REPORT No.: SZ19100071W07

TEST REPORT

APPLICANT	:	BLU Products, Inc.
PRODUCT NAME	:	Smart Phone
MODEL NAME	:	G70
BRAND NAME	:	BLU
FCC ID	:	YHLBLUG70
STANDARD(S)	:	47 CFR Part 15 Subpart E
RECEIPT DATE	:	2019-11-12
TEST DATE	:	2019-11-18 to 2019-11-29
ISSUE DATE	:	2019-12-05

Edited by: Zeng Xiaoying (Rapporteur)

Approved by: Peng Huarui (Supervisor)

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DIRECTORY

Change History		
Version	**Date**	**Reason for change**
1.0	2019-12-05	First edition

1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	BLU Products, Inc.
Applicant Address:	10814 NW 33rd St # 100 Doral, FL 33172,USA
Manufacturer:	BLU Products, Inc.
Manufacturer Address:	10814 NW 33rd St # 100 Doral, FL 33172,USA

1.2. Equipment Under Test (EUT) Description

Product Name:	Smart Phone	
Serial No:	(N/A, marked #1 by test site)	
Hardware Version:	E959_V1.1	
Software Version:	E959_BLU_63_P0_V0.1.4_S190929	
Modulation Technology:	OFDM	
Modulation Mode:	802.11a, 802.11n(HT20), 802.11n(HT40)	
Operating Frequency Range:	5.180 GHz- 5.240 GHz; 5.500 GHz -5.720 GHz ; 5.745GHz- 5.825GHz	
Channel Number:	Refer to 1.4	
Antenna Type:	PIFA Antenna	
Antenna Gain:	0.8dBi	
Accessory Information:	Battery	
	Brand Name:	BLU
	Model No.:	P866546390L
	Capacity:	3900mAh
	Rated Voltage:	3.80V
	Charge Limit:	4.35V
	AC Adapter	
	Brand Name:	BLU
	Model No.:	US-WT-2000
	Rated Output:	5V⎓2A
	Rated Input:	100-240V ～ 50/60Hz 0.3A

Note 1: WIFI hotspot does not support U-NII band.

Note 2: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.3. Modulation Type and Data Rate of EUT

Modulation Technology	Modulation Type	Data Rate (Mbps) Note1
OFDM (802.11a)	BPSK	**6**/9
	QPSK	12/18
	16QAM	24/36
	64QAM	48/54
OFDM (802.11n)	BPSK	**6.5**
	QPSK	13/19.5
	16QAM	26/39
	64QAM	52/58.5/65

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 of EUT

Frequency Range: 5180MHz-5240MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	**36**	**5180**	40	5200
	44	**5220**	**48**	**5240**
40MHz	**38**	**5190**	**46**	**5230**
Frequency Range: 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**
Frequency Range: 5745-5825MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	**149**	**5745**	153	5765
	157	**5785**	161	5805
	165	**5825**		
40MHz	**151**	**5775**	**159**	**5795**

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	PASS	No deviation
2	ANSI C63.10	Duty Cycle of the test signal	Nov 27, 2019	Zhou Chuang	PASS	No deviation
3	15.407(a)	Maximum conducted output Power	Nov 27, 2019	Zhou Chuang	PASS	No deviation
4	15.407(a)(e)	Emission Bandwidth	Nov 27, 2019	Zhou Chuang	PASS	No deviation
5	15.407(a)	Maximum Power spectral density	Nov 27, 2019	Zhou Chuang	PASS	No deviation
6	15.407(g)	Frequency Stability	Nov 27, 2019	Zhou Chuang	PASS	No deviation
7	15.207	Conducted Emission	Nov 18, 2019	Lin Jiayong	PASS	No deviation
8	15.407(b)	Restricted Frequency Bands	Nov 26&27&28, 2019	Gao Jianrou	PASS	No deviation
9	15.407(b)	Radiated Emission	Nov 29, 2019	Gao Jianrou	PASS	No deviation

Note 1: The DFS test report was documented in a separate report (Report No.: SZ19100071W08).

Note 2: The tests were performed according to the method of measurements prescribed in ANSIC63.10-2013, KDB789033 D02 v02r01.

Note 3: The path loss during the RF test is calibrated to correct the results by the offset setting in the test equipments. The ref offset 12dB contains two parts that cable loss 2dB and Attenuator 10dB.

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.

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. Antenna Requirement

2.1.1. Applicable Standard

According to FCC 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

2.1.2. Result: Compliant

The EUT has a permanently and irreplaceable attached antenna. Please refer to the EUT internal photos.

2.2. Duty Cycle of the Test Signal

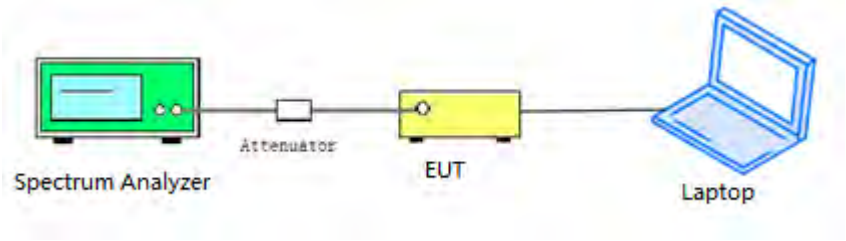
2.2.1. Requirement

Preferably, all measurements of maximum conducted (average) output power will be performed with the EUT transmitting continuously (i.e., with a duty cycle of greater than or equal to 98%). When continuous operation cannot be realized, then the use of sweep triggering/signal gating techniques can be used to ensure that measurements are made only during transmissions at the maximum power control level. Such sweep triggering/signal gating techniques will require knowledge of the minimum transmission duration (T) over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation. Sweep triggering/signal gating techniques can then be used if the measurement/sweep time of the analyzer can be set such that it does not exceed T at any time that data are being acquired (i.e., no transmitter OFF-time is to be considered).

When continuous transmission cannot be achieved and sweep triggering/signal gating cannot be implemented, alternative procedures are provided that can be used to measure the average power; however, they will require an additional measurement of the transmitter duty cycle (D). Within this subclause, the duty cycle refers to the fraction of time over which the transmitter is ON and is transmitting at its maximum power control level. The duty cycle is considered to be constant if variations are less than ±2%; otherwise, the duty cycle is considered to be nonconstant.

2.2.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

2.2.3. Test Procedure

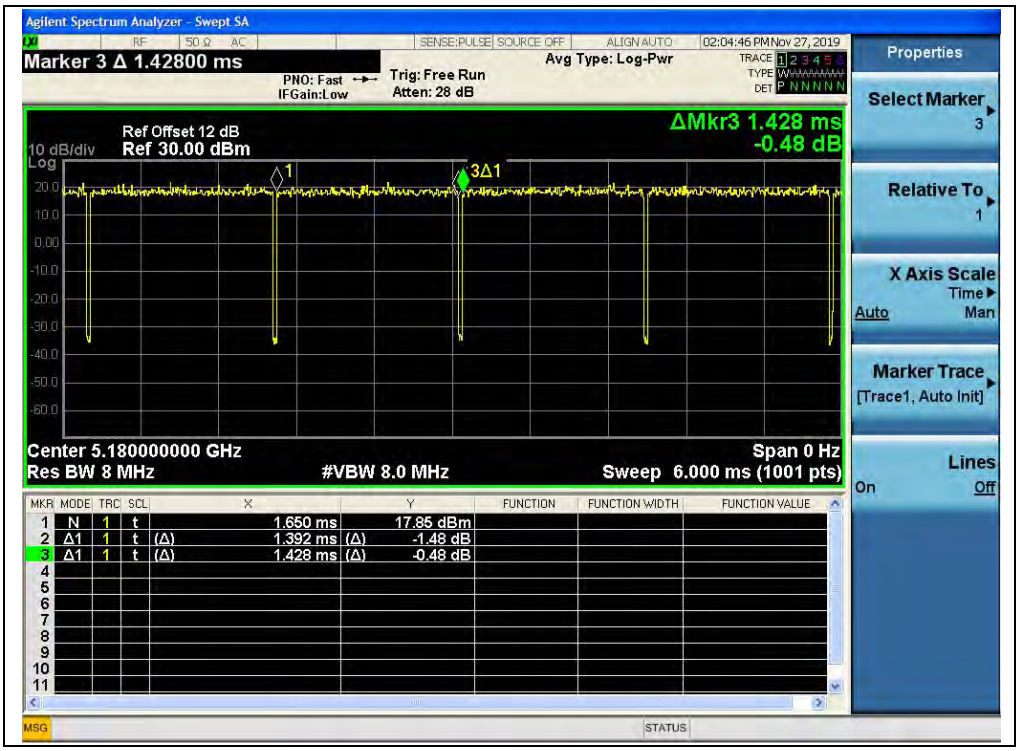
KDB 789033 Section B was used in order to prove compliance.

2.2.4. Test Result

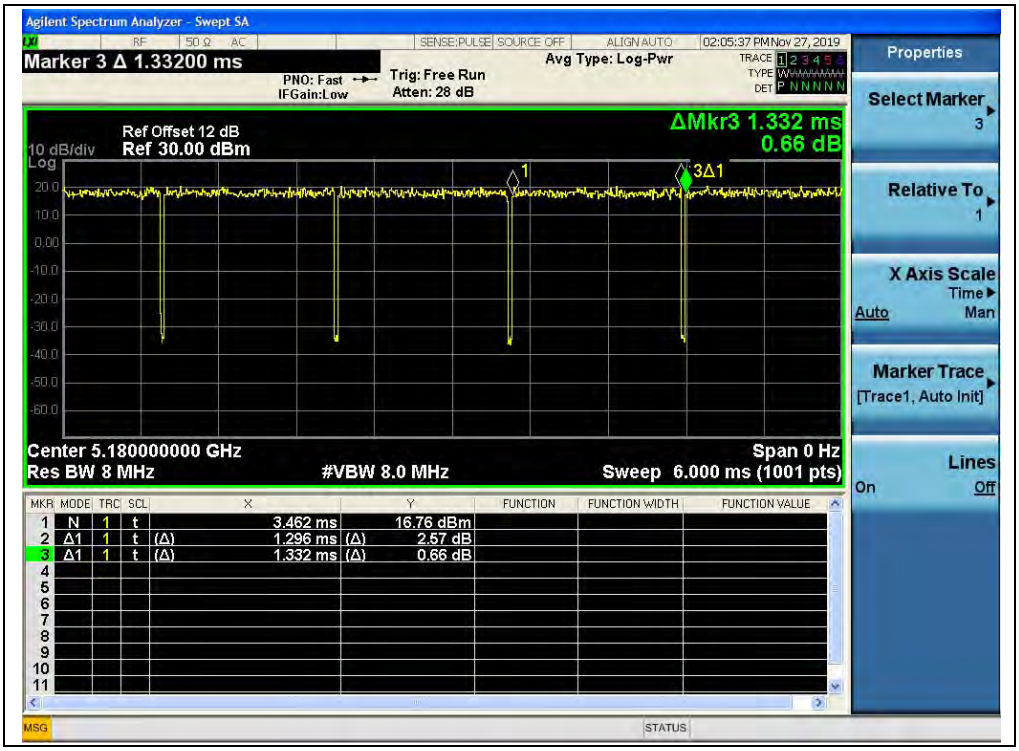
A. Test Verdict:

Test Mode	Duty Cycle (%) (D)	Duty Factor (10*log[1/D])
802.11a	97.48	0.11
802.11n(HT20)	97.30	0.12
802.11n(HT40)	94.74	0.23

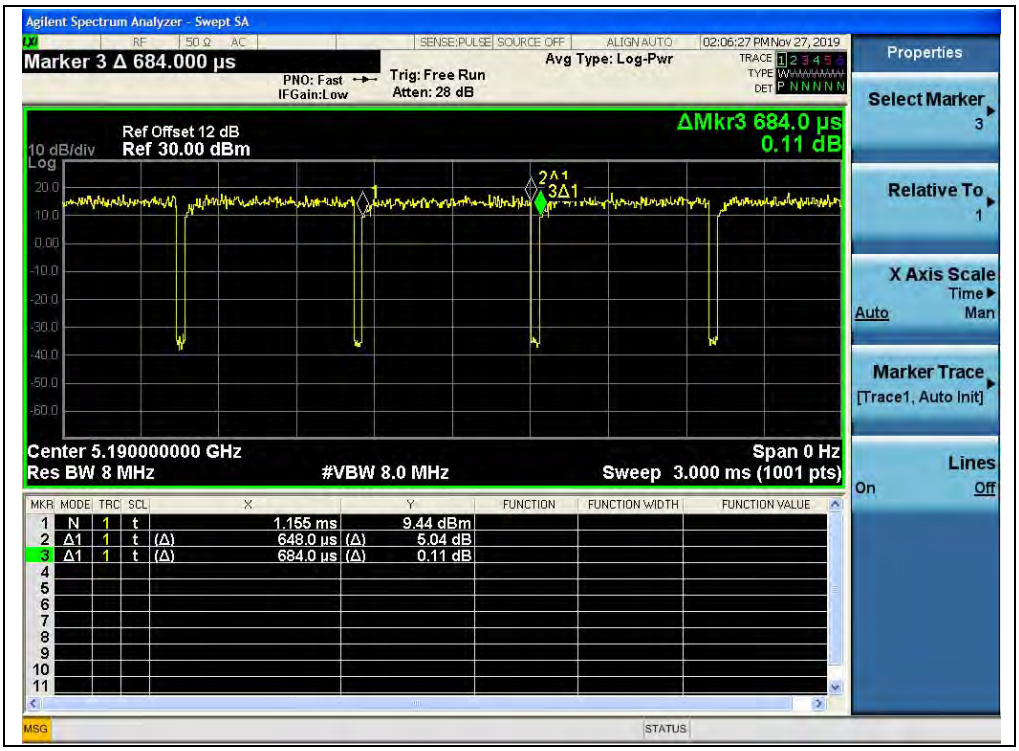
B. Test Plots



(Channel 36, 802.11a)



(Channel 36, 802.11n (HT20))



(Channel 38, 802.11n (HT40))

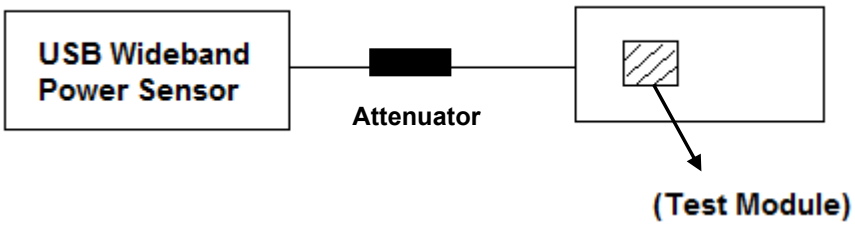
2.3. Maximum Conducted Output Power

2.3.1. Requirement

(1) For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.
(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.
(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.
If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
(4) According to KDB662911D01Measure-and-sum technique, the conducted emission level (e.g., transmit power or power in specified bandwidth) is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in units that are directly proportional to power.
(5) According to KDB 662911 D01, the directional gain = G_{ANT} +10log(N_{ANT}) dBi, where G_{ANT} is the antenna gain in dBi, N_{ANT} is the number of outputs.

2.3.2. Test Description

Section E) 3) of KDB 789033 defines a methodology using a USB Wideband Power Sensor.
Test Setup:



The EUT (Equipment under the test) which is coupled to the USB Wideband Power Sensor; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading, all test result in USB Wideband Power Sensor.

2.3.3. Limits

For the 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

Mode	Band	Channel (MHz)	26dB BW (MHz)	11+10log(26dB BW)	Limits (dBm)
a	UNII-2c	5500	23.16	24.65	24.00
		5600	21.08	24.24	24.00
		5720	21.94	24.41	24.00
n20	UNII-2c	5500	23.60	24.73	24.00
		5600	21.38	24.30	24.00
		5720	20.60	24.14	24.00

2.3.4. Test Result

Maximum Average Conducted Output Power

802.11a Test mode

Frequency (MHz)	Average Power (dBm)				Limit (dBm)		Verdict
	Measured	Duty Factor	Duty factor Calculated				
	dBm		dBm	W	dBm	W	
5180	16.46	0.11	**16.57**	**0.045**	24	0.25	PASS
5220	15.63		15.74	0.037			
5240	15.74		15.85	0.038			
5500	15.04		15.15	0.033			
5600	15.35		15.46	0.035			
5720	15.59		15.70	0.037			
5745	15.23		15.34	0.034	30	1	
5785	15.14		15.25	0.033			
5825	15.18		15.29	0.034			

802.11 n (HT20) Test mode

Frequency (MHz)	Average Power (dBm)				Limit (dBm)		Verdict
	Measured	Duty Factor	Duty factor Calculated				
	dBm		dBm	W	dBm	W	
5180	15.72	0.12	15.84	0.038	24	0.25	PASS
5220	15.92		**16.04**	**0.040**			
5240	15.69		15.81	0.038			
5500	15.17		15.29	0.034			
5600	15.58		15.70	0.037			
5720	15.86		15.98	0.040			
5745	15.14		15.26	0.034	30	1	
5785	15.37		15.49	0.035			
5825	15.14		15.26	0.034			

802.11 n (HT40) Test mode

Frequency (MHz)	Average Power (dBm)				Limit (dBm)		Verdict
	Measured	Duty Factor	Duty factor Calculated				
	dBm		dBm	W	dBm	W	
5190	15.69	0.23	**15.92**	**0.039**	24	0.25	PASS
5230	15.64		15.87	0.039			
5510	15.32		15.55	0.036			
5630	15.49		15.72	0.037			
5710	15.59		15.82	0.038			
5755	15.04		15.27	0.034	30	1	
5795	15.21		15.44	0.035			

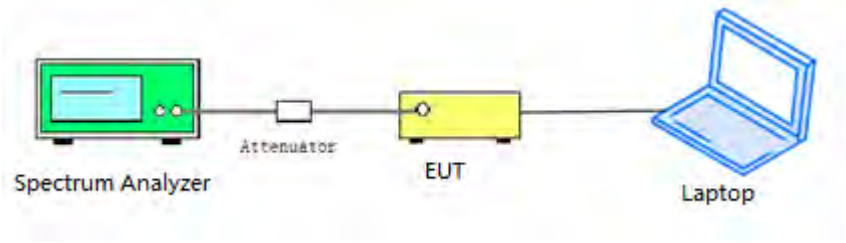
2.4. Emission Bandwidth

2.4.1. Requirement

For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Determination of the emissions bandwidth is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement. Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

2.4.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

2.4.3. Test Procedure

1. KDB 789033 Section C) 1) Emission Bandwidth was used in order to prove compliance
a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
2. KDB 789033 Section C) 2) minimum emission bandwidth for the band 5.725-5.85GHz was used in order to prove compliance.
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

2.4.4. Test Result

802.11a Test mode

A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	26.49
44	5220	24.58
48	5240	24.56
100	5500	23.16
120	5600	21.08
144	5720	21.94
Channel	**Frequency (MHz)**	**6 dB Bandwidth (MHz)**
144	5720	16.27
149	5745	16.28
157	5785	16.30
165	5825	16.04

B. Test Plots

(Channel 36, 802.11a)

(Channel 44, 802.11a)

(Channel 48, 802.11a)

(Channel 100, 802.11a)

(Channel 120, 802.11a)

(Channel 144, 802.11a)

(Channel 144, 802.11a)

(Channel 149, 802.11a)

(Channel 157, 802.11a)

(Channel 165, 802.11a)

802.11n (HT20) Test mode

A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
36	5180	27.24
44	5220	25.99
48	5240	25.86
100	5500	23.60
120	5600	21.38
144	5720	20.60
Channel	**Frequency (MHz)**	**6 dB Bandwidth (MHz)**
144	5720	17.53
149	5745	16.53
157	5785	17.20
165	5825	14.20

B. Test Plots

(Channel 36, 802.11n (HT20))

(Channel 44, 802.11n (HT20))

(Channel 48, 802.11n (HT20))

(Channel 100, 802.11n (HT20))

(Channel 120, 802.11n (HT20))

(Channel 144, 802.11n (HT20))

(Channel 144, 802.11n (HT20))

(Channel 149, 802.11n (HT20))

(Channel 157, 802.11n (HT20))

(Channel 165, 802.11n (HT20))

802.11n (HT40) Test mode

A. Test Verdict:

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
38	5190	59.11
46	5230	57.98
102	5510	56.63
126	5630	60.71
142	5710	51.81
Channel	**Frequency (MHz)**	**6 dB Bandwidth (MHz)**
142	5710	35.23
151	5755	35.15
159	5795	35.60

B. Test Plots

(Channel 38, 802.11n (HT40))

(Channel 46, 802.11n (HT40))

(Channel 102, 802.11n (HT40))

(Channel 126, 802.11n (HT40))

(Channel 142, 802.11n (HT40))

(Channel 142, 802.11n (HT40))

(Channel 151, 802.11n (HT40))

(Channel 159, 802.11n (HT40))

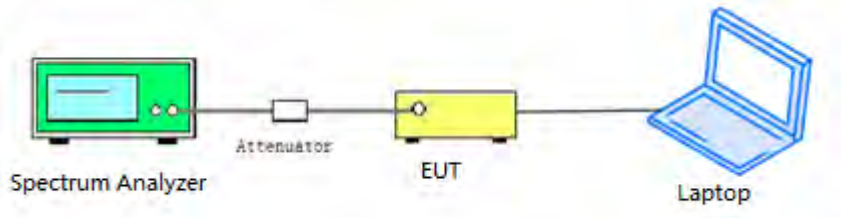
2.5. Peak Power spectral density

2.5.1. Requirement

(1) For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.
(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.
(3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500KHz band.
If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
(4) According to KDB662911D01Measure-and-sum technique, the conducted emission level (e.g., transmit power or power in specified bandwidth) is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in units that are directly proportional to power.
(5) According to KDB 662911 D01, the directional gain = G_{ANT} +10log(N_{ANT}) dBi, where G_{ANT} is the antenna gain in dBi, N_{ANT} is the number of outputs.

