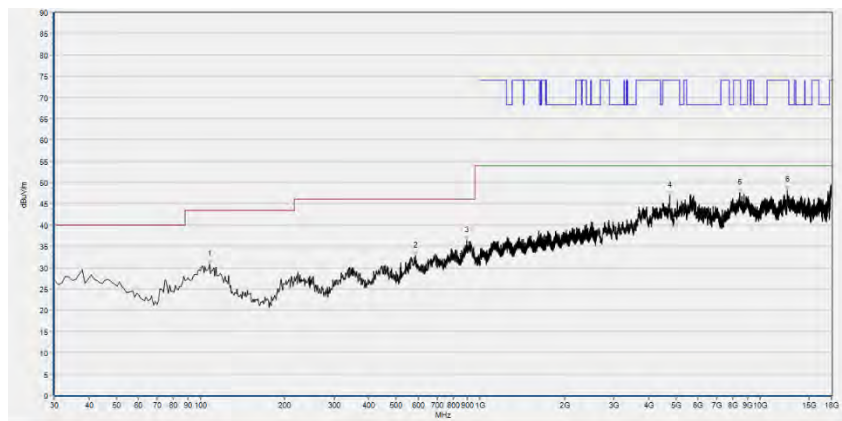
(Antenna Horizontal, 30MHz to 18GHz)



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	31.39	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
574.715	33.38	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
879.600	37.19	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5264.733	46.66	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8554.831	47.29	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10997.760	47.83	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

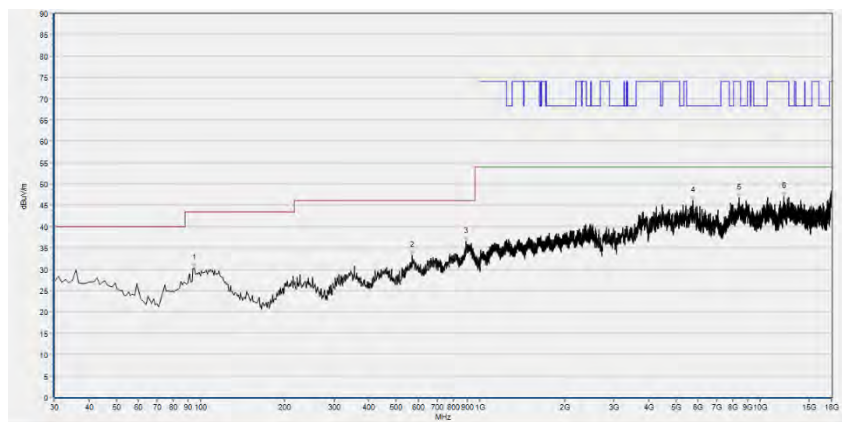
(Antenna Vertical, 30MHz to 18GHz)

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
107.678	30.70	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
586.366	32.72	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
894.164	36.34	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
4741.028	46.89	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8453.171	47.59	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12531.906	48.22	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

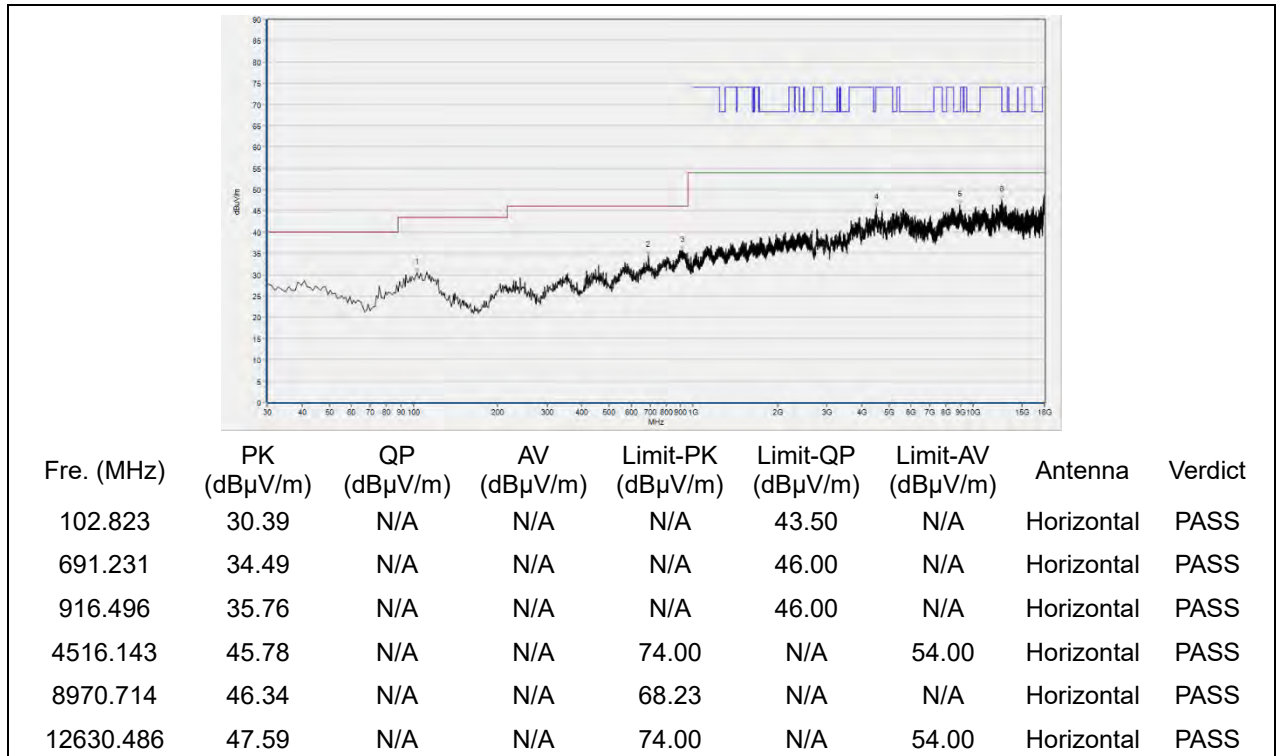
(Antenna Horizontal, 30MHz to 18GHz)



