



REPORT No.: SZ22090252W04

TEST REPORT

APPLICANT : Linkplay Technology Inc.

PRODUCT NAME : WiiM Pro Hi-Res Audio Streamer

MODEL NAME : ASR002

BRAND NAME : WiiM

FCC ID : 2ANOG-ASR002

STANDARD(S) : 47 CFR Part 15 Subpart E

RECEIPT DATE : 2022-10-18

TEST DATE : 2022-10-29 to 2022-11-02

ISSUE DATE : 2022-11-21

Edited by:

Zeng Xiaoying
Zeng Xiaoying (Rapporteur)

Approved by:

Shen Junsheng
Shen Junsheng (Supervisor)

NOTE: This document is issued by Shenzhen Morlab Communications Technology Co., Ltd., the test report shall not be reproduced except in full without prior written permission of the company. The test results apply only to the particular sample(s) tested and to the specific tests carried out which is available on request for validation and information confirmed at our website.

MORLAB

Shenzhen Morlab Communications Technology Co., Ltd.
FL1-3, Building A, FeiYang Science Park, No.8 LongChang Road,
Block67, BaoAn District, ShenZhen , Guangdong Province, P. R. China

Tel: 86-755-36698555

Http://www.morlab.cn

Fax: 86-755-36698525

E-mail: service@morlab.cn





DIRECTORY

1. Technical Information	3
1.1. Applicant and Manufacturer Information	3
1.2. Equipment Under Test (EUT) Description	3
1.3. Modulation Type and Data Rate of EUT	4
1.4. The Channel Number and Frequency	5
1.5. Test Standards and Results	6
1.6. Environmental Conditions	7
2. 47 CFR Part 15E Requirements	8
2.1. Conducted Emission	8
2.2. Restricted Frequency Bands	12
2.3. Radiated Emission	30
Annex A Test Uncertainty	61
Annex B Testing Laboratory Information	62

Change History		
Version	Date	Reason for change
1.0	2022-11-21	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Linkplay Technology Inc.
Applicant Address:	8F-8036, Qianren Building, No.7, Yingcui Road, Jiangning District, Nanjing, China
Manufacturer:	Linkplay Technology Inc.
Manufacturer Address:	8F-8036, Qianren Building, No.7, Yingcui Road, Jiangning District, Nanjing, China

1.2. Equipment Under Test (EUT) Description

Product Name:	WiiM Pro Hi-Res Audio Streamer	
Sample No.:	4#	
Hardware Version:	V03	
Software Version:	4.7.433055	
Modulation Technology:	OFDM	
Modulation Mode:	802.11a, 802.11n (HT20), 802.11n (HT40) 802.11ac (VHT20), 802.11ac (VHT40), 802.11ac (VHT80),	
Operating Frequency Range:	5180MHz-5240MHz; 5260MHz-5320MHz; 5500MHz-5720MHz; 5745MHz-5825MHz	
Channel Number:	Refer to 1.3	
Antenna Type:	PIFA Antenna	
Antenna Gain:	2.41dBi	
Accessory Information:	AC Adapter	
	Brand Name:	N/A
	Model No.:	MDY-08-EZ
	Serial No.:	N/A
	Rated Output:	5V $\pm$ 2A
	Rated Input:	100-240V $\sim$ 50/60Hz, 0.35A
	Manufacturer:	Jiangsu Chenyang Electron Co.,Ltd.

Note 1: The test results of all conducted test items please refer to the module FCC test report (Report No.: SZ20110203W04, FCC ID: 2ANOG-A98M), which issued on December 18, 2020 by Shenzhen Morlab Communications Technology Co., Ltd. We only recorded the radiated test result



in this report.

1.3. Modulation Type and Data Rate of EUT

Mode	Bandwidth (MHz)	Modulation Technology	Modulation Type	Data Rate	RU Size
802.11a	20	OFDM	DBPSK	1/2/5.5/11Mbps	N/A
			DQPSK		
			CCK		
802.11n	20/40 (HT20/40)	OFDM	BPSK	MCS0~MCS7	N/A
			QPSK		
			16QAM		
			64QAM		
802.11ac	20/40/80 (VHT20/40/80)	OFDM	BPSK	MCS0~MCS9	N/A
			QPSK		
			16QAM		
			64QAM		
			256QAM		

Note1: The worst-case mode(black bold) in all data rates has been determined during the pre-scan, only the test data of the worst-case were recorded in this report.

1.4. The Channel Number and Frequency

(U-NII-1) 5180MHz-5240MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	36	5180	40	5200
	44	5220	48	5240
40MHz	38	5190	46	5230
80MHz	42	5210		
(U-NII-2A) 5260MHz-5320MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	52	5260	56	5280
	60	5300	64	5320
40MHz	54	5270	62	5310
80MHz	58	5290		
(U-NII-2C) 5500MHz-5720MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	100	5500	105	5520
	108	5540	112	5560
	116	5580	120	5600
	124	5620	128	5640
	132	5660	136	5680
	140	5700	144	5720
40MHz	102	5510	110	5550
	118	5590	126	5630
	134	5670	142	5710
80MHz	106	5530	122	5610
	138	5690		
(U-NII-3) 5745MHz-5825MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	149	5745	153	5765
	157	5785	161	5805
	165	5825		
40MHz	151	5775	159	5795
80MHz	155	5775		

Note 1: The black bold channels were selected for test.



1.5. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart E (U-NII band) for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 15(5-1-14 Edition)	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Test Date	Test Engineer	Result	Method Determination /Remark
1	15.203	Antenna Requirement	N/A	N/A _{Note1}	N/A	N/A
2	ANSI C63.10	Duty Cycle of the Test Signal	N/A	N/A _{Note1}	N/A	N/A
3	15.407(a)	Maximum Conducted Output Power	N/A	N/A _{Note1}	N/A	N/A
4	15.407(a)(e)	Emission Bandwidth	N/A	N/A _{Note1}	N/A	N/A
5	15.407(a)	Peak Power Spectral Density	N/A	N/A _{Note1}	N/A	N/A
6	15.407(g)	Frequency Stability	N/A	N/A _{Note1}	N/A	N/A
7	15.407(h)	DFS	N/A	N/A _{Note2}	N/A	N/A
8	15.207	Conducted Emission	Oct. 29, 2022	Fan Zehang	PASS	No deviation
9	15.407(b)	Restricted Frequency Bands	Oct. 29, 2022	Gao Jianrou	PASS	No deviation
10	15.407(b)	Radiated Emission	Oct. 30, 2022	Gao Jianrou	PASS	No deviation

Note 1: The test results of all conducted test items please refer to the module FCC test report (Report No.: SZ20110203W04, FCC ID: 2ANOG-A98M), which issued on December 18, 2020 by Shenzhen Morlab Communications Technology Co., Ltd.

Note 2: The test results of DFS test items please refer to the module FCC test report (Report No.: SZ20110203W05, FCC ID: 2ANOG-A98M), which issued on December 18, 2020 by



Shenzhen Morlab Communications Technology Co., Ltd.

Note 3: The tests of Conducted Emission and Radiated Emission were performed according to the method of measurements prescribed in ANSI C63.102013.

Note 4: Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

Note 5: When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.

1.6. Environmental Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15-35
Relative Humidity (%):	30-60
Atmospheric Pressure (kPa):	86-106

2.47 CFR Part 15E Requirements

2.1. Conducted Emission

2.1.1. 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).

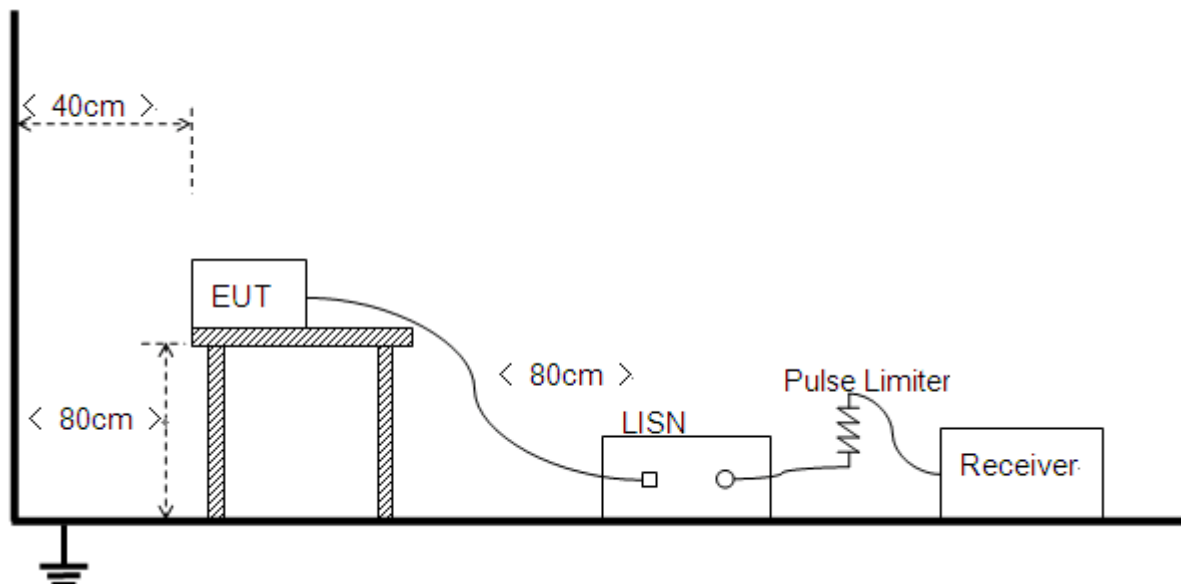
Frequency Range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

Note:

- (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.

2.1.2. 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.

2.1.3. 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 +BT TX

Test Voltage: AC 120V/60Hz

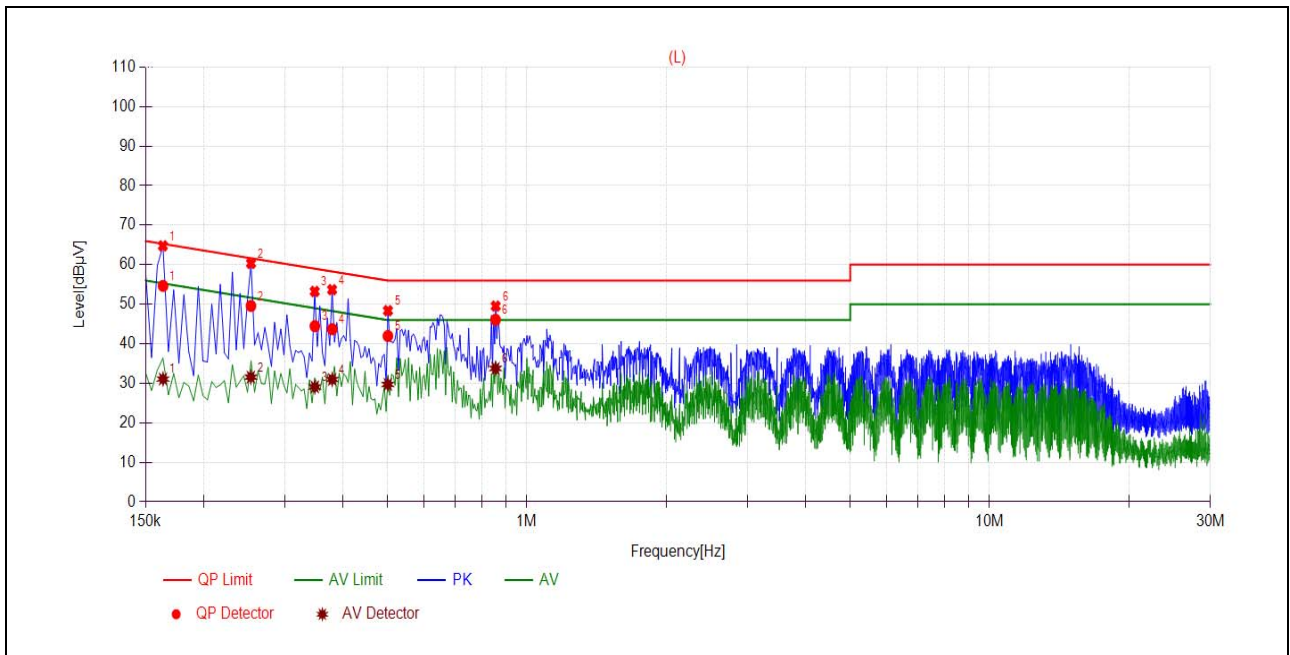
The measurement results are obtained as below:

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

U_R : Receiver Reading

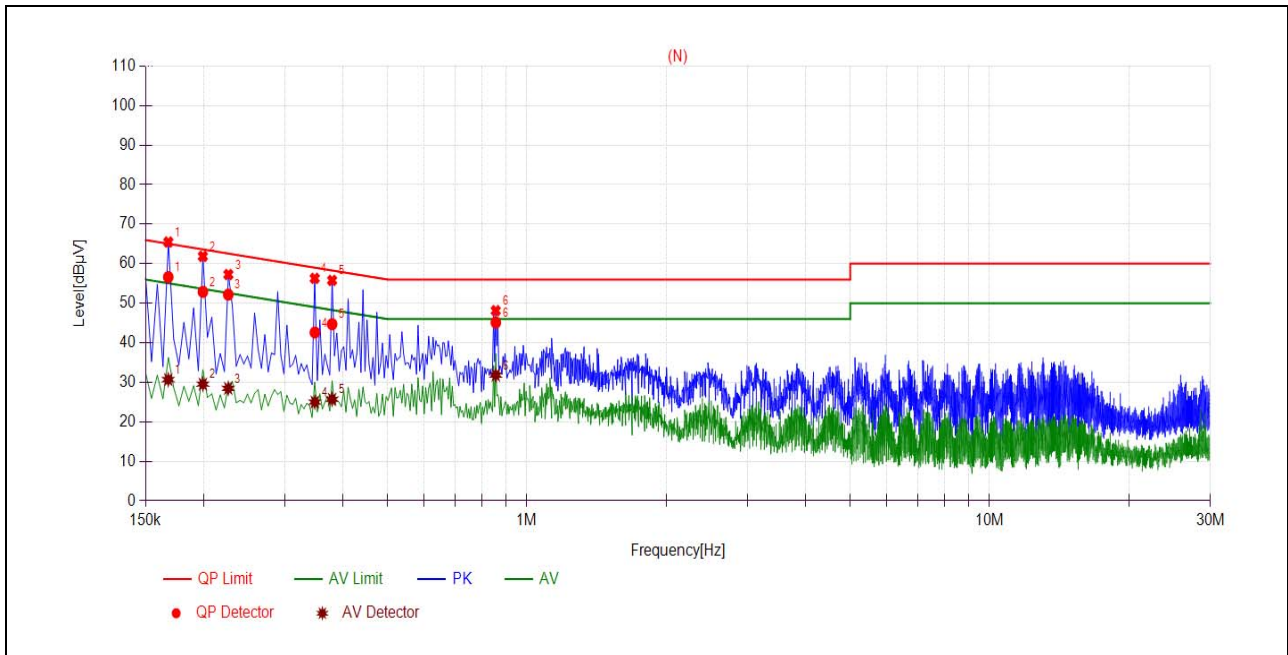
A_{Factor} : Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1636	54.65	31.08	65.28	55.28	Line	PASS
2	0.2533	49.58	31.56	61.65	51.65		PASS
3	0.3482	44.47	29.07	59.01	49.01		PASS
4	0.3796	43.70	30.97	58.29	48.29		PASS
5	0.5008	41.96	29.72	56.00	46.00		PASS
6	0.8556	46.09	33.75	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	0.1679	56.62	30.68	65.06	55.06	Neutral	PASS
2	0.1995	52.90	29.53	63.63	53.63		PASS
3	0.2263	52.18	28.46	62.58	52.58		PASS
4	0.3482	42.60	24.98	59.00	49.00		PASS
5	0.3794	44.71	25.70	58.29	48.29		PASS
6	0.8568	45.13	31.82	56.00	46.00		PASS

2.2. Restricted Frequency Bands

2.2.1. 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:

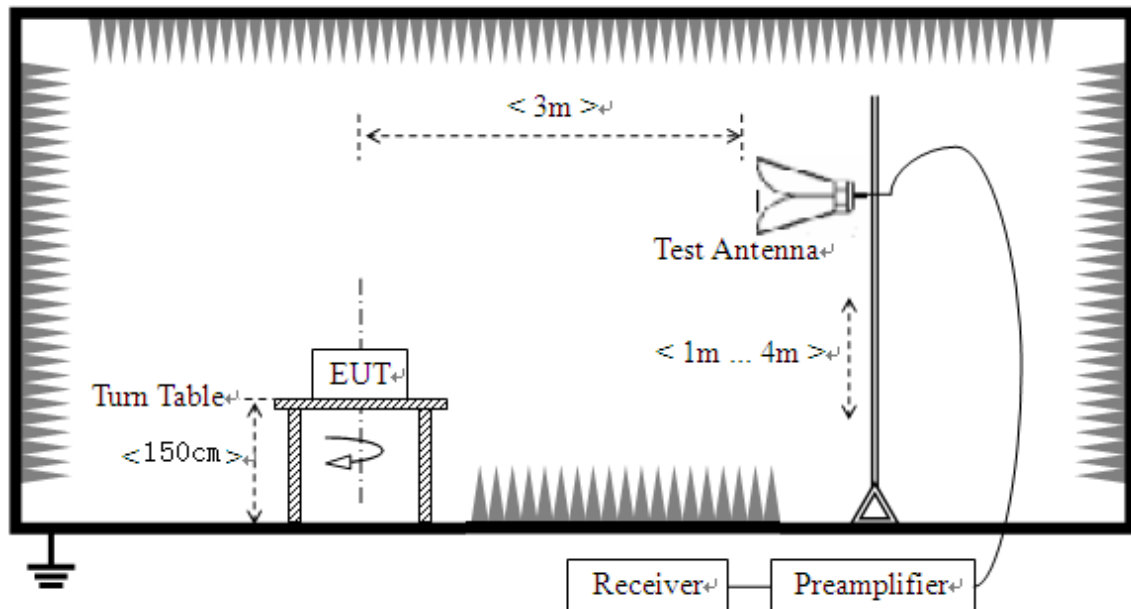
Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
0.009 - 0.490	$2400/F(\text{kHz})$	300
0.490 - 1.705	$24000/F(\text{kHz})$	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

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).

2.2.2. 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.

2.2.3. 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.

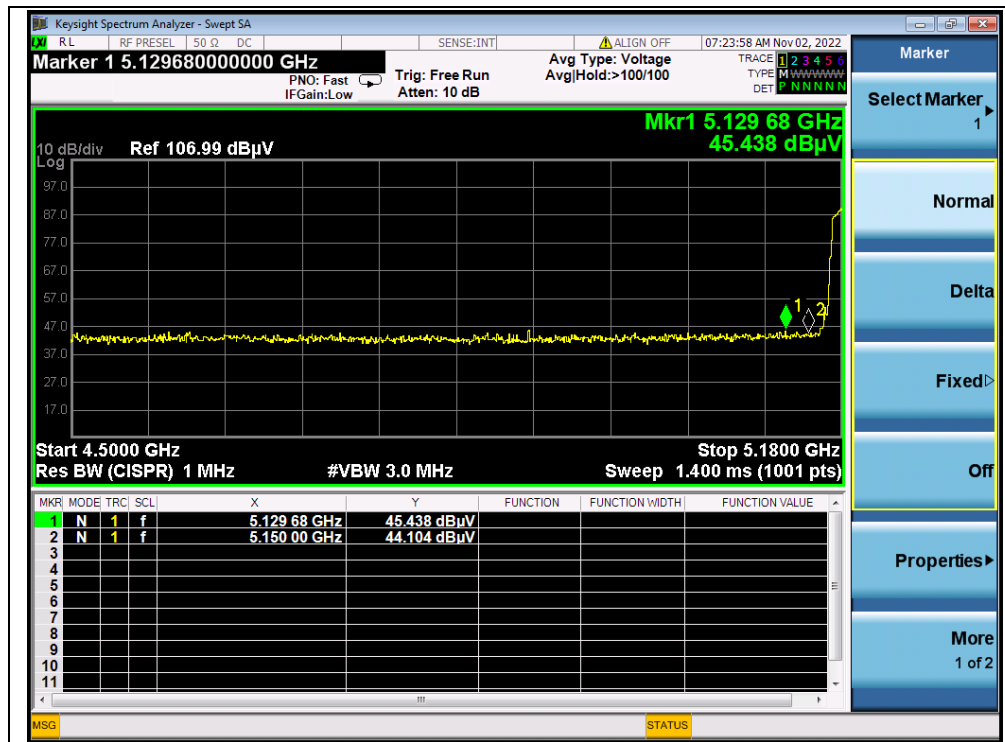
802.11a Mode

A.Test Verdict:

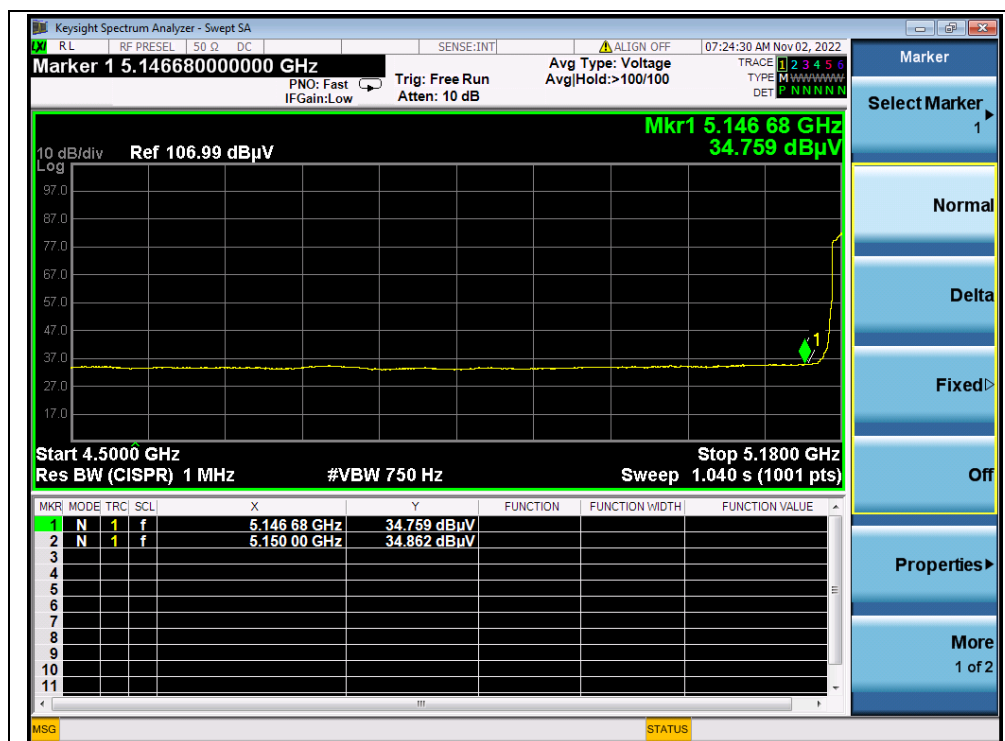
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
36	5129.68	PK	45.44	-19.54	32.20	58.10	74	PASS
36	5150.00	AV	34.86	-19.54	32.20	47.52	54	PASS
64	5350.00	PK	47.59	-18.80	32.20	60.99	74	PASS
64	5350.66	AV	34.28	-18.80	32.20	47.68	54	PASS
100	5459.51	PK	45.71	-19.20	32.20	58.71	74	PASS
100	5470.00	AV	34.02	-19.20	32.20	47.02	54	PASS
144	5726.40	PK	52.89	-19.20	32.20	65.89	68.23	PASS
149	5725.00	PK	40.98	-19.01	32.20	54.17	122.23	PASS
165	5925.00	PK	41.87	-19.01	32.20	55.06	68.23	PASS