2.5.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

2.5.3. Test Procedure

KDB 789033 Section F) Maximum Power Spectral Density (PSD) Method SA-1 was used in order to prove compliance

1) Set span to encompass the entire 26-dB emission bandwidth
2) Set RBW = 1 MHz. Set VBW ≥ 3 MHz.
3) Number of points in sweep ≥ 2 Span / RBW. Sweep time = auto.
4) Detector = Peak
5) Trace mode=Max hold
6) Record the max value

2.5.4. Test Result

802.11a Test mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured PPSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
36	5180	4.49	11	PASS
44	5220	4.24		
48	5240	4.17		
100	5500	3.42		
120	5600	4.15		
144	5720	4.48		
Channel	Frequency (MHz)	Measured PPSD (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
144	5720	1.79	30	PASS
149	5745	1.22		
157	5785	0.53		
165	5825	1.41		

B. Test Plots

(Channel 36, 802.11a)

(Channel 44, 802.11a)

(Channel 48, 802.11a)

(Channel 100, 802.11a)

(Channel 120, 802.11a)

(Channel 144, 802.11a)

(Channel 144, 802.11a)

(Channel 149, 802.11a)

(Channel 157, 802.11a)

(Channel 165, 802.11a)

802.11n (HT20) Test mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured PPSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
36	5180	3.97	11	PASS
44	5220	5.07		
48	5240	4.64		
100	5500	4.18		
116	5600	4.19		
144	5720	4.24		
Channel	Frequency (MHz)	Measured PPSD (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
144	5720	1.86	30	PASS
149	5745	1.32		
157	5785	1.26		
165	5825	1.54		

B. Test Plots

(Channel 36, 802.11n (HT20))

(Channel 44, 802.11n (HT20))

(Channel 48, 802.11n (HT20))

(Channel 100, 802.11n (HT20))

(Channel 120, 802.11n (HT20))

(Channel 144, 802.11n (HT20))

(Channel 144, 802.11n (HT20))

(Channel 149, 802.11n (HT20))

(Channel 157, 802.11n (HT20))

(Channel 165, 802.11n (HT20))

802.11n (HT40) Test mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured PPSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
38	5190	1.49	11	PASS
46	5230	1.62		
102	5510	1.08		
126	5630	0.56		
142	5710	0.52		
Channel	Frequency (MHz)	Measured PPSD (dBm/500KHz)	Limit (dBm/500KHz)	Verdict
142	5710	-1.68	30	PASS
151	5755	-2.33		
159	5795	-2.28		

B. Test Plots

(Channel 38, 802.11n (HT40))

(Channel 46, 802.11n (HT40))

(Channel 102, 802.11n (HT40))

(Channel 126, 802.11n (HT40))

(Channel 142, 802.11n (HT40))

(Channel 142, 802.11n (HT40))

(Channel 151, 802.11n (HT40))

(Channel 159, 802.11n (HT40))

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 Description

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between 5°C to 40°C. The temperature was incremented by 10° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

2.6.3. Test Result

U-NII-1 (Ch. 36) 5180MHz				
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	Freq Dev. (Hz)	Deviation (ppm)
100%	3.80	+20(Ref)	22	0.004
100%		-30	51	0.010
100%		-20	48	0.009
100%		-10	38	0.007
100%		0	38	0.007
100%		+10	25	0.005
100%		+20	27	0.005
100%		+30	34	0.007
100%		+40	55	0.011
100%		+50	44	0.008
85%	3.23	+20	54	0.010
115%	4.37	+20	41	0.008

U-NII-2C (Ch. 100) 5500MHz				
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	Freq Dev. (Hz)	Deviation (ppm)
100%	3.80	+20(Ref)	22	0.004
100%		-30	47	0.009
100%		-20	36	0.007
100%		-10	25	0.005
100%		0	23	0.004
100%		+10	21	0.004
100%		+20	21	0.004
100%		+30	22	0.004
100%		+40	30	0.005
100%		+50	45	0.008
85%	3.23	+20	25	0.005
115%	4.37	+20	33	0.006

U-NII-3 (Ch. 149) 5745MHz				
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	Freq Dev. (Hz)	Deviation (ppm)
100%	3.80	+20(Ref)	22	0.004
100%		-30	54	0.009
100%		-20	44	0.008
100%		-10	35	0.006
100%		0	32	0.006
100%		+10	25	0.004
100%		+20	36	0.006
100%		+30	29	0.005
100%		+40	35	0.006
100%		+50	43	0.007
85%	3.23	+20	44	0.008
115%	4.37	+20	32	0.006

2.7. Conducted Emission

2.7.1. Requirement

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

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

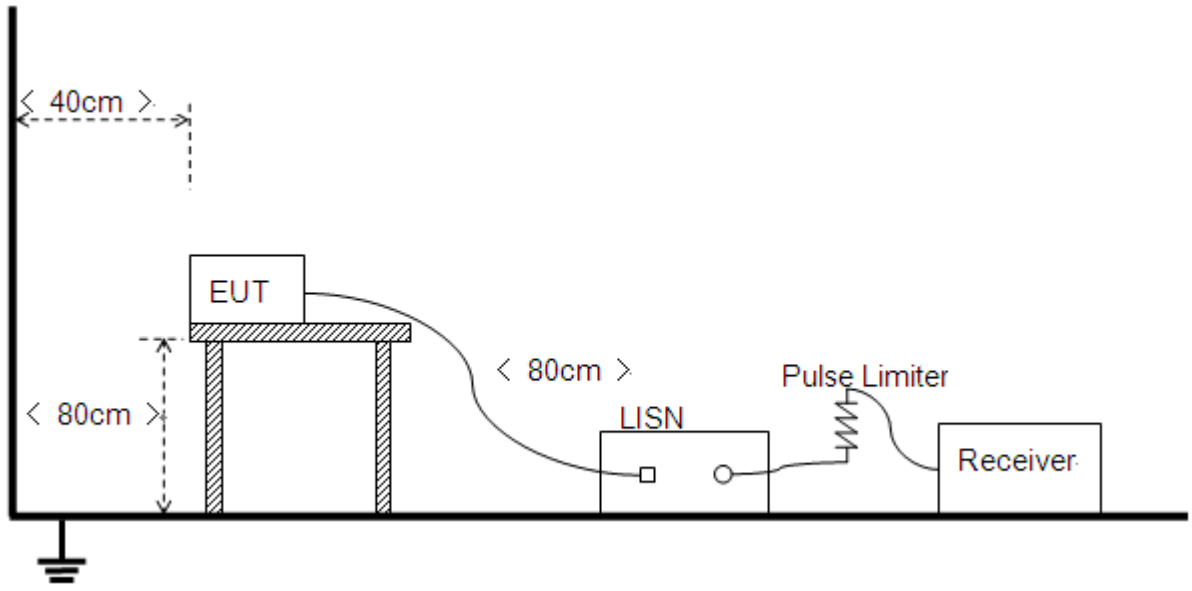
NOTE:

(a) The lower limit shall apply at the band edges.

(b) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

2.7.2. Test Description

Test Setup:



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

2.7.3. Test Result

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

Test Voltage: AC 120V/60Hz

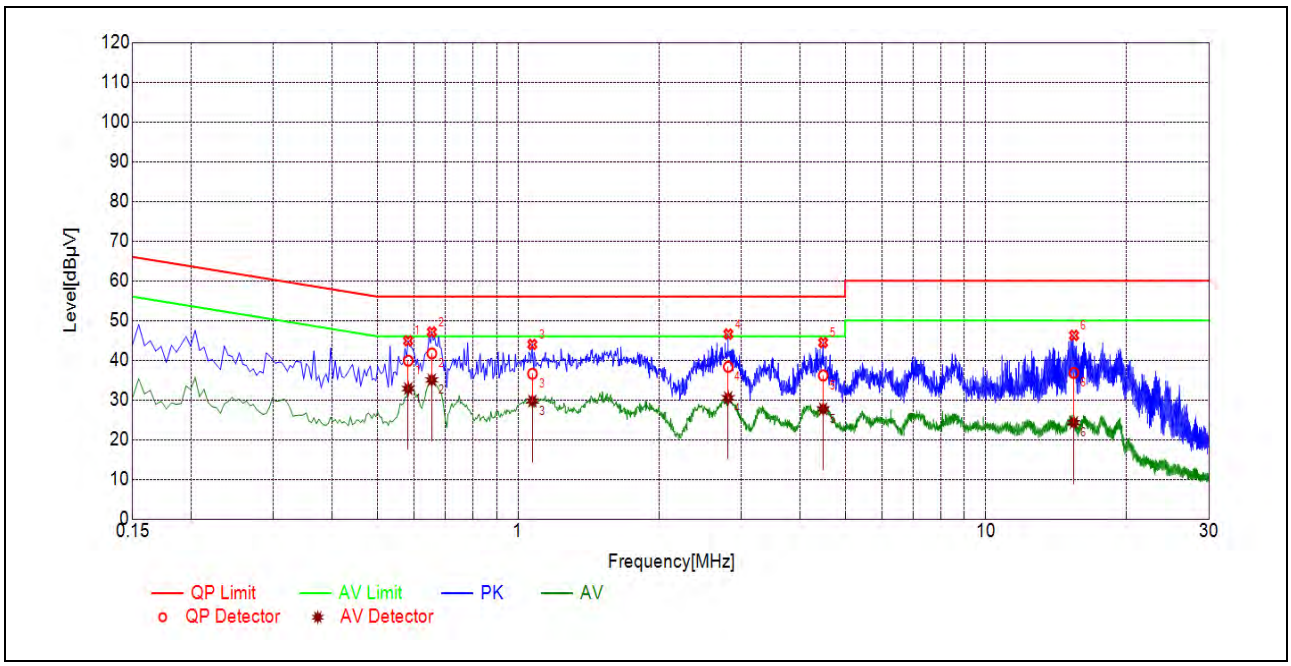
The measurement results are obtained as below:

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

U_R: Receiver Reading

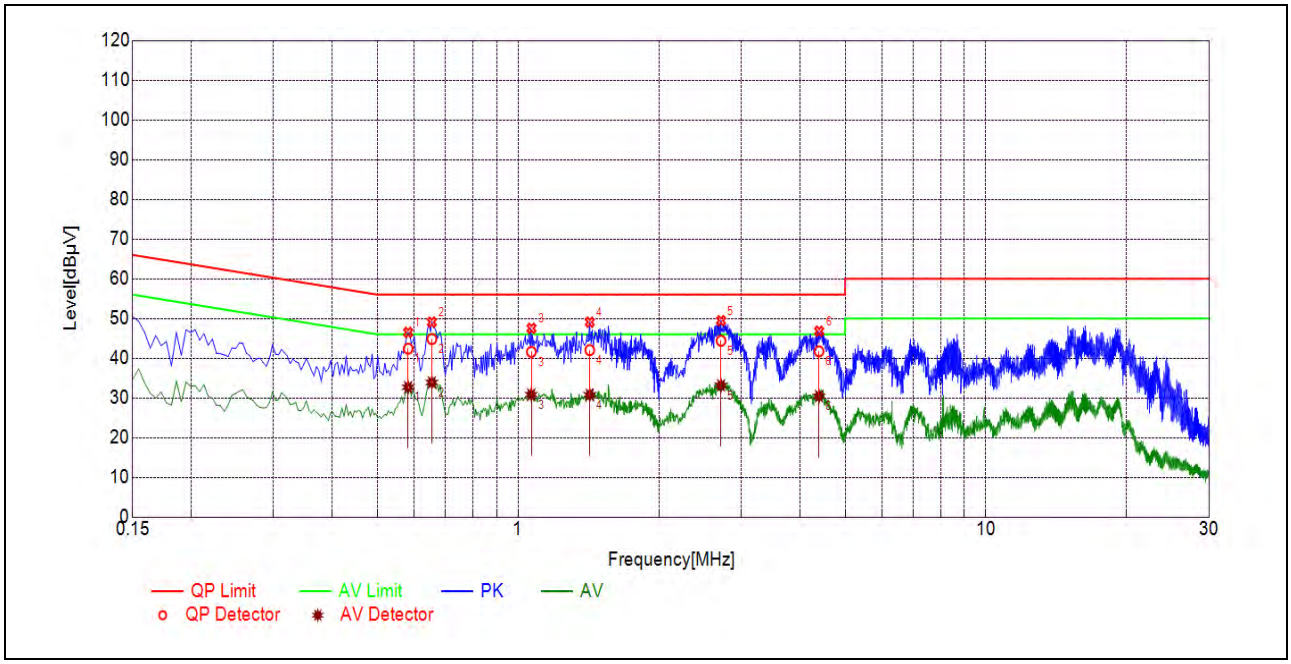
A_{Factor}: Voltage division factor of LISN

B. Test Plots:



(L Phase)

NO.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.5823	39.88	32.85	56.00	46.00	Line	PASS
2	0.6538	41.72	35.02	56.00	46.00		PASS
3	1.0729	36.59	29.73	56.00	46.00		PASS
4	2.8125	38.32	30.53	56.00	46.00		PASS
5	4.4882	36.15	27.72	56.00	46.00		PASS
6	15.4186	36.79	24.27	60.00	50.00		PASS



(N Phase)

NO.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.5819	42.41	32.68	56.00	46.00	Neutral	PASS
2	0.6540	44.82	33.89	56.00	46.00		PASS
3	1.0670	41.60	30.82	56.00	46.00		PASS
4	1.4228	42.05	30.78	56.00	46.00		PASS
5	2.7149	44.39	33.16	56.00	46.00		PASS
6	4.3985	41.73	30.45	56.00	46.00		PASS

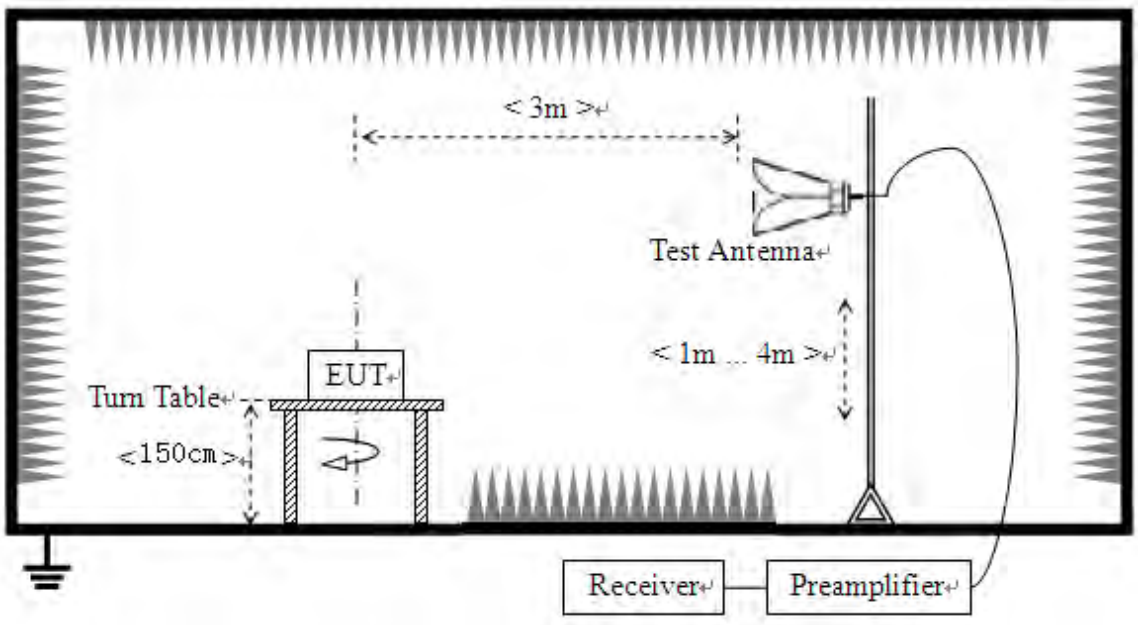
2.8. Restricted Frequency Bands

2.8.1. Requirement

According to FCC section 15.407(b)(7), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in 15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

2.8.2. Test Description

Test Setup



The Module is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading.
KDB 789033 Section H) 3)5)6(d)) was used in order to prove compliance
For the Test Antenna:
Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength.

2.8.3. Test Result

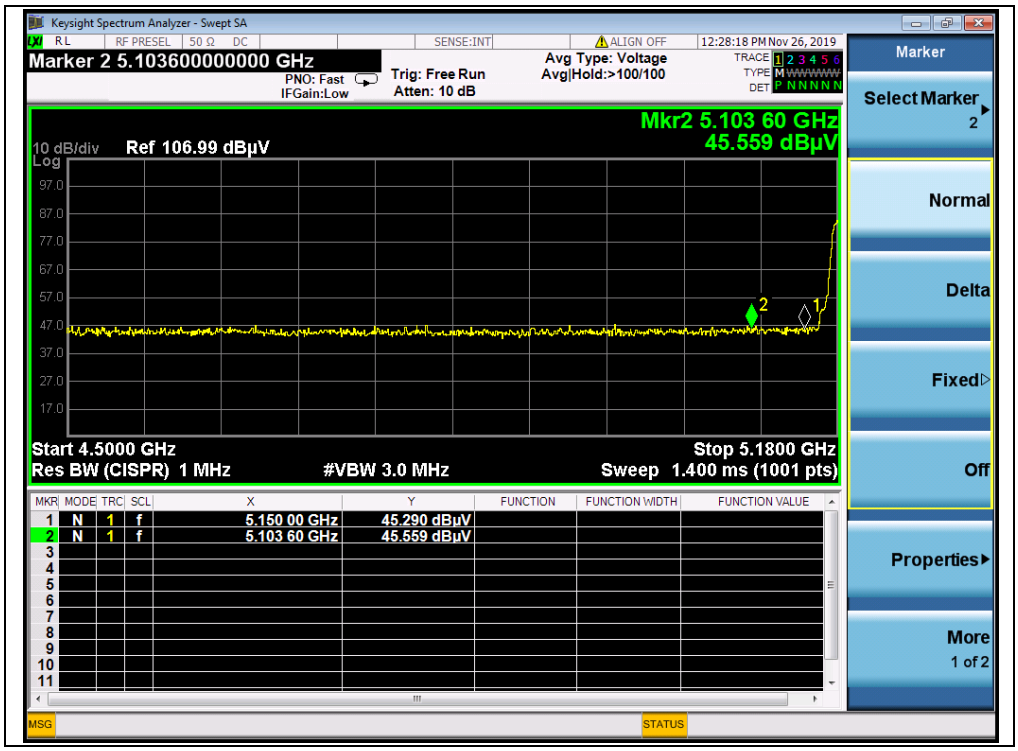
The lowest and highest channels are tested to verify Restricted Frequency Bands.
The measurement results are obtained as below:
E [dBμV/m] =U_R + A_T + A_{Factor} [dB]; A_T =$L_{Cable\ loss}$ [dB]-G_{preamp} [dB]
A_T: Total correction Factor except Antenna; U_R: Receiver Reading
G_{preamp}: Preamplifier Gain; A_{Factor}: Antenna Factor at 3m
Note: 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.

802.11a Test mode

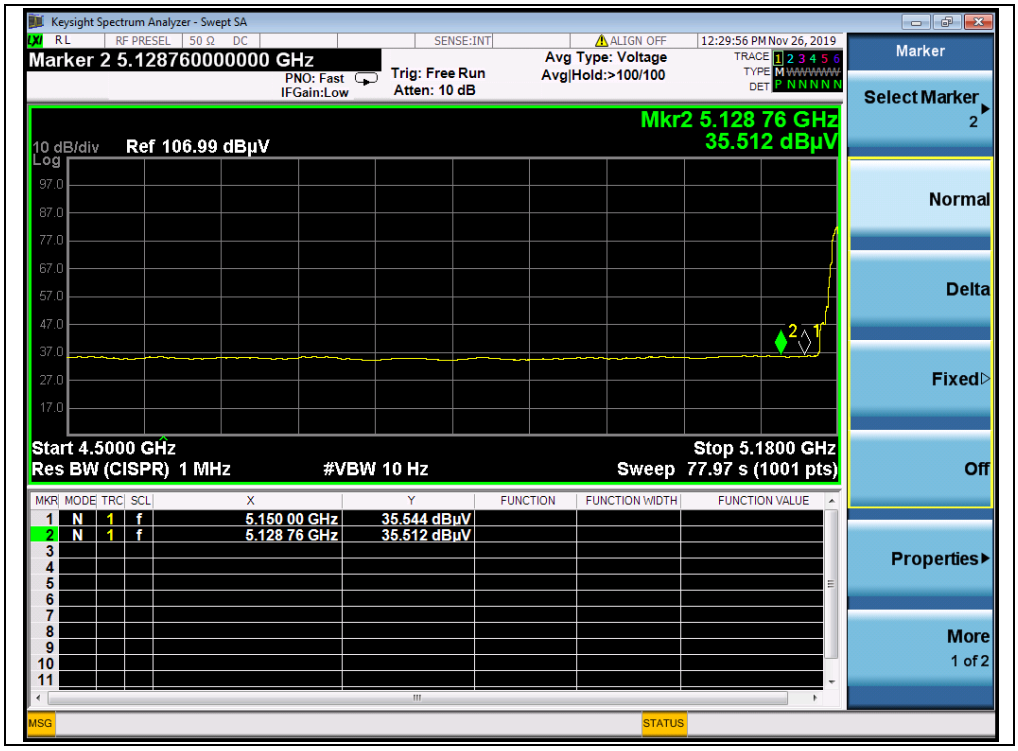
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
36	5103.60	PK	45.56	-26.92	32.20	50.84	74	PASS
36	5150.00	AV	35.54	-26.92	32.20	40.82	54	PASS
48	5400.80	PK	44.93	-26.92	32.20	50.21	74	PASS
48	5400.80	AV	33.64	-26.92	32.20	38.92	54	PASS
100	5470.00	PK	45.31	-26.64	32.20	50.87	68.23	PASS
100	5470.00	AV	36.13	-26.64	32.20	41.69	54	PASS
144	5725.00	PK	46.15	-26.64	32.20	51.71	68.23	PASS
144	5725.00	AV	37.20	-26.64	32.20	42.76	54	PASS
149	5720.00	PK	49.99	-26.23	32.20	55.96	110.83	PASS
149	5720.00	AV	38.44	-26.23	32.20	44.41	54	PASS
165	5855.00	PK	46.00	-26.23	32.20	51.97	110.83	PASS
165	5855.00	AV	36.47	-26.23	32.20	42.44	54	PASS

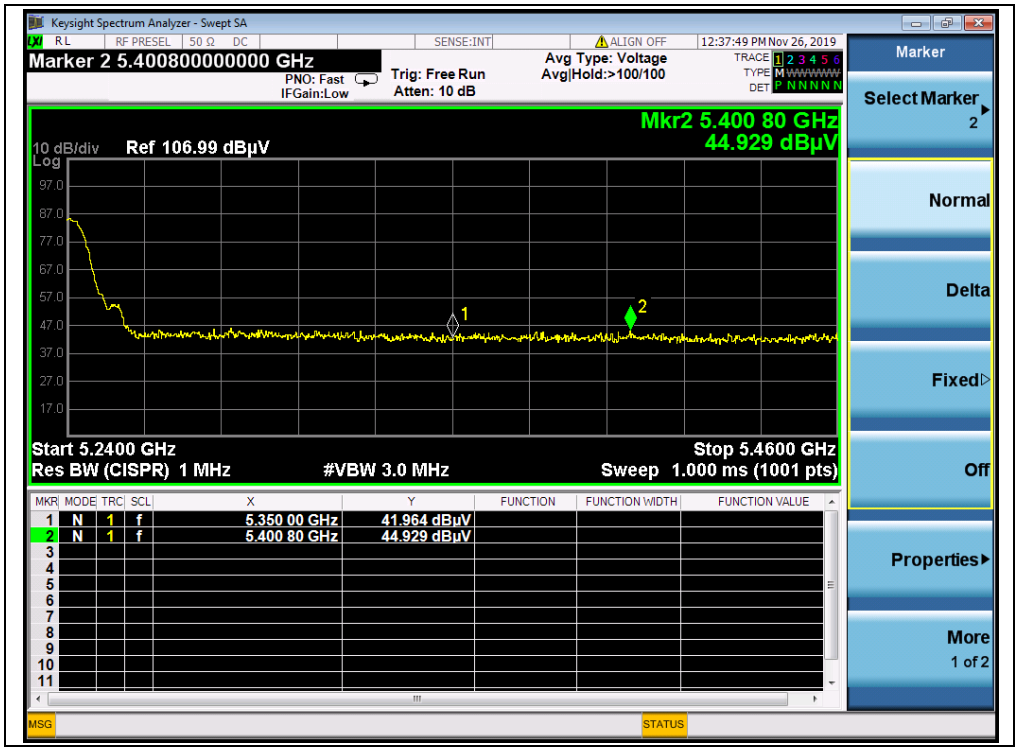
B. Test Plots:



