



802.11ac (VHT20) Mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured PPSD (dBm/MHz)	Duty Factor	Corrected PPSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
36	5180	0.66	0.07	0.73	11	PASS
44	5220	1.06		1.13		
48	5240	1.16		1.23		
52	5260	1.73		1.80		
60	5300	1.67		1.74		
64	5320	1.83		1.90		
100	5500	-0.23		-0.16		
120	5600	-0.04		0.03		
144	5720	0.80		0.87		
Channel	Frequency (MHz)	Measured PPSD (dBm/500KHz)	Duty Factor	Corrected (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
144	5720	-2.04	0.07	-1.97	30	PASS
149	5745	-2.04		-1.97		
157	5785	-2.69		-2.62		
165	5825	-2.54		-2.47		

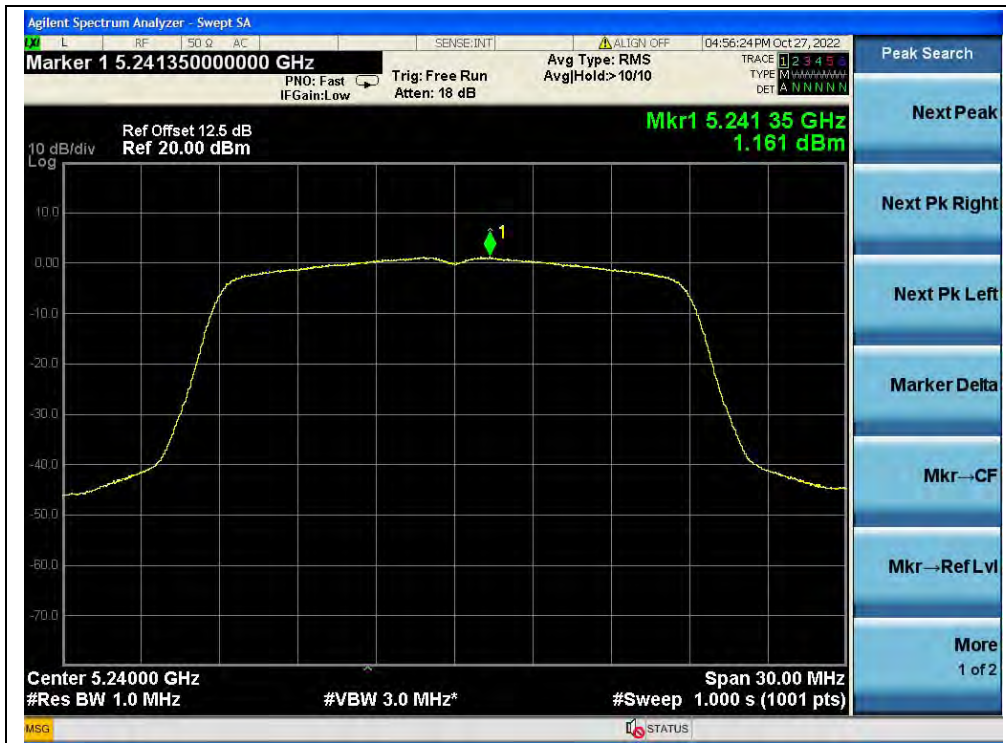
B. Test Plot:



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



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



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



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



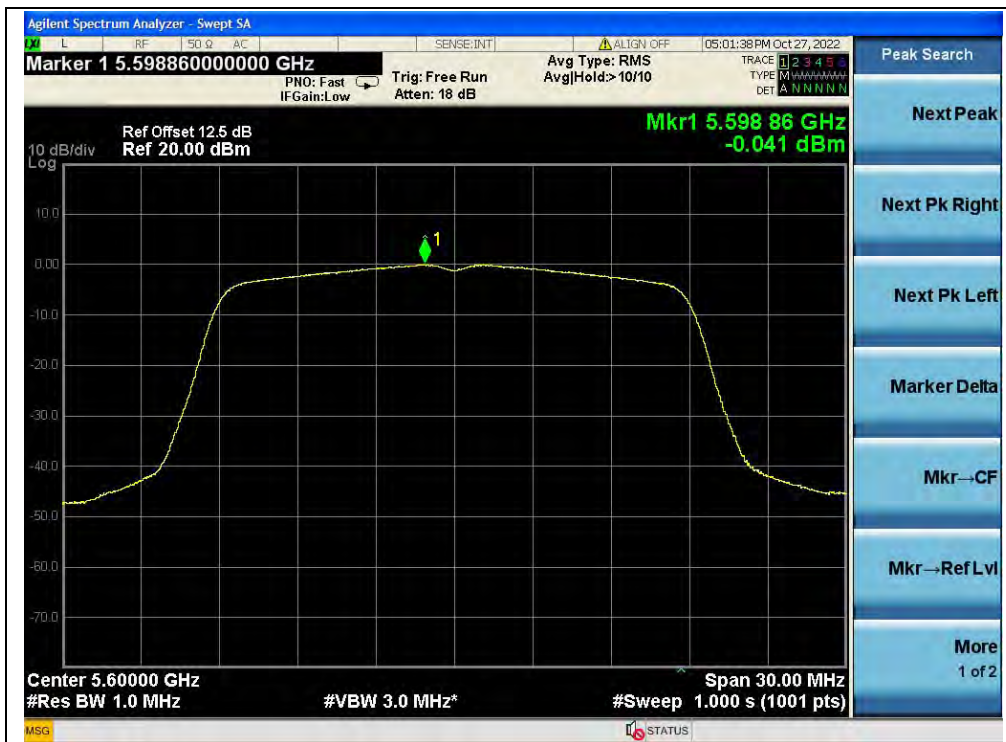
(Channel 60, 5300MHz, 802.11ac (VHT20))



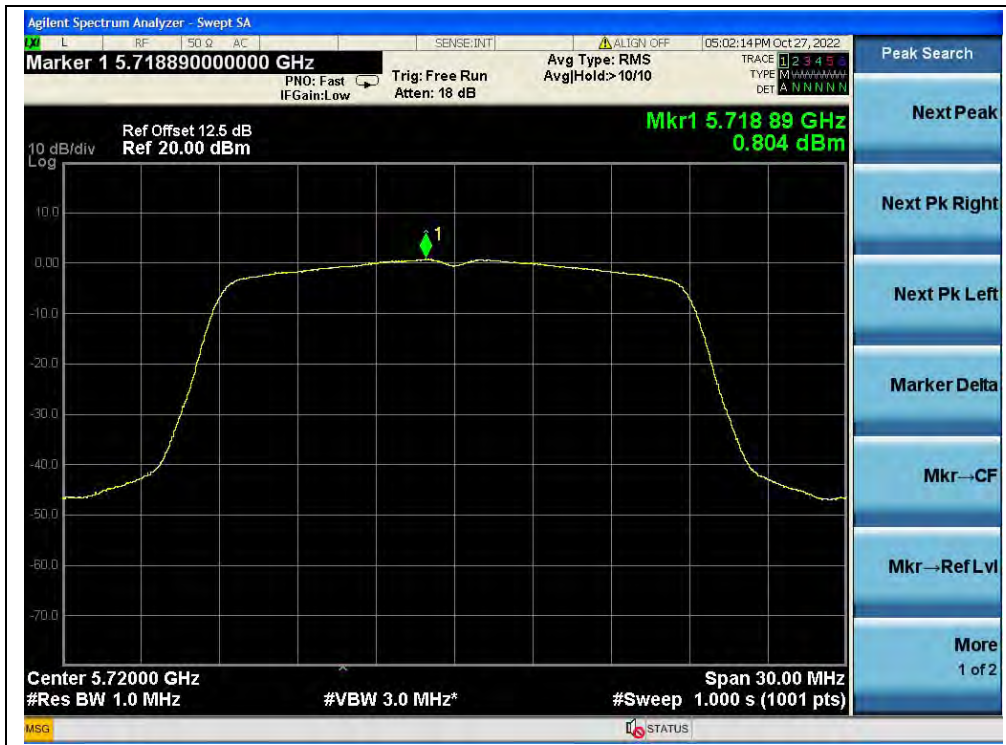
(Channel 64, 5320MHz, 802.11ac (VHT20))



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



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



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



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



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



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



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



802.11ac (VHT40) Mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured PPSD (dBm/MHz)	Duty Factor	Corrected PPSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
38	5190	-2.85	0.14	-2.71	11	PASS
46	5230	-2.60		-2.46		
54	5270	-2.96		-2.82		
62	5310	-2.86		-2.72		
102	5510	-3.98		-3.84		
126	5630	-3.60		-3.46		
142	5710	-0.35		-0.21		
Channel	Frequency (MHz)	Measured PPSD (dBm/500KHz)	Duty Factor	Corrected (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
142	5710	-5.67	0.14	-5.53	30	PASS
151	5755	-5.66		-5.52		
155	5795	-5.22		-5.08		

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	-6.01	0.32	-5.69	11	PASS
58	5290	-5.76		-5.44		
106	5530	-7.26		-6.94		
122	5610	-6.76		-6.44		
138	5690	-6.13		-5.81		
Channel	Frequency (MHz)	Measured PSD (dBm/500KHz)	Duty Factor	Corrected (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
138	5690	-8.76	0.32	-8.44	30	PASS
155	5775	-8.71		-8.39		

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%	3.80	+20(Ref)	24	4.633
100%		-30	32	6.178
100%		-20	30	5.792
100%		-10	27	5.212
100%		0	25	4.826
100%		+10	21	4.054
100%		+20	19	3.668
100%		+30	24	4.633
100%		+40	25	4.826
100%		+50	22	4.247
115%		4.35	+20	29
85%	3.55	+20	31	5.985



U-NII-2A (Ch. 52)				
5260MHz				
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	Fre. Dev. (kHz)	Deviation (ppm)
100%	10.0	+20(Ref)	20	3.802
100%		-30	24	4.563
100%		-20	27	5.133
100%		-10	29	5.513
100%		0	20	3.802
100%		+10	16	3.042
100%		+20	20	3.802
100%		+30	25	4.753
100%		+40	29	5.513
100%		+50	24	4.563
115%	11.5	+20	20	3.802
85%	8.5	+20	22	4.183

U-NII-2C (Ch. 100)				
5500MHz				
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	Fre. Dev. (kHz)	Deviation (ppm)
100%	10.0	+20(Ref)	22	4.000
100%		-30	26	4.727
100%		-20	31	5.636
100%		-10	30	5.455
100%		0	23	4.182
100%		+10	18	3.273
100%		+20	22	4.000
100%		+30	31	5.636
100%		+40	34	6.182
100%		+50	26	4.727
115%	11.5	+20	28	5.091
85%	8.5	+20	32	5.818



U-NII-3 (Ch. 149)				
5745MHz				
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	Fre. Dev. (kHz)	Deviation (ppm)
100%	10.0	+20(Ref)	23	4.003
100%		-30	27	4.700
100%		-20	28	4.874
100%		-10	22	3.829
100%		0	32	5.570
100%		+10	26	4.526
100%		+20	27	4.700
100%		+30	25	4.352
100%		+40	28	4.874
100%		+50	30	5.222
115%		11.5	+20	30
85%	8.5	+20	28	4.874

2.7. Conducted Emission

2.7.1. Requirement

According to FCC section 15.207, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

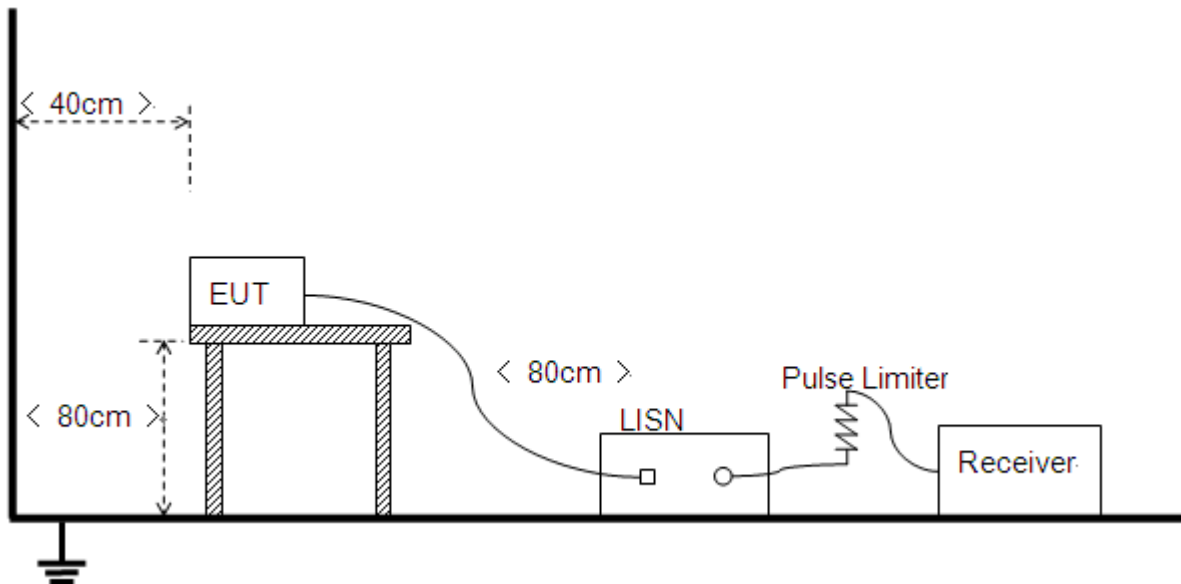
Frequency Range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

Note:

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

2.7.2. Test Description

Test Setup:



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



2.7.3. Test Result

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

Note: Both of the test voltage AC 120V/60Hz and AC 230V/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+Adapter+Earphone+BT TX

Test Voltage: AC 120V/60Hz

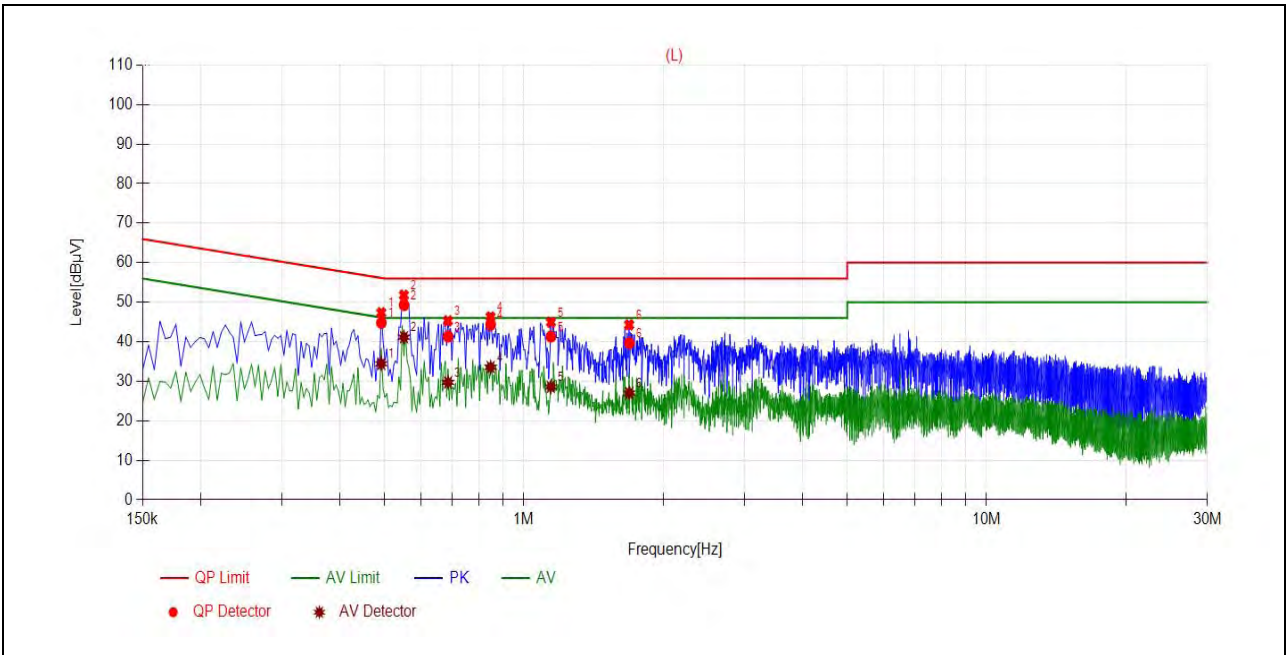
The measurement results are obtained as below:

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

U_R : Receiver Reading

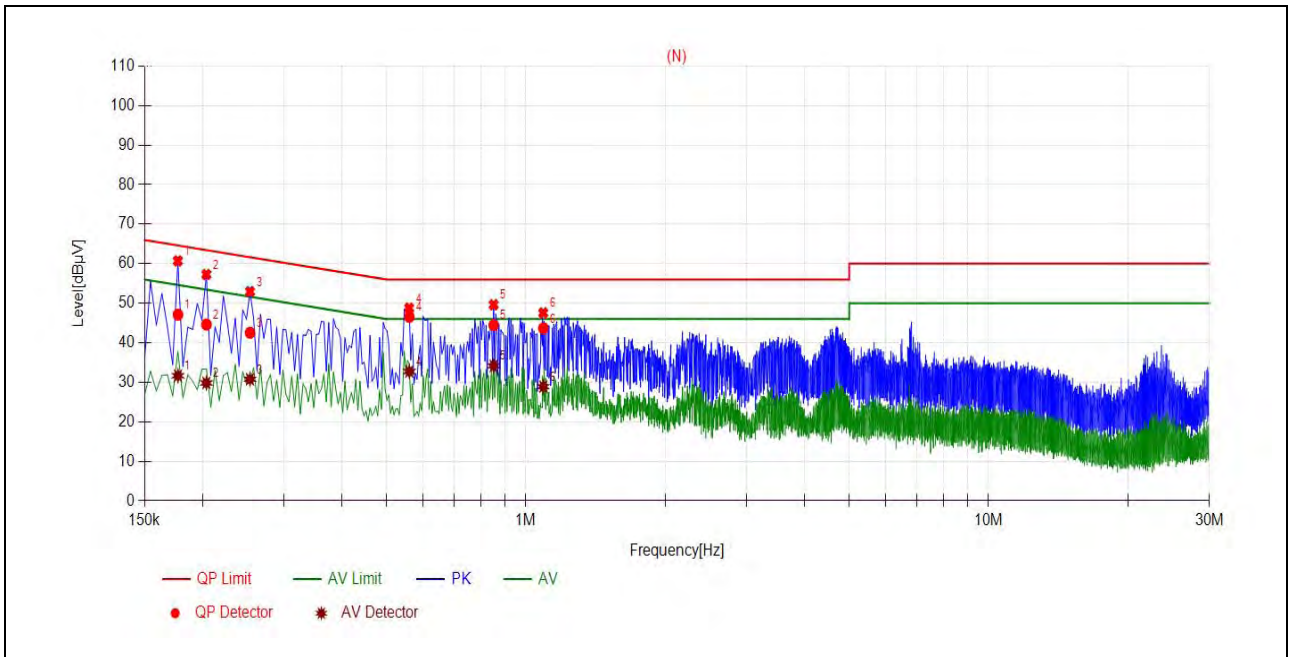
A_{Factor} : Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.4921	44.80	34.43	56.13	46.13	Line	PASS
2	0.5508	49.30	41.15	56.00	46.00		PASS
3	0.6859	41.33	29.73	56.00	46.00		PASS
4	0.8478	44.30	33.57	56.00	46.00		PASS
5	1.1436	41.32	28.58	56.00	46.00		PASS
6	1.6899	39.68	27.01	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	0.1771	47.12	31.66	64.62	54.62	Neutral	PASS
2	0.2040	44.62	29.83	63.45	53.45		PASS
3	0.2535	42.53	30.77	61.64	51.64		PASS
4	0.5600	46.56	32.72	56.00	46.00		PASS
5	0.8520	44.47	34.16	56.00	46.00		PASS
6	1.0909	43.67	28.90	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

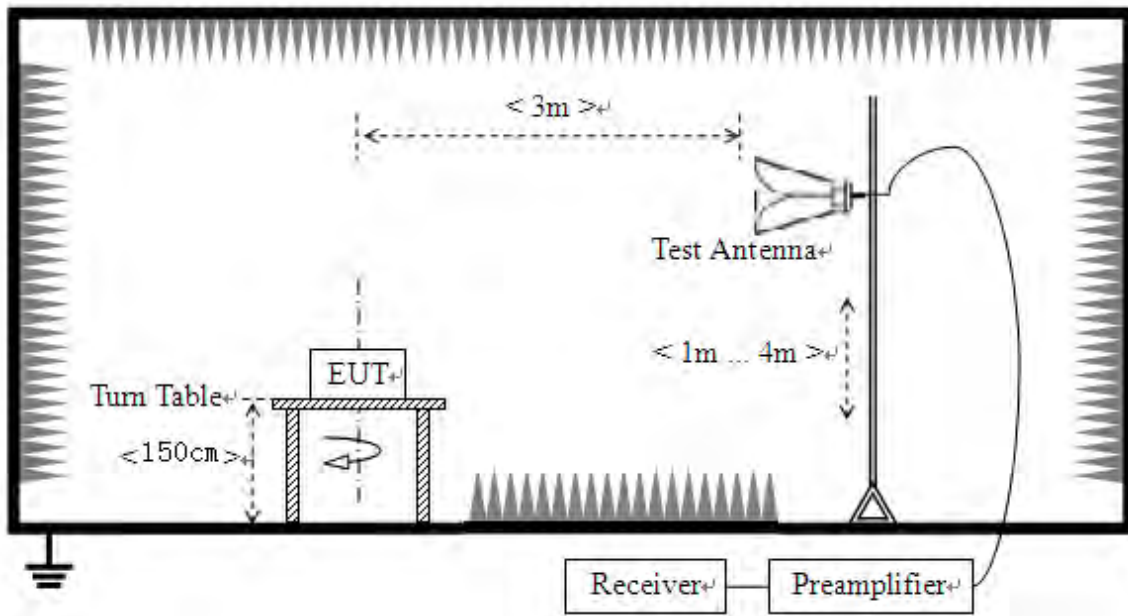
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following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

Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

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

2.8.2. Test Description

Test Setup





The EUT is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading.

KDB 789033 Section H) 3)5)6(d)) was used in order to prove compliance

For the Test Antenna:

Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength.

2.8.3. Test Result

The lowest and highest channels are tested to verify Restricted Frequency Bands.

The measurement results are obtained as below:

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

A_T : Total correction Factor except Antenna; U_R : Receiver Reading

G_{preamp} : Preamplifier Gain; A_{Factor} : Antenna Factor at 3m

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.

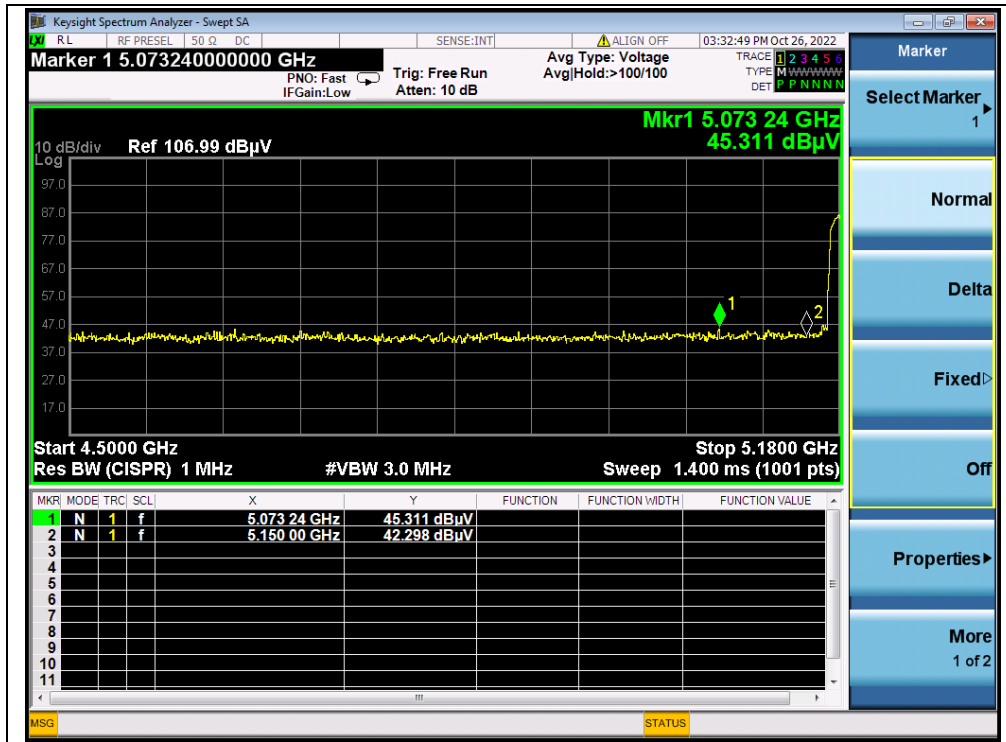
802.11a Mode

A.Test Verdict:

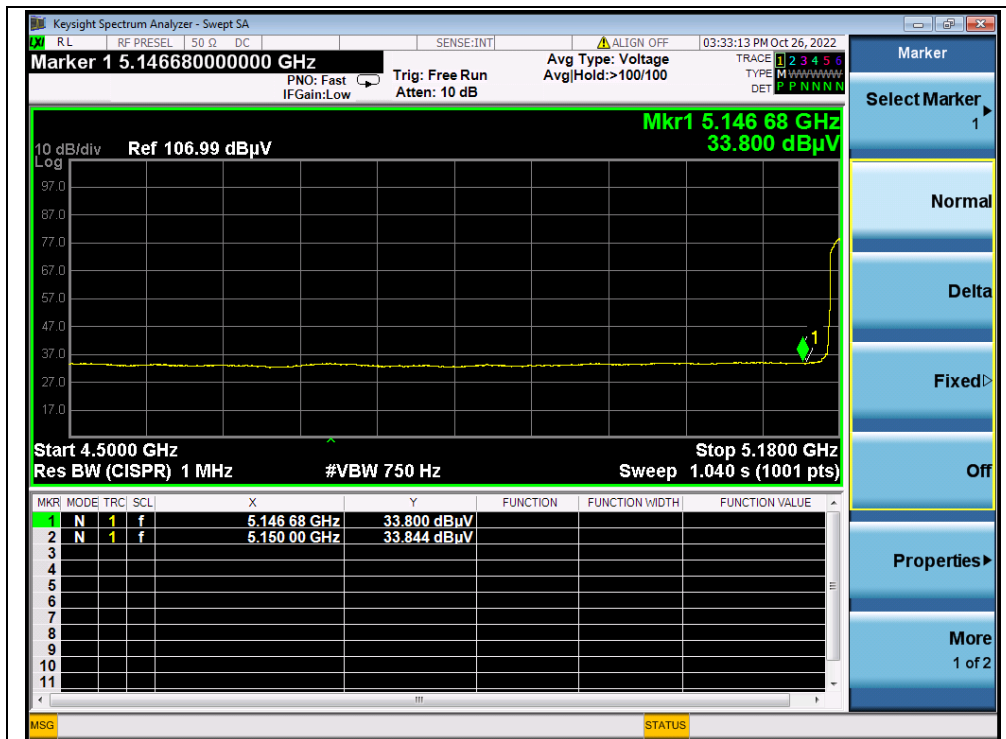
Channel	Frequency (MHz)	Detector	Receiver Reading	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV	U_R (dBμV)					
36	5073.24	PK	45.31	-19.54	32.20	57.97	74	PASS
36	5150.00	AV	33.84	-19.54	32.20	46.50	54	PASS
64	5359.06	PK	42.48	-18.80	32.20	55.88	74	PASS
64	5350.52	AV	32.49	-18.80	32.20	45.89	54	PASS
100	5017.85	PK	45.68	-19.20	32.20	58.68	74	PASS
100	5468.69	AV	33.15	-19.20	32.20	46.15	54	PASS
144	5769.00	PK	45.56	-19.20	32.20	58.56	68.23	PASS
149	5725.00	PK	44.46	-19.01	32.20	57.65	122.23	PASS
165	5880.00	PK	43.15	-19.01	32.20	56.34	101.53	PASS