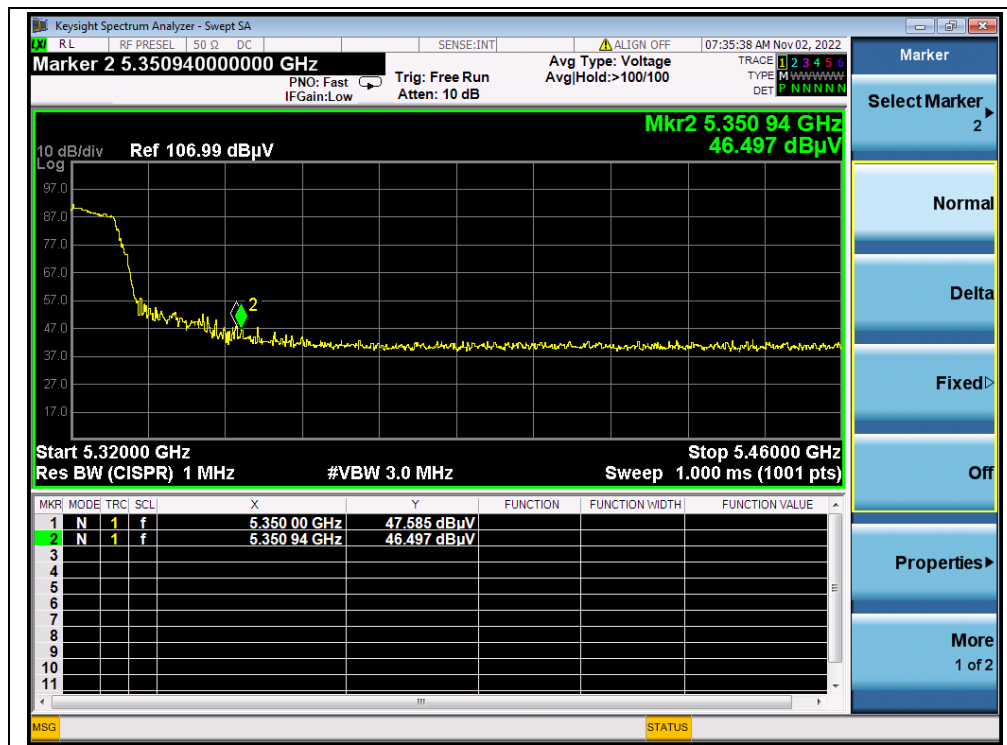
B.Test Plot:



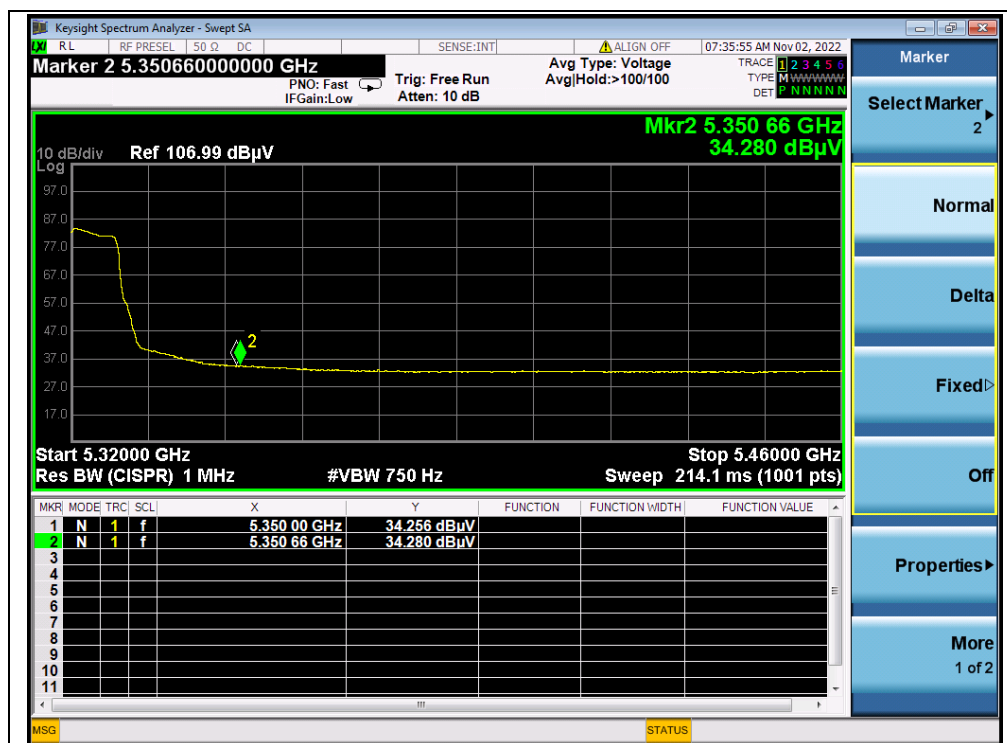
(PEAK, Channel 36, 802.11a)



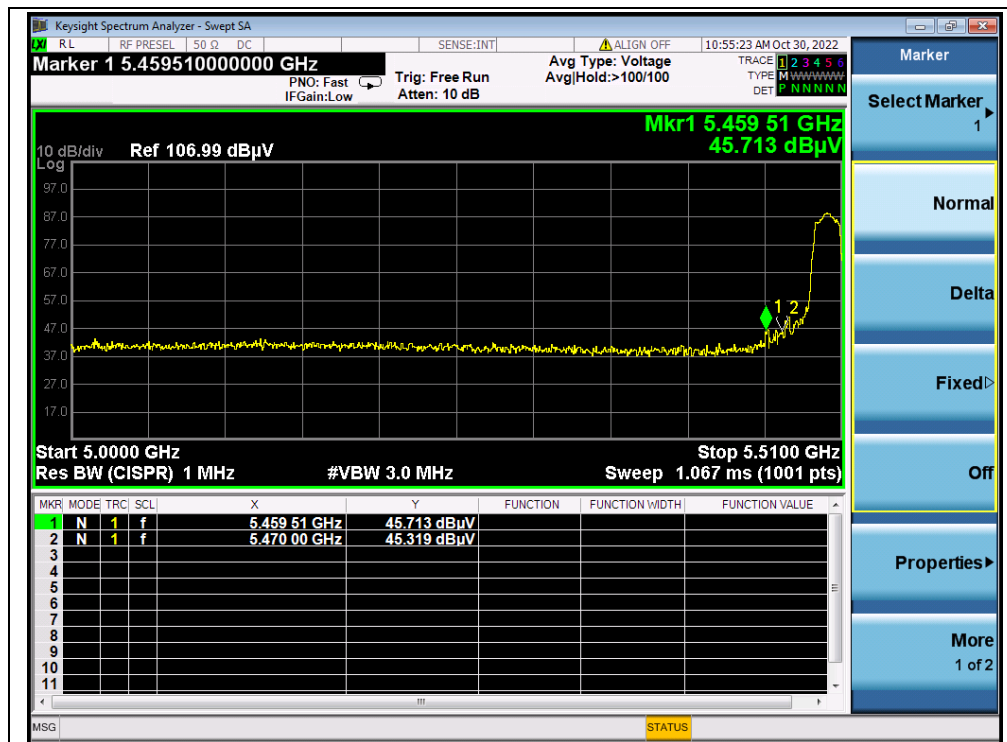
(AVERAGE, Channel 36, 802.11a)



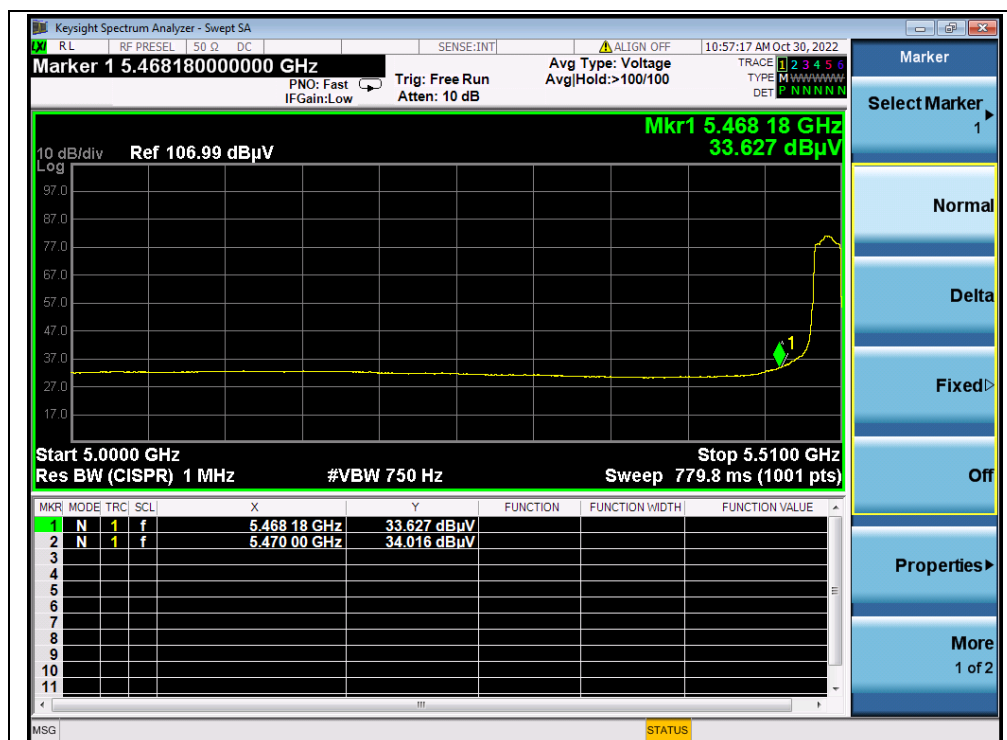
(PEAK, Channel 64, 802.11a)



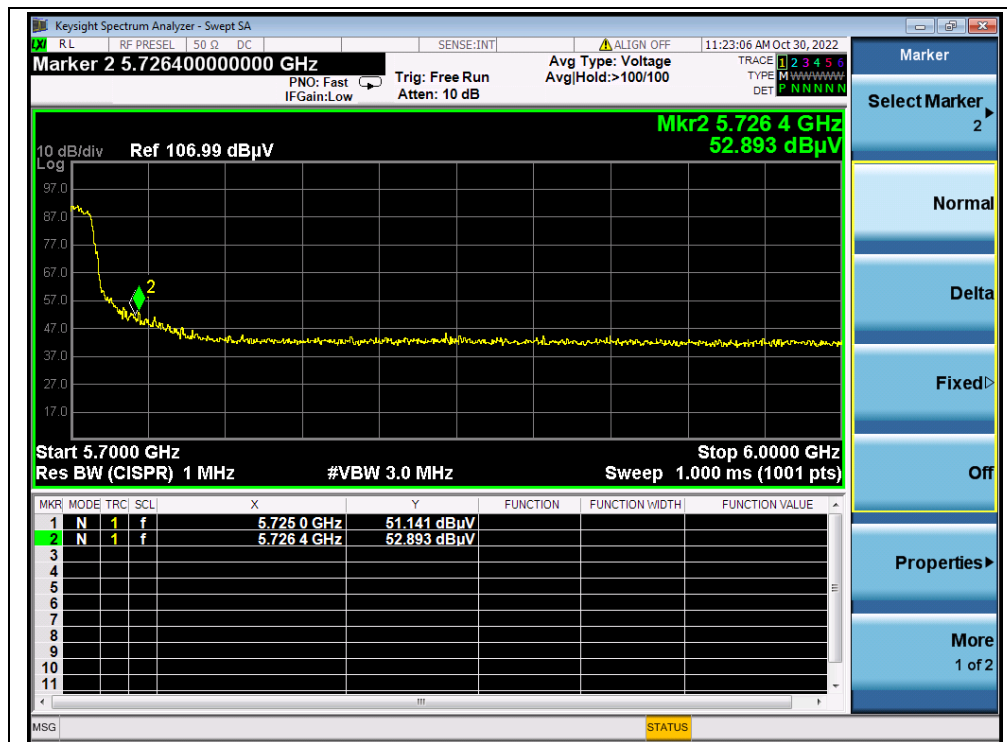
(AVERAGE, Channel 64, 802.11a)



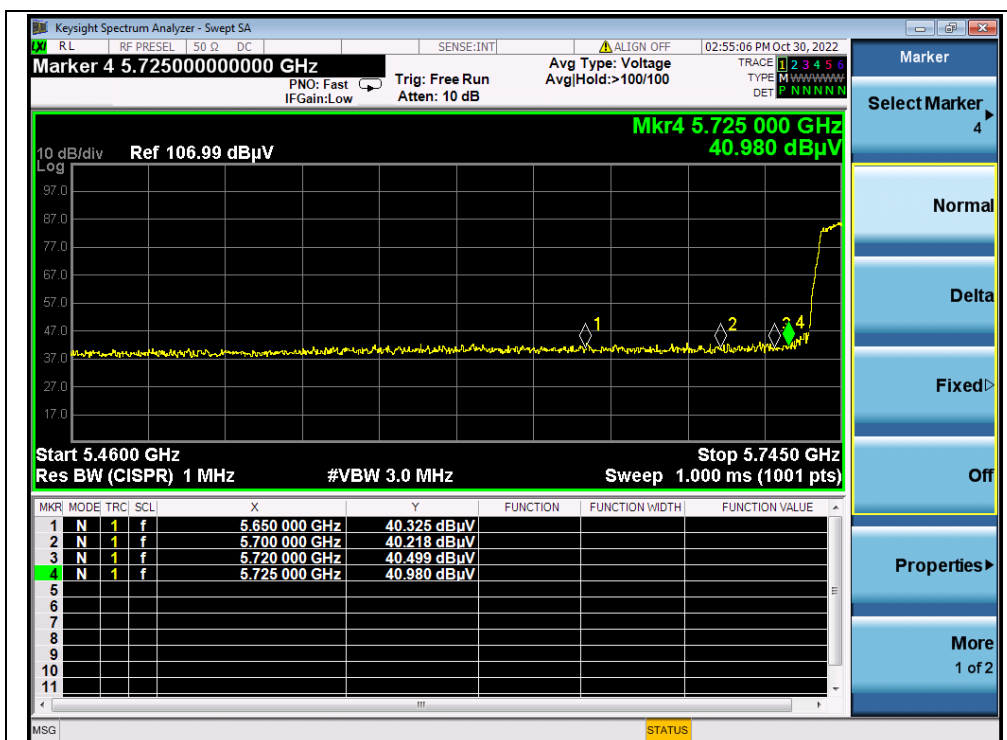
(PEAK, Channel 100, 802.11a)



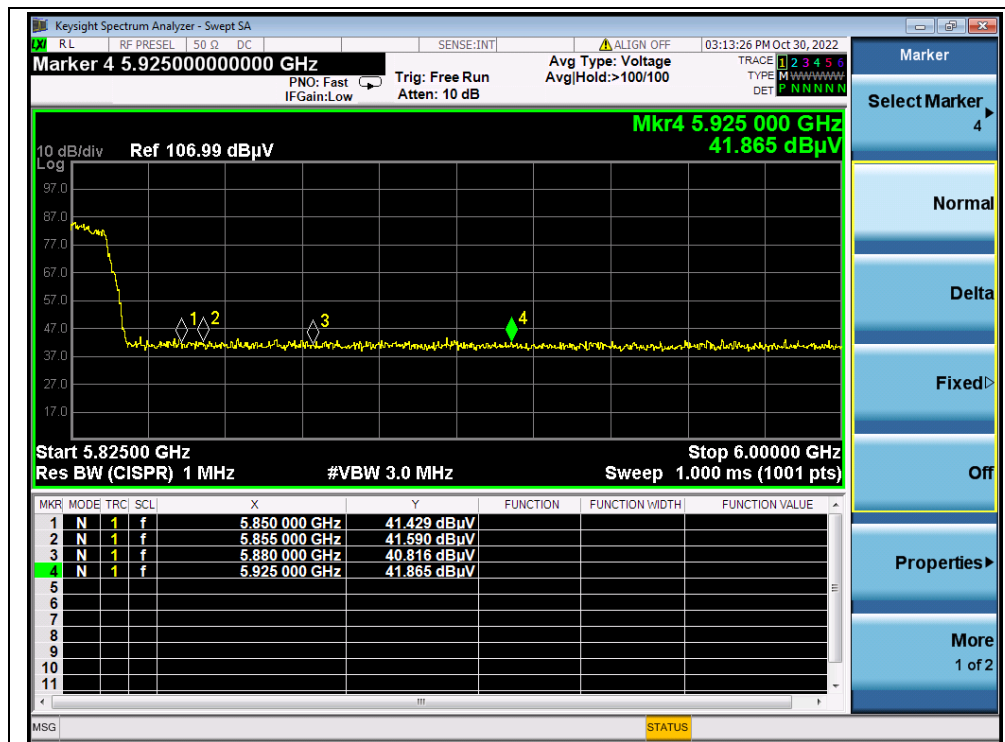
(AVERAGE, Channel 100, 802.11a)



(PEAK, Channel 144, 802.11a)



(PEAK, Channel 149, 802.11a)



(PEAK, Channel 165, 802.11a)

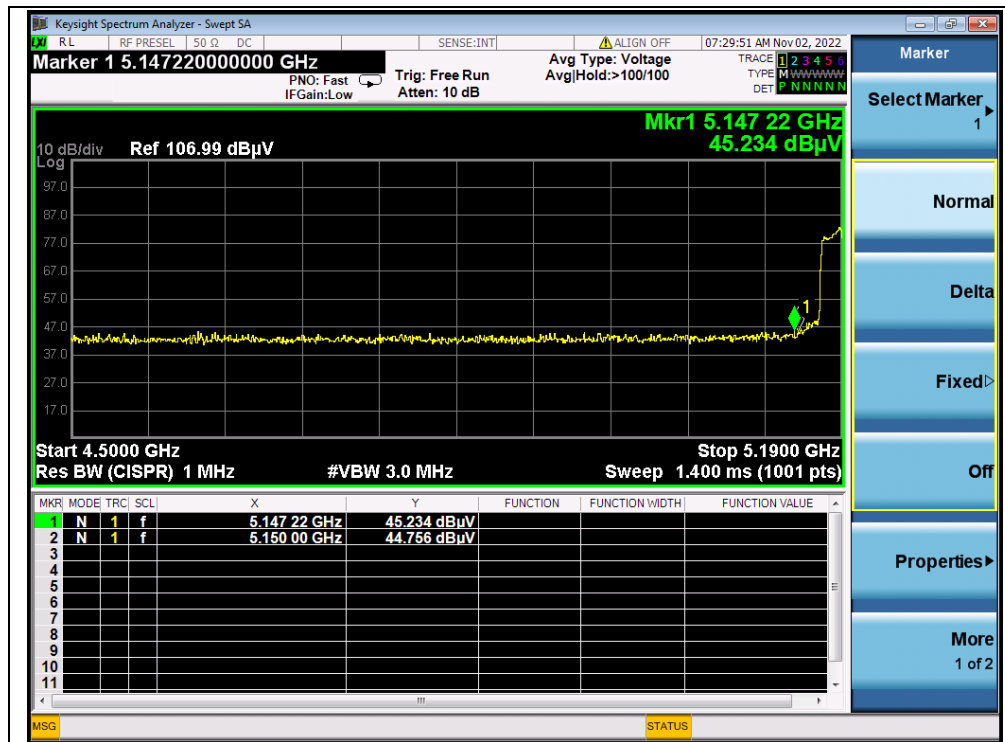


802.11n (HT40) Mode

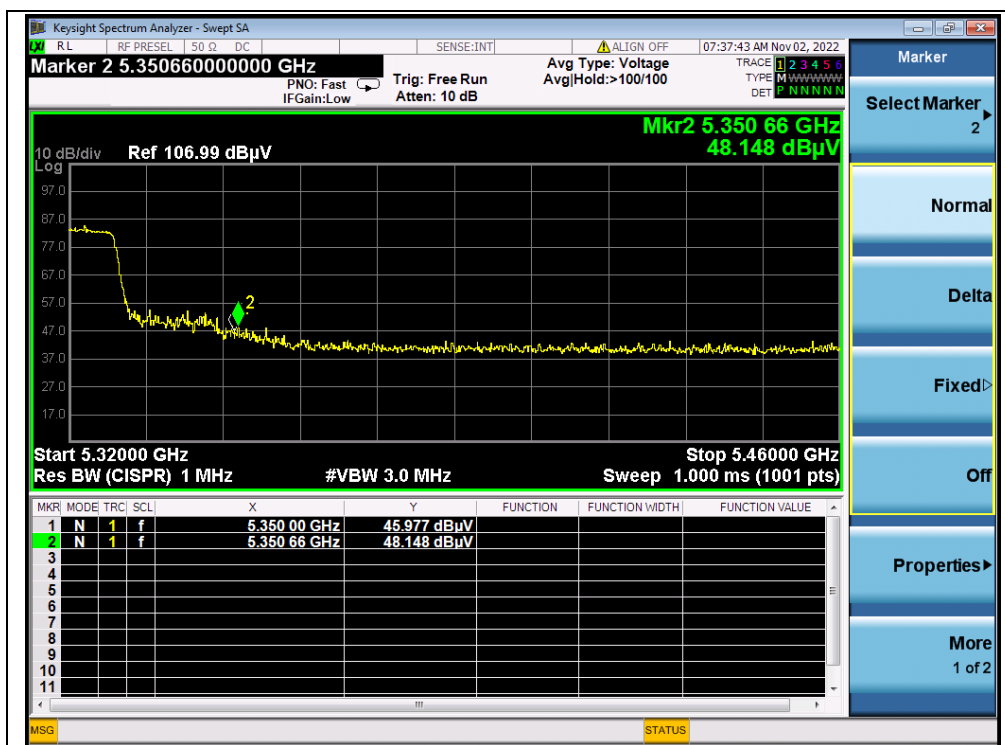
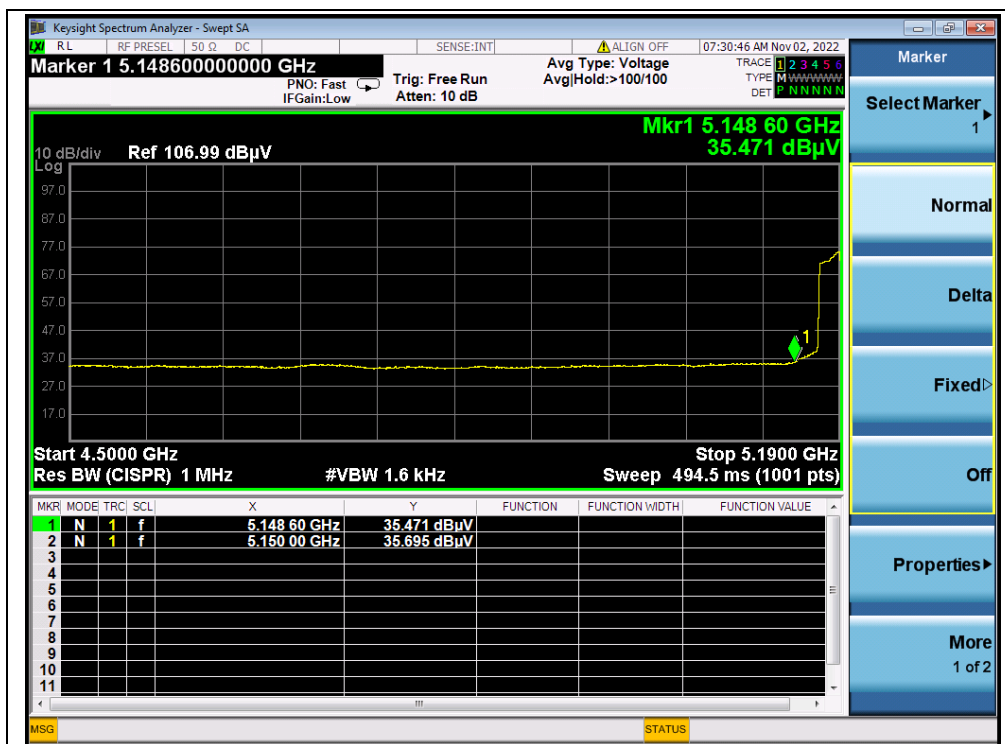
A. Test Verdict:

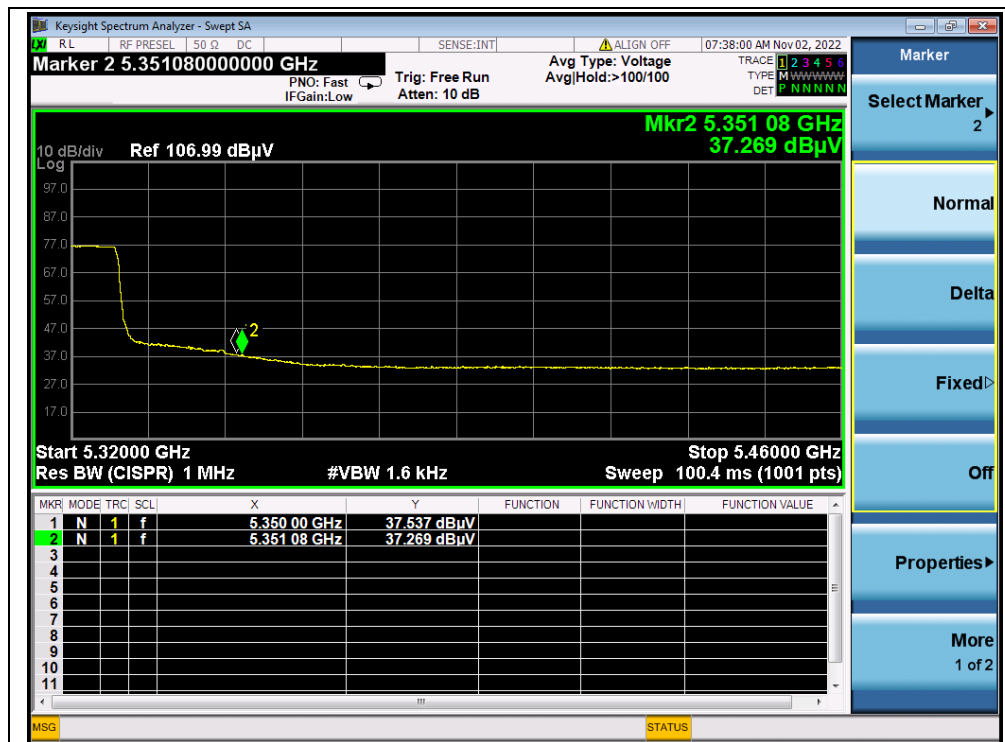
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
38	5147.22	PK	45.23	-19.54	32.20	57.89	74	PASS
38	5150.00	AV	35.70	-19.54	32.20	48.36	54	PASS
62	5350.66	PK	48.15	-18.80	32.20	61.55	74	PASS
62	5350.00	AV	37.54	-18.80	32.20	50.94	54	PASS
102	5464.61	PK	47.23	-19.20	32.20	60.23	68.23	PASS
102	5470.00	AV	37.29	-19.20	32.20	50.29	54	PASS
142	5725.00	PK	47.16	-19.20	32.20	60.16	68.23	PASS
151	5720.00	PK	43.37	-19.01	32.20	56.56	110.83	PASS
159	5850.00	PK	42.49	-19.01	32.20	55.68	122.23	PASS

B. Test Plot:

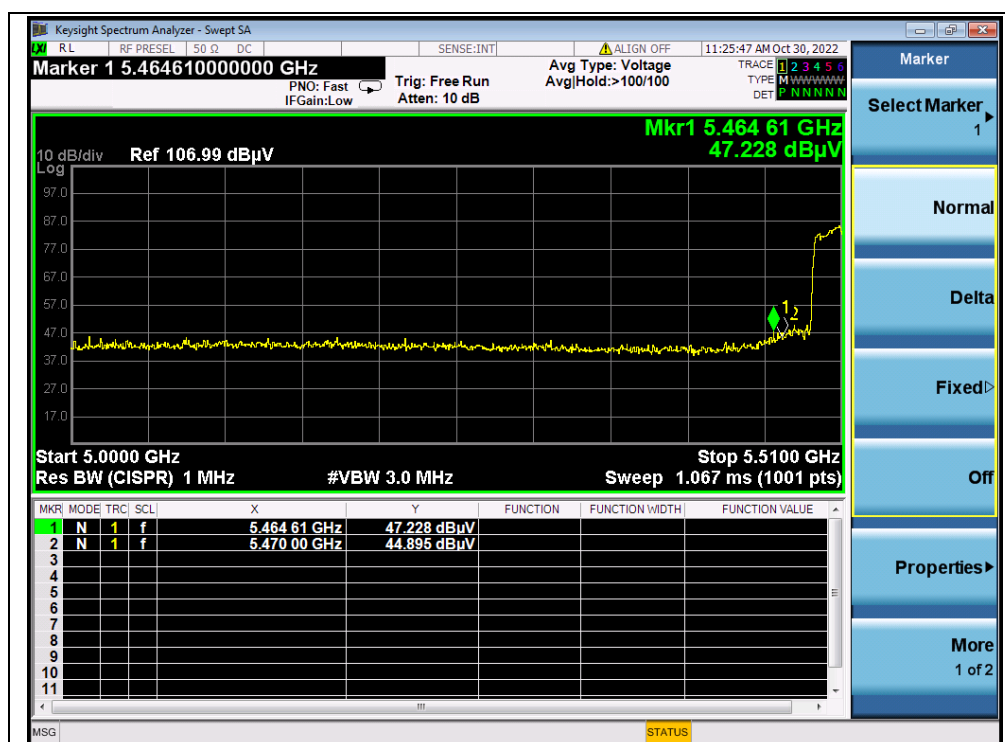


(PEAK, Channel 38, 802.11n (HT40))

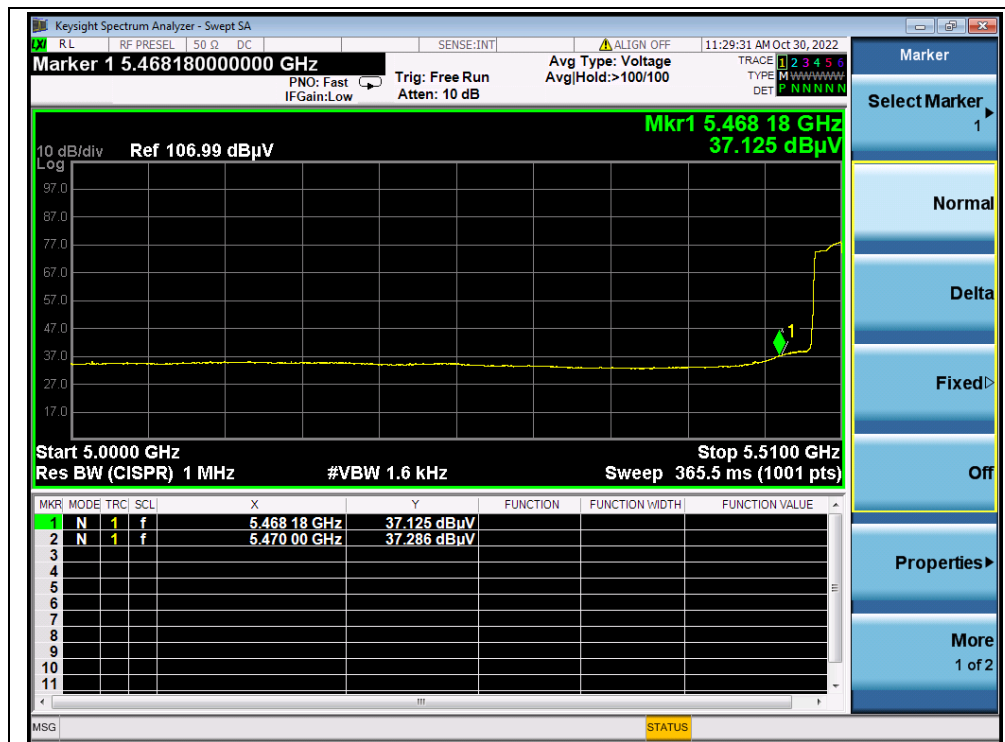




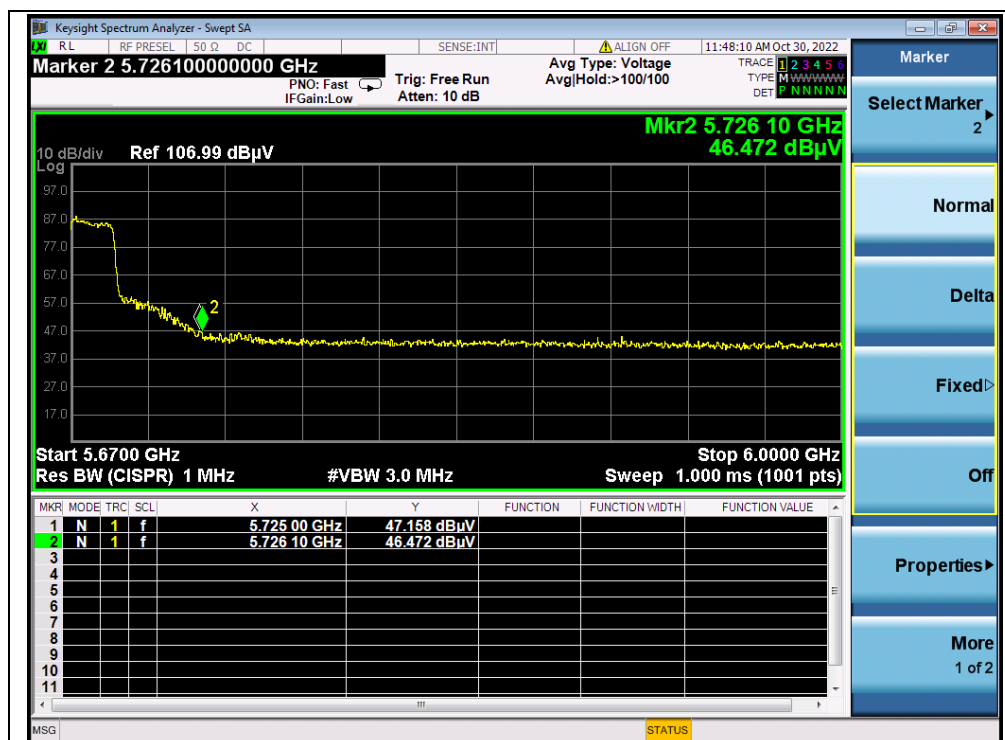
(AVERAGE, Channel 62, 802.11n (HT40))



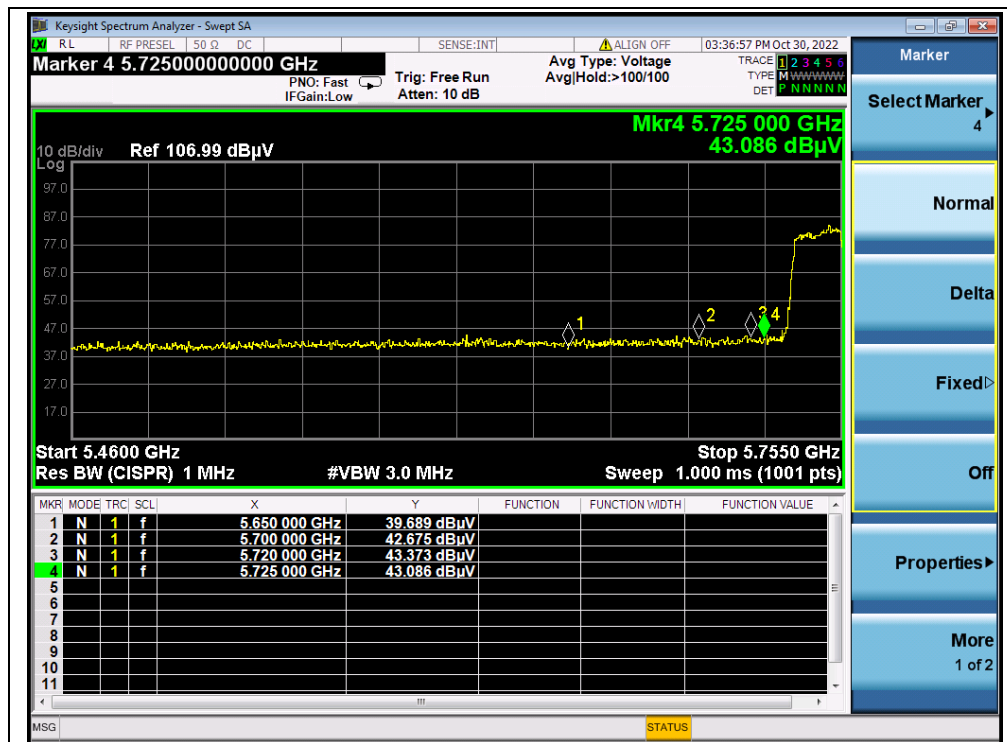
(PEAK, Channel 102, 802.11n (HT40))



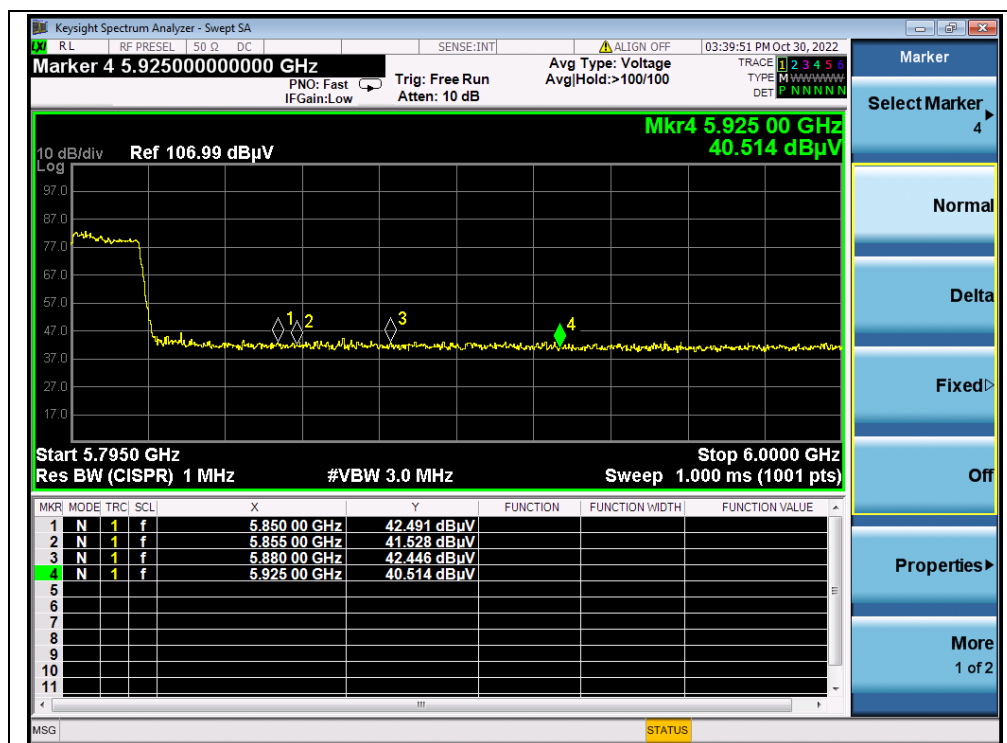
(AVERAGE, Channel 102, 802.11n (HT40))



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



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



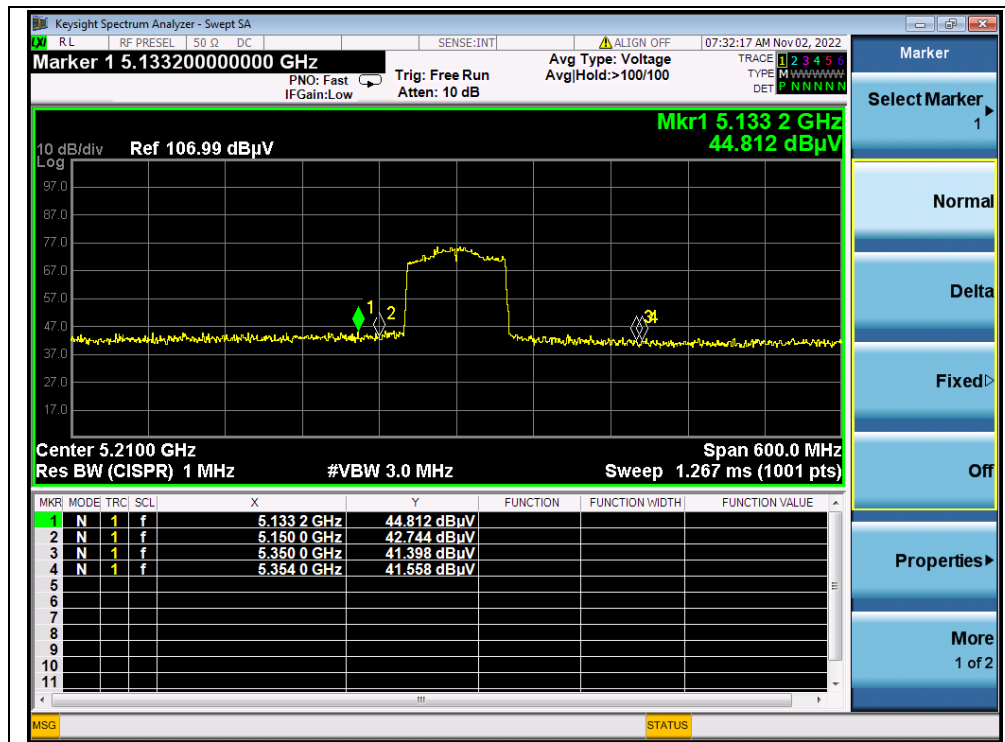
(PEAK, Channel 159, 802.11n (HT40))

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

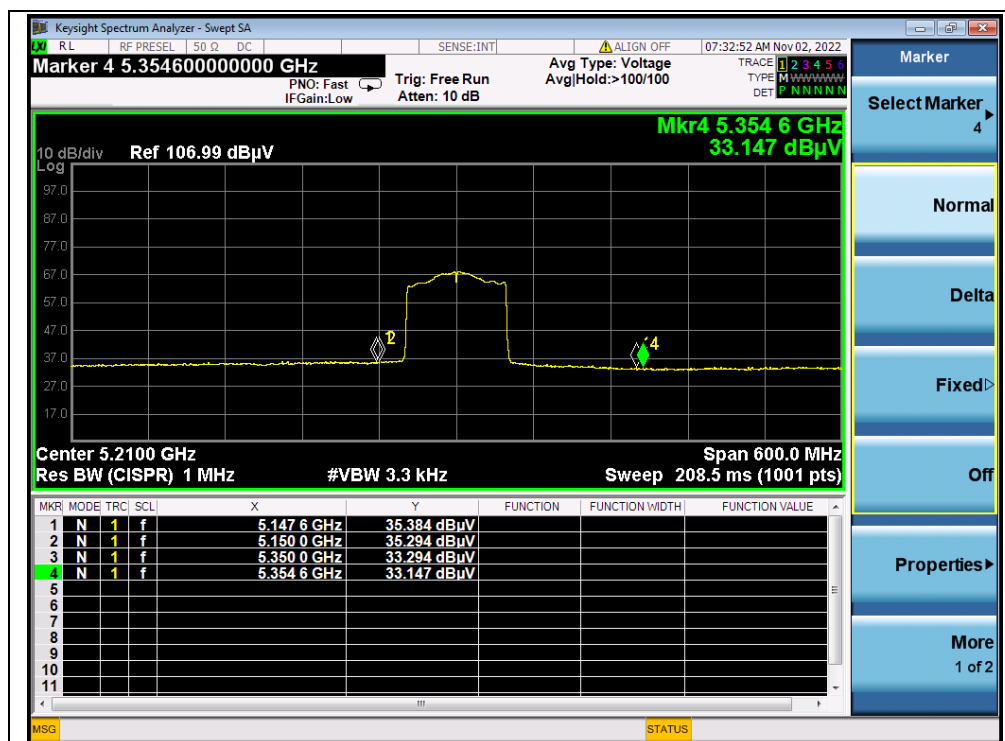
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
42	5133.20	PK	44.81	-19.54	32.20	57.47	74	PASS
42	5147.60	AV	35.38	-19.54	32.20	48.04	54	PASS
58	5354.20	PK	44.40	-18.80	32.20	57.80	74	PASS
58	5350.00	AV	35.35	-18.80	32.20	48.75	54	PASS
106	5466.40	PK	48.62	-19.20	32.20	61.62	68.23	PASS
106	5470.00	AV	39.47	-19.20	32.20	52.47	54	PASS
138	5726.22	PK	46.64	-19.20	32.20	59.64	68.23	PASS
155	5650.00	PK	42.82	-19.01	32.20	56.01	68.23	PASS
155	5850.00	PK	44.35	-19.01	32.20	57.54	122.23	PASS



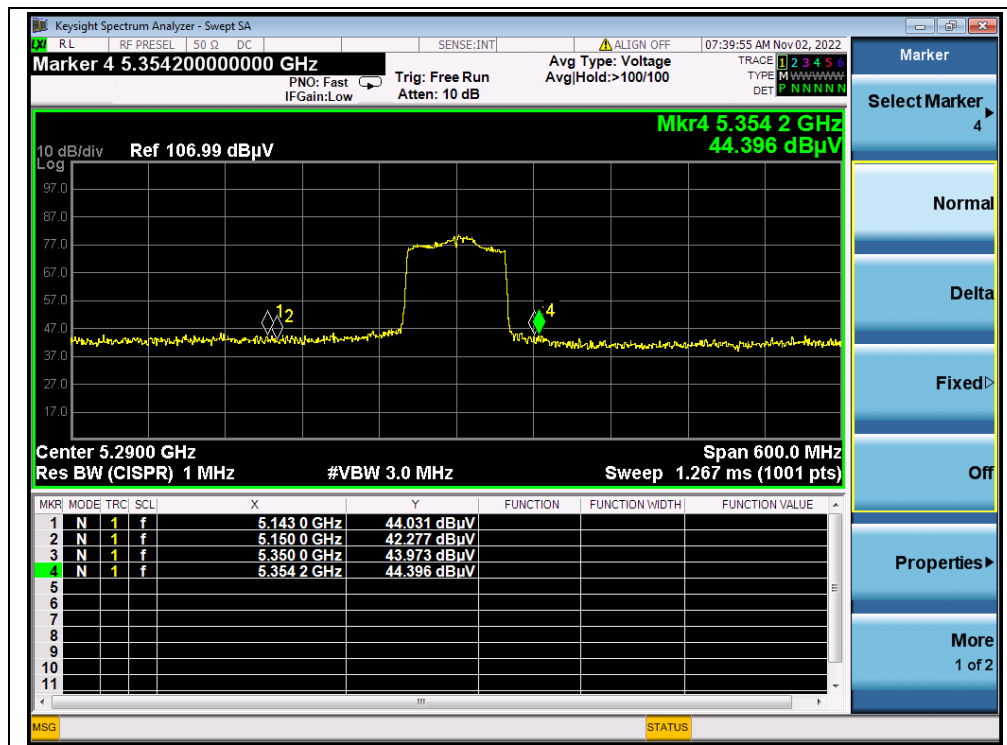
B.Test Plot:



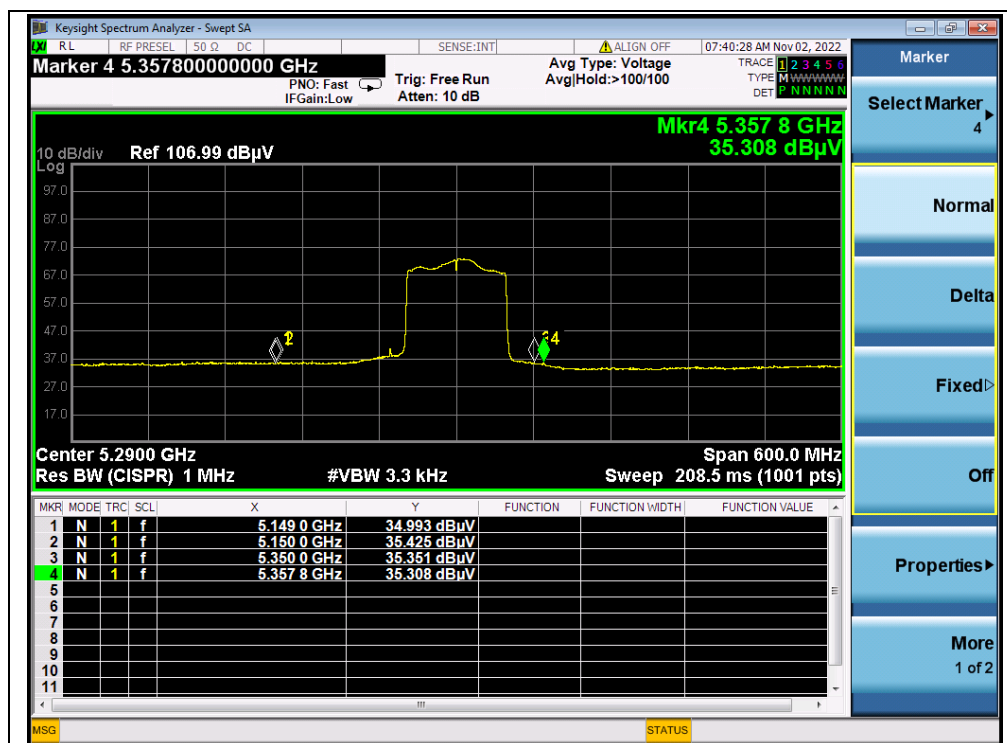
(PEAK, Channel 42, 802.11ac (VHT80))