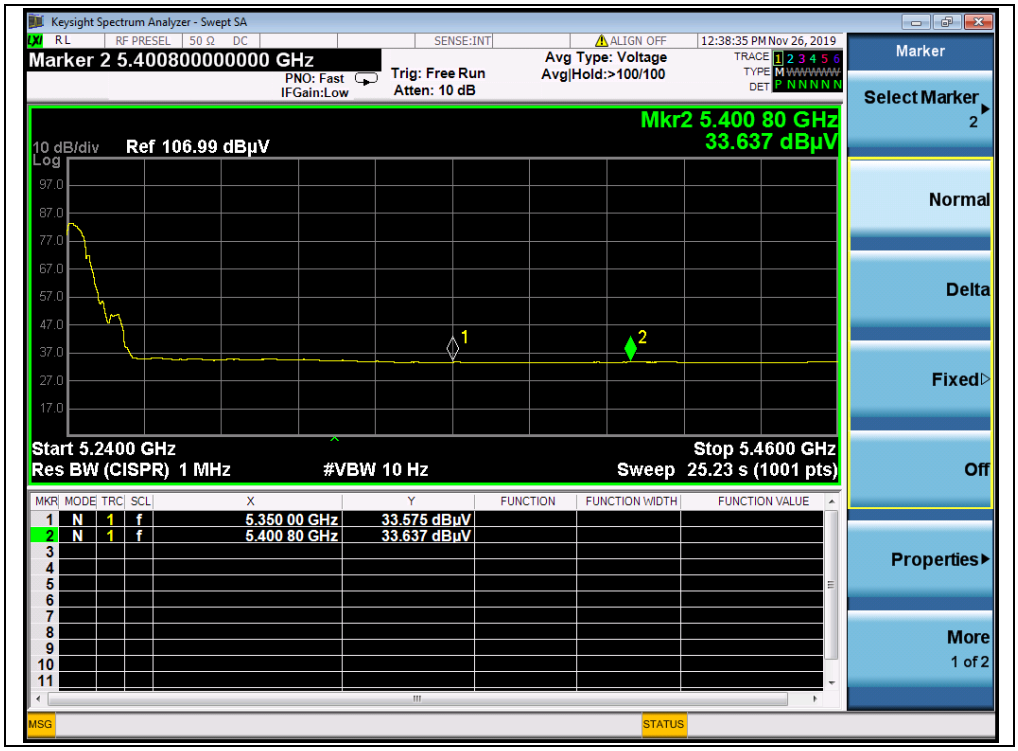
(PEAK, Channel 36, 802.11a)



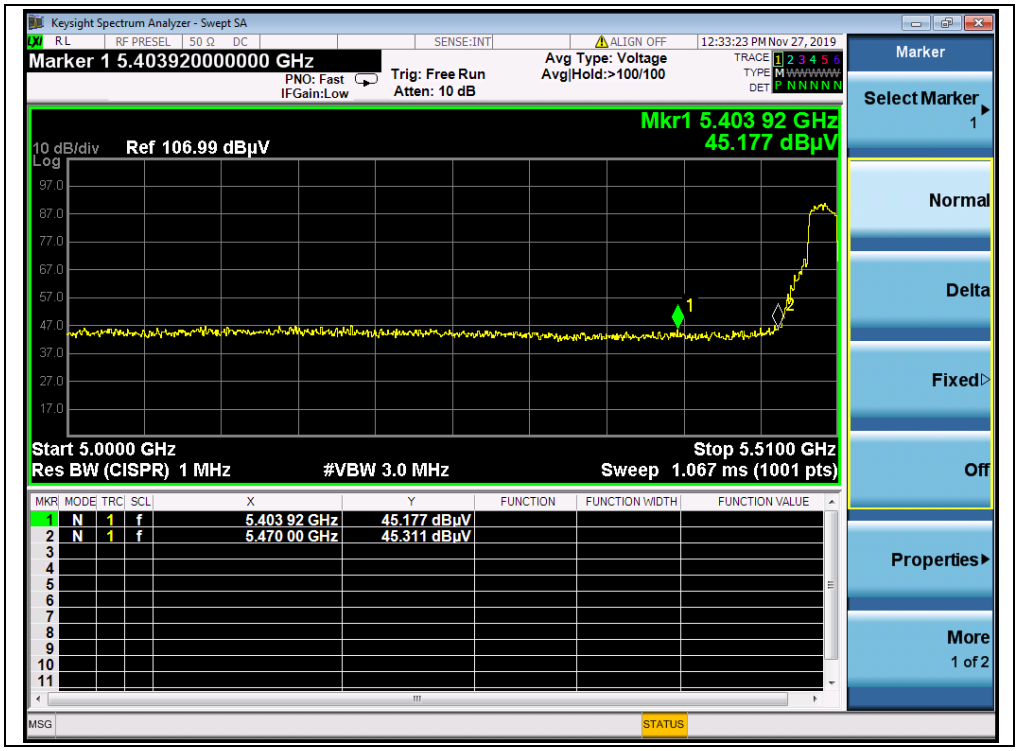
(AVG, Channel 36, 802.11a)



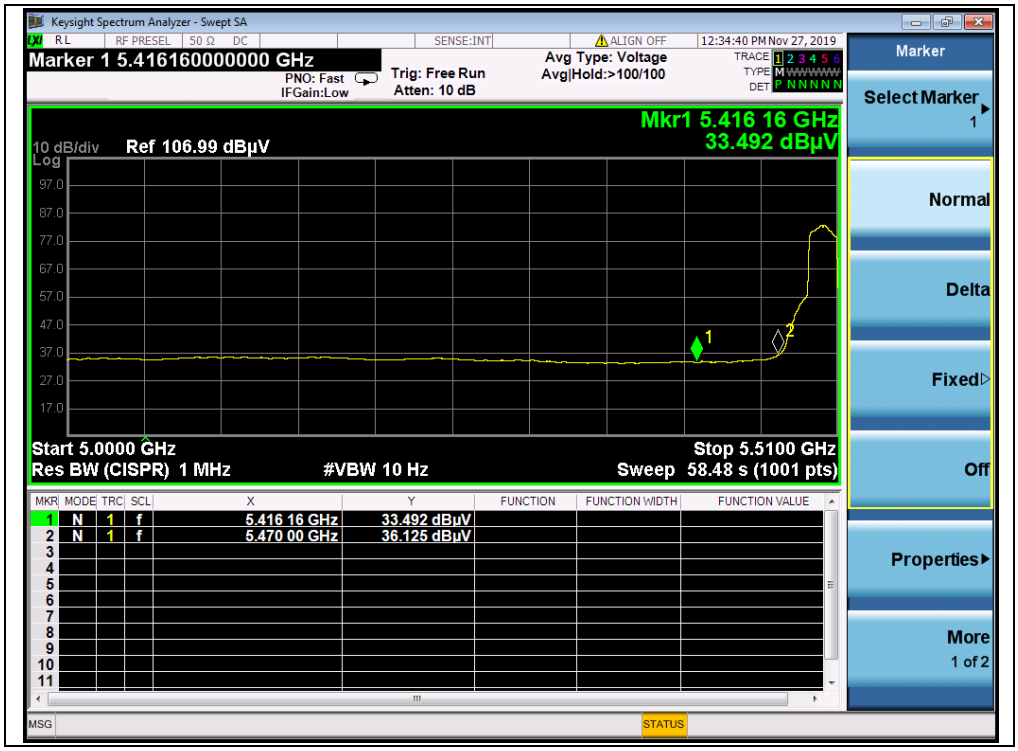
(PEAK, Channel 48, 802.11a)



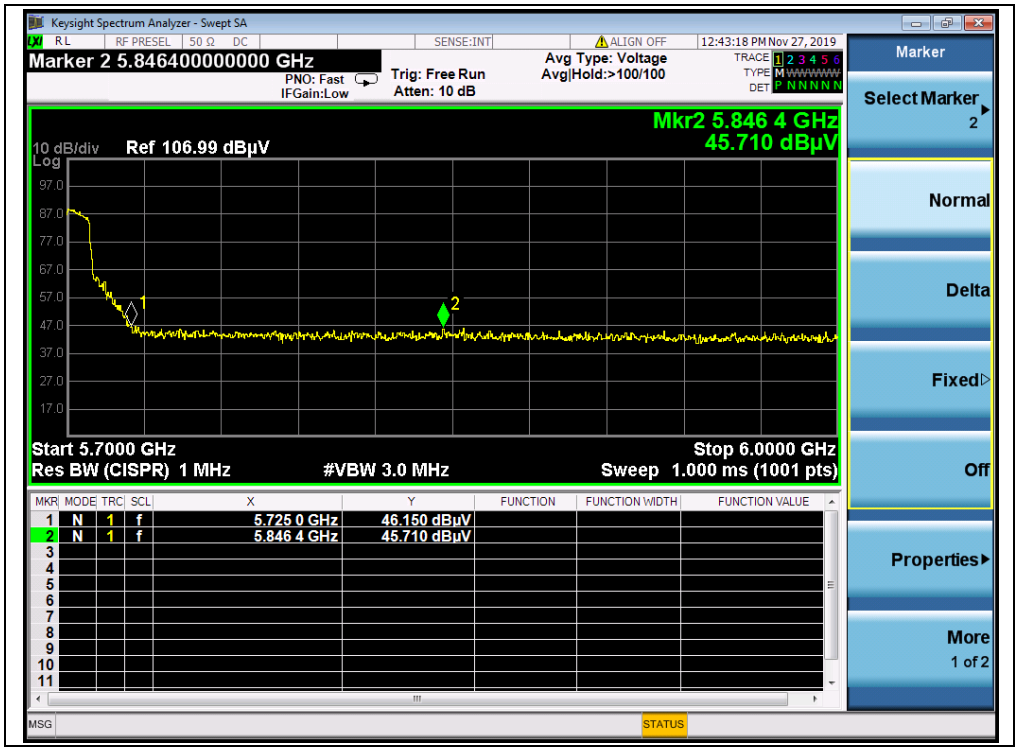
(AVG, Channel 48, 802.11a)



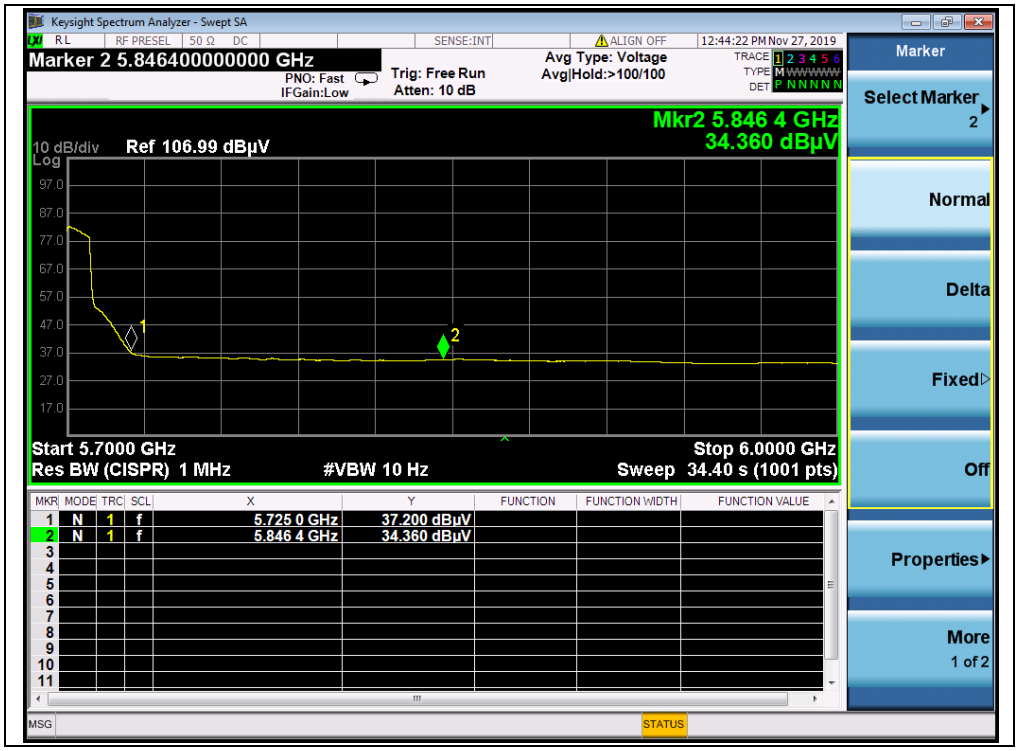
(PEAK, Channel 100, 802.11a)



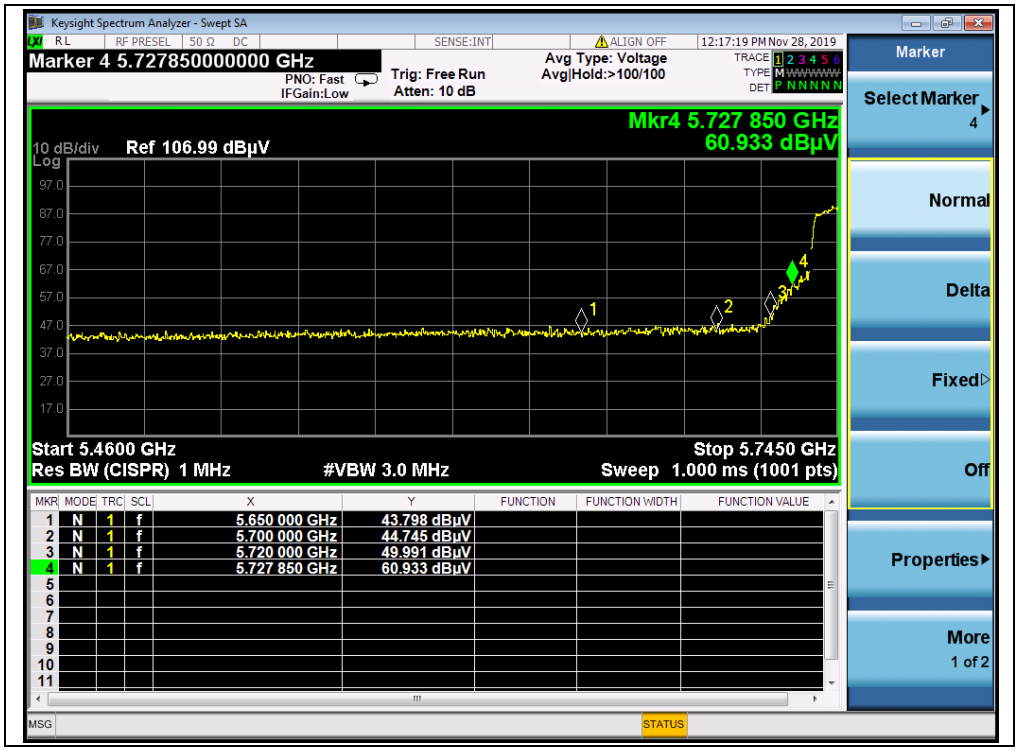
(AVG, Channel 100, 802.11a)



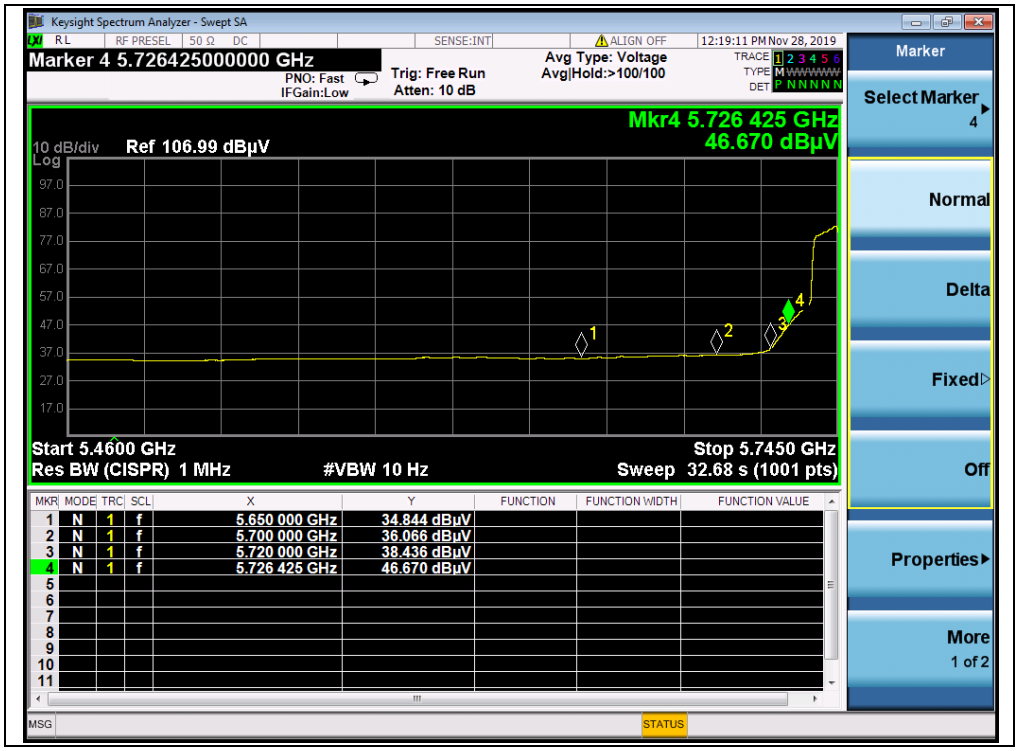
(PEAK, Channel 144, 802.11a)



(AVG, Channel 144, 802.11a)



(PEAK, Channel 149, 802.11a)



(AVG, Channel 149, 802.11a)

(PEAK, Channel 165, 802.11a)

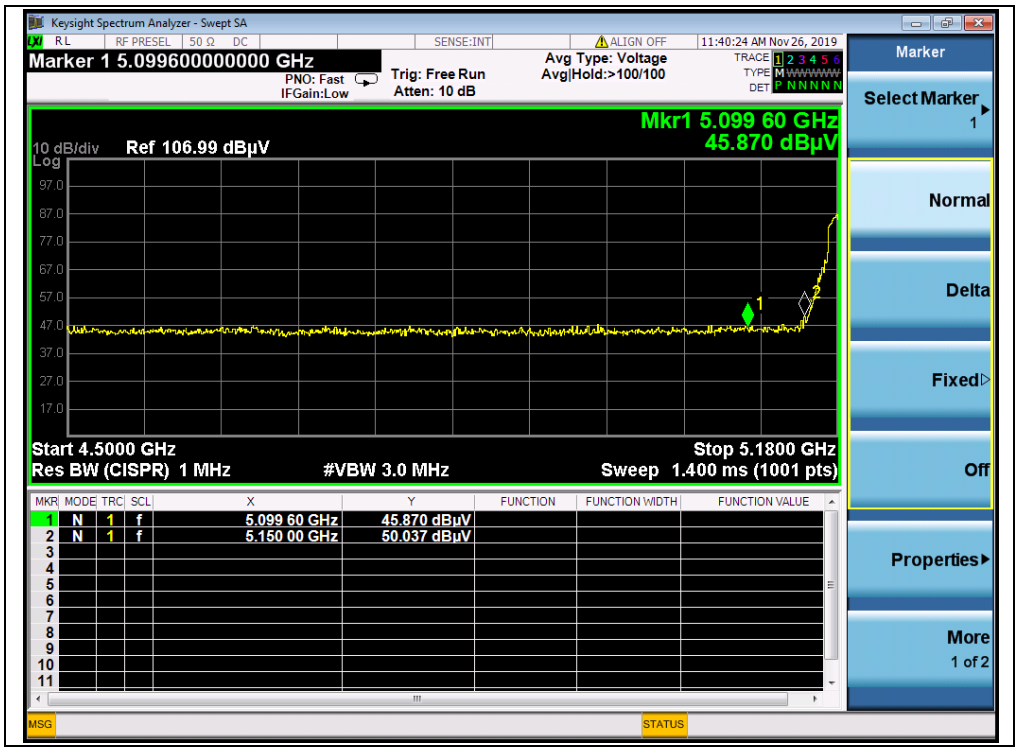
(AVG, Channel 165, 802.11a)

802.11n (HT20) Test mode

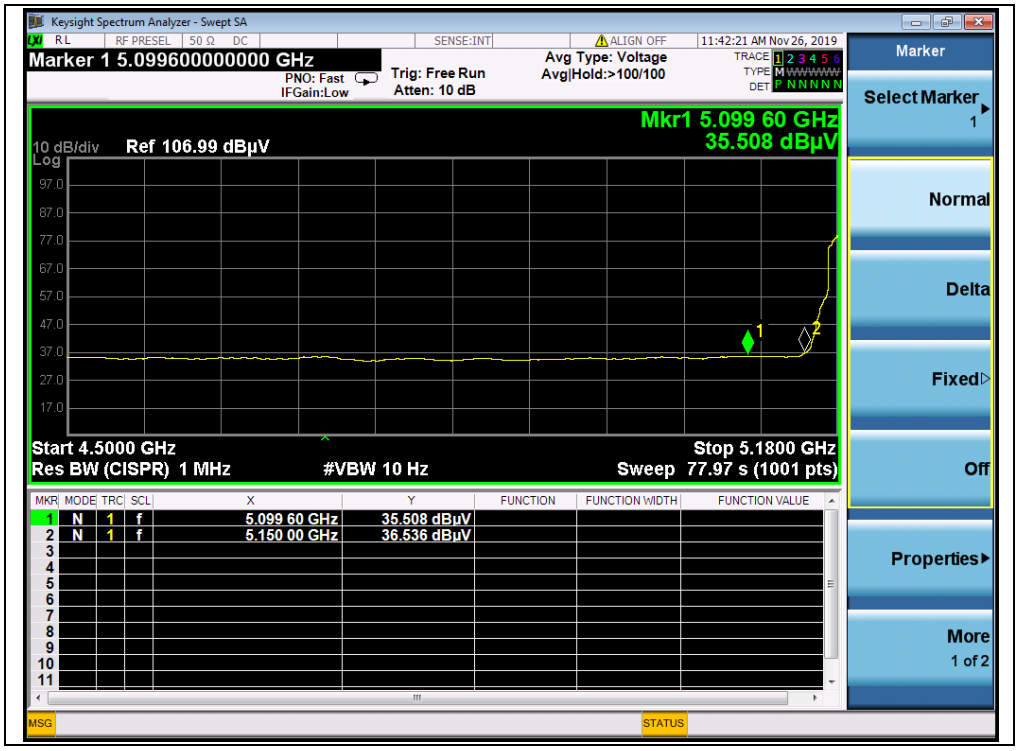
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
36	5150.00	PK	50.04	-26.92	32.20	55.32	74	PASS
36	5150.00	AV	36.54	-26.92	32.20	41.82	54	PASS
48	5374.40	PK	43.81	-26.92	32.20	49.09	74	PASS
48	5359.90	AV	41.54	-26.92	32.20	46.82	54	PASS
100	5470.00	PK	48.06	-26.64	32.20	53.62	68.23	PASS
100	5470.00	AV	36.97	-26.64	32.20	42.53	54	PASS
144	5749.00	PK	47.51	-26.64	32.20	53.07	68.23	PASS
144	5725.00	AV	37.49	-26.64	32.20	43.05	54	PASS
149	5720.00	PK	49.47	-26.23	32.20	55.44	110.83	PASS
149	5720.00	AV	38.12	-26.23	32.20	44.09	54	PASS
165	5855.00	PK	45.27	-26.23	32.20	51.24	110.83	PASS
165	5855.00	AV	36.54	-26.23	32.20	42.51	54	PASS

