

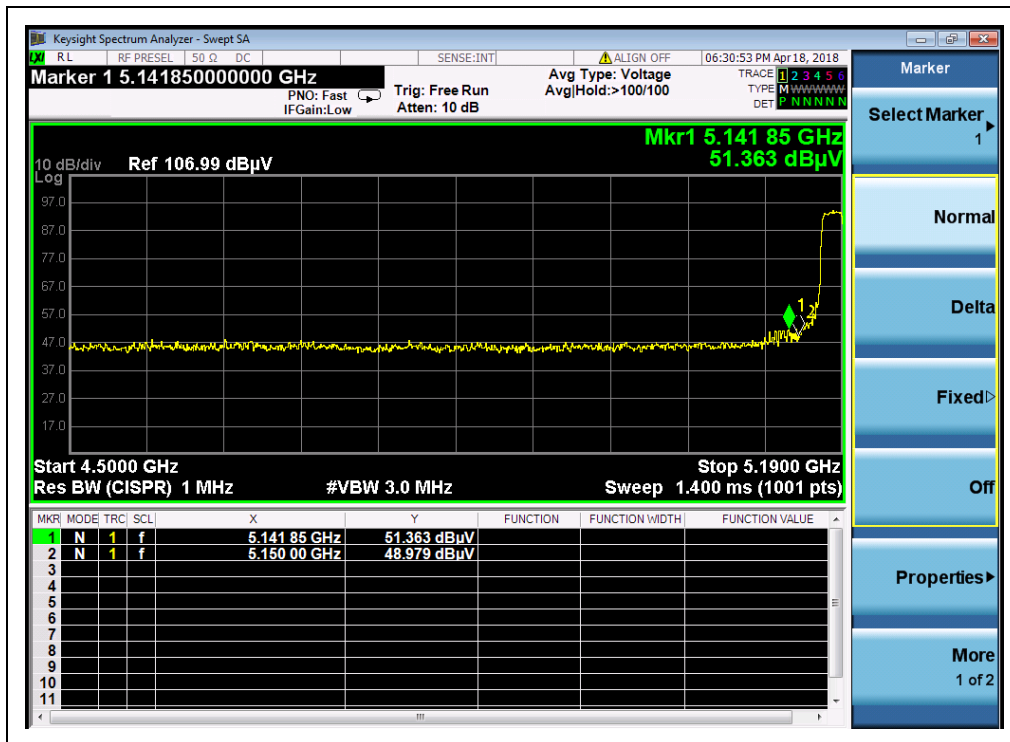


802.11 ac (VHT40) Test mode

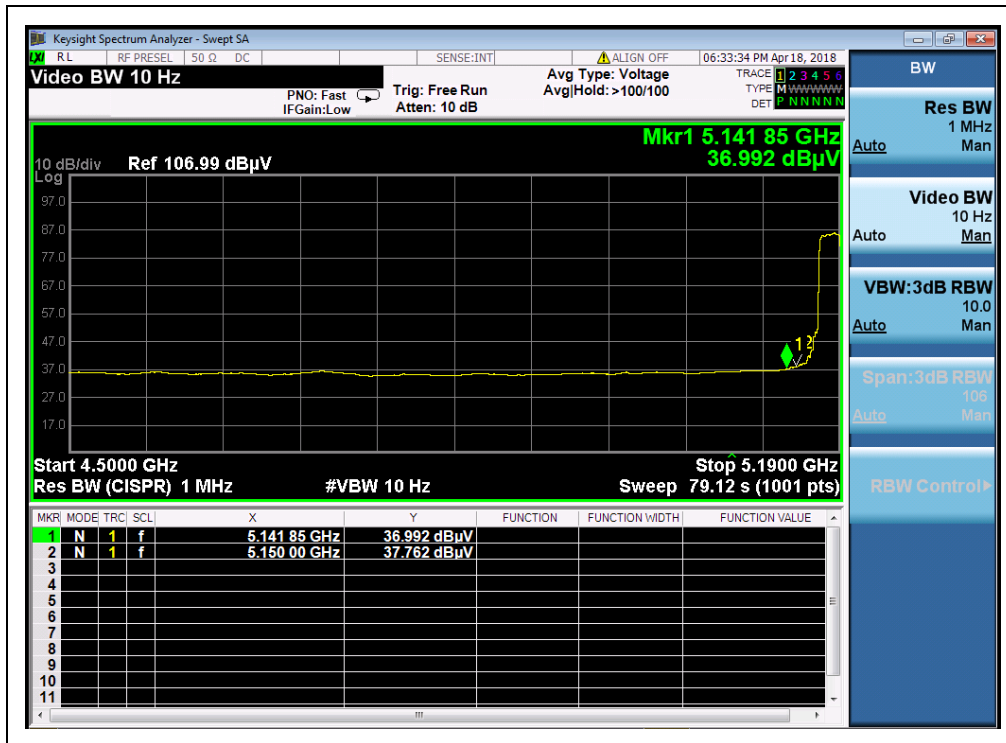
A. Test Verdict:

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 (dBuV)					
38	5141.85	PK	51.36	-50.65	32.11	32.82	74	PASS
38	5141.85	AV	36.99	-50.65	32.11	18.45	54	PASS
46	5360.58	PK	43.52	-50.65	32.11	24.98	74	PASS
46	5360.58	AV	34.40	-50.65	32.11	15.86	54	PASS
151	5723.14	PK	56.82	-50.65	32.11	38.28	117.99	PASS
151	5720.00	AV	44.98	-50.65	32.11	26.44	54	PASS
159	5858.35	PK	57.64	-50.65	32.11	39.10	101.45	PASS
159	5853.84	AV	37.51	-50.65	32.11	18.97	54	PASS

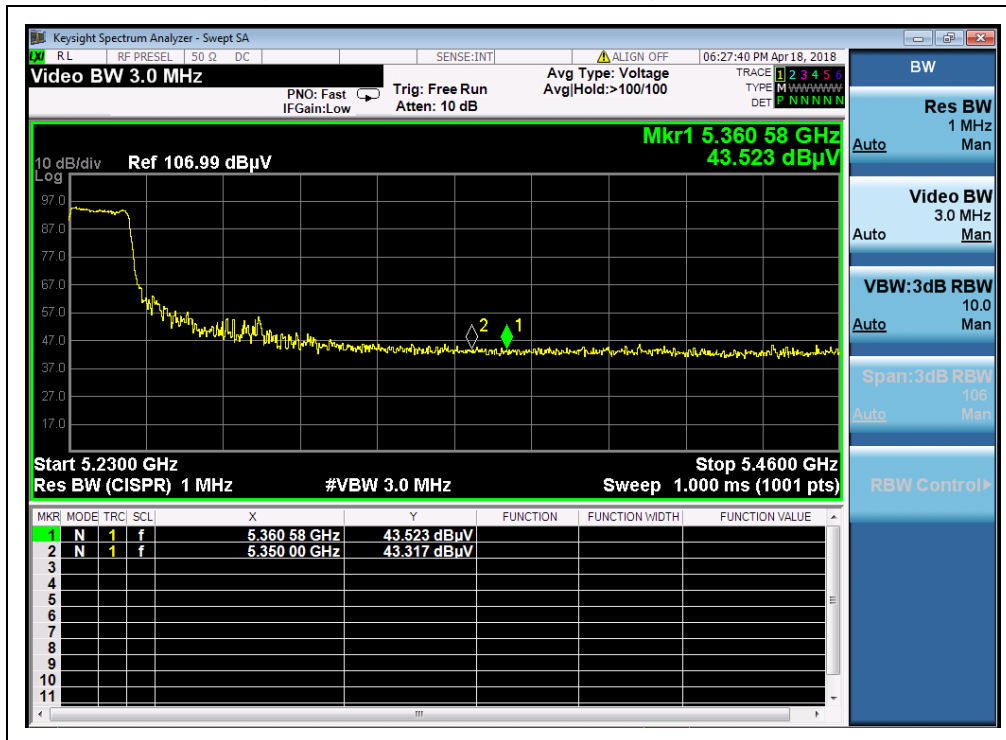
B. Test Plots:



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



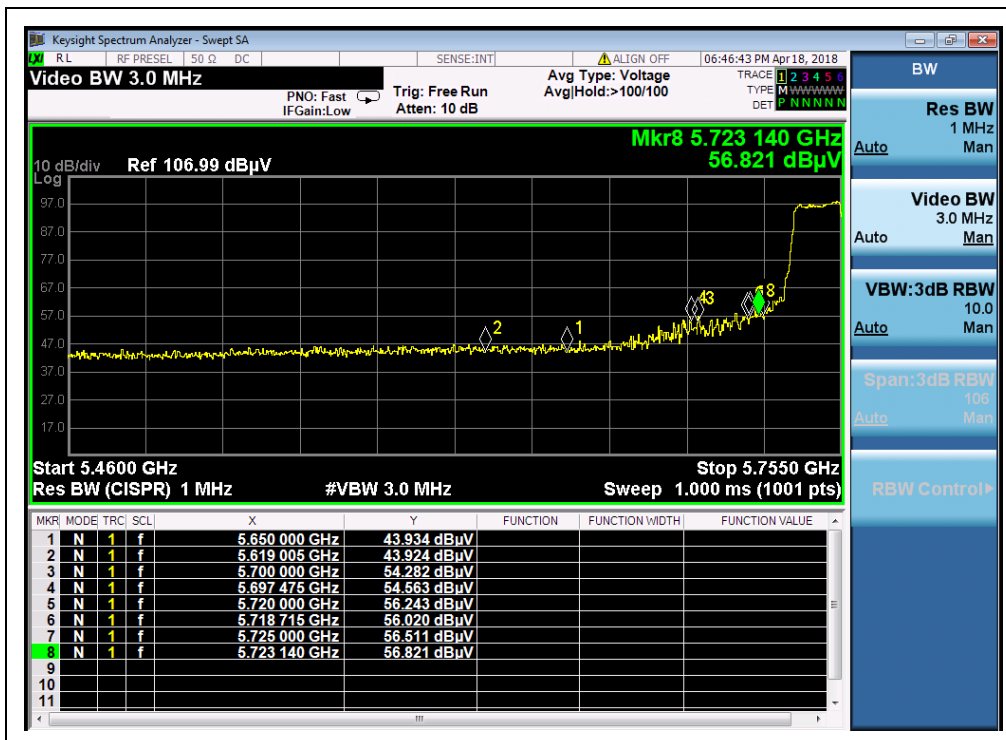
(Channel 38, AVG, 802.11 ac (VHT40))



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



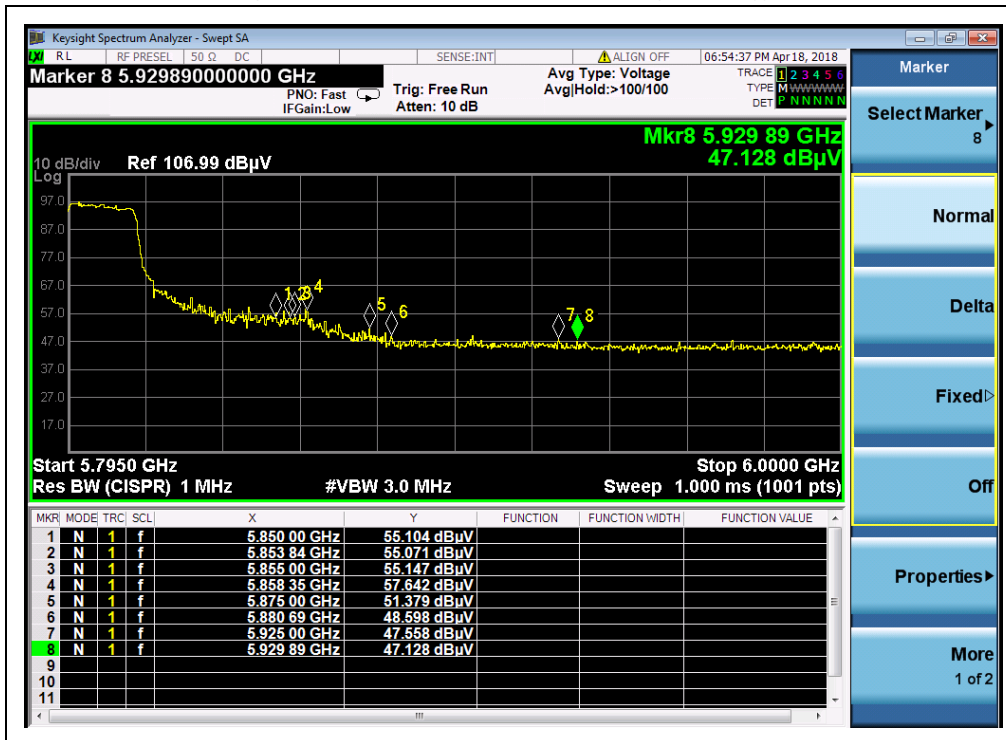
(Channel 46, AVG, 802.11 ac (VHT40))



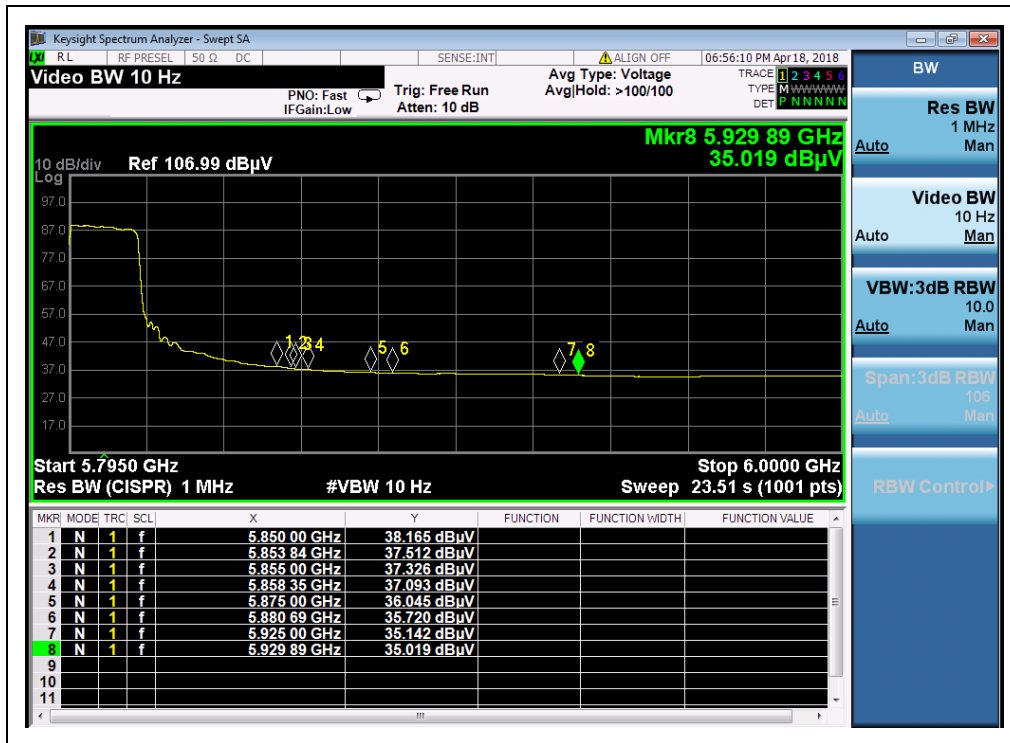
(Channel 151, PEAK, 802.11 ac (VHT40))



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



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



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

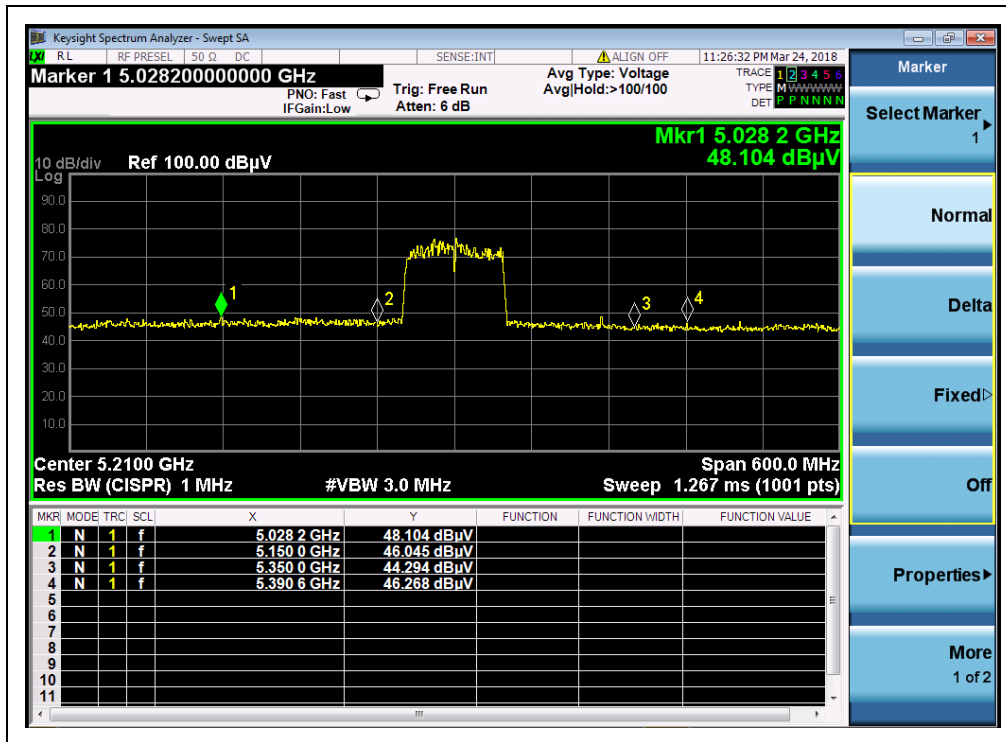


802.11ac (VHT80) Test mode

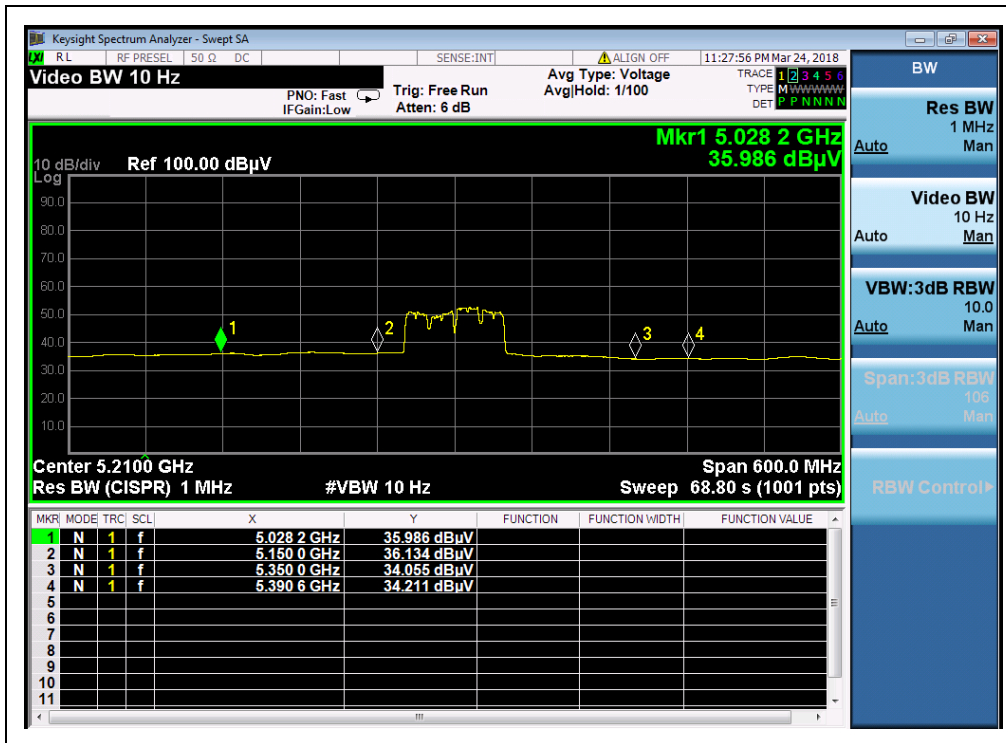
A. Test Verdict:

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

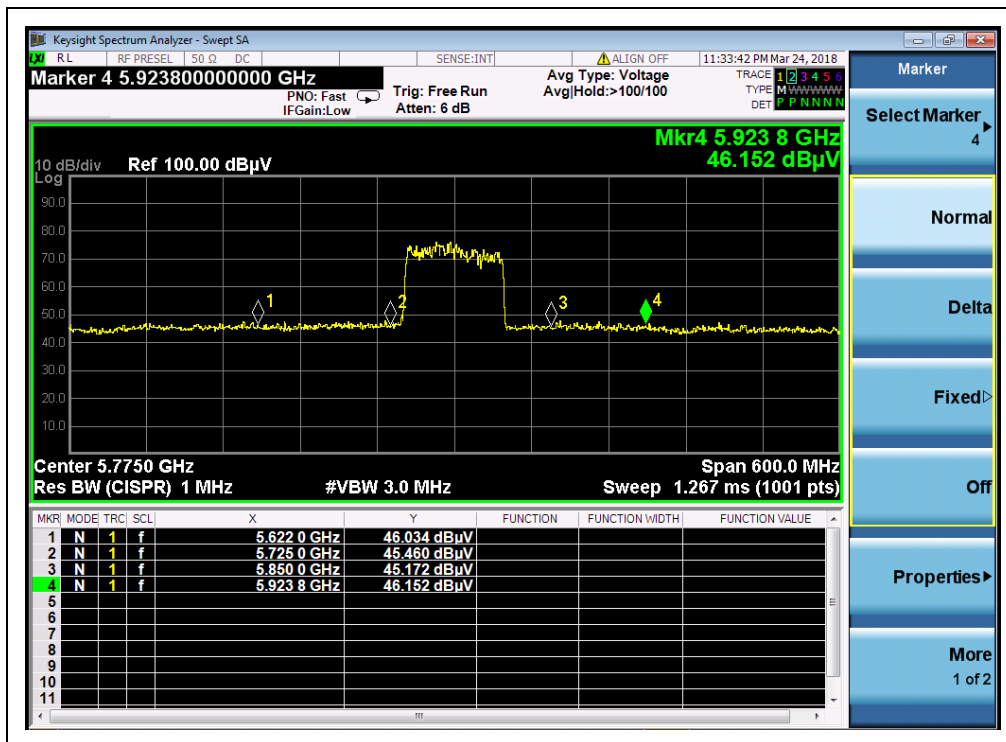
B. Test Plots:



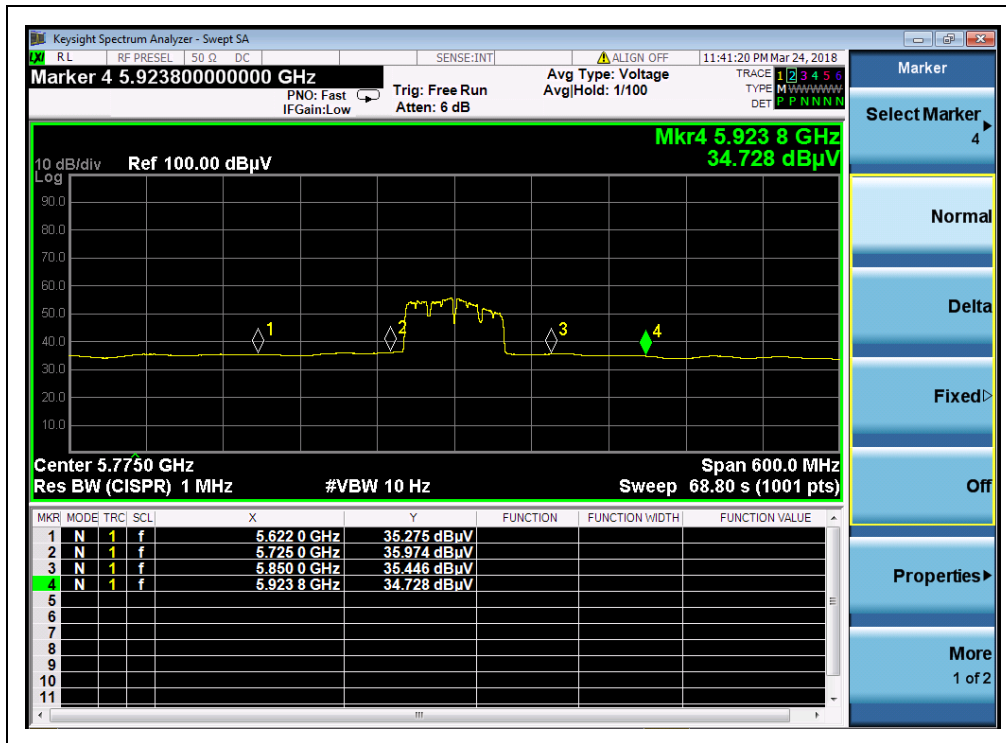
(Channel 42, PEAK, 802.11ac (VHT80))



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



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



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



2.6. Frequency Stability

2.6.1. Requirement

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

2.6.2. Test Procedure

The EUT was placed inside of an environmental chamber as the temperature in the chamber. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