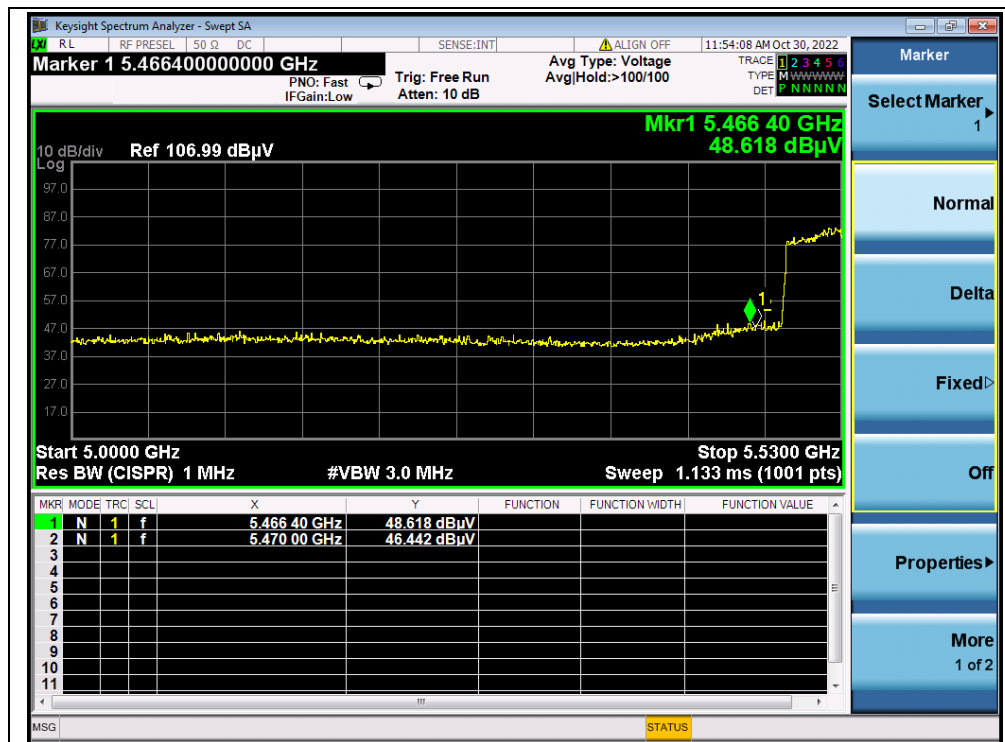
(AVERAGE, Channel 42, 802.11ac (VHT80))



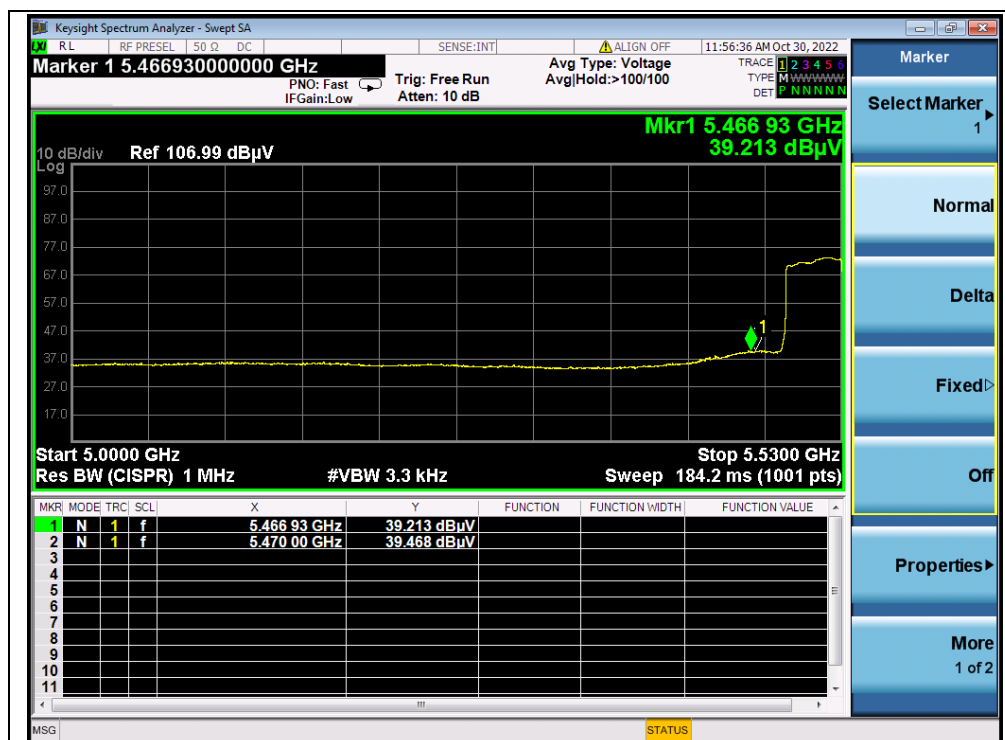
(PEAK, Channel 58, 802.11ac (VHT80))



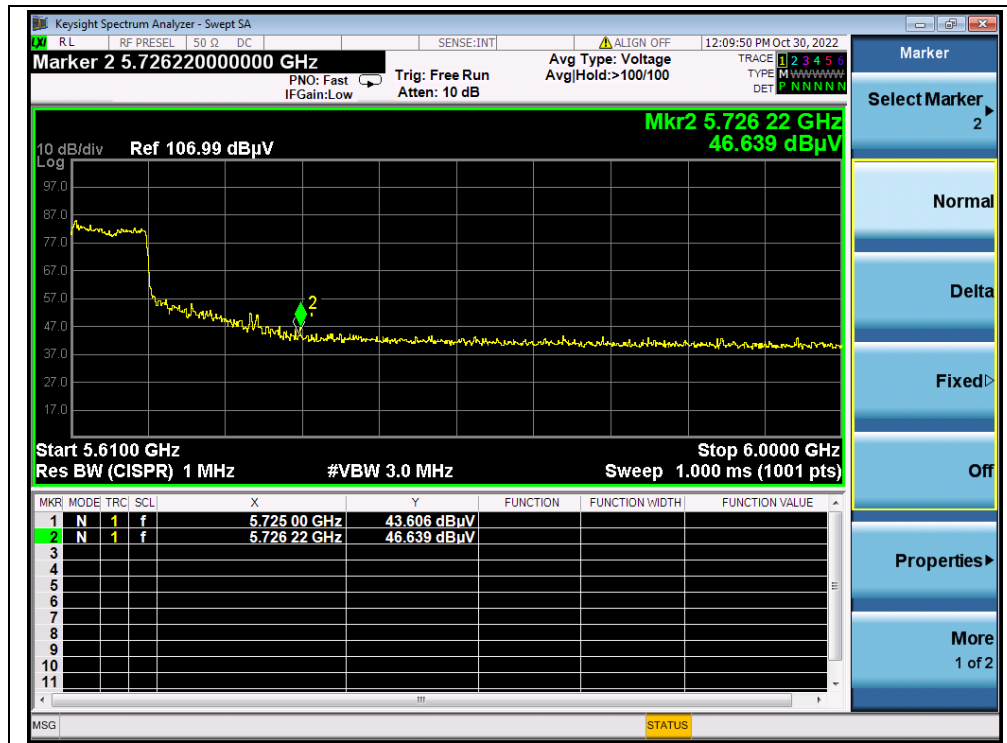
(AVERAGE, Channel 58, 802.11ac (VHT80))



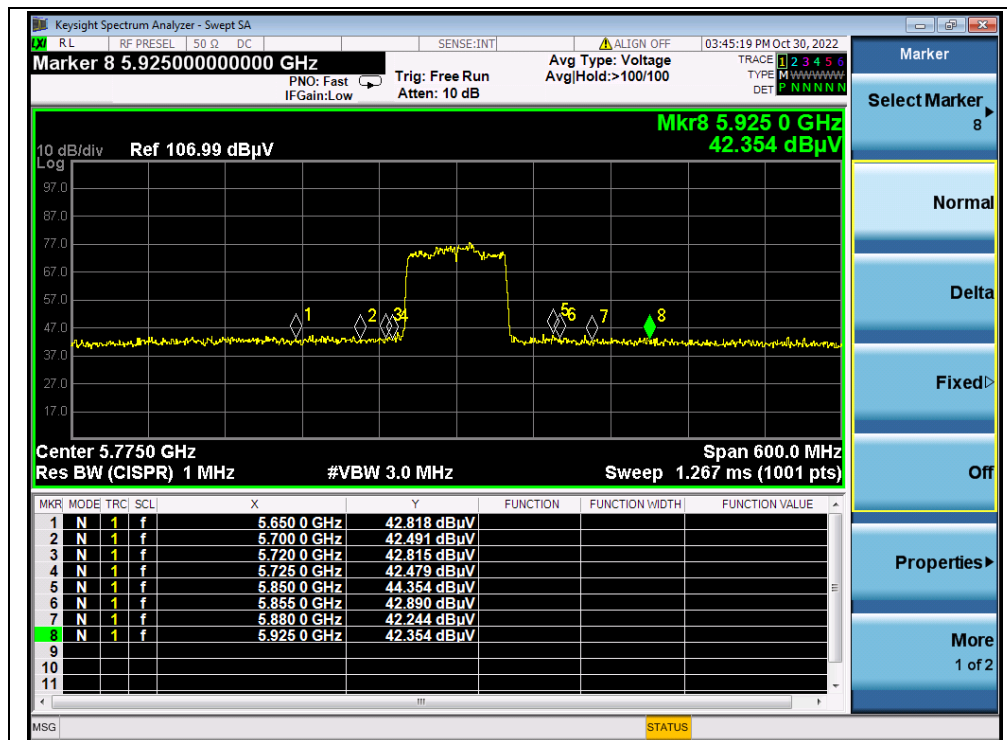
(PEAK, Channel 106, 802.11ac (VHT80))



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



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



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

2.3. Radiated Emission

2.3.1. 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:

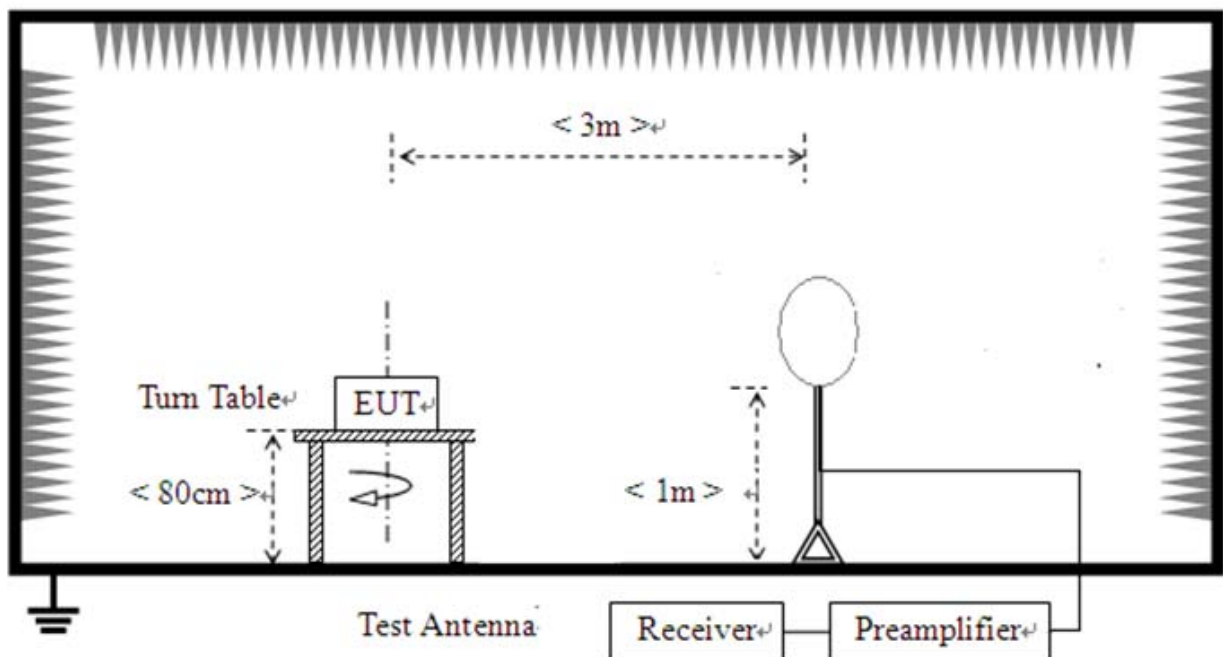
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

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).

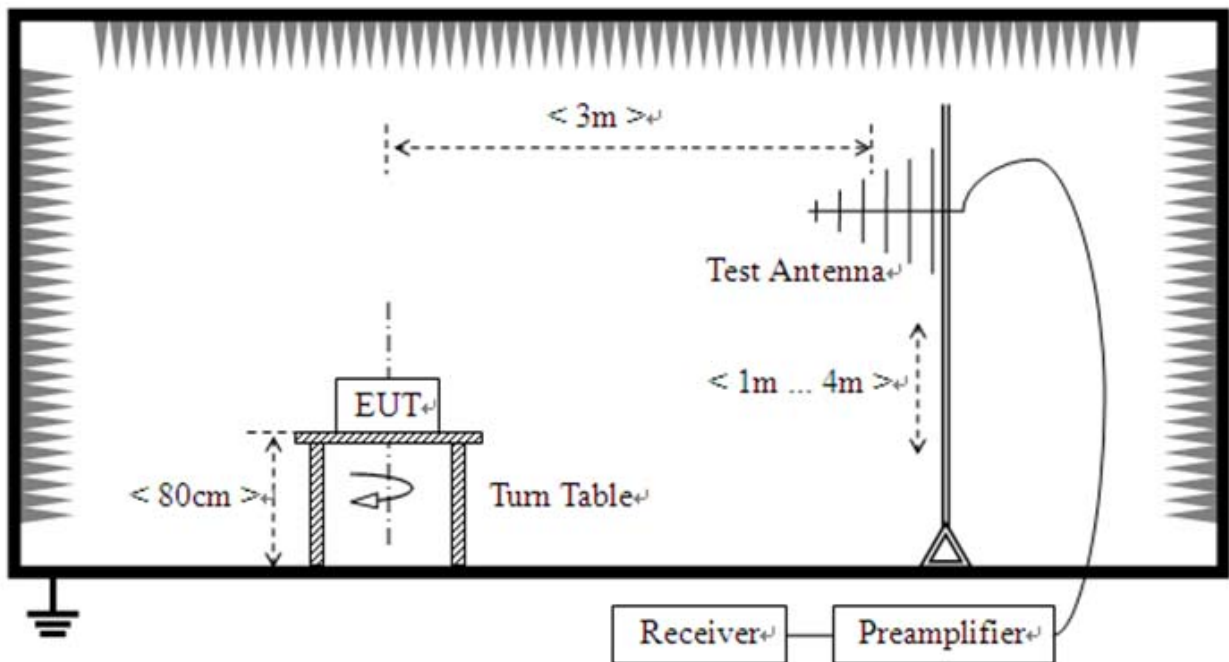
2.3.2. Test Description

Test Setup:

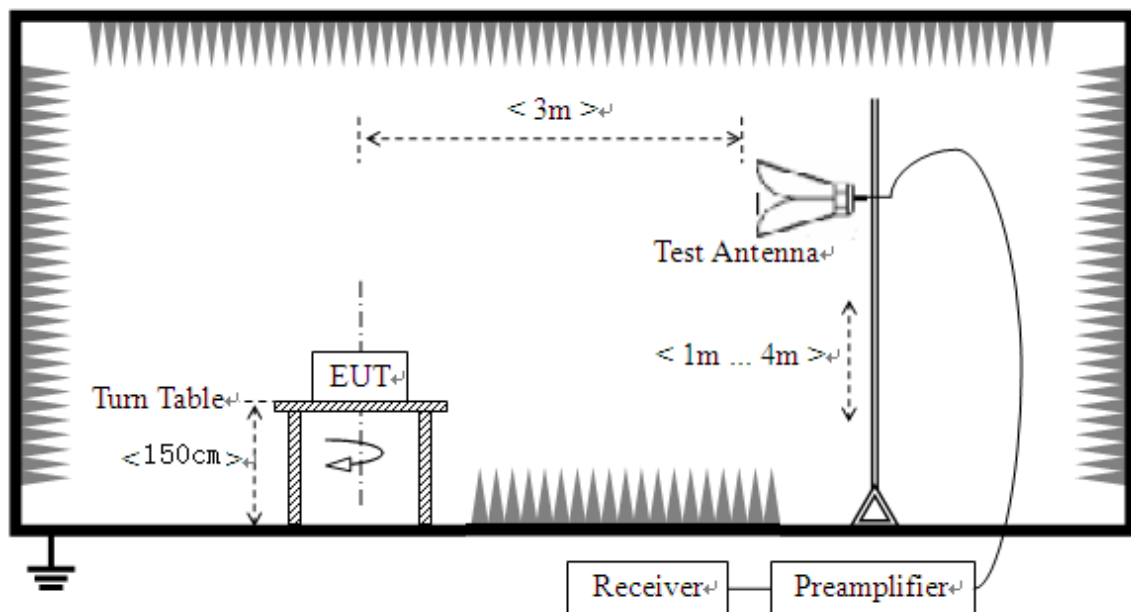
- 1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz to1GHz



3) For radiated emissions above 1GHz



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



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

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

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

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

2.3.3. 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.

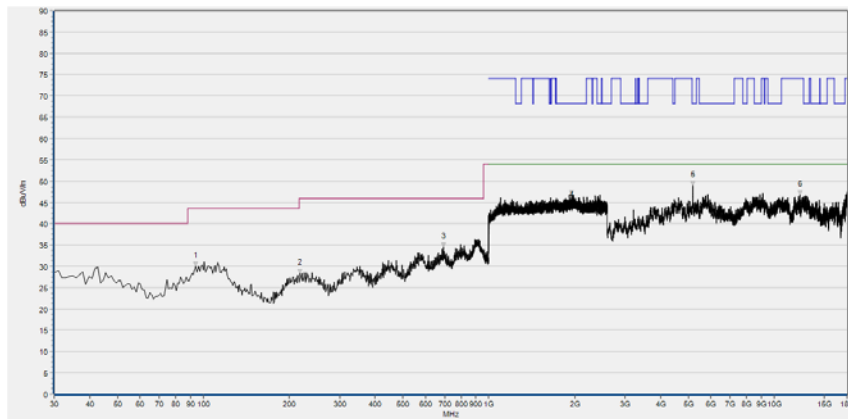
Note 2: For the frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

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.

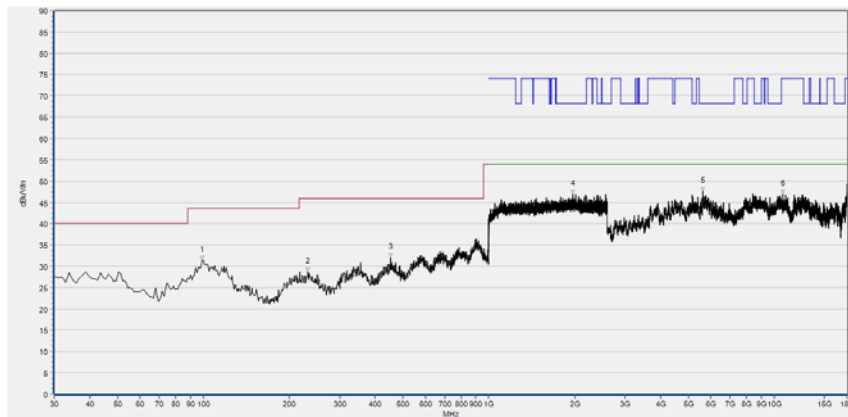
**802.11a Mode**

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
94.020	29.92	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
218.180	28.36	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
694.450	34.58	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1946.667	46.78	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5181.040	48.89	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12308.160	46.82	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

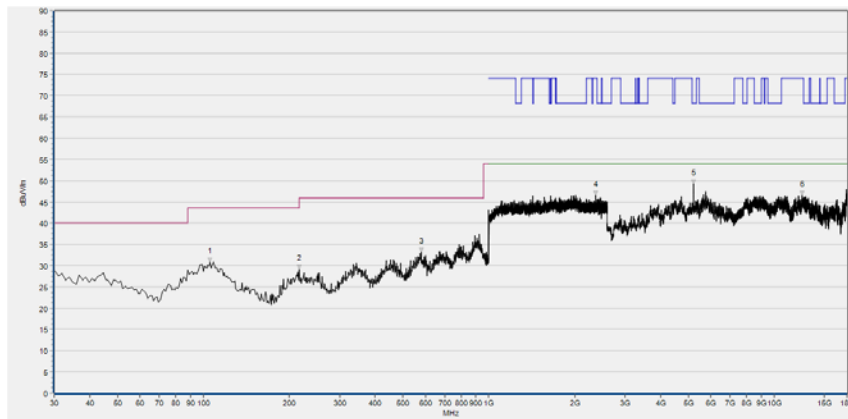
(Antenna Horizontal, 30MHz to 18GHz)



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
98.870	31.30	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
232.730	28.64	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
452.920	32.00	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1972.267	46.85	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5627.640	47.62	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10725.040	46.89	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

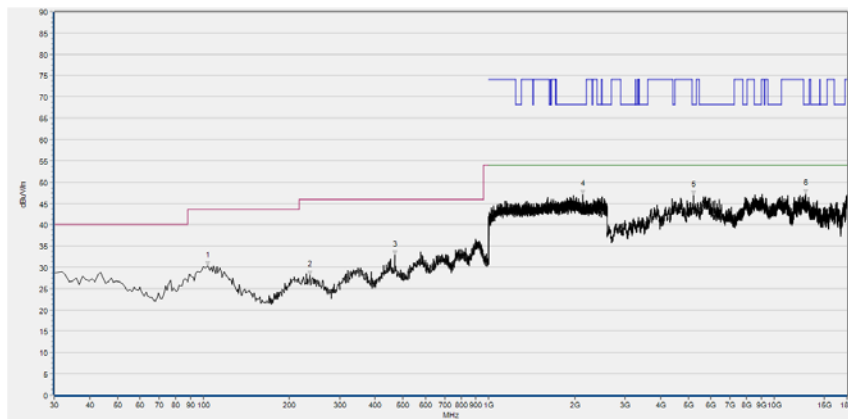
(Antenna Vertical, 30MHz to 18GHz)

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
105.660	30.86	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
216.240	29.11	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
579.990	33.20	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2367.467	46.67	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5214.920	49.22	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12526.840	46.58	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

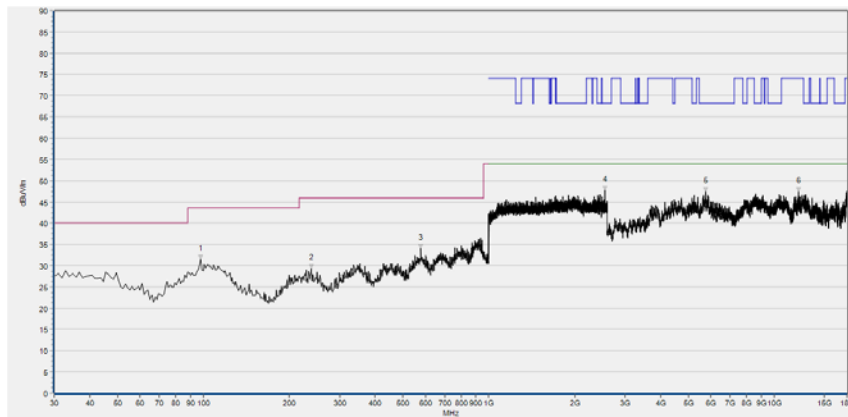


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
103.720	30.35	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
235.640	28.17	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
467.470	32.89	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2134.400	47.04	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5221.080	46.90	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12890.280	47.27	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

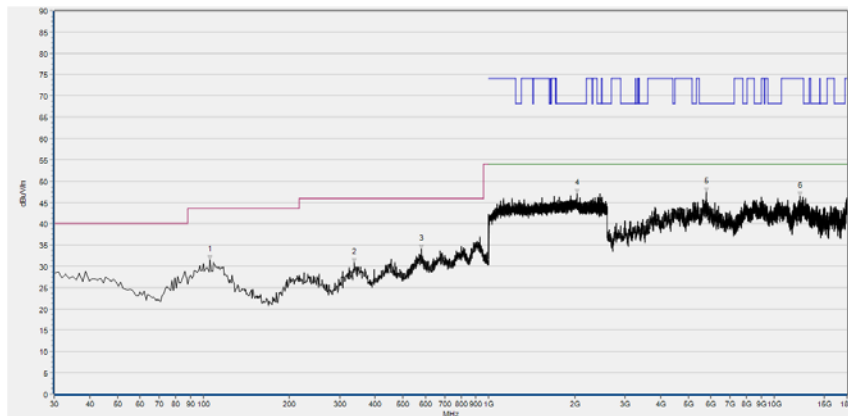


Plot for Channel 48



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
97.900	31.43	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
238.550	29.28	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
578.050	34.06	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2548.800	47.76	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5744.680	47.48	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12154.160	47.49	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