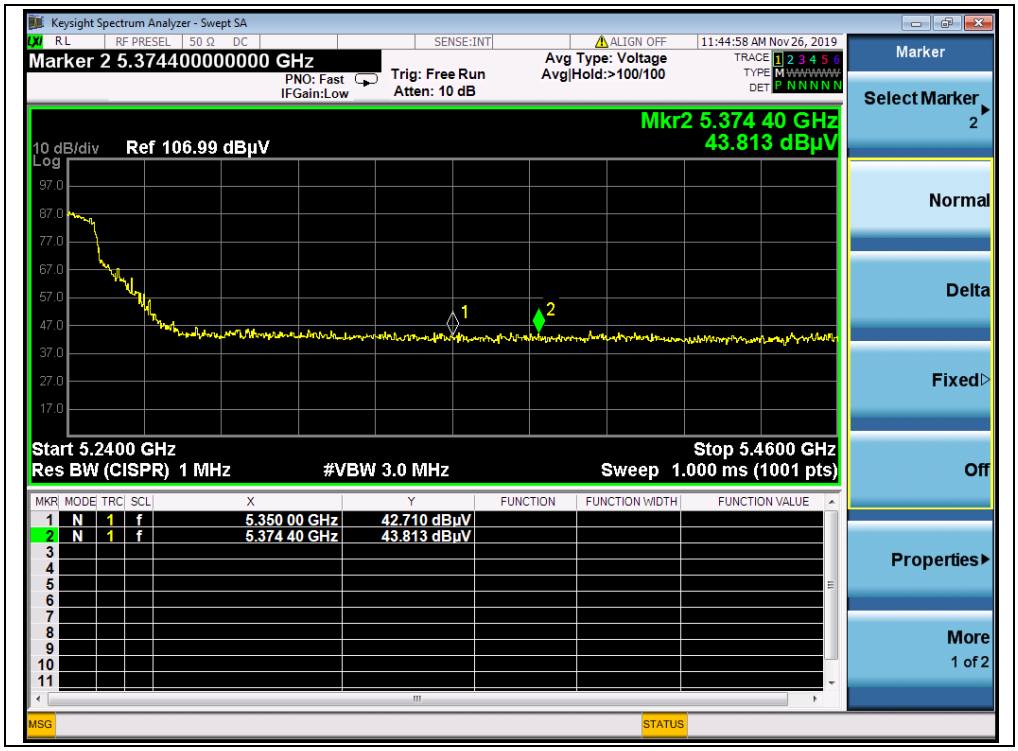
B. Test Plots:



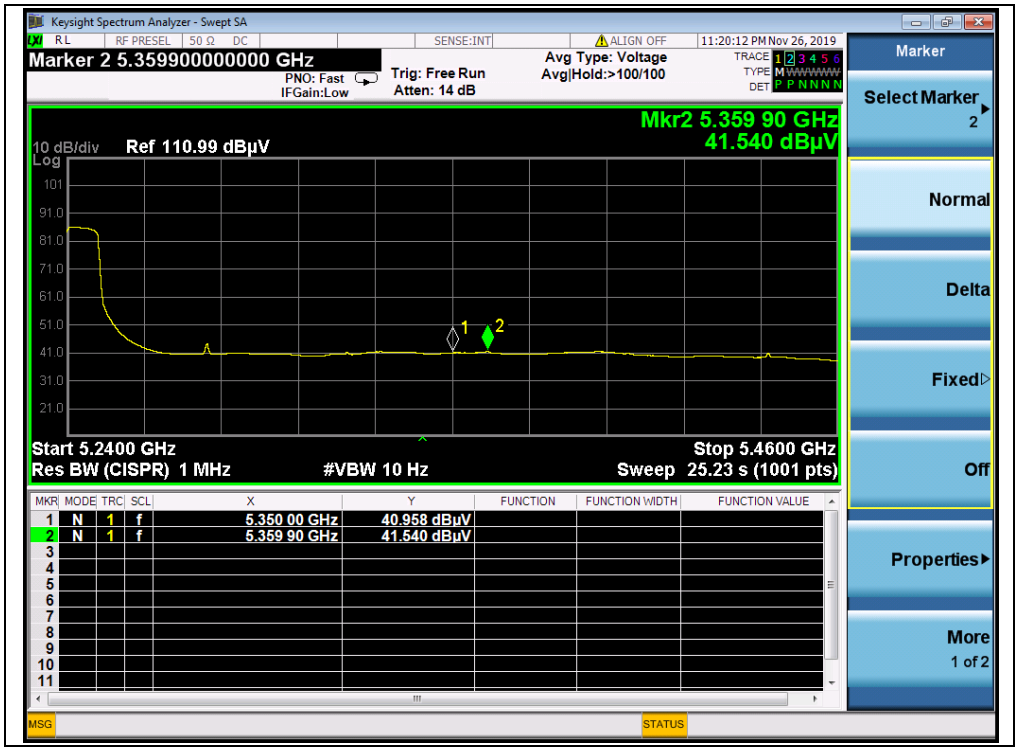
(PEAK, Channel 36, 802.11n (HT20))



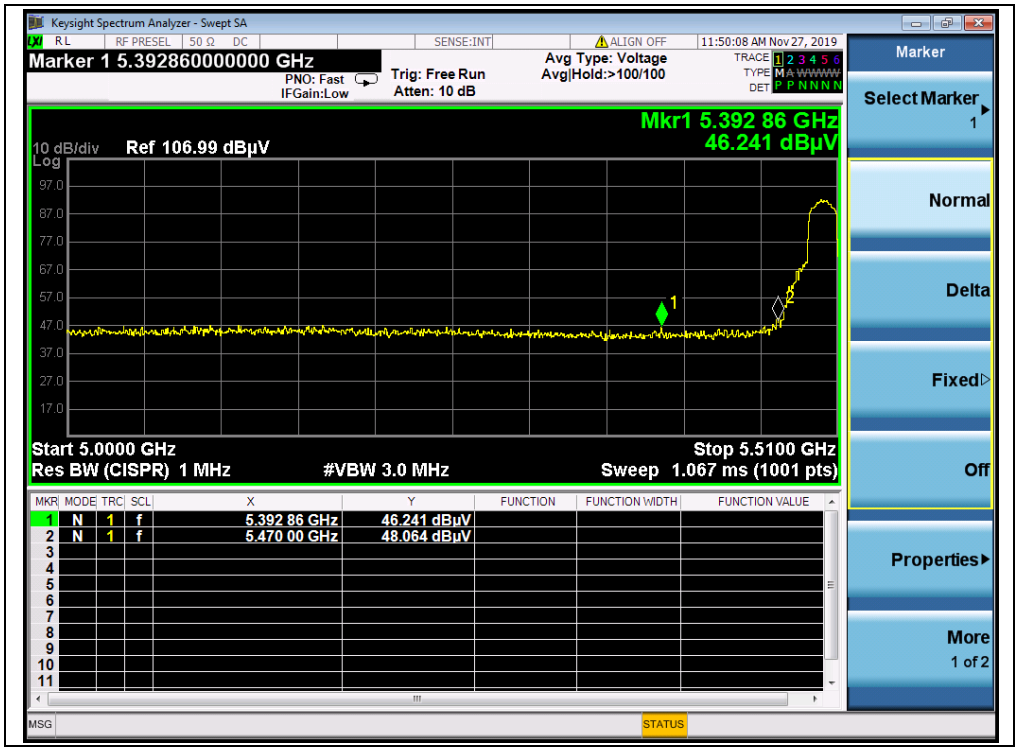
(AVG, Channel 36, 802.11 n (HT20))



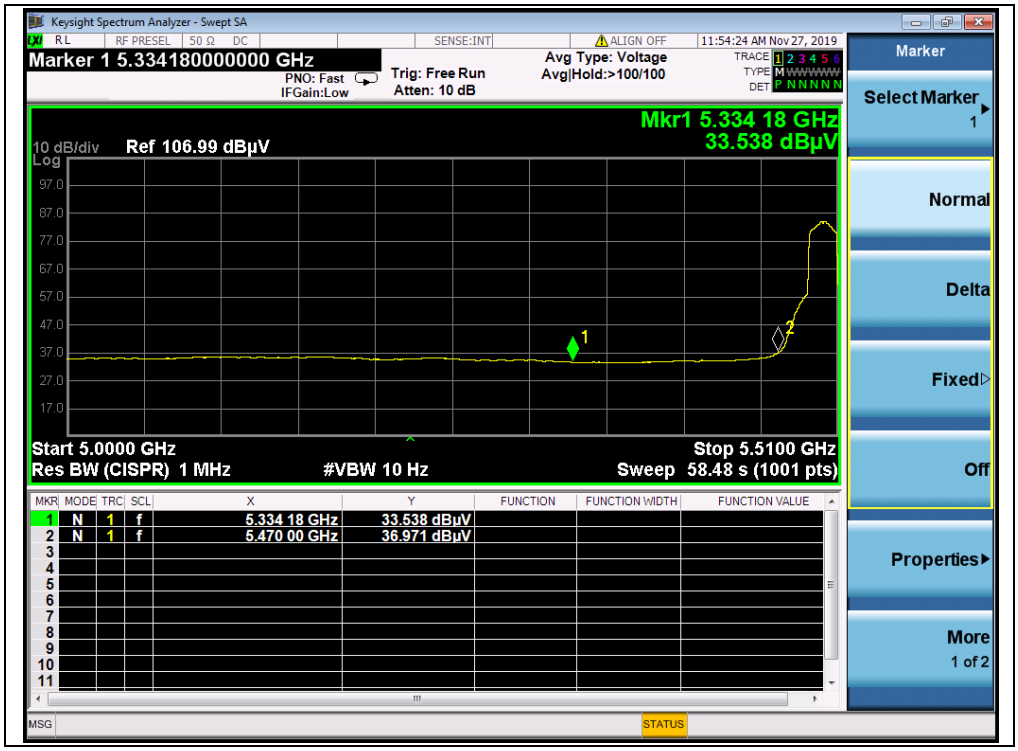
(PEAK, Channel 48, 802.11 n (HT20))



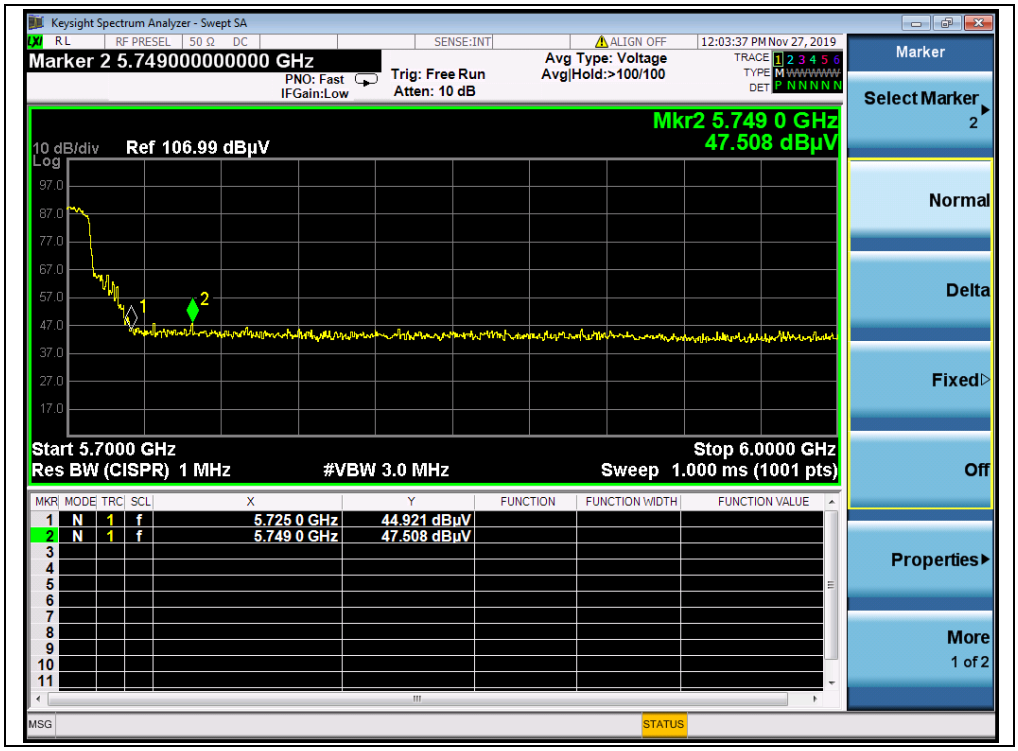
(AVG, Channel 48, 802.11n (HT20))



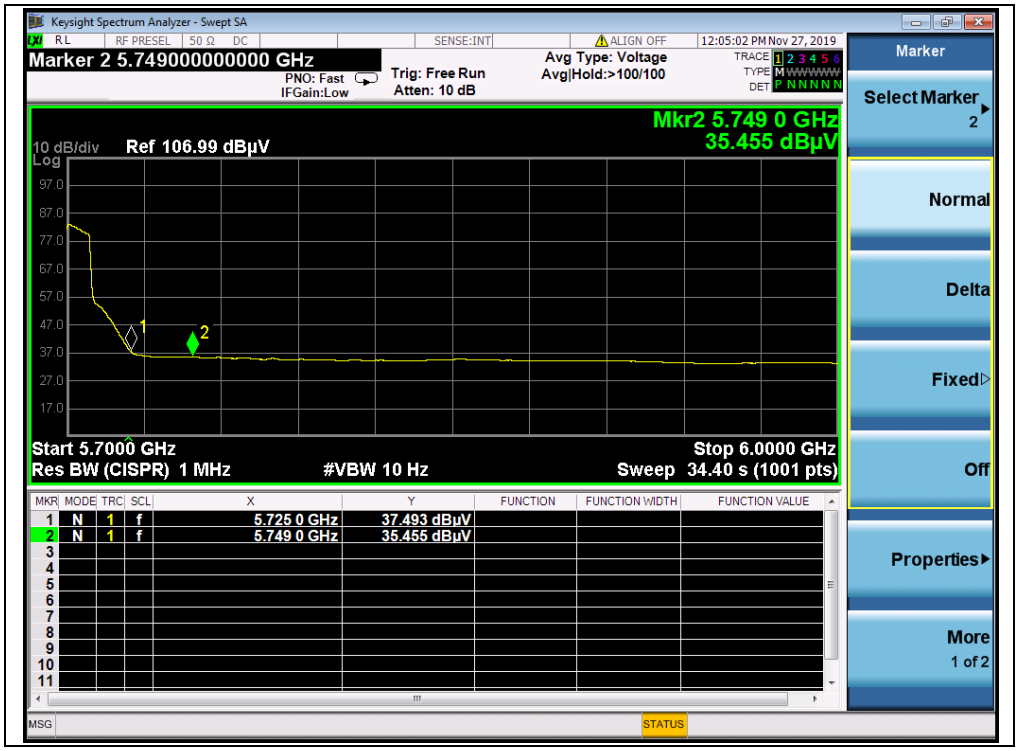
(PEAK, Channel 100, 802.11 n (HT20))



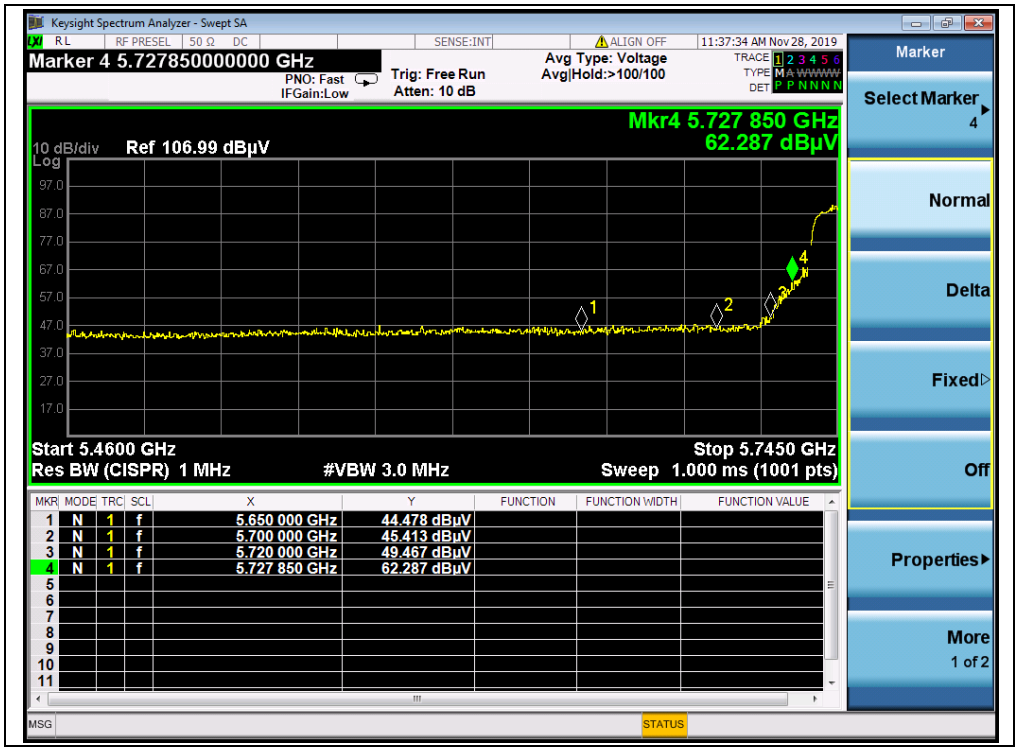
(AVG, Channel 100, 802.11n (HT20))



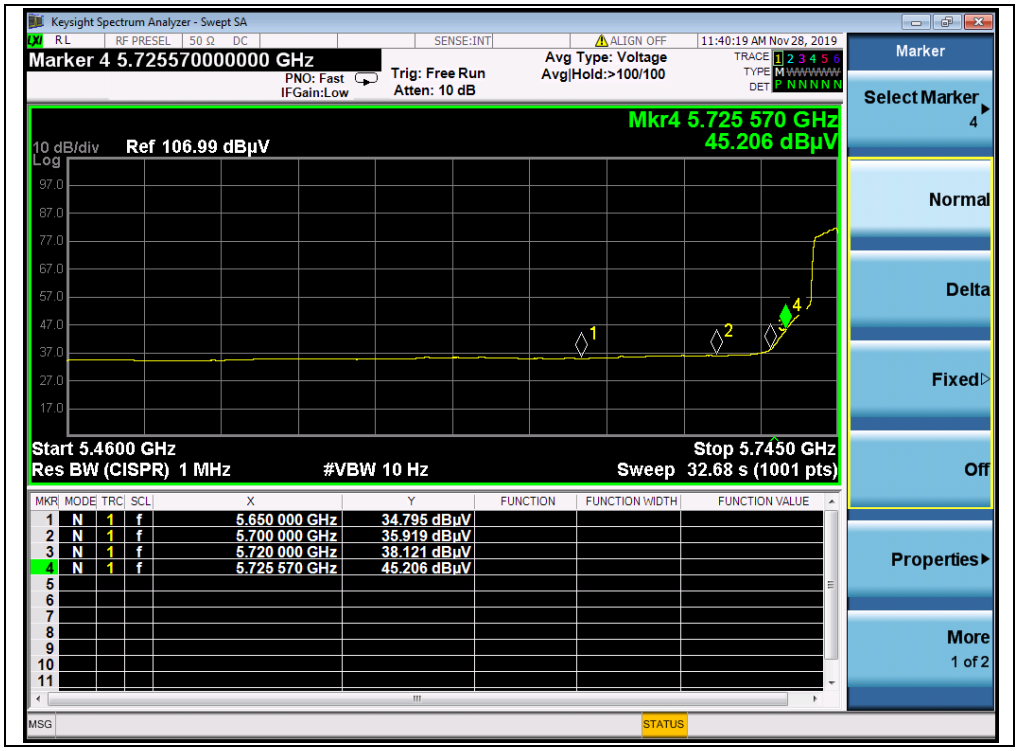
(PEAK, Channel 144, 802.11 n (HT20))



(AVG, Channel 144, 802.11n (HT20))

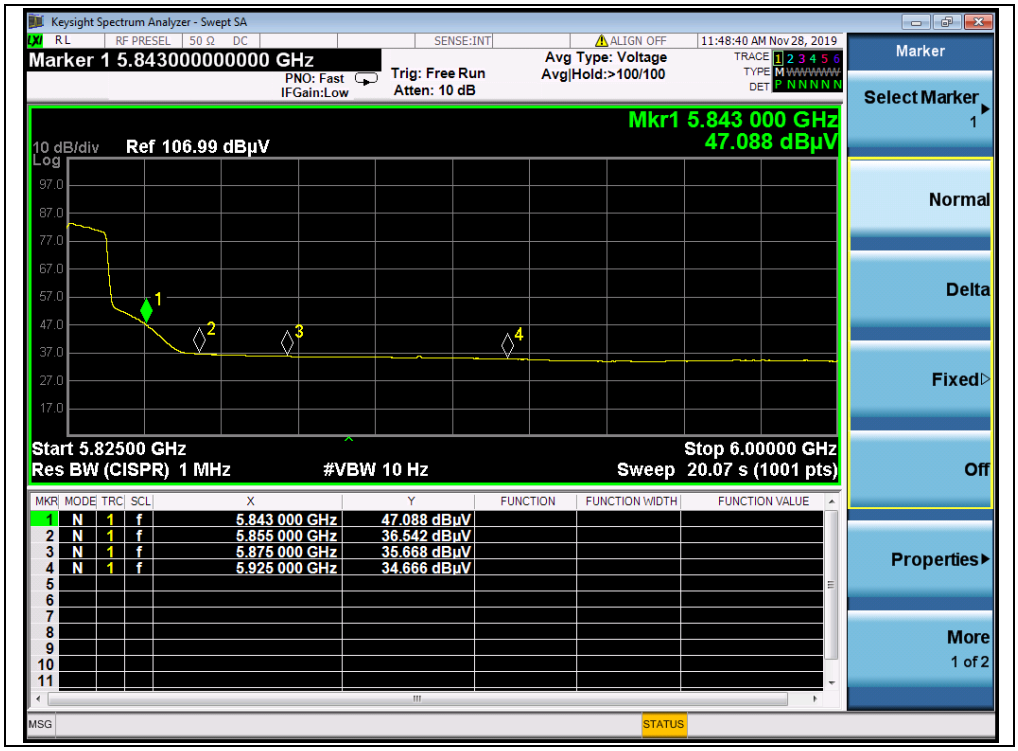


(PEAK, Channel 149, 802.11 n (HT20))



(AVG, Channel 149, 802.11n (HT20))

(PEAK, Channel 165, 802.11 n (HT20))



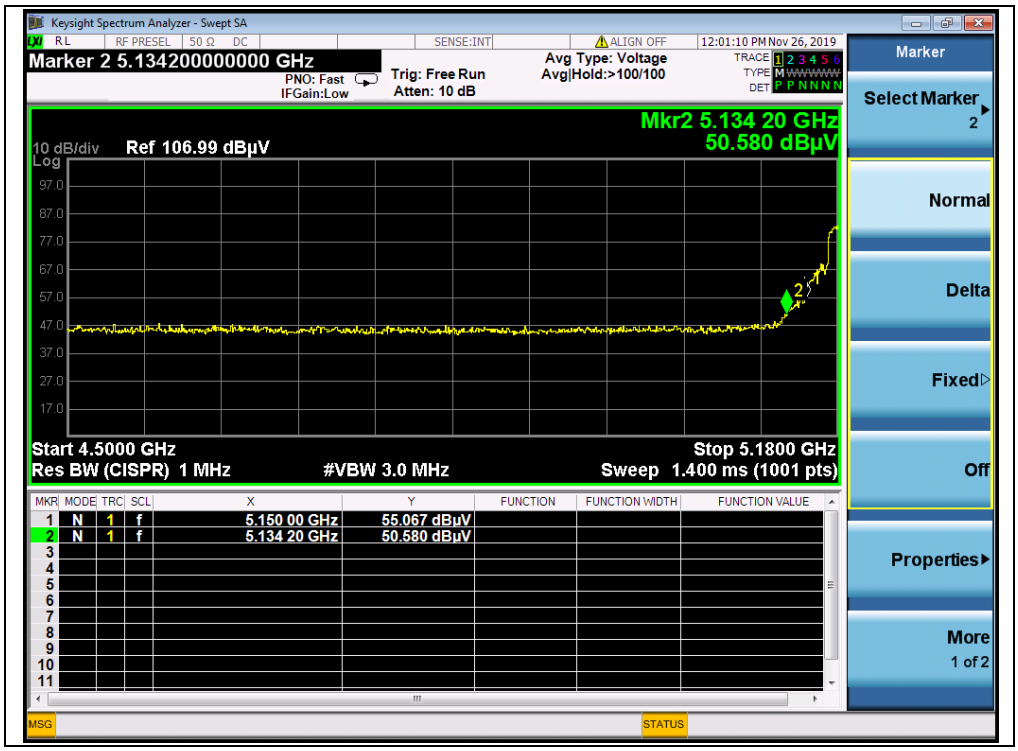
(AVG, Channel 165, 802.11n (HT20))