2.6.3. Test Result

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

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



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

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

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

2.7. Conducted Emission

2.7.1. Requirement

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

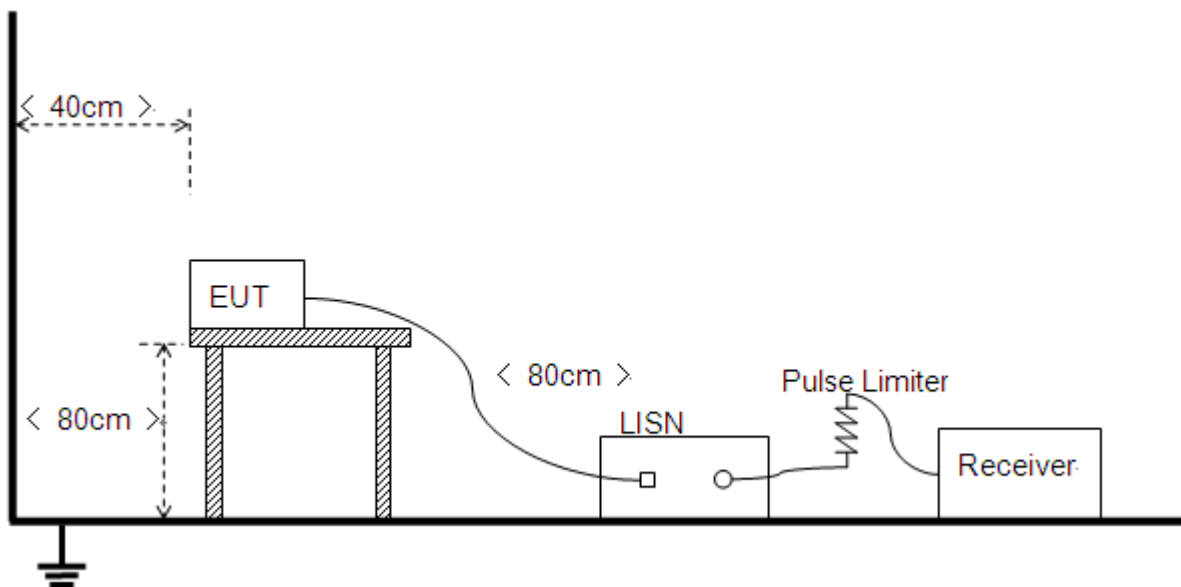
Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

NOTE:

- (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

A. Test Setup:



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

2.7.3. Test Result

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

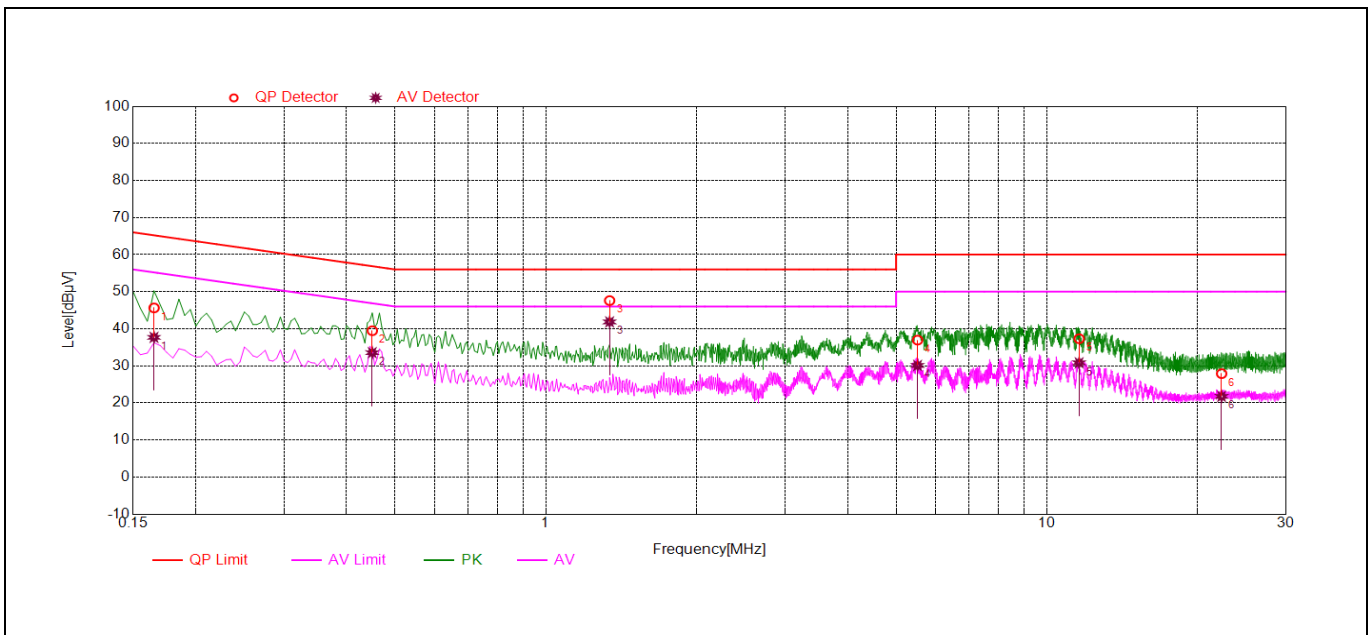
Note: All test modes are performed, only the worst case is recorded in this report.

A. Test setup:

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

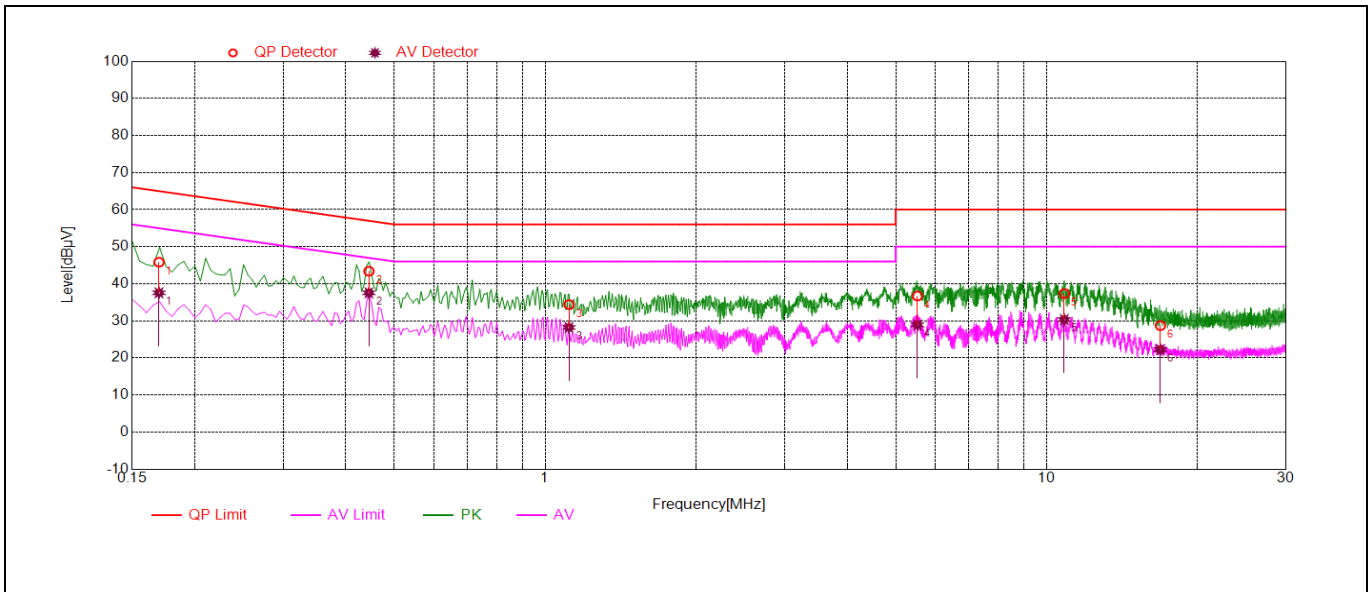
Note: The test voltage is AC 120V/60Hz.

B. Test Plots:



(Plot A: L Phase)

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



(Plot B: N Phase)

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



2.8. Radiated Emission

2.8.1. Requirement

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

- (1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.
- (2) For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.
- (3) For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band: all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. The following formula is used to convert the equipment isotropic radiated power(eirp) to field strength (dBμV/m);

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

where P is the EIRP in Watts

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

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

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

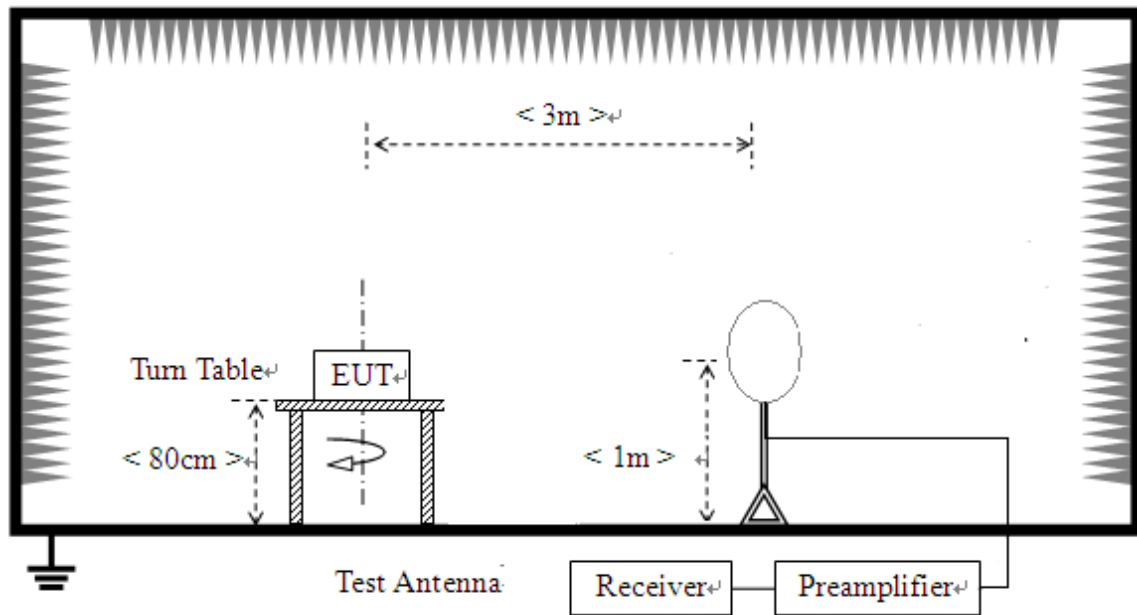
For Above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.

In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), also should comply with the radiated emission limits specified in Section 15.209(a)(above table)

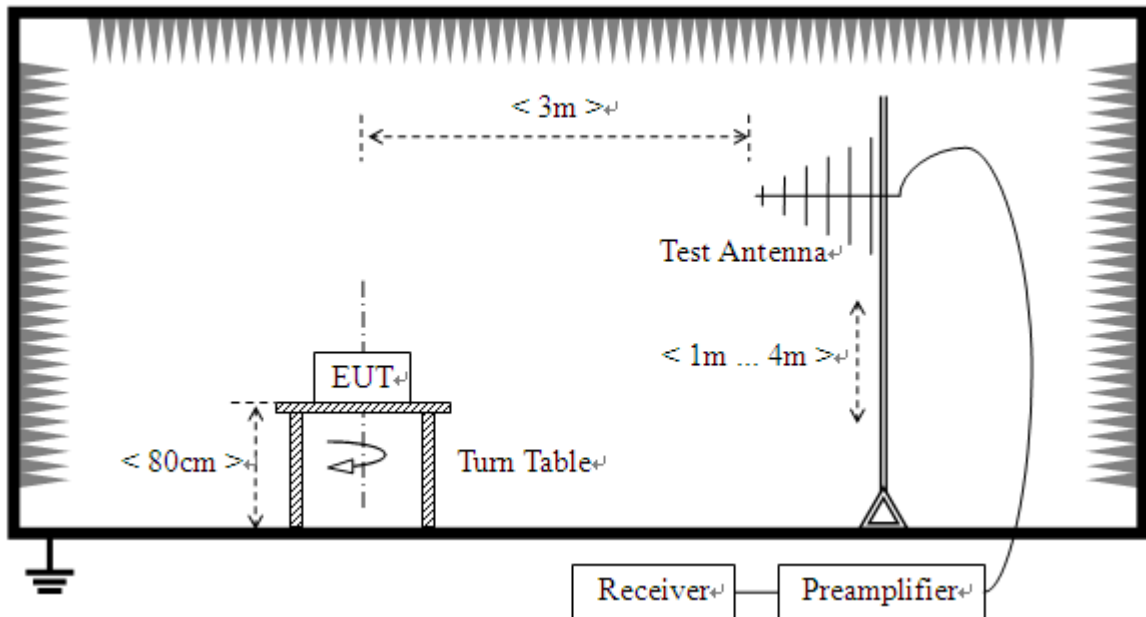
2.8.2. Test Description

A. Test Setup:

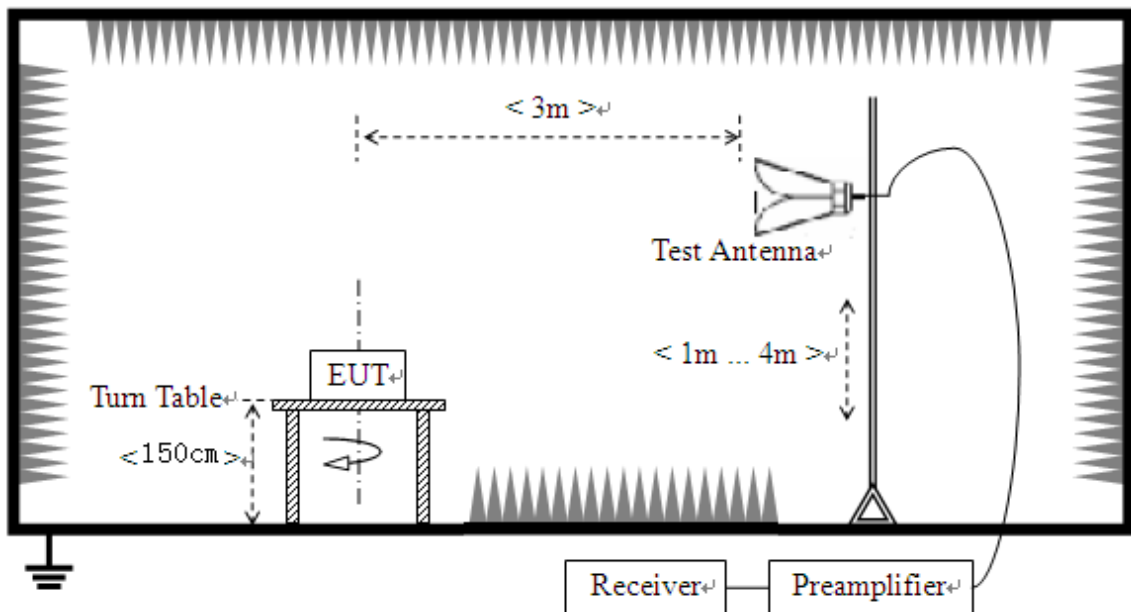
- 1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz to1GHz



3) For radiated emissions above 1GHz



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

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



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

For the radiated emission test above 1GHz:

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

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

For the Test Antenna:

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

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



2.8.3. Test Result

According to ANSI C63.4 selection 4.2.2, because of peak detection will yield amplitudes equal to or greater than amplitudes measured with the quasi-peak (or average) detector, the measurement data from a spectrum analyzer peak detector will represent the worst-case results, if the peak measured value complies with the quasi-peak limit, it is unnecessary to perform an quasi-peak measurement.

The measurement results are obtained as below:

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

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.

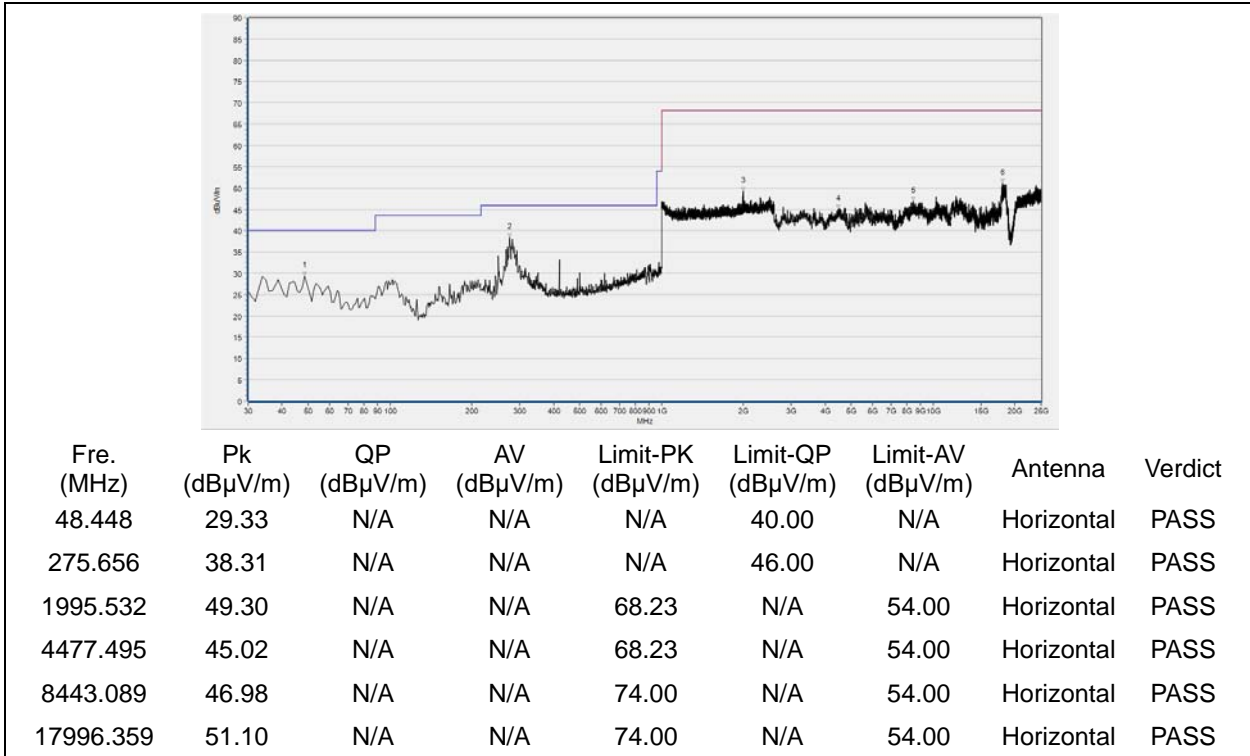
Note1: All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

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

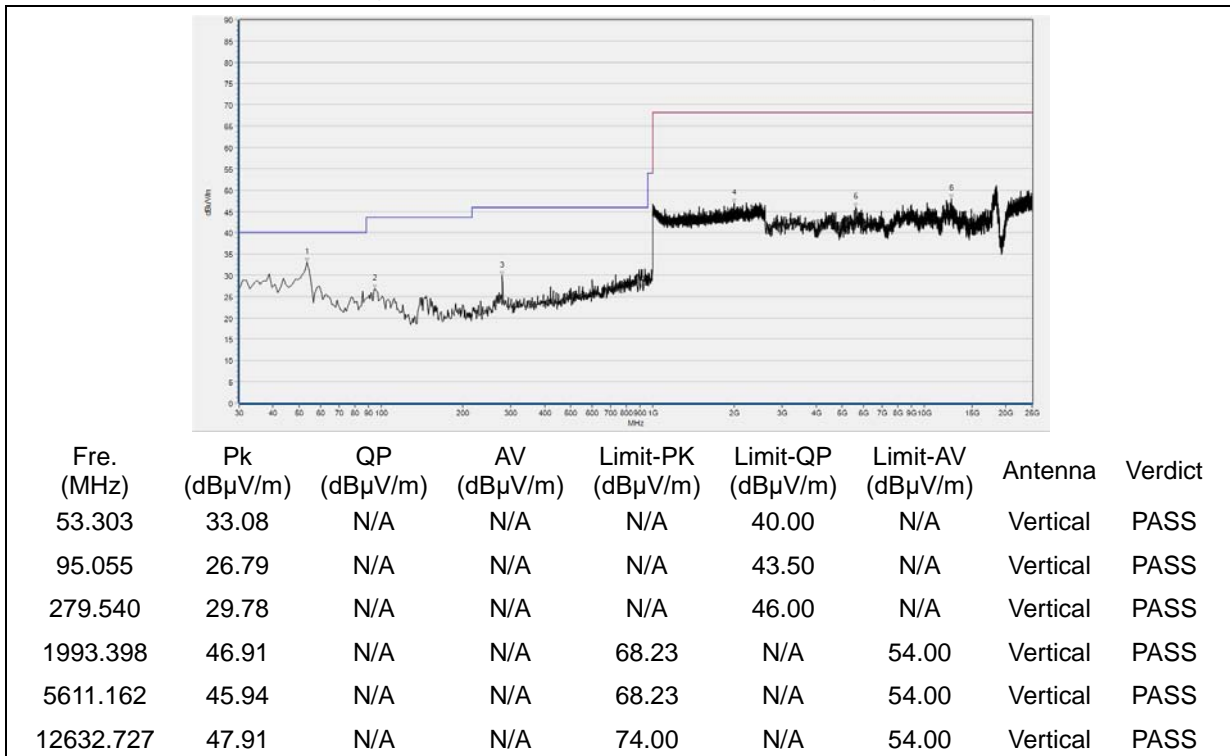
Note3: For the frequency, which started from 18GHz to 40GHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

802.11a Test mode

Plots for Channel = 36

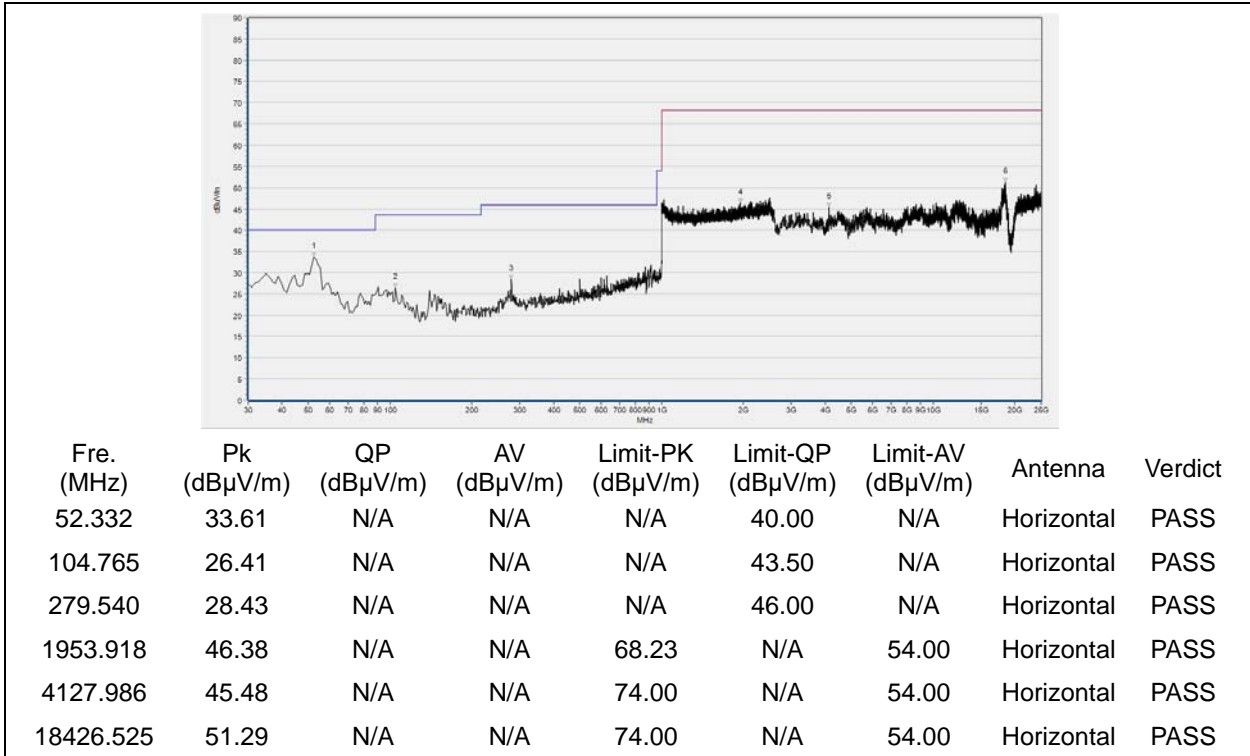


(Antenna Horizontal, 30MHz to 18GHz)