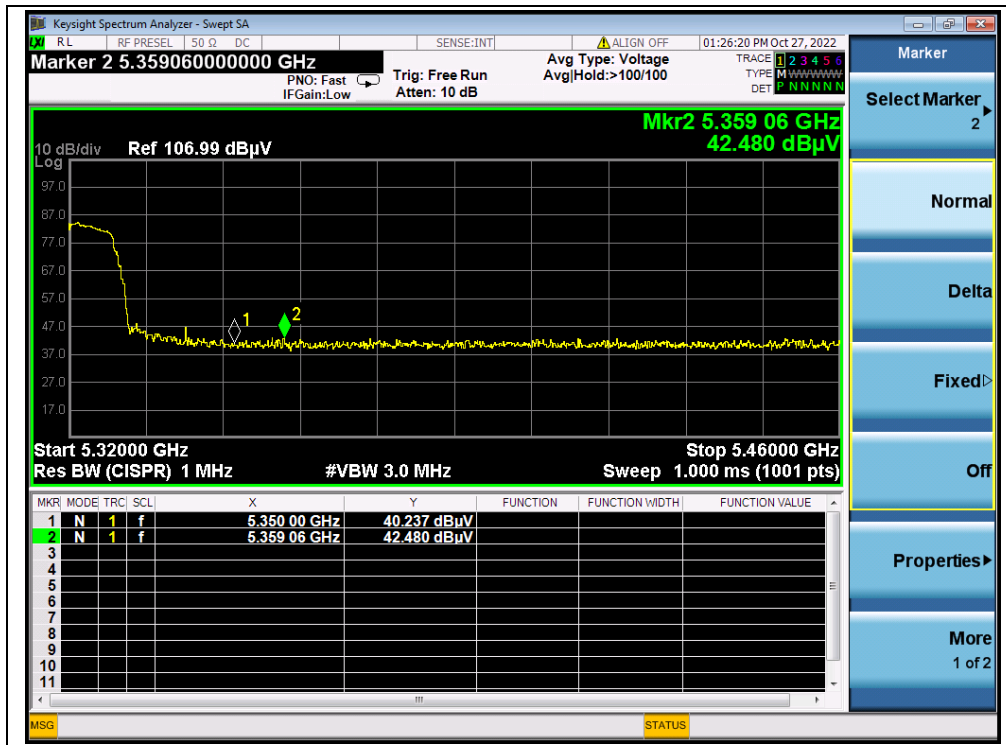
B.Test Plot:



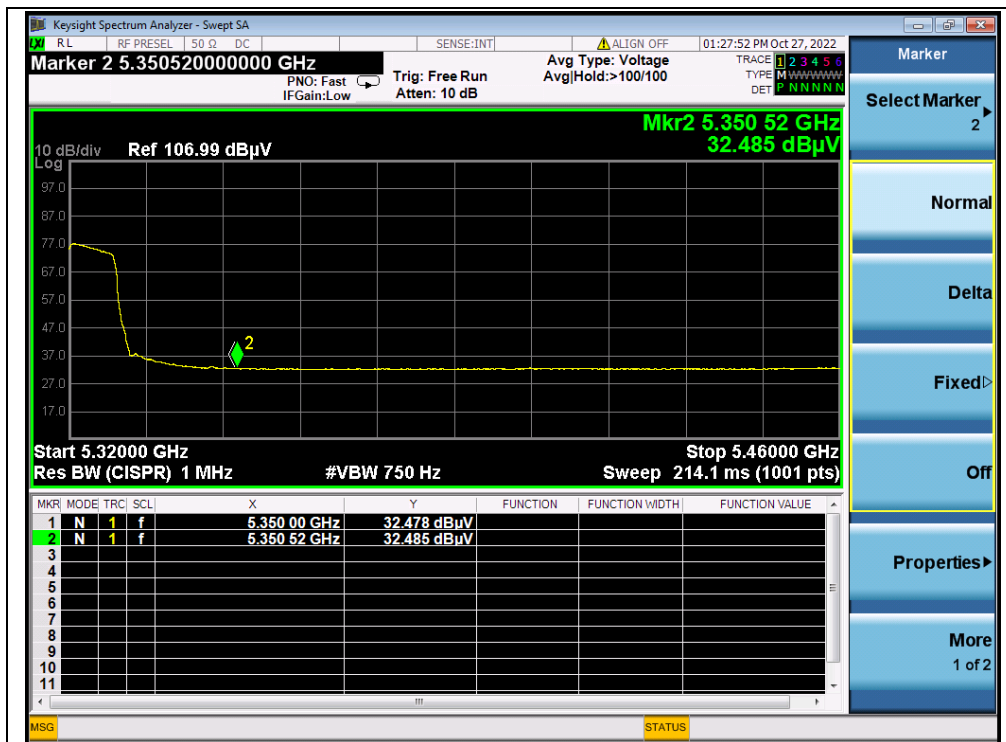
(PEAK, Channel 36, 802.11a)



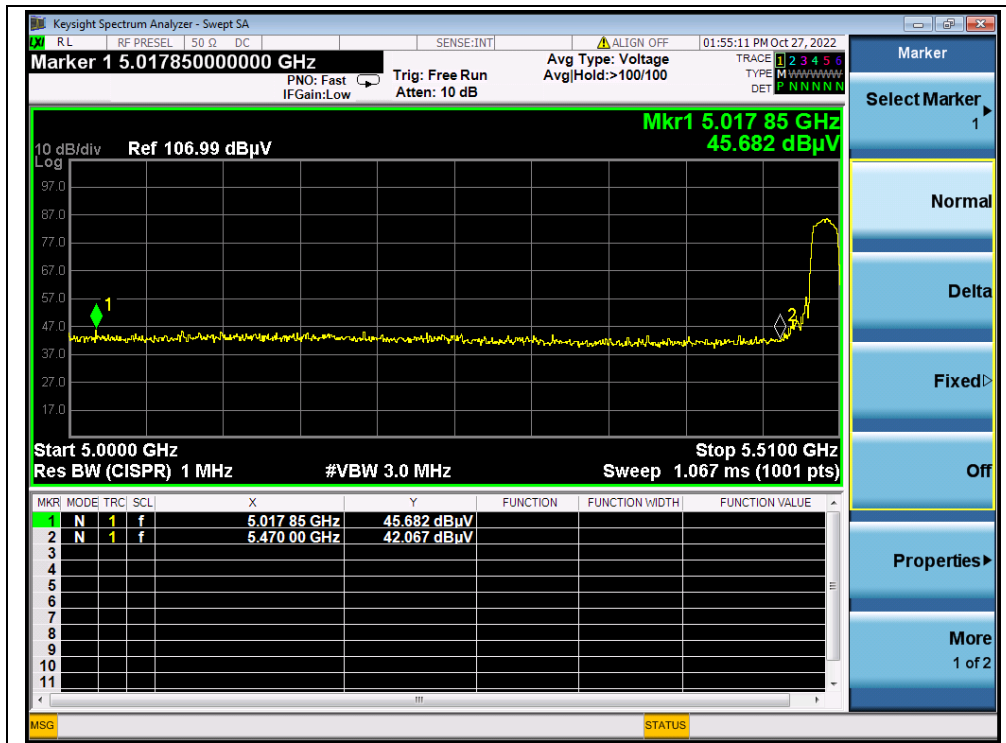
(AVERAGE, Channel 36, 802.11a)



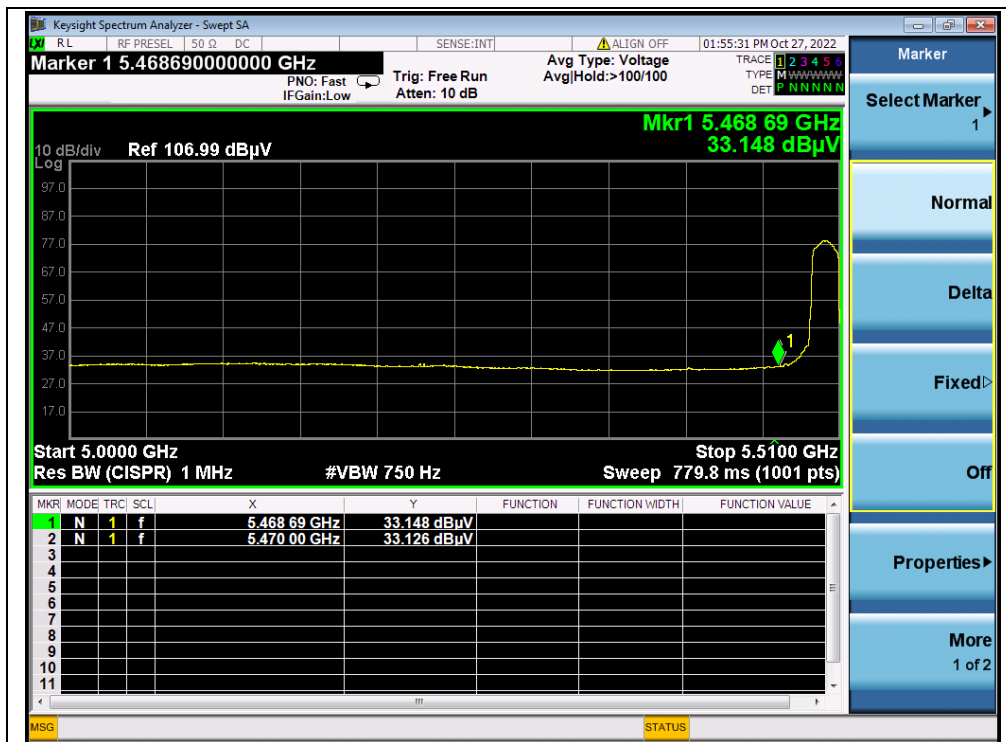
(PEAK, Channel 64, 802.11a)



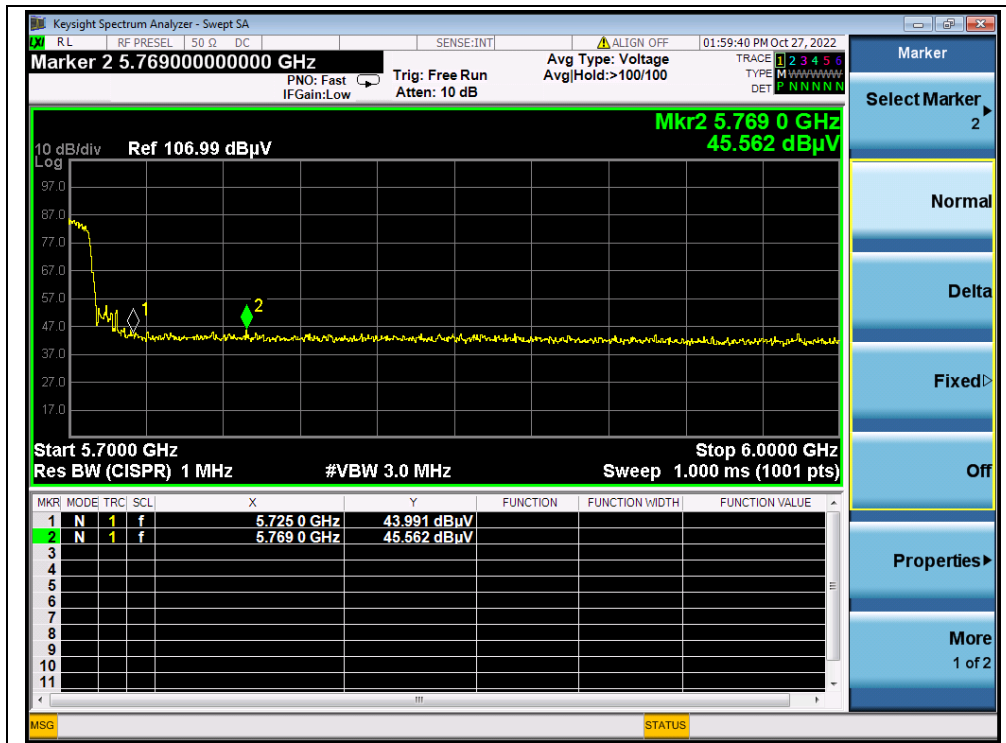
(AVERAGE, Channel 64, 802.11a)



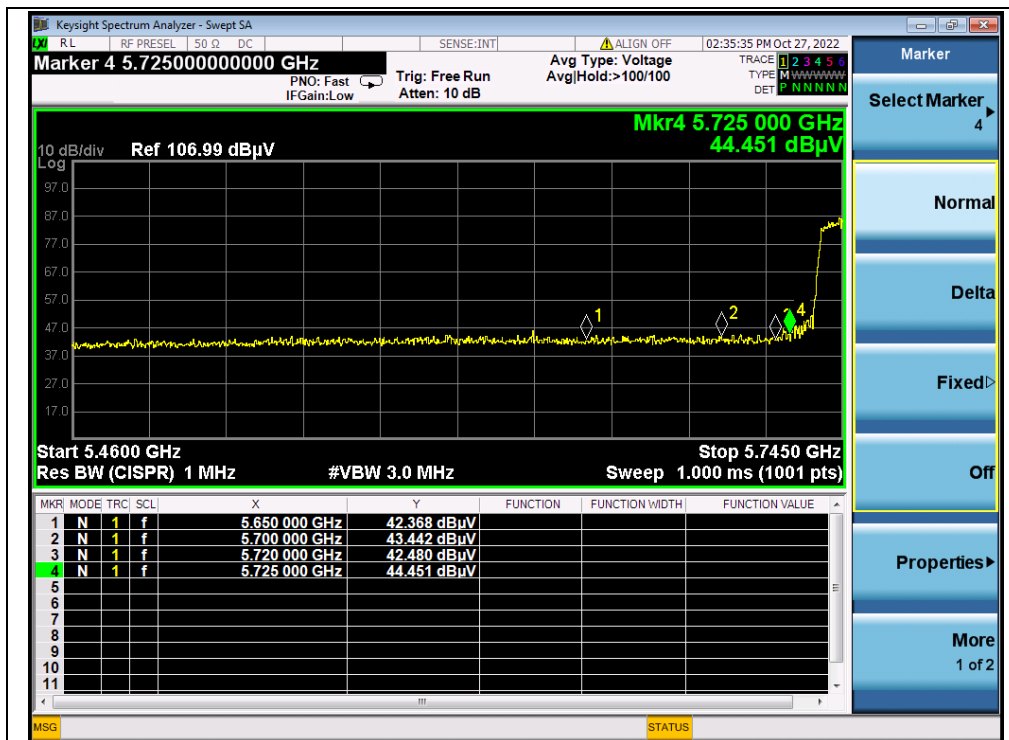
(PEAK, Channel 100, 802.11a)



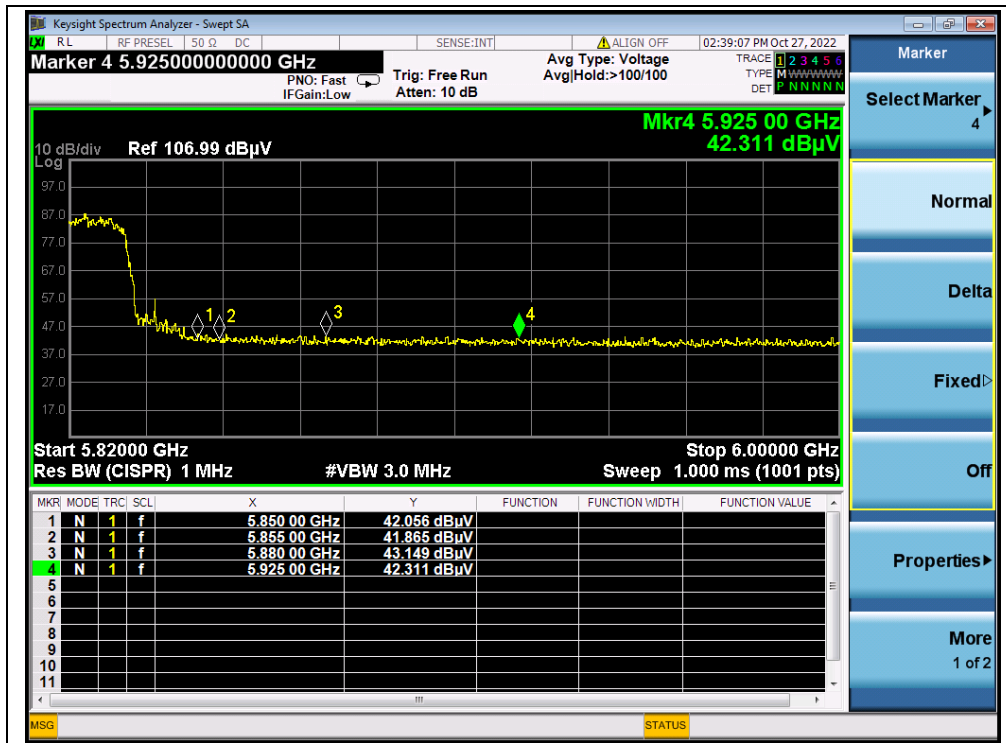
(AVERAGE, Channel 100, 802.11a)



(PEAK, Channel 144, 802.11a)



(PEAK, Channel 149, 802.11a)



(PEAK, Channel 165, 802.11a)

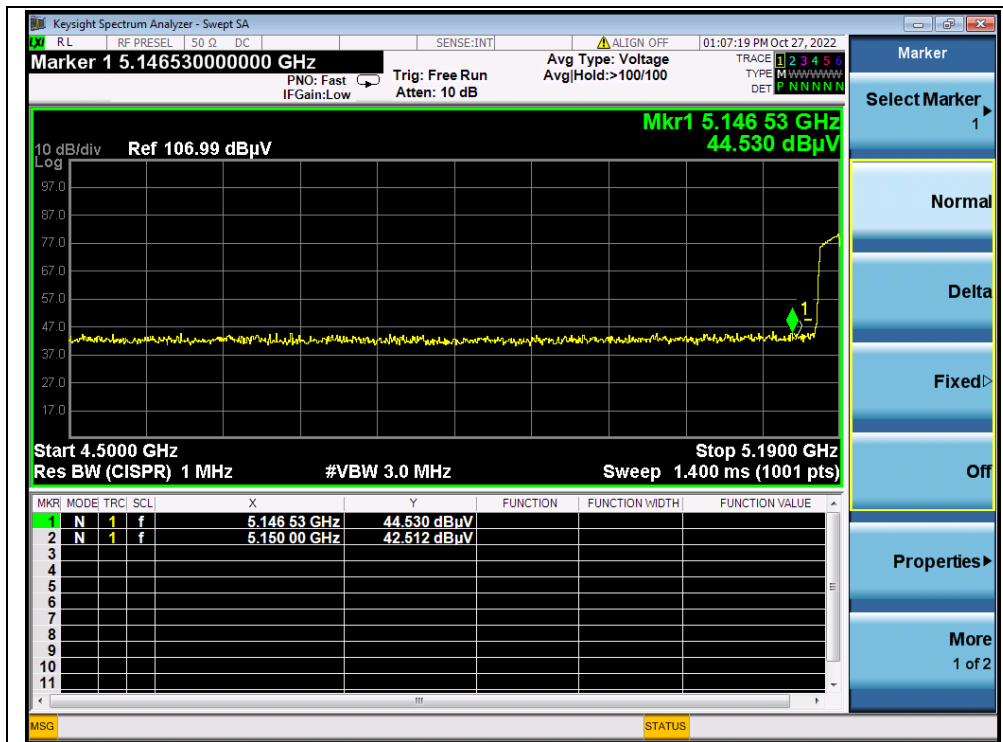


802.11n (HT40) Mode

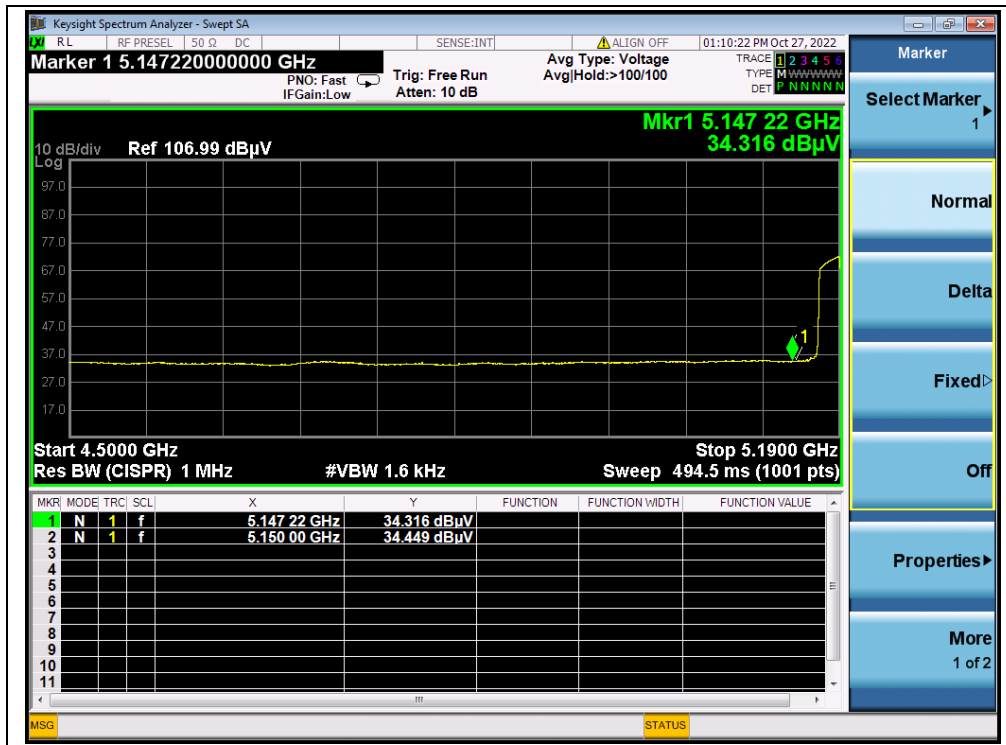
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading	A_T	A_{Factor}	Max. Emission	Limit (dB μ V/m)	Verdict
		PK/ AV	U_R (dB μ V)	(dB)	(dB@3m)	E (dB μ V/m)		
38	5146.53	PK	44.53	-19.54	32.20	57.19	74	PASS
38	5150.00	AV	34.45	-19.54	32.20	47.11	54	PASS
62	5458.46	PK	43.57	-18.80	32.20	56.97	74	PASS
62	5360.46	AV	32.66	-18.80	32.20	46.06	54	PASS
102	5088.23	PK	45.07	-19.20	32.20	58.07	74	PASS
102	5233.58	AV	35.13	-19.20	32.20	48.13	54	PASS
142	5796.39	PK	44.54	-19.20	32.20	57.54	68.23	PASS
151	5700.00	PK	43.94	-19.01	32.20	57.13	105.23	PASS
159	5855.00	PK	43.58	-19.01	32.20	56.77	110.83	PASS

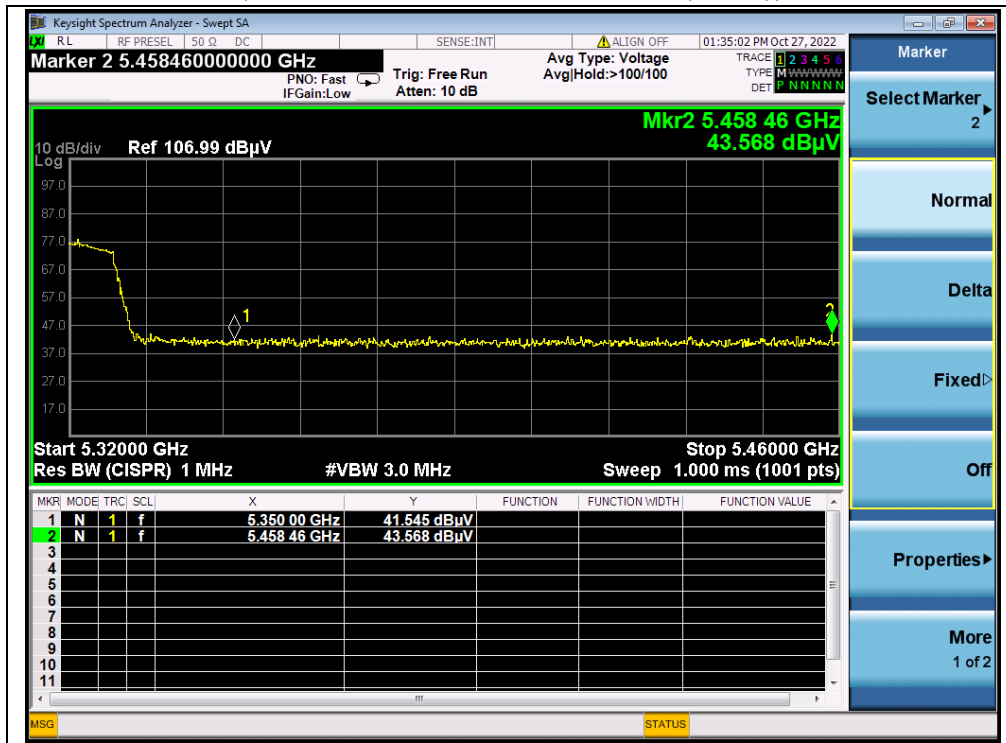
B. Test Plot:



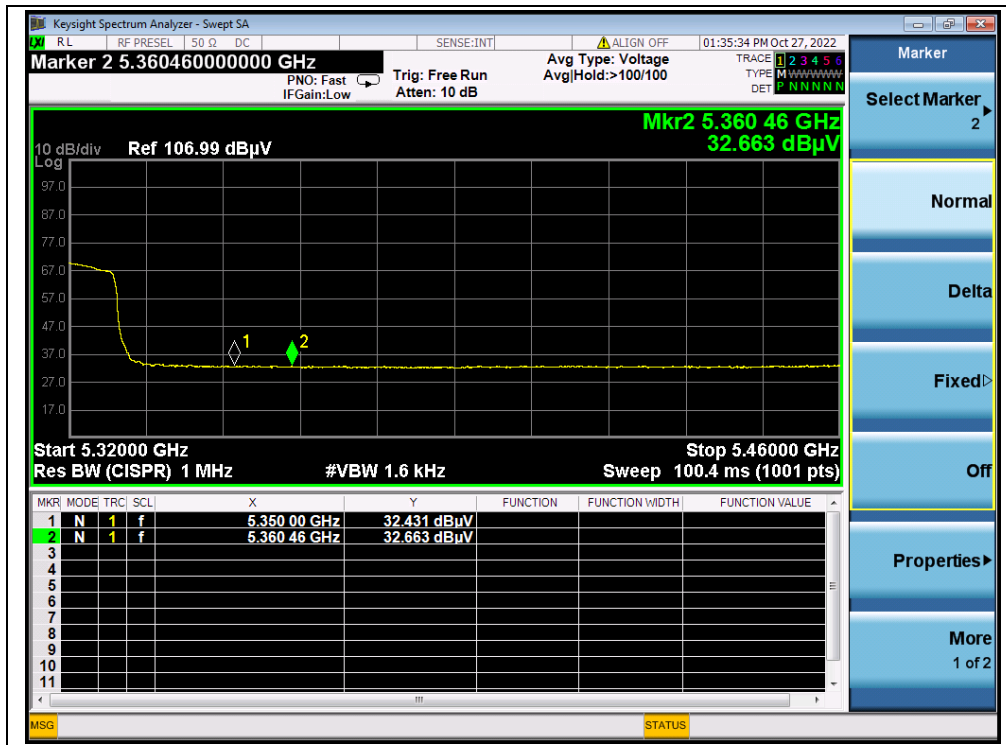
(PEAK, Channel 38, 802.11n (HT40))