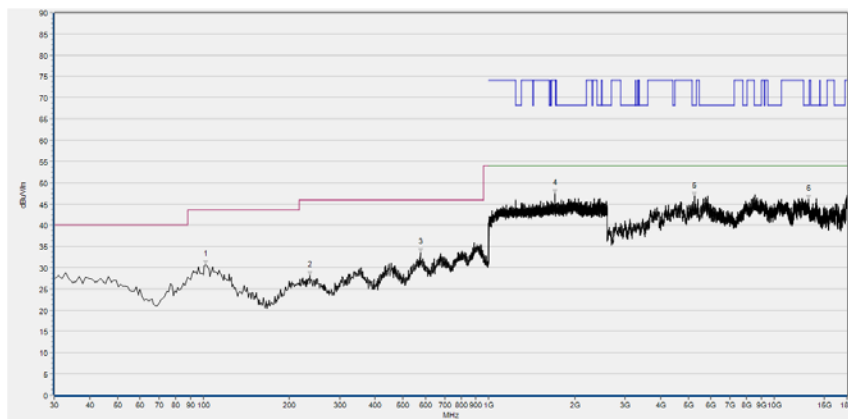


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
105.660	31.53	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
338.460	30.78	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
580.960	34.04	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2034.133	47.03	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5769.320	47.49	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12308.160	46.51	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

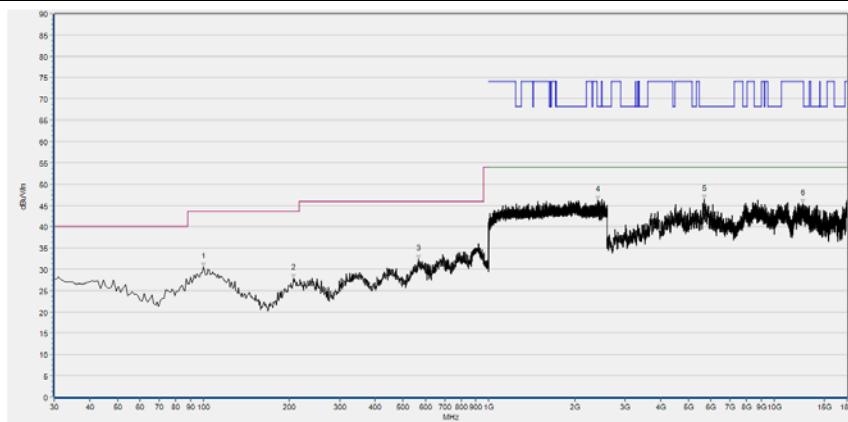


Plot for Channel 52



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
101.780	30.65	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
235.640	28.20	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
576.110	33.53	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1706.667	47.42	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5258.040	46.82	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
13170.560	46.03	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

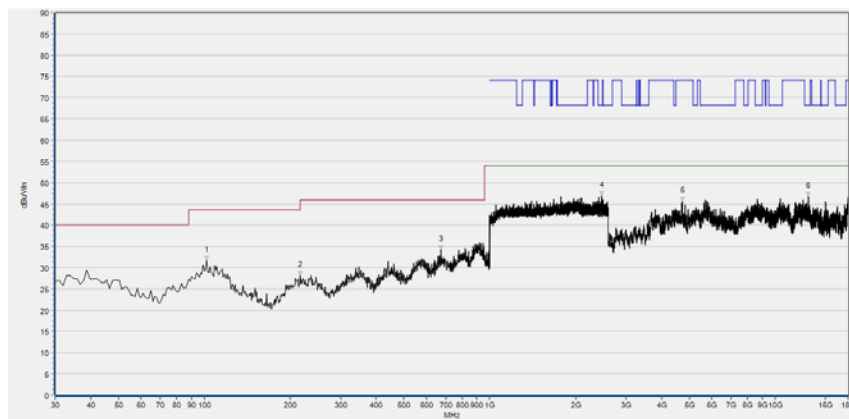


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
99.840	30.52	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
206.540	27.78	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
567.380	32.30	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2406.933	46.19	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5670.760	46.45	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12573.040	45.40	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

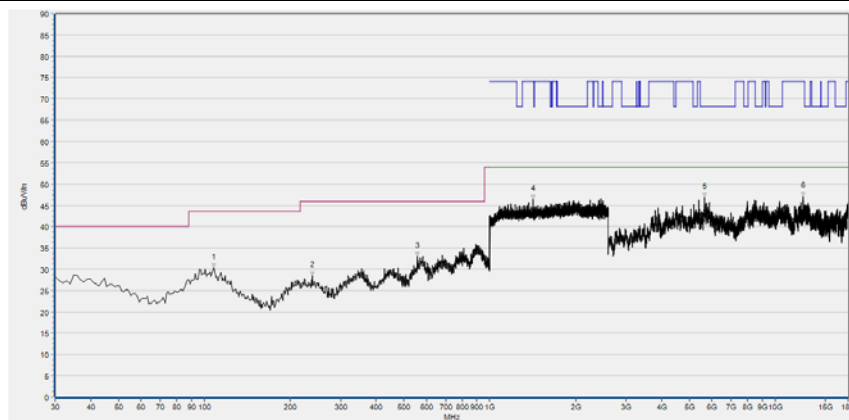


Plot for Channel 60



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
101.780	31.64	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
216.240	28.08	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
673.110	34.20	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2466.133	46.93	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
4725.200	45.62	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
13072.000	46.80	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

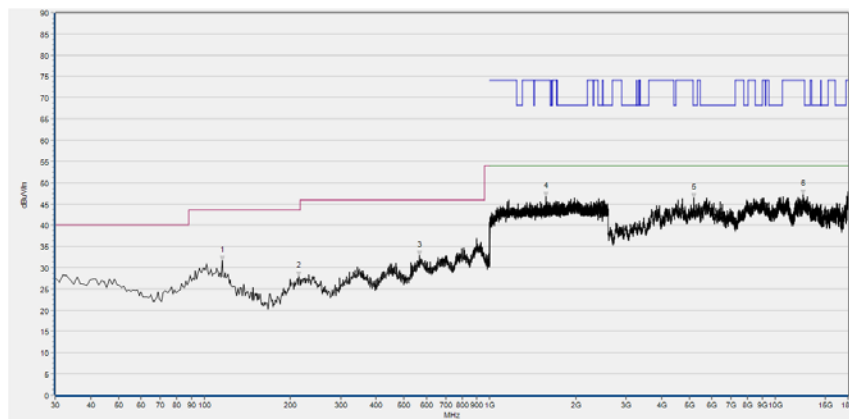


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
107.600	30.31	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
239.520	28.57	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
557.680	32.98	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1415.467	46.50	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5646.120	46.97	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12542.240	47.15	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

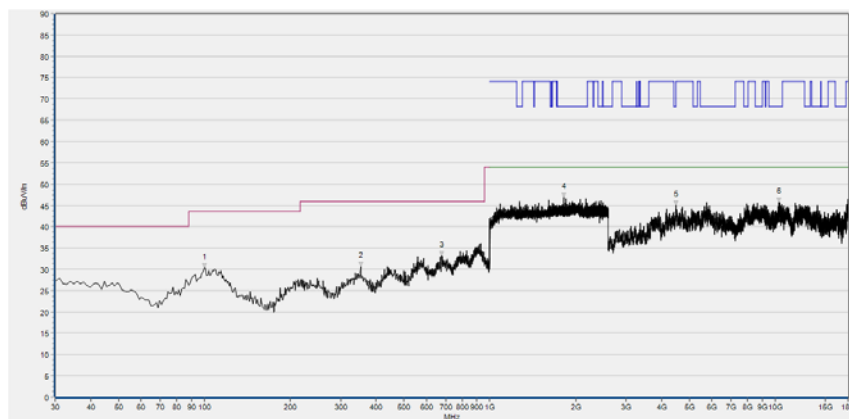


Plot for Channel 64



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
115.360	31.72	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
214.300	27.99	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
565.440	32.87	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1574.933	46.71	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5184.120	46.43	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12523.760	47.19	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

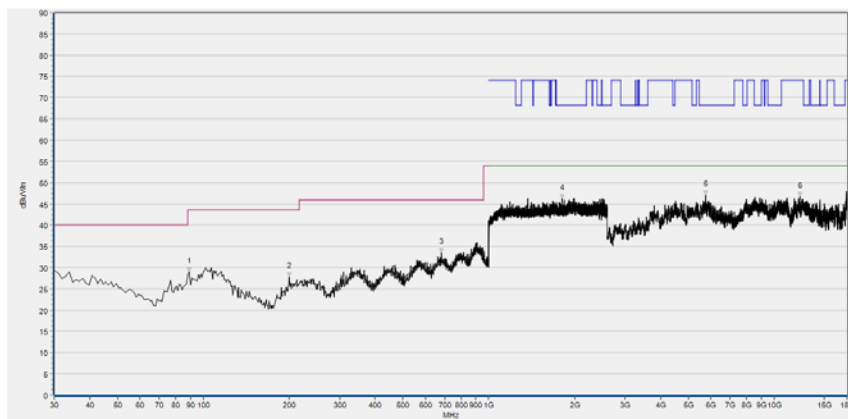


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
99.840	30.27	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
353.010	30.67	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
677.960	33.16	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1811.200	46.87	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
4497.280	45.02	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10303.080	45.73	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

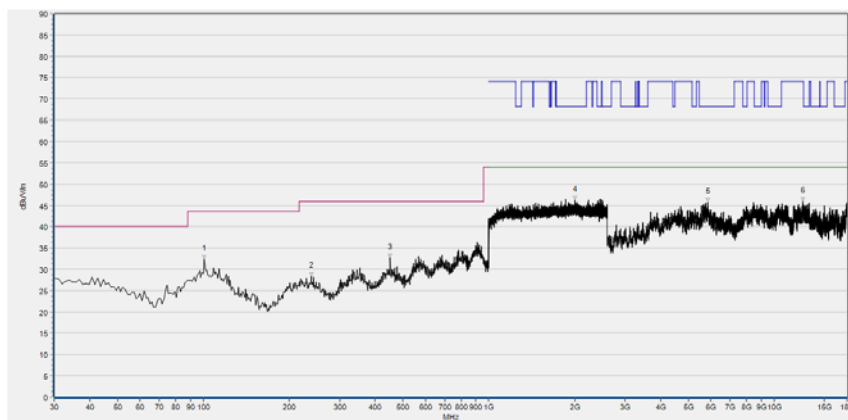


Plot for Channel 100



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
89.170	29.05	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
199.750	27.82	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
681.840	33.58	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1800.533	46.17	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5738.520	47.13	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12295.840	46.72	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

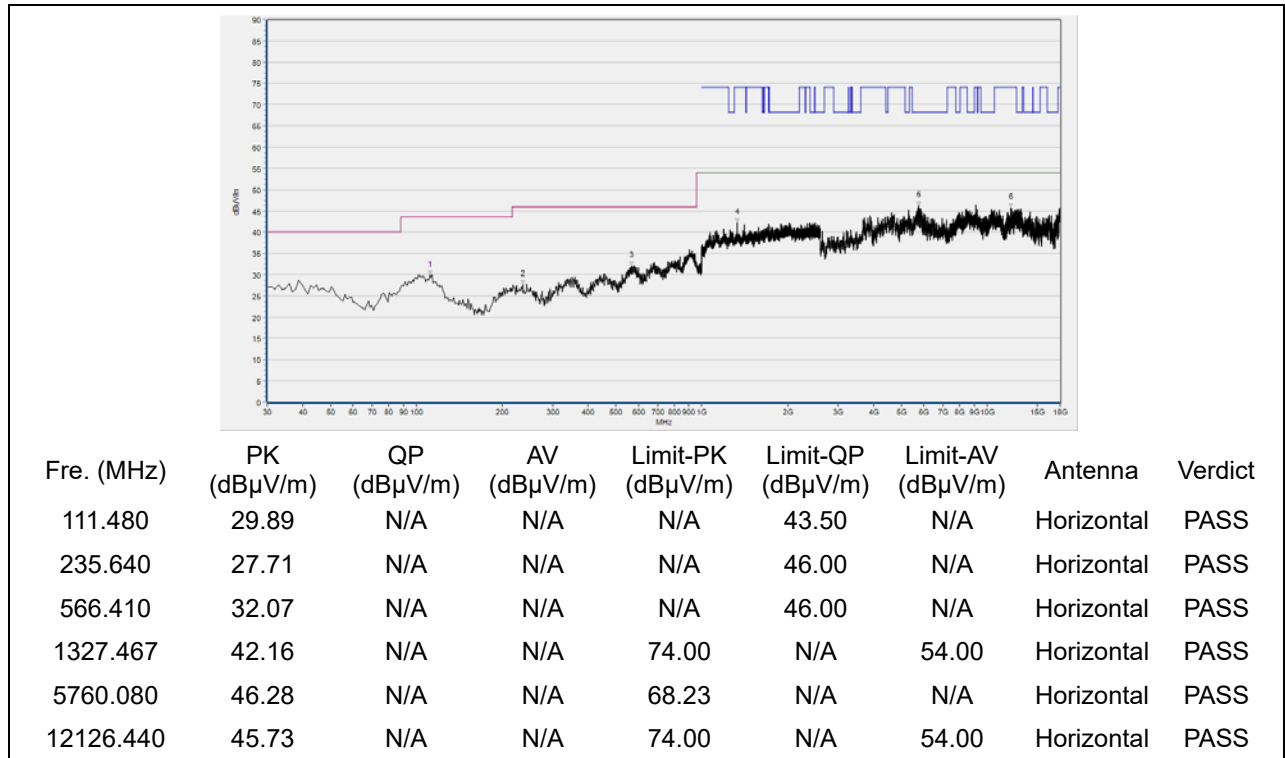
(Antenna Horizontal, 30MHz to 18GHz)



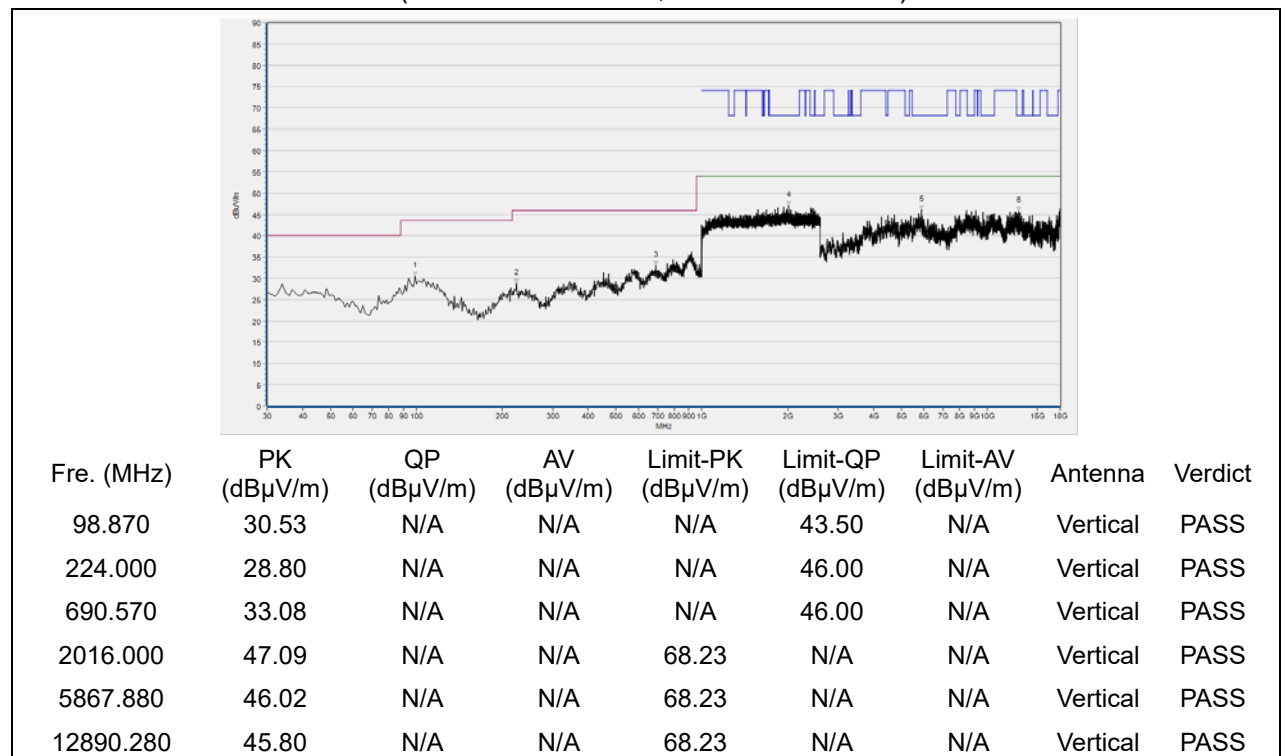
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
100.810	32.33	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
238.550	28.40	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
450.980	32.62	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2001.600	46.23	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5861.720	45.74	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12594.600	45.96	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 120

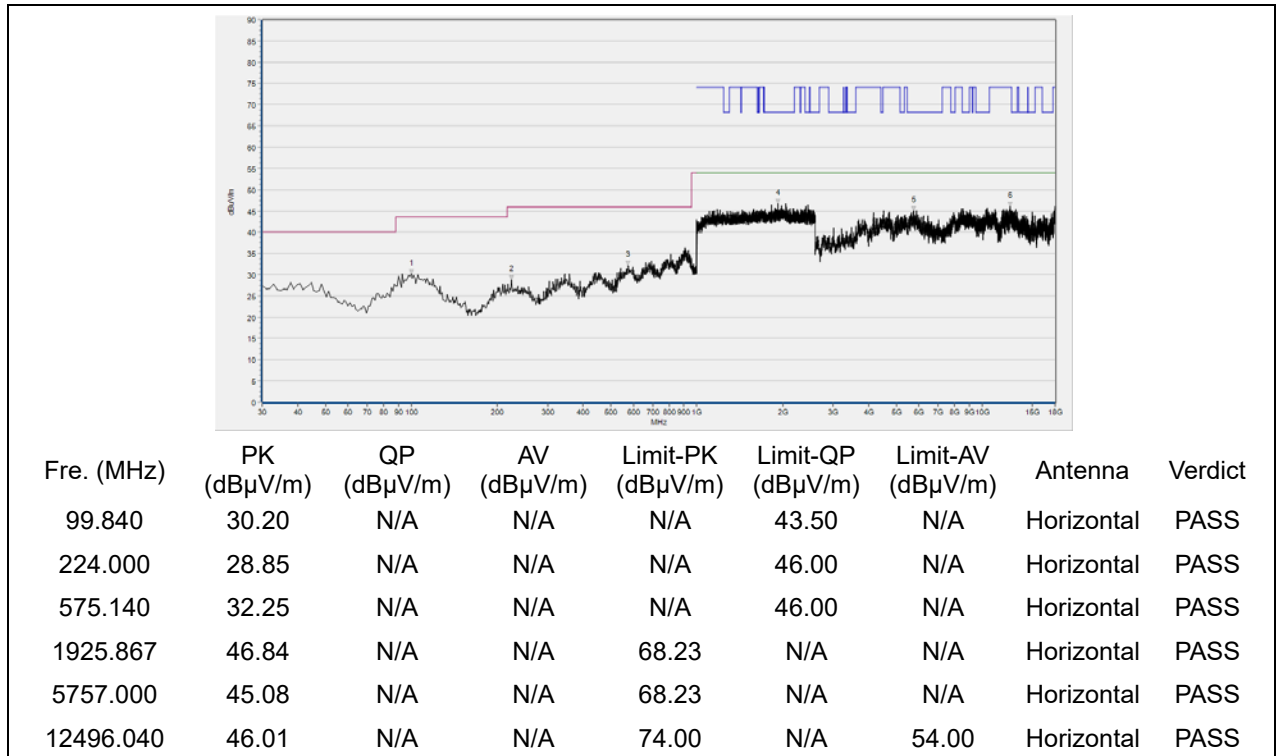


(Antenna Horizontal, 30MHz to 18GHz)

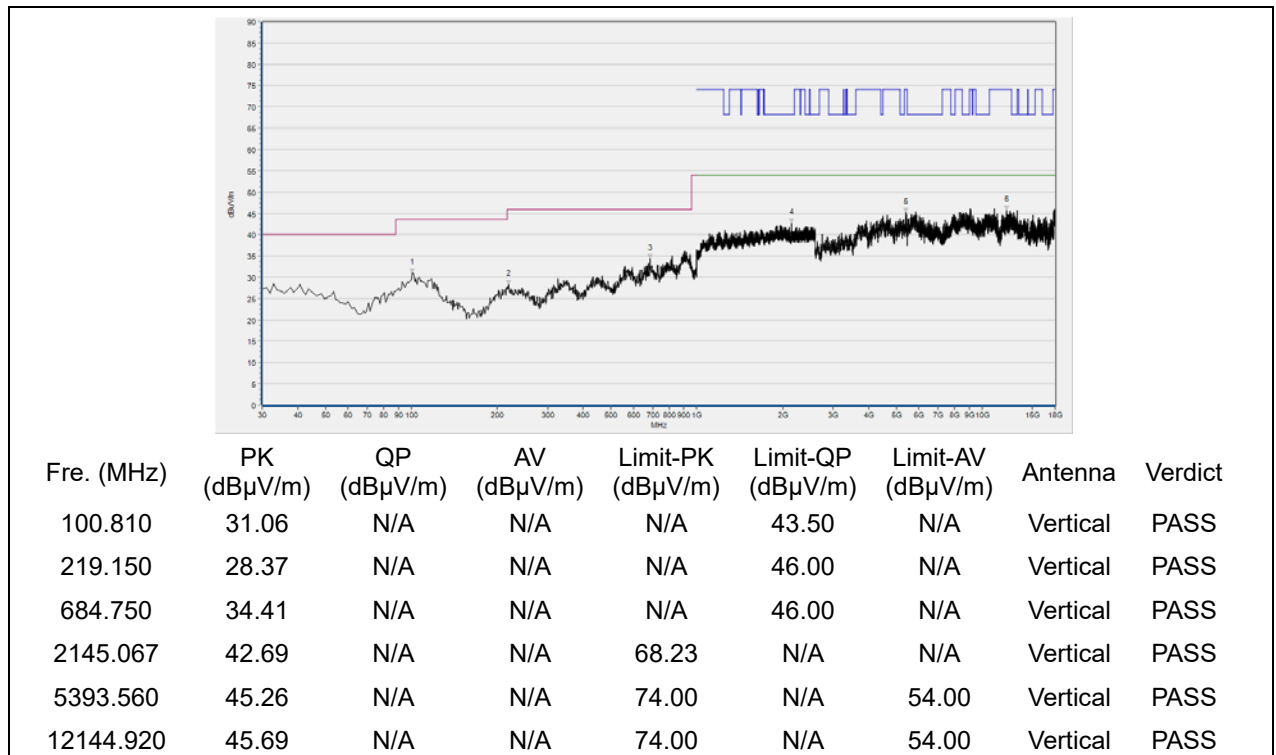


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 144

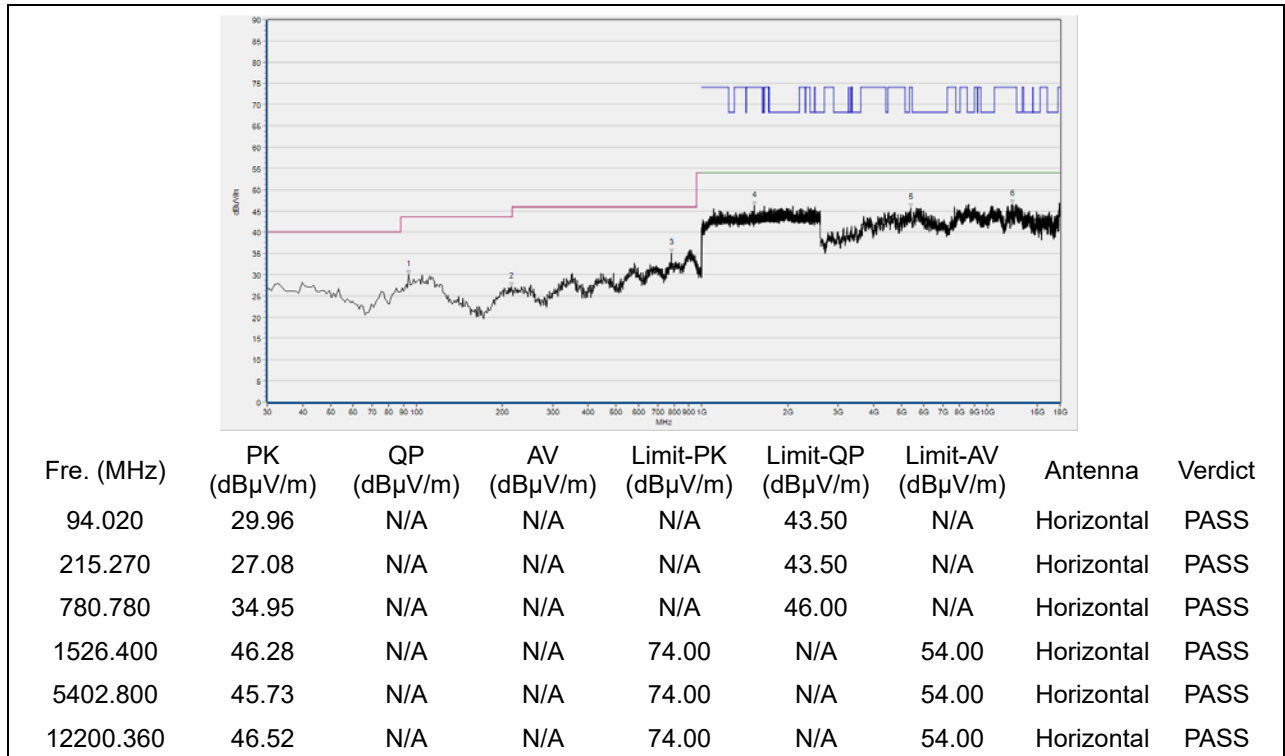


(Antenna Horizontal, 30MHz to 18GHz)