802.11n (HT40) Test mode

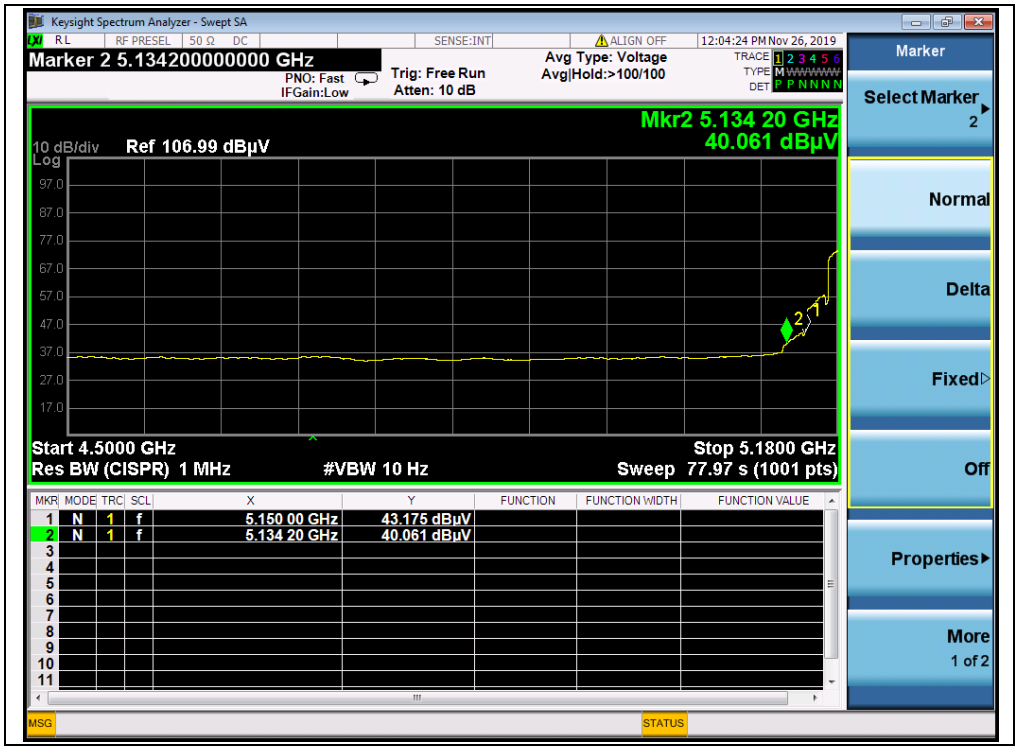
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
38	5150.00	PK	55.07	-26.92	32.20	60.35	74	PASS
38	5150.00	AV	43.18	-26.92	32.20	48.46	54	PASS
46	5367.08	PK	43.50	-26.92	32.20	48.78	74	PASS
46	5350.00	AV	33.58	-26.92	32.20	38.86	54	PASS
102	5470.00	PK	61.54	-26.64	32.20	67.10	68.23	PASS
102	5470.00	AV	47.15	-26.64	32.20	52.71	54	PASS
142	5767.38	PK	45.38	-26.64	32.20	50.94	68.23	PASS
142	5725.00	AV	35.57	-26.64	32.20	41.13	54	PASS
151	5720.00	PK	60.40	-26.23	32.20	66.37	110.83	PASS
151	5720.87	AV	47.97	-26.23	32.20	53.94	54	PASS
159	5855.00	PK	44.08	-26.23	32.20	50.05	110.83	PASS
159	5855.00	AV	35.70	-26.23	32.20	41.67	54	PASS

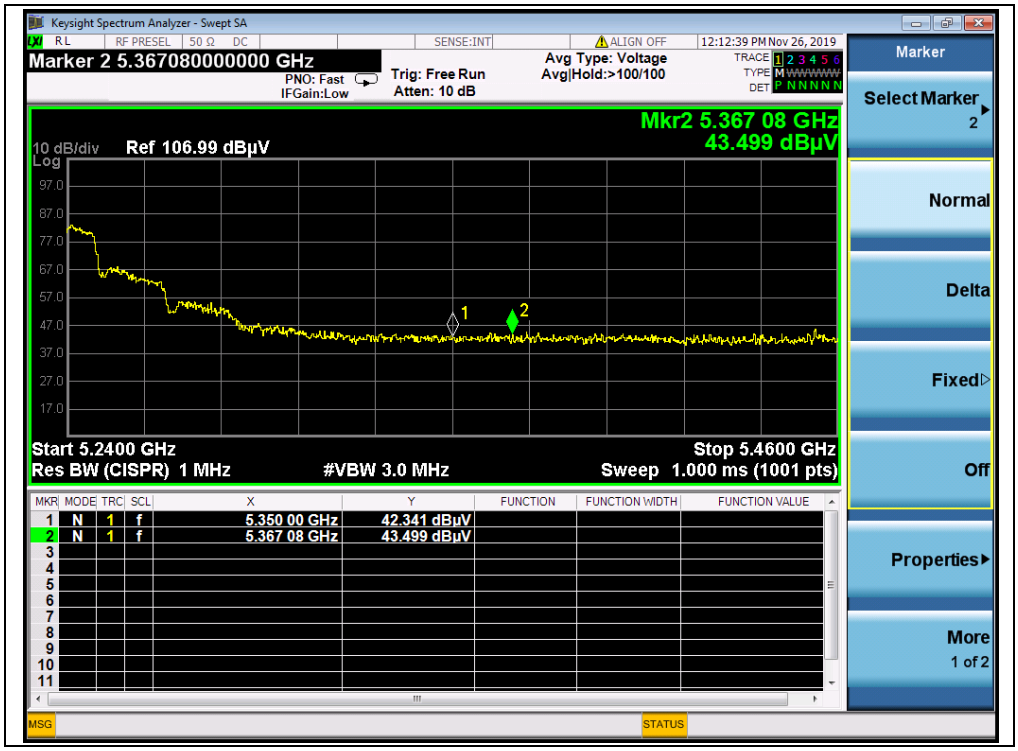
B. Test Plots:



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

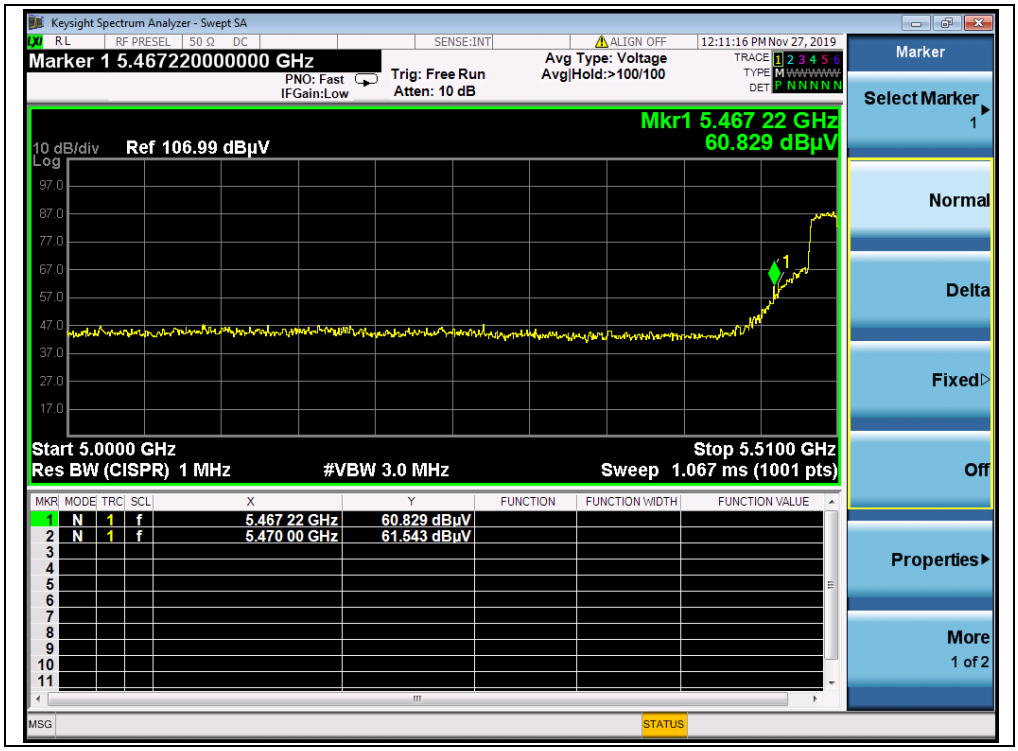


(AVG, Channel 38, 802.11n (HT40))

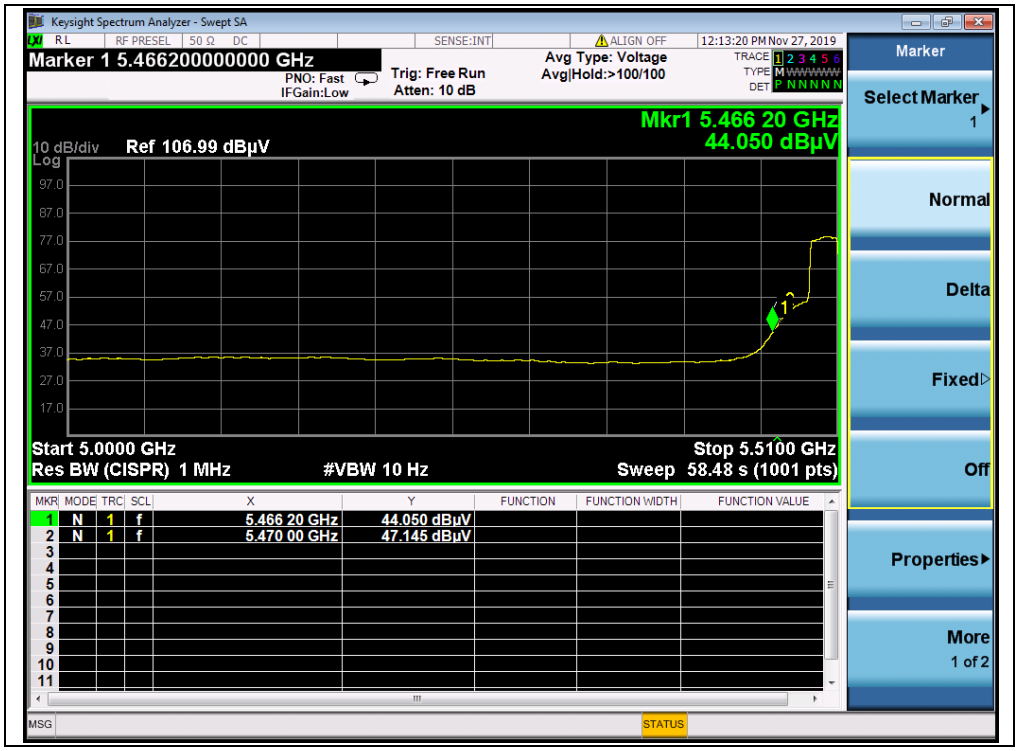


(PEAK, Channel 46, 802.11n (HT40))

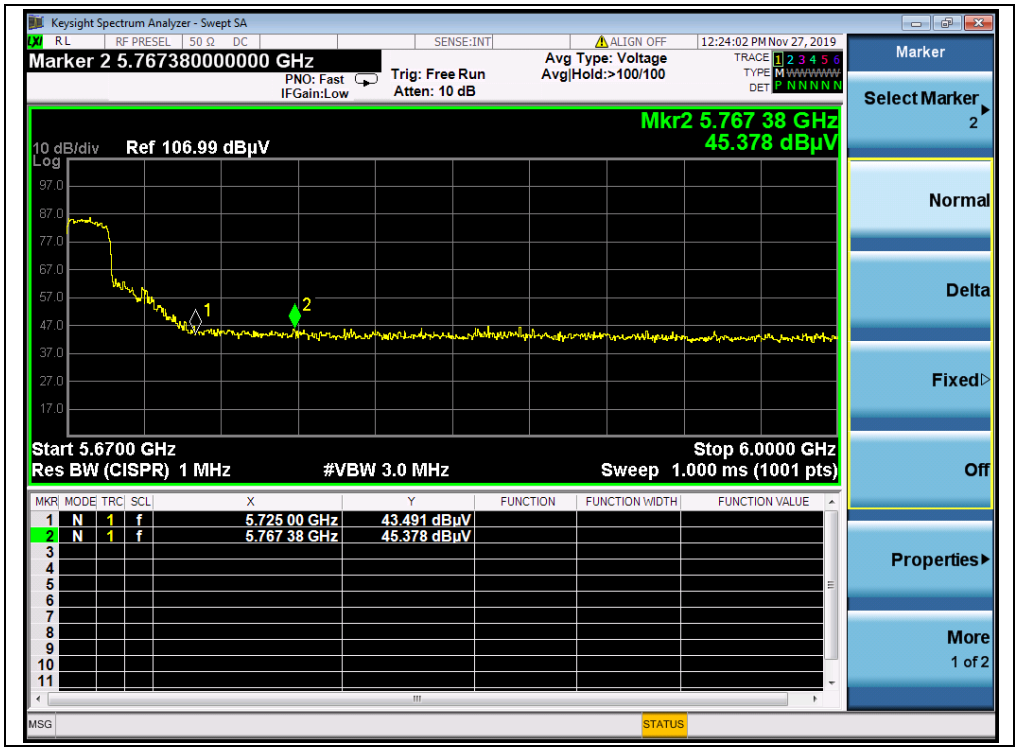
(AVG, Channel 46, 802.11n (HT40))



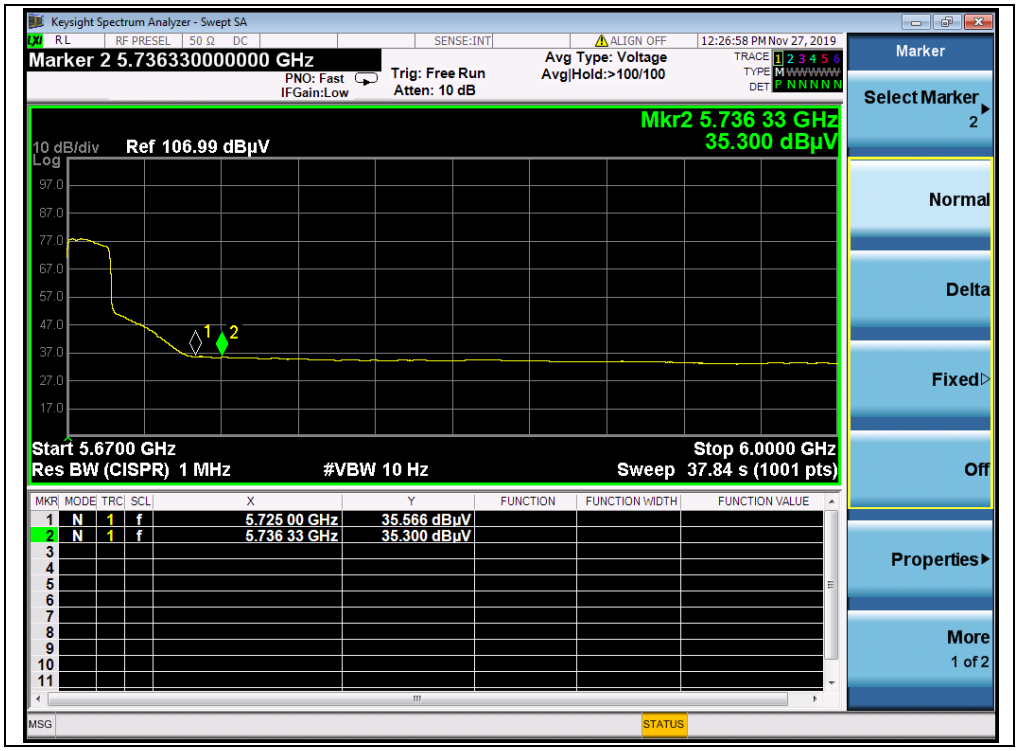
(PEAK, Channel 102, 802.11n (HT40))



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



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



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

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

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

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

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

2.9. Radiated Emission

2.9.1. Requirement

The peak emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.
(2) For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.
(3) For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.
The following formula is used to convert the equipment isotropic radiated power(eirp) to field strength (dBμV/m);

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

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

Note:

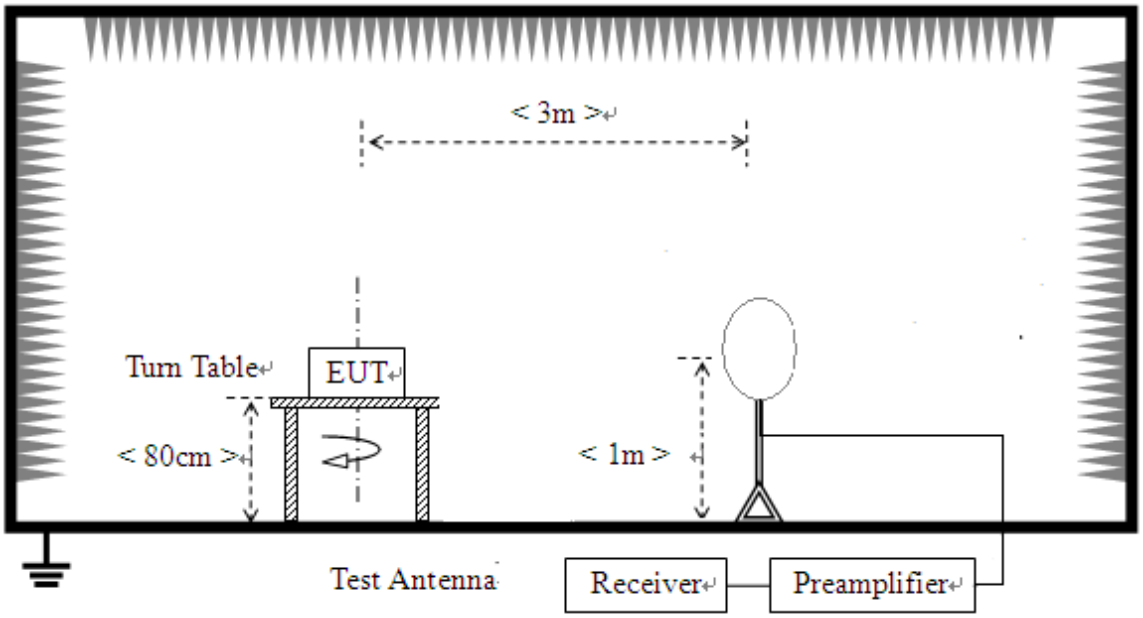
For Above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.

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

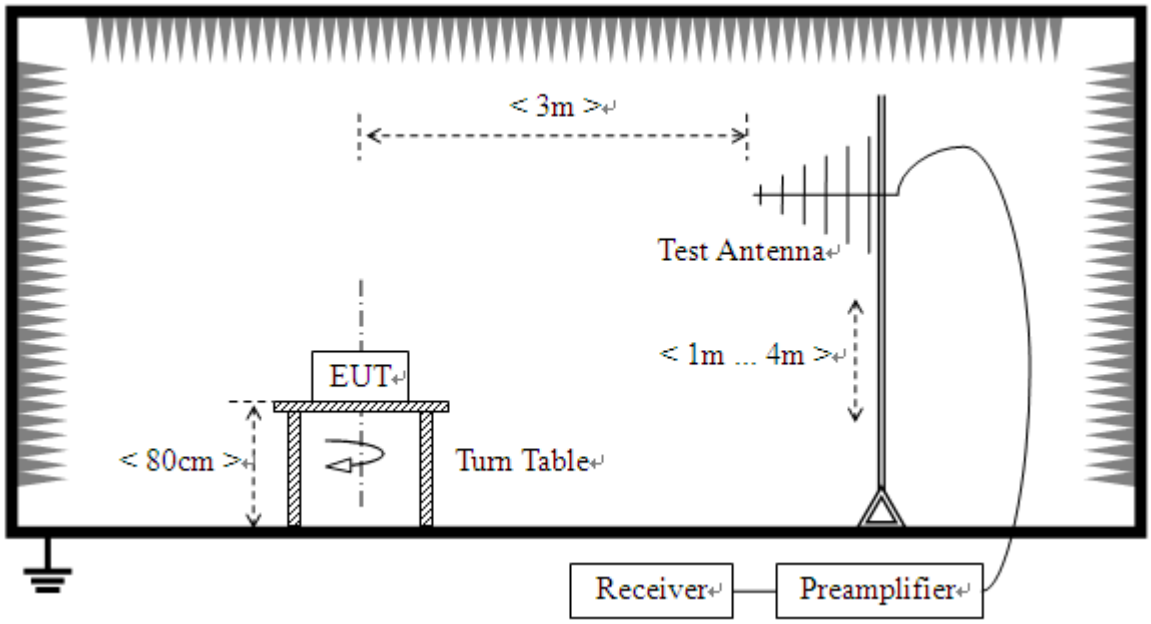
2.9.2. Test Description

Test Setup:

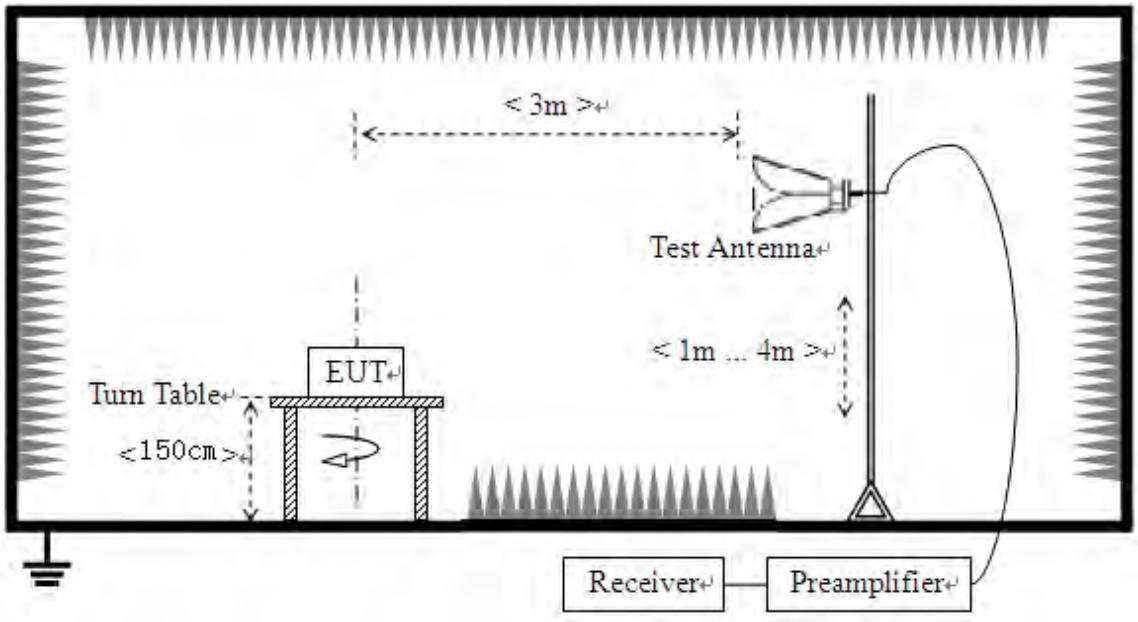
1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz to1GHz



3) For radiated emissions above 1GHz



The 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.