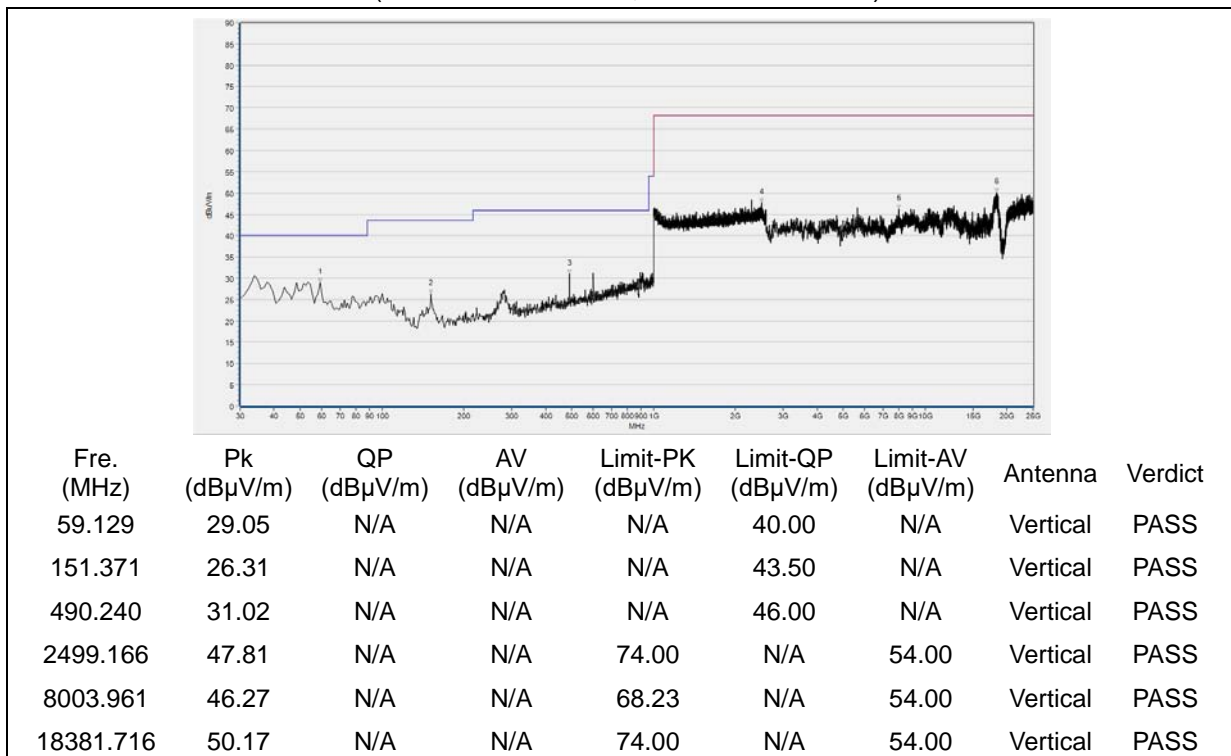


(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 44

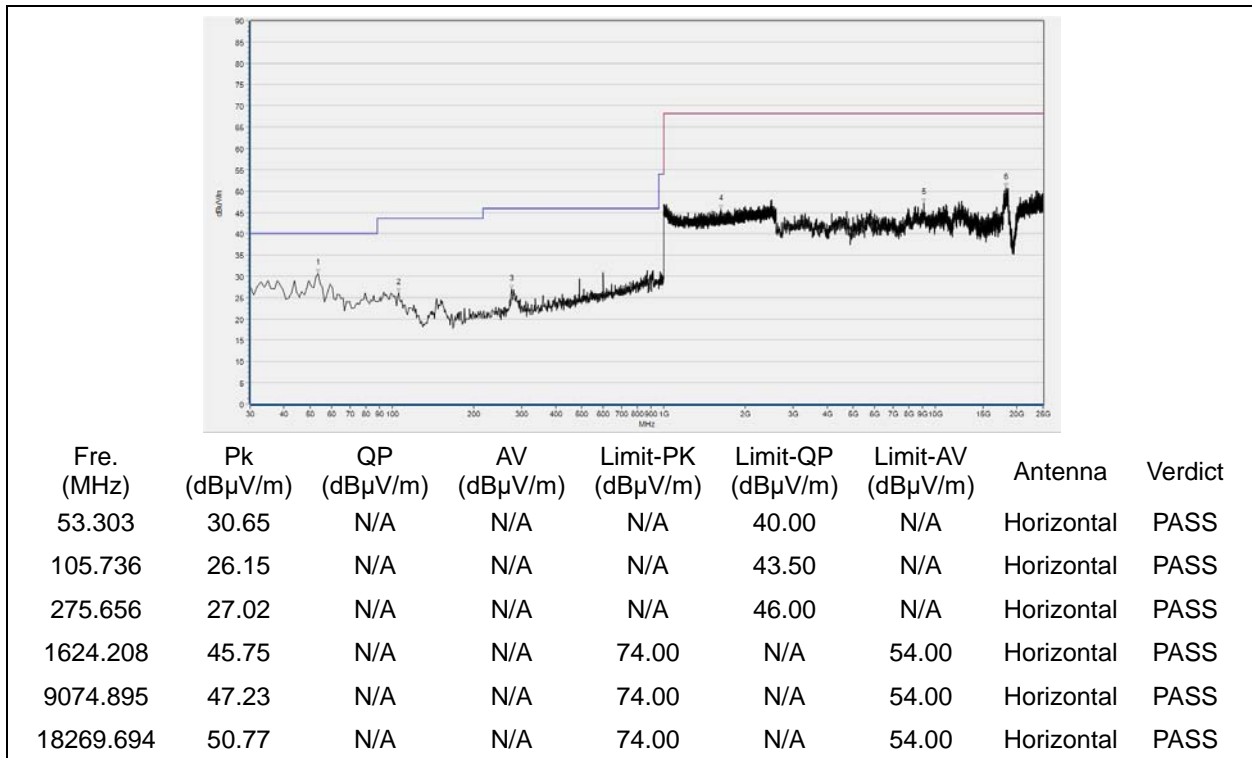


(Antenna Horizontal, 30MHz to 18GHz)

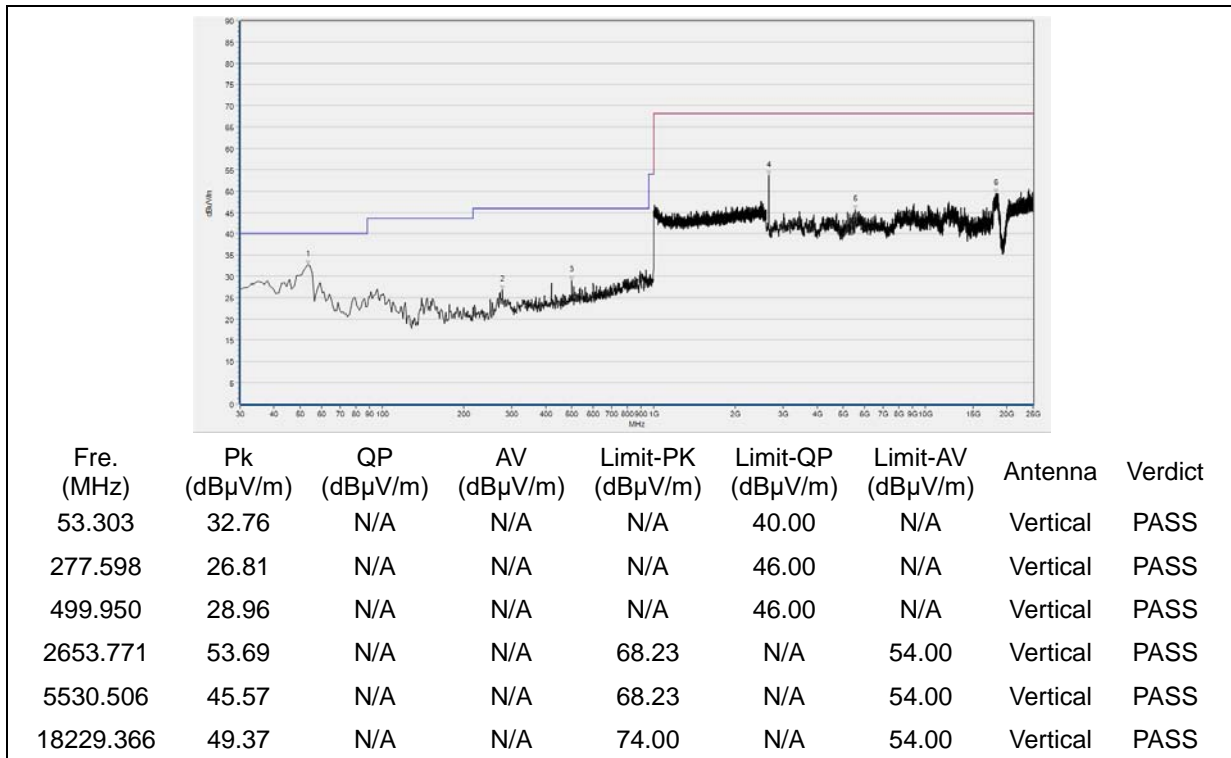


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 48

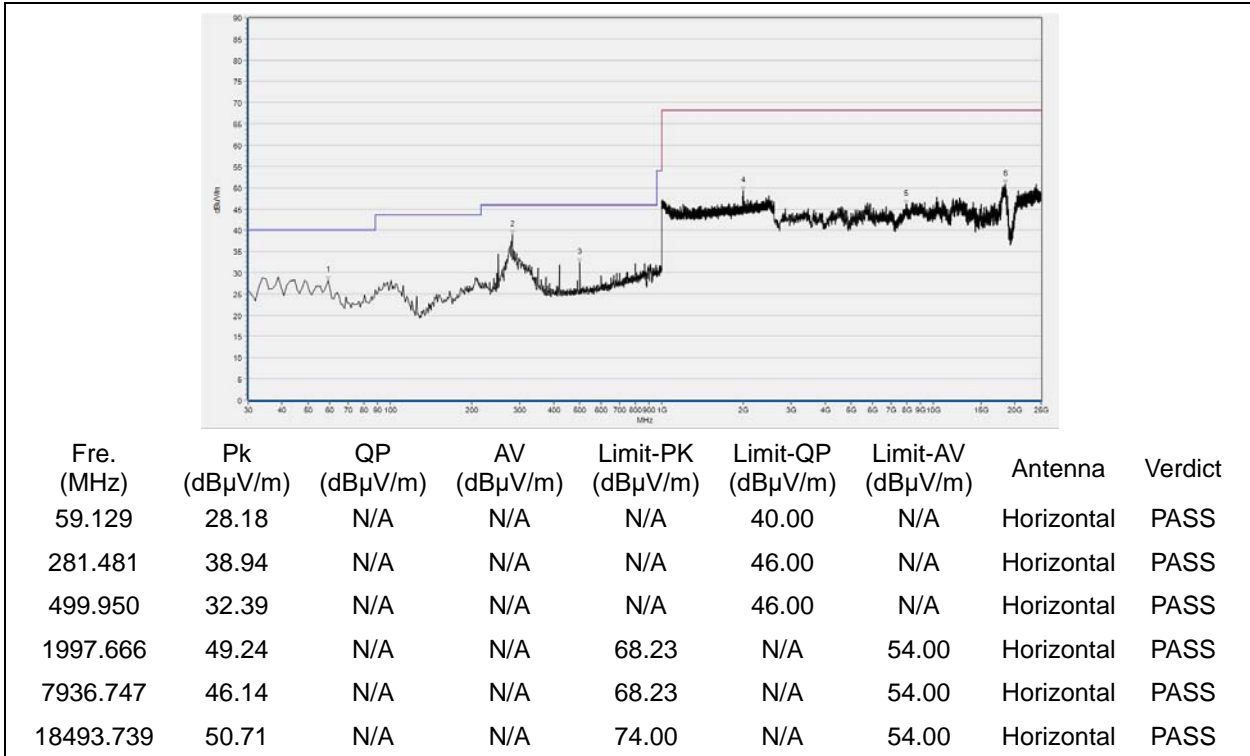


(Antenna Horizontal, 30MHz to 18GHz)

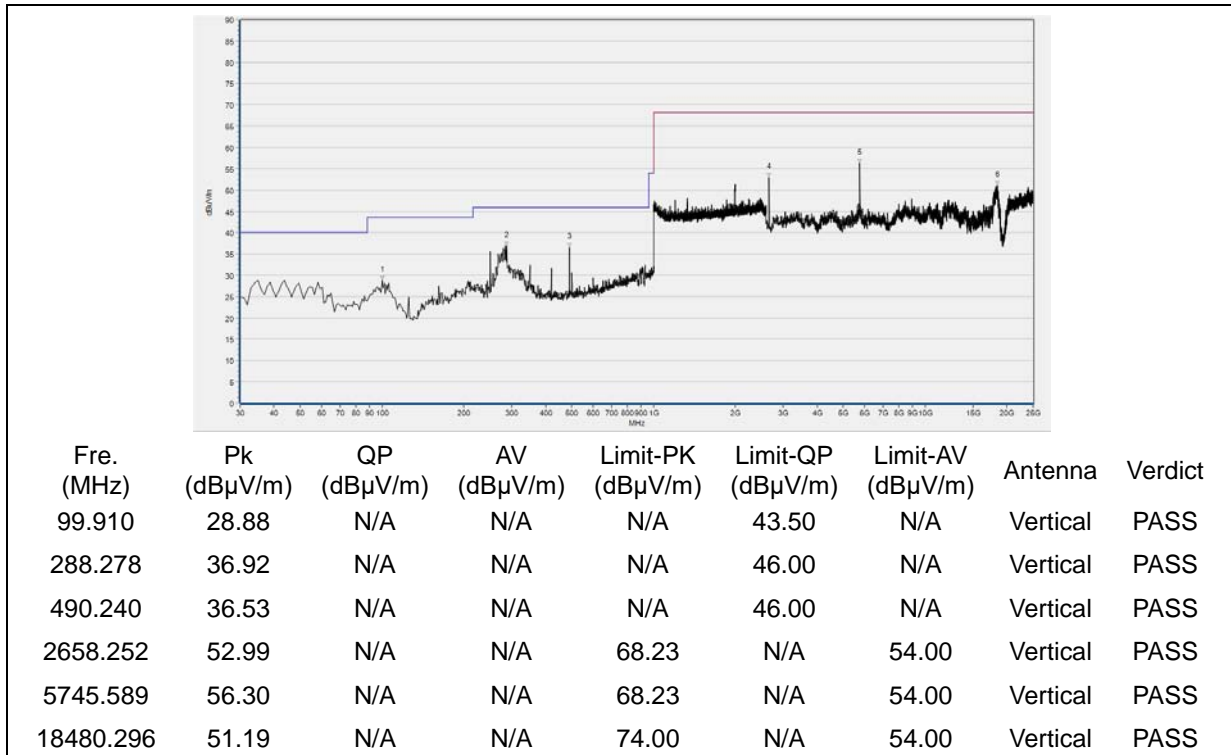


(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 149

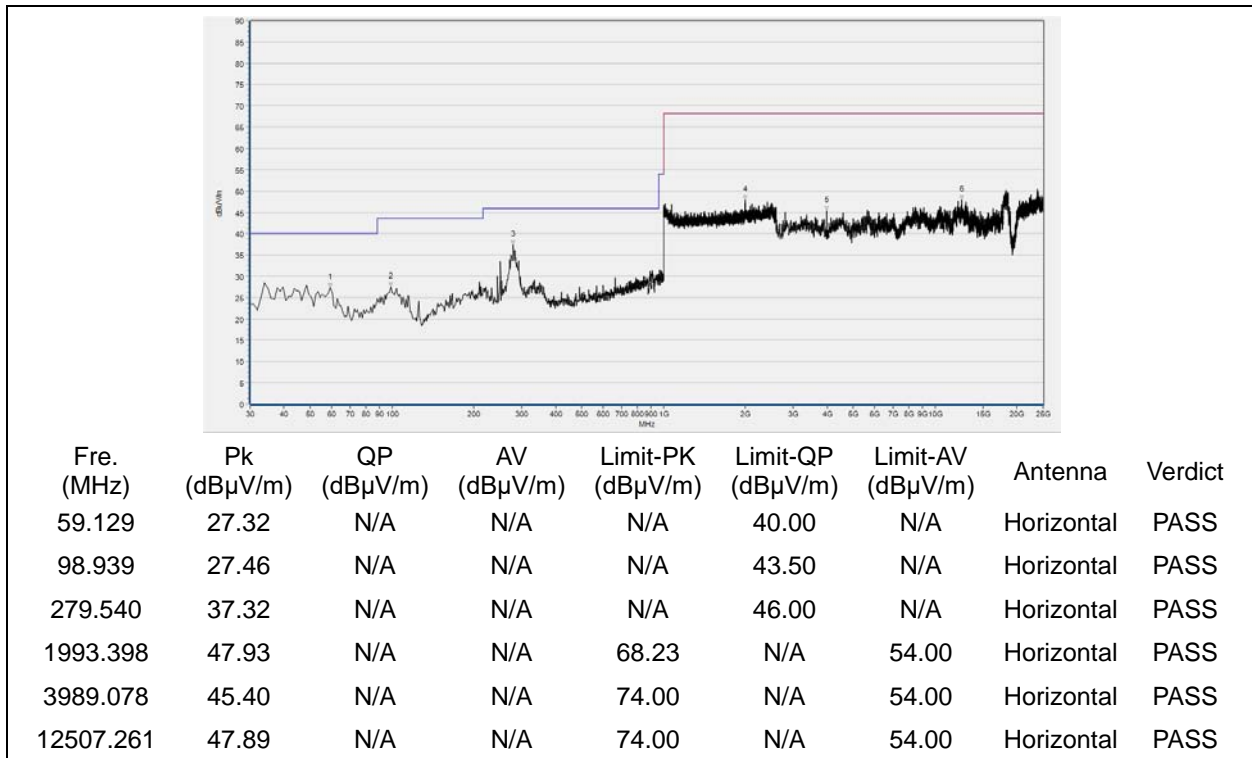


(Antenna Horizontal, 30MHz to 18GHz)

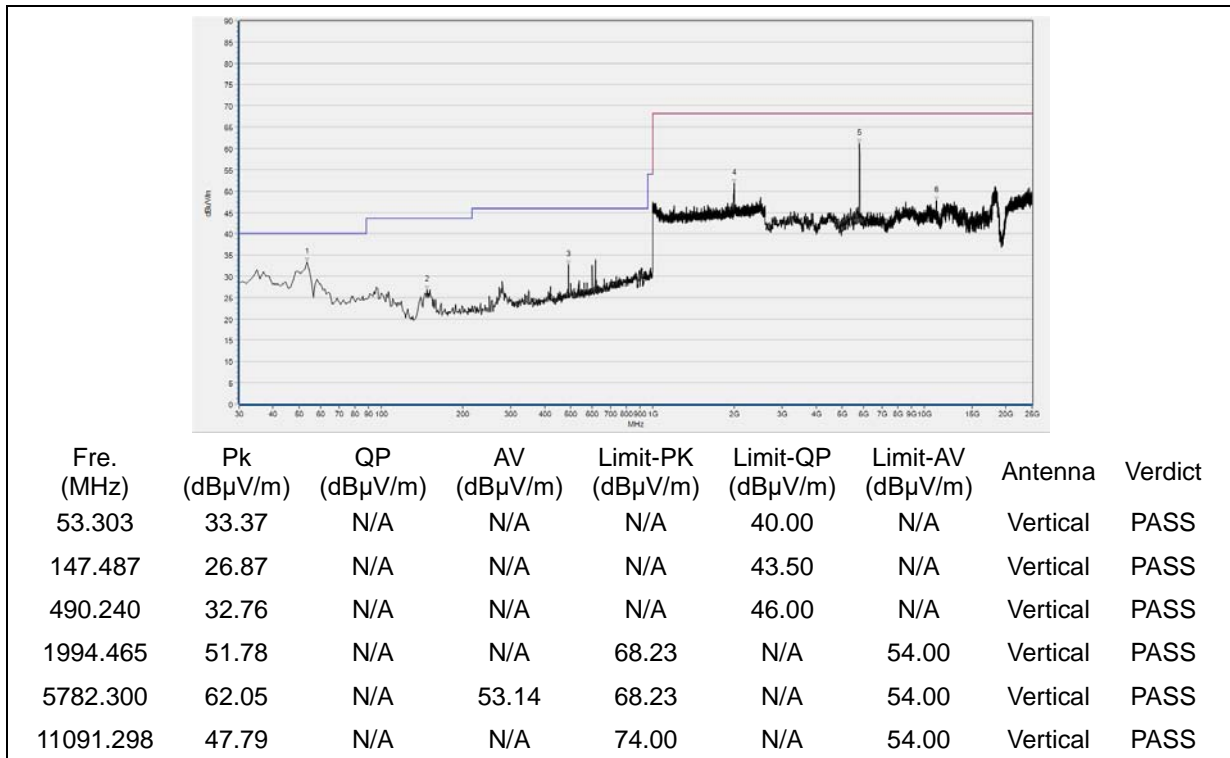


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 157

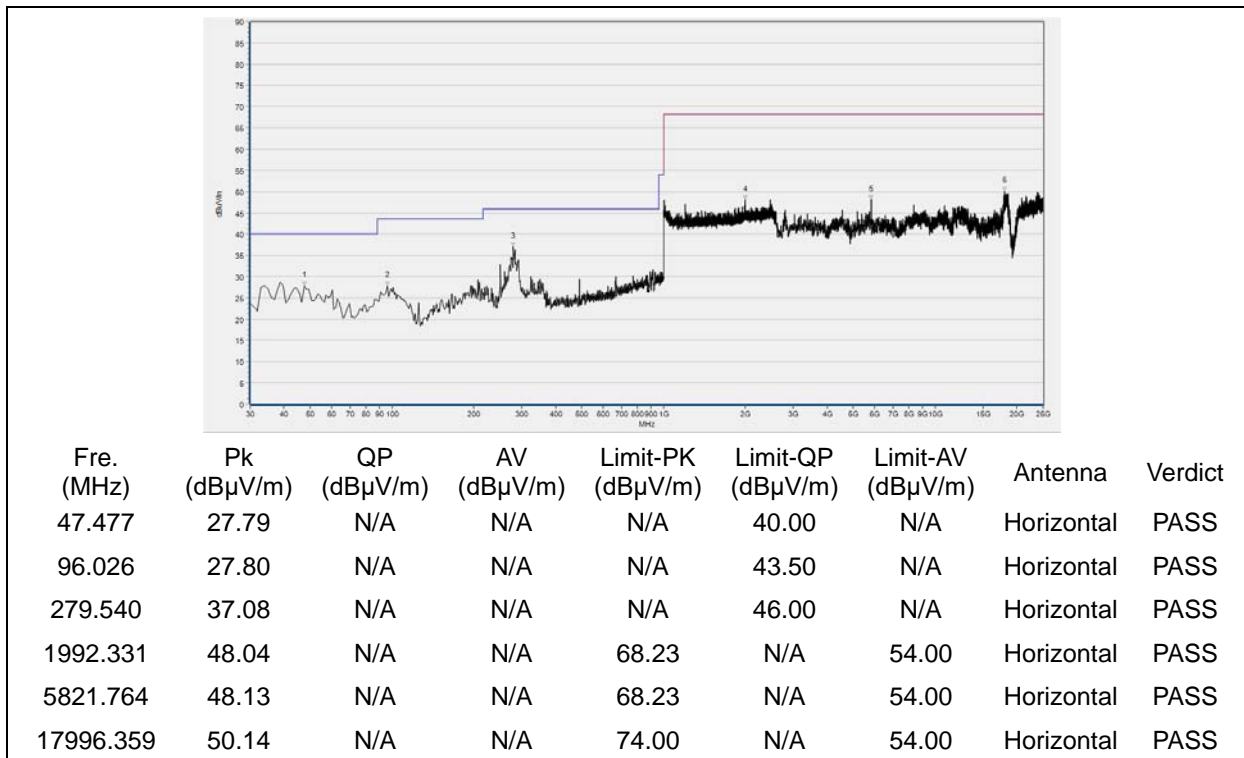


(Antenna Horizontal, 30MHz to 18GHz)

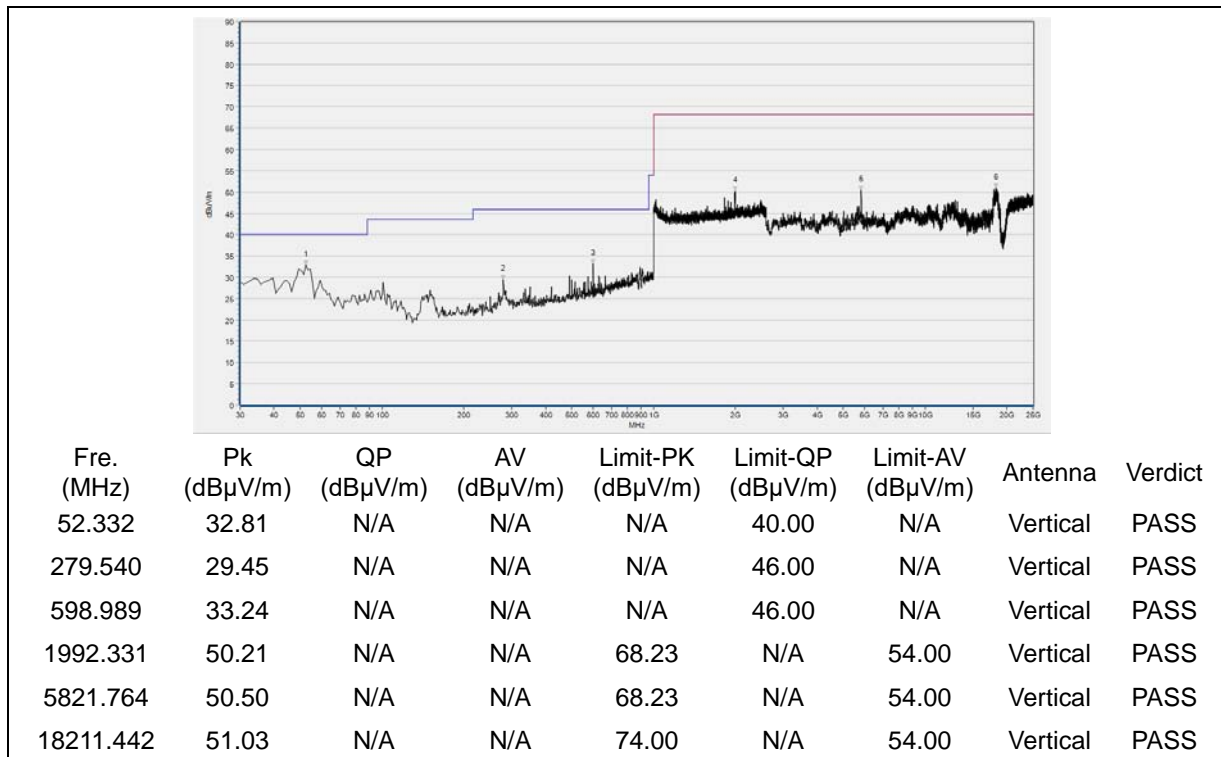


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 165



(Antenna Horizontal, 30MHz to 18GHz)