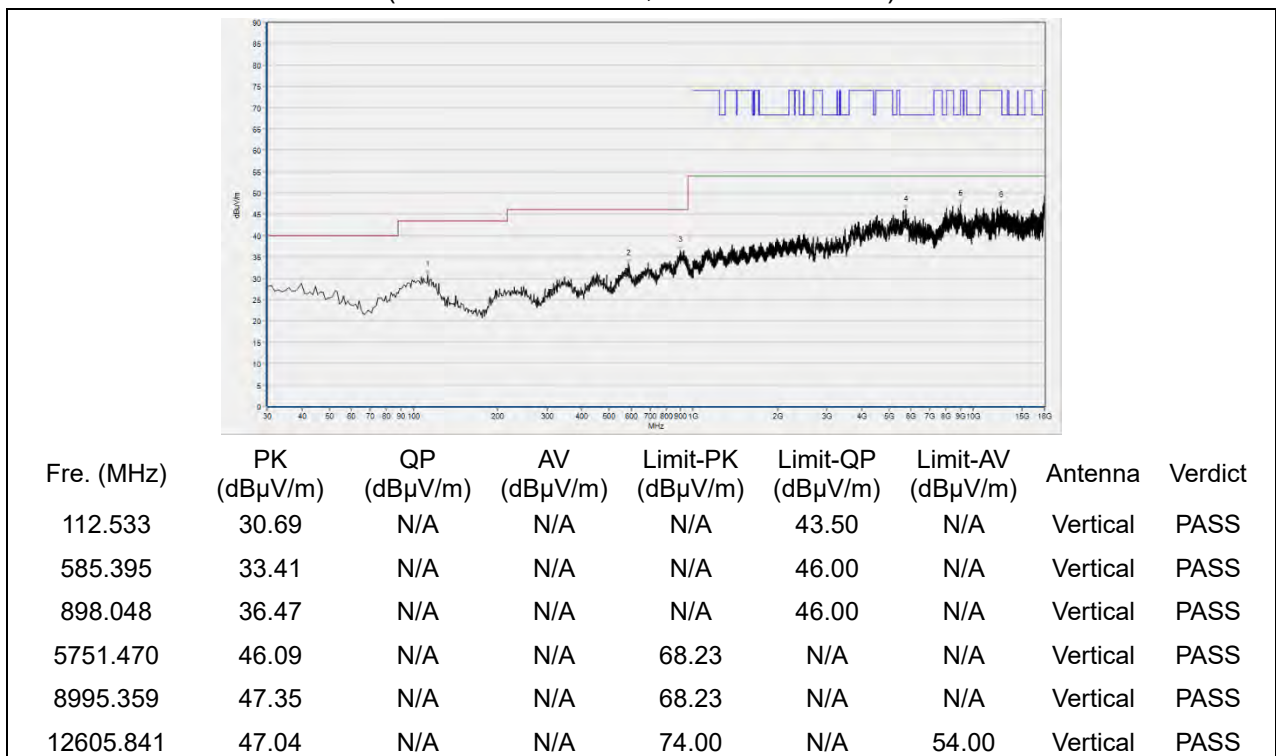
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
95.055	30.30	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
571.802	33.16	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
890.280	36.49	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5742.228	46.15	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8422.364	46.73	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12193.039	47.08	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 102



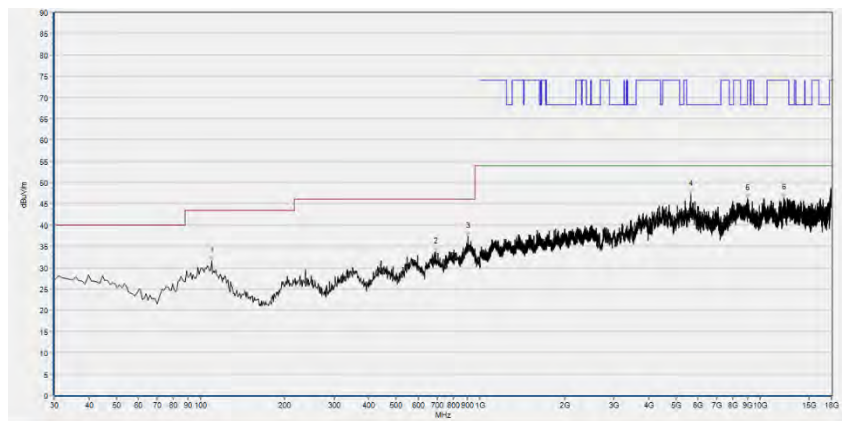
(Antenna Horizontal, 30MHz to 18GHz)



(Antenna Vertical, 30MHz to 18GHz)