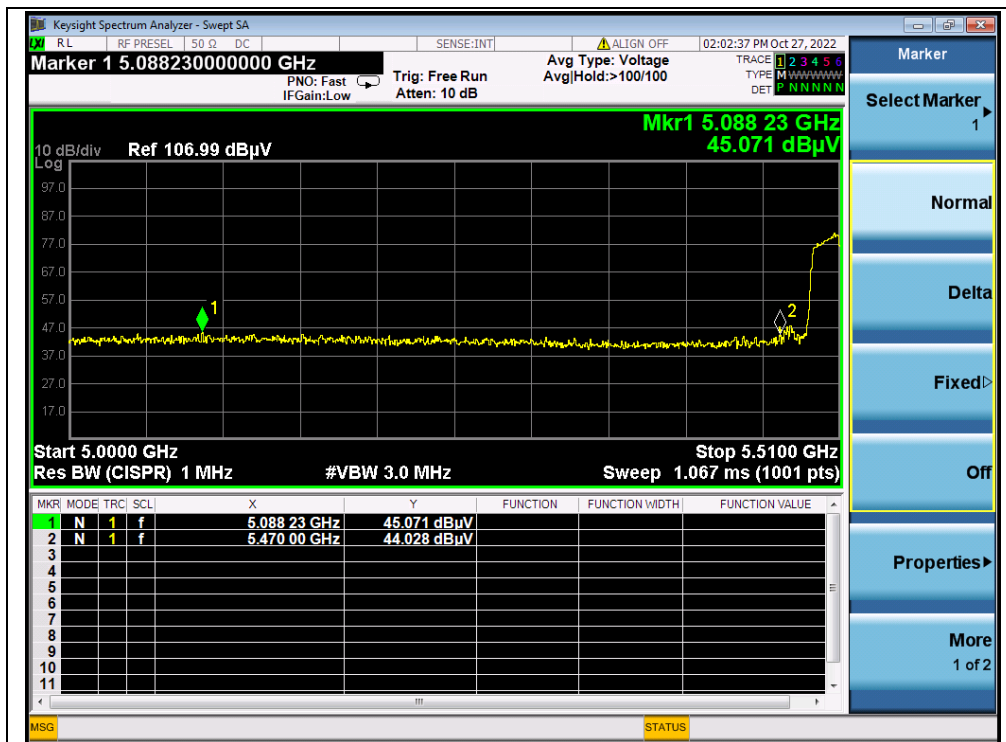
(AVERAGE, Channel 38, 802.11n (HT40))



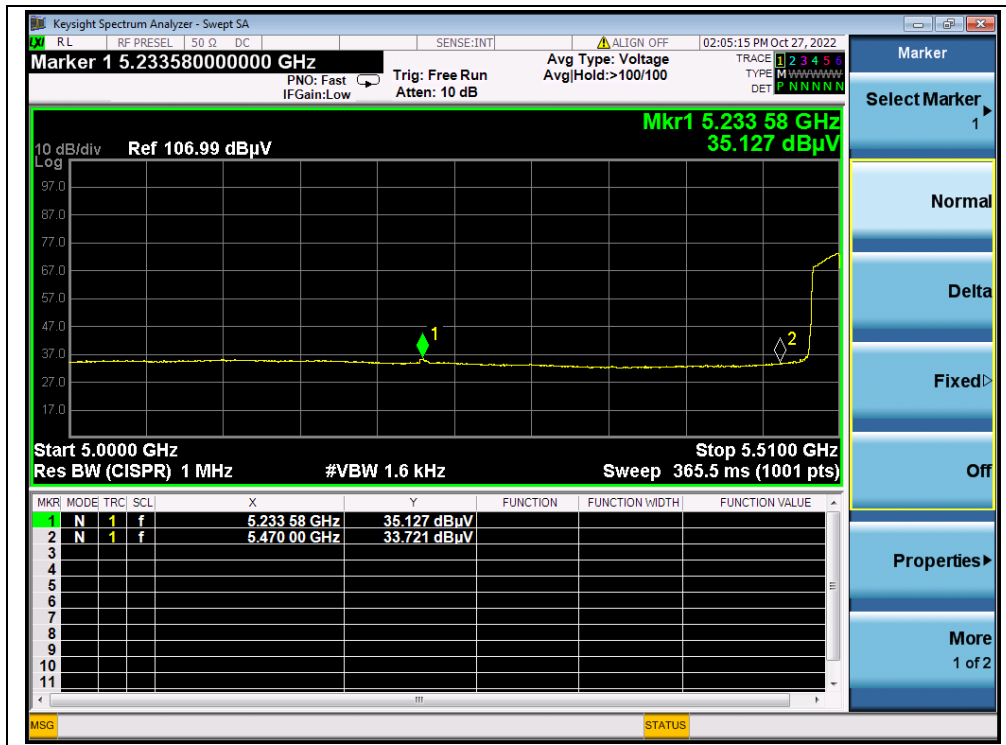
(PEAK, Channel 62, 802.11n (HT40))



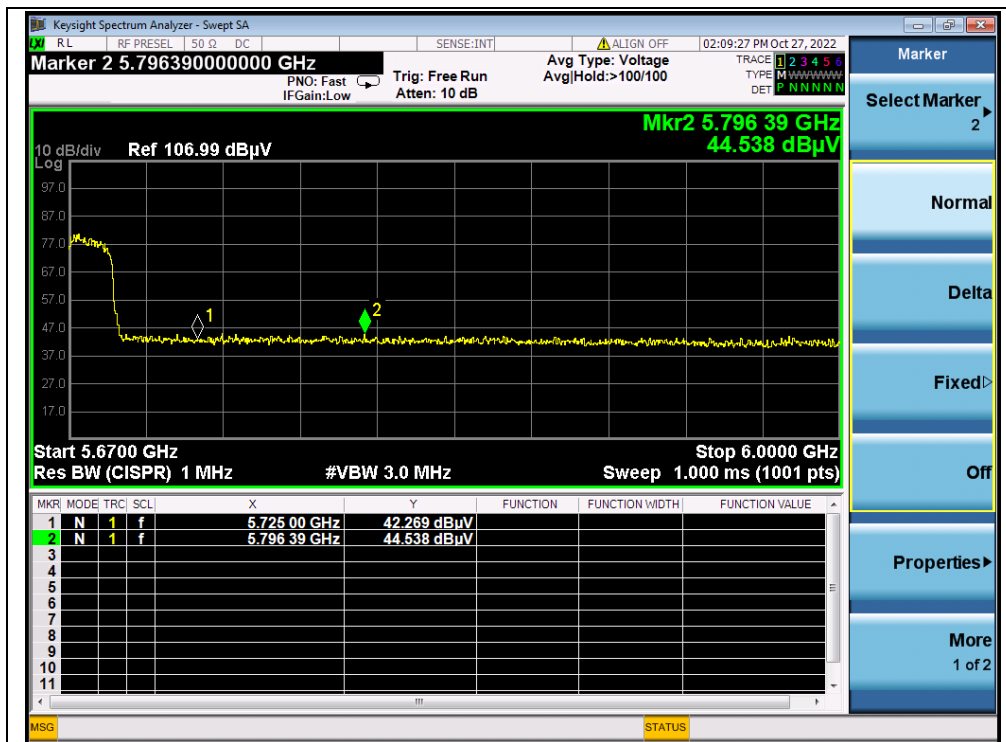
(AVERAGE, Channel 62, 802.11n (HT40))



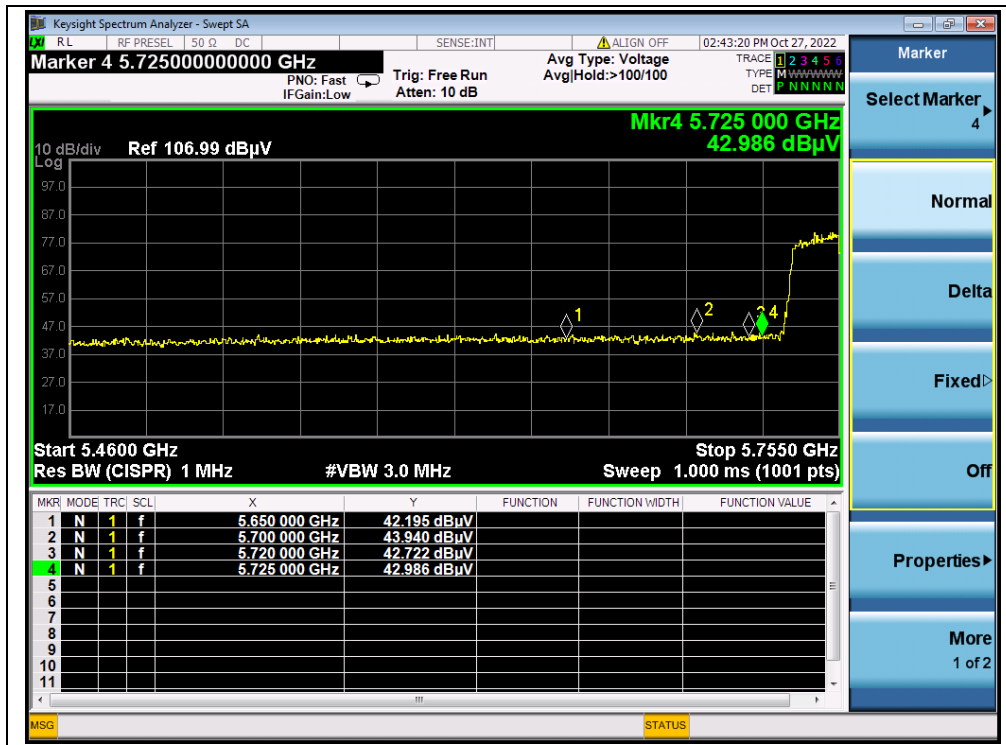
(PEAK, Channel 102, 802.11n (HT40))



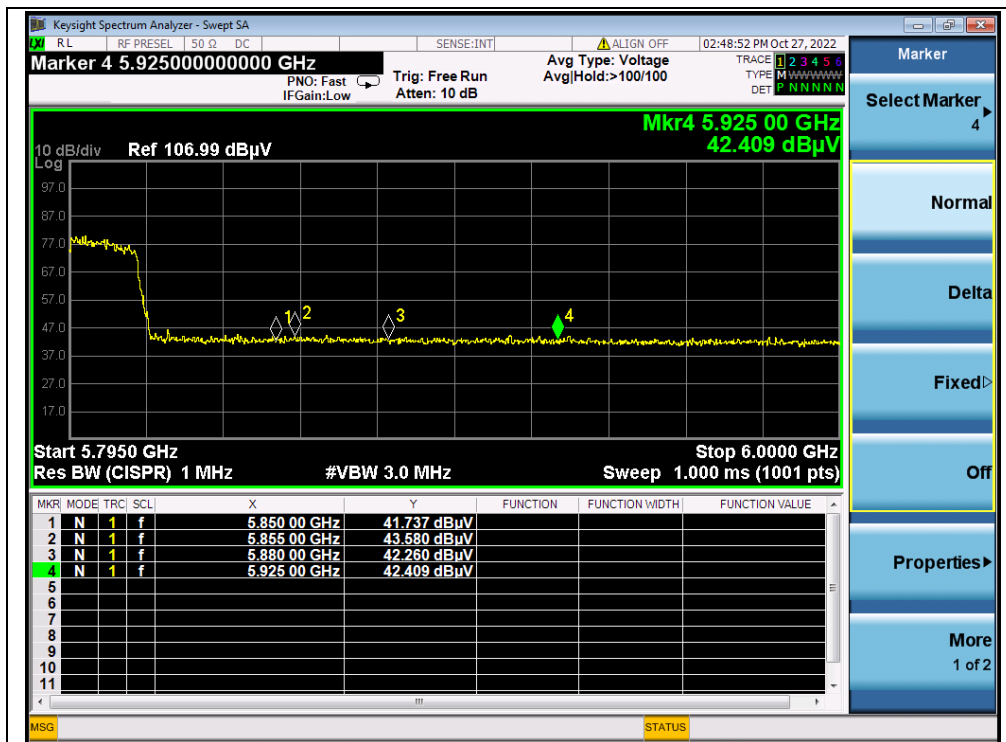
(AVERAGE, Channel 102, 802.11n (HT40))



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



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



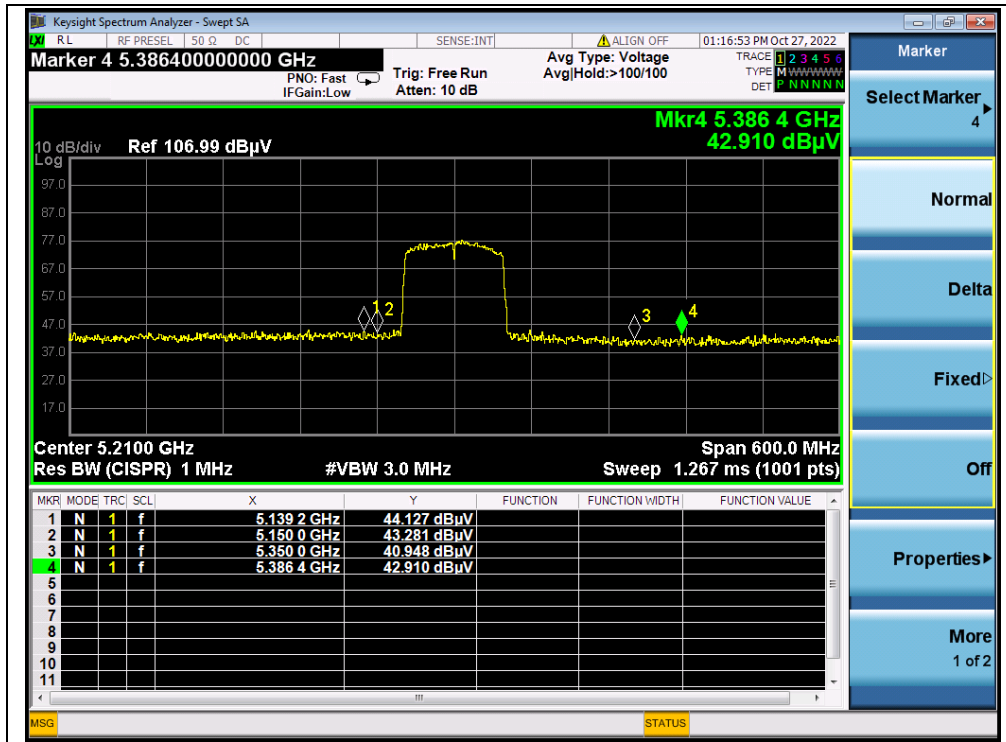
(PEAK, Channel 159, 802.11n (HT40))

**802.11ac (VHT80) Mode****A.Test Verdict:**

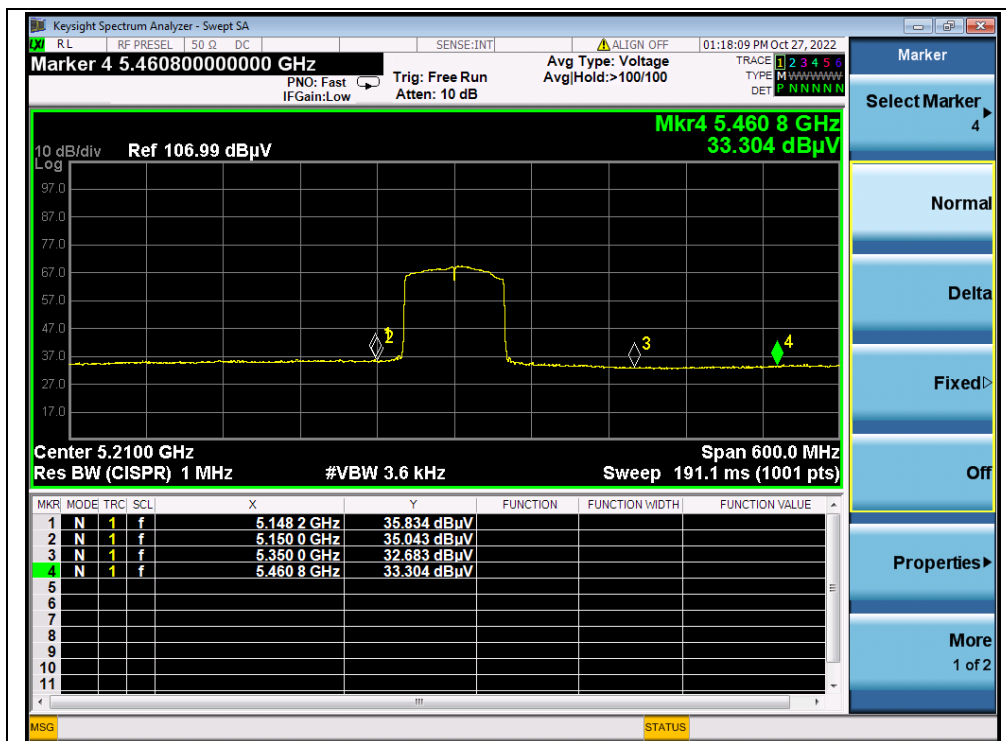
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
42	5139.20	PK	44.13	-19.54	32.20	56.79	74	PASS
42	5148.20	AV	35.83	-19.54	32.20	48.49	54	PASS
58	5375.80	PK	43.47	-18.80	32.20	56.87	74	PASS
58	5350.00	AV	33.52	-18.80	32.20	46.92	54	PASS
106	5463.11	PK	43.40	-19.20	32.20	56.40	68.23	PASS
106	5467.35	AV	34.14	-19.20	32.20	47.14	54	PASS
138	5792.13	PK	45.44	-19.20	32.20	58.44	68.23	PASS
155	5725.00	PK	46.26	-19.01	32.20	59.45	122.23	PASS
155	5855.00	PK	42.75	-19.01	32.20	55.94	110.83	PASS



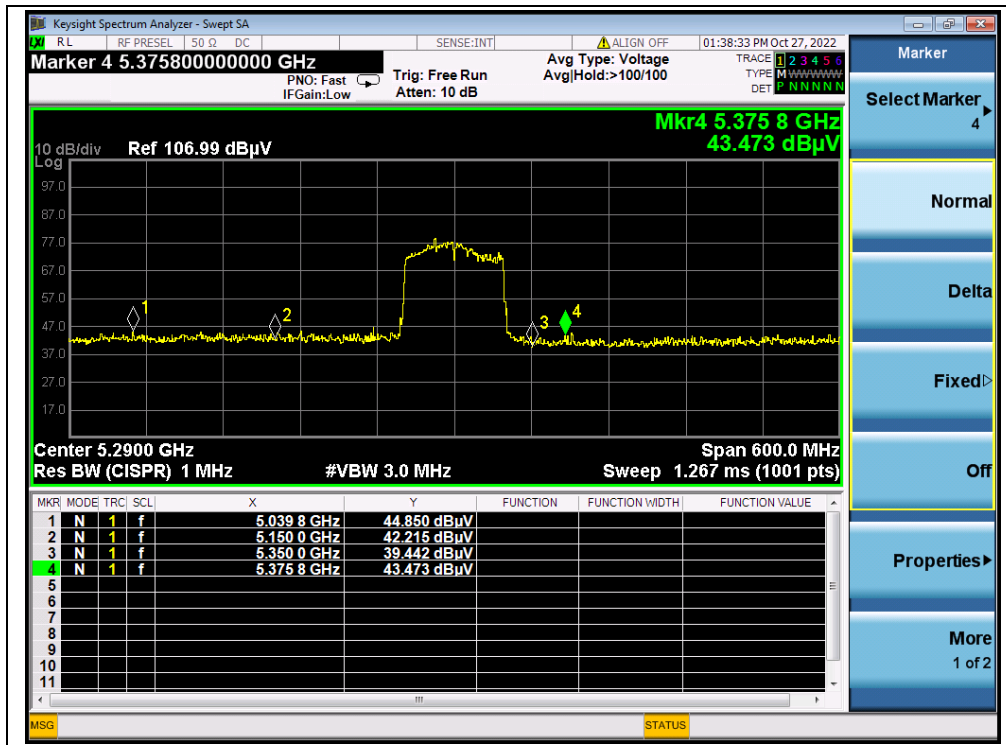
B.Test Plot:



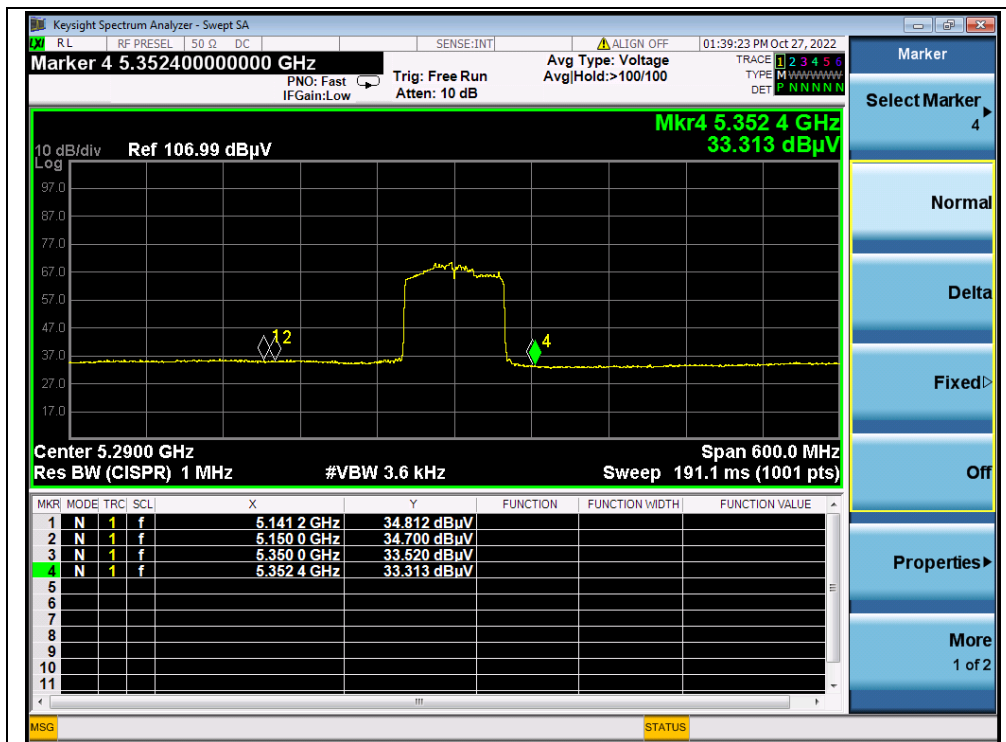
(PEAK, Channel 42, 802.11ac (VHT80))



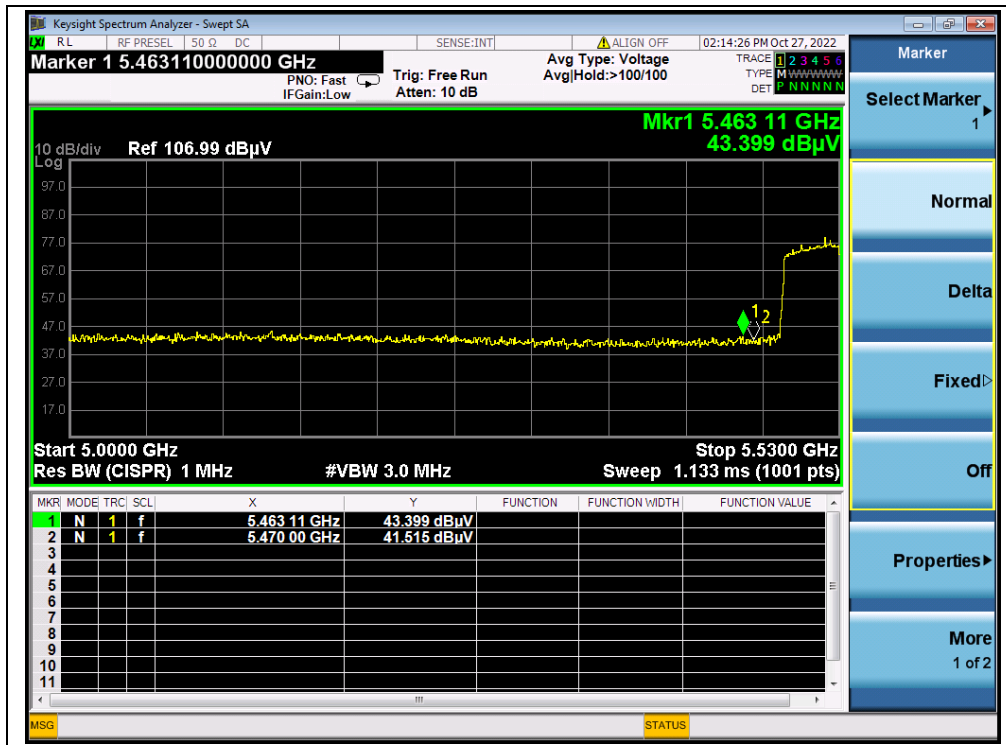
(AVERAGE, Channel 42, 802.11ac (VHT80))



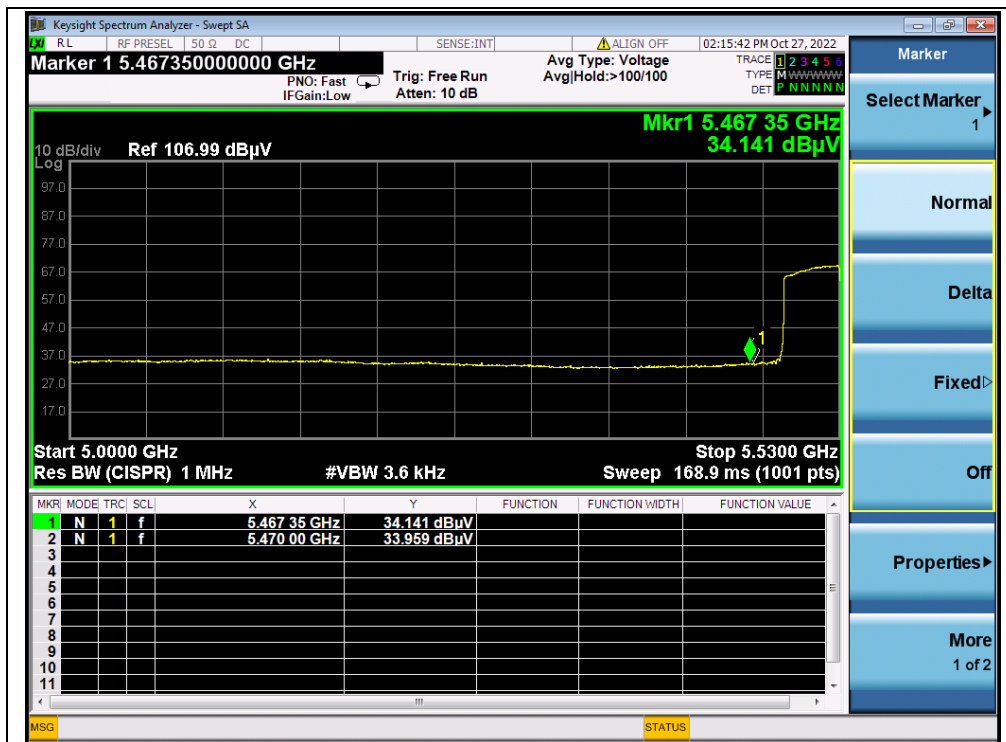
(PEAK, Channel 58, 802.11ac (VHT80))