2.9.3. 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:

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

A_T: Total correction Factor except Antenna

U_R: Receiver Reading

G_{preamp}: Preamplifier Gain

A_{Factor}: Antenna Factor at 3m

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

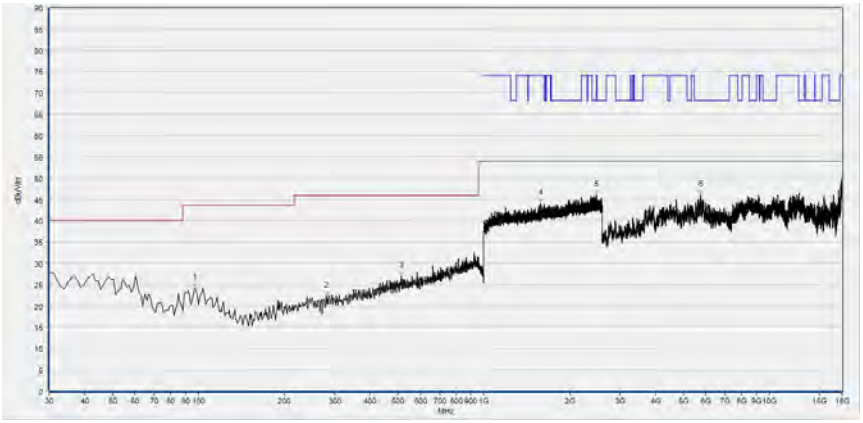
Note1: All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

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

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

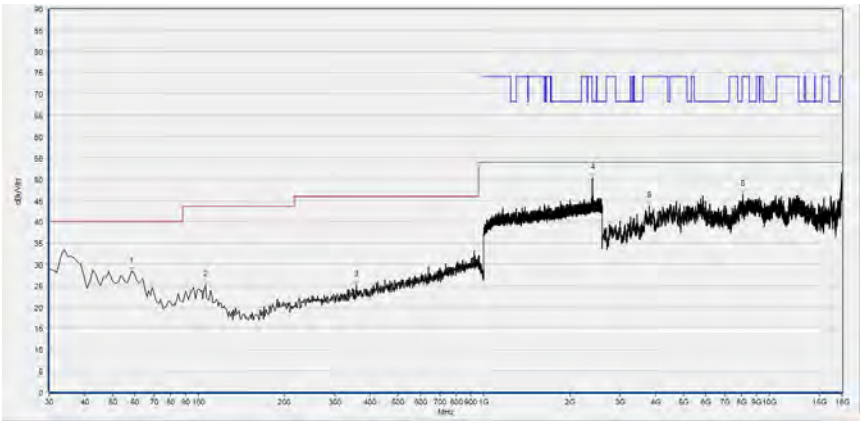
802.11a Test mode

Plots for Channel = 36



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
96.997	24.07	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
280.511	22.22	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
513.544	26.99	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1579.927	44.04	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2485.829	46.04	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5736.067	46.02	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

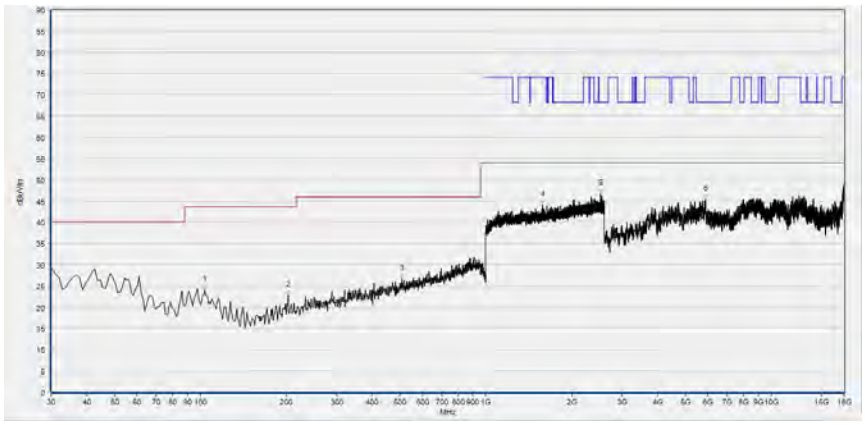
(Antenna Horizontal, 30MHz to 18GHz)



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
58.158	28.33	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
105.736	25.18	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
358.188	25.15	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2402.067	50.23	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
3798.360	43.76	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8095.819	46.35	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

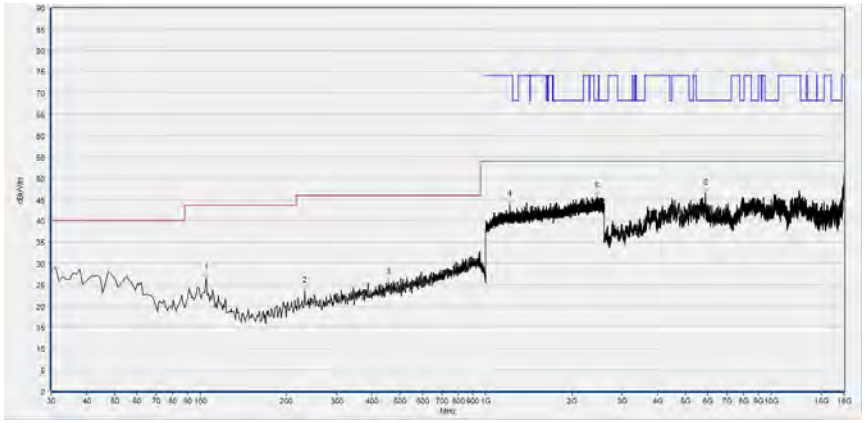
(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 44



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
103.794	24.01	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
202.833	22.85	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
506.747	26.69	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1577.259	44.03	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2523.174	46.72	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
5877.776	45.46	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

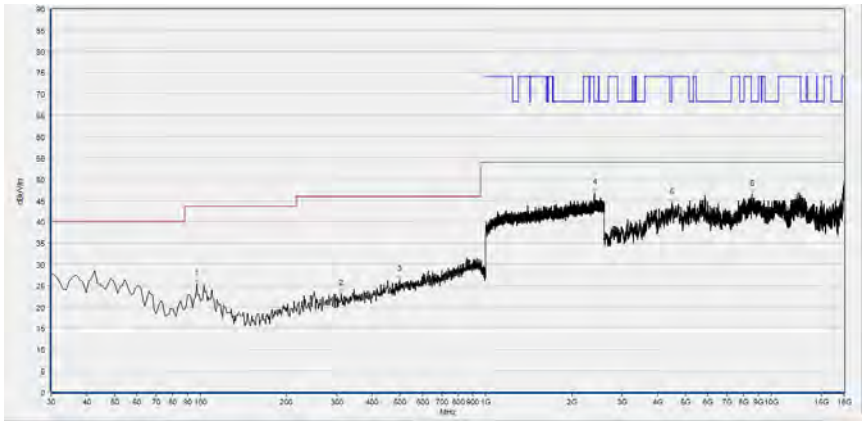
(Antenna Horizontal, 30MHz to 18GHz)



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
104.765	26.49	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
231.962	23.38	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
454.314	25.41	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1215.005	43.70	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2453.818	45.65	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5868.534	46.37	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

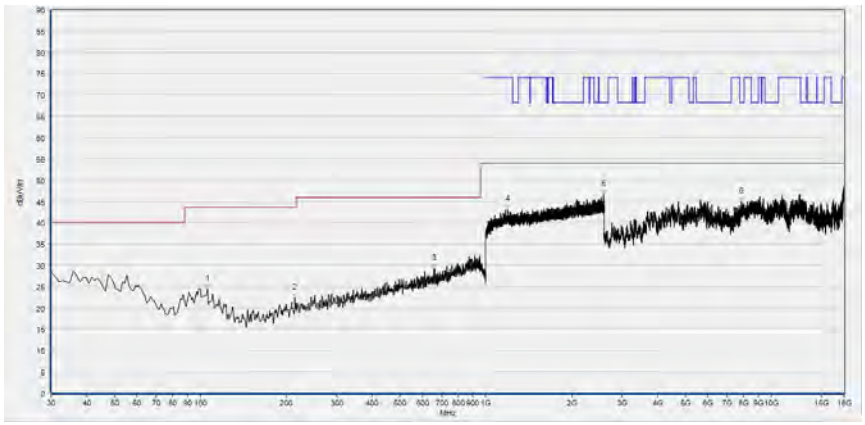
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 48



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
96.997	25.23	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
310.611	23.10	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
498.979	26.24	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2402.067	46.70	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
4491.498	44.47	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
8576.395	46.47	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

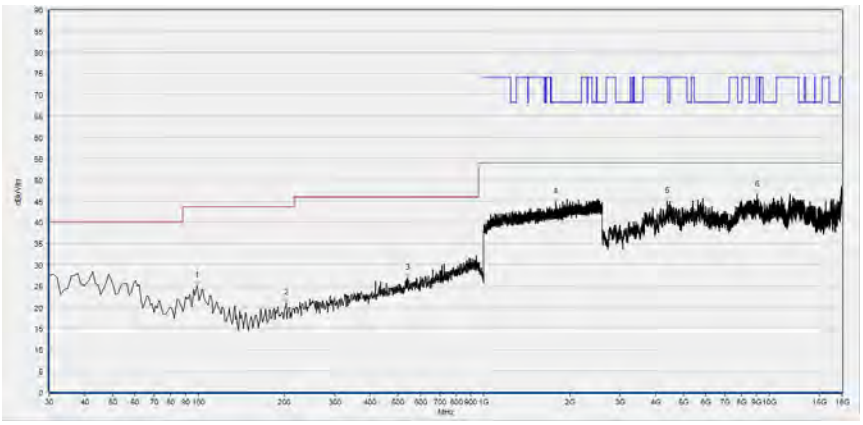
(Antenna Horizontal, 30MHz to 18GHz)



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
105.736	24.48	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
214.484	22.36	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
657.247	29.15	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1193.665	43.13	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2588.263	46.62	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
7870.934	44.89	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

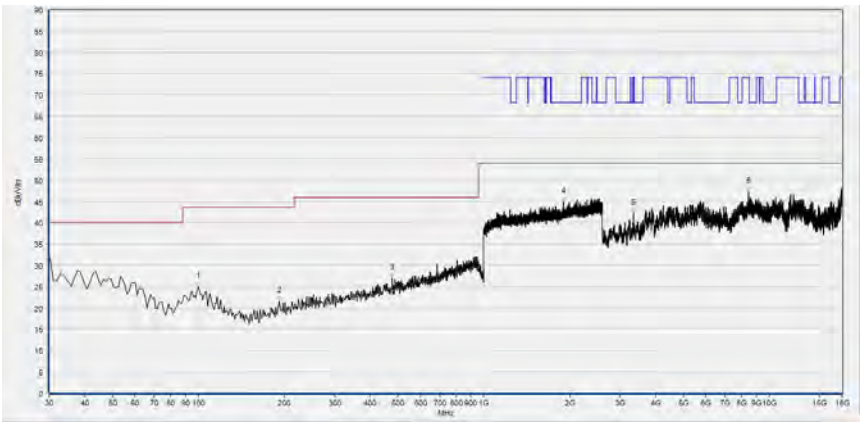
(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 100



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
98.939	24.94	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
202.833	20.88	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
540.731	26.75	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1790.130	44.77	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
4392.919	44.84	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
9078.536	46.38	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

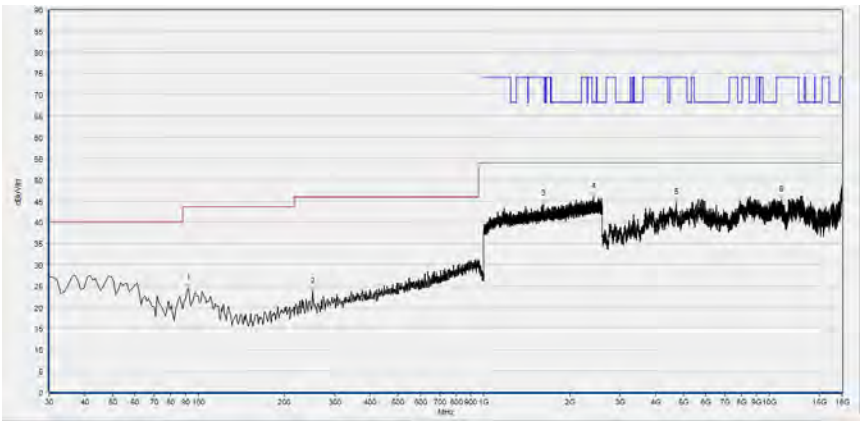
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
99.910	24.98	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
192.152	21.60	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
477.618	26.97	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1900.033	44.93	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
3345.509	42.16	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
8440.848	47.20	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

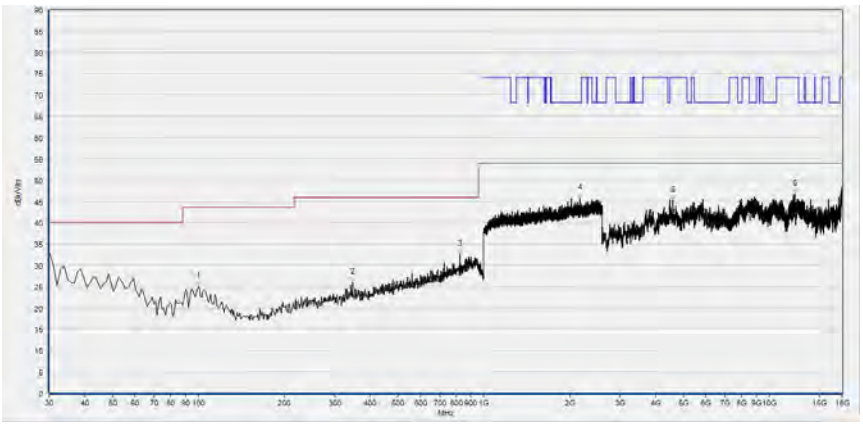
(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 120



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
92.142	24.44	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
251.381	23.61	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1622.074	44.27	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2426.075	45.88	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
4716.383	44.55	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
11034.727	45.23	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

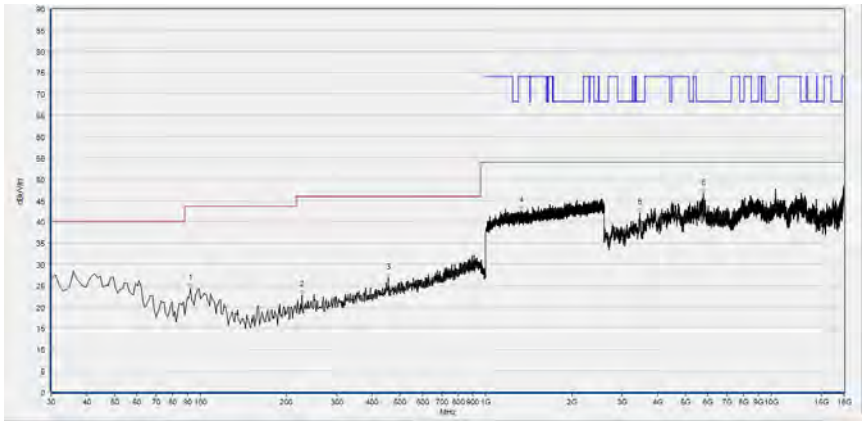
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
99.910	24.98	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
346.537	25.93	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
823.283	32.57	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2169.990	45.71	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
4599.320	45.33	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12331.666	46.84	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

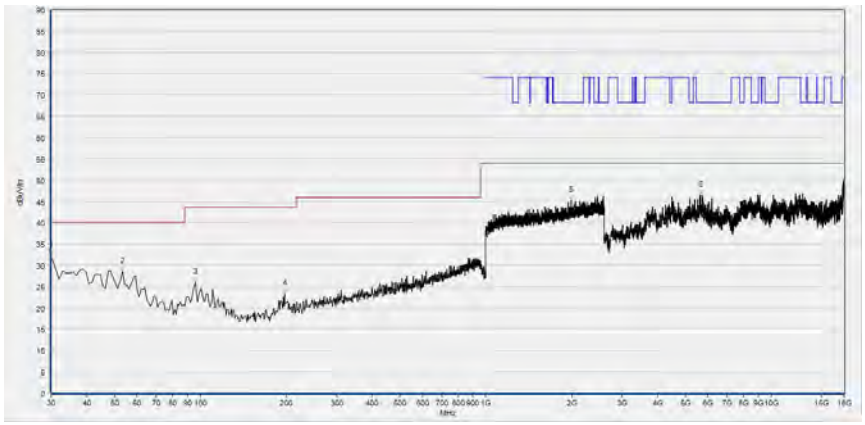
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 144



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
92.142	24.32	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
227.107	22.75	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
454.314	26.77	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1328.109	42.65	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3456.411	42.10	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
5773.035	46.64	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

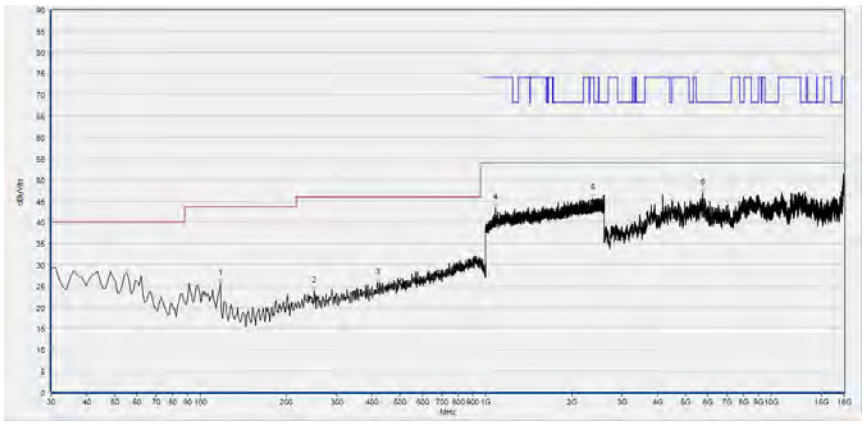
(Antenna Horizontal, 30MHz to 18GHz)



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
30.000	32.26	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
53.303	28.55	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
96.026	26.00	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
197.007	23.31	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1992.331	45.22	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5640.568	46.46	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

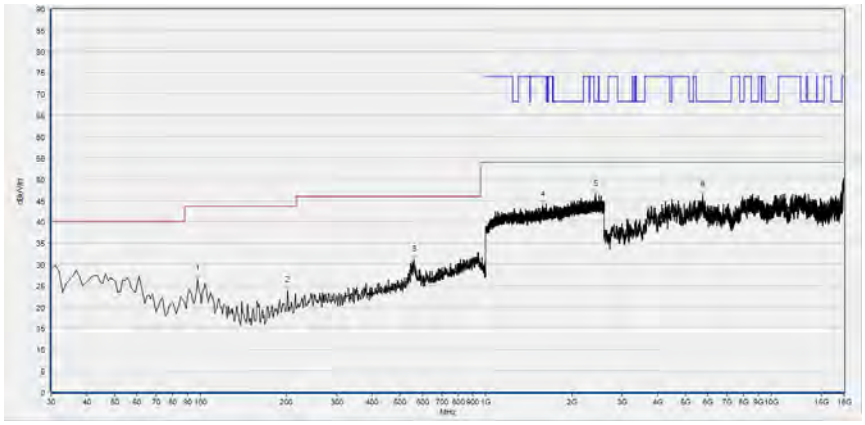
(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 149



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
117.387	25.40	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
250.410	23.86	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
418.388	25.77	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1082.161	43.36	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2373.791	45.57	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5763.793	46.86	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

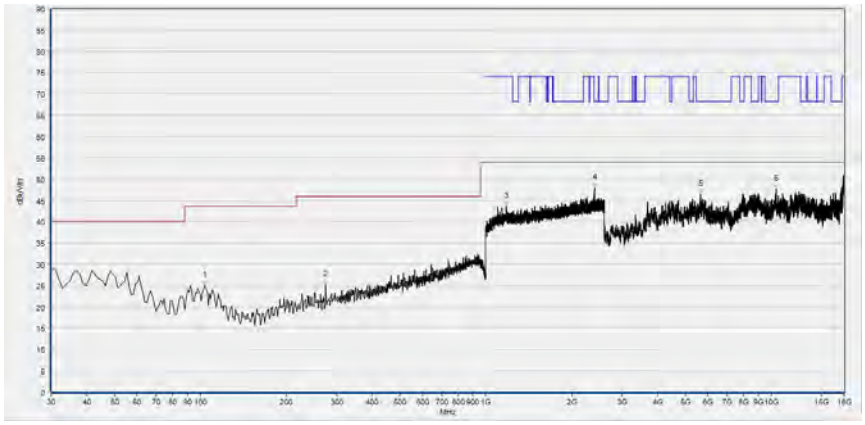
(Antenna Horizontal, 30MHz to 18GHz)



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
97.968	26.41	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
201.862	23.79	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
560.150	31.05	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1577.259	43.90	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2426.075	46.41	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5763.793	46.29	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

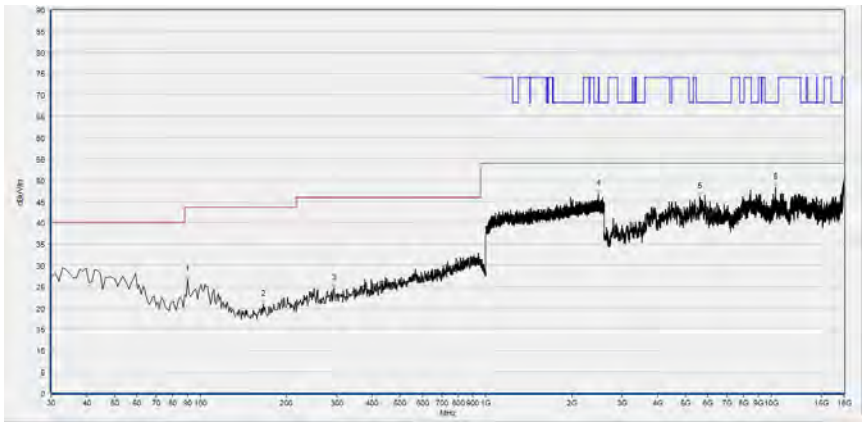
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 157



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
103.794	24.98	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
274.685	25.18	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1178.193	43.66	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2402.067	47.96	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
5646.729	46.45	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
10397.039	47.53	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

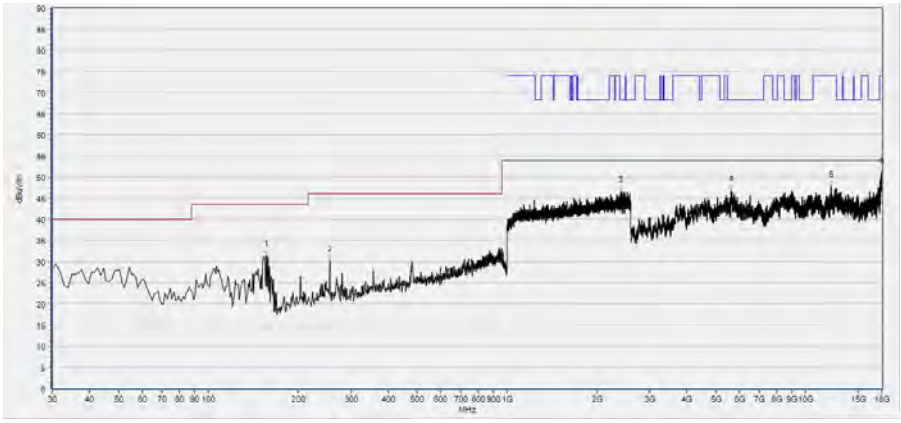
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
90.200	26.69	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
165.936	20.72	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
293.133	24.59	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2482.094	46.81	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5628.246	46.17	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
10341.588	48.30	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