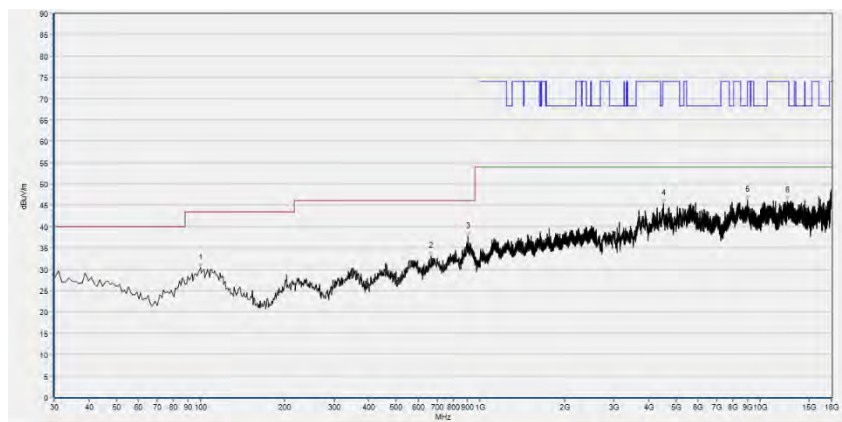


Plot for Channel 126



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
109.620	31.63	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
693.173	33.76	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
905.816	37.40	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5659.052	47.20	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8995.359	46.22	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12186.877	46.36	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

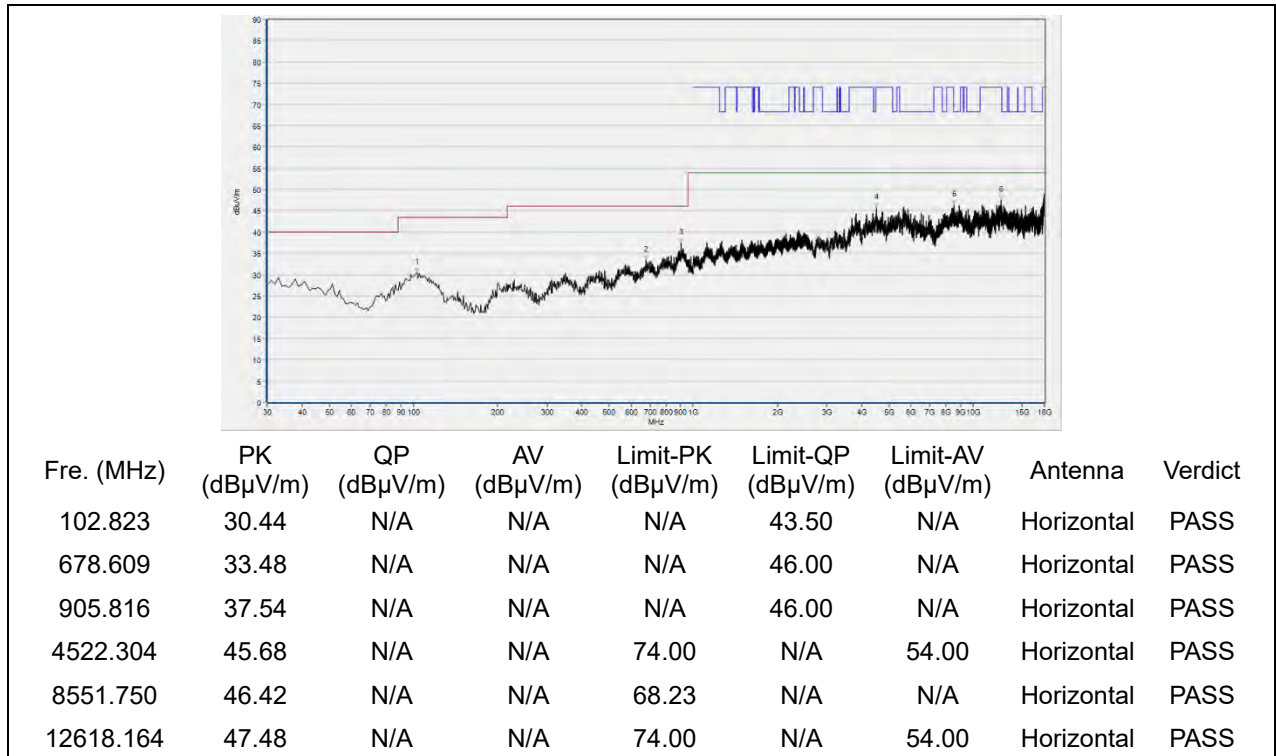
(Antenna Horizontal, 30MHz to 18GHz)