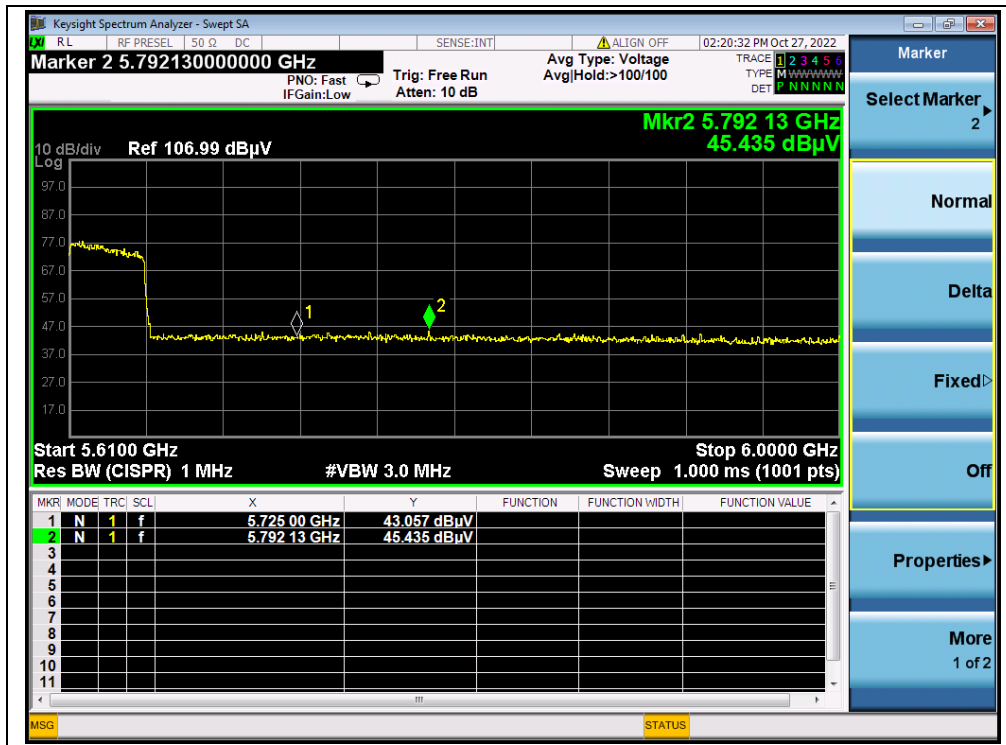
(AVERAGE, Channel 58, 802.11ac (VHT80))



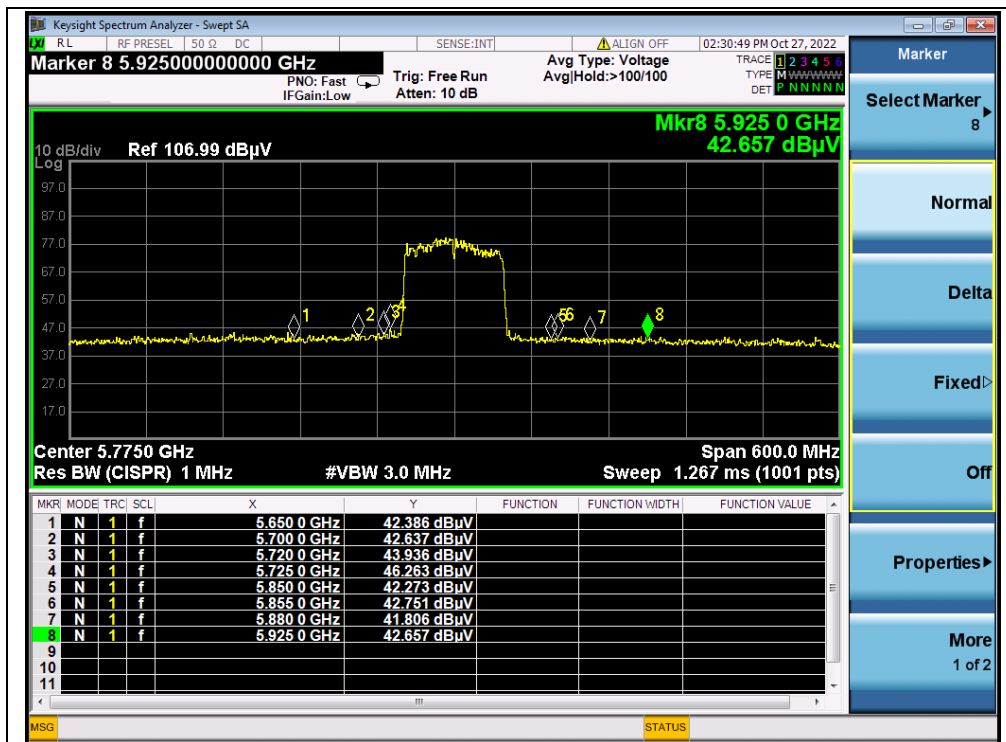
(PEAK, Channel 106, 802.11ac (VHT80))



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



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



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



2.9. Radiated Emission

2.9.1. Requirement

The peak emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.
- (2) For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.
- (3) For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

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

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

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:

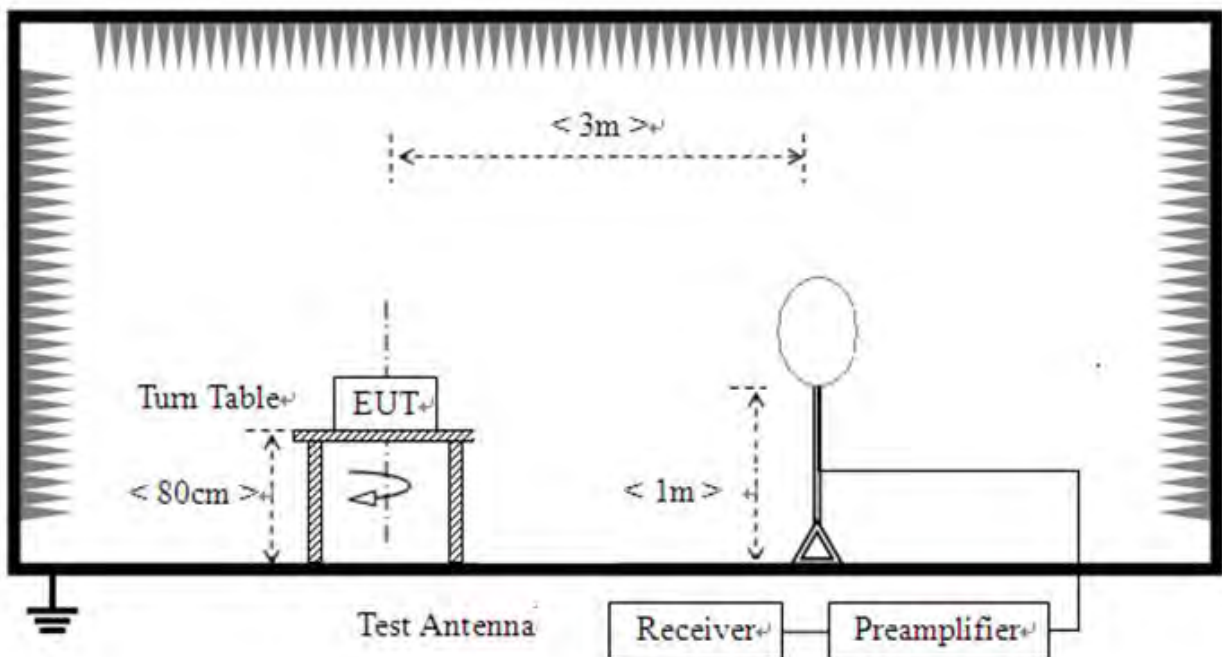
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

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).

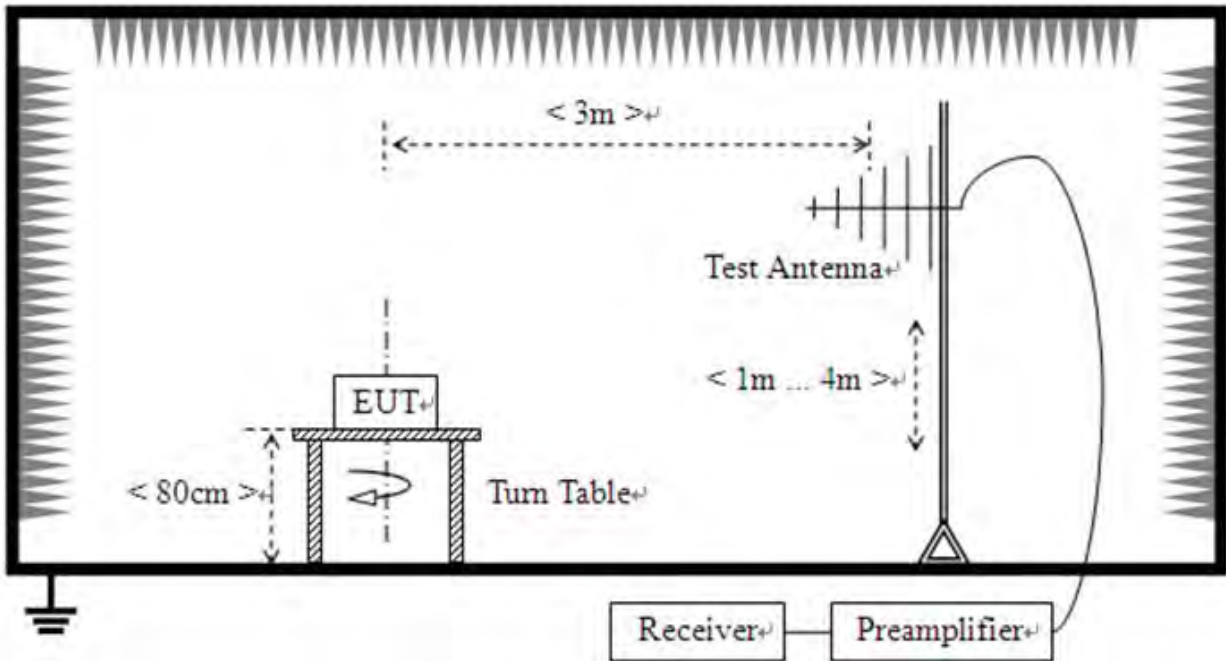
2.9.2. Test Description

Test Setup:

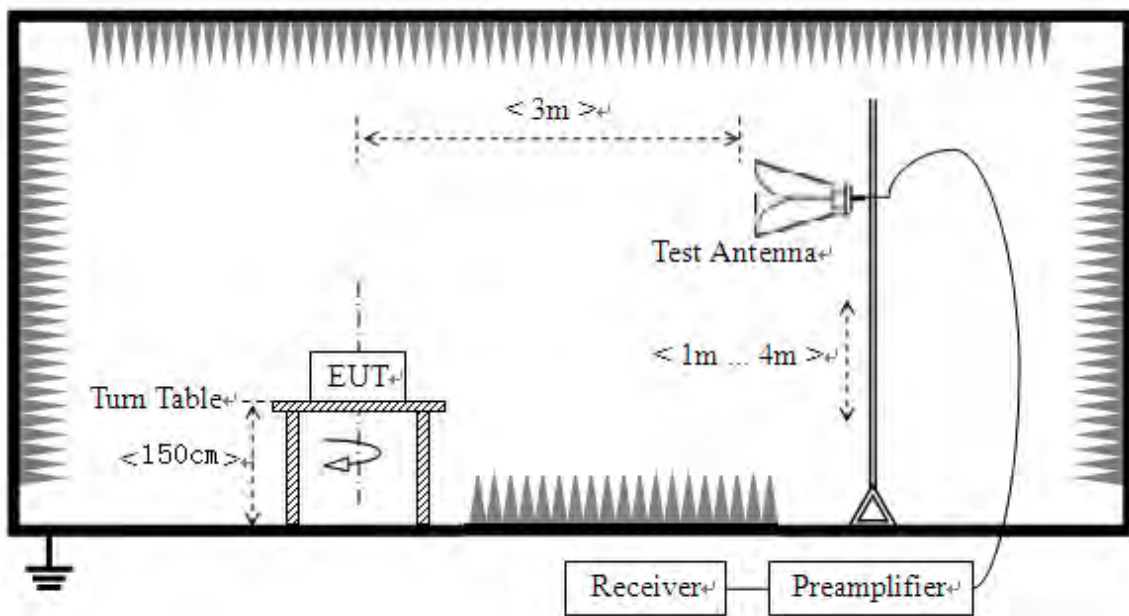
- 1) For radiated emissions from 9kHz to 30MHz



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 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.



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

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

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

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

2.9.3. Test Result

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

The measurement results are obtained as below:

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

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.

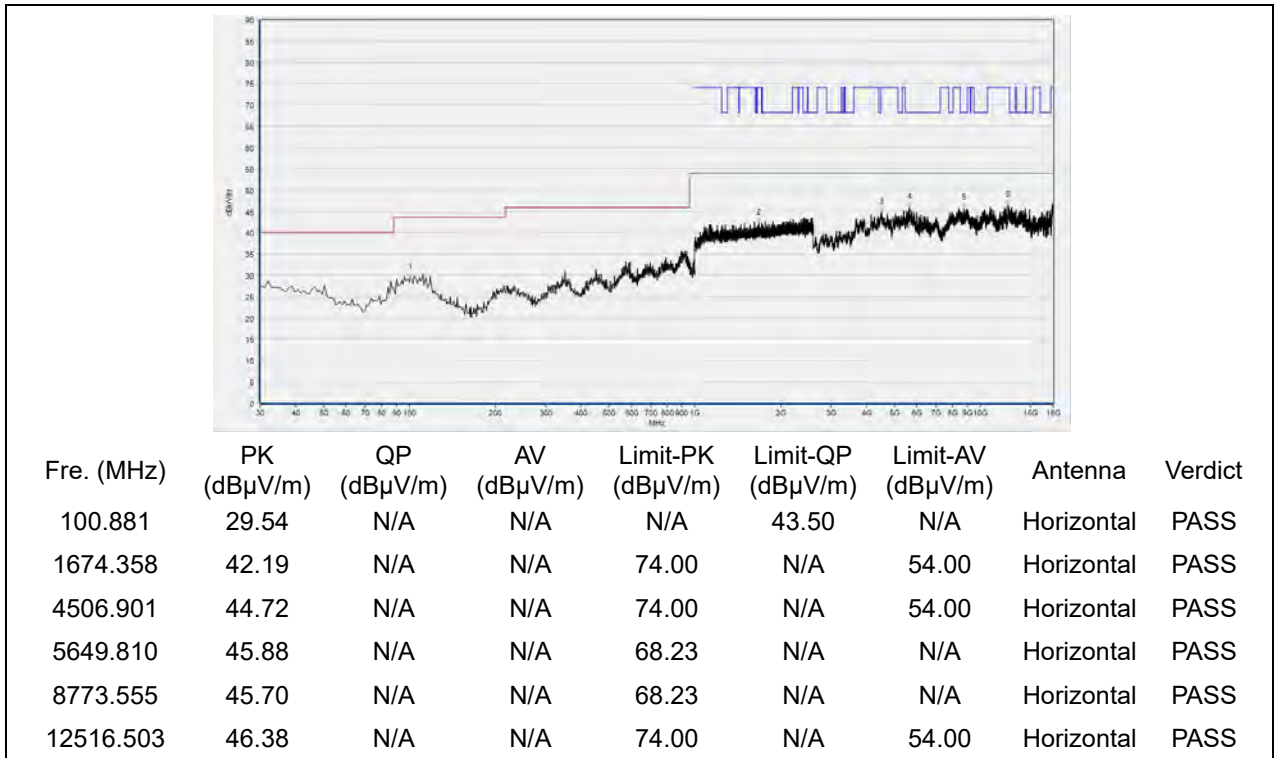
Note 2: For the frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

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.

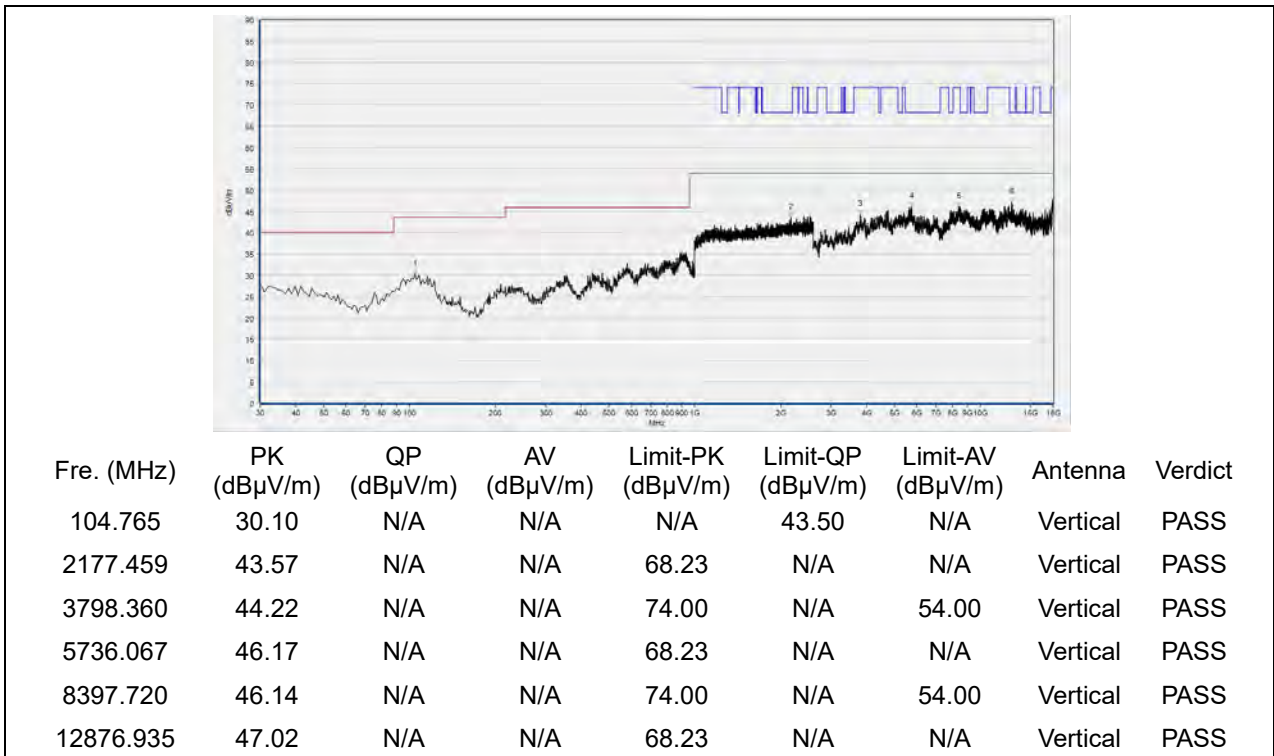
Note 4: All test modes and bandwidth were considered and evaluated respectively by performing full test, only the worst data were recorded for each bandwidth.

802.11a Mode

Plot for Channel 36

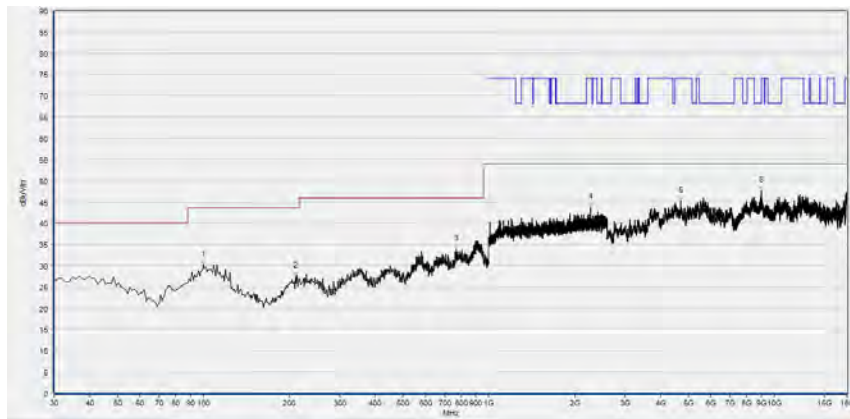


(Antenna Horizontal, 30MHz to 18GHz)



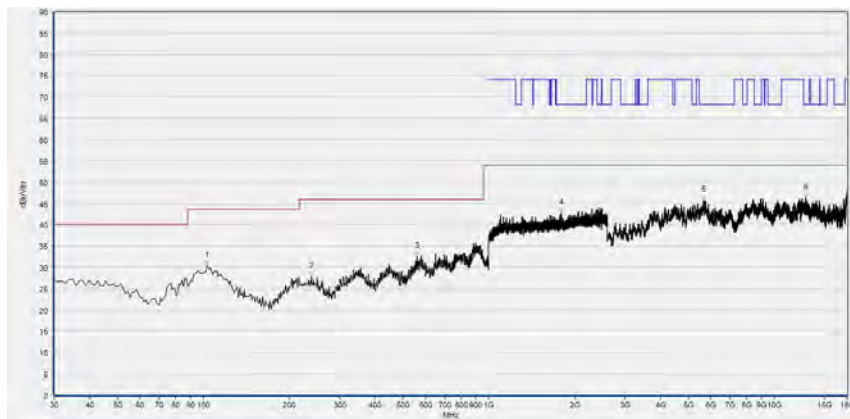
(Antenna Vertical, 30MHz to 18GHz)

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
99.910	30.23	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
210.601	27.42	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
769.880	33.85	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2278.826	43.76	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4707.141	45.31	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8992.278	47.68	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

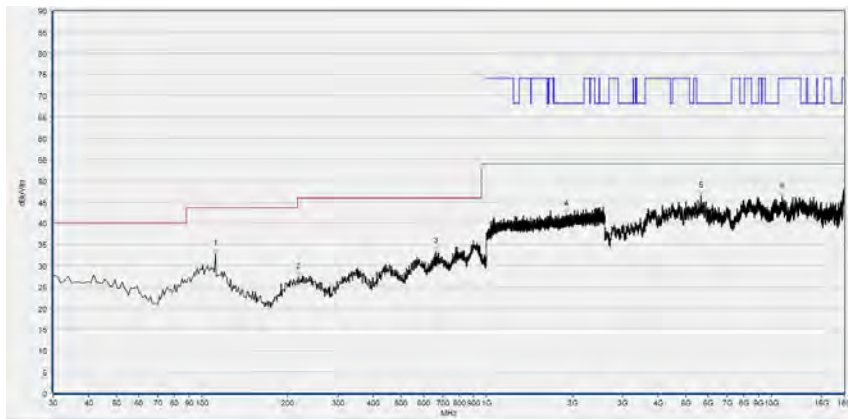
(Antenna Horizontal, 30MHz to 18GHz)



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	30.36	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
238.759	27.87	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
560.150	32.51	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1791.197	42.75	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5640.568	45.76	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12886.177	46.20	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

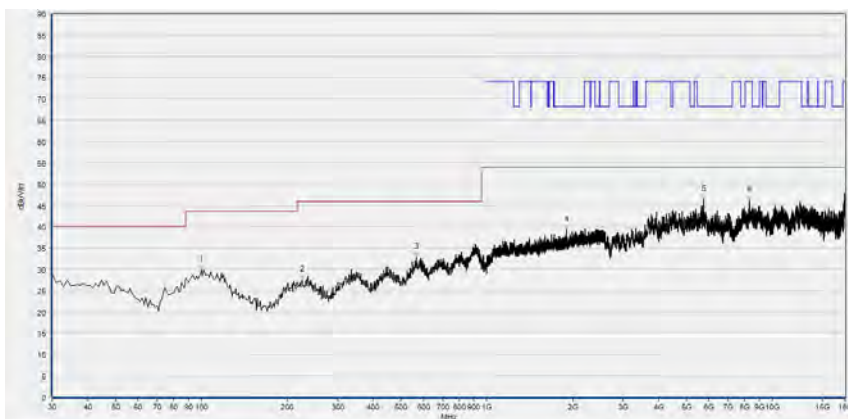
(Antenna Vertical, 30MHz to 18GHz)

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
111.562	32.62	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
218.368	27.26	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
662.102	33.32	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1902.167	42.11	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5655.971	46.36	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
10911.502	46.28	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

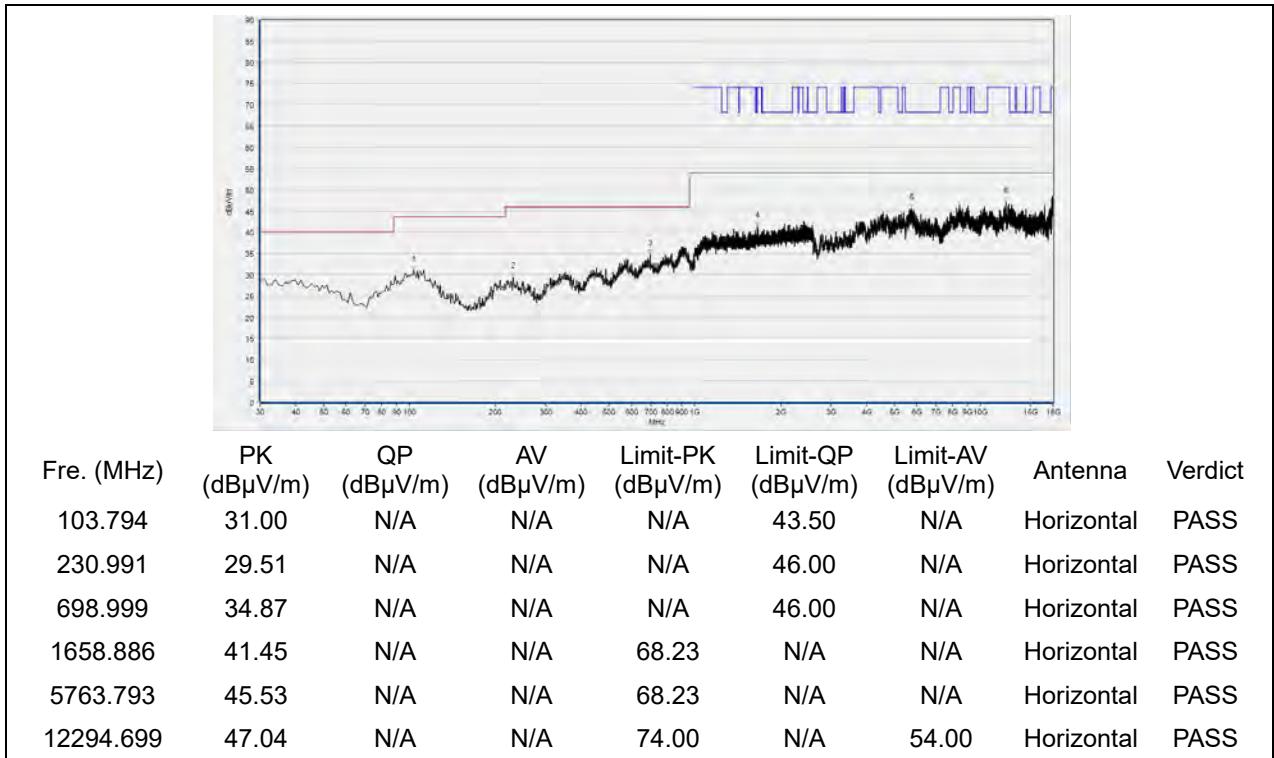
(Antenna Horizontal, 30MHz to 18GHz)