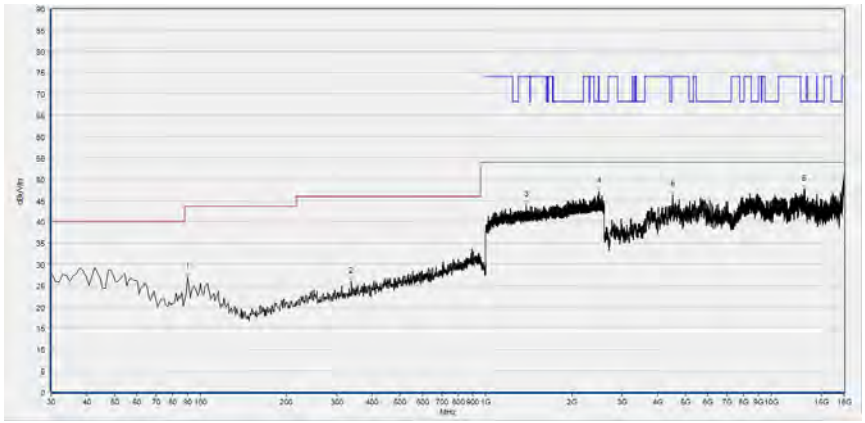
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 165



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
156.226	31.50	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
255.265	30.11	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2410.070	46.58	N/A	N/A	68.32	N/A	54.00	Horizontal	PASS
5634.407	46.70	N/A	N/A	68.32	N/A	54.00	Horizontal	PASS
12196.119	47.89	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
17950.710	50.99	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

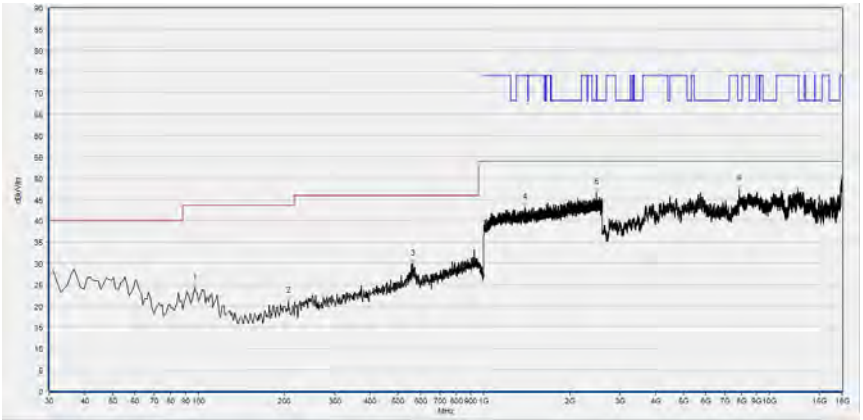


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
90.200	26.90	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
337.798	25.91	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1387.329	43.88	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2493.831	47.09	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4519.224	46.24	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
13067.934	47.53	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

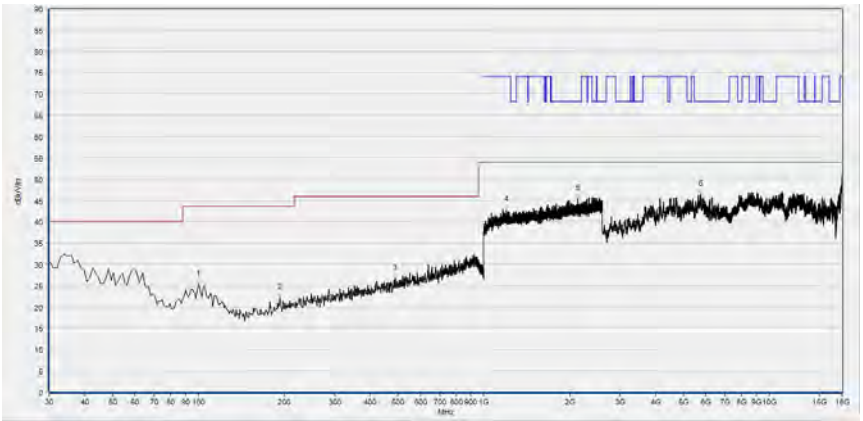
802.11n (HT20) Test mode

Plots for Channel = 36



Fre. (MHz)	Pk (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
96.997	24.06	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
206.717	21.13	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
563.063	29.88	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1389.997	43.15	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2478.359	46.62	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
7867.854	47.37	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

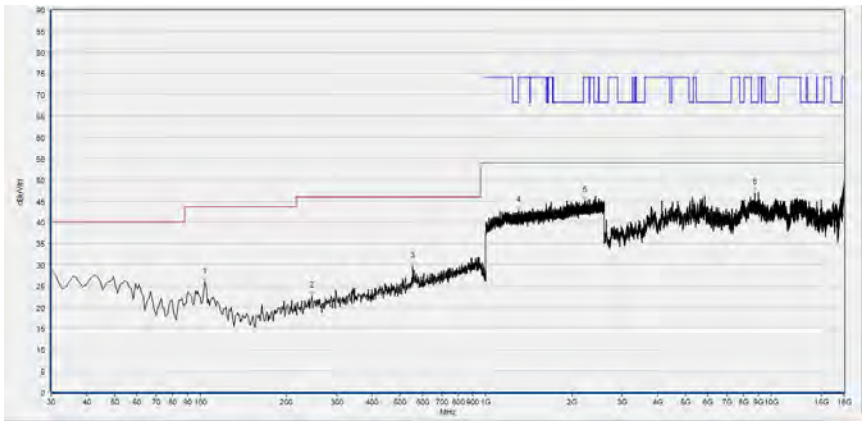
(Antenna Horizontal, 30MHz to 18GHz)



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
99.910	25.18	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
193.123	22.12	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
487.327	26.62	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1202.201	42.69	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2131.044	45.46	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
5760.712	46.37	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

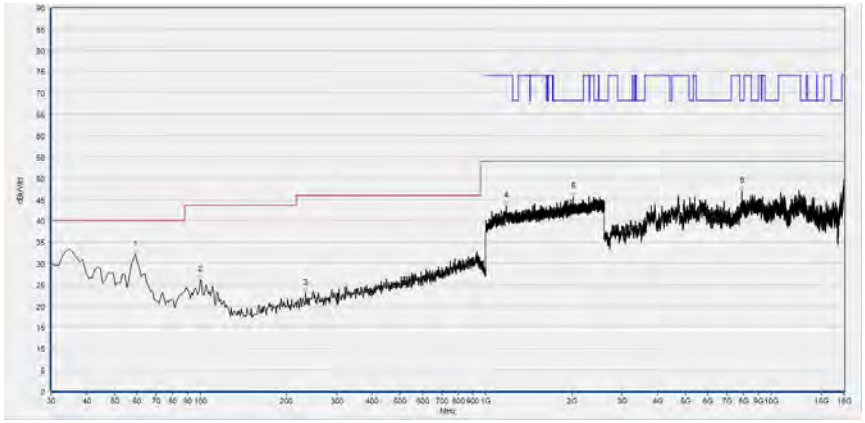
(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 44



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
103.794	26.00	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
245.556	22.59	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
555.295	29.70	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1301.434	42.82	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2216.405	45.07	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8770.474	46.92	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

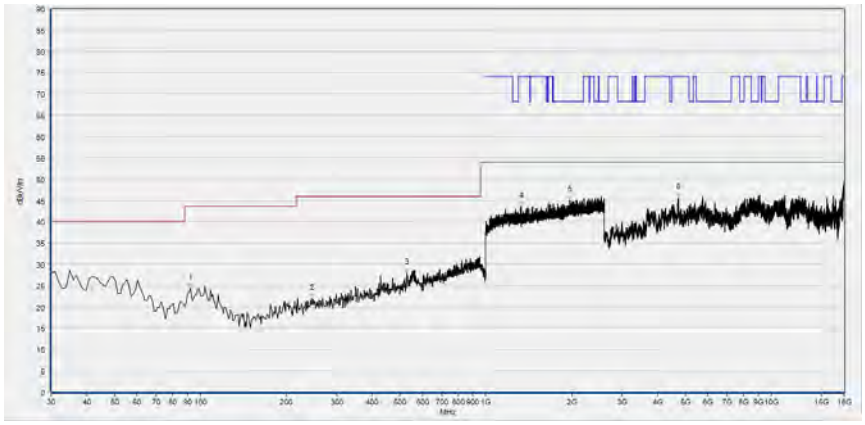
(Antenna Horizontal, 30MHz to 18GHz)



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
59.129	32.06	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
99.910	26.11	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
233.904	23.01	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1179.793	43.33	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2026.475	45.65	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
7914.063	46.96	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

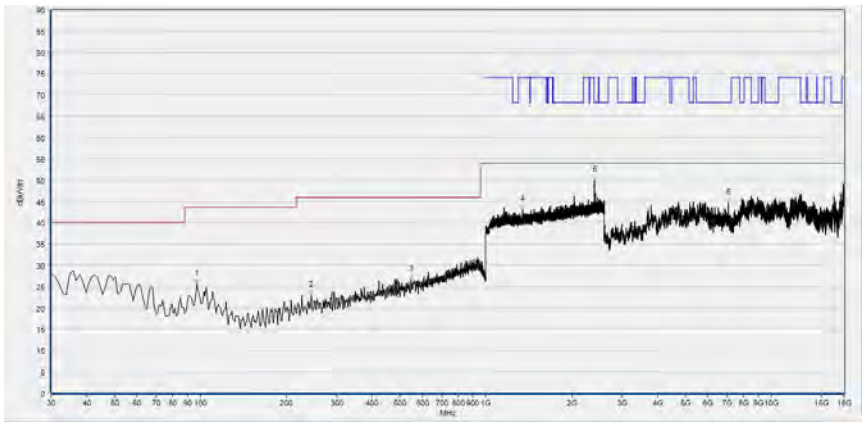
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 48



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
92.142	24.29	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
246.527	21.87	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
529.079	27.95	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1327.042	43.55	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
1971.524	45.05	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
4719.464	45.54	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

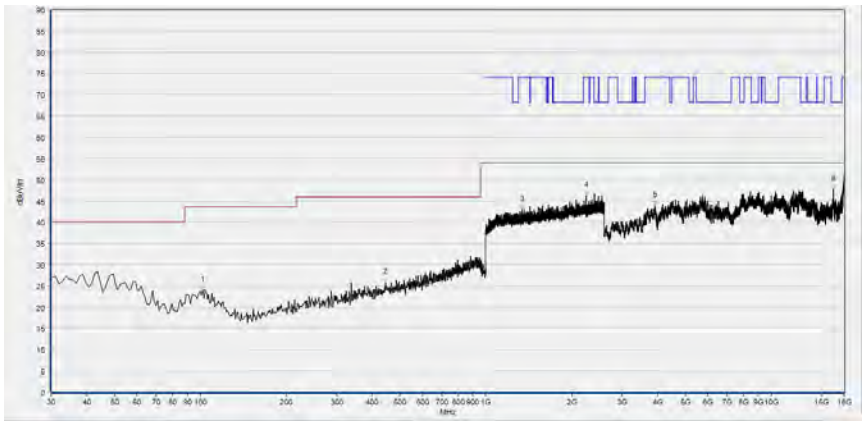
(Antenna Horizontal, 30MHz to 18GHz)



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
96.997	25.57	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
244.585	22.97	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
546.557	26.60	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1347.316	43.15	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2402.067	49.86	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
7063.813	44.53	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

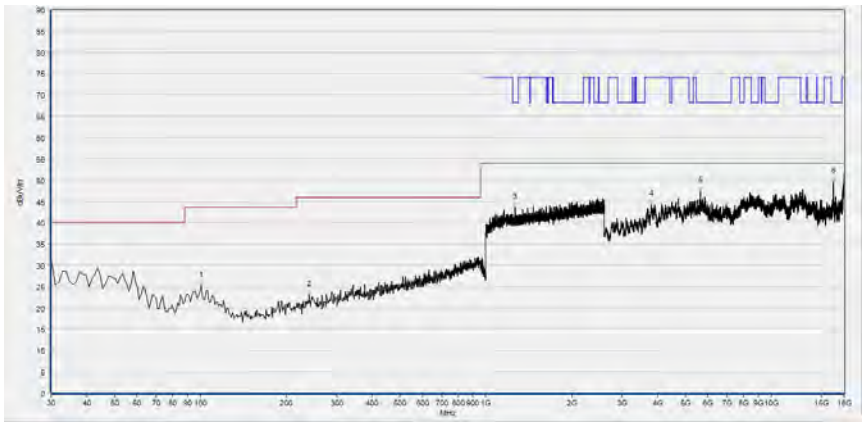
(Antenna Vertical, 30MHz to 18GHz)

Plots 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
101.852	23.96	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
445.576	25.80	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1339.313	42.92	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2242.548	46.18	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3918.504	43.85	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
16496.659	47.83	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

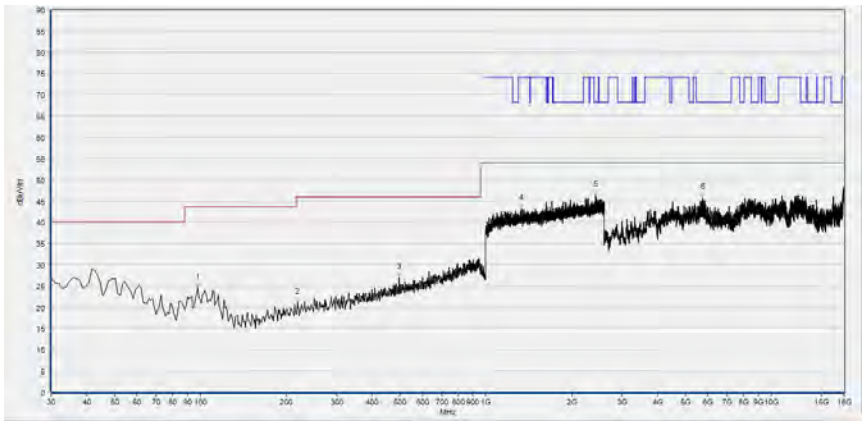
(Antenna Horizontal, 30MHz to 18GHz)



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
100.881	25.08	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
240.701	23.11	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1266.756	43.51	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
3801.440	44.18	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5637.487	47.37	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
16508.982	49.54	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

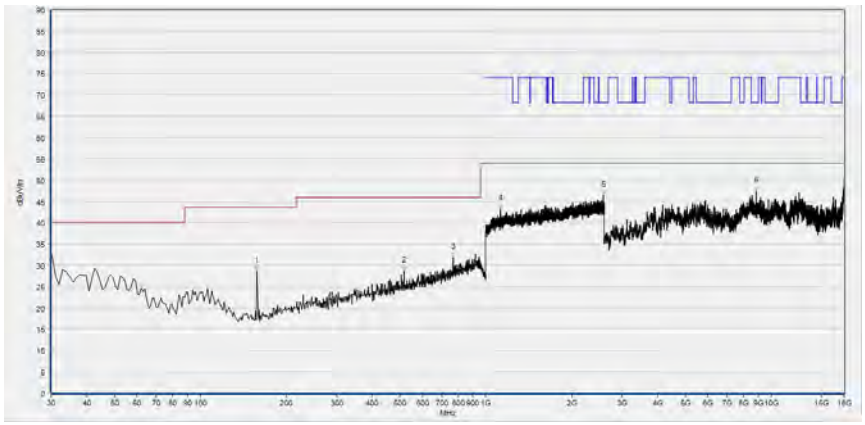
(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 120



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
97.968	24.60	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
219.339	21.04	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
497.037	26.95	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1329.710	43.29	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2416.472	46.41	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
5748.390	45.72	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

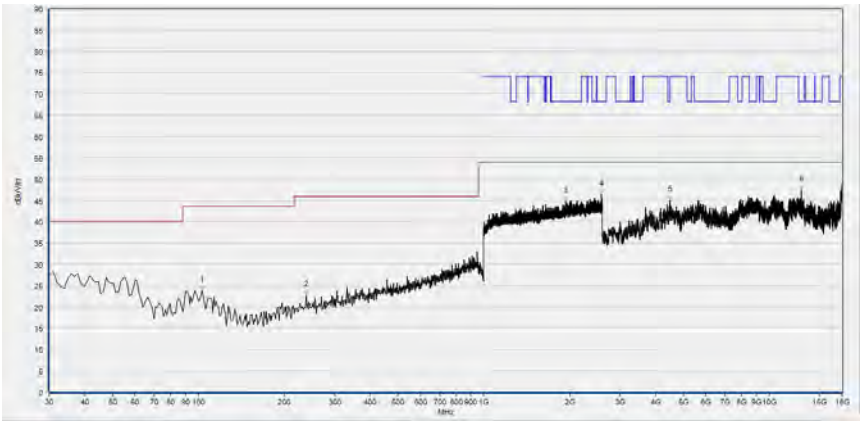
(Antenna Horizontal, 30MHz to 18GHz)



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
158.168	28.59	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
518.398	28.60	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
767.938	31.77	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1124.308	43.19	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2578.660	46.44	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
8847.489	47.40	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

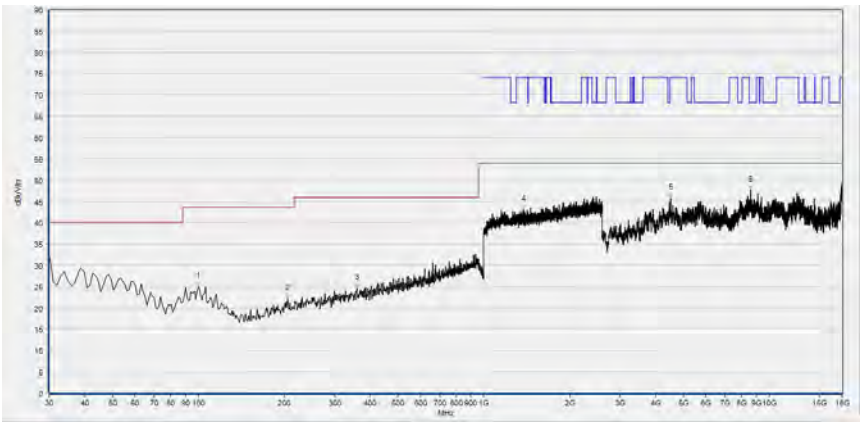
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 144



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
102.823	23.88	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
238.759	22.86	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1935.779	44.77	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
2578.660	46.35	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
4497.660	45.05	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
12944.709	47.49	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

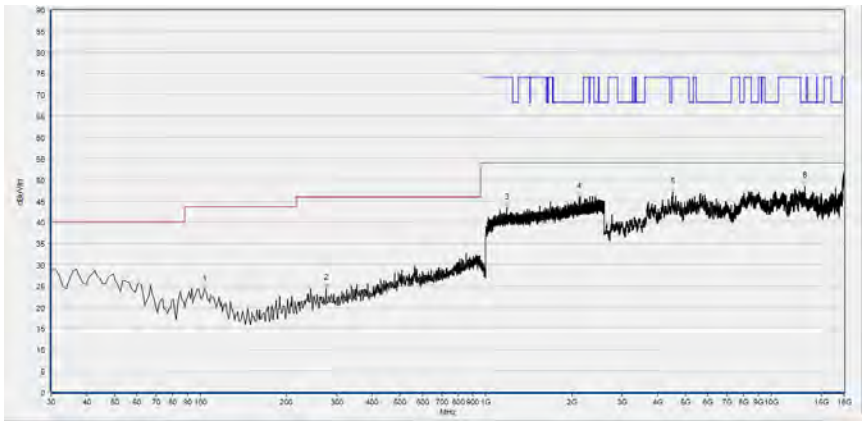
(Antenna Horizontal, 30MHz to 18GHz)



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
99.910	24.95	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
205.746	22.18	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
359.159	24.69	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1380.927	43.03	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4513.063	45.84	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8607.201	47.67	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

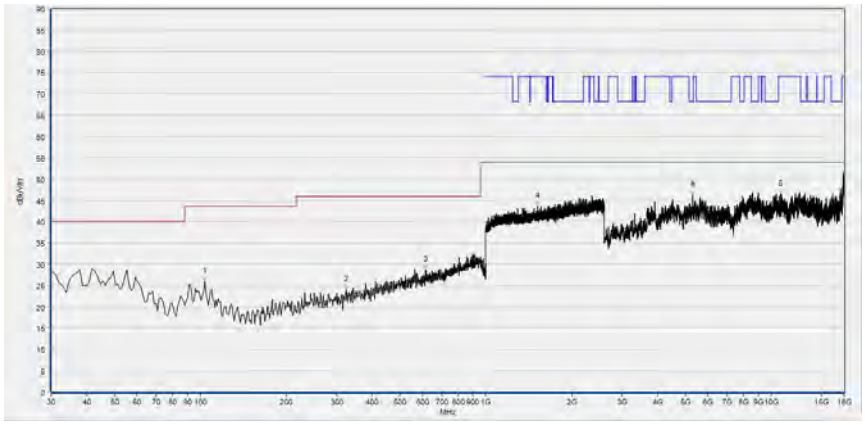
(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 149



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
103.794	24.22	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
275.656	24.55	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1182.461	43.34	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2120.907	45.91	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
4503.821	47.07	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
13092.579	48.48	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

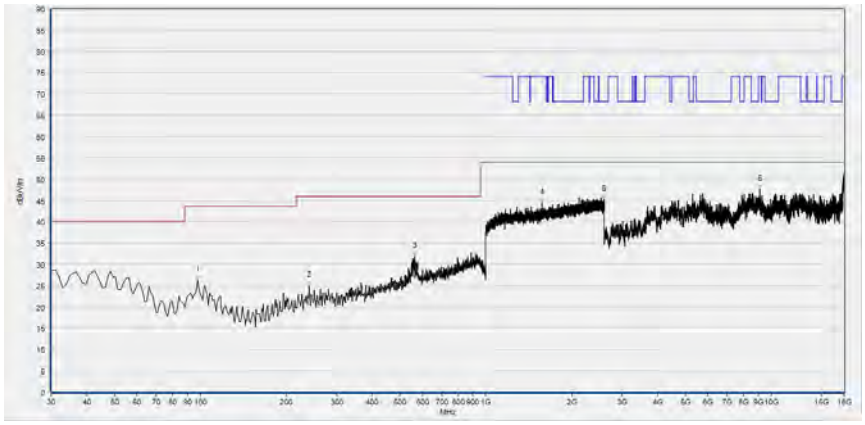
(Antenna Horizontal, 30MHz to 18GHz)



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
103.794	25.90	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
324.204	23.99	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
613.554	28.62	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1515.905	43.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5301.700	46.24	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
10806.761	46.50	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

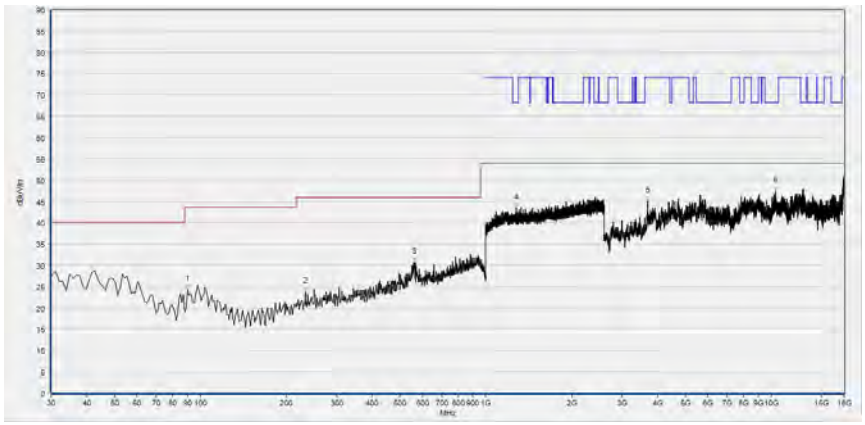
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 157



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
97.968	26.31	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
240.701	25.04	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
564.034	31.77	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1575.659	44.42	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2600.000	45.19	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
9106.261	47.64	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