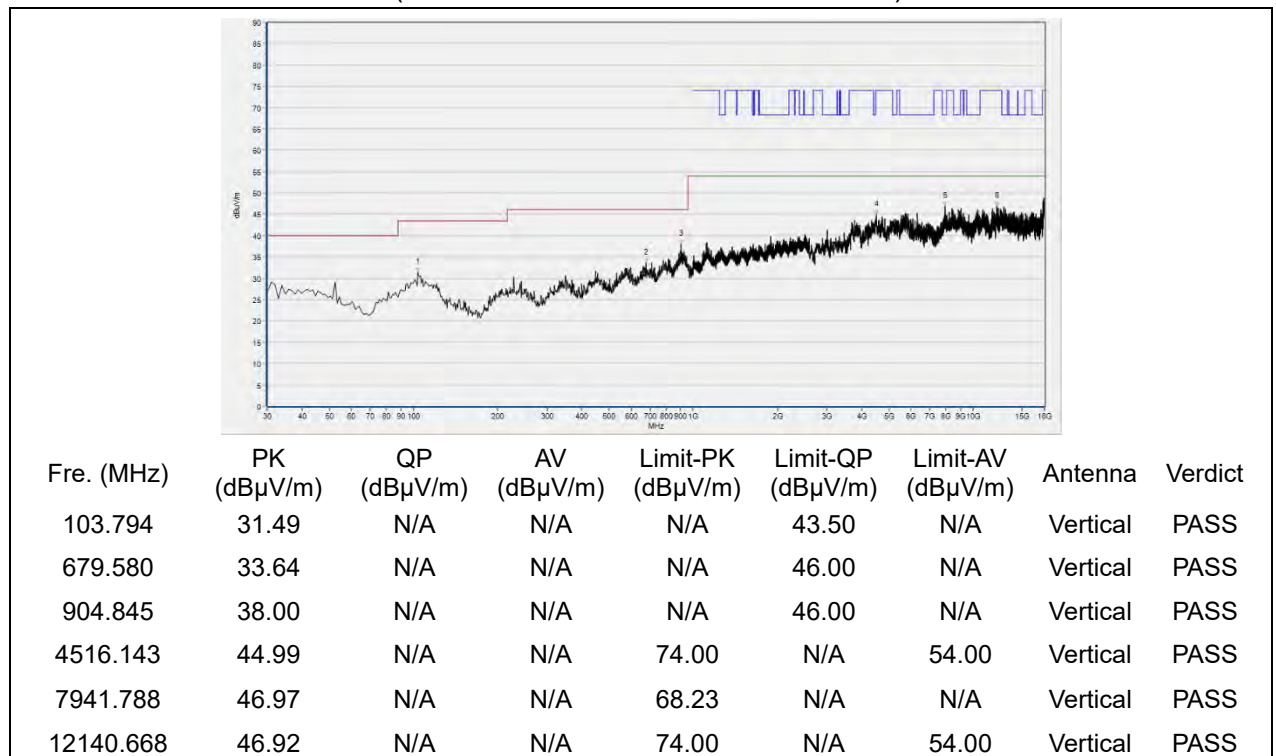
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
99.910	30.32	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
667.928	33.14	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
904.845	37.70	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
4519.224	45.44	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
9020.004	46.19	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12488.778	46.08	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 142

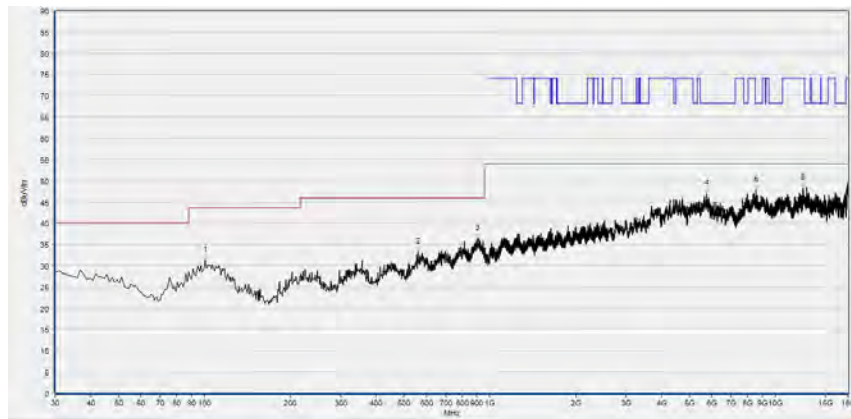


(Antenna Horizontal, 30MHz to 18GHz)



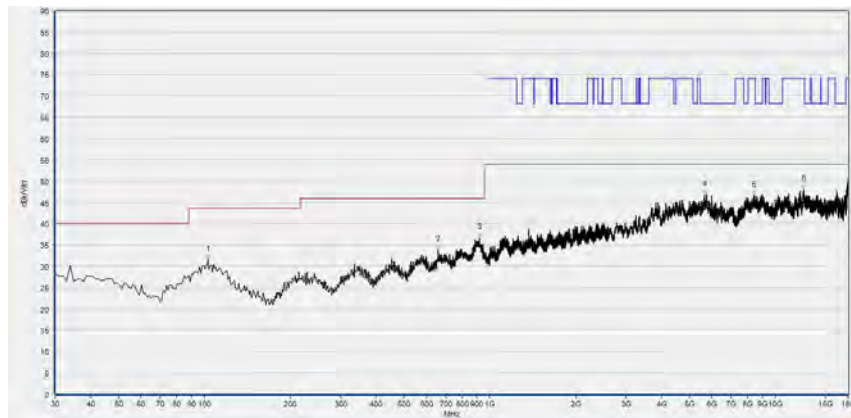
(Antenna Vertical, 30MHz to 18GHz)

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
100.881	31.15	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
562.092	33.26	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
905.816	36.36	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5766.873	46.95	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8570.234	47.72	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12501.100	48.18	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