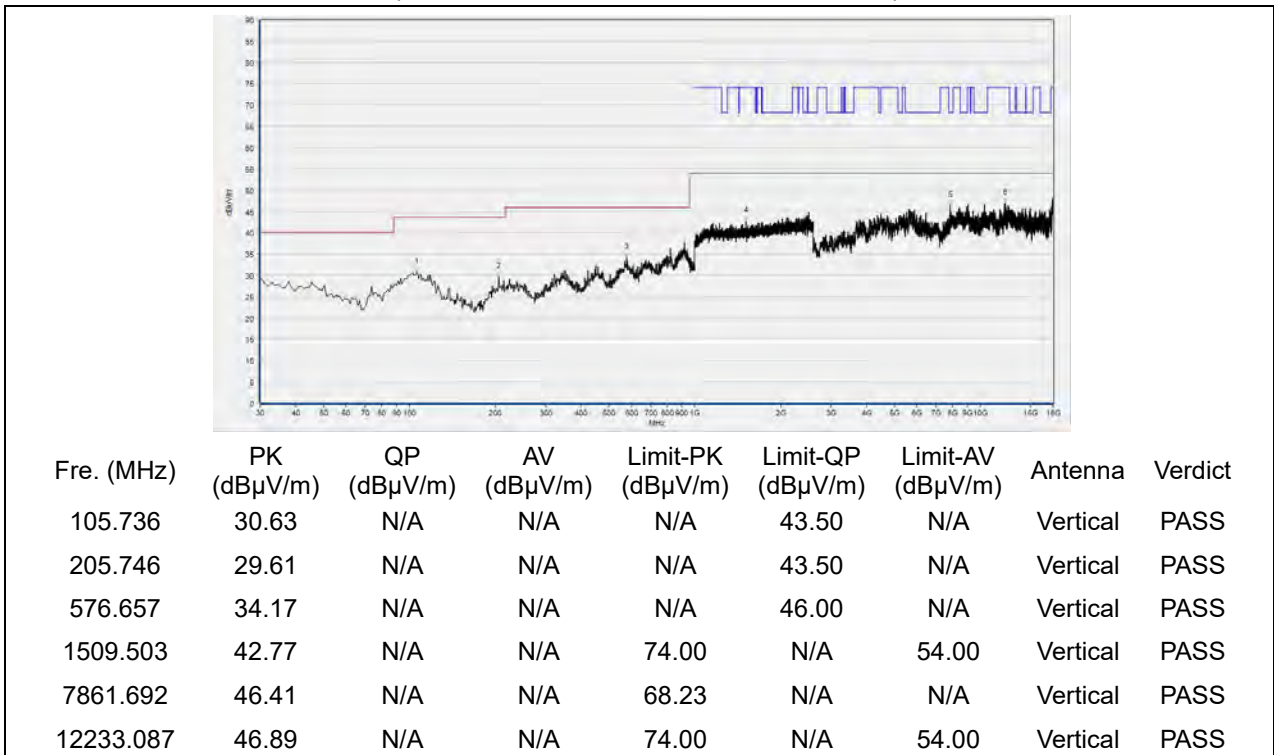
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
99.910	29.77	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
225.165	27.55	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
565.976	32.90	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1901.100	39.26	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5742.228	46.35	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8333.027	46.29	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 52

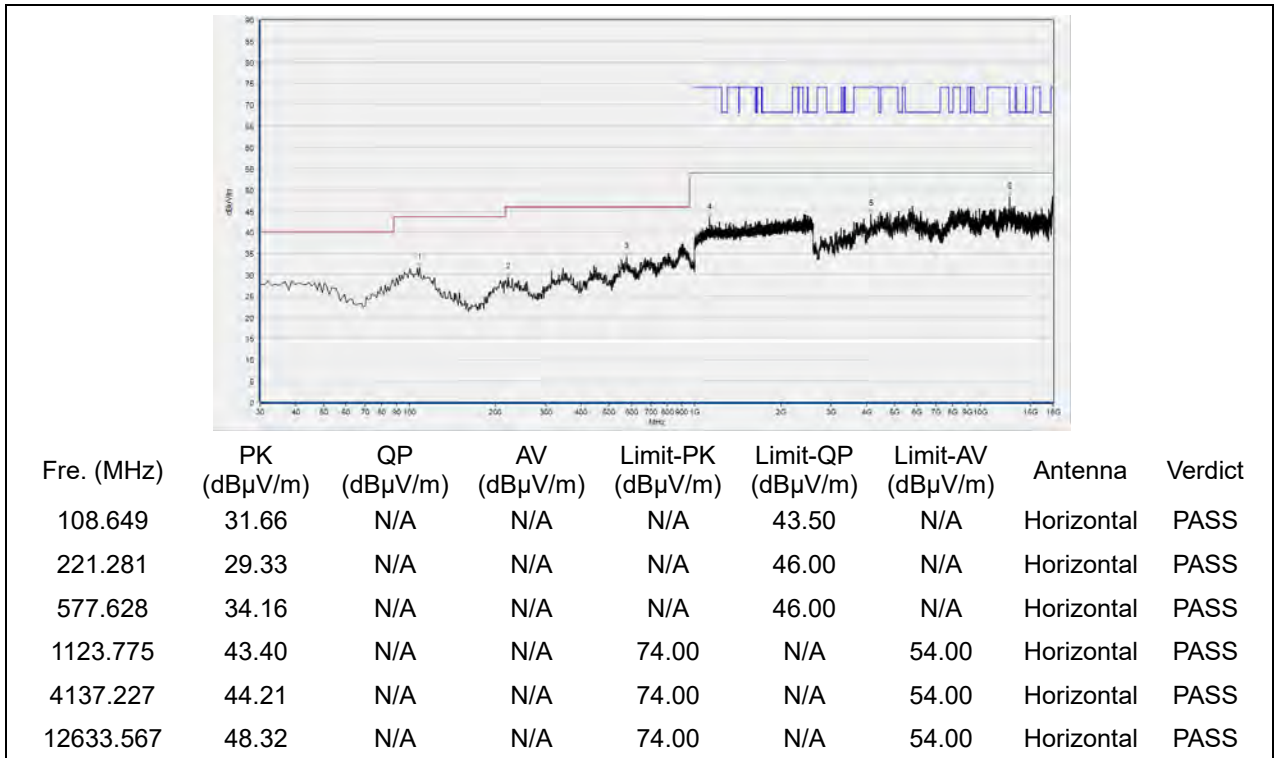


(Antenna Horizontal, 30MHz to 18GHz)

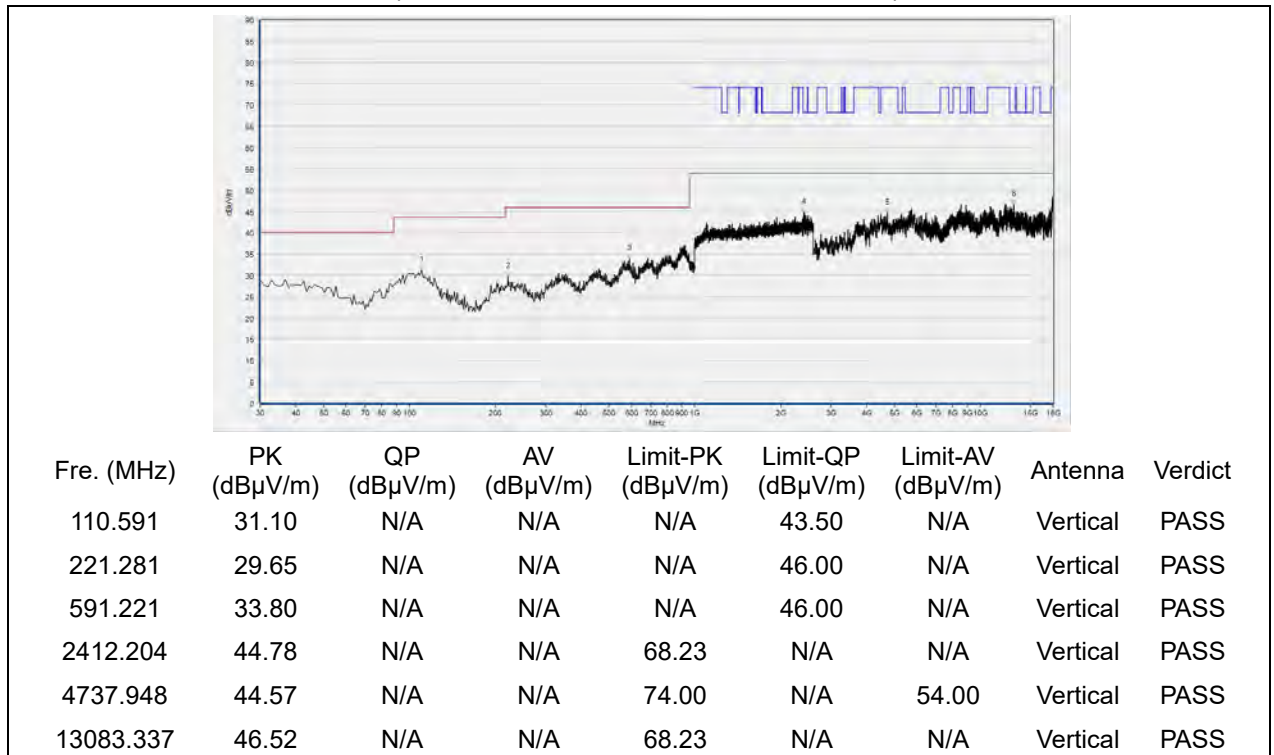


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 60

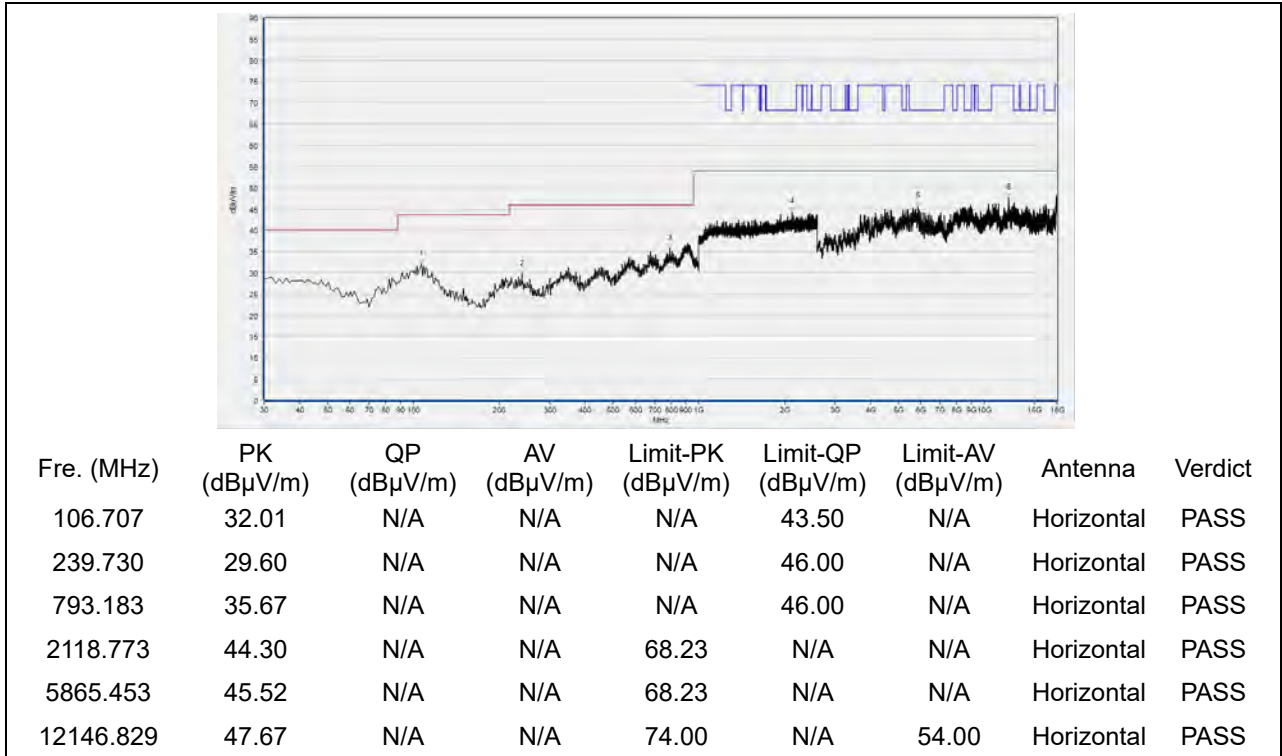


(Antenna Horizontal, 30MHz to 18GHz)

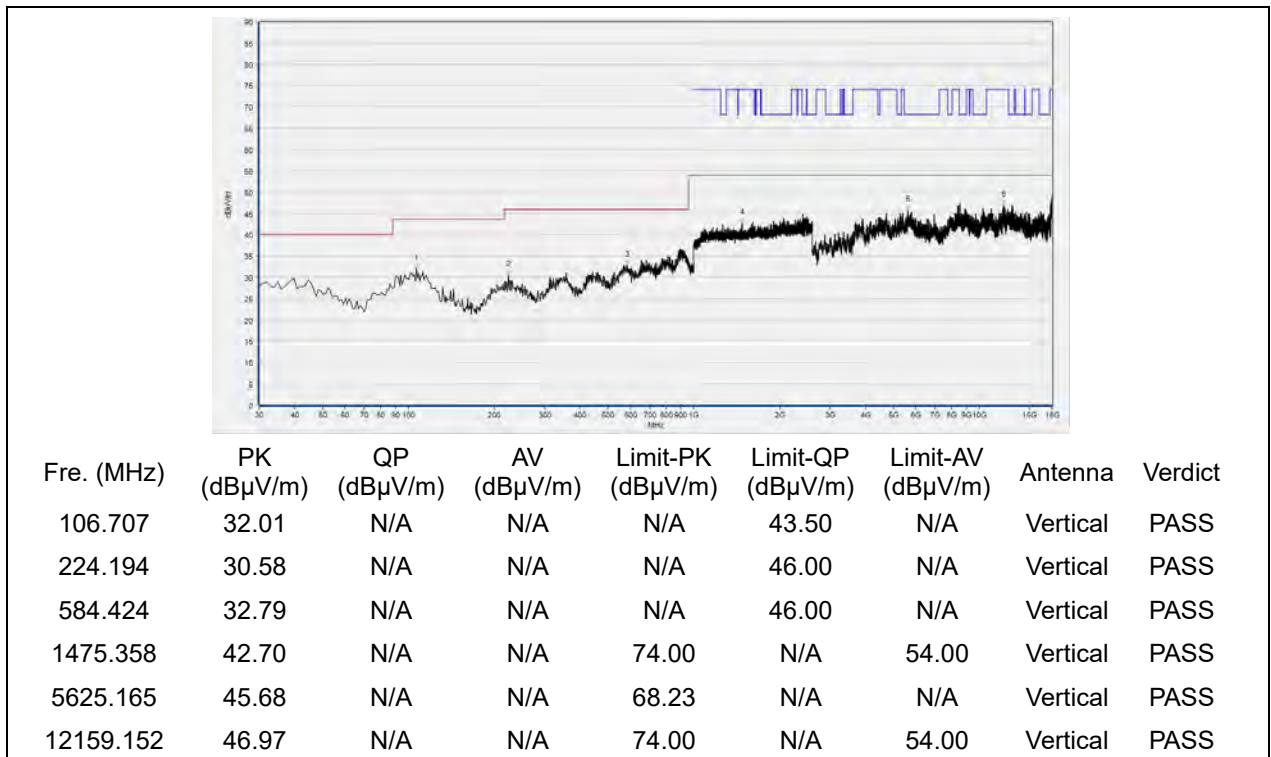


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 64

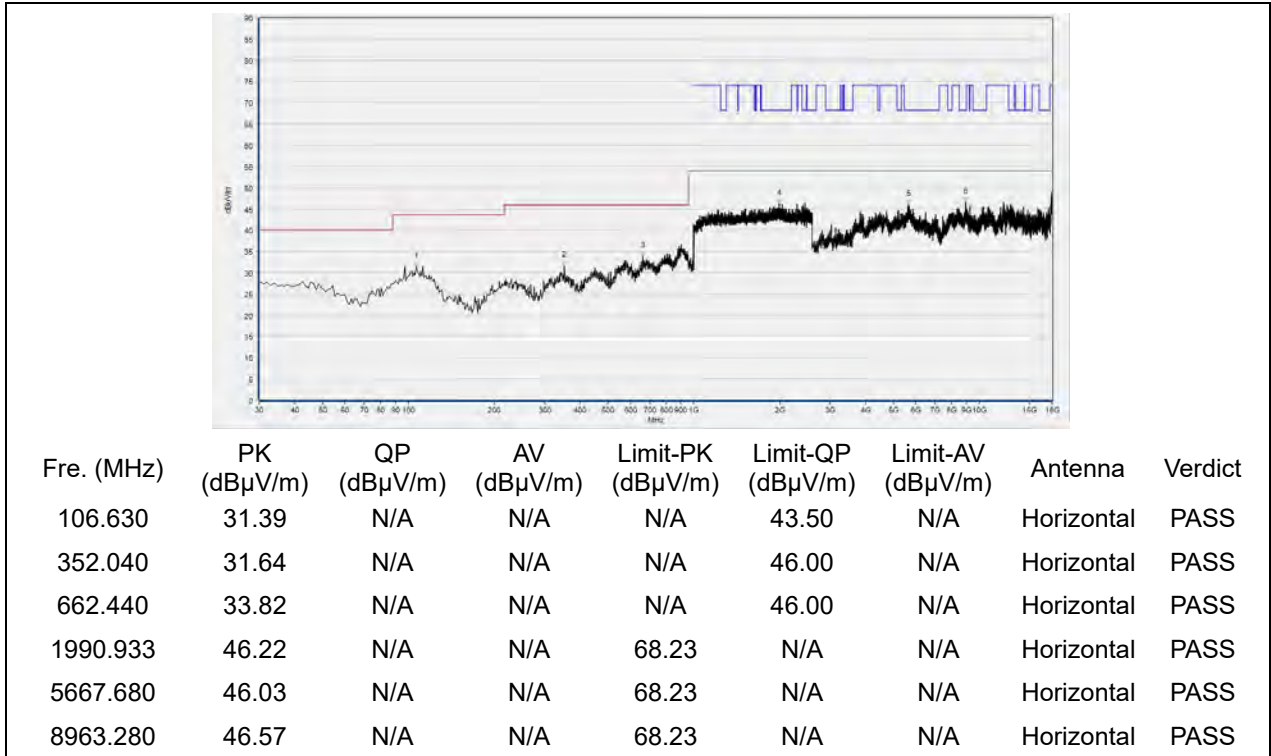


(Antenna Horizontal, 30MHz to 18GHz)

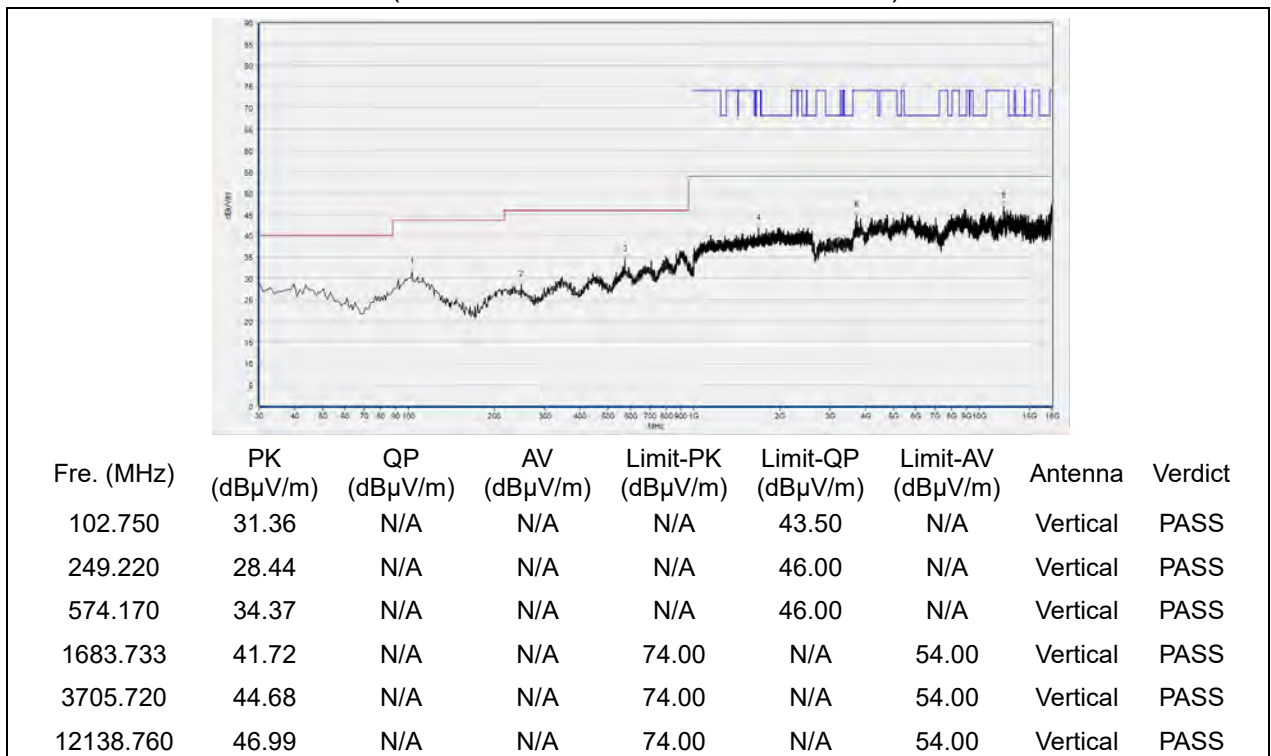


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 100

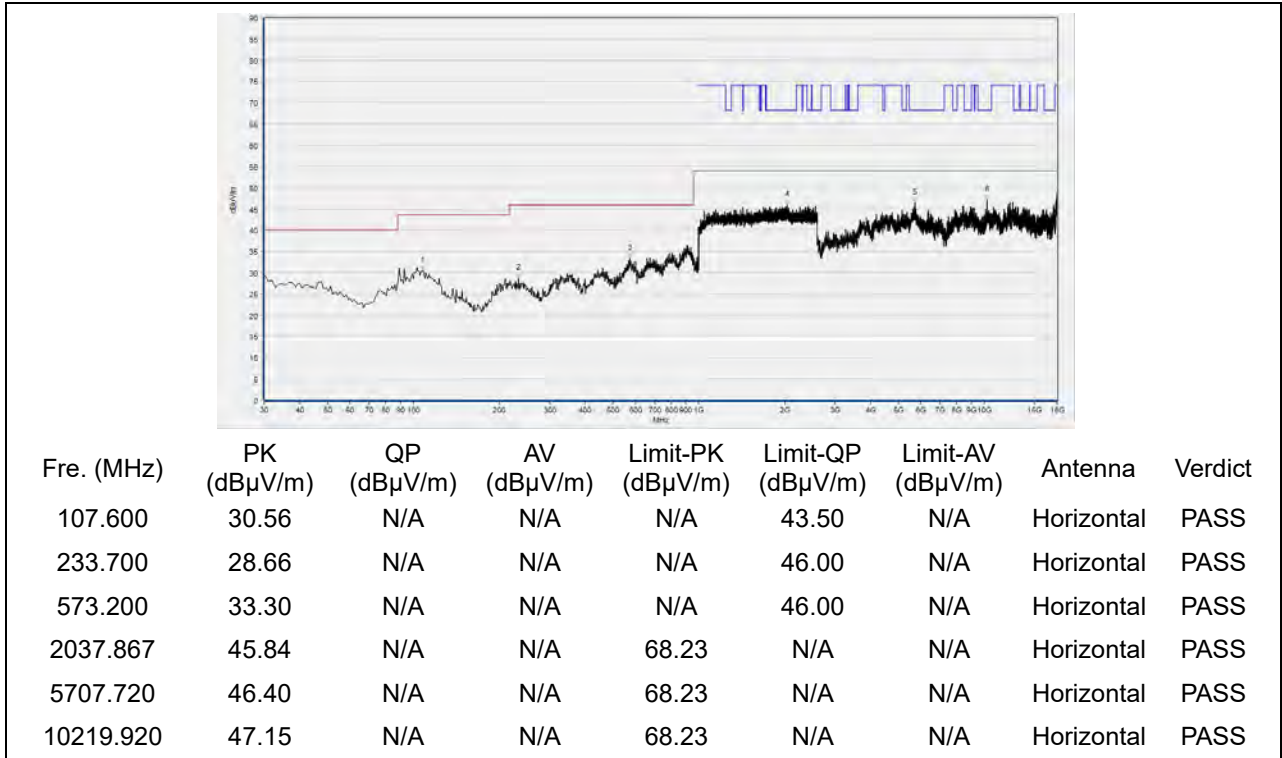


(Antenna Horizontal, 30MHz to 18GHz)

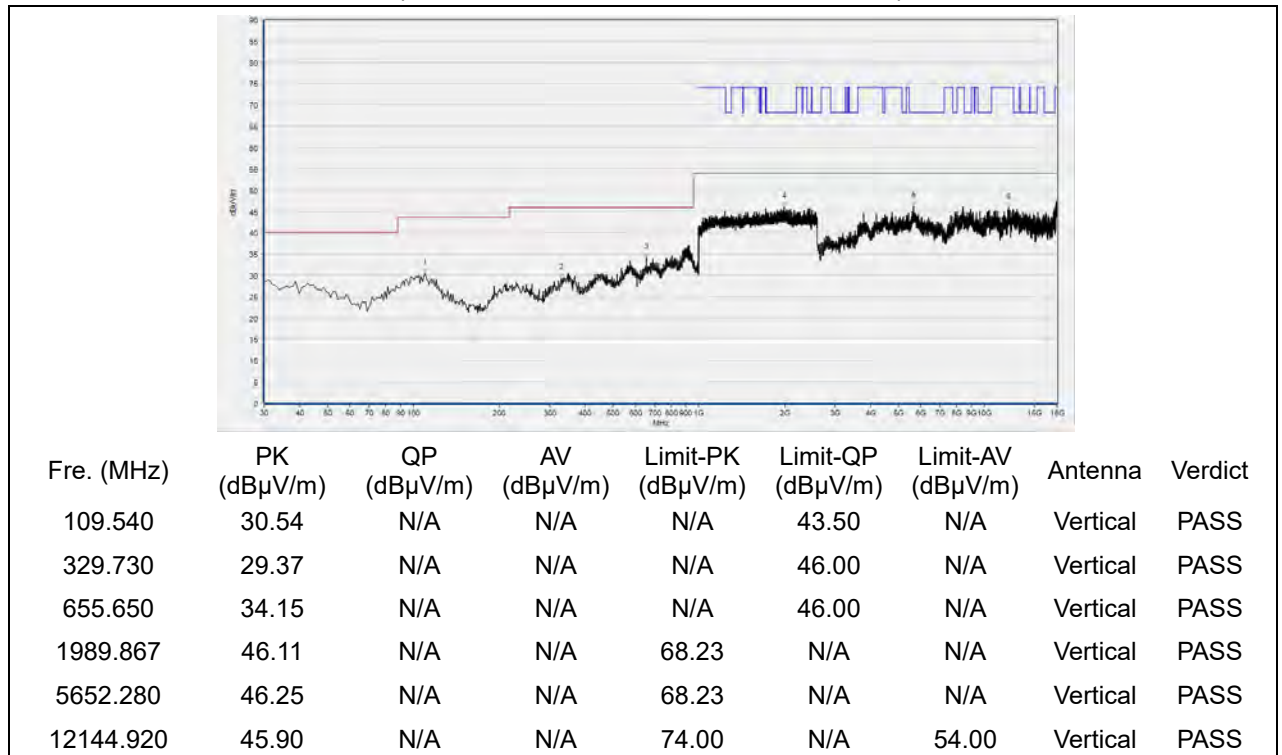


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 120

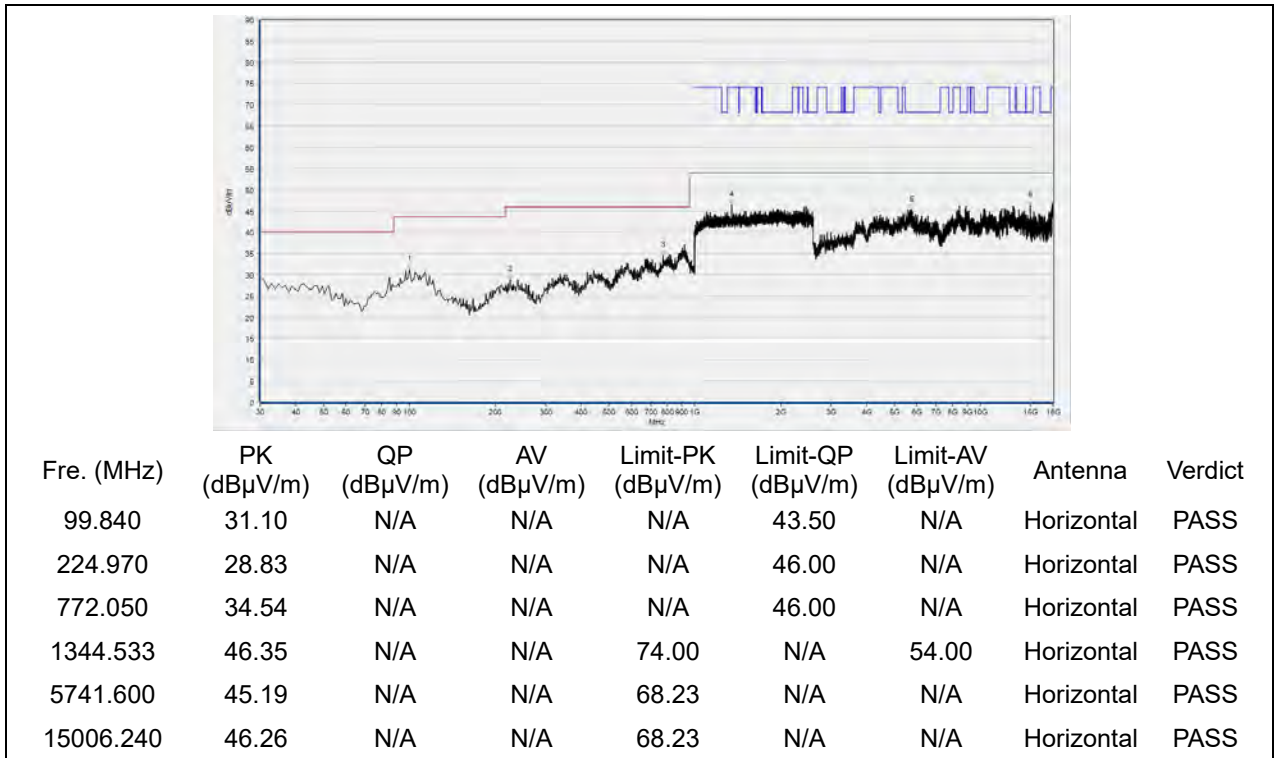


(Antenna Horizontal, 30MHz to 18GHz)