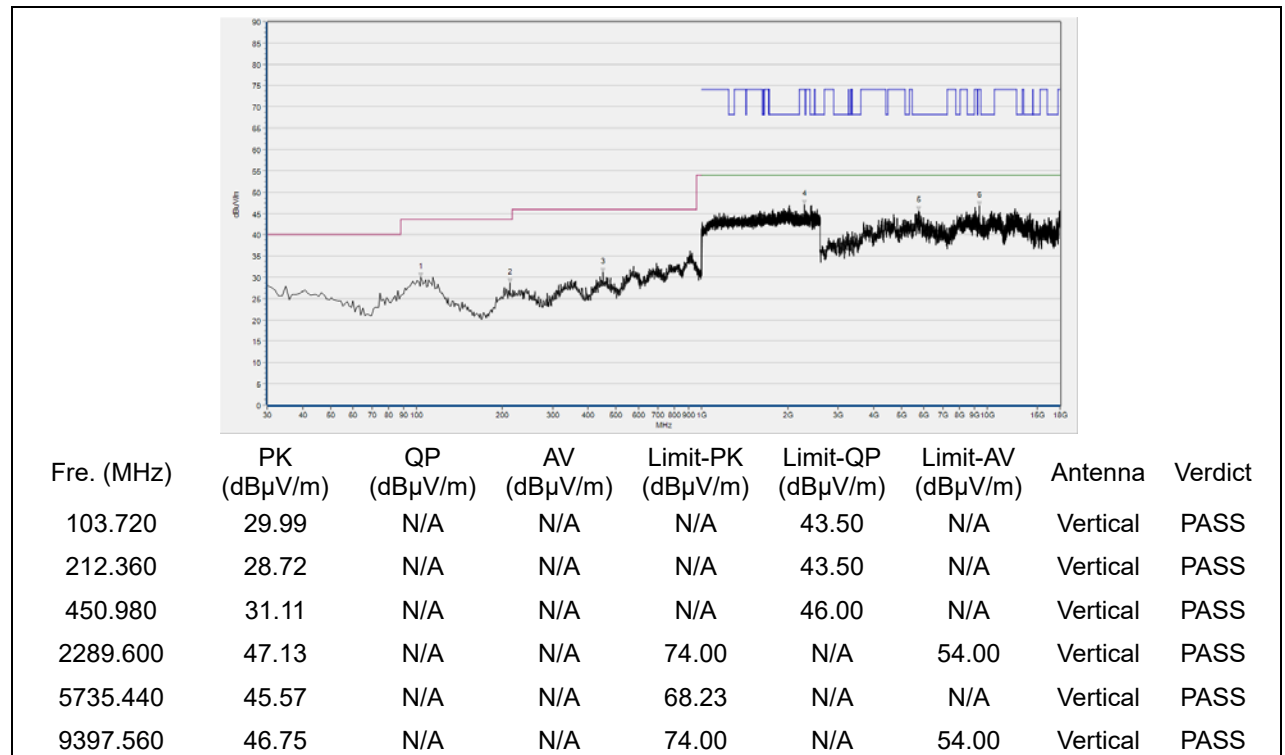


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 149



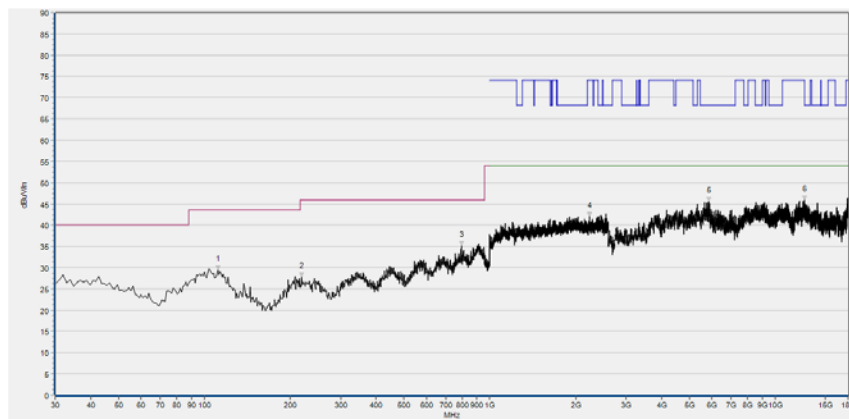
(Antenna Horizontal, 30MHz to 18GHz)



(Antenna Vertical, 30MHz to 18GHz)

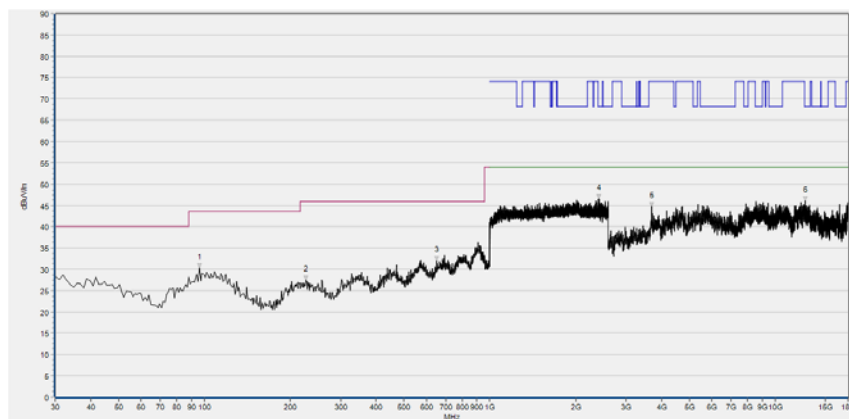


Plot for Channel 157



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	29.47	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
219.150	27.90	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
794.360	35.15	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2240.000	42.03	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5861.720	45.56	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12650.040	45.87	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

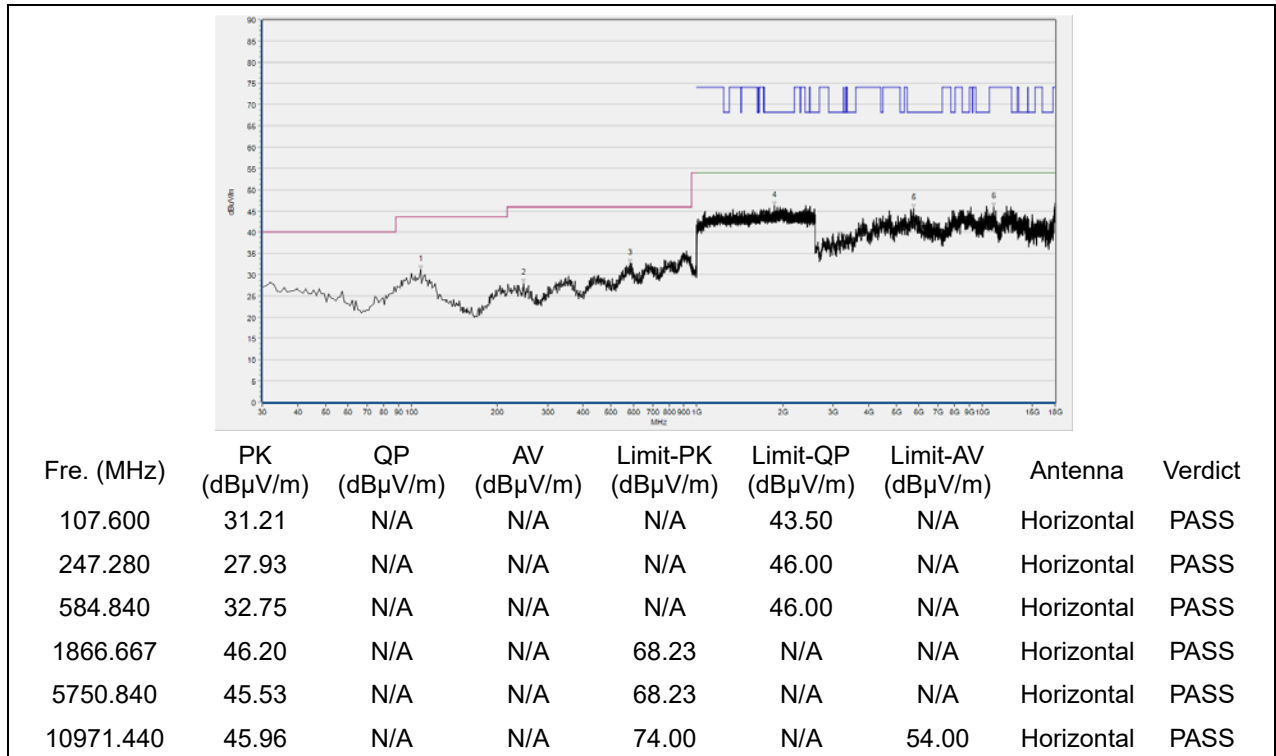
(Antenna Horizontal, 30MHz to 18GHz)



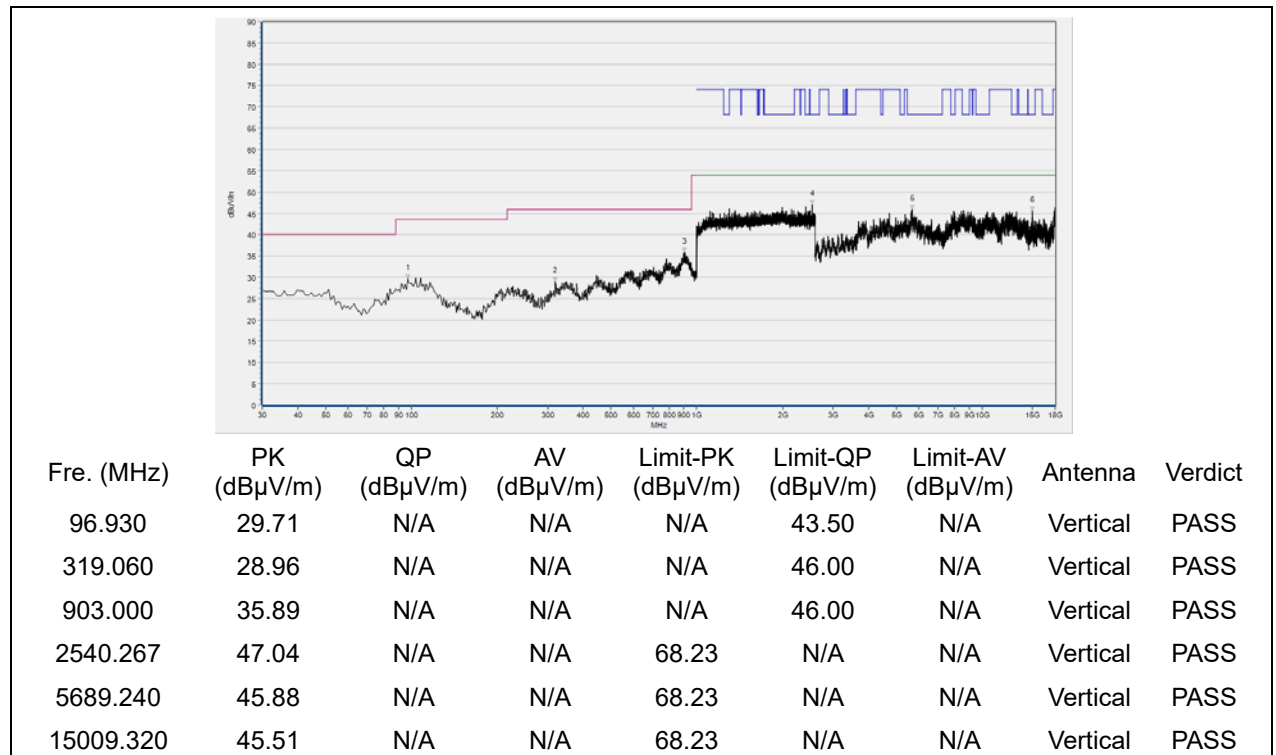
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
95.960	30.41	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
226.910	27.43	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
651.770	32.08	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2415.467	46.65	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
3690.320	44.74	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12751.680	46.11	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 165



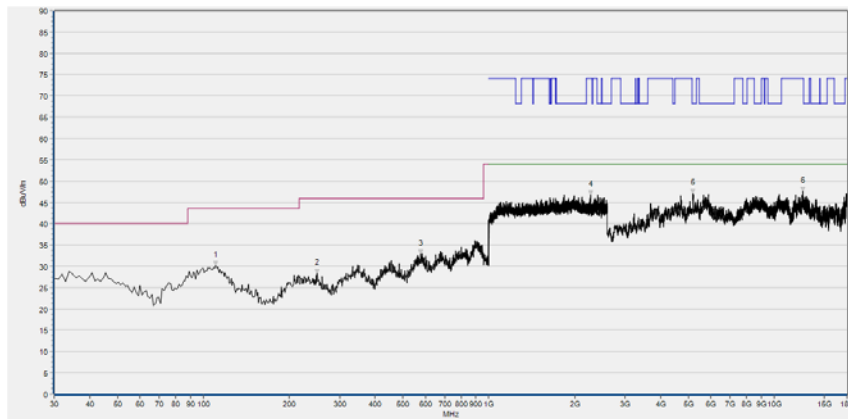
(Antenna Horizontal, 30MHz to 18GHz)



(Antenna Vertical, 30MHz to 18GHz)

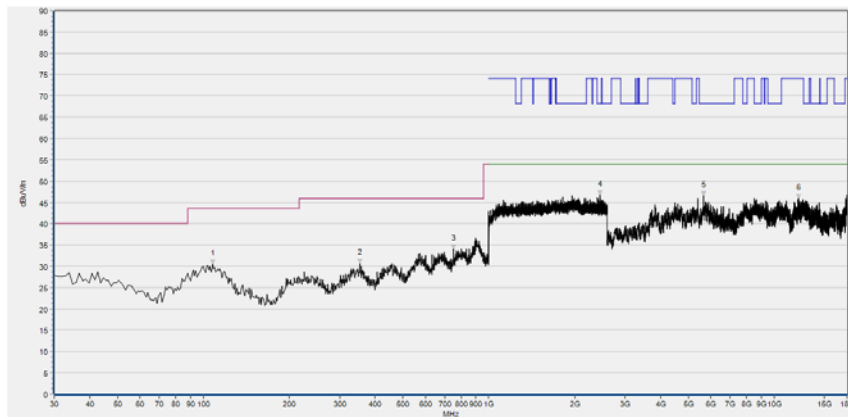
**802.11n (HT40) mode**

Plot for Channel 38



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	30.14	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
250.190	28.39	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
578.050	32.83	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2273.067	46.71	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5187.200	47.02	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12591.520	47.52	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

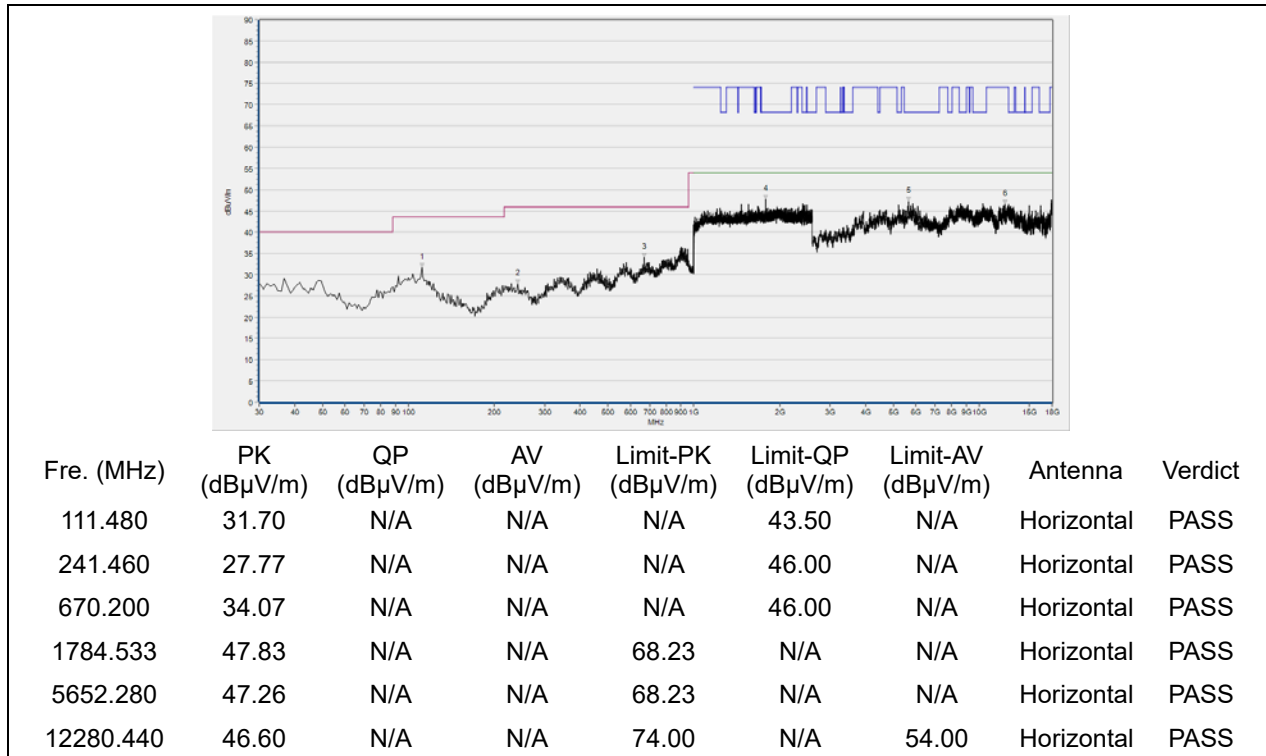
(Antenna Horizontal, 30MHz to 18GHz)



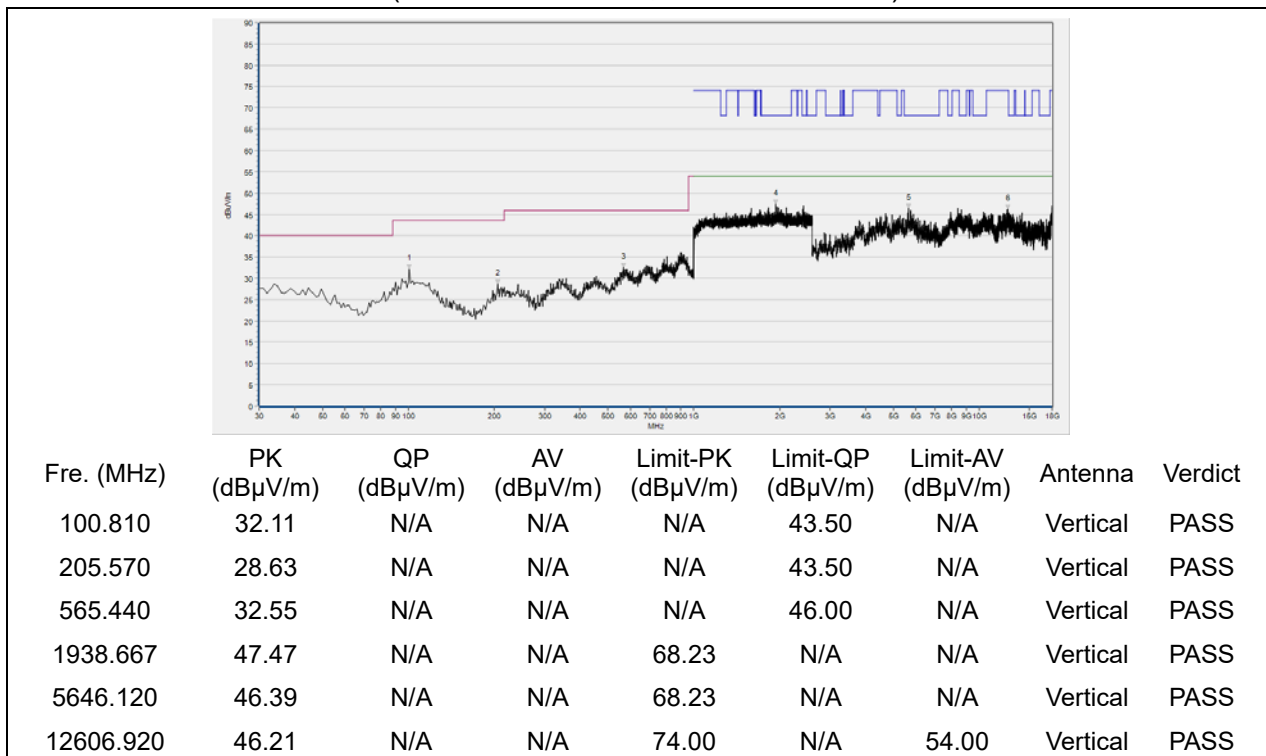
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
107.600	30.54	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
353.010	30.59	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
751.680	34.04	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2454.933	46.75	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5649.200	46.58	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12144.920	45.95	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 46



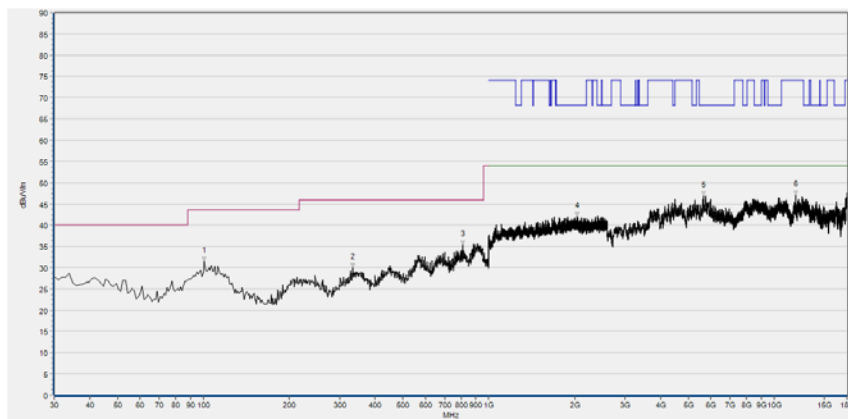
(Antenna Horizontal, 30MHz to 18GHz)



(Antenna Vertical, 30MHz to 18GHz)

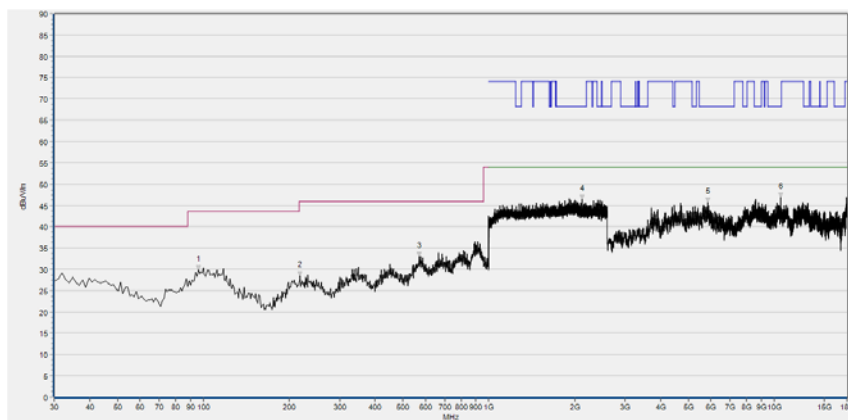


Plot for Channel 54



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
100.810	31.46	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
333.610	30.02	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
808.910	35.37	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2037.867	42.01	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5658.440	46.87	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
11867.720	47.06	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