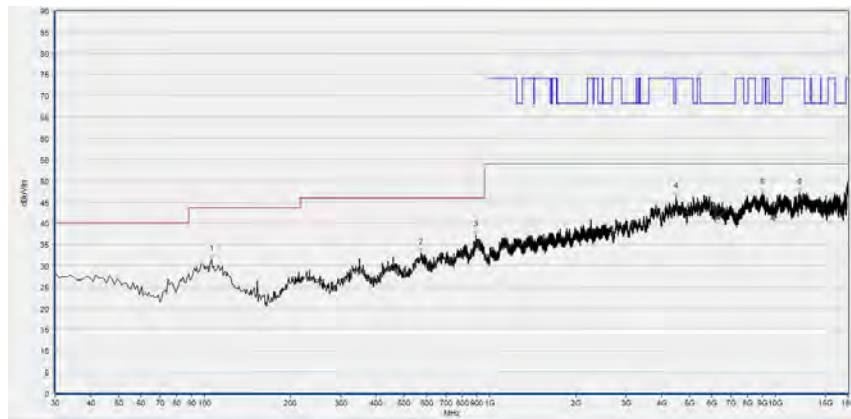


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
102.823	31.56	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
660.160	33.86	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
920.380	36.78	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5640.568	46.68	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8419.284	46.65	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12596.599	48.04	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

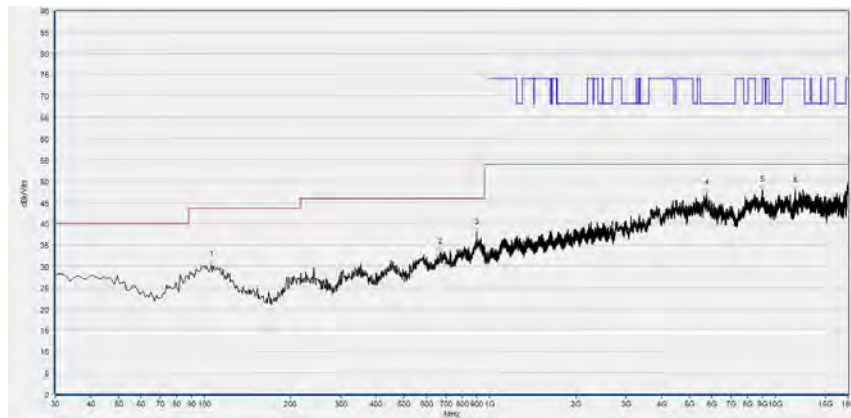


Plot for Channel 159



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
105.736	31.57	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
572.773	33.03	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
895.135	37.21	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
4491.498	46.22	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8995.359	47.16	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12186.877	47.09	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

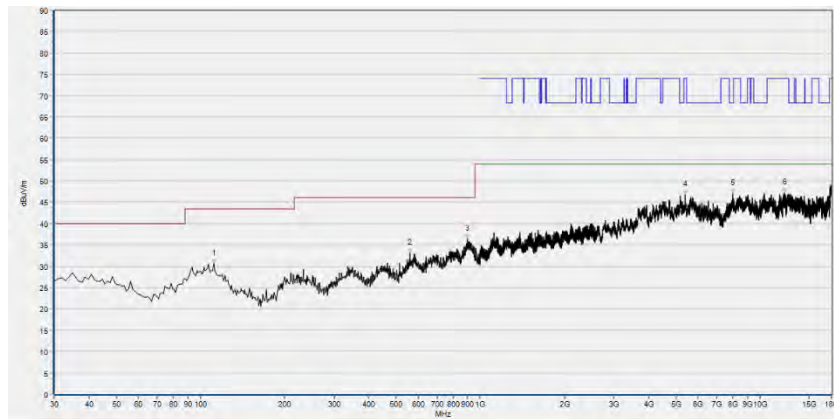


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
105.736	30.26	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
668.899	33.27	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
899.990	37.82	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5763.793	47.04	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8989.198	47.89	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
11749.430	47.71	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

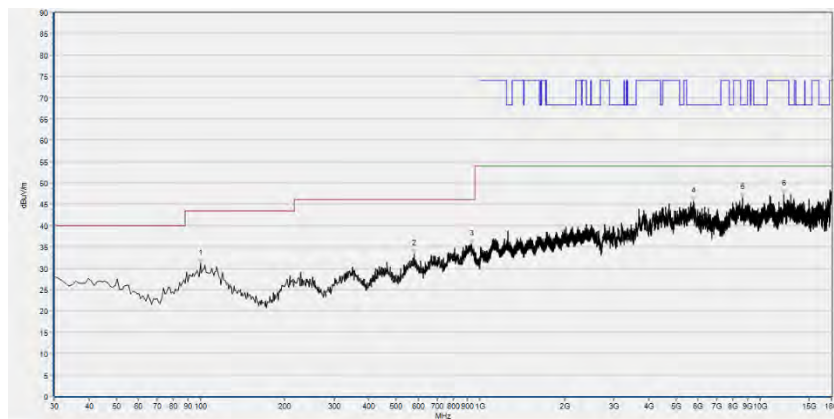
**802.11ac (VHT80) Mode**

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
111.562	30.52	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
560.150	33.05	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
900.961	36.32	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5406.441	46.67	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
7966.433	47.04	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12217.684	47.29	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

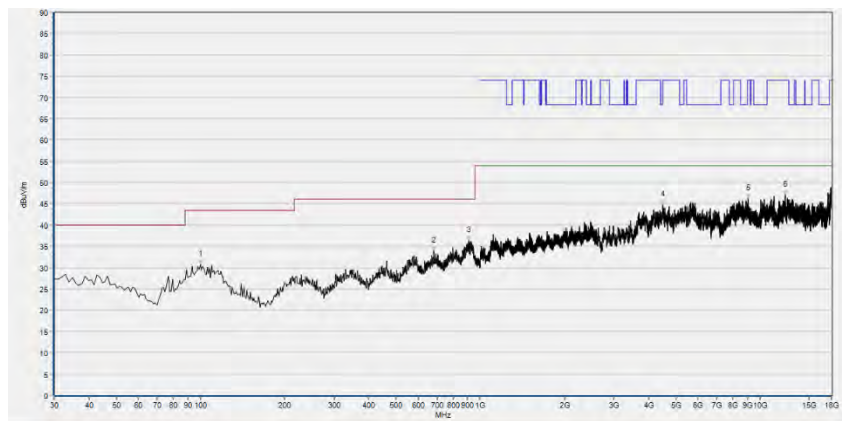
(Antenna Horizontal, 30MHz to 18GHz)