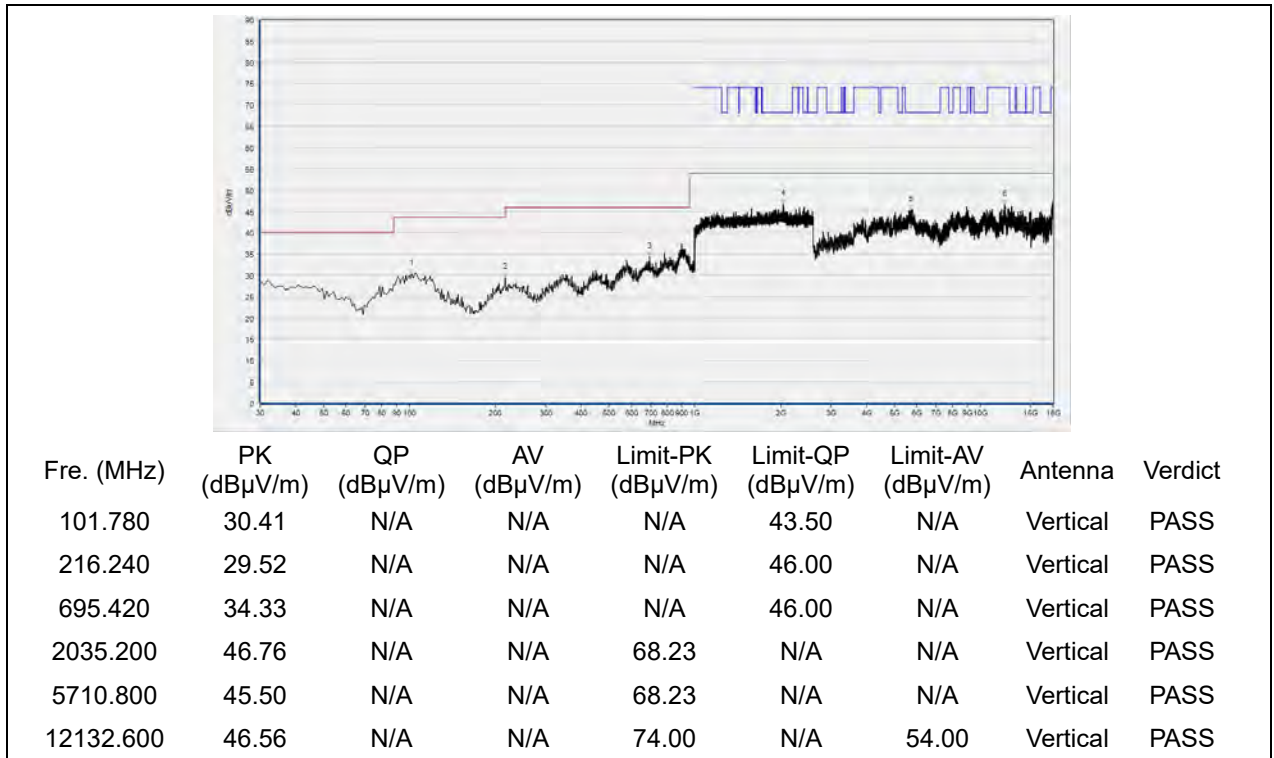


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 144

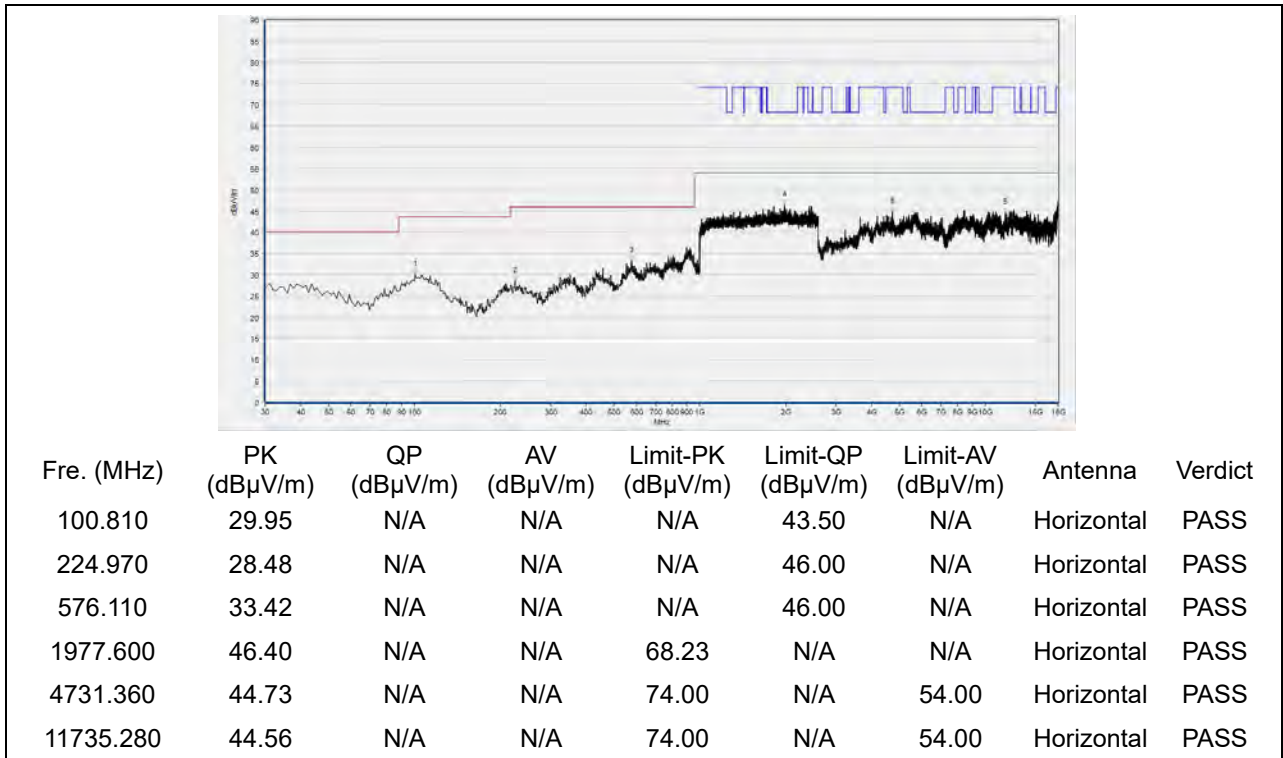


(Antenna Horizontal, 30MHz to 18GHz)

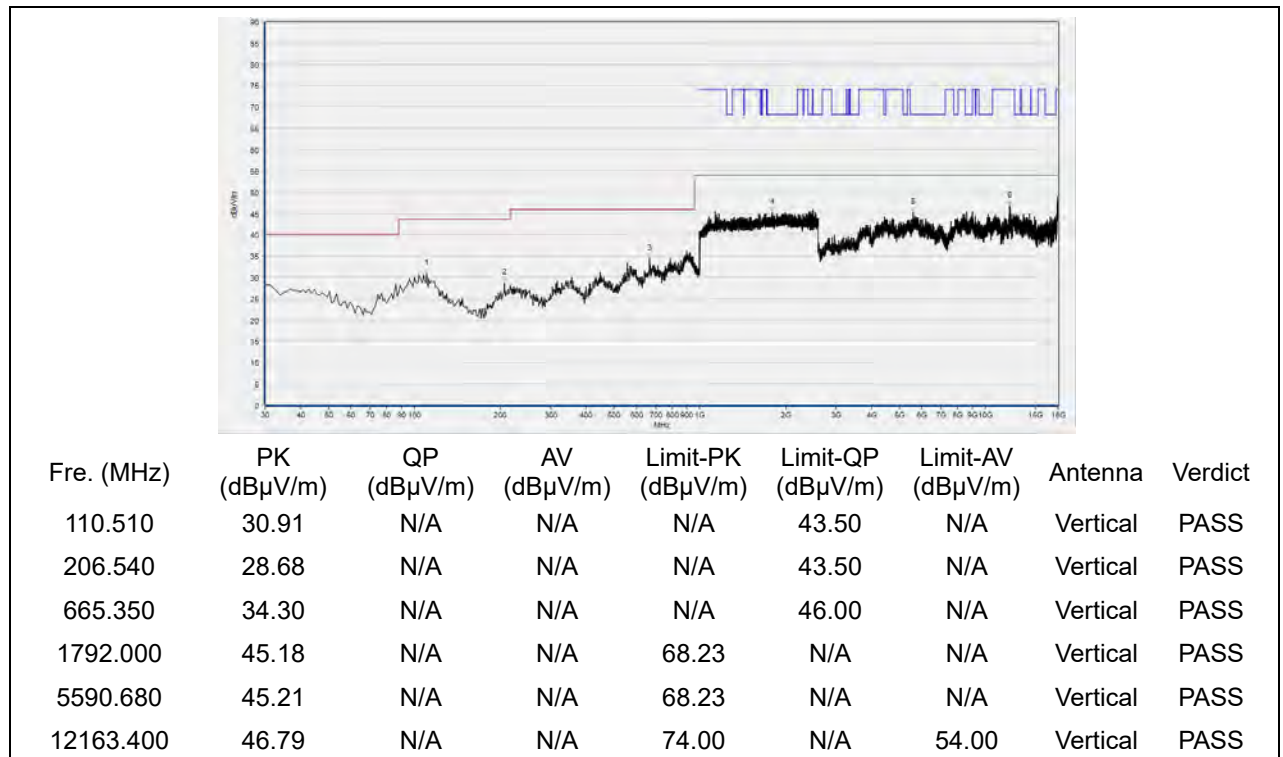


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 149

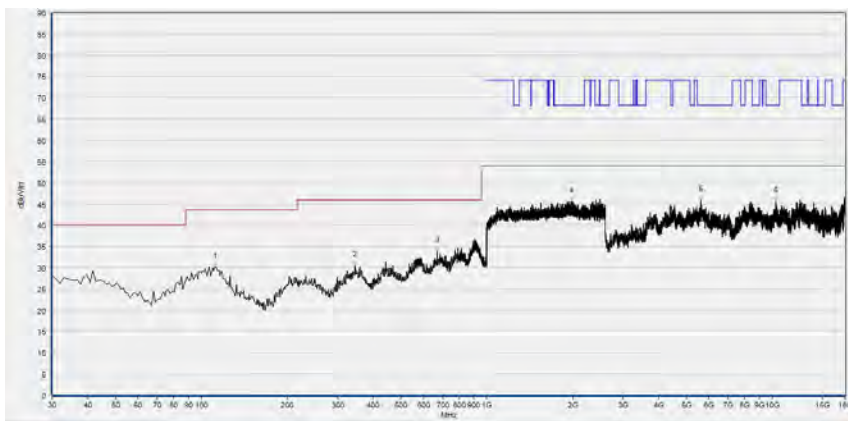


(Antenna Horizontal, 30MHz to 18GHz)



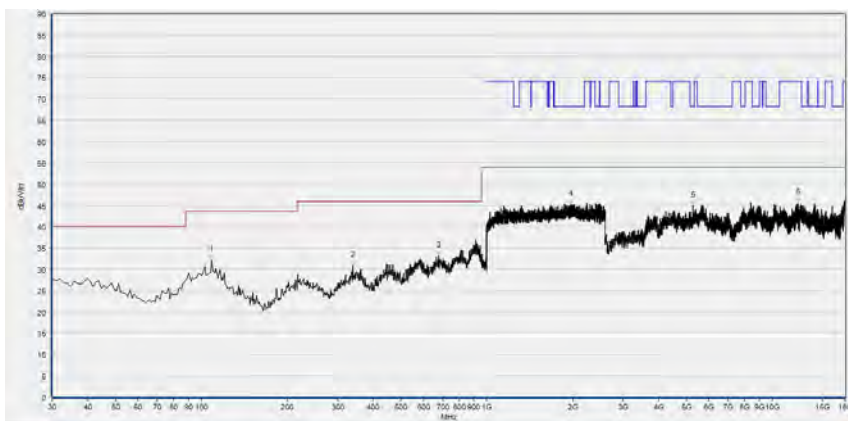
(Antenna Vertical, 30MHz to 18GHz)

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
111.480	30.24	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
345.250	30.49	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
670.200	33.91	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1974.400	45.53	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5612.240	45.93	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
10306.160	45.64	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

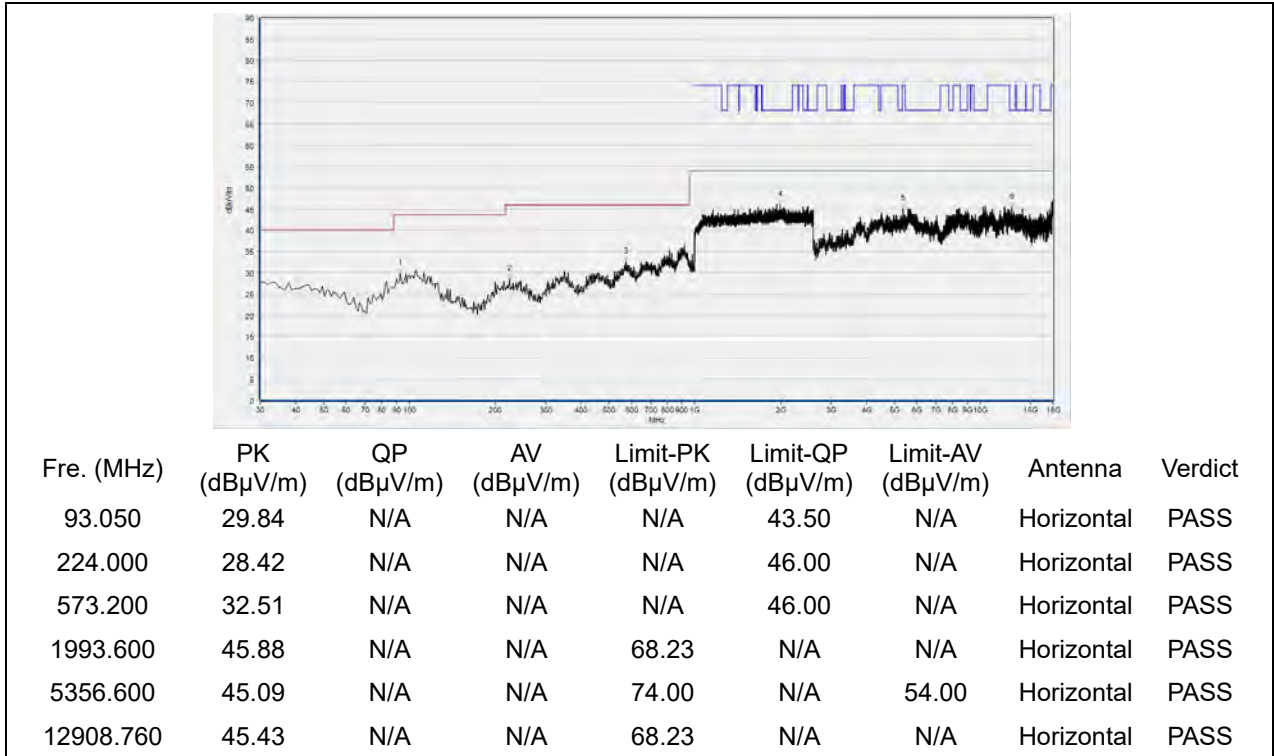
(Antenna Horizontal, 30MHz to 18GHz)



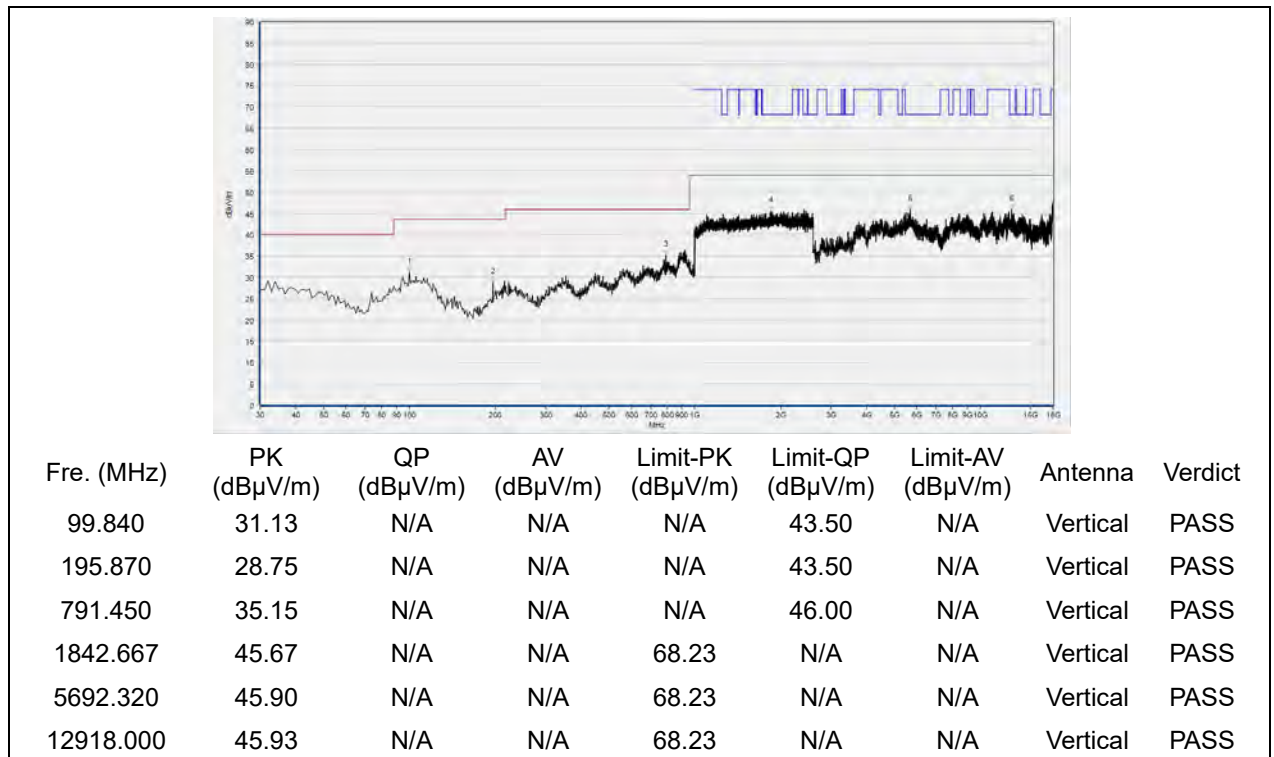
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
108.570	32.22	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
339.430	30.75	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
677.960	33.18	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1963.200	45.27	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5282.680	44.88	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12302.000	45.55	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 165



(Antenna Horizontal, 30MHz to 18GHz)

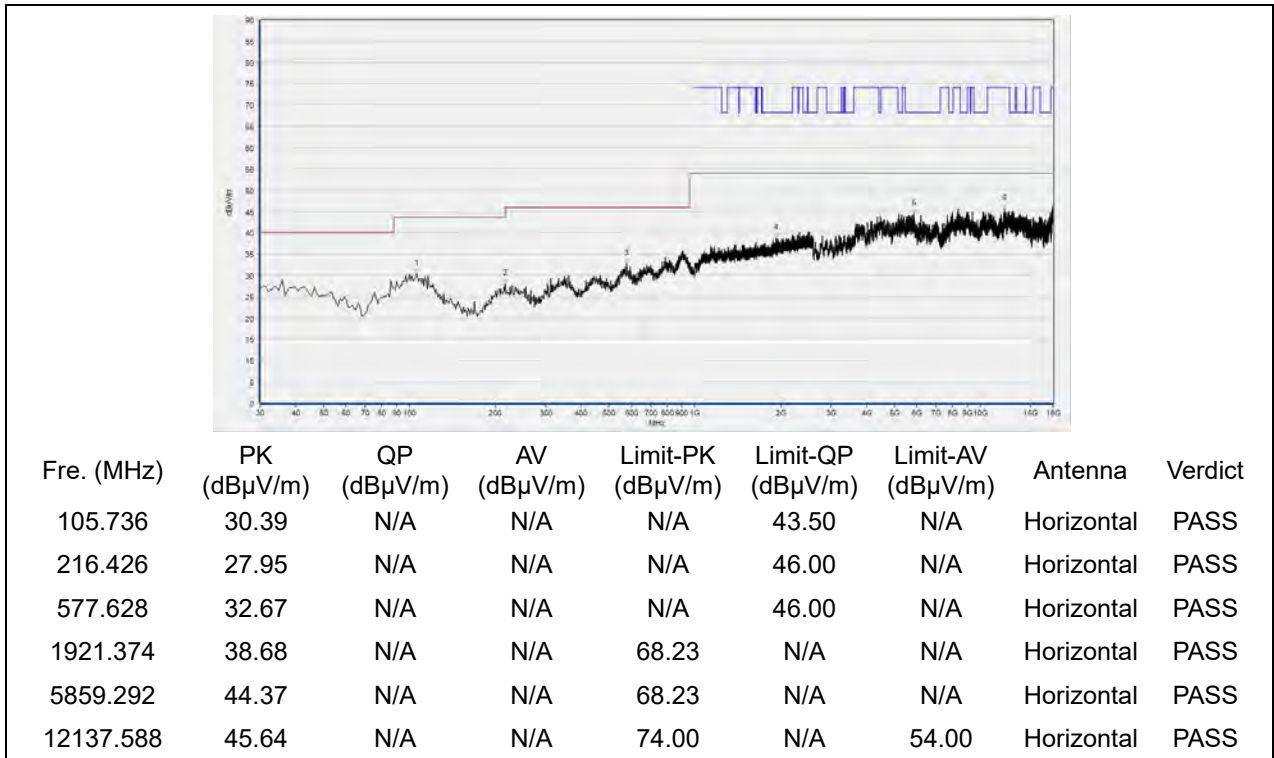


(Antenna Vertical, 30MHz to 18GHz)

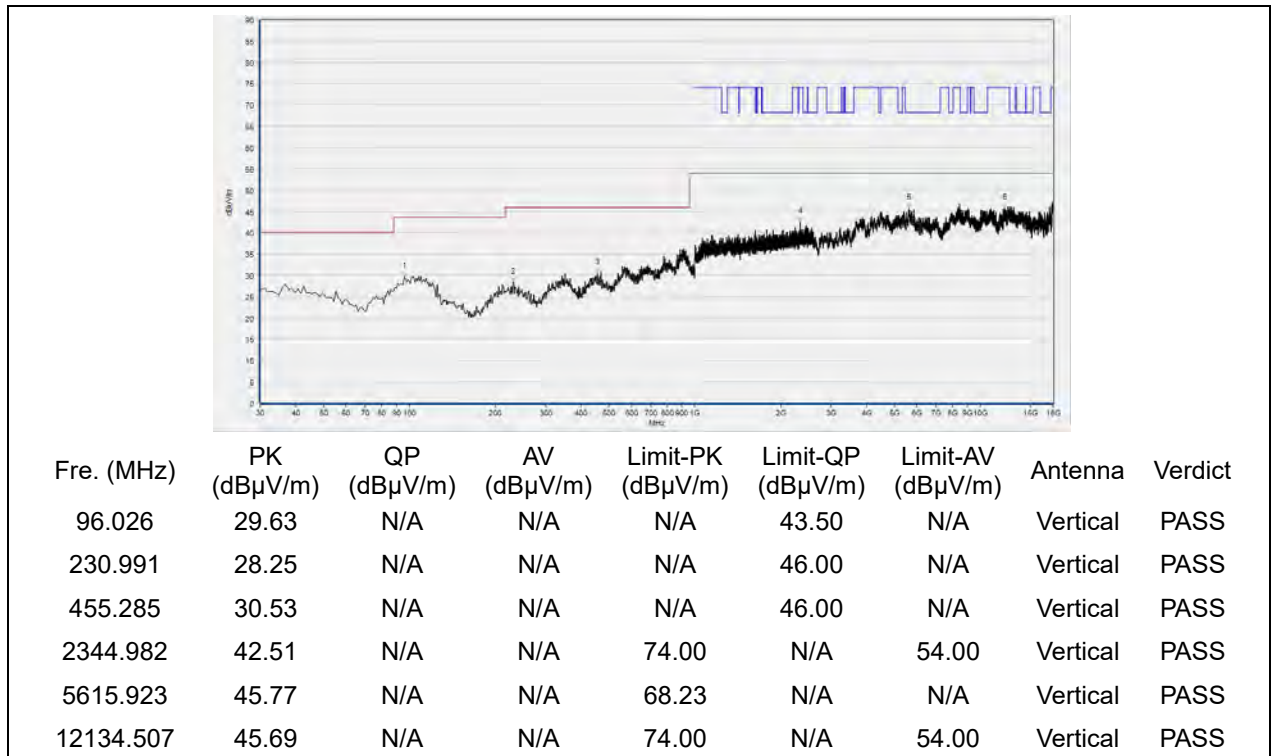


802.11n (HT40) mode

Plot for Channel 38

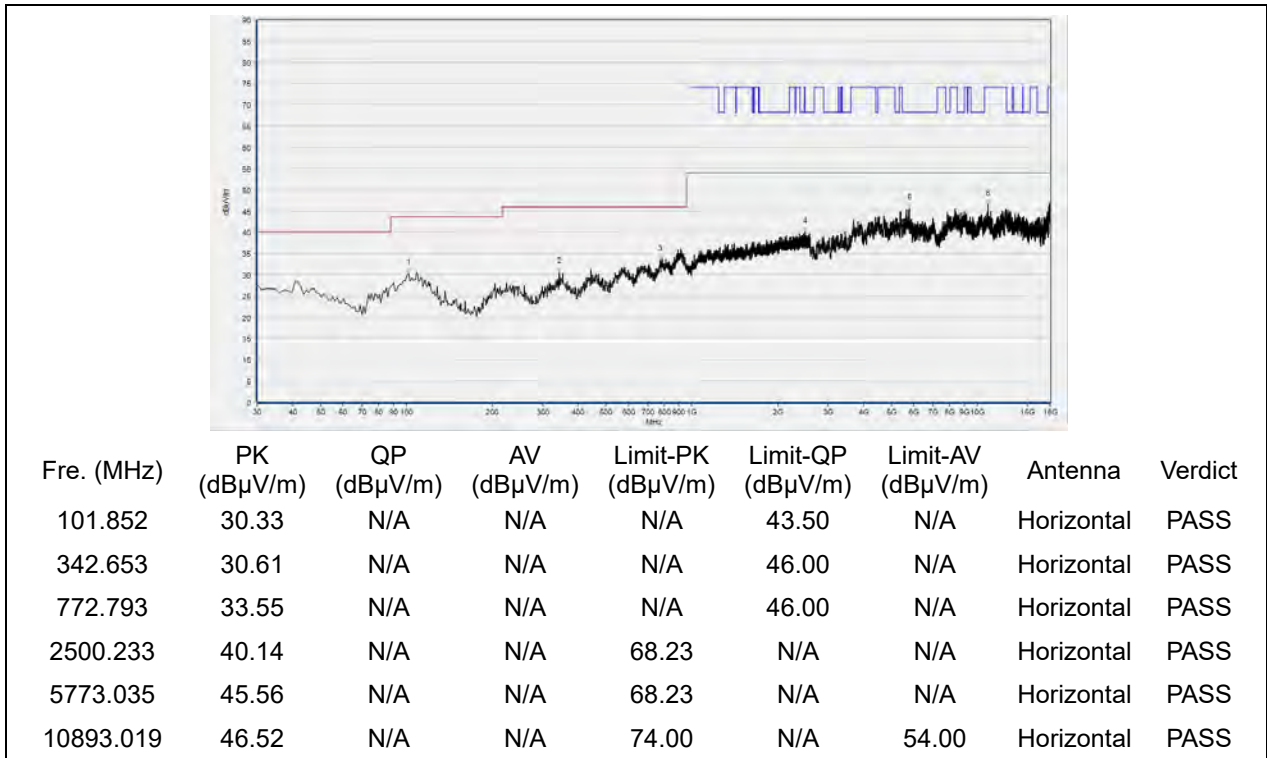


(Antenna Horizontal, 30MHz to 18GHz)