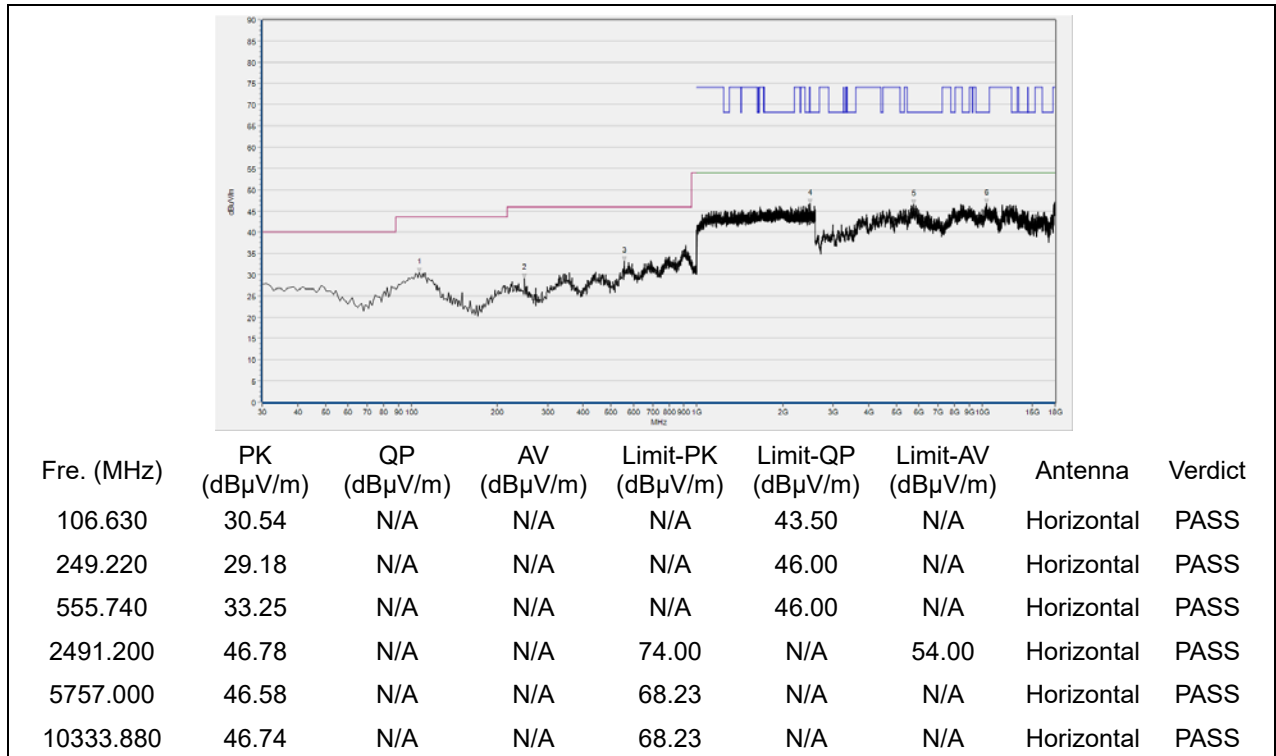
(Antenna Horizontal, 30MHz to 18GHz)



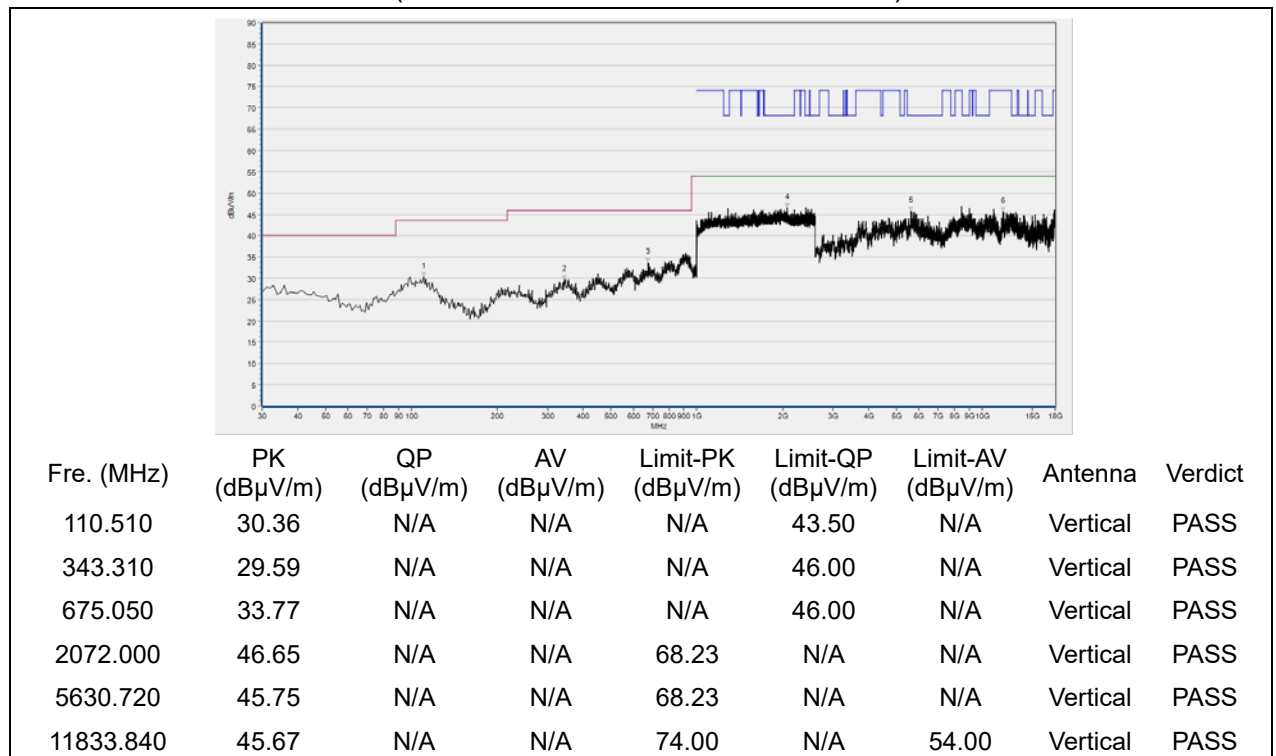
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
95.960	29.77	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
218.180	28.55	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
570.290	33.05	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2116.800	46.47	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5852.480	45.71	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10534.080	46.95	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 62



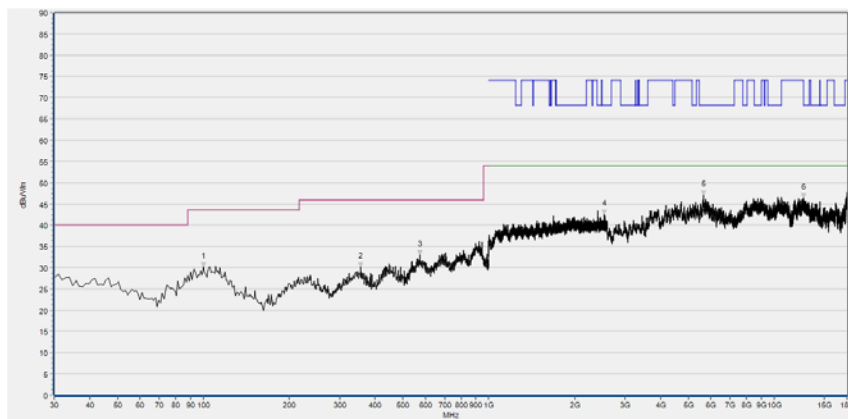
(Antenna Horizontal, 30MHz to 18GHz)



(Antenna Vertical, 30MHz to 18GHz)

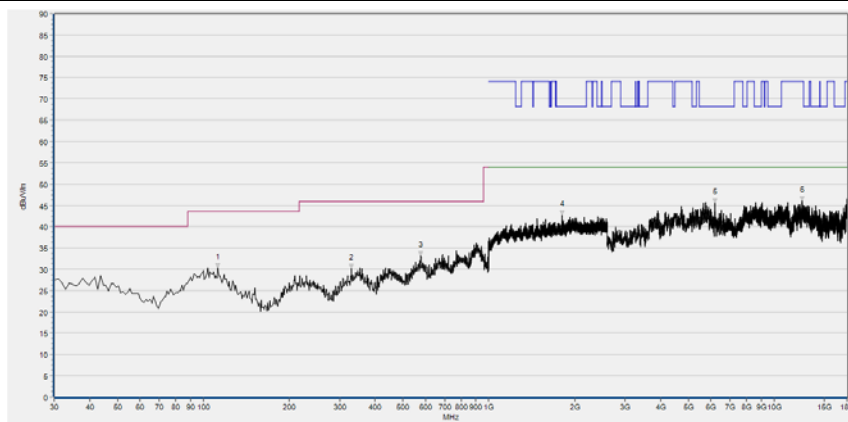


Plot for Channel 102



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
99.840	30.24	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
355.920	30.12	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
574.170	32.95	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2532.800	42.58	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5646.120	47.05	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12674.680	46.35	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

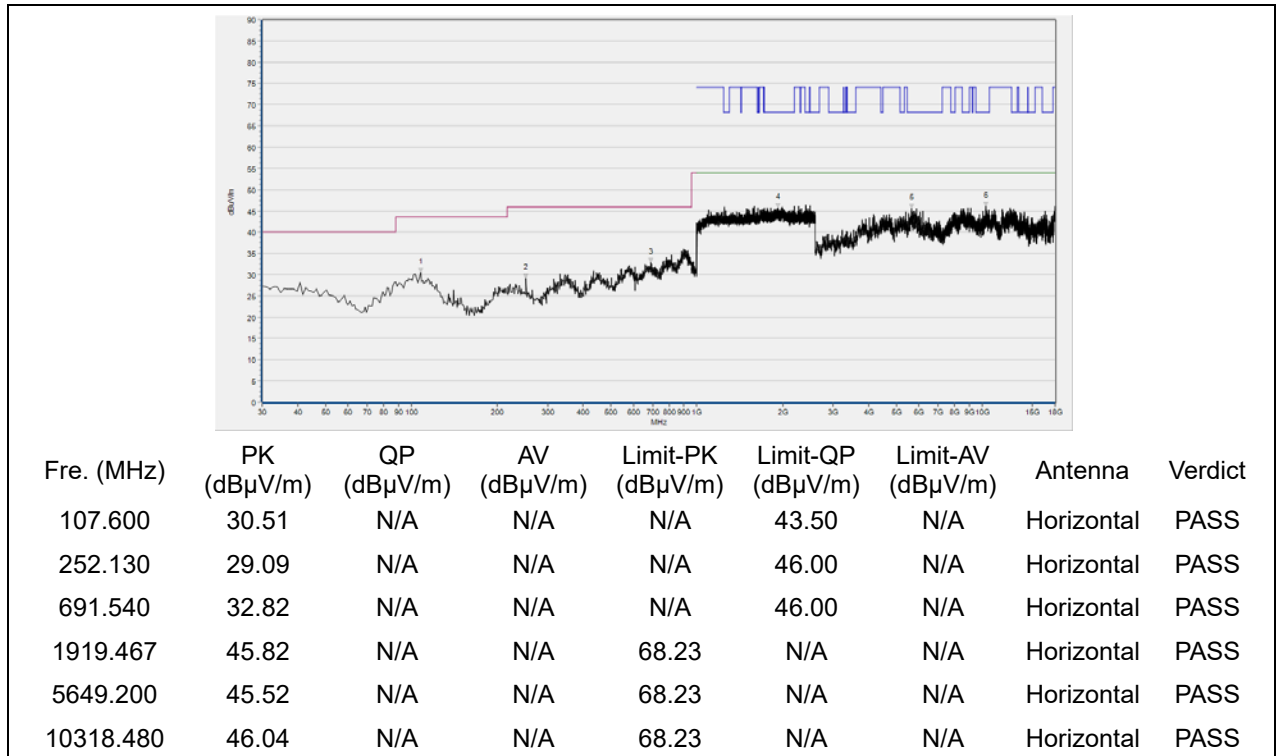
(Antenna Horizontal, 30MHz to 18GHz)



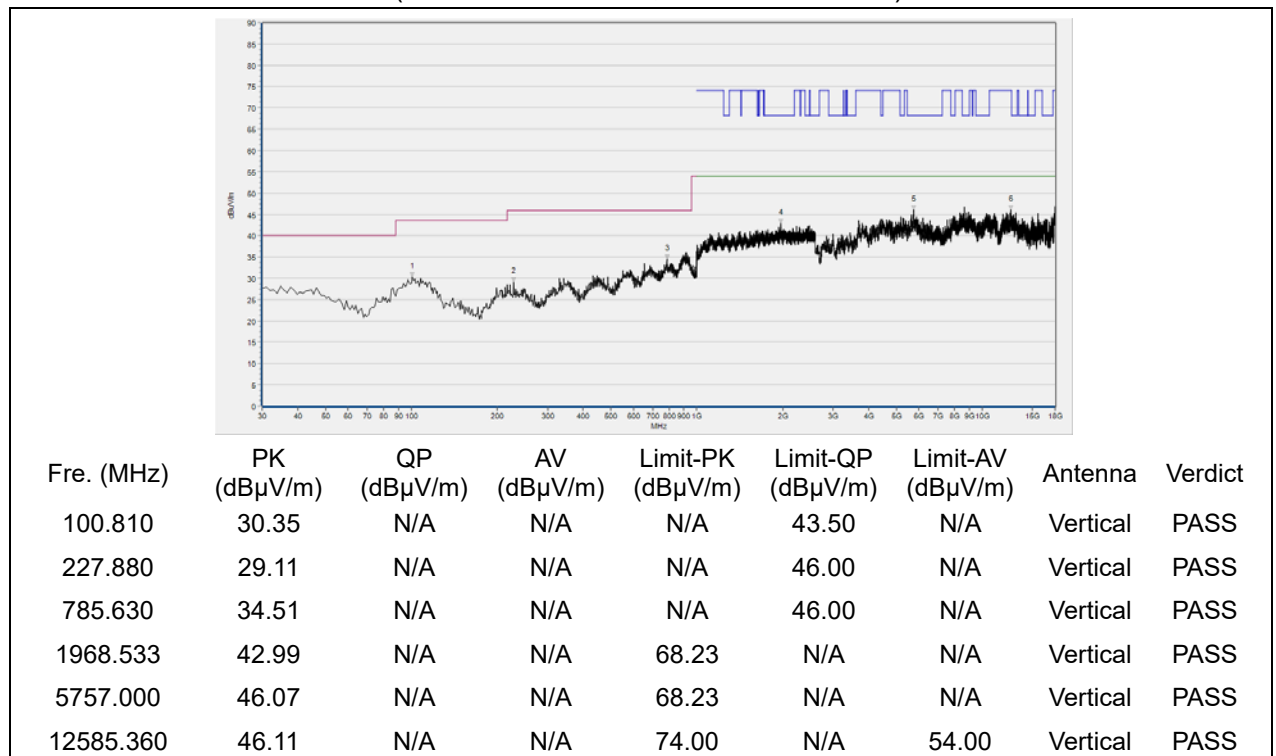
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
112.450	30.38	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
330.700	30.23	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
578.050	33.11	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1808.533	42.66	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
6200.520	45.57	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12523.760	46.07	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 126

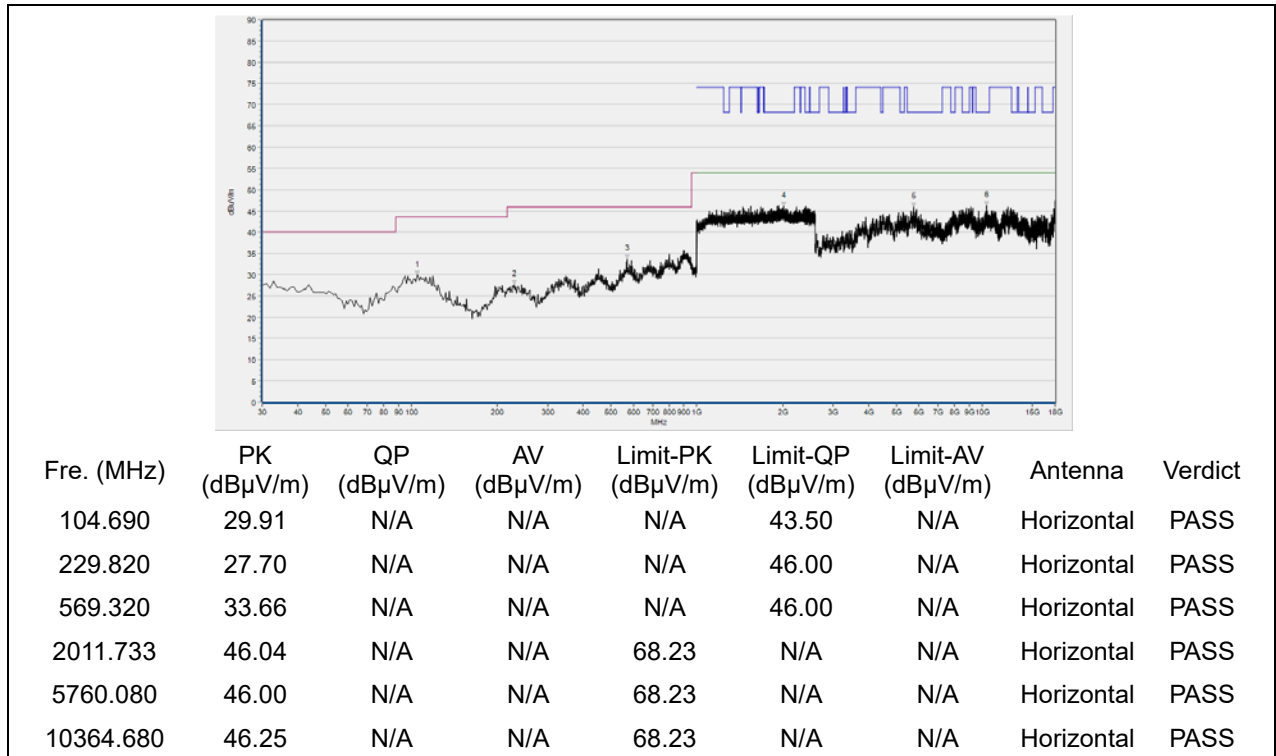


(Antenna Horizontal, 30MHz to 18GHz)

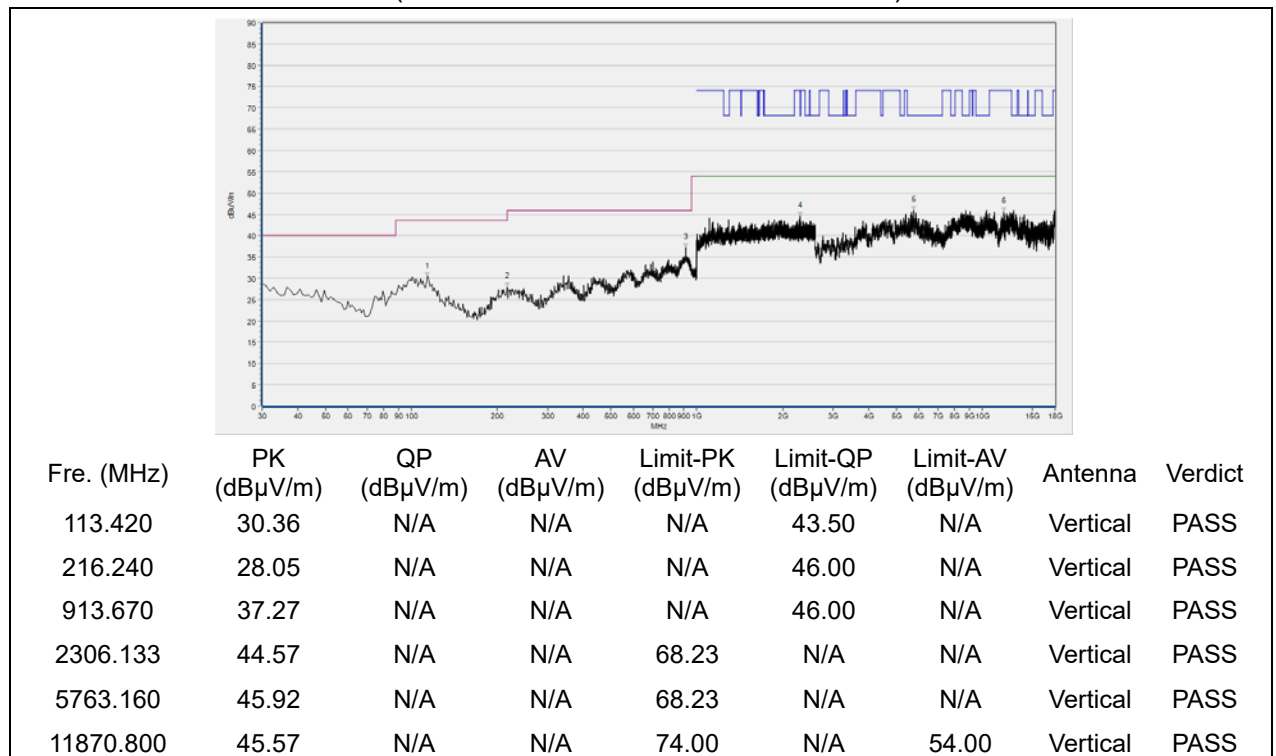


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 142



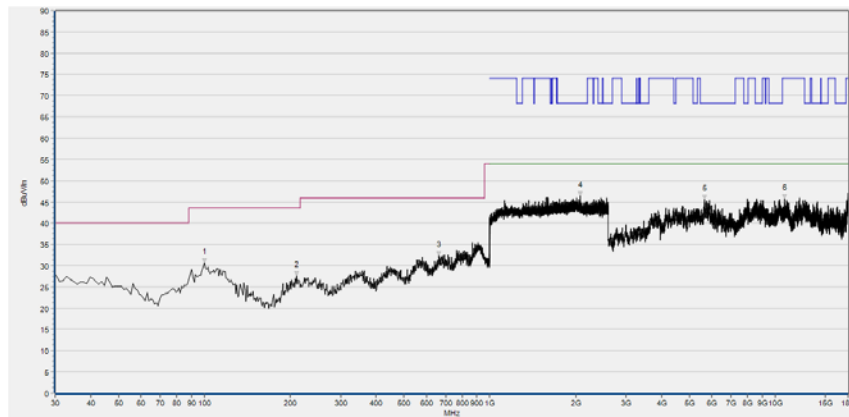
(Antenna Horizontal, 30MHz to 18GHz)



(Antenna Vertical, 30MHz to 18GHz)

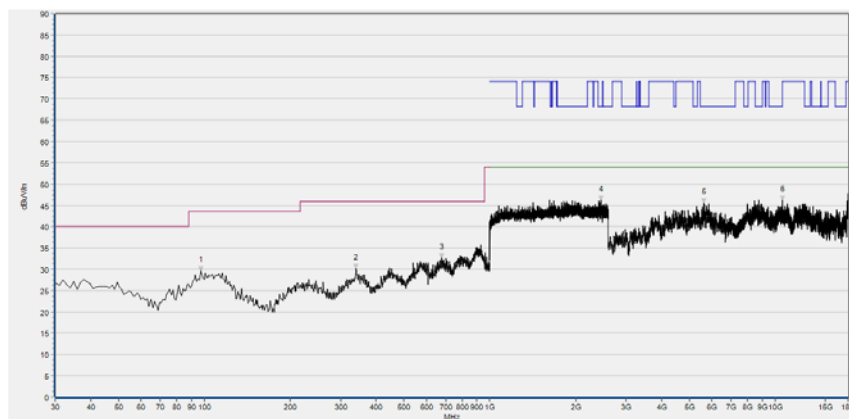


Plot for Channel 151



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
99.840	30.66	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
210.420	27.58	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
662.440	32.39	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2078.933	46.40	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5646.120	45.51	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
10780.480	45.80	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

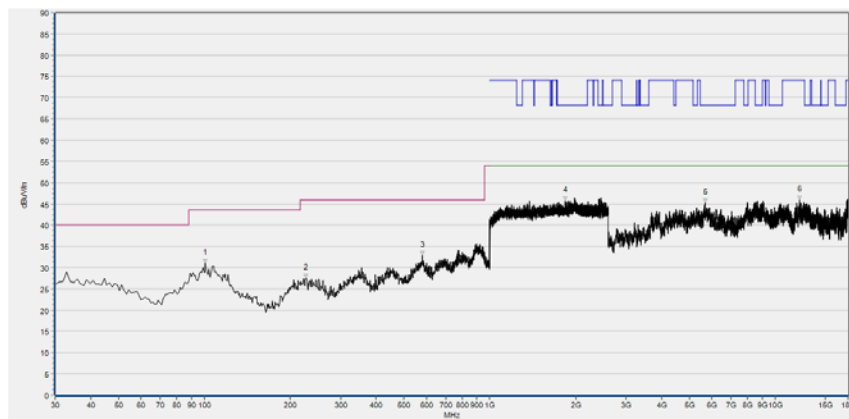


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
96.930	29.67	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
340.400	30.18	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
678.930	32.62	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2453.867	46.27	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5621.480	45.55	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10611.080	46.29	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