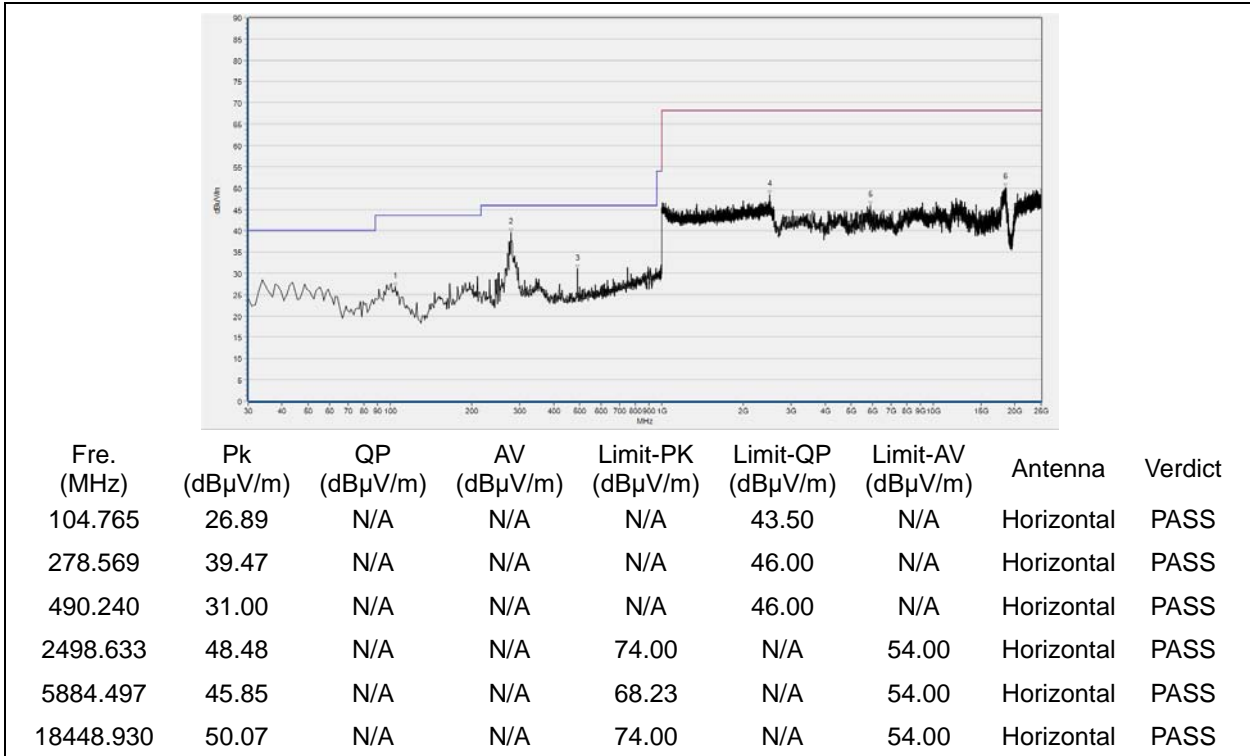


(Antenna Vertical, 30MHz to 18GHz)

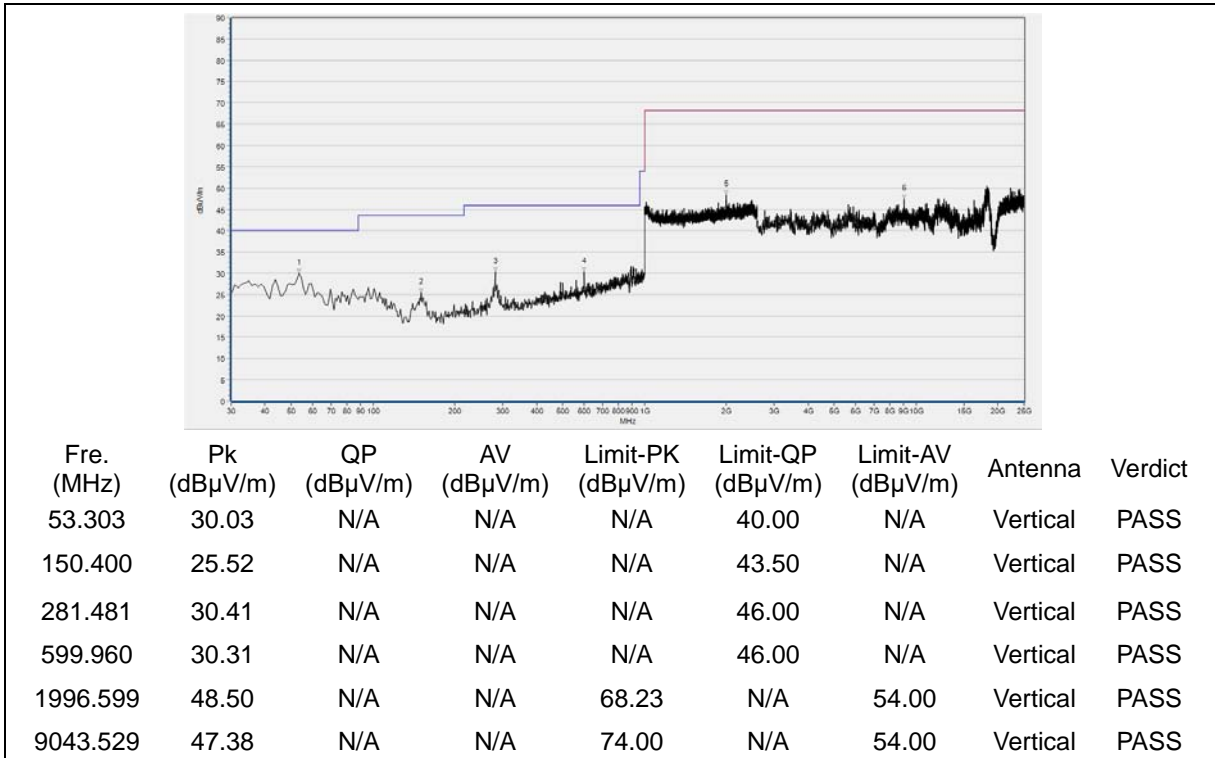


802.11n (HT20) Test mode

Plots for Channel = 36

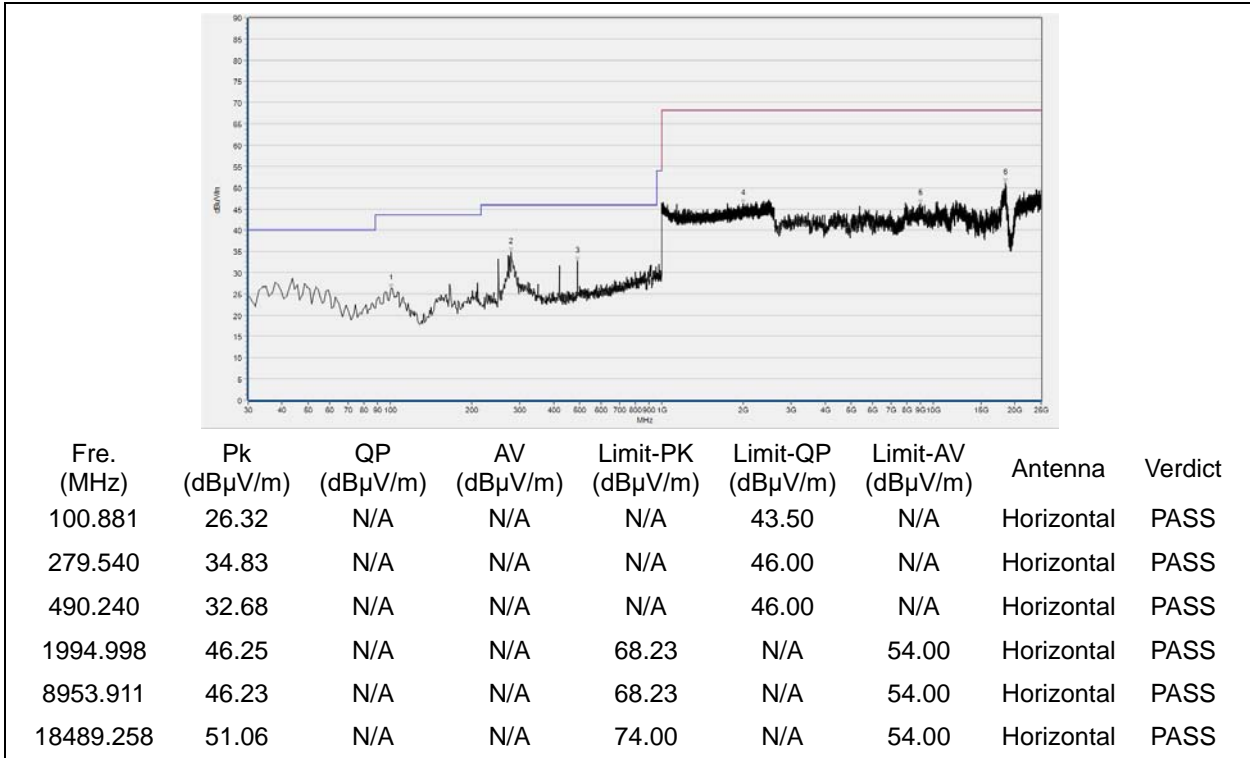


(Antenna Horizontal, 30MHz to 18GHz)

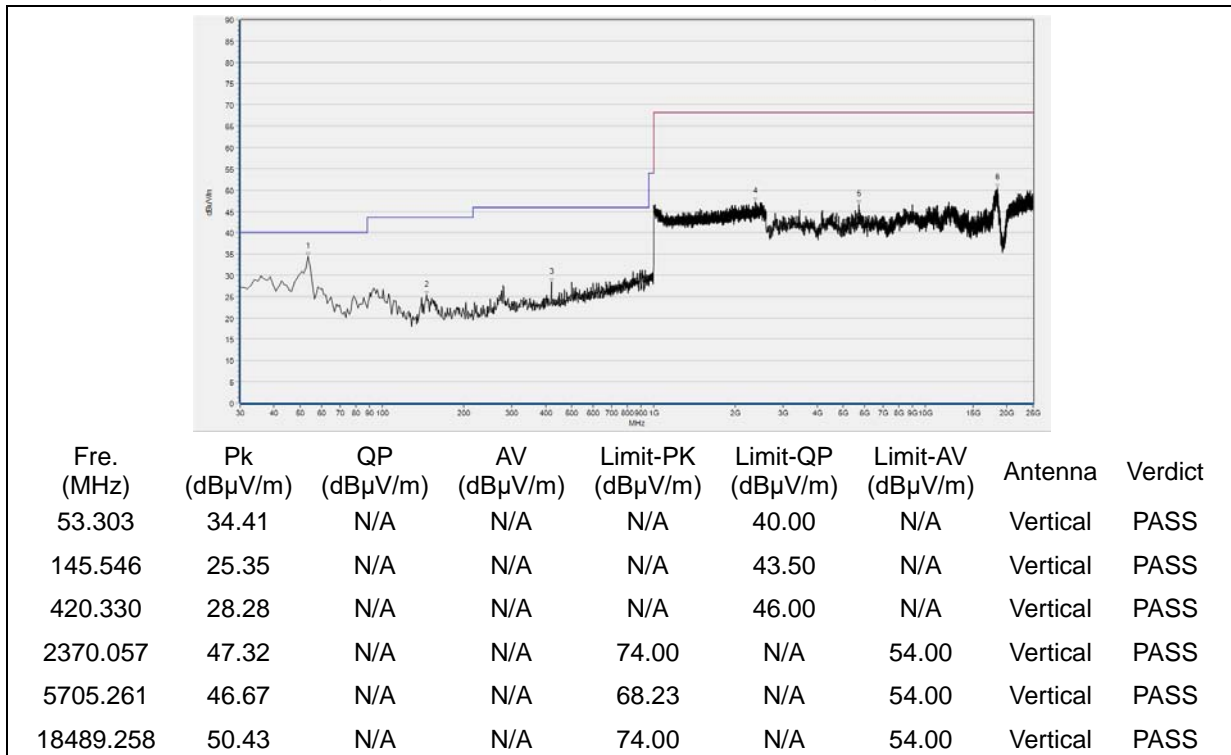


(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 44

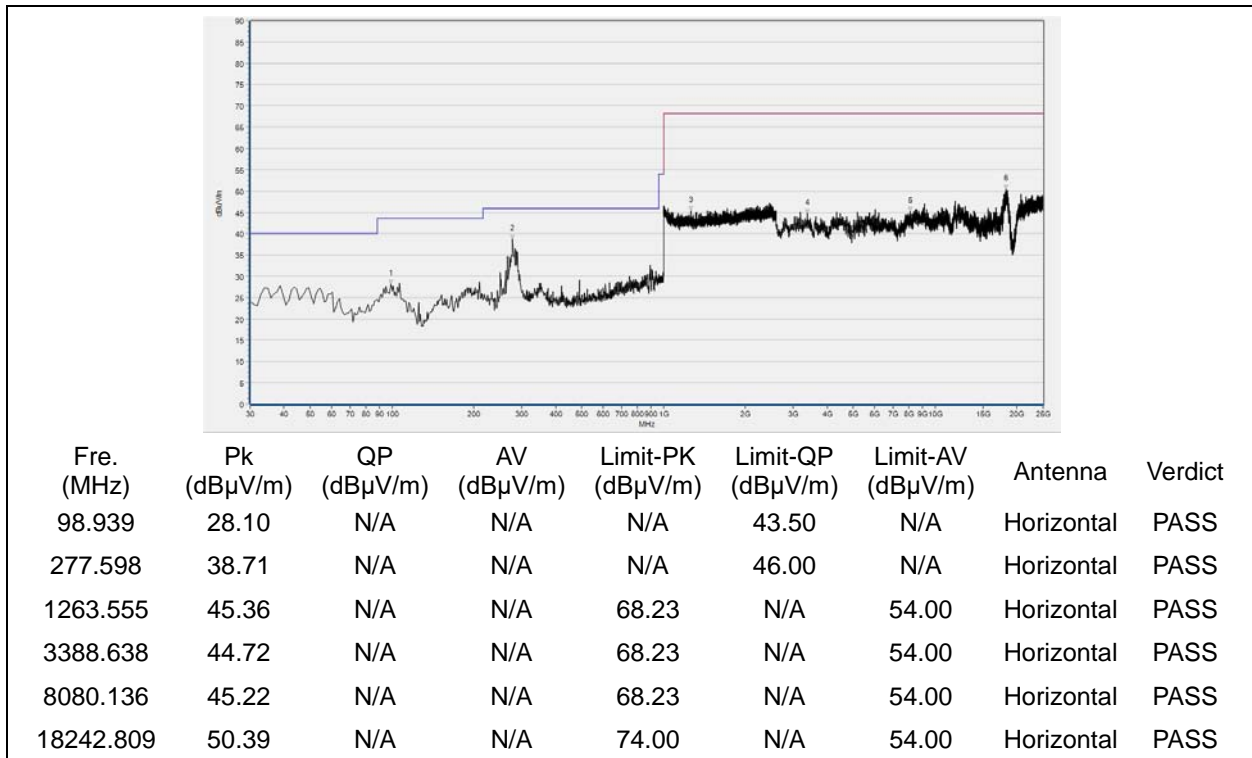


(Antenna Horizontal, 30MHz to 18GHz)

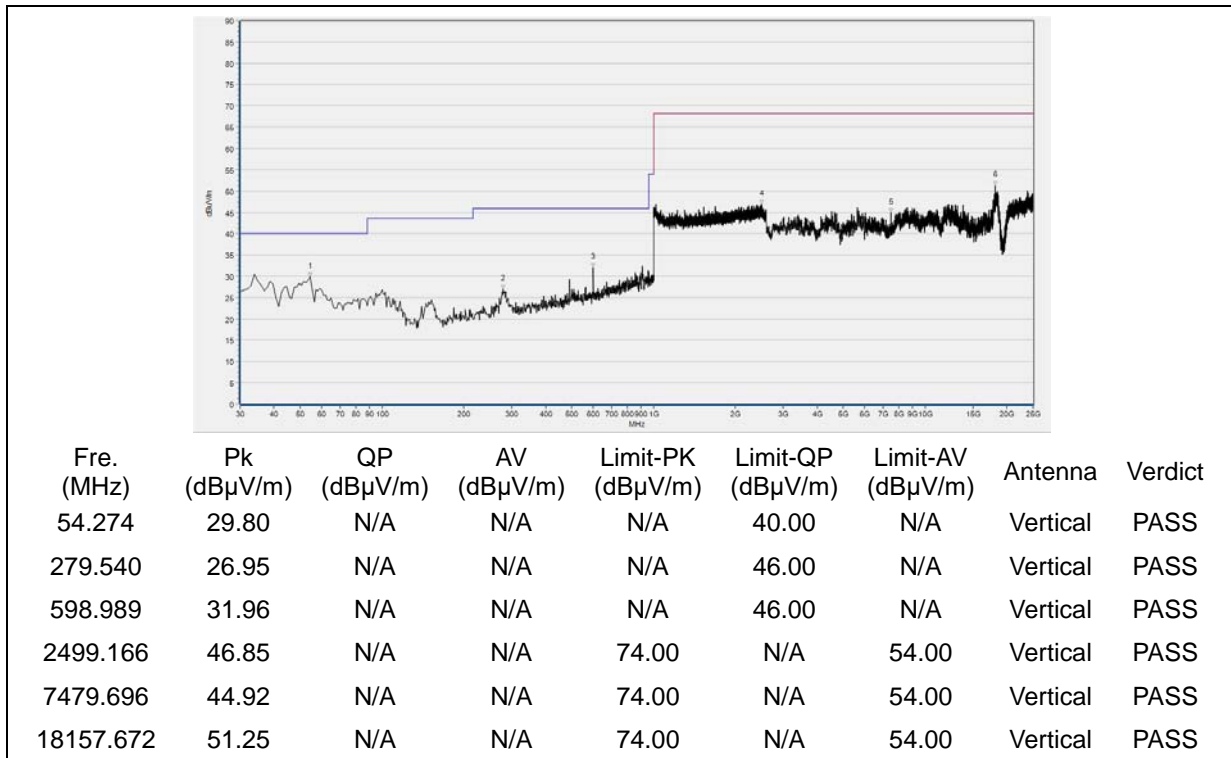


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 48

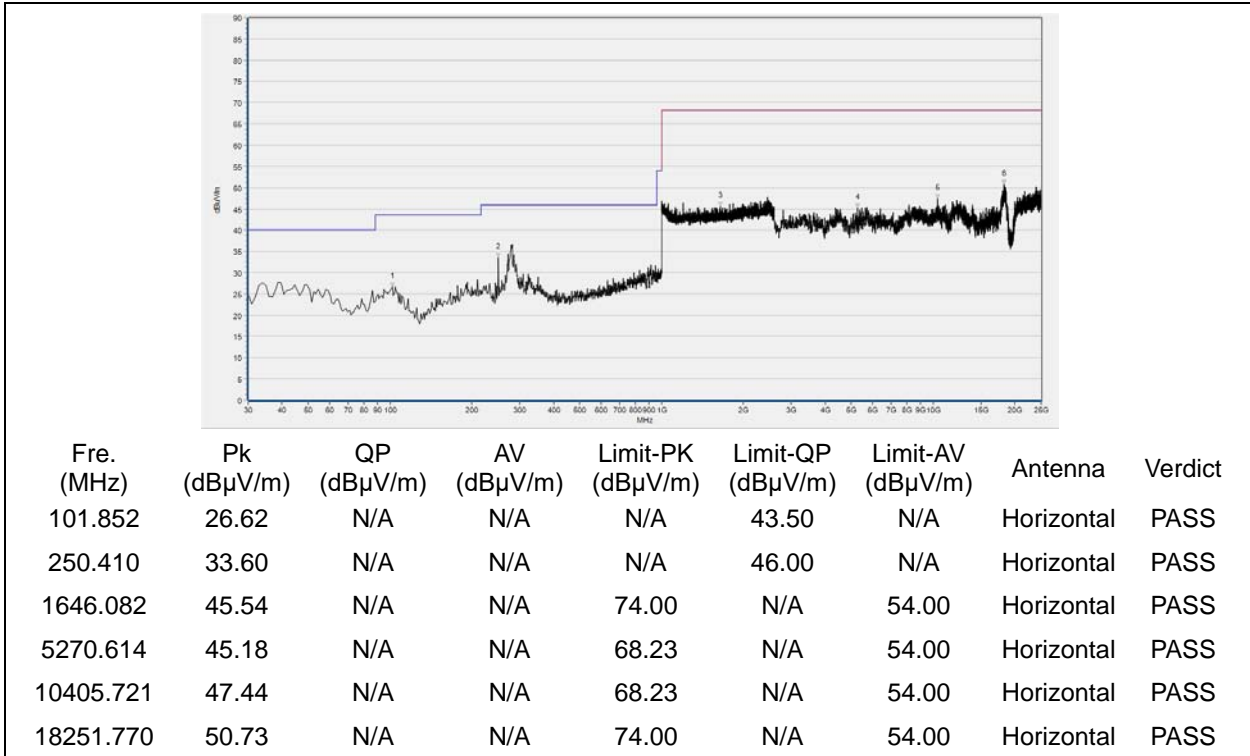


(Antenna Horizontal, 30MHz to 18GHz)

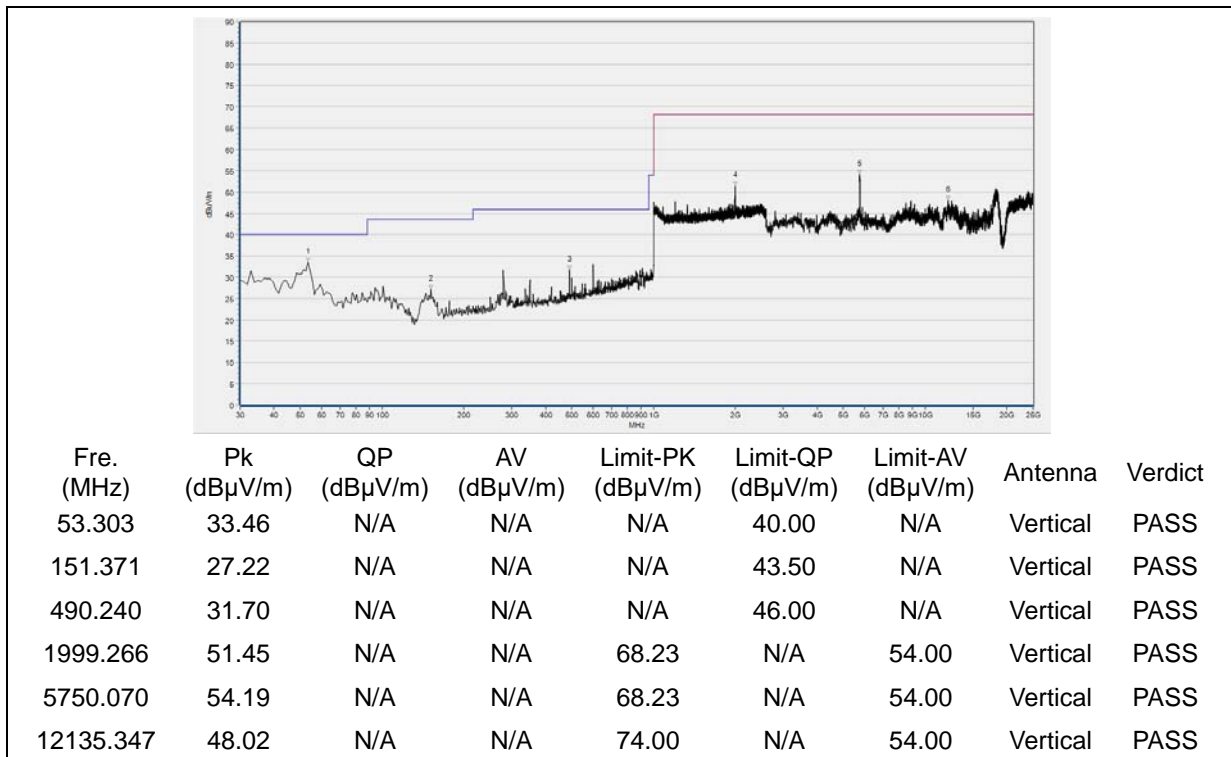


(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 149

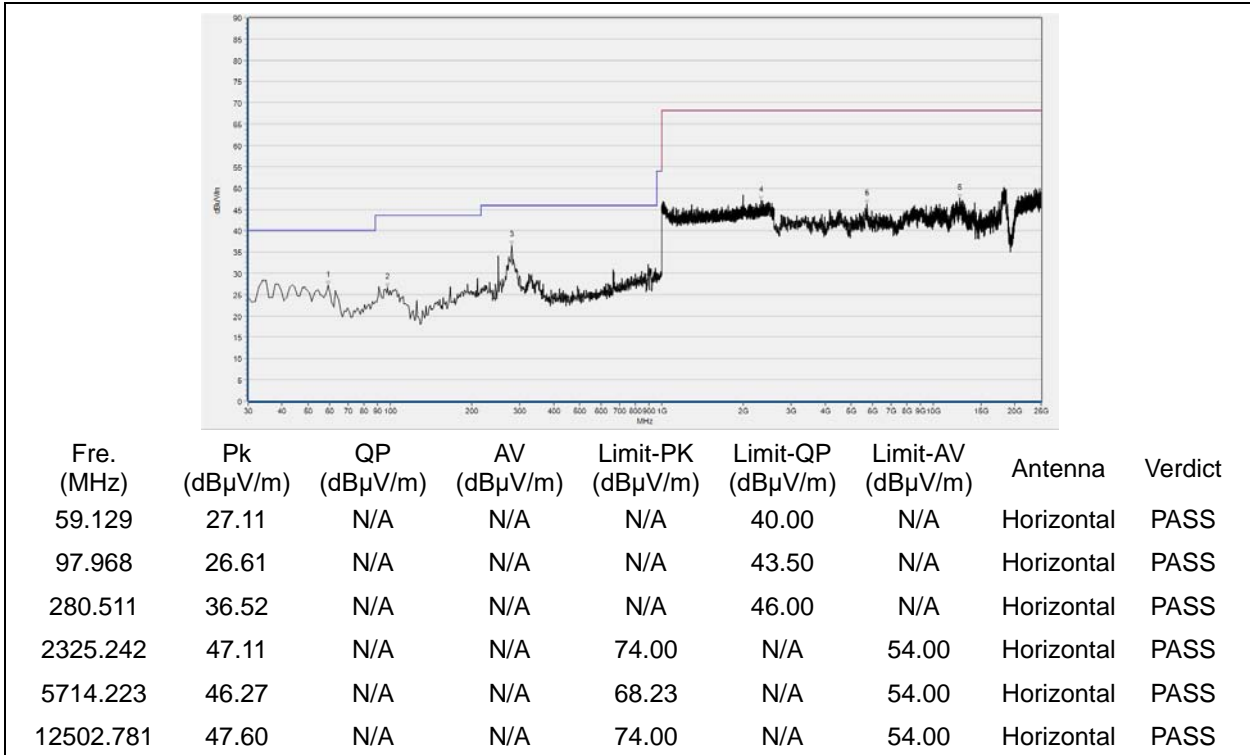


(Antenna Horizontal, 30MHz to 18GHz)