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
99.910	31.08	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
581.512	33.46	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
933.003	35.70	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5773.035	45.73	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8641.088	46.53	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12140.668	47.32	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

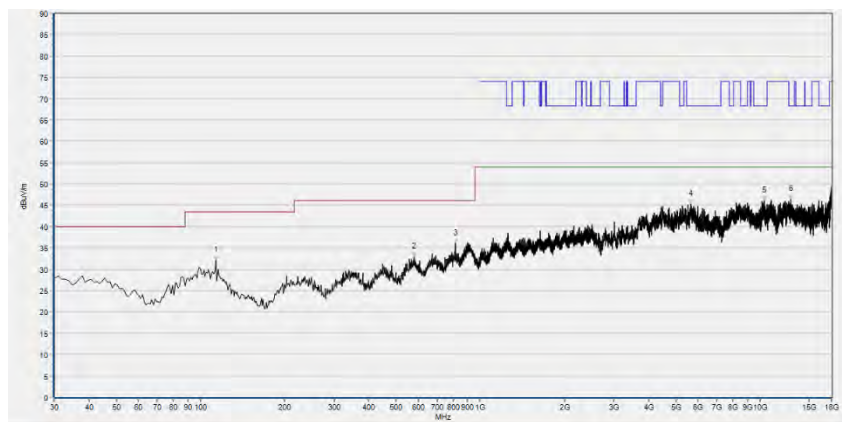
(Antenna Vertical, 30MHz to 18GHz)

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
99.910	30.77	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
683.463	33.91	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
908.729	36.35	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
4479.176	44.76	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
9041.568	46.16	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12291.618	47.12	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

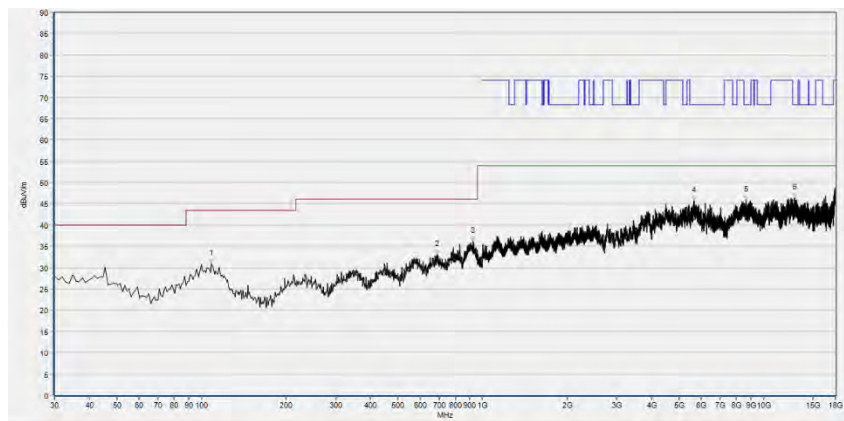


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
113.504	32.13	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
578.599	32.95	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
816.486	36.00	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5665.213	45.20	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10363.153	46.09	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12880.016	46.42	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

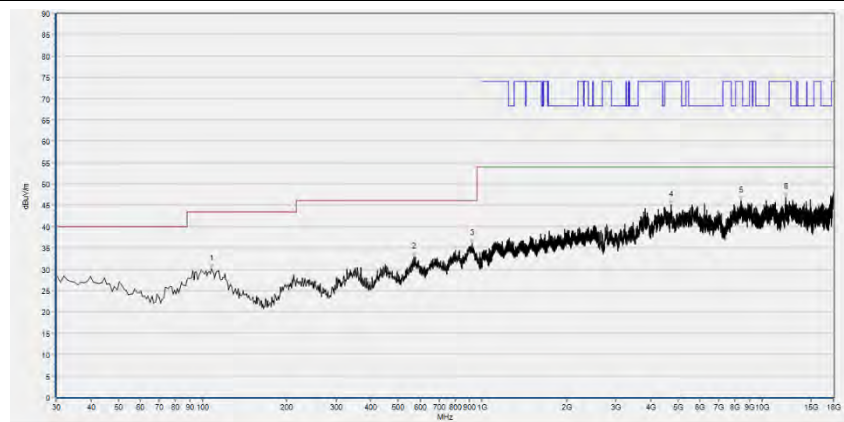


Plot for Channel 106



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
108.649	30.97	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
688.318	33.08	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
5643.649	45.73	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8641.088	45.96	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12895.419	46.40	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