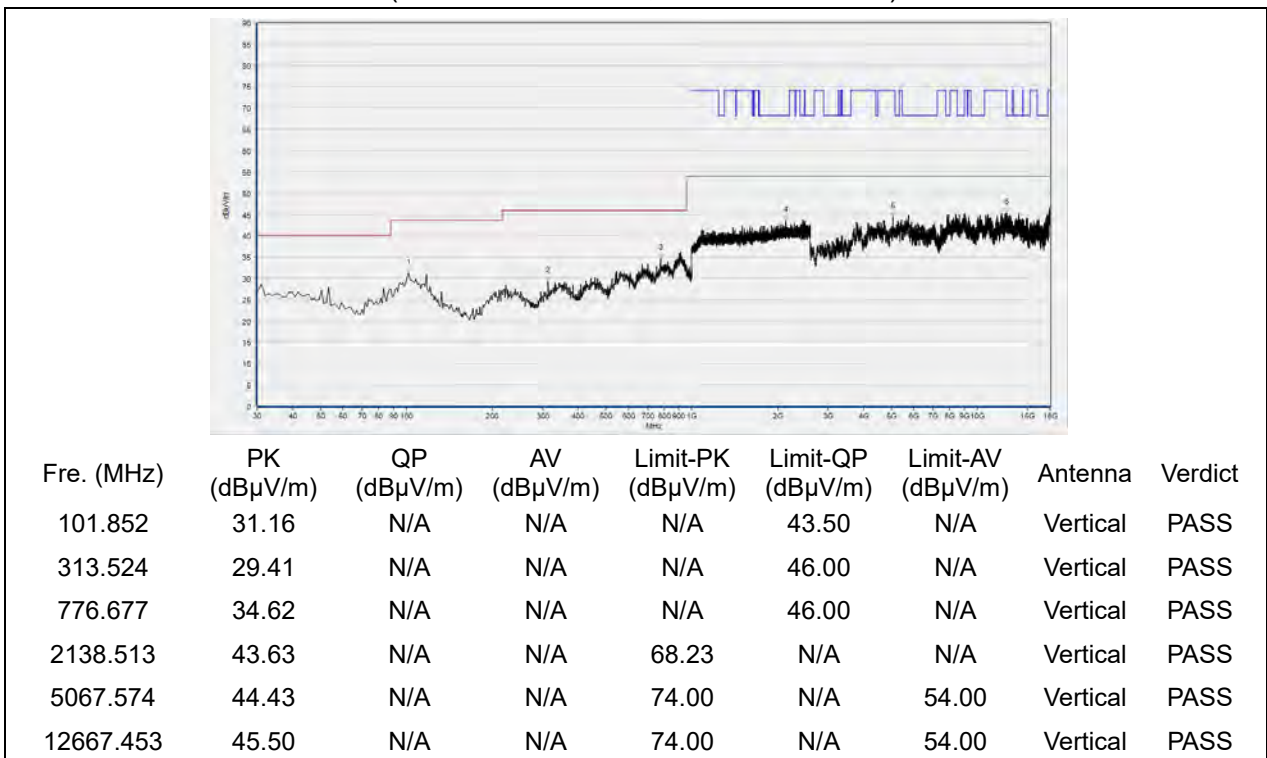


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 46

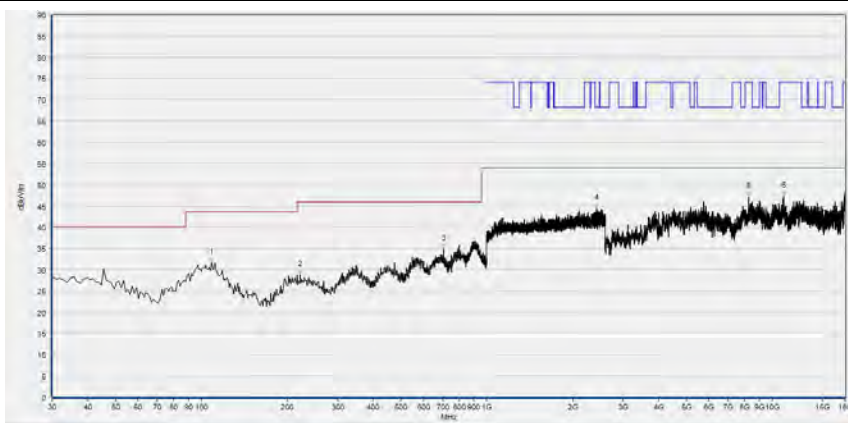


(Antenna Horizontal, 30MHz to 18GHz)



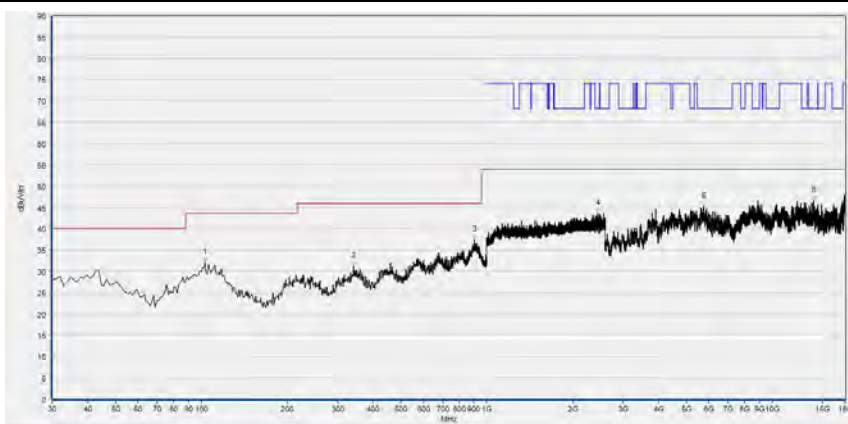
(Antenna Vertical, 30MHz to 18GHz)

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
108.649	31.60	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
222.252	28.88	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
705.796	34.90	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2422.341	44.46	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8283.737	47.12	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10982.356	47.32	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

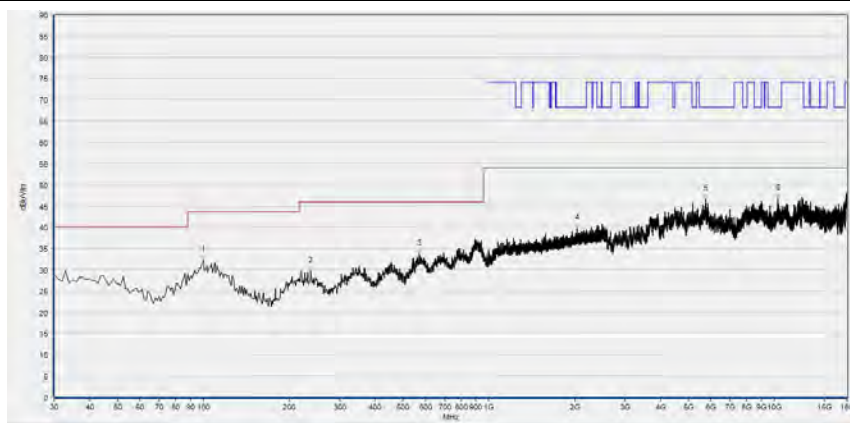
(Antenna Horizontal, 30MHz to 18GHz)



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
102.823	31.97	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
340.711	31.14	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
904.845	37.44	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2451.150	43.56	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5757.632	45.28	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
13942.829	46.65	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

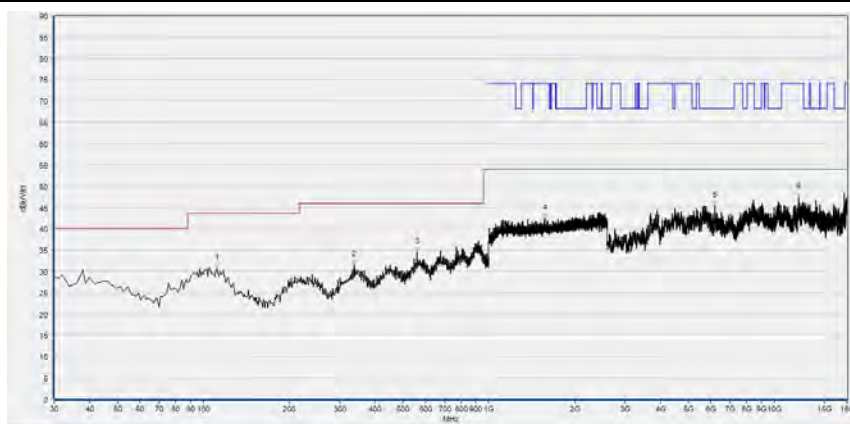
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 62



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
99.910	32.22	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
237.788	29.61	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
569.860	33.62	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2043.014	39.74	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5745.309	46.51	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
10279.976	46.74	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

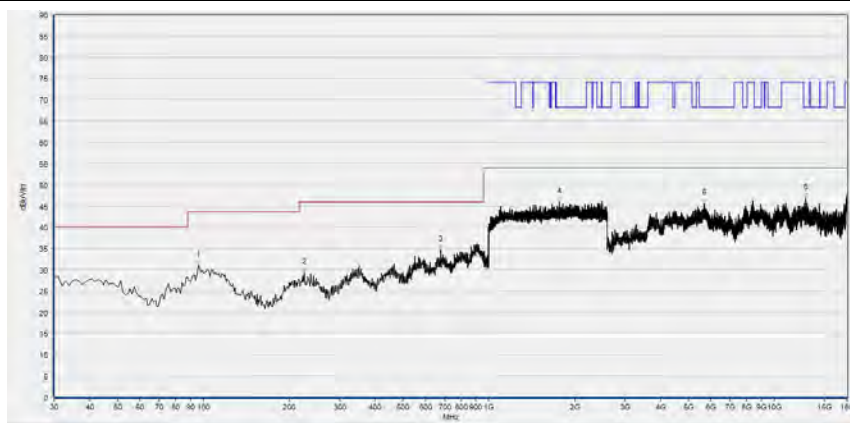
(Antenna Horizontal, 30MHz to 18GHz)



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
111.562	30.61	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
336.827	31.44	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
559.179	34.53	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1574.058	42.48	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
6207.401	45.39	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12143.749	47.44	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

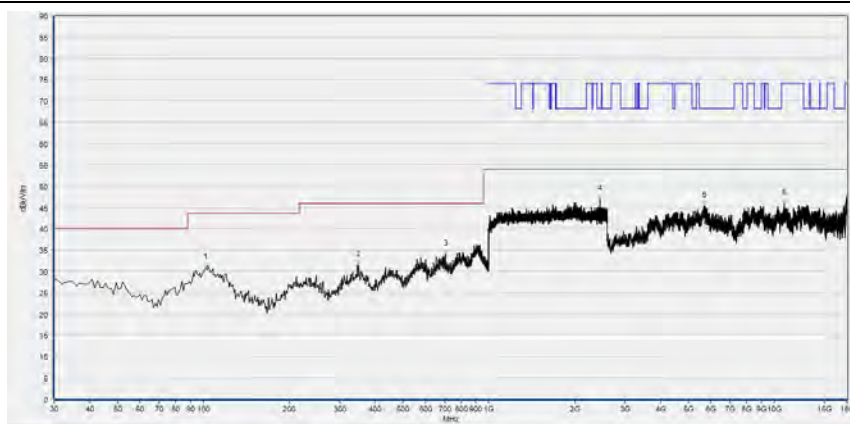
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 102



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
95.960	30.93	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
225.940	29.37	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
678.930	34.68	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1763.733	45.85	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5670.760	45.55	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12893.360	46.97	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

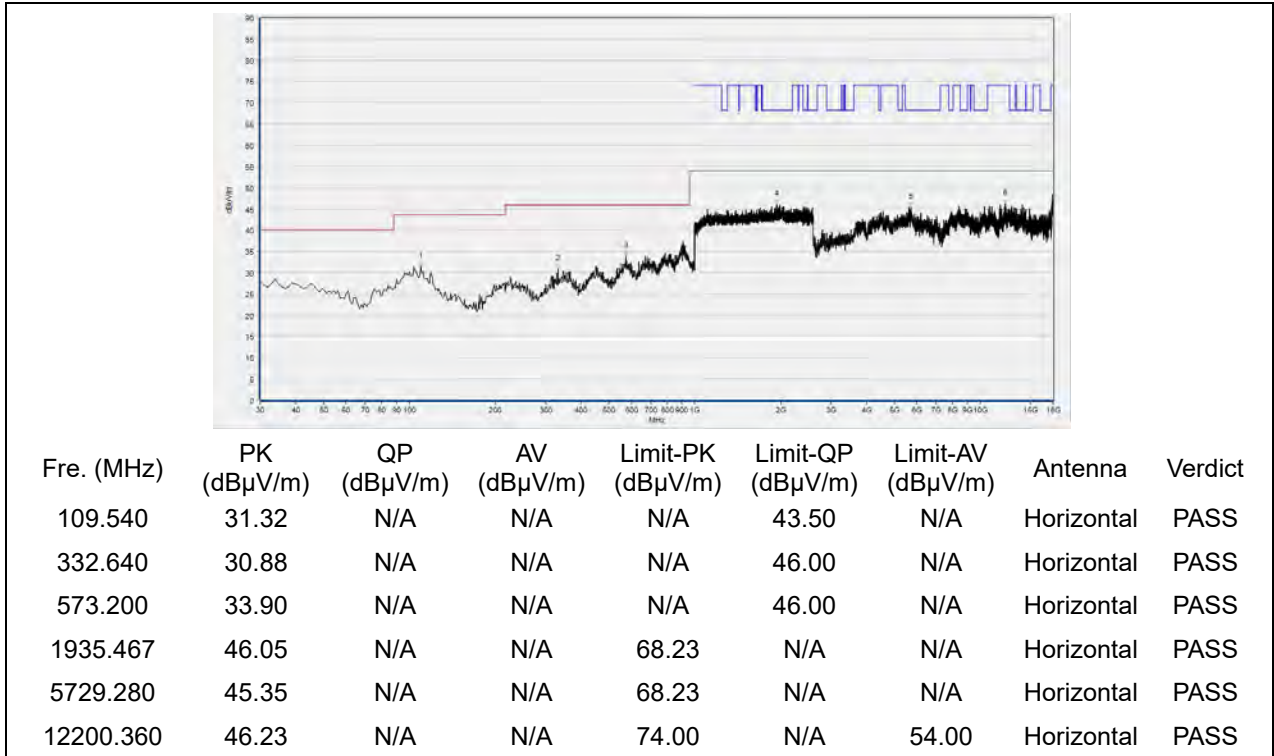
(Antenna Horizontal, 30MHz to 18GHz)



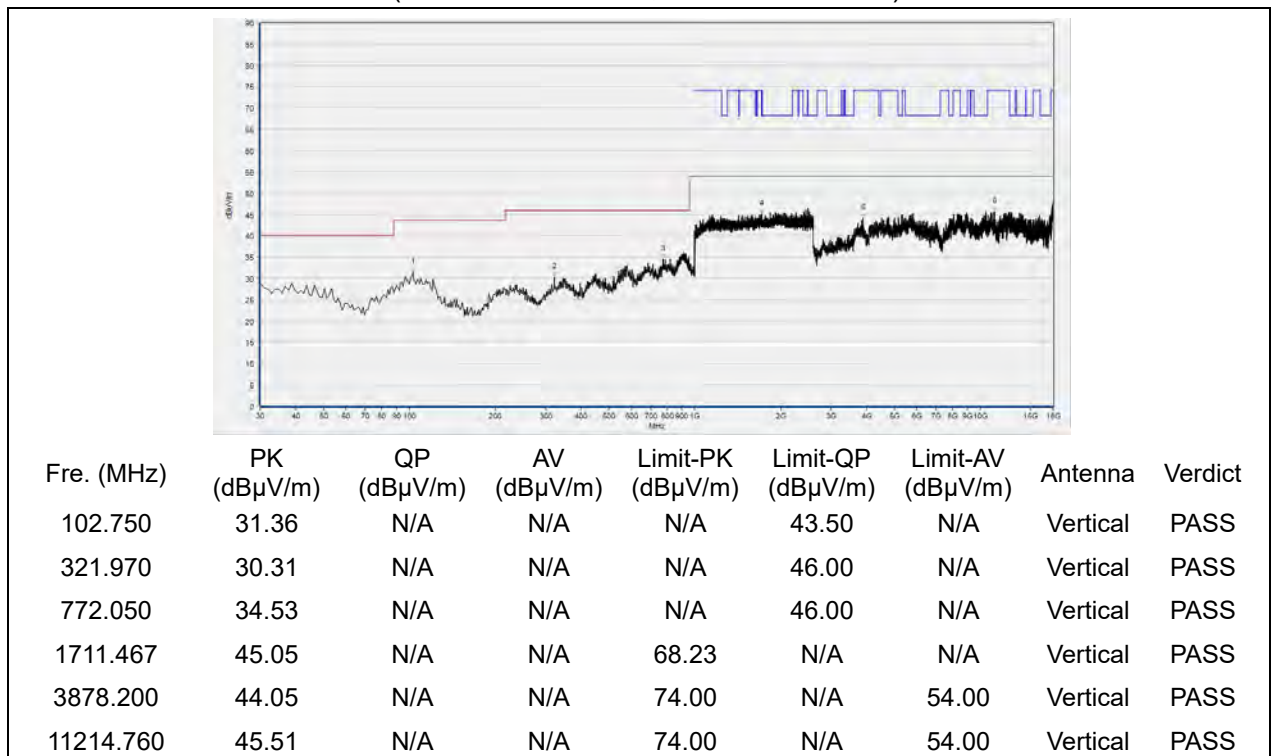
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
101.780	30.78	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
350.100	31.43	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
705.120	33.97	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2450.133	46.92	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5680.000	45.47	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10823.600	45.88	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 126

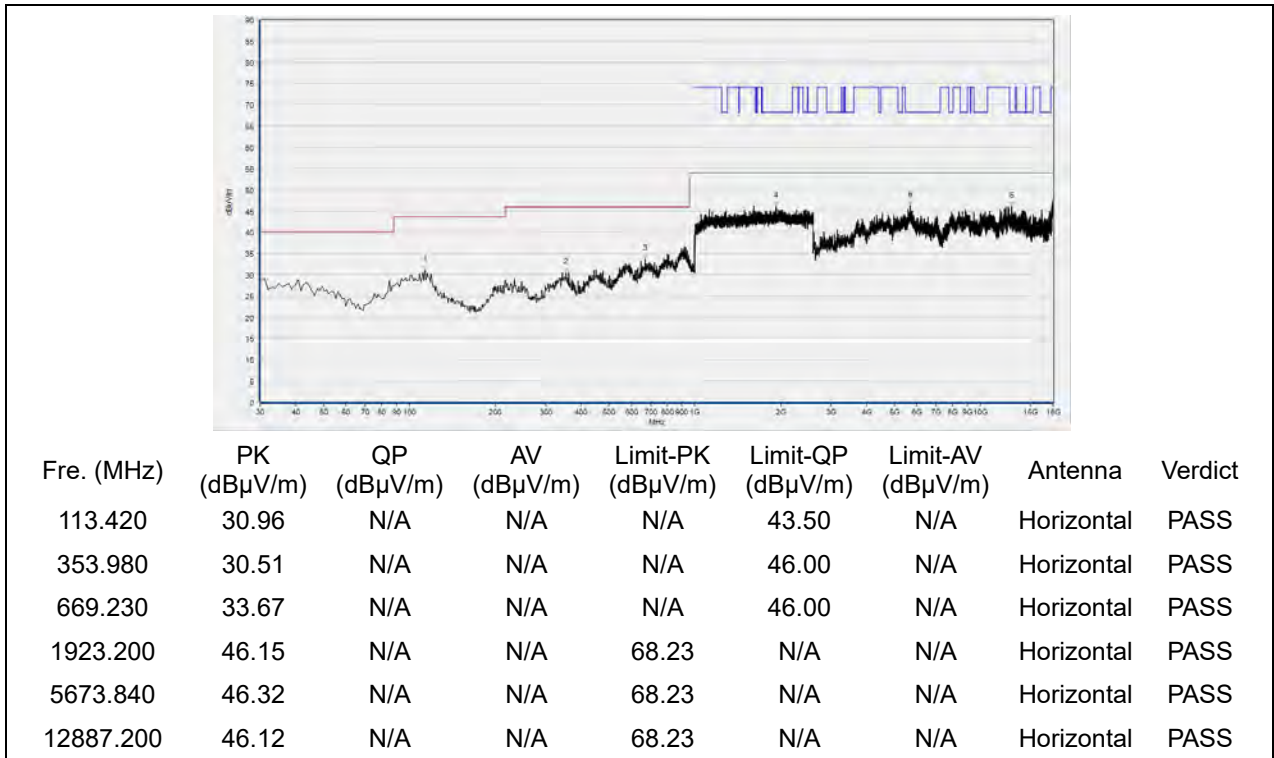


(Antenna Horizontal, 30MHz to 18GHz)

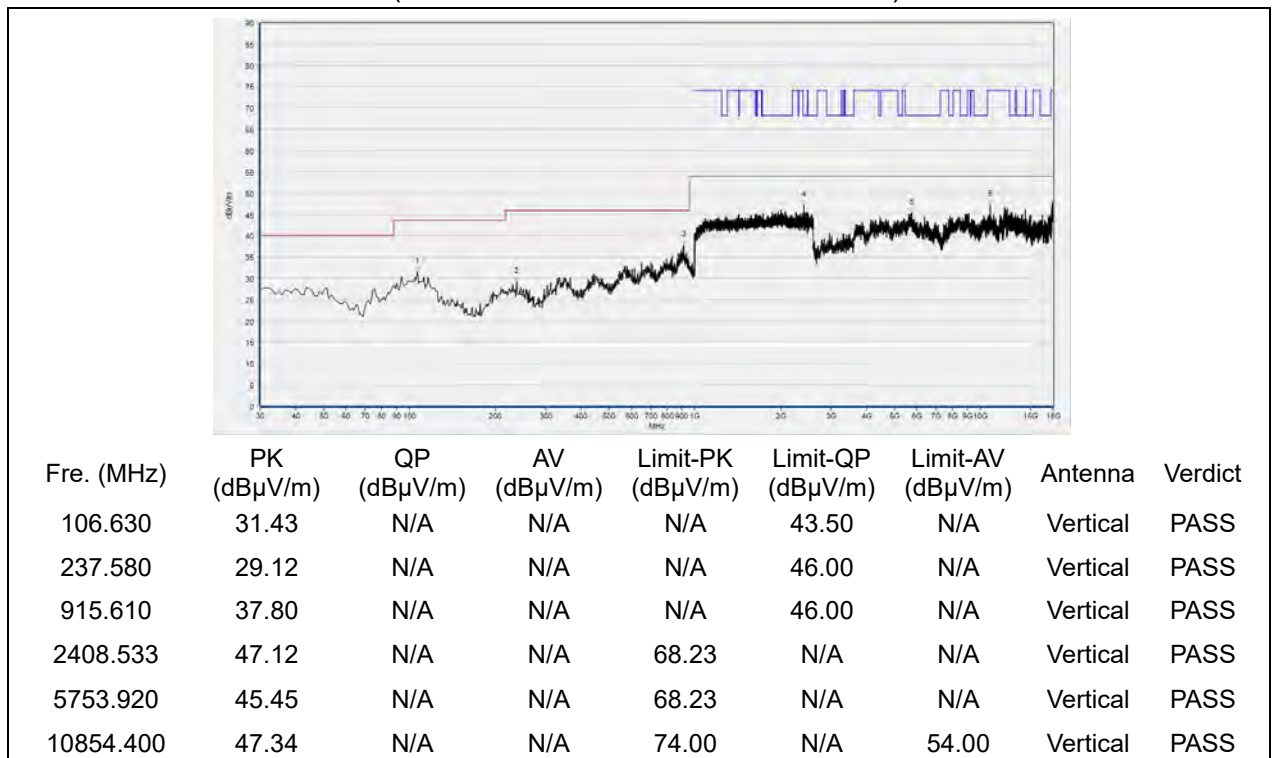


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 142

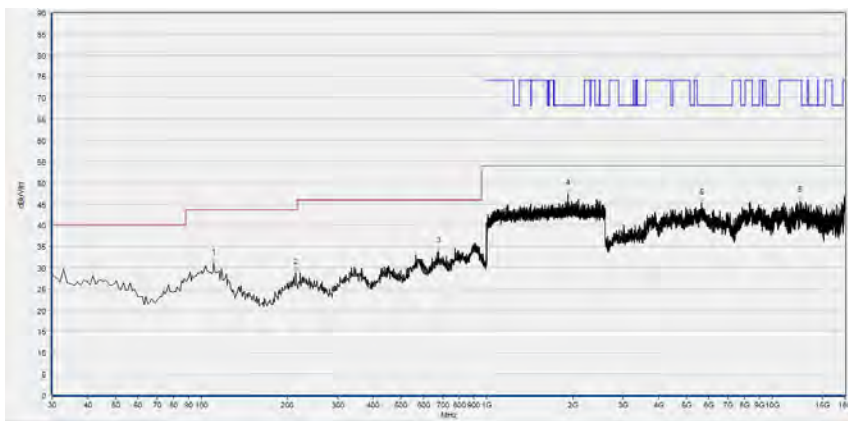


(Antenna Horizontal, 30MHz to 18GHz)



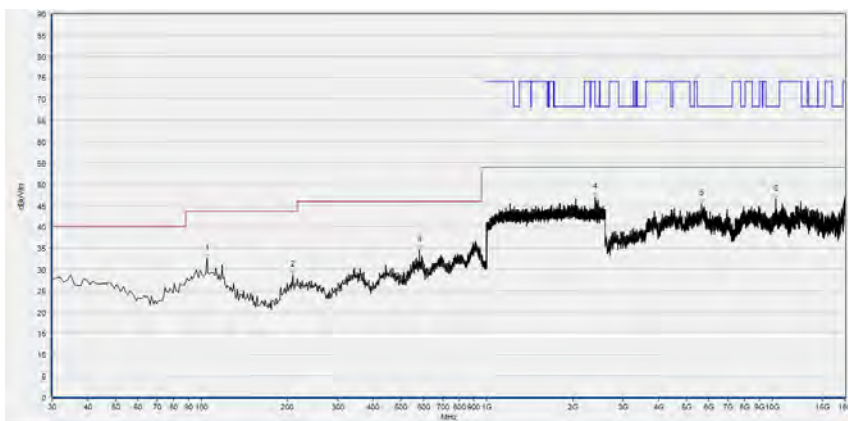
(Antenna Vertical, 30MHz to 18GHz)