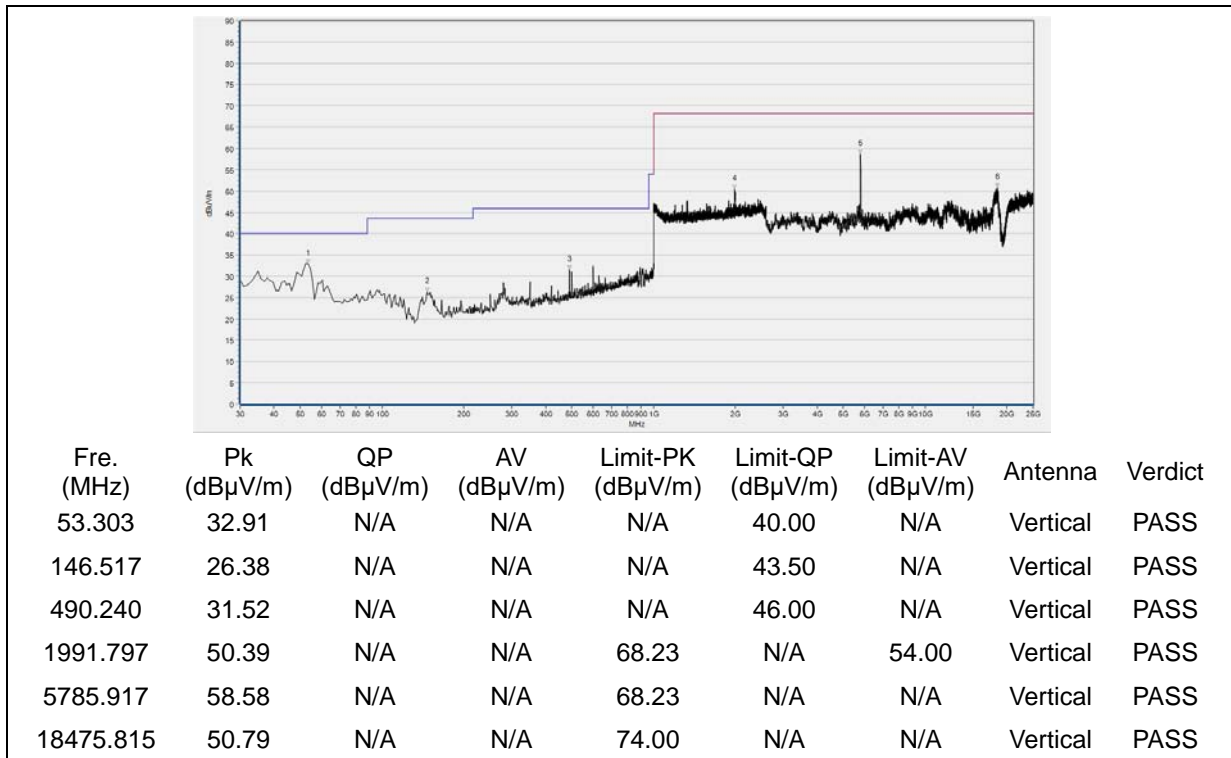


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 157

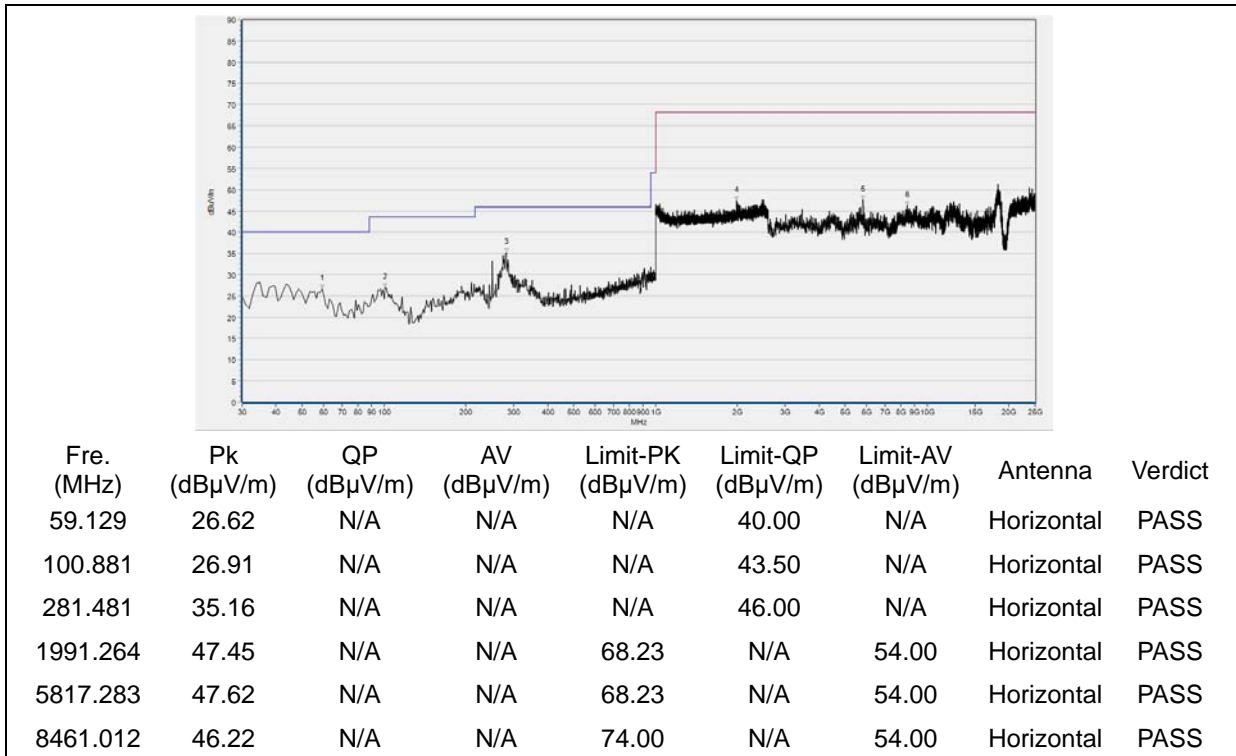


(Antenna Horizontal, 30MHz to 18GHz)

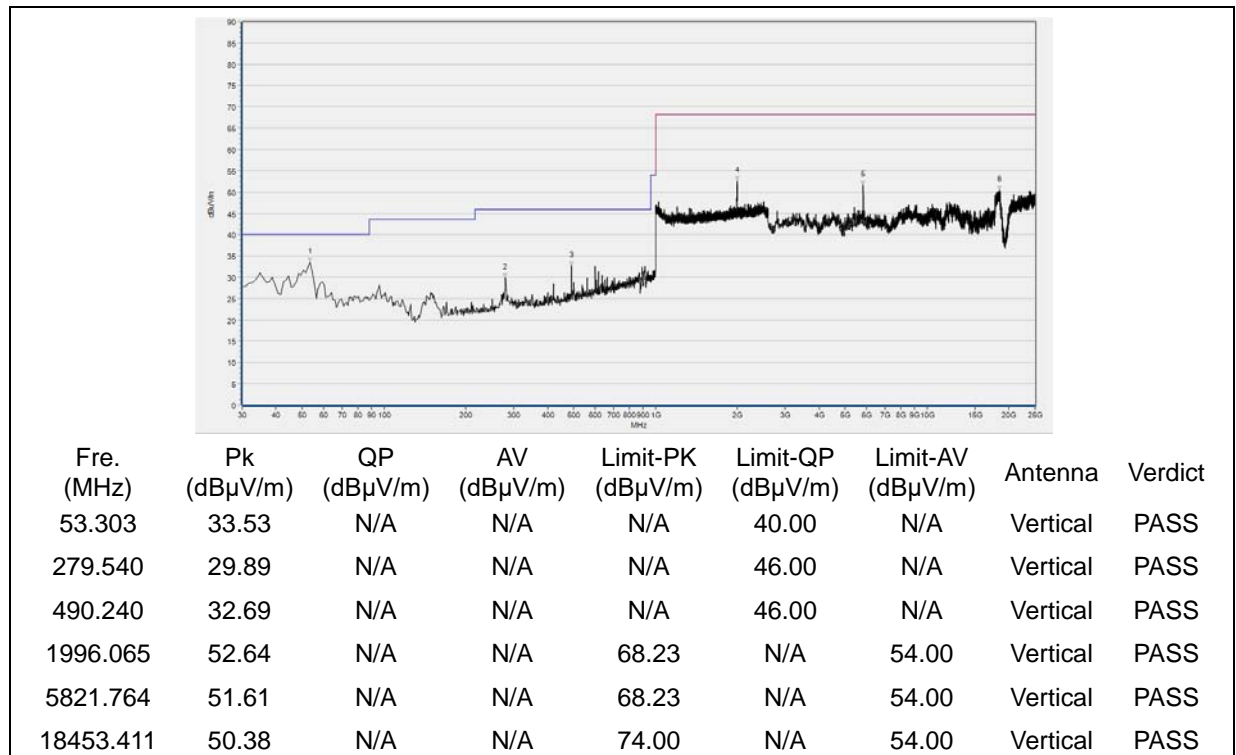


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 165



(Antenna Horizontal, 30MHz to 18GHz)

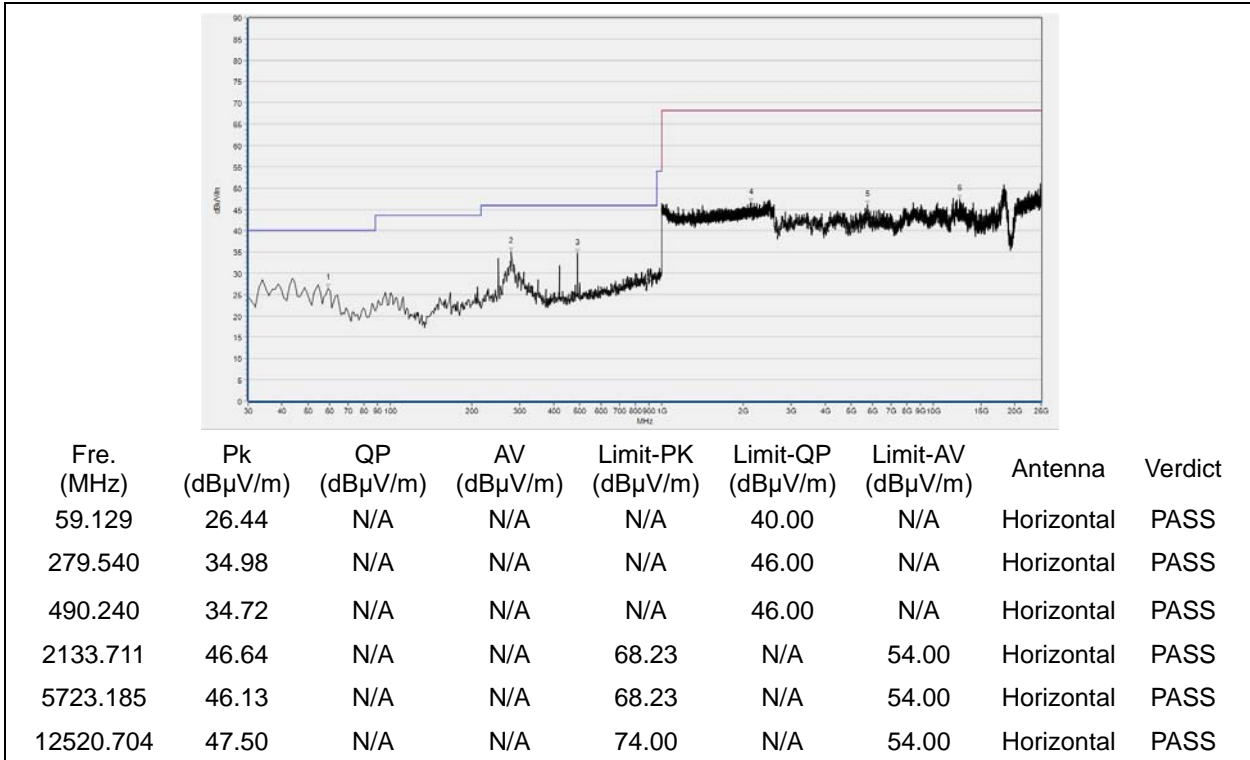


(Antenna Vertical, 30MHz to 18GHz)

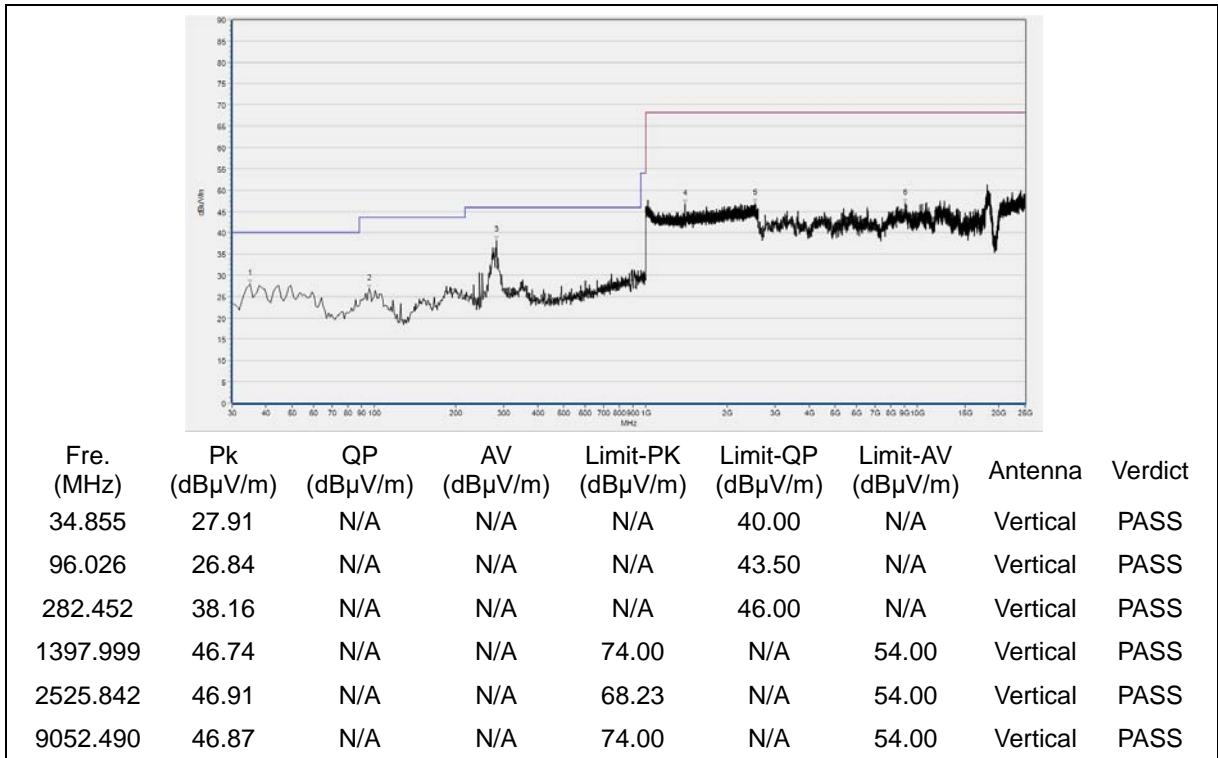


802.11n (HT40) Test mode

Plots for Channel = 38

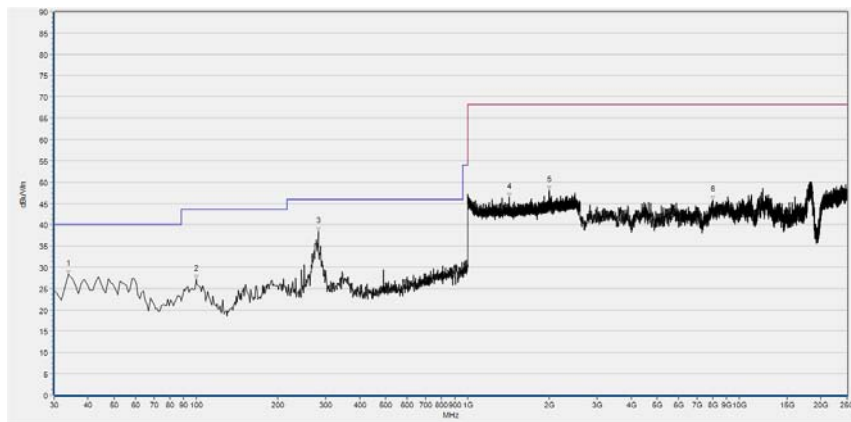


(Antenna Horizontal, 30MHz to 18GHz)



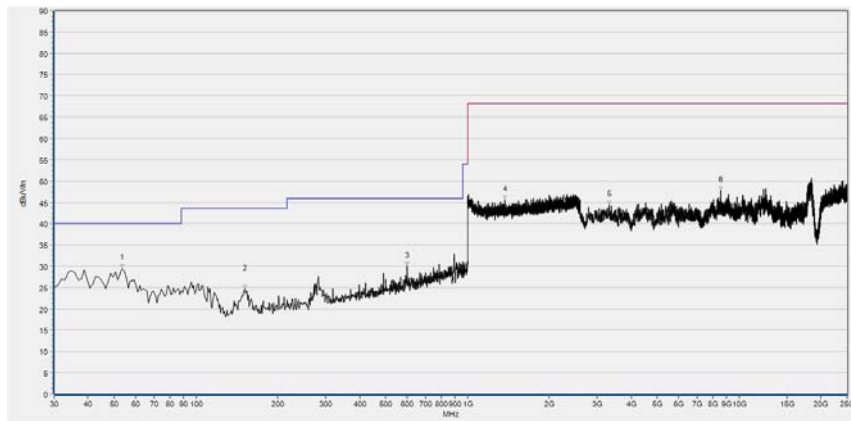
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 46



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
33.884	28.34	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
99.910	27.16	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
281.481	38.40	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1420.407	46.48	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
1992.864	48.11	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
7994.999	45.69	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

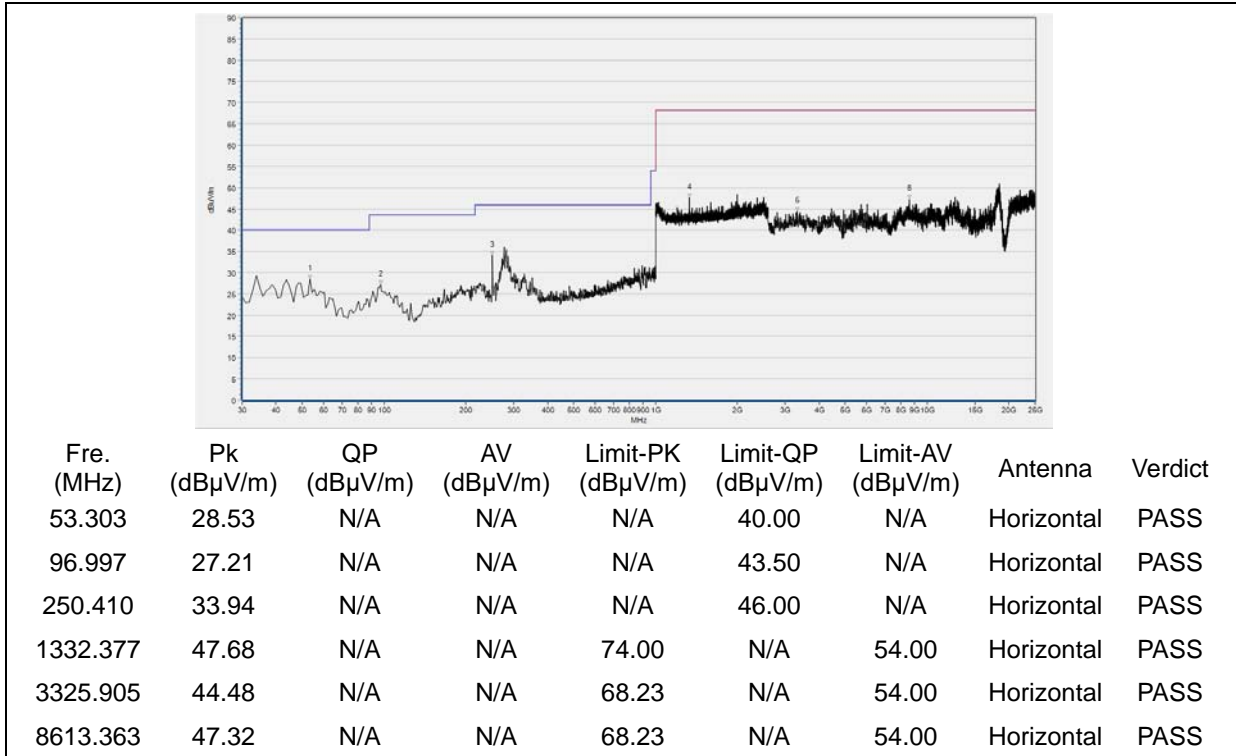
(Antenna Horizontal, 30MHz to 18GHz)



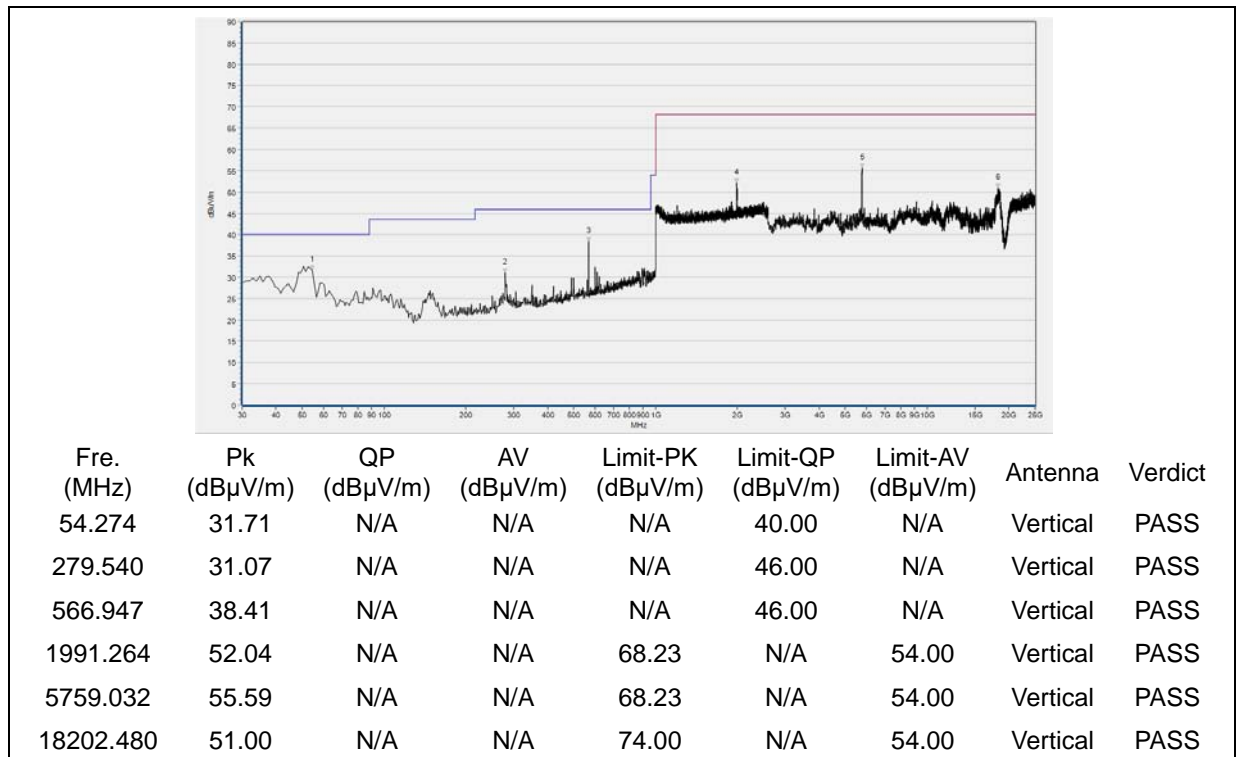
Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
53.303	29.51	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
151.371	24.61	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
598.989	30.08	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1371.857	45.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3316.943	44.38	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
8564.073	47.70	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 151