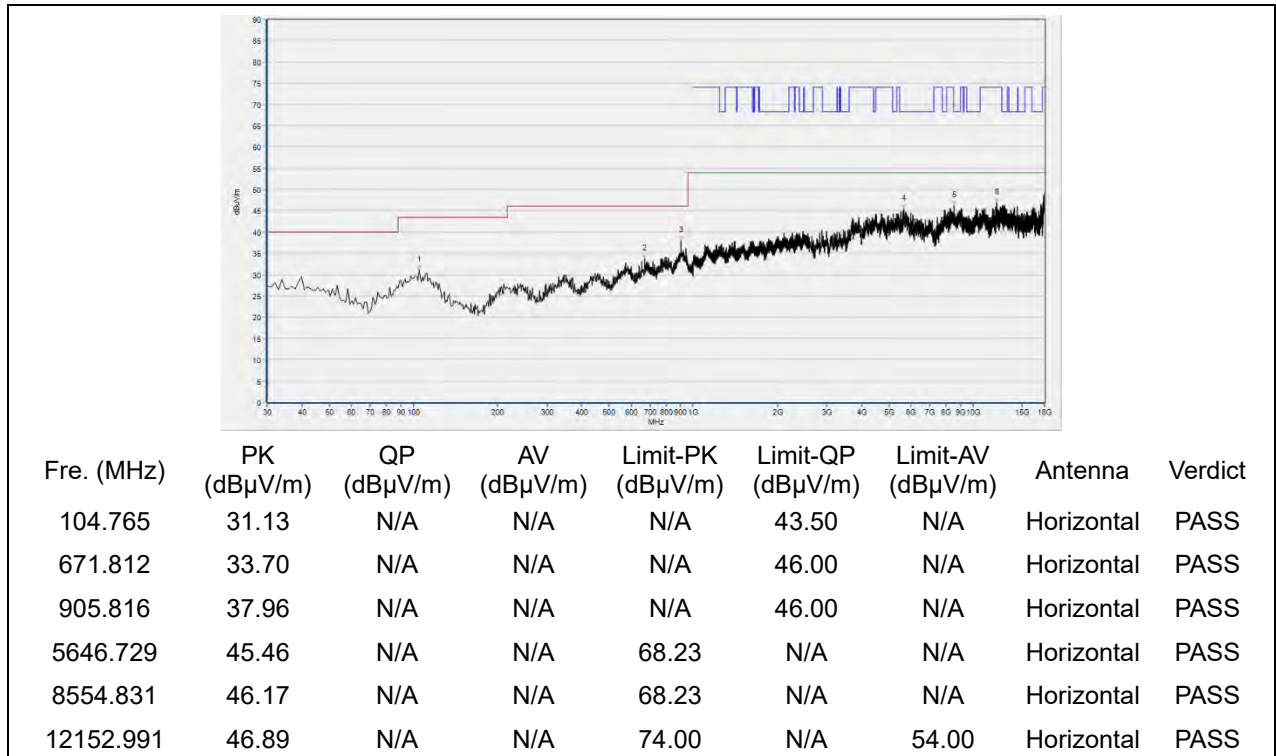
(Antenna Horizontal, 30MHz to 18GHz)



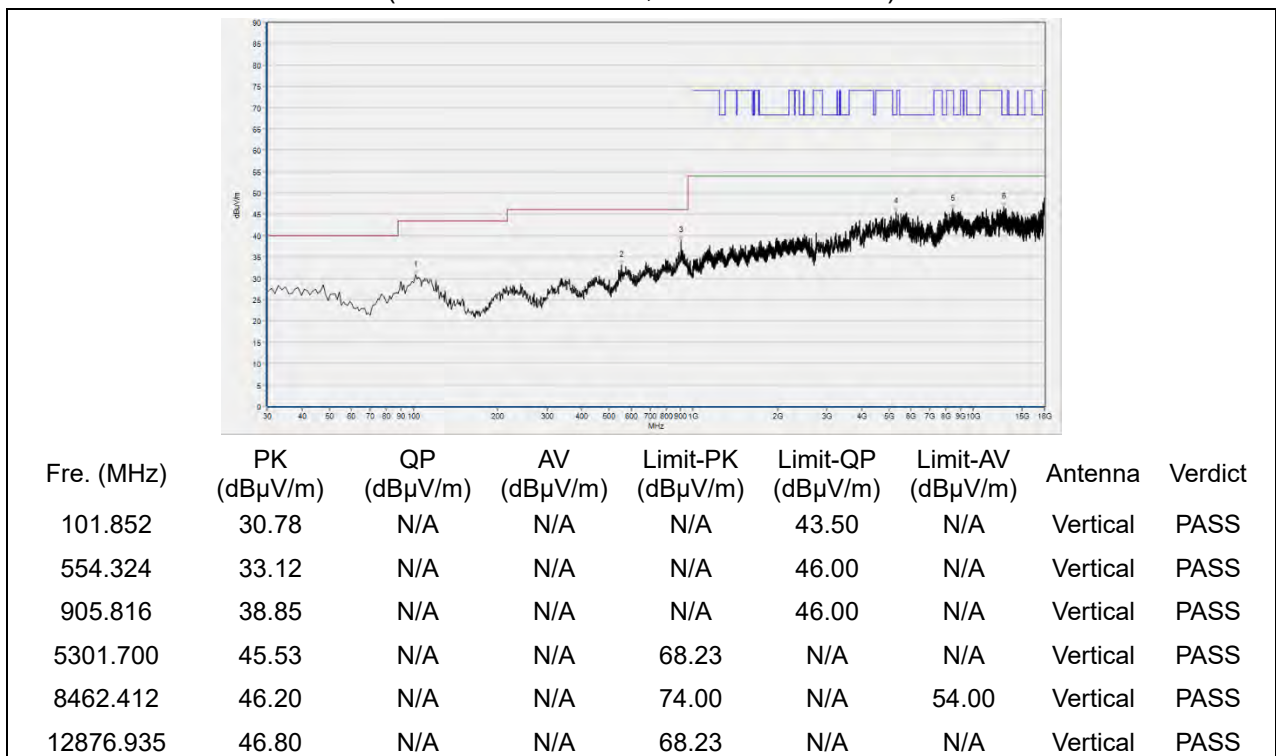
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
107.678	30.03	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
569.860	32.85	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
918.438	36.08	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
4722.545	45.07	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8425.445	46.15	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12140.668	46.81	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 138