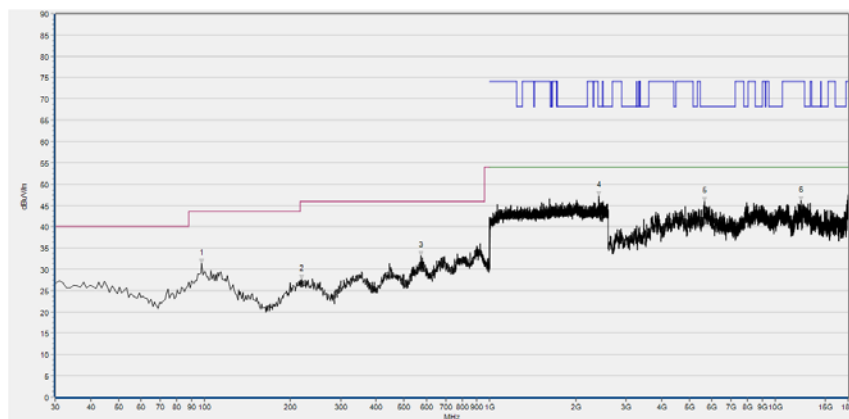


Plot for Channel 159



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
100.810	31.05	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
226.910	27.49	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
579.990	32.82	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1836.267	45.83	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5670.760	45.20	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12144.920	45.91	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

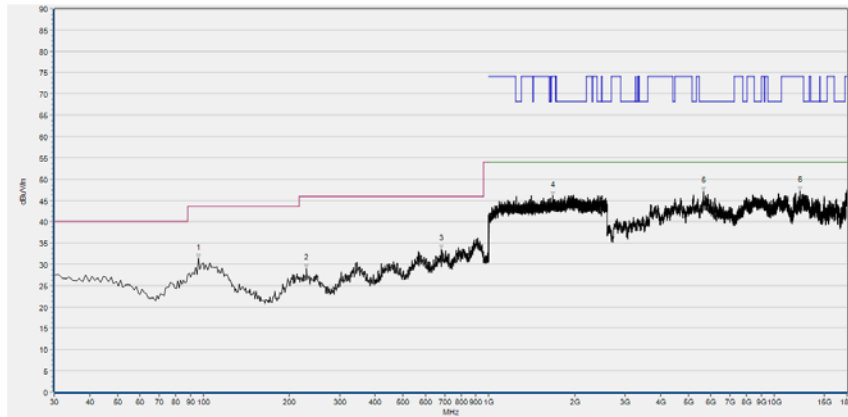


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
97.900	31.30	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
219.150	27.66	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
572.230	33.17	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2406.400	47.23	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5652.280	45.85	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12286.600	46.04	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

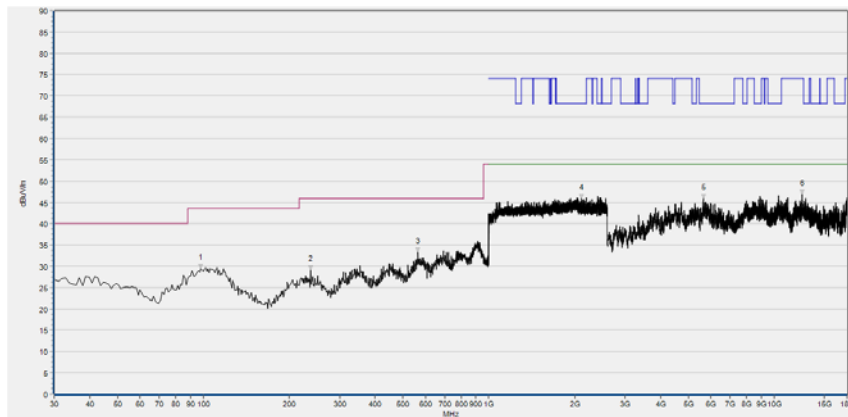
**802.11ac (VHT80) Mode**

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
95.960	31.40	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
229.820	28.92	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
681.840	33.45	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1678.933	46.06	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5646.120	47.16	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12292.760	47.21	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

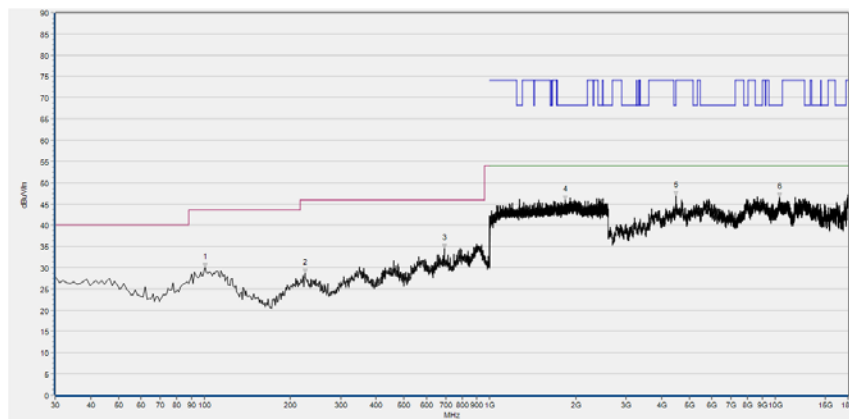


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
97.900	29.42	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
237.580	29.15	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
564.470	33.33	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2108.267	45.95	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5636.880	45.87	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12548.400	46.86	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

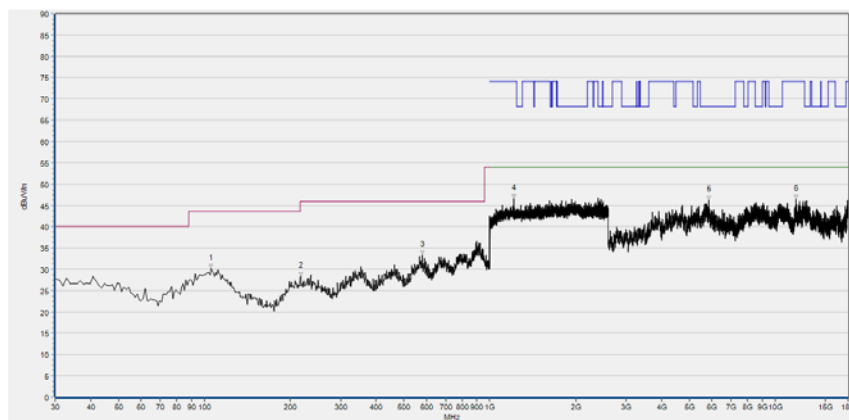


Plot for Channel 58



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
100.810	29.98	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
224.970	28.63	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
692.510	34.47	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1842.133	45.91	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
4491.120	46.89	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
10373.920	46.61	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

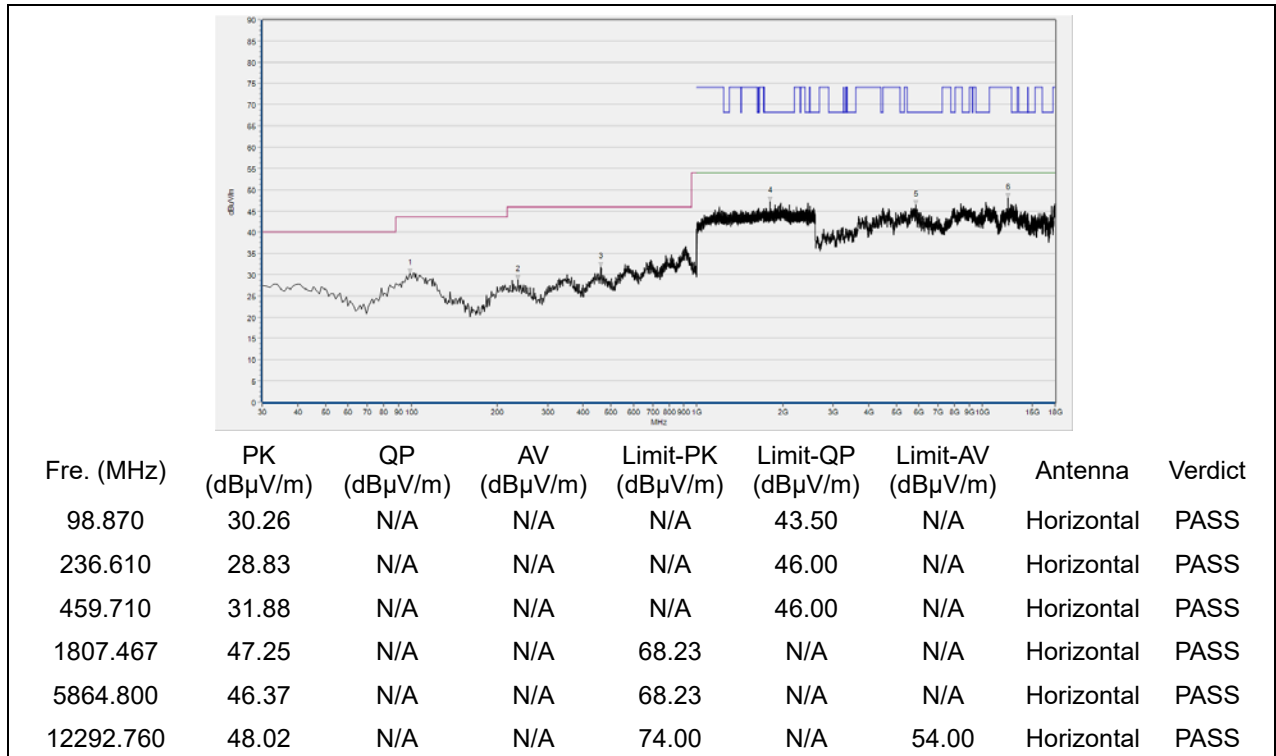


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
105.660	30.10	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
217.210	28.35	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
579.990	33.31	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1214.933	46.55	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5855.560	46.19	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
11818.440	46.51	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

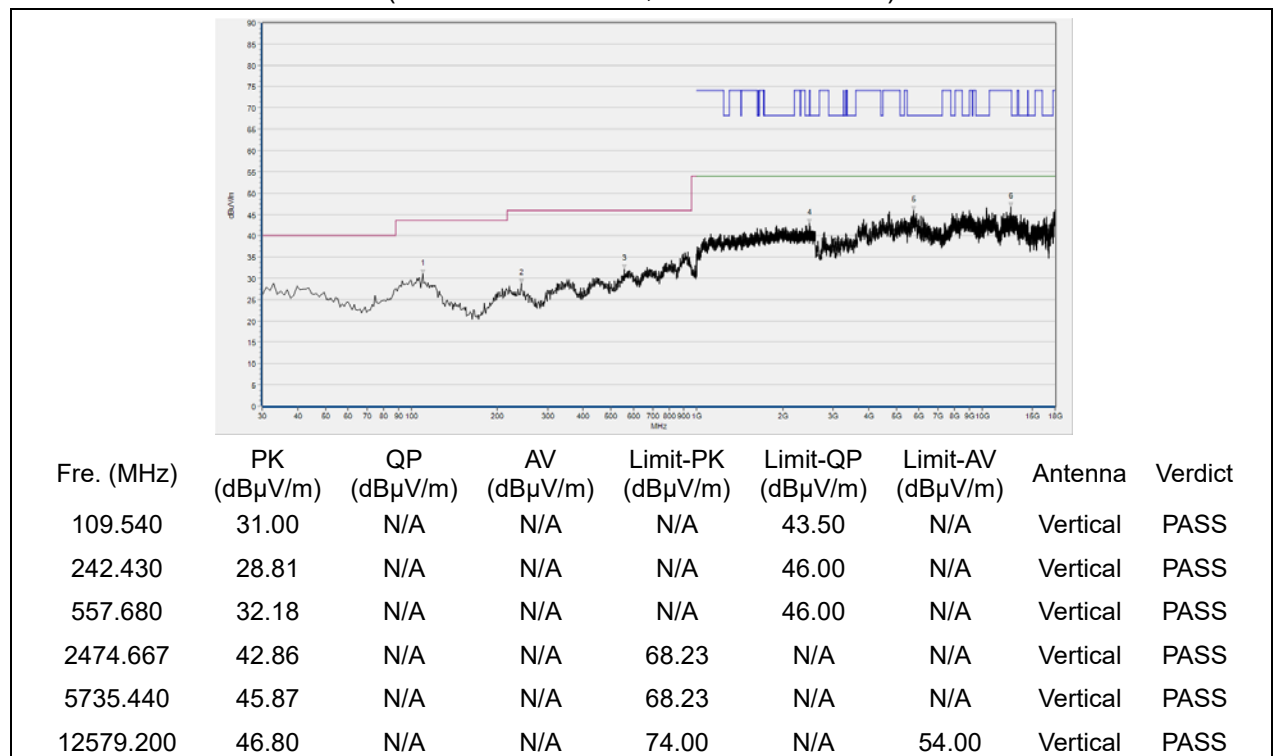
(Antenna Vertical, 30MHz to 18GHz)



Plot for Channel 106



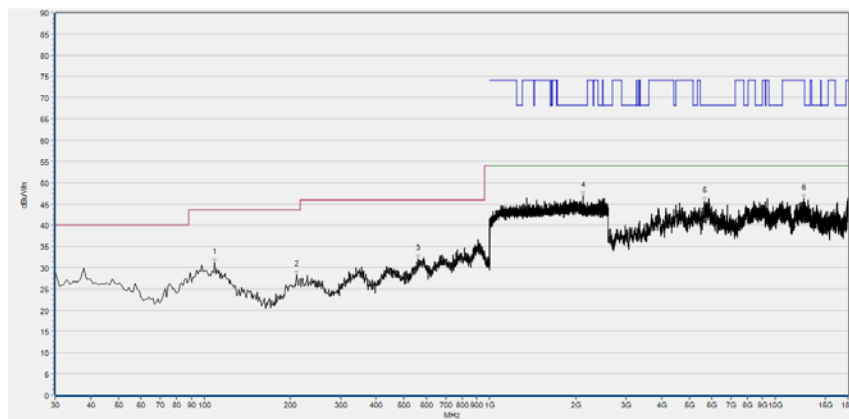
(Antenna Horizontal, 30MHz to 18GHz)



(Antenna Vertical, 30MHz to 18GHz)

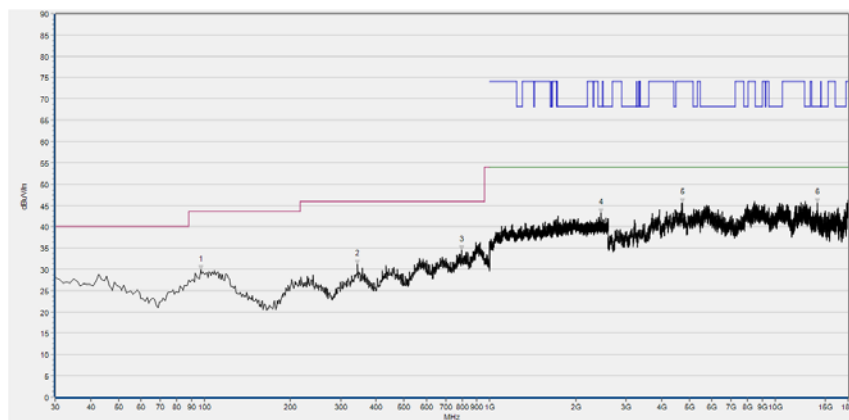


Plot for Channel 122



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
108.570	31.20	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
210.420	28.33	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
561.560	32.01	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2126.400	46.95	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5636.880	45.61	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12619.240	46.32	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

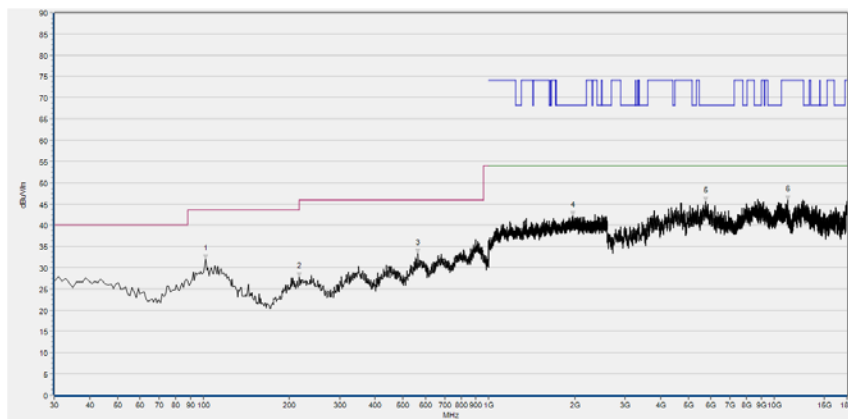


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
96.930	29.81	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
344.280	31.16	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
797.270	34.52	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2452.800	43.16	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
4725.200	45.57	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
14014.480	45.66	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

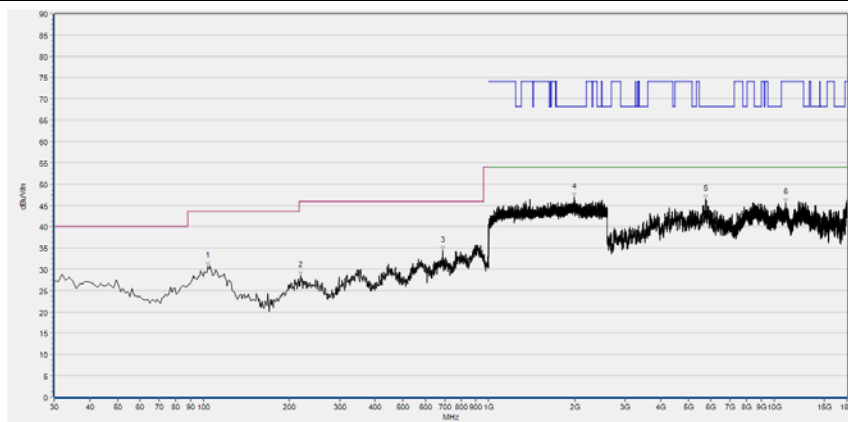


Plot for Channel 138



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
101.780	32.01	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
216.240	27.79	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
564.470	33.30	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1973.333	42.18	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5757.000	45.58	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
11125.440	45.91	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

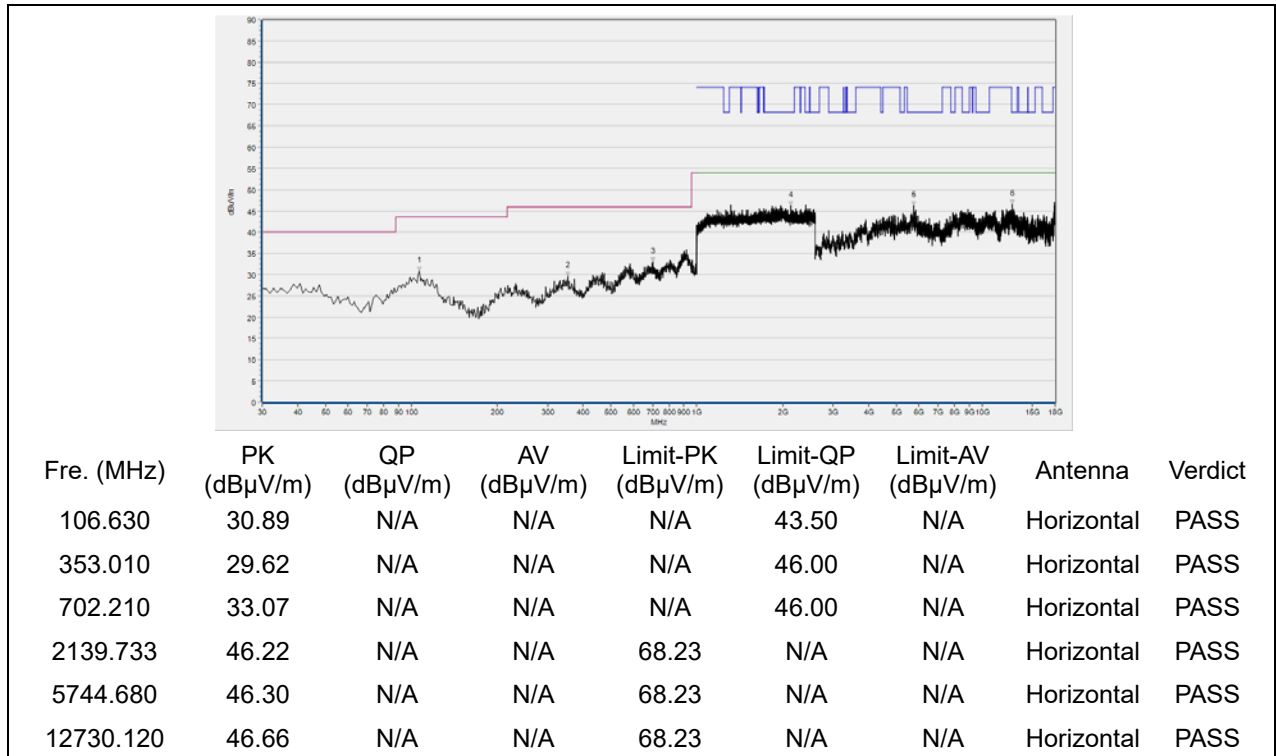
(Antenna Horizontal, 30MHz to 18GHz)



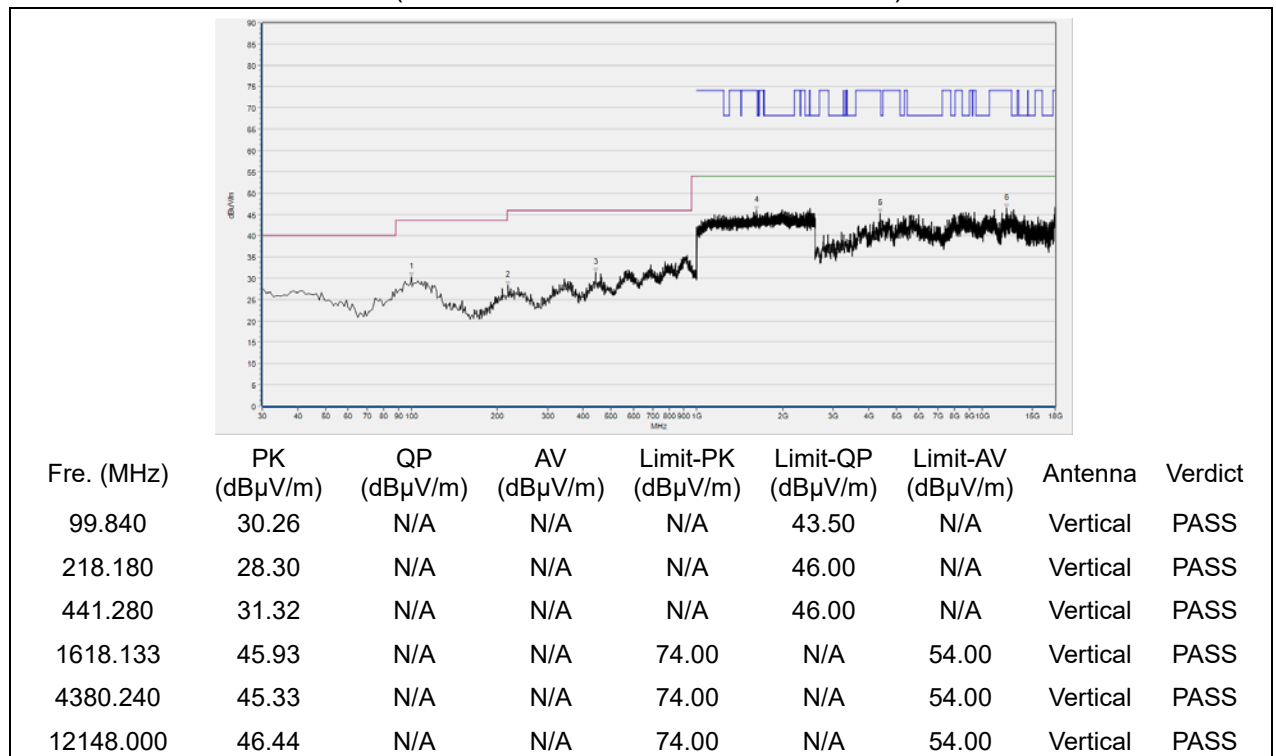
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
103.720	30.68	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
219.150	28.47	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
690.570	34.28	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1990.400	46.91	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5750.840	46.41	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10977.600	45.61	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 155



(Antenna Horizontal, 30MHz to 18GHz)



(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
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 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

4.2 List of Software Used

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

4.3 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)	CB03	EMC03	Morlab	N/A	N/A



(30MHz-26GHz)					
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
Anechoic Chamber	N/A	9m*6m*6m	CRT	2020.01.06	2023.01.05

————— END OF REPORT —————