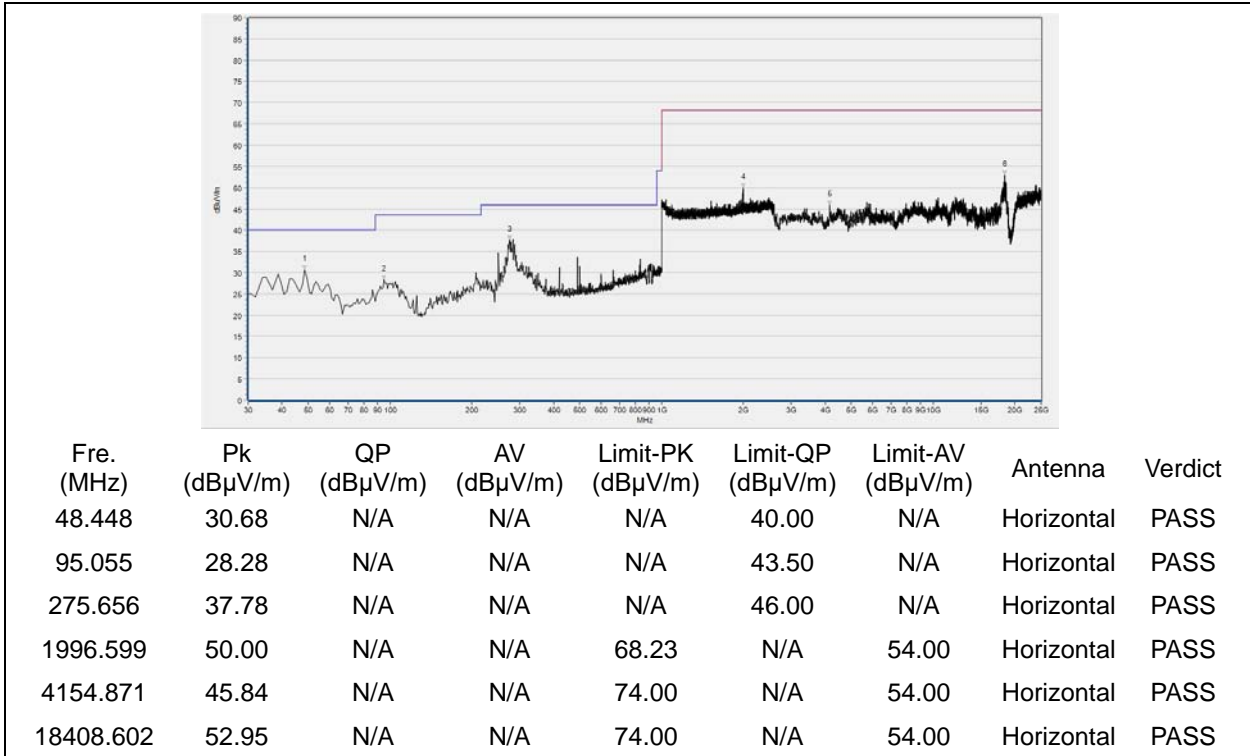


(Antenna Horizontal, 30MHz to 18GHz)

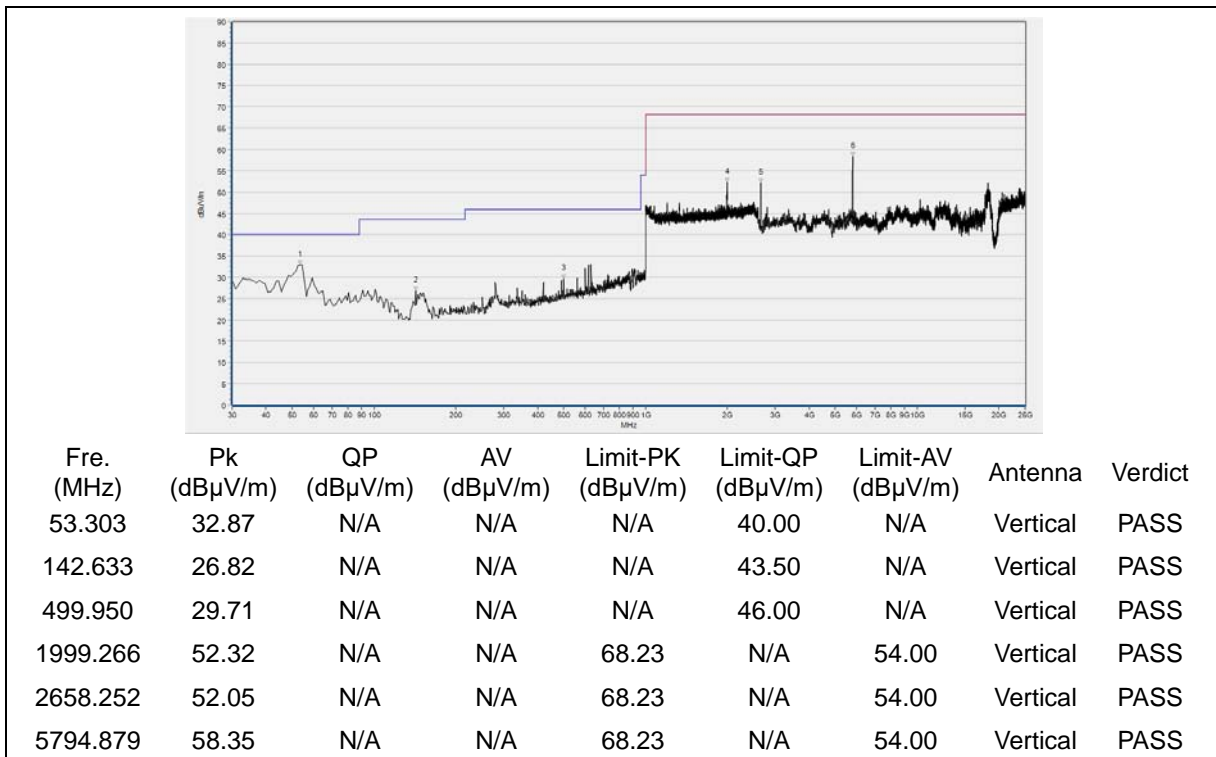


(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 159



(Antenna Horizontal, 30MHz to 18GHz)

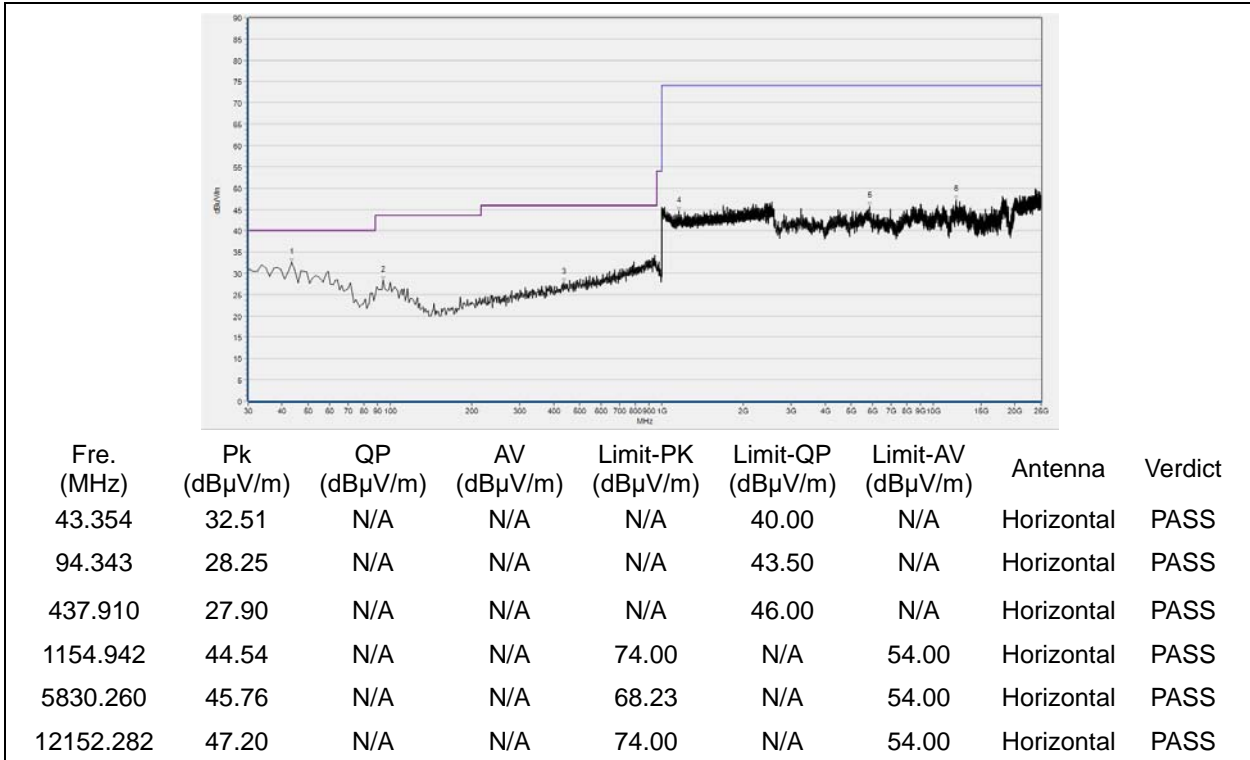


(Antenna Vertical, 30MHz to 18GHz)

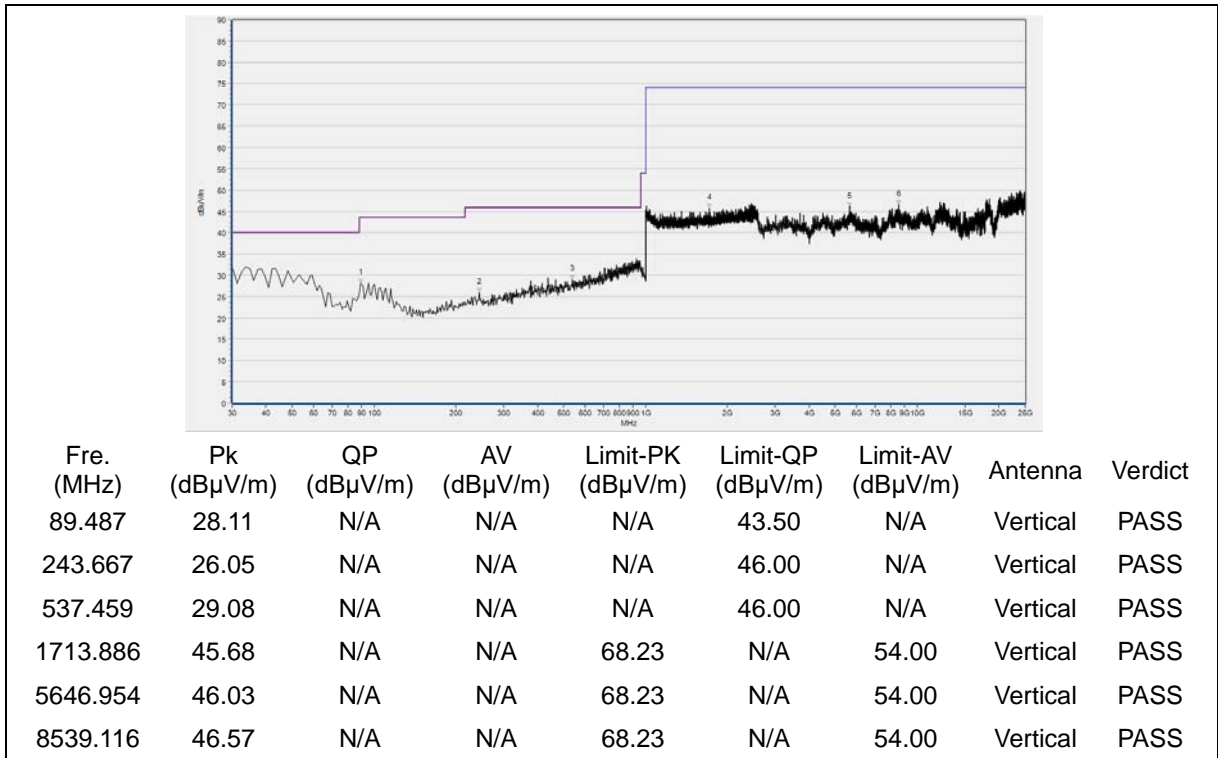


802.11ac (VHT20) Test mode

Plots for Channel = 36

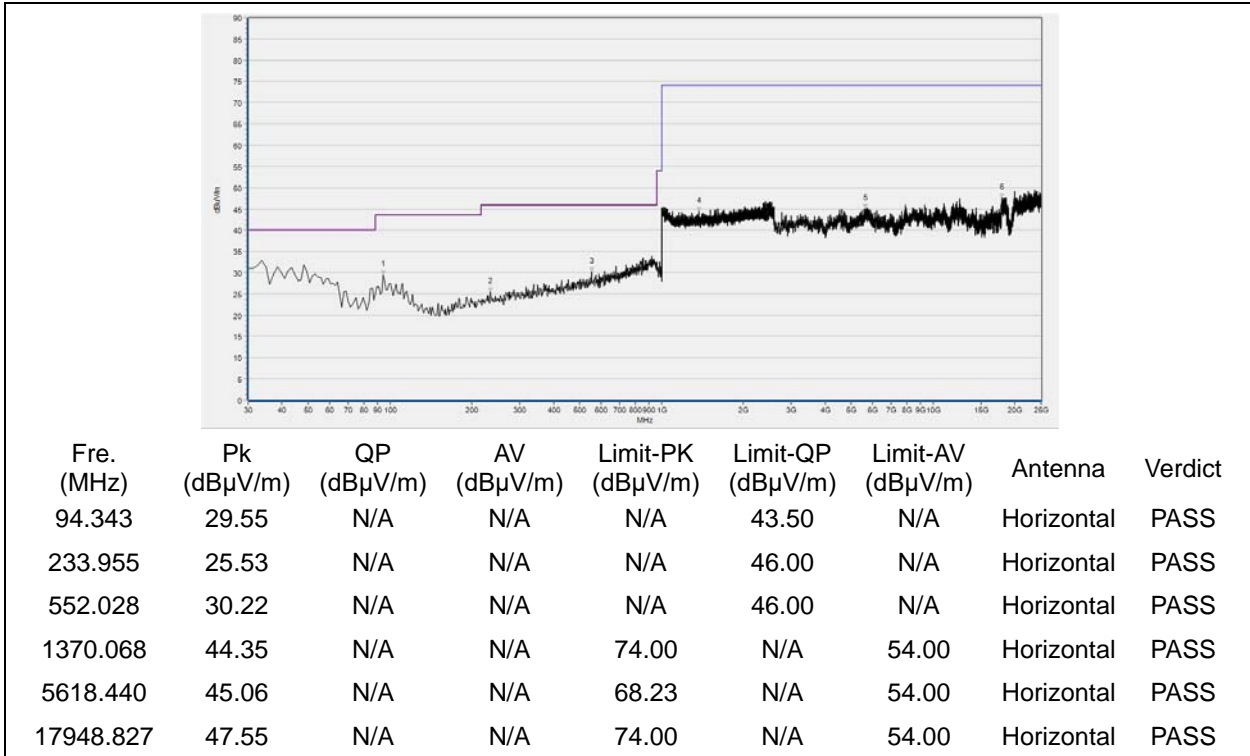


(Antenna Horizontal, 30MHz to 18GHz)

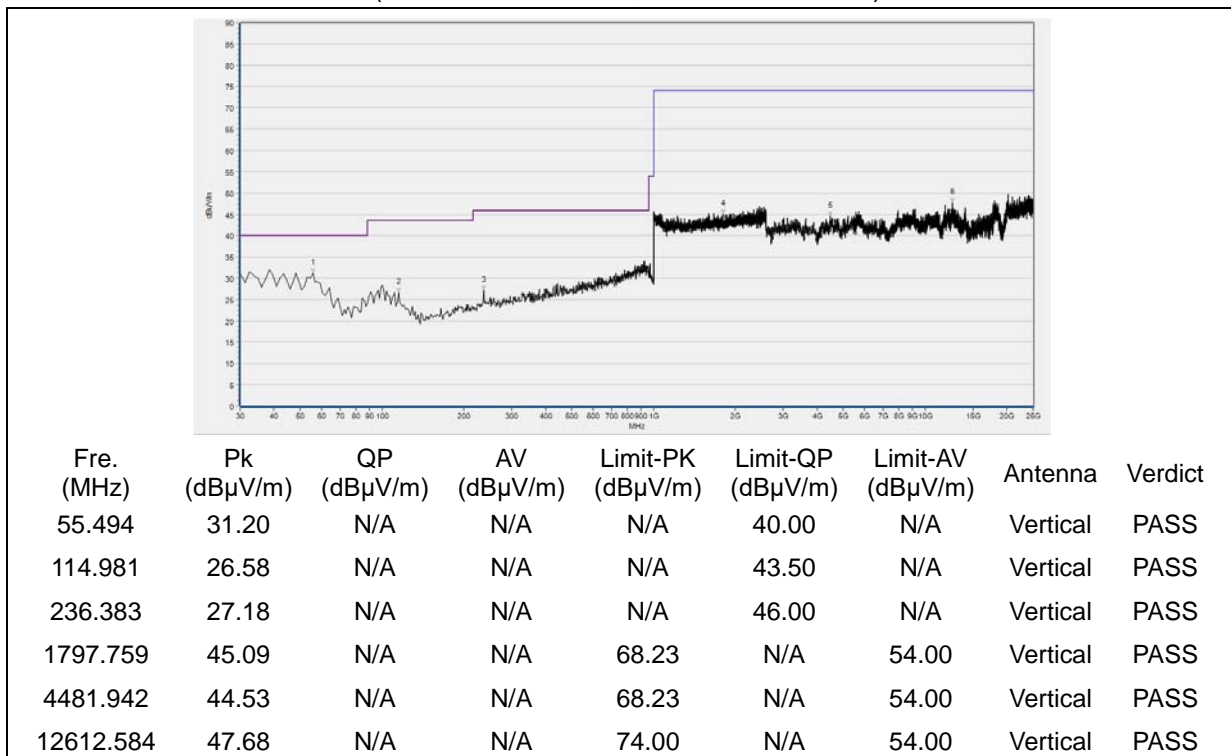


(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 44

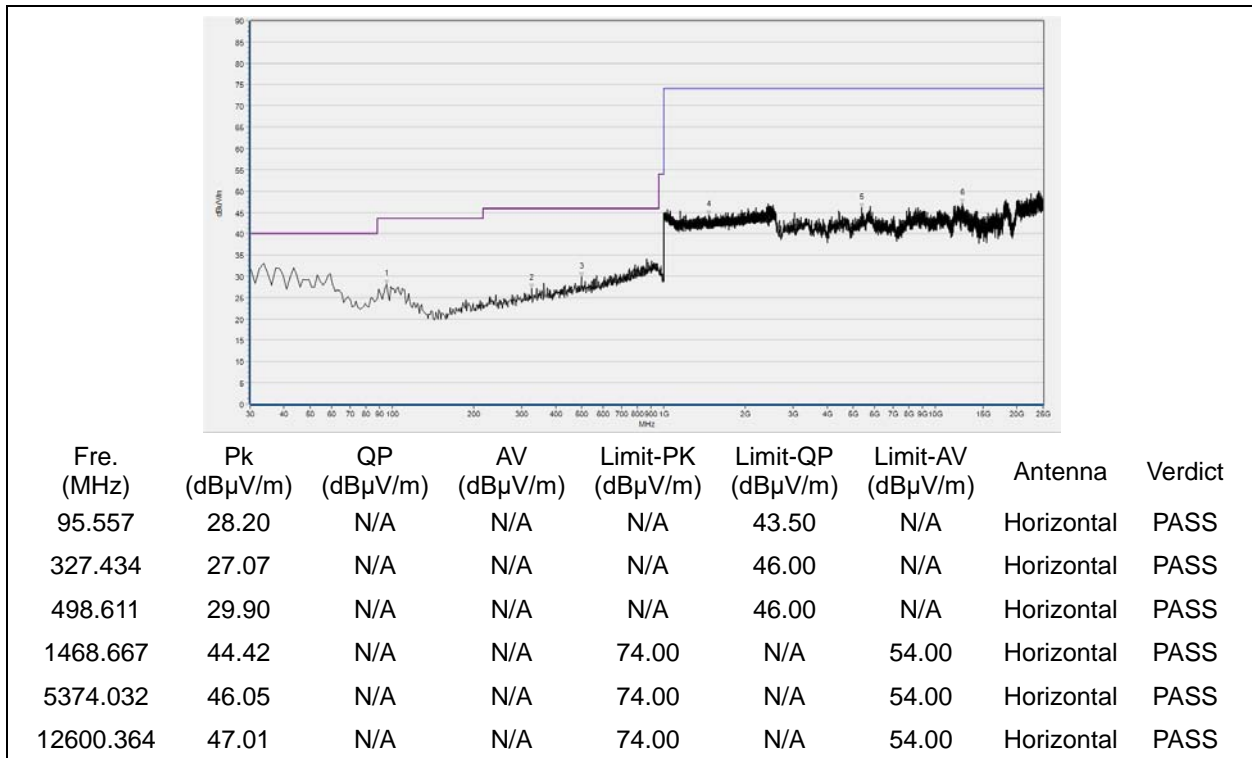


(Antenna Horizontal, 30MHz to 18GHz)

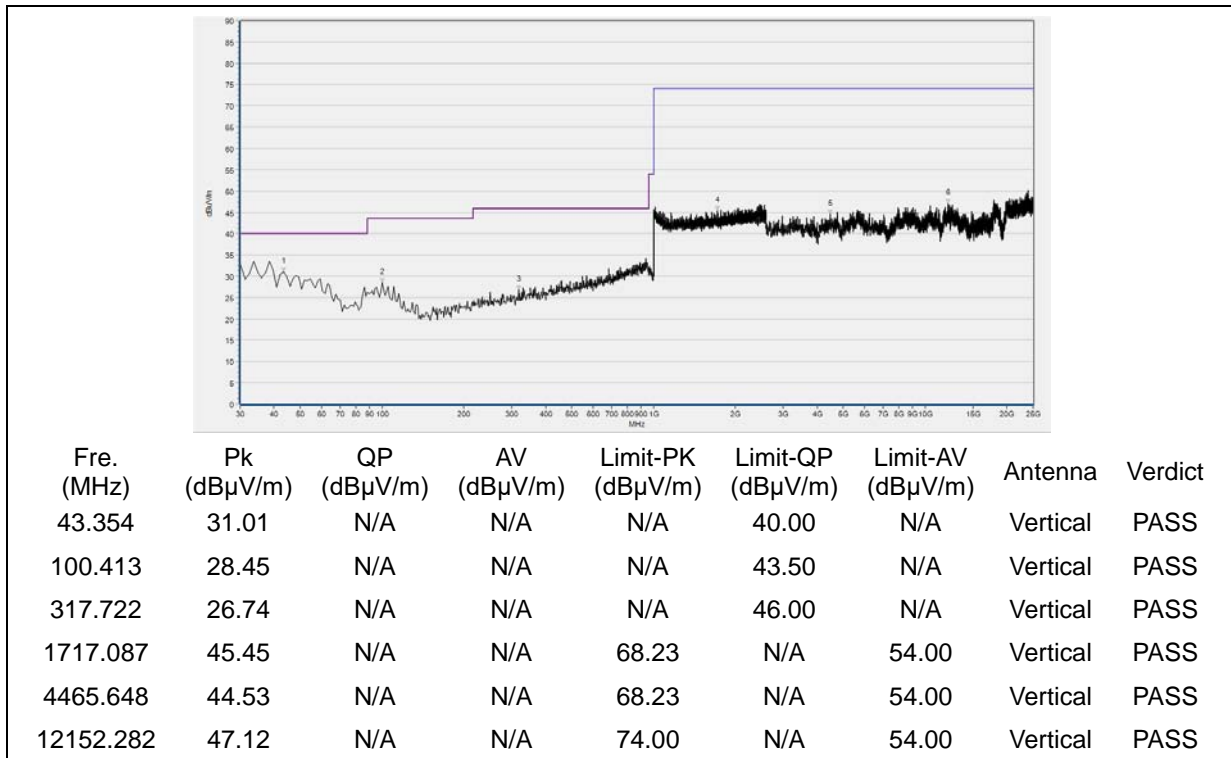


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 48

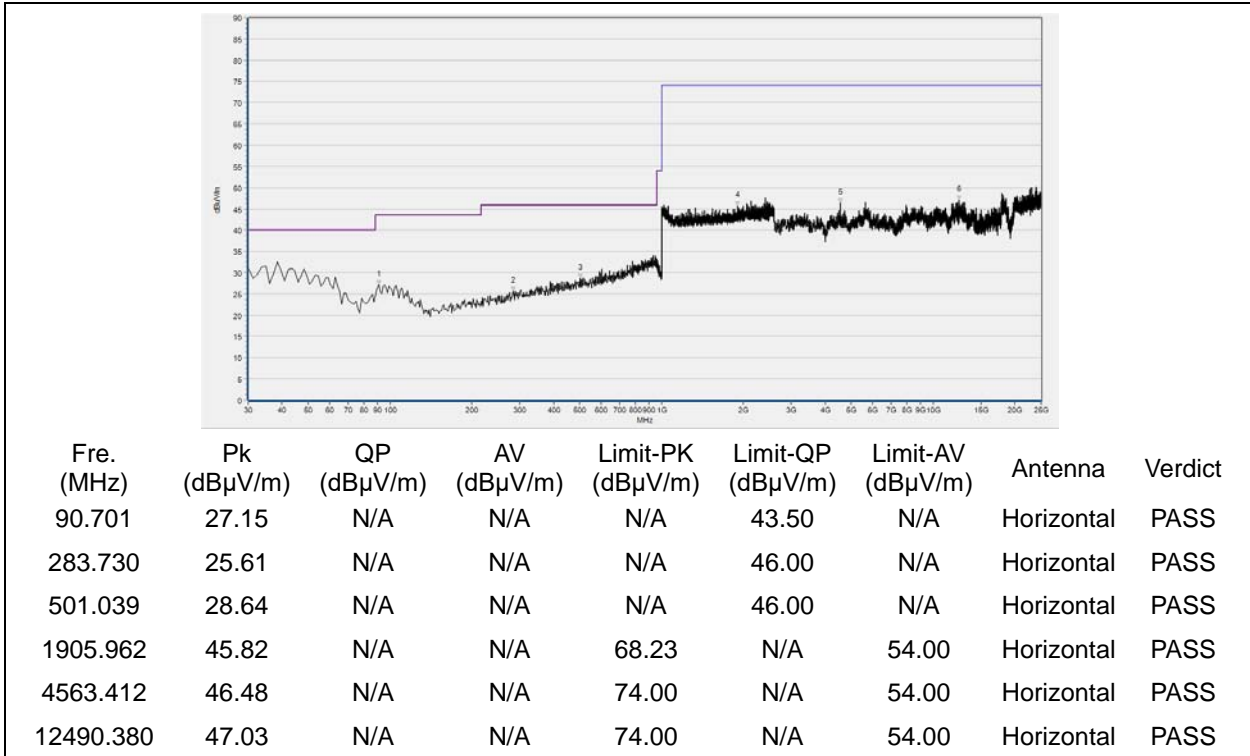


(Antenna Horizontal, 30MHz to 18GHz)