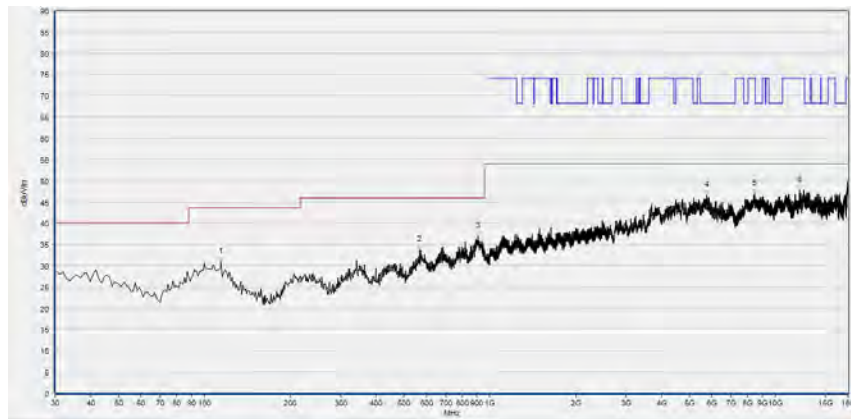


(Antenna Horizontal, 30MHz to 18GHz)



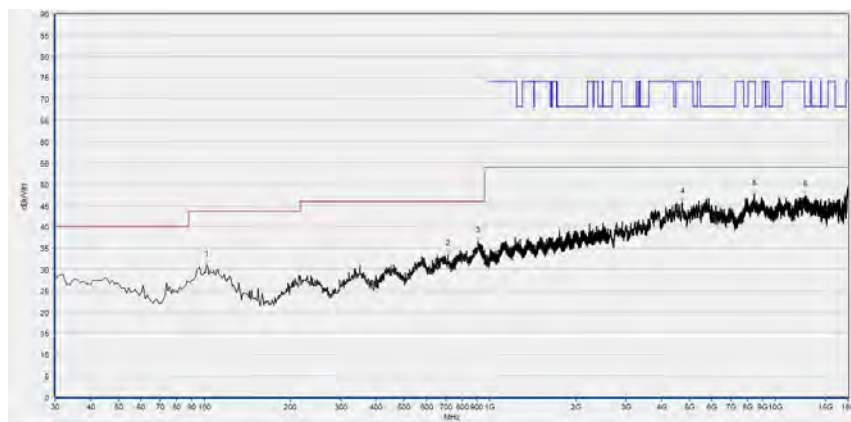
(Antenna Vertical, 30MHz to 18GHz)

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
114.474	30.83	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
567.918	33.74	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
910.671	36.86	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5757.632	46.54	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8447.009	46.87	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12149.910	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
101.852	31.04	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
712.593	33.51	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
909.700	36.60	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
4719.464	45.76	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8459.332	47.82	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12732.146	47.45	N/A	N/A	68.23	N/A	N/A	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	$\pm 2.22\text{dB}$
Power Spectral Density	$\pm 2.22\text{dB}$
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

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 C63.10-2013 and 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 Analyzer	MY53470836	N9010A	Agilent	2022.03.01	2023.02.28
USB Wideband Power Sensor	MY54180008	U2021XA	Agilent	2022.03.01	2023.02.28
RF Cable (30MHz-26GHz)	CB01	RF01	Morlab	N/A	N/A
Coaxial Cable	CB02	RF02	Morlab	N/A	N/A
SMA Connector	CN01	RF03	HUBER-SUHNER	N/A	N/A
Temperature Chamber	12108015	DTL-003S101	YOMA	2020.10.26	2021.10.25

4.2 Conducted Emission Test Equipments

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

4.3 List of Software Used

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

**4.4 Radiated 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
				2022.05.25	2025.05.24
Test Antenna - Horn	BBHA9170 #774	BBHA 9170	Schwarzbeck	2019.07.26	2022.07.25
Test Antenna - Loop	1519-022	FMZB1519	Schwarzbeck	: 2022.02.11	: 2025.02.10
Test Antenna - Horn	01774	BBHA 9120D	Schwarzbeck	2019.07.26	2022.07.25
Coaxial Cable (N male) (9KHz-30MHz)	CB04	EMC04	Morlab	N/A	N/A
Coaxial Cable (N male) (30MHz-26GHz)	CB02	EMC02	Morlab	N/A	N/A
Coaxial Cable (N male) (30MHz-26GHz)	CB03	EMC03	Morlab	N/A	N/A
Coaxial Cable (N male) (30MHz-40GHz)	CB05	EMC05	Morlab	N/A	N/A
1-18GHz pre-Amplifier	61171/61172	S020180L32 03	Tonscend	2021.07.16	2022.07.15
18-26.5GHz pre-Amplifier	46732	S10M100L38 02	Tonscend	2021.07.16	2022.07.15
26-40GHz pre-Amplifier	56774	S40M400L40 02	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



REPORT No. : SZ22050016W05

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 _____