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
110.510	30.94	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
214.300	28.76	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
677.960	33.81	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1920.533	47.43	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5639.960	45.27	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12514.520	45.68	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

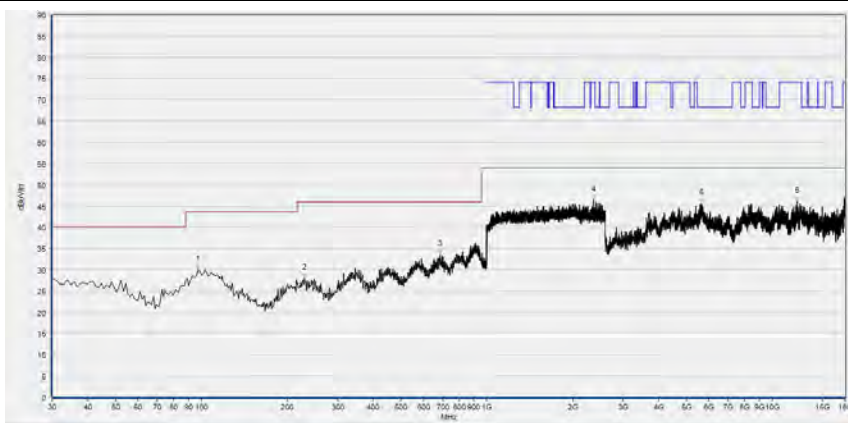
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
104.690	32.51	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
209.450	28.63	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
579.990	34.57	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2388.800	46.94	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5661.520	45.47	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10318.480	46.50	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

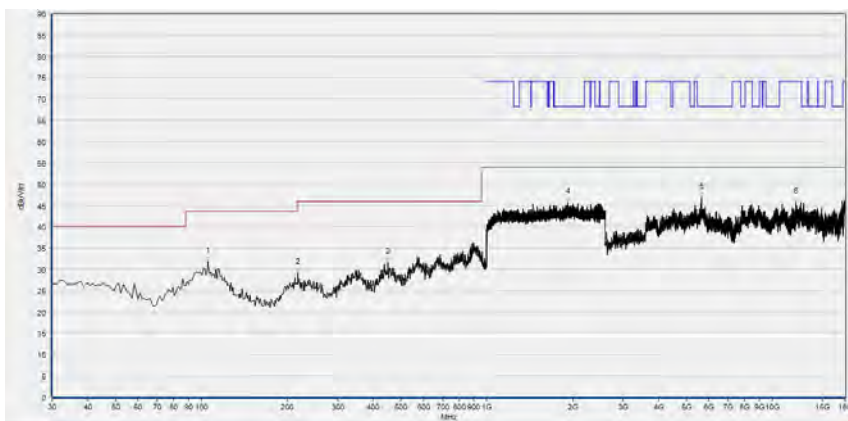
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 159



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
96.930	30.03	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
229.820	27.93	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
687.660	33.49	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2361.067	46.41	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5664.600	45.64	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12209.600	46.05	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)



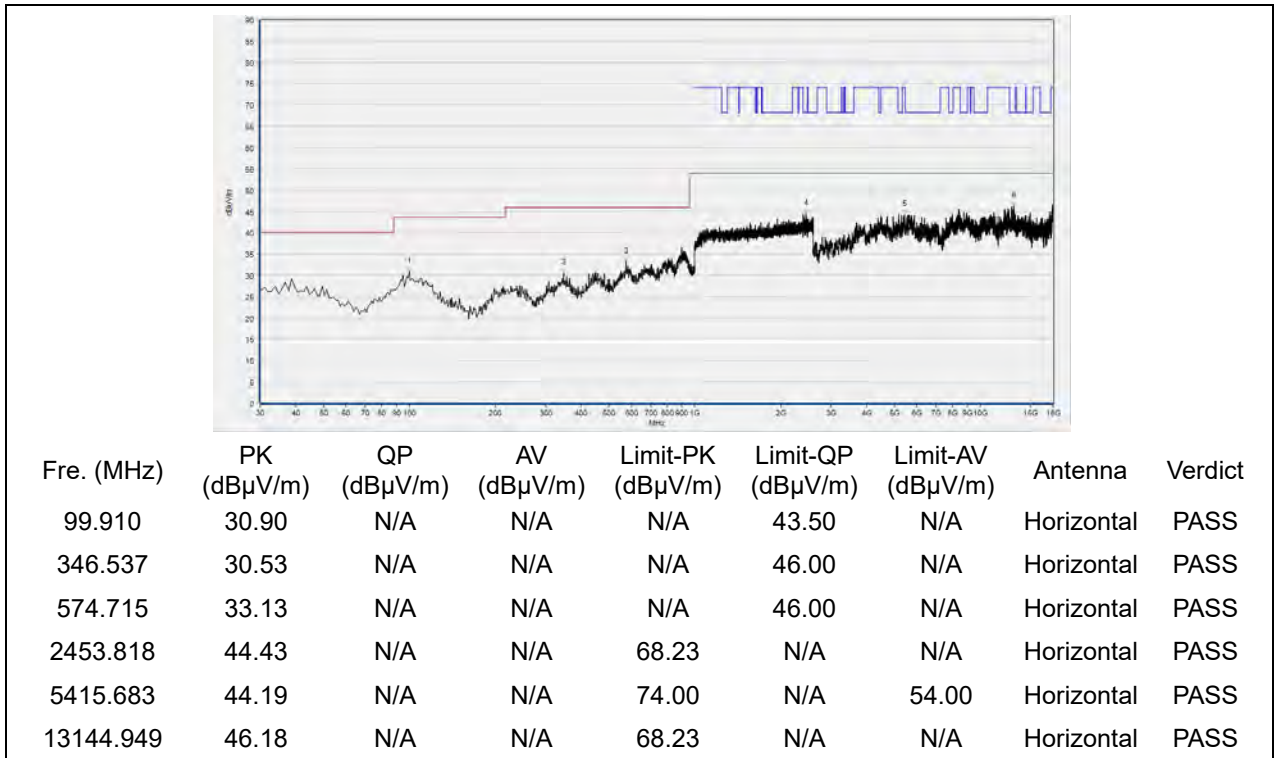
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
105.660	31.79	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
217.210	29.14	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
450.010	31.73	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1920.000	45.78	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5658.440	46.88	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12101.800	45.68	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

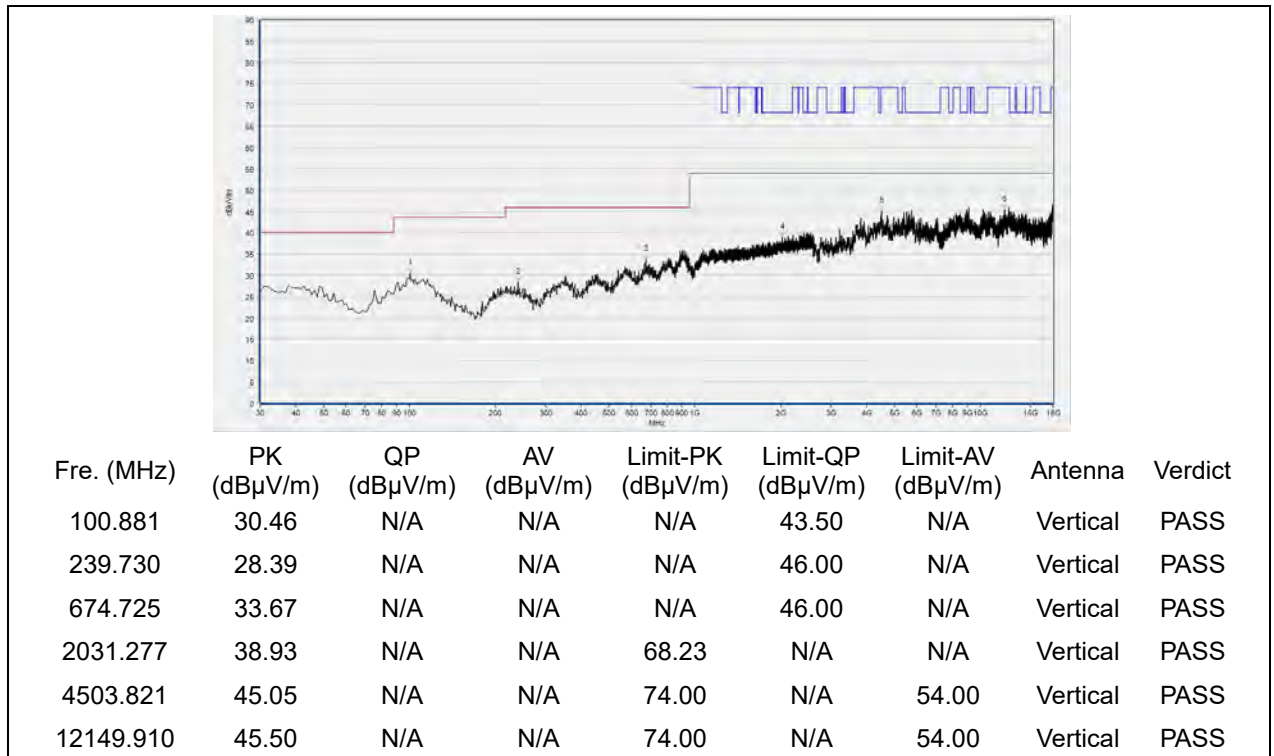


802.11ac (VHT80) Mode

Plot for Channel 42

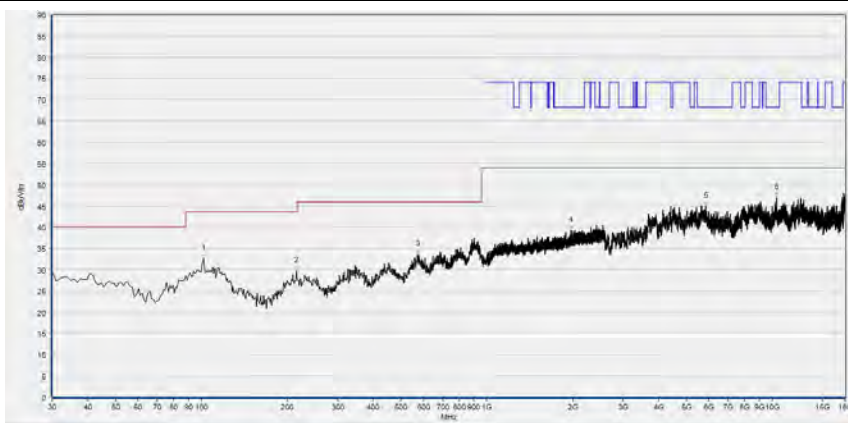


(Antenna Horizontal, 30MHz to 18GHz)



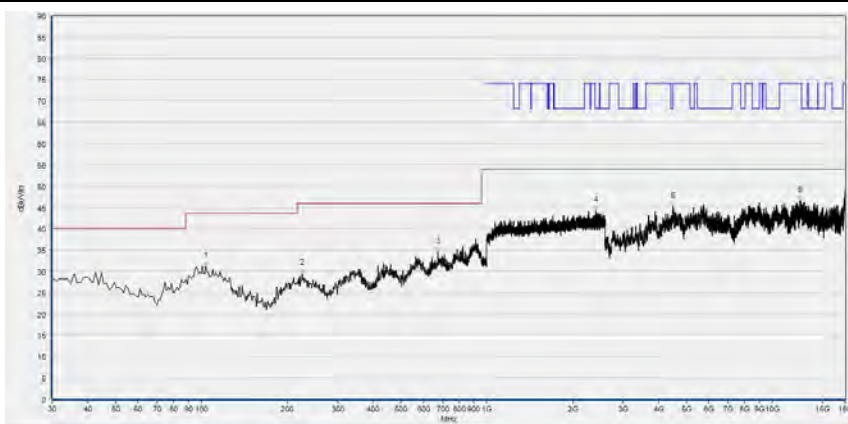
(Antenna Vertical, 30MHz to 18GHz)

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
101.852	32.52	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
215.455	29.60	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
574.715	33.56	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1966.722	39.22	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5859.292	44.95	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
10360.072	46.98	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

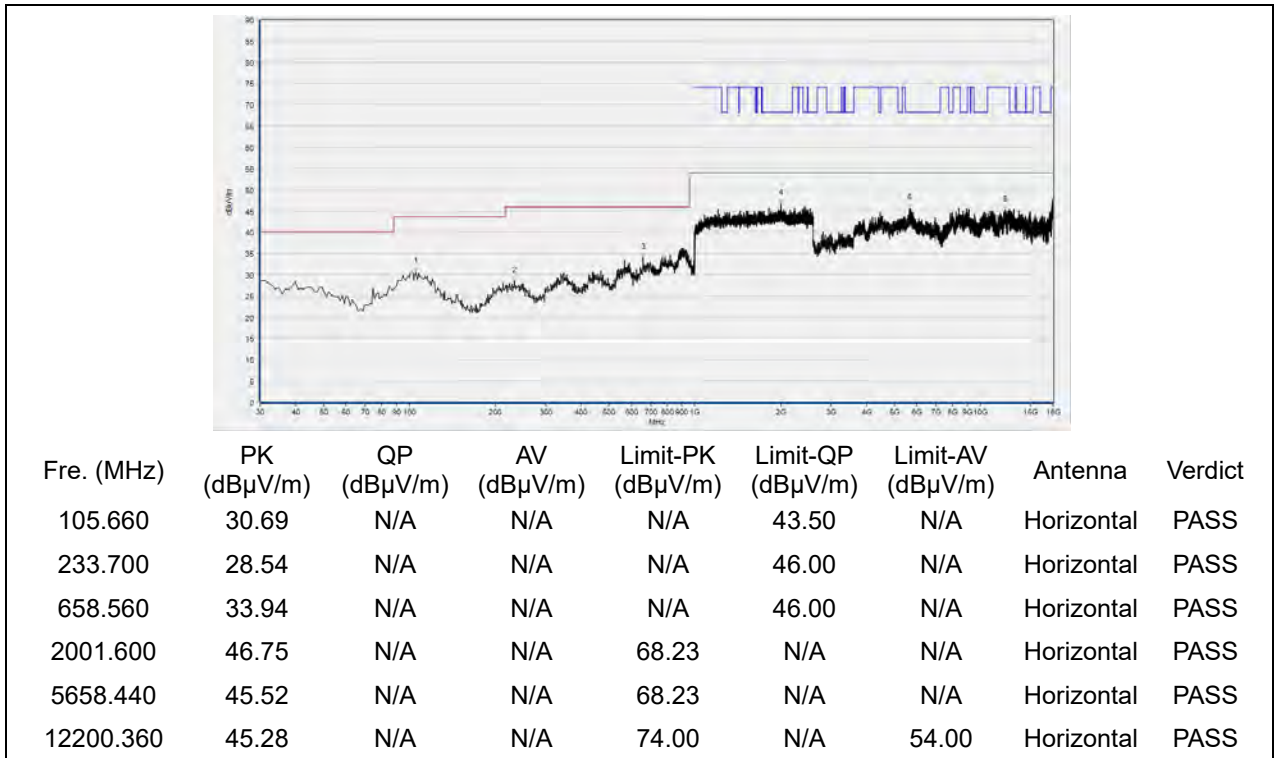
(Antenna Horizontal, 30MHz to 18GHz)



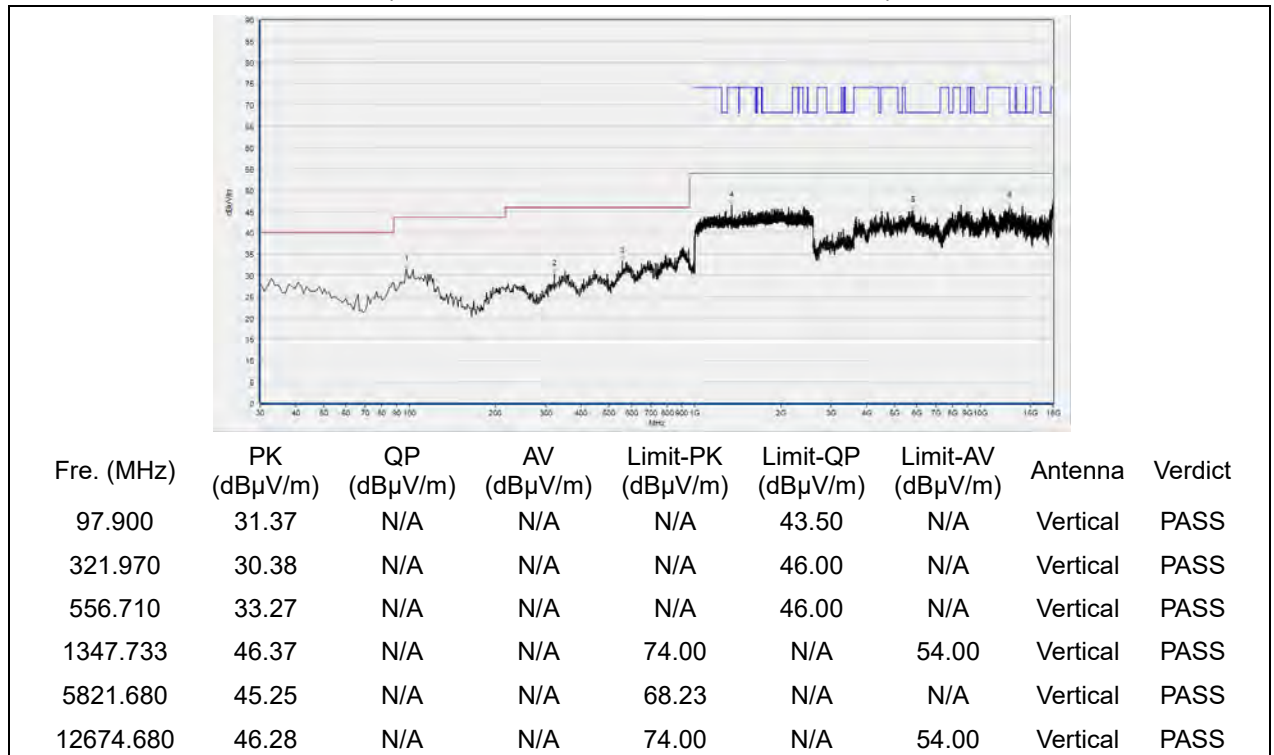
Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
103.794	31.13	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
225.165	29.47	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
674.725	34.57	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2409.537	44.32	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
4491.498	45.18	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12507.261	46.58	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 106

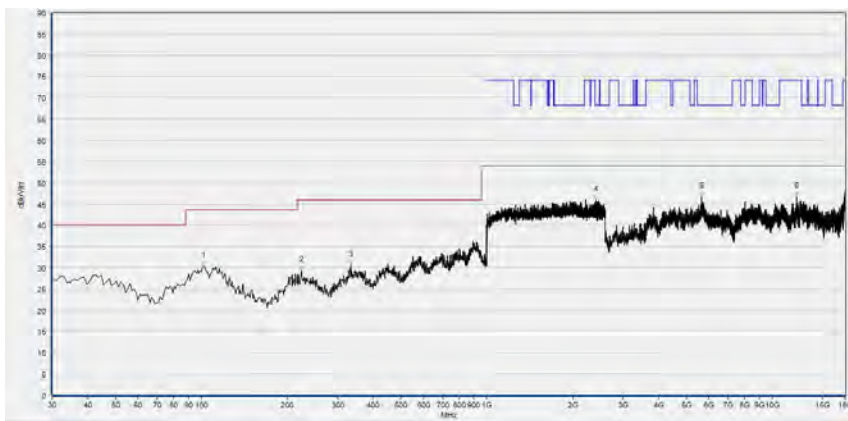


(Antenna Horizontal, 30MHz to 18GHz)



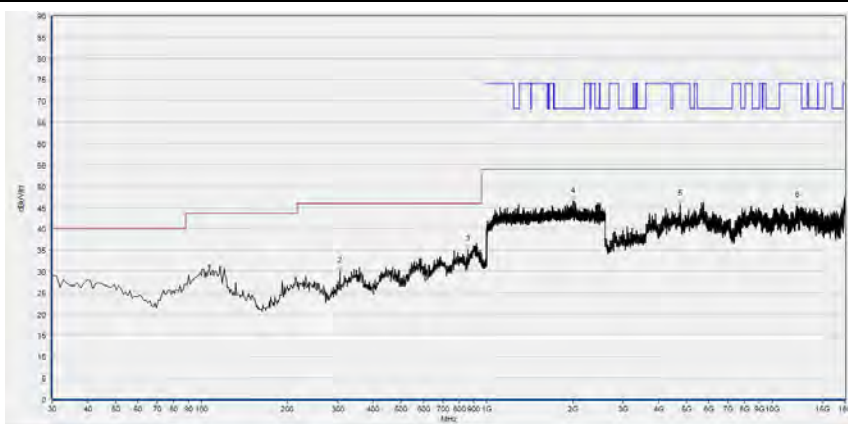
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 122



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
101.780	30.26	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
224.000	29.40	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
334.580	30.48	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2410.133	45.85	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5655.360	46.72	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12188.040	46.70	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

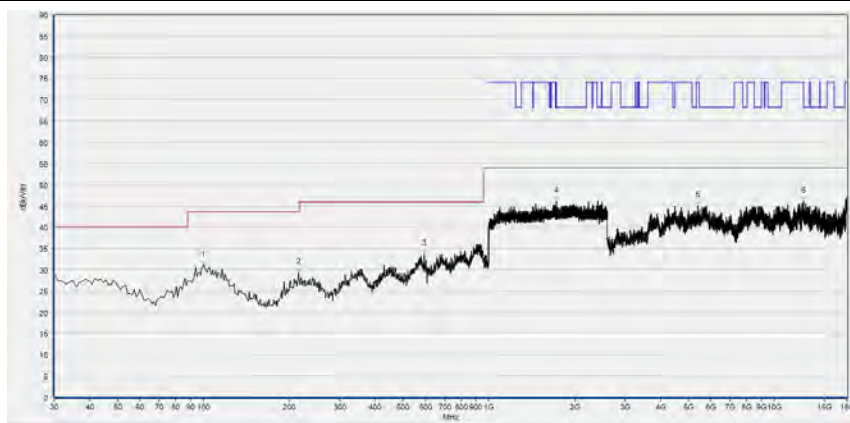
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
106.630	30.47	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
305.480	30.06	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
856.440	34.96	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2000.533	46.47	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
4759.080	45.67	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12258.880	45.40	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

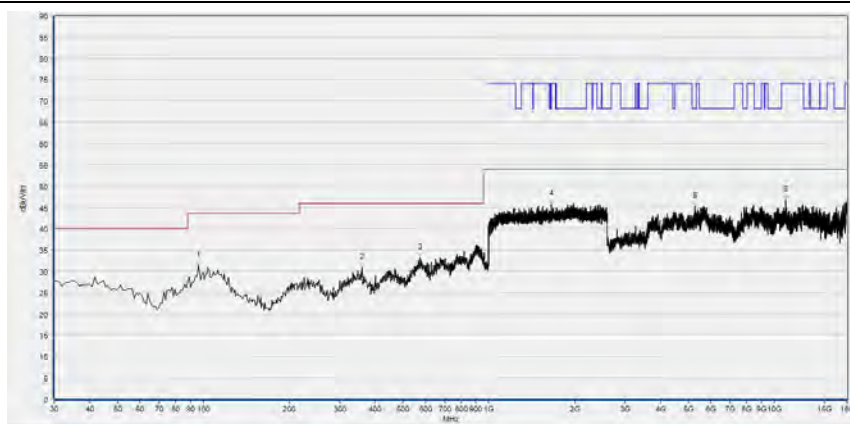
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 138



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
99.840	30.95	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
215.270	29.38	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
593.570	33.61	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1726.933	46.03	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5396.640	45.06	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12680.840	46.12	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

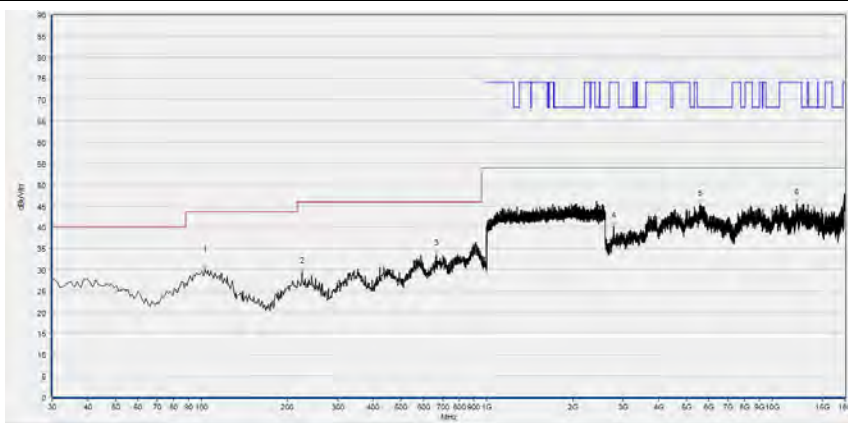
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
95.960	31.36	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
359.800	30.76	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
575.140	33.12	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1657.600	45.81	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5282.680	45.17	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10959.120	46.68	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

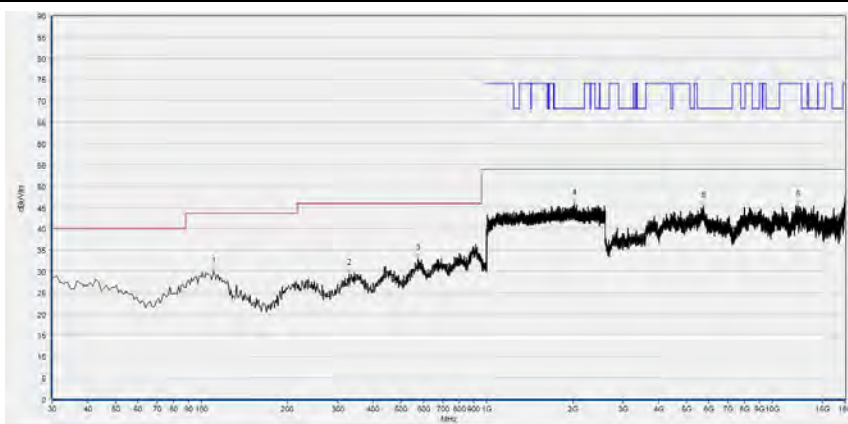
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 155



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
102.750	30.00	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
224.970	29.50	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
666.320	33.65	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2775.560	40.18	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5590.680	45.35	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12141.840	45.56	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
110.510	30.07	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
329.730	29.46	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
574.170	33.03	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2027.200	45.96	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5744.680	45.45	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12280.440	45.54	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)



Annex A Test Uncertainty

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

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

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



Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

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

2. Identification of the Responsible Testing Location

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

3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013 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	2022.10.11	2023.10.10
Temperature Chamber	12108015	DTL-003S101	YOMA	2022.10.10	2023.10.09
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	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	2022.07.06	2023.07.05
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	2022.07.06	2023.07.05
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2022.05.25	2025.05.24
Test Antenna - Loop	1519-022	FMZB1519	Schwarzbeck	2022.02.11	2025.02.10
Test Antenna – Horn	01774	BBHA 9120D	Schwarzbeck	2022.07.13	2025.07.12
Test Antenna – Horn	BBHA9170#7 73	BBHA 9170	Schwarzbeck	2022.07.14	2025.07.13
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	2022.07.08	2023.07.07
18-26.5GHz pre-Amplifier	46732	S10M100L38 02	Tonscend	2022.07.08	2023.07.07
26-40GHz pre-Amplifier	56774	S40M400L40 02	Tonscend	2022.07.08	2023.07.07
Notch Filter	N/A	WRCG- 5150-5350	Wainwright	2022.07.08	2023.07.07
Notch Filter	N/A	WRCG- 5470-5725	Wainwright	2022.07.08	2023.07.07
Notch Filter	N/A	WRCG- 5725-5850	Wainwright	2022.07.08	2023.07.07



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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 _____