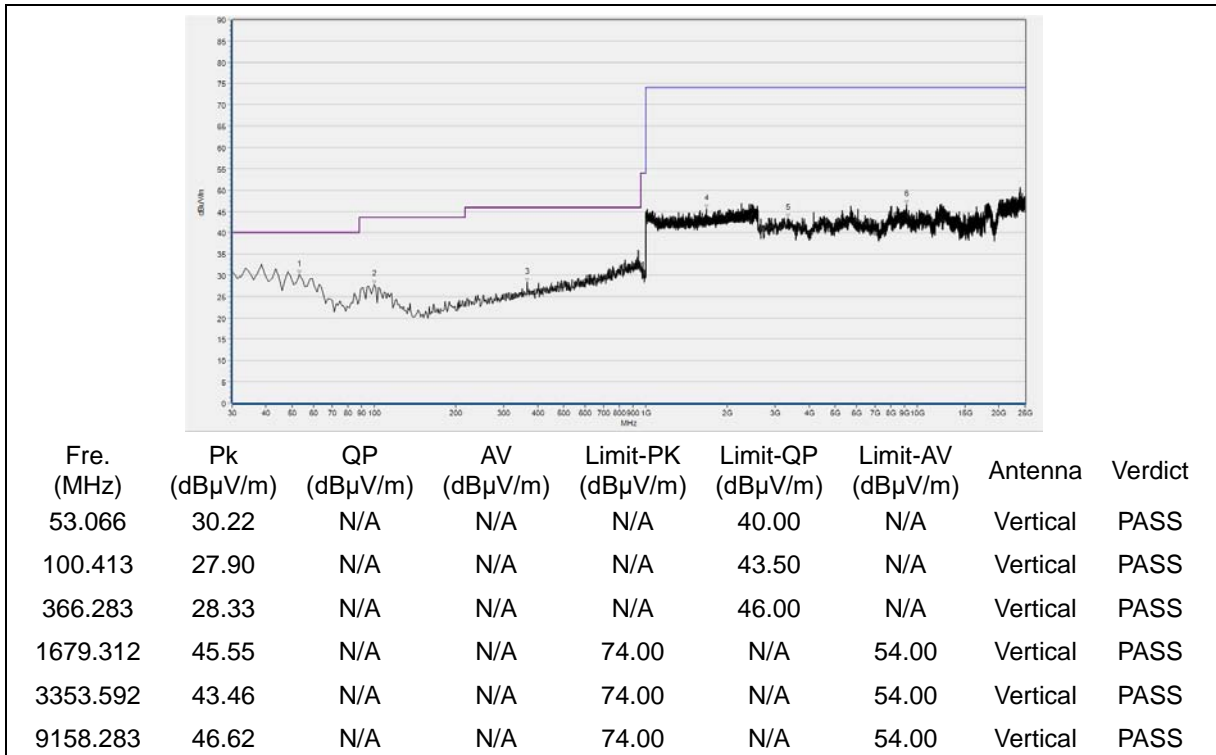


(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 149

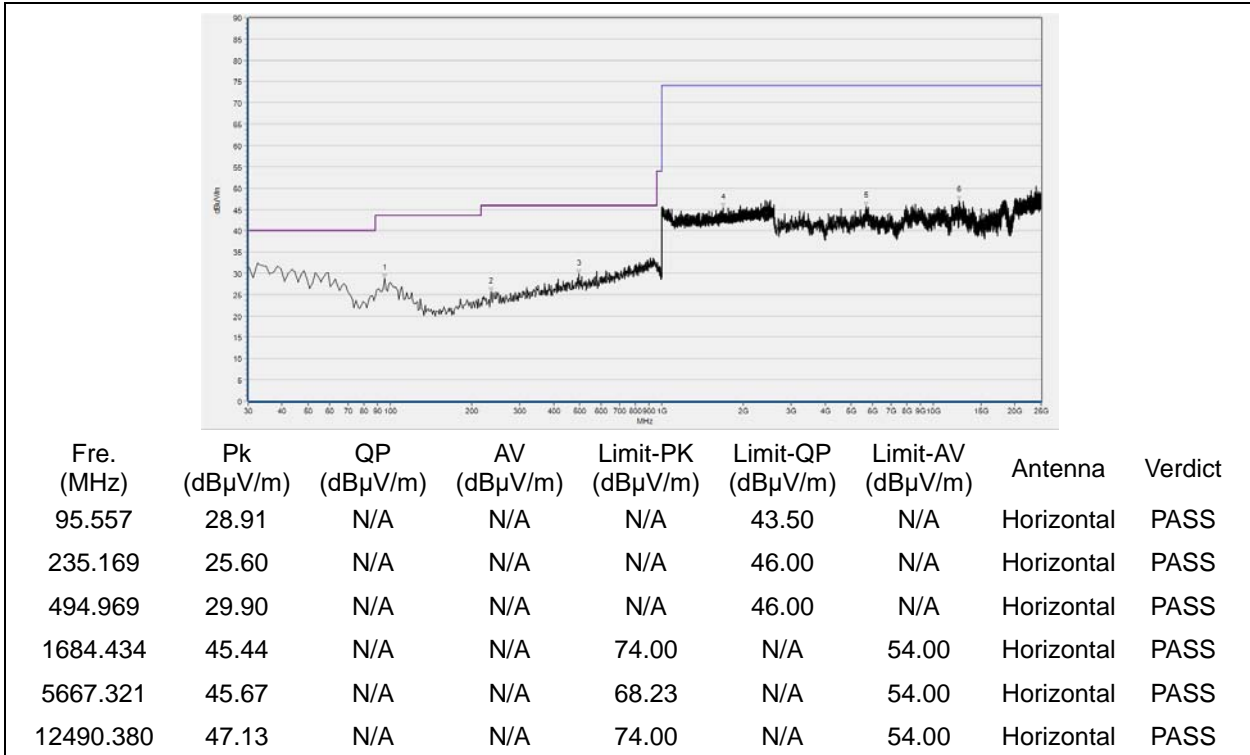


(Antenna Horizontal, 30MHz to 18GHz)

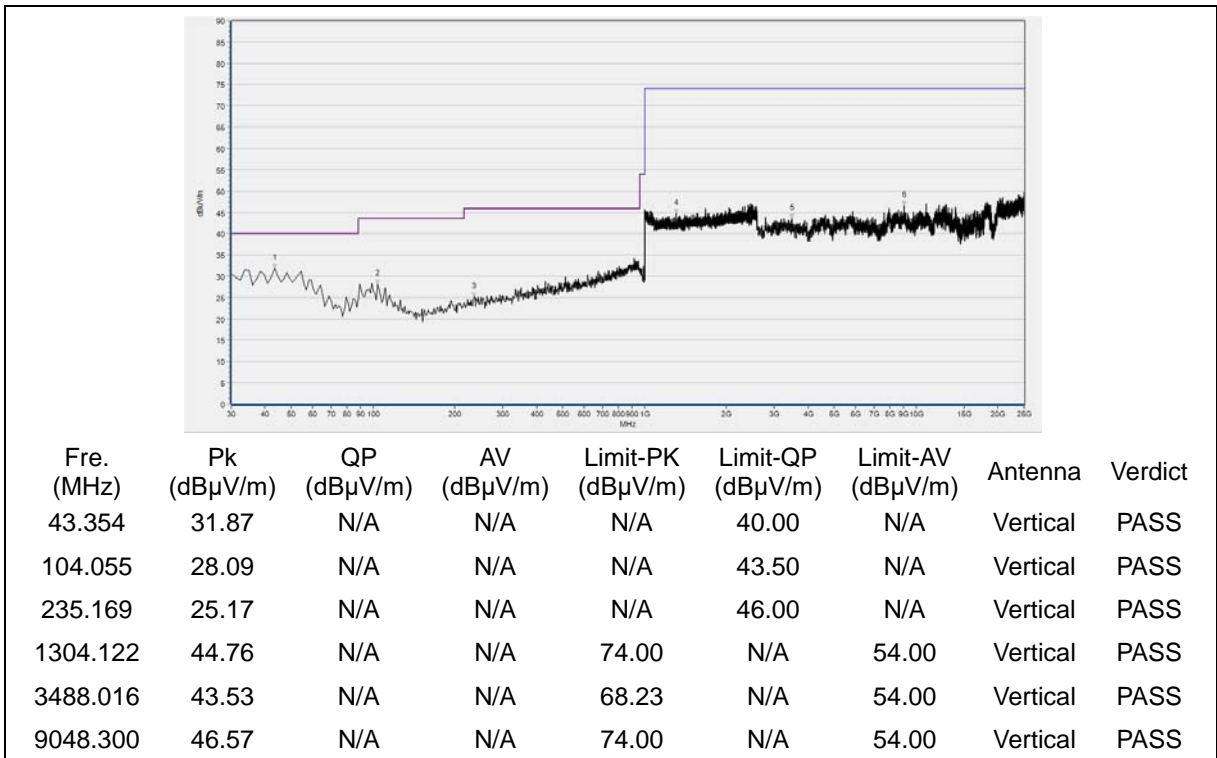


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 157

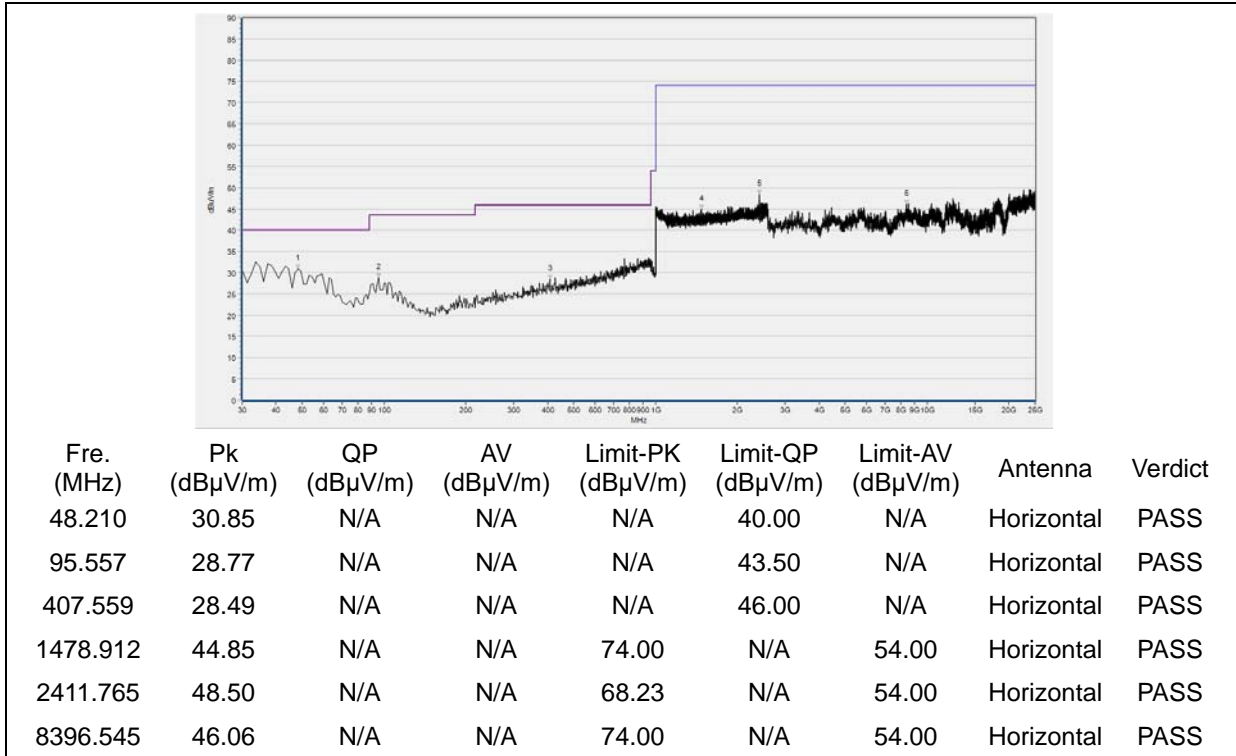


(Antenna Horizontal, 30MHz to 18GHz)

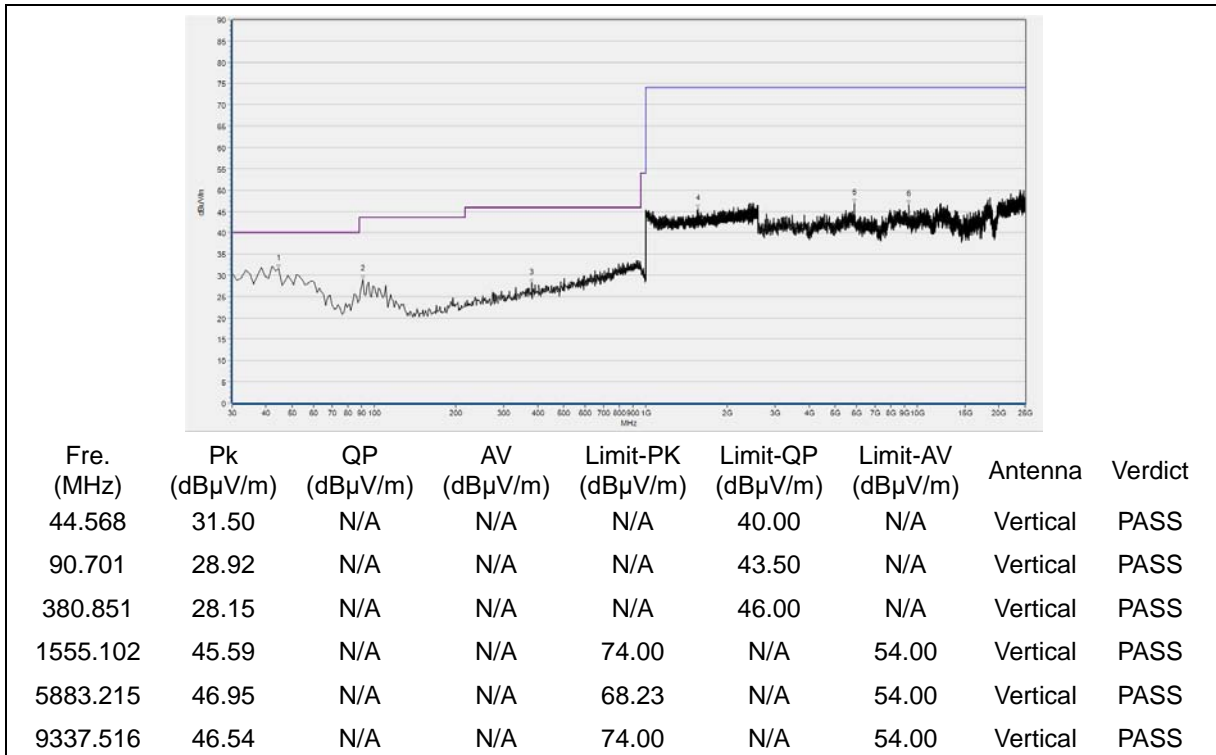


(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 165



(Antenna Horizontal, 30MHz to 18GHz)

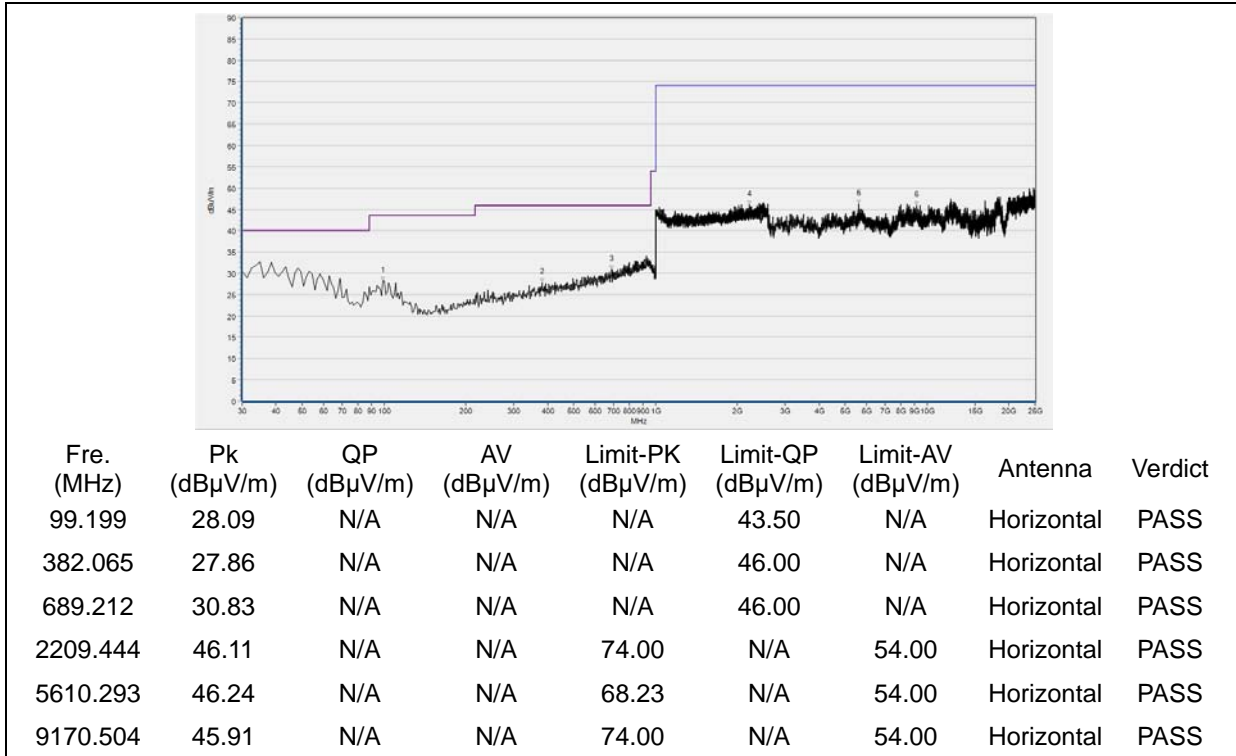


(Antenna Vertical, 30MHz to 18GHz)

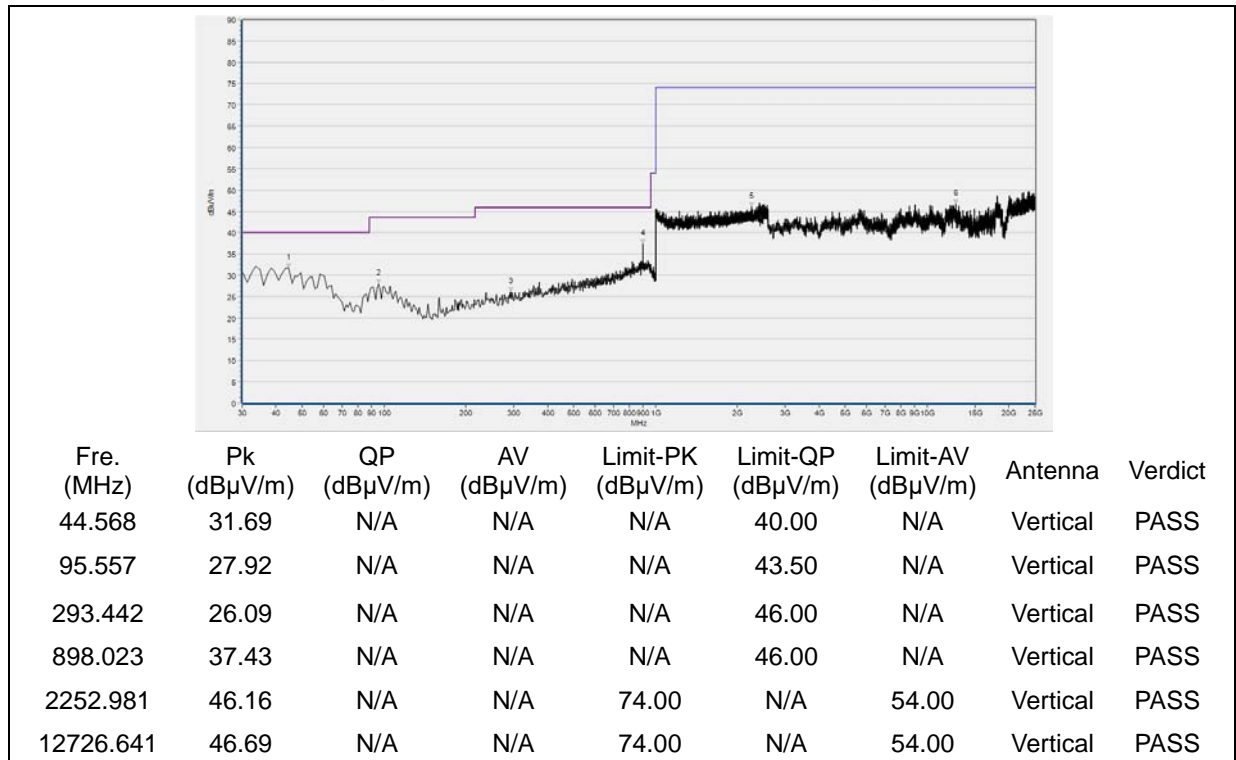


802.11ac (VHT40) Test mode

Plots for Channel = 38

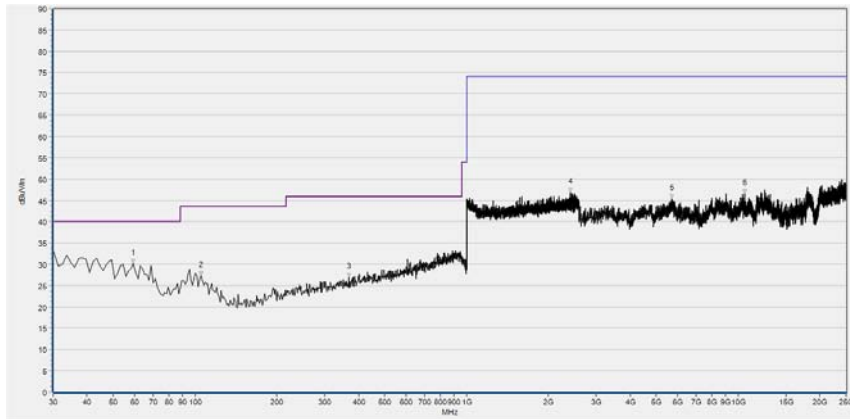


(Antenna Horizontal, 30MHz to 18GHz)



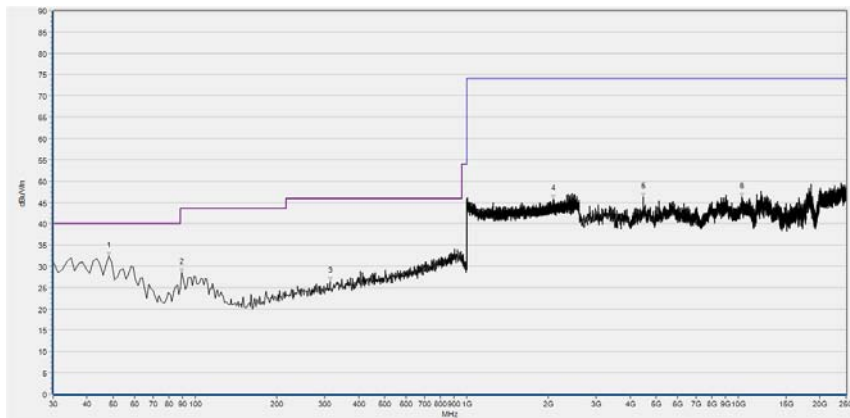
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 46



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
59.136	30.23	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
105.269	27.33	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
367.497	26.91	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2413.045	46.92	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
5695.836	45.34	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
10567.703	46.58	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

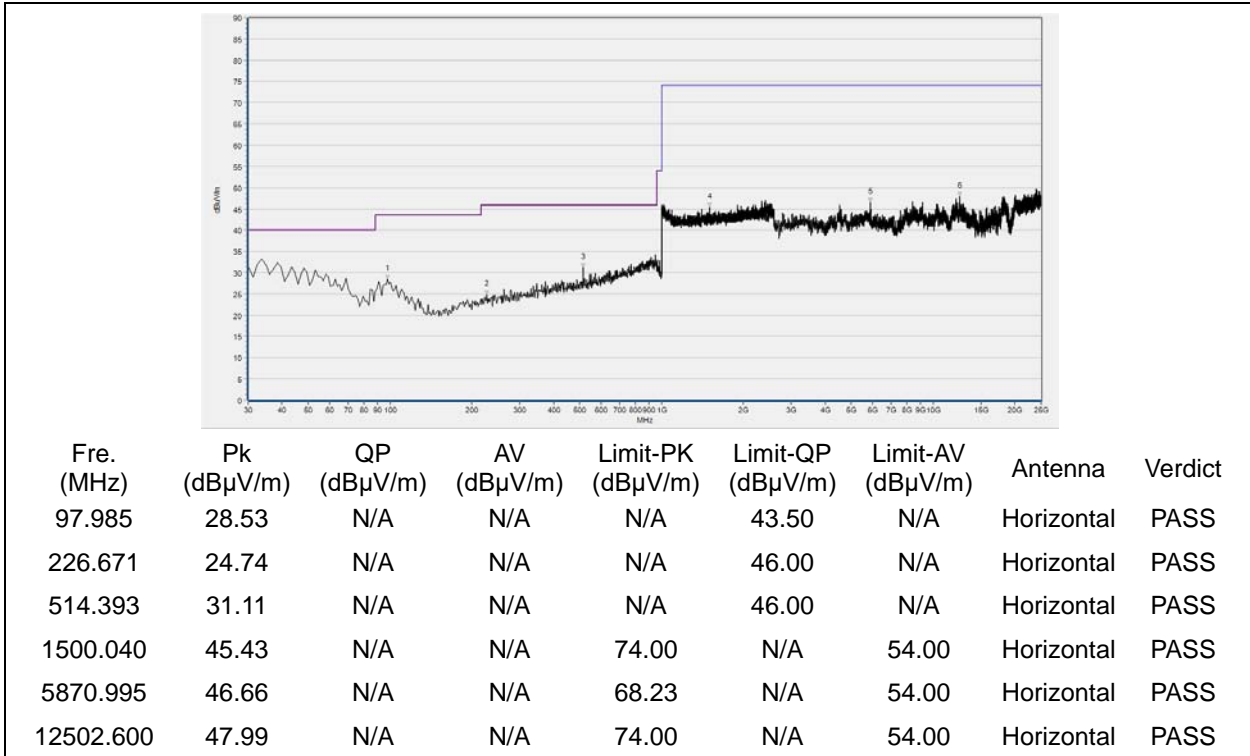
(Antenna Horizontal, 30MHz to 18GHz)



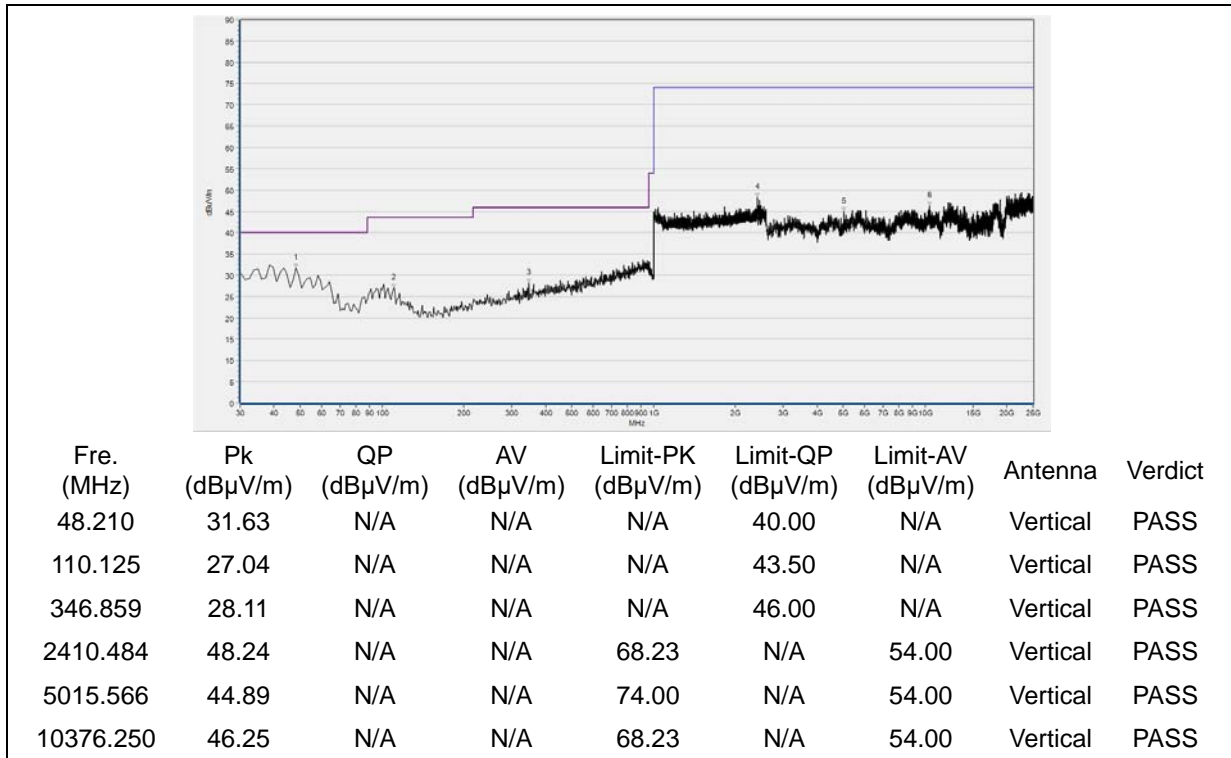
Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
48.210	32.39	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
89.487	28.47	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
314.080	26.44	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2081.393	45.75	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
4465.648	46.19	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
10331.442	46.21	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 151

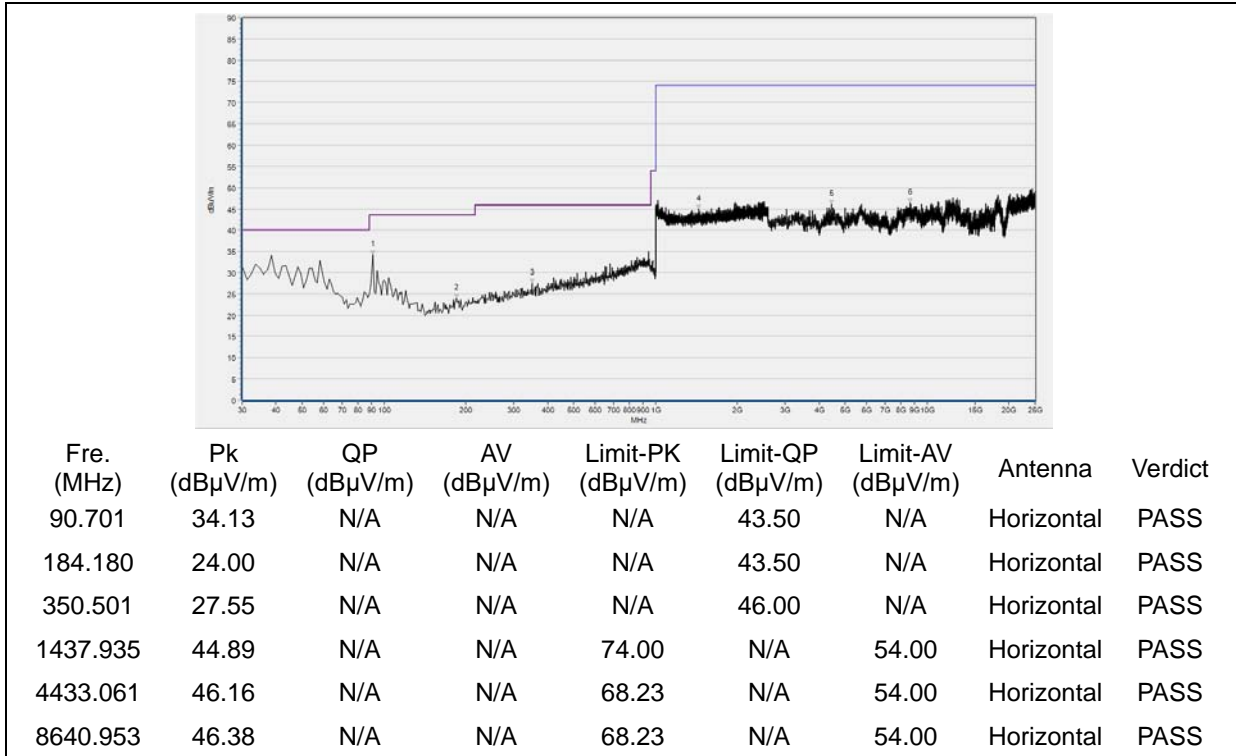


(Antenna Horizontal, 30MHz to 18GHz)

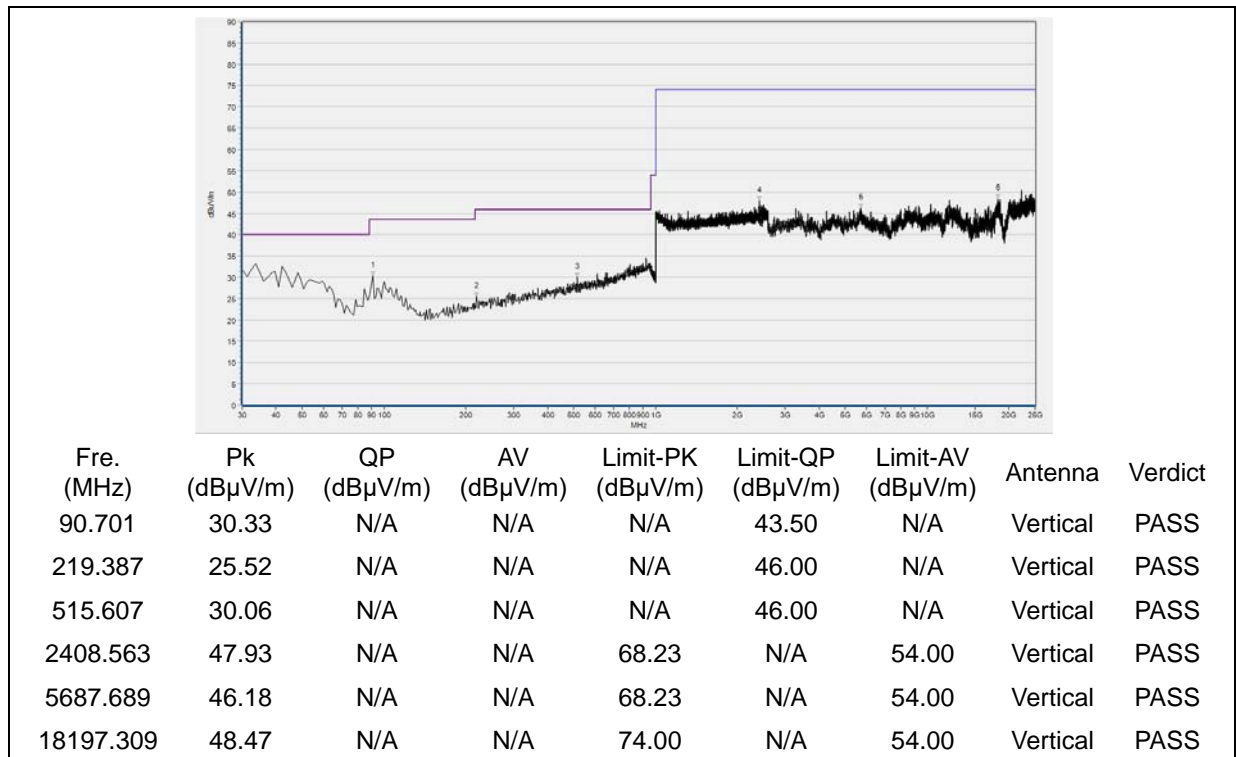


(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 159



(Antenna Horizontal, 30MHz to 18GHz)

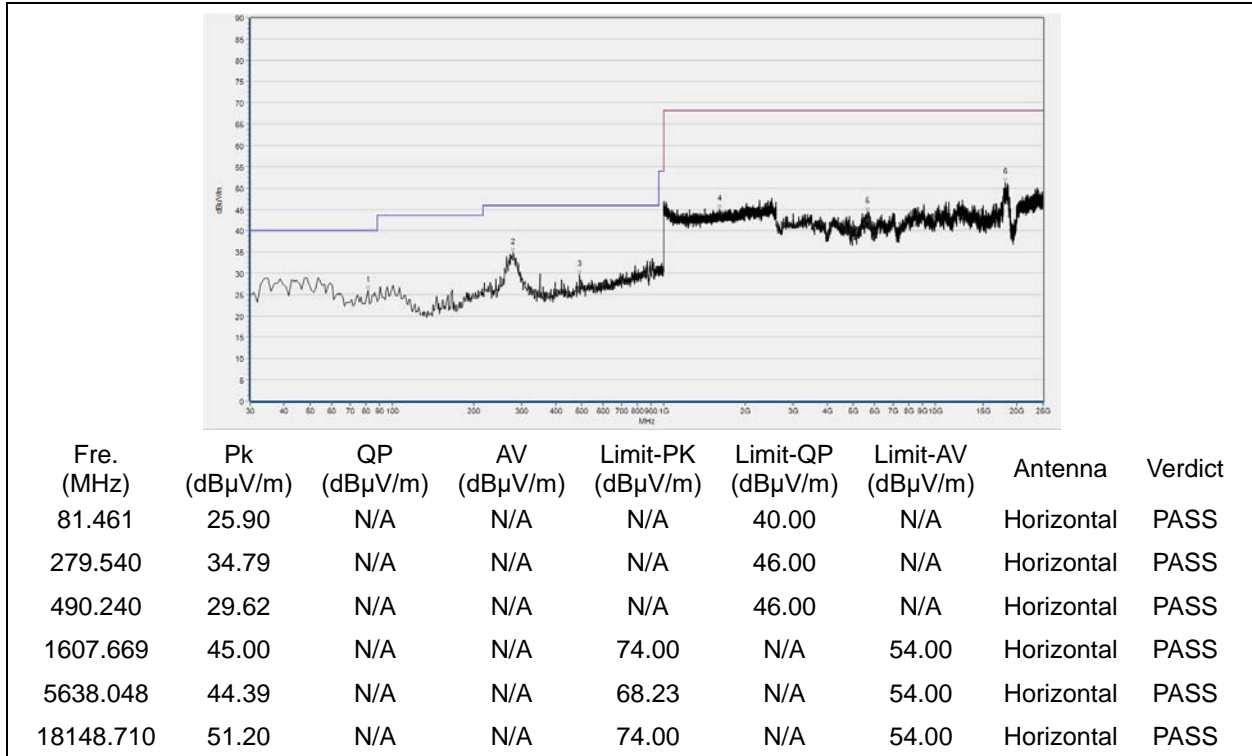


(Antenna Vertical, 30MHz to 18GHz)

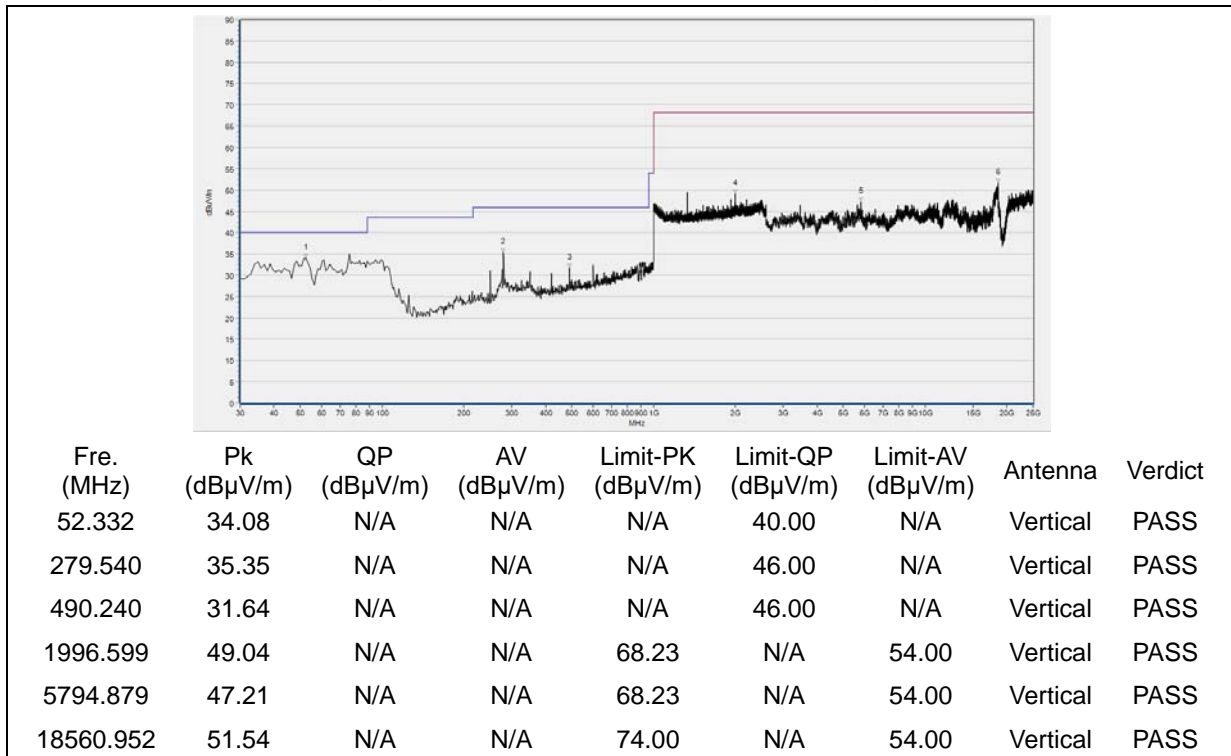


802.11ac (VHT80) Test mode

Plots for Channel = 42

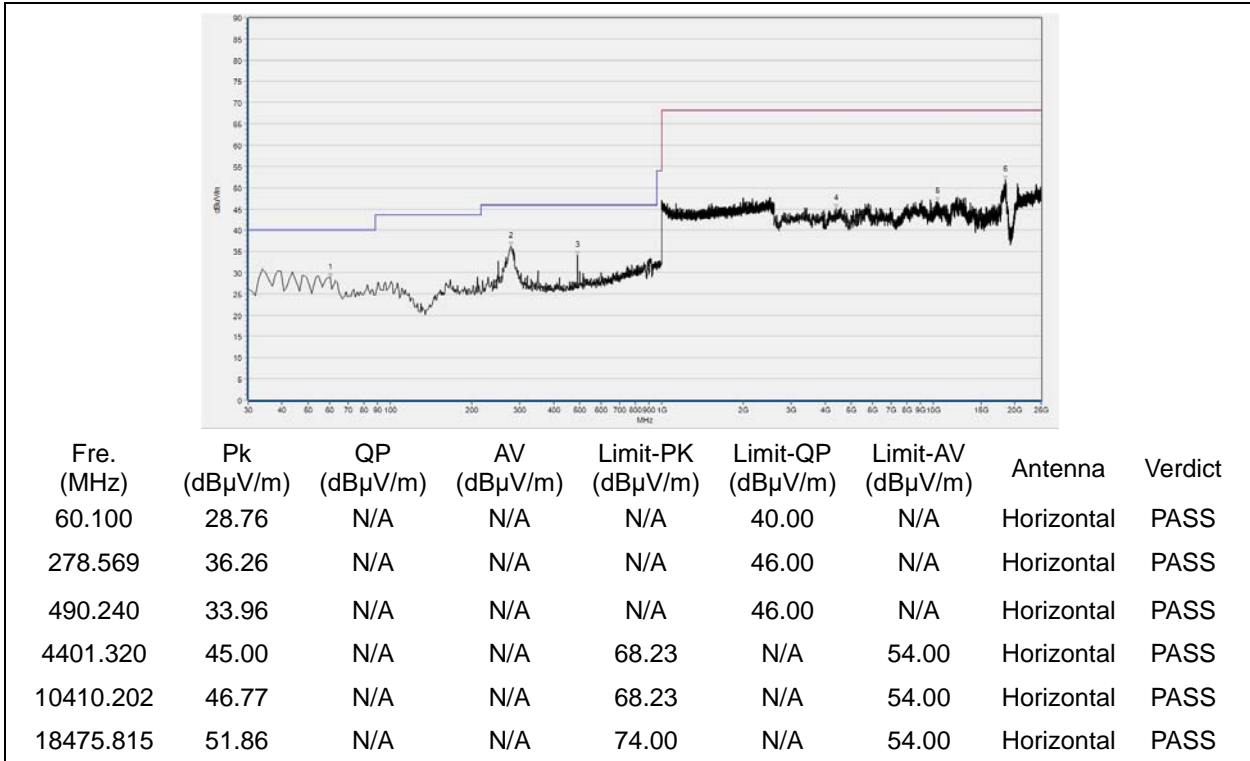


(Antenna Horizontal, 30MHz to 18GHz)

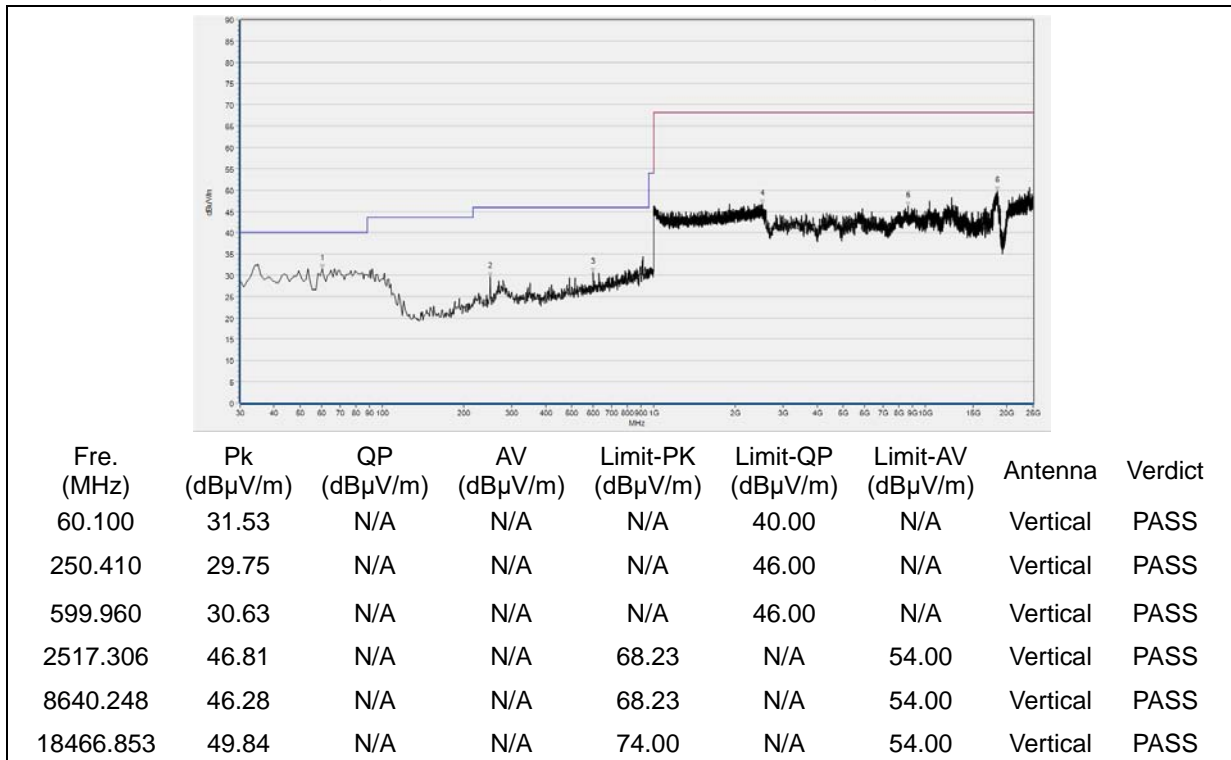


(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 155



(Antenna Horizontal, 30MHz to 18GHz)



(Antenna Vertical, 30MHz to 18GHz)



2.9. Automatically discontinue transmission requirement

2.9.1. Requirement

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

2.9.2. Result

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



Annex A Test Uncertainty

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

Test items	Uncertainty
Peak Output Power	±2.22dB
Power spectral density (PSD)	±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

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

2. Identification of the Responsible Testing Location

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

3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013 and CISPR Publication 22; the FCC designation number is CN1192.



4. Test Equipments Utilized

4.1 Conducted Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Power Splitter	NW521	1506A	Weinschel	2017.05.24	2018.05.23
Attenuator 1	(N/A.)	10dB	Resnet	2017.05.24	2018.05.23
Attenuator 2	(N/A.)	3dB	Resnet	2017.05.24	2018.05.23
EXA Signal Analyzer	MY53470836	N9010A	Agilent	2017.12.03	2018.12.02
USB Wideband Power Sensor	MY54210011	U2021XA	Agilent	2017.05.24	2018.05.23
RF cable (30MHz-26GHz)	CB01	RF01	Morlab	N/A	N/A
Coaxial cable	CB02	RF02	Morlab	N/A	N/A
SMA connector	CN01	RF03	HUBER-SUHNER	N/A	N/A

4.2 Conducted Emission Test Equipments

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

4.3 Auxiliary Test Equipment

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

4.4 List of Software Used

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

**4.4 Radiated Test Equipments**

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

————— END OF REPORT —————