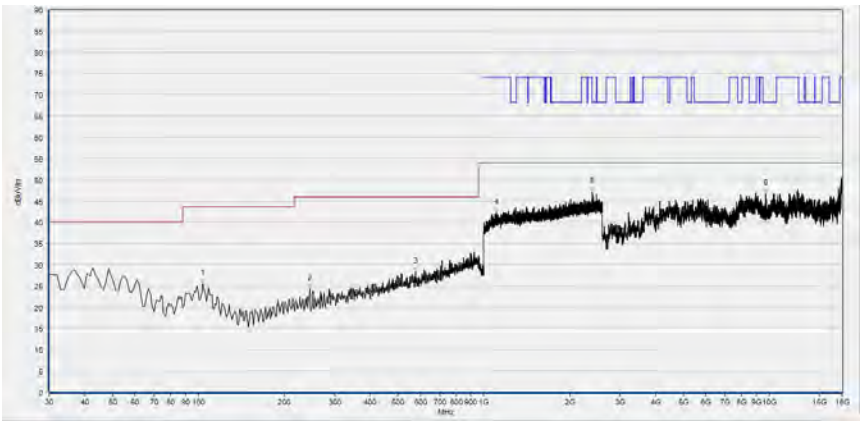
(Antenna Horizontal, 30MHz to 18GHz)



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
90.200	24.25	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
232.933	23.75	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
559.179	30.69	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1281.160	43.40	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
3690.538	45.13	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
10338.508	47.44	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

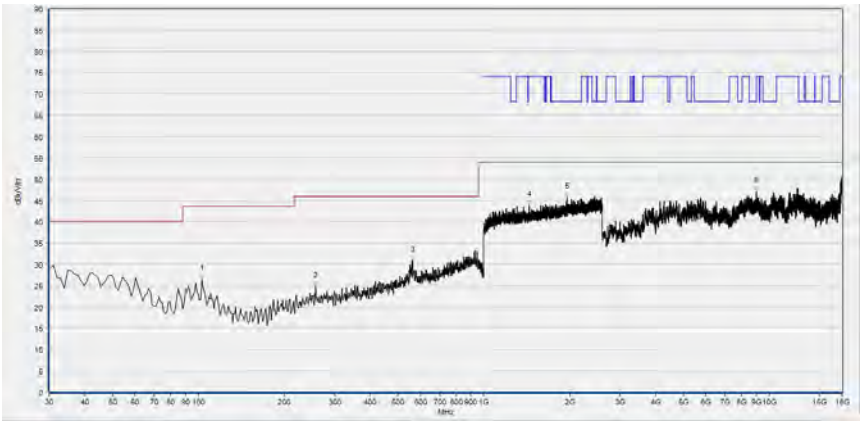
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 165



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
103.794	25.40	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
245.556	24.26	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
575.686	28.26	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1108.303	42.24	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2401.534	47.05	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
9737.788	46.77	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

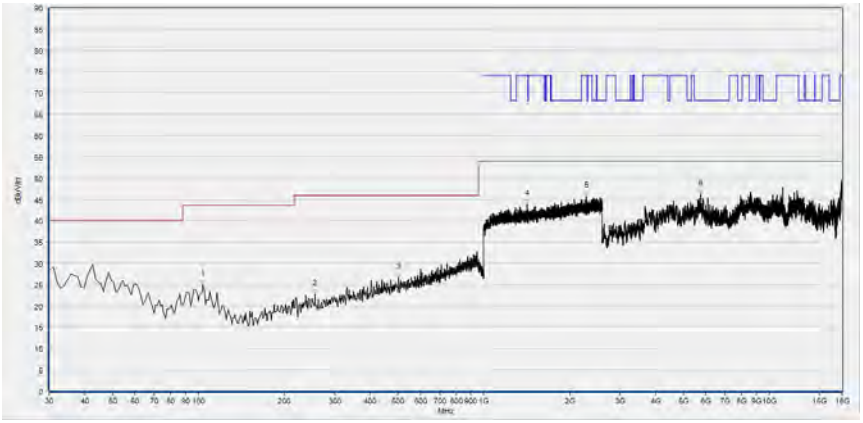


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
102.823	26.50	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
258.178	24.74	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
563.063	30.90	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1441.214	43.90	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
1953.384	45.70	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
8992.278	47.10	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

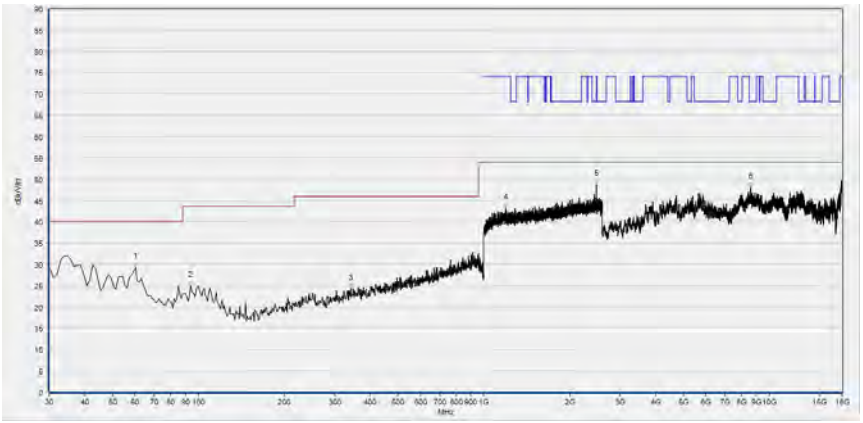
802.11n (HT40) Test mode

Plots for Channel = 38



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
103.794	25.03	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
256.236	22.80	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
501.892	26.69	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1419.340	43.97	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2286.295	45.81	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5742.228	46.30	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

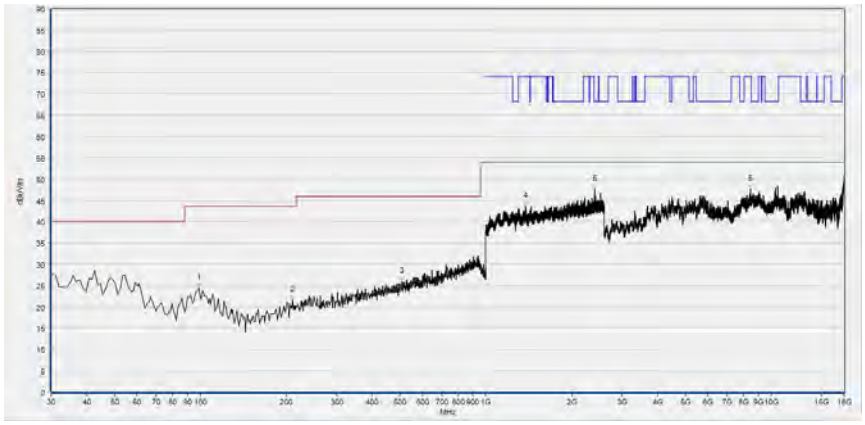
(Antenna Horizontal, 30MHz to 18GHz)



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
60.100	29.35	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
94.084	24.93	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
341.682	24.29	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1194.732	43.26	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2479.960	48.76	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
8610.282	48.06	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

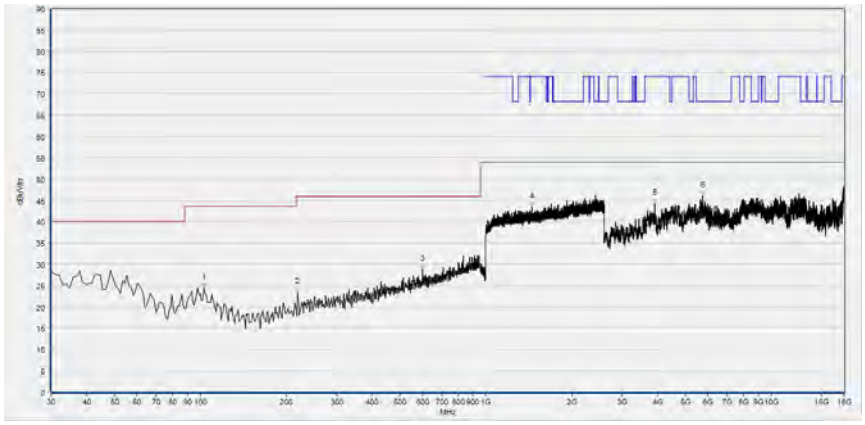
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 46



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
98.939	24.53	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
210.601	21.66	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
507.718	25.89	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1380.393	43.64	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2402.067	47.57	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
8443.929	47.63	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

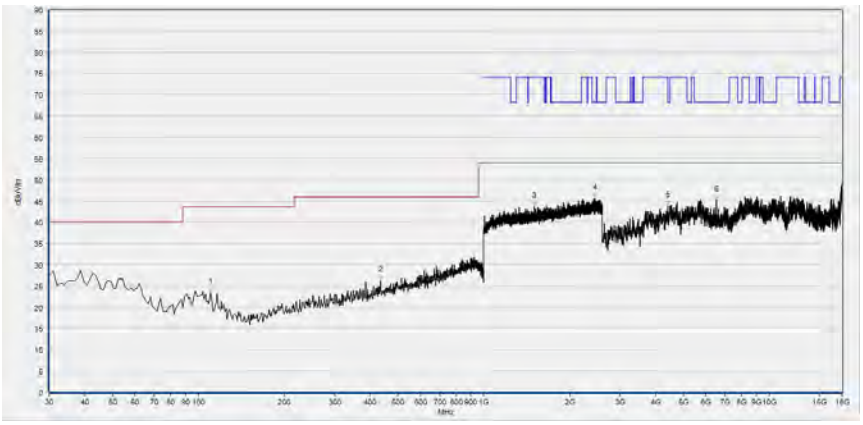
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
102.823	24.43	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
219.339	23.52	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
598.989	28.83	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1452.951	43.39	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3903.101	44.28	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5751.470	46.02	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

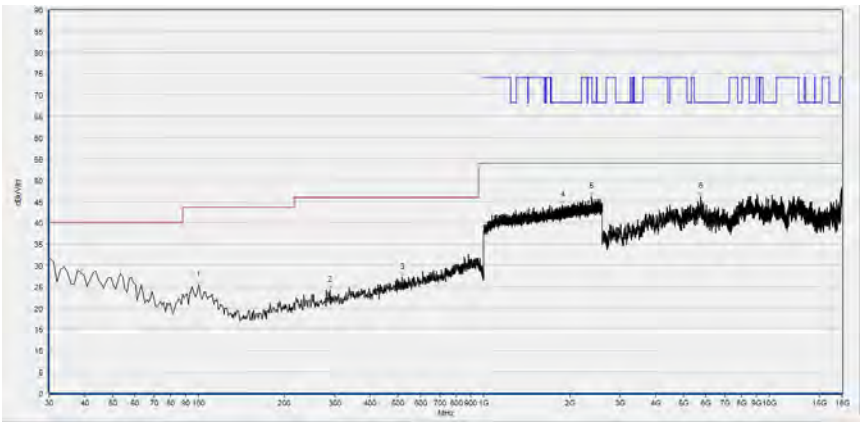
(Antenna Vertical, 30MHz to 18GHz)

Plots 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
110.591	23.40	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
434.895	26.31	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1498.833	43.77	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2447.949	45.64	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
4423.725	43.83	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
6521.624	45.28	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS

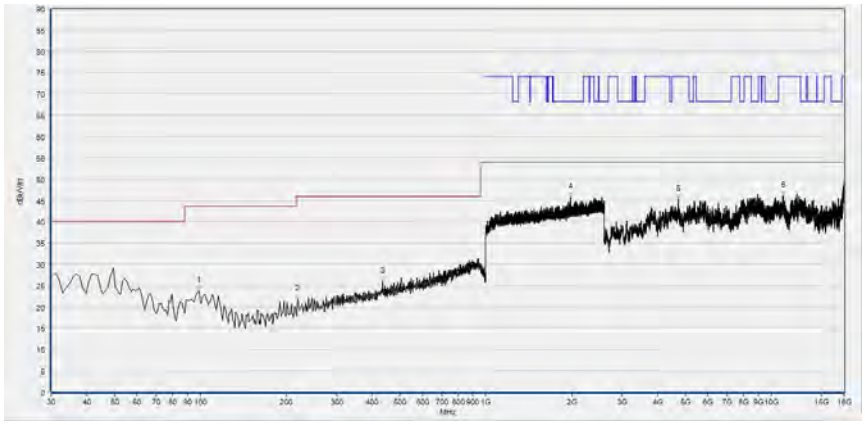
(Antenna Horizontal, 30MHz to 18GHz)



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
99.910	25.30	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
289.249	24.18	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
518.398	27.13	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1888.830	44.12	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
2380.727	46.02	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5751.470	46.16	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

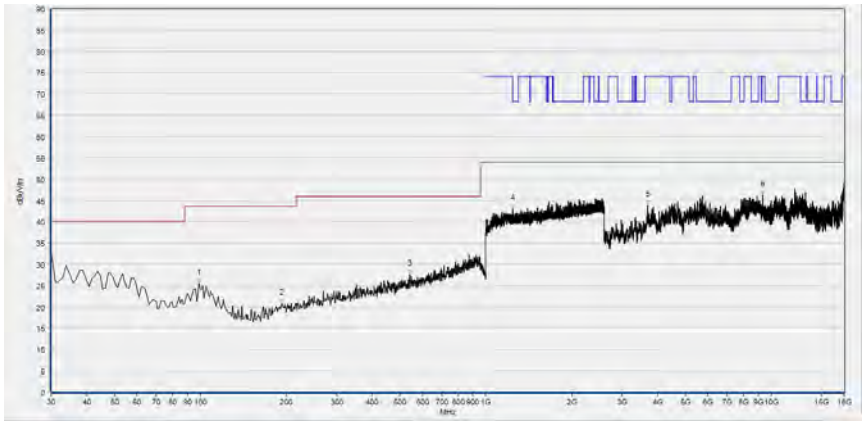
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 126



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
98.939	23.86	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
219.339	21.77	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
434.895	26.01	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1983.261	45.78	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
4725.625	45.24	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
11050.130	46.03	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

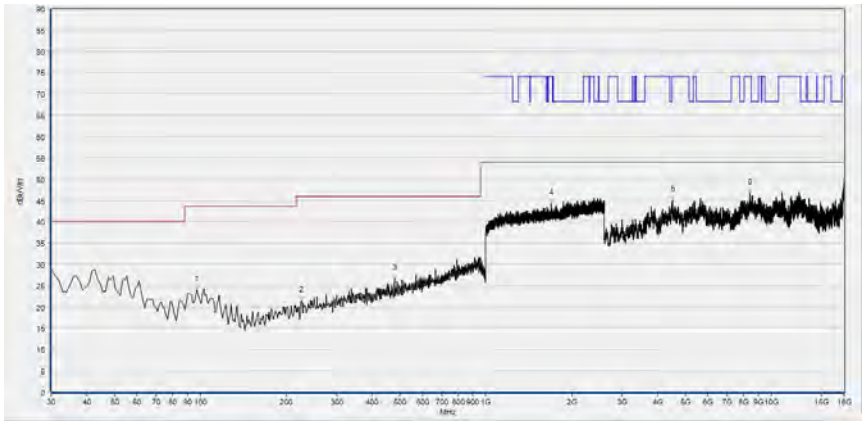
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
98.939	25.43	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
193.123	20.78	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
541.702	27.64	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1240.614	43.11	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
3696.699	43.89	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
9349.630	46.34	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

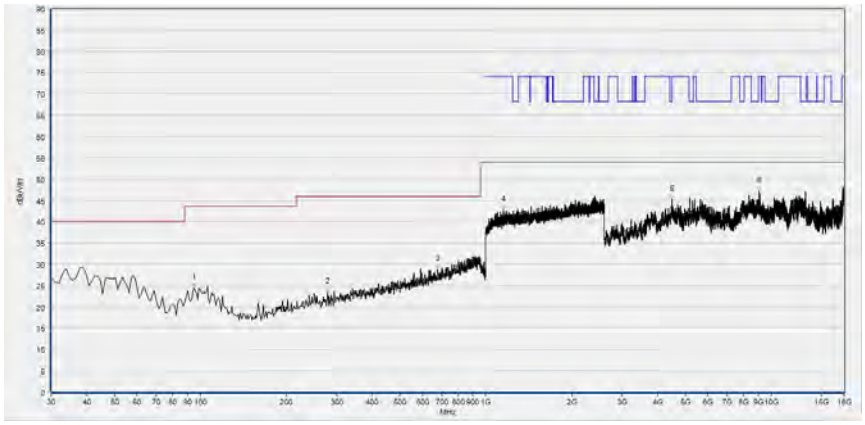
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 142



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
96.997	24.00	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
225.165	21.49	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
478.589	26.65	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1695.165	44.27	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4503.821	45.01	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8406.961	46.75	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

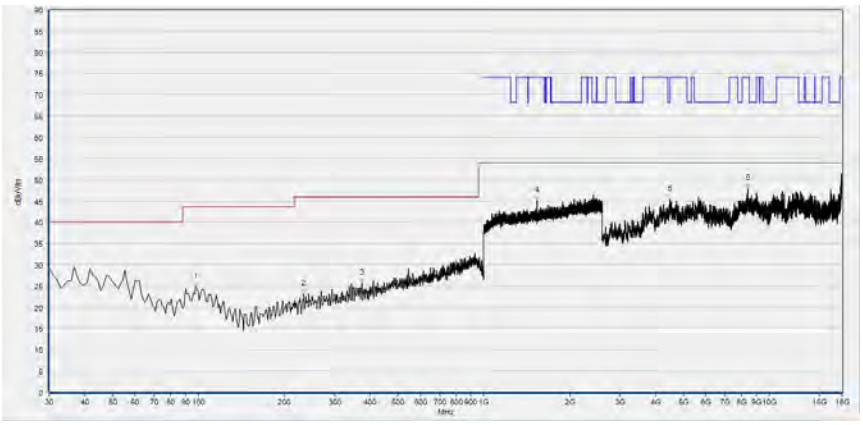
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
95.055	24.40	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
279.540	23.41	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
678.609	28.90	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1152.584	42.72	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4482.256	45.27	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
9056.971	47.12	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

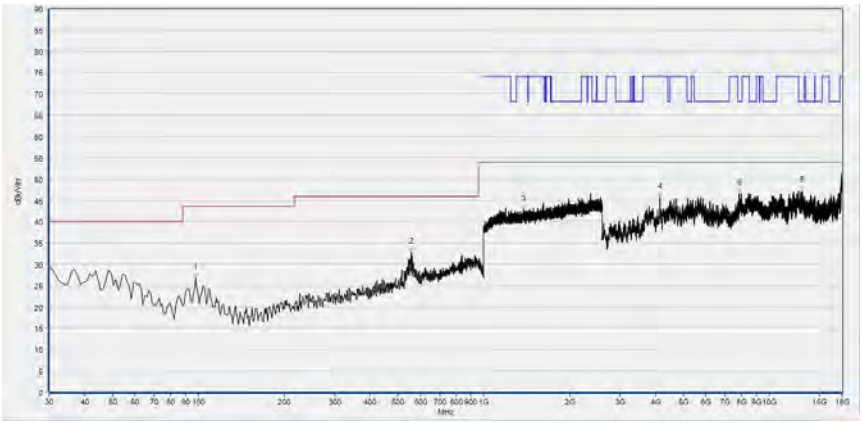
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 151



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
97.968	24.84	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
233.904	23.14	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
373.724	25.65	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1536.712	45.04	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4488.418	45.40	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
8425.445	47.90	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

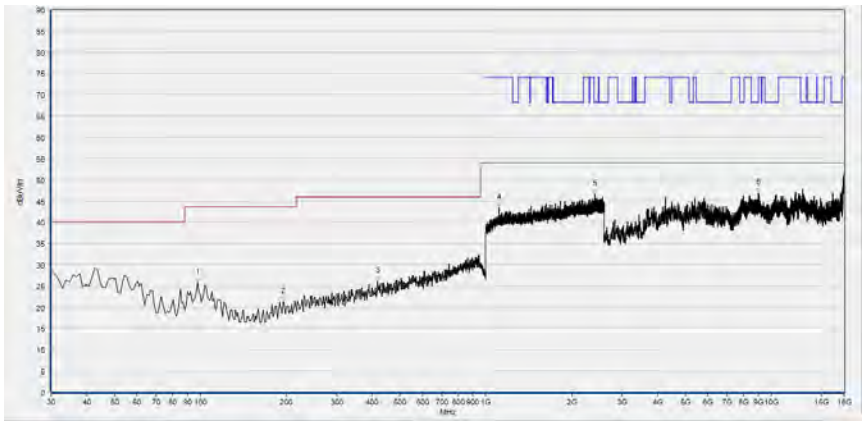
(Antenna Horizontal, 30MHz to 18GHz)



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
97.968	26.85	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
556.266	32.89	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1378.793	42.86	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4143.389	45.77	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7867.854	46.60	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
13052.531	47.20	N/A	N/A	68.23	N/A	54.00	Vertical	PASS

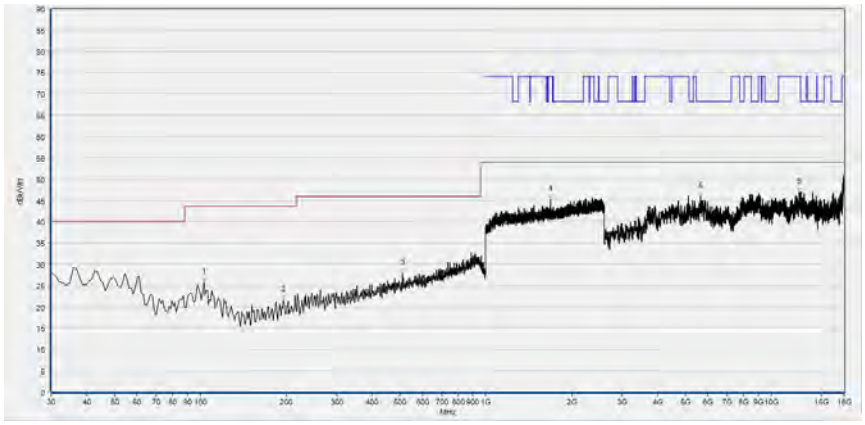
(Antenna Vertical, 30MHz to 18GHz)

Plots for Channel = 159



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
97.968	25.80	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
195.065	21.23	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
417.417	26.08	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1112.037	43.44	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2414.872	46.66	N/A	N/A	68.23	N/A	54.00	Horizontal	PASS
9020.004	46.89	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
102.823	25.85	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
195.065	21.62	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
509.660	27.89	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1687.162	45.19	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5643.649	45.98	N/A	N/A	68.23	N/A	54.00	Vertical	PASS
12525.745	46.92	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

Annex A Test Uncertainty

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

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

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
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. 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, the test firm registration number is 226174.

4. Test Equipments Utilized

4.1 Conducted Test Equipments

Equipment	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Attenuator 1	(N/A)	10dB	Resnet	N/A	N/A
EXA Signal Analzyer	MY53470836	N9010A	Agilent	2019.04.09	2020.04.08
USB Wideband Power Sensor	MY54210011	U2021XA	Agilent	2019.04.16	2020.04.15
RF cable (30MHz-26GHz)	CB01	RF01	Morlab	N/A	N/A
Coaxial cable	CB02	RF02	Morlab	N/A	N/A
SMA connector	CN01	RF03	HUBER-SUHNER	N/A	N/A
Temperature Chamber	YOMA	(N/A)	(N/A)	2019.01.22	2020.01.21
Computer	T430i	Think Pad	Lenovo	N/A	N/A

4.2 Conducted Emission Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Receiver	MY56400093	N9038A	KEYSIGHT	2019.05.08	2020.05.09
LISN	812744	NSLK 8127	Schwarzbeck	2019.05.08	2020.05.09
Pulse Limiter (20dB)	9391	VTSD 9561-D	Schwarzbeck	2019.05.08	2020.05.09
Coaxial cable(BNC)	CB01	EMC01	Morlab	N/A	N/A
ADAPTER	N/A	A1374	APPLE	N/A	N/A

4.3 List of Software Used

Description	Manufacturer	Software Version
Test system	Tonscend	V2.6
Power Panel	Agilent	V3.8
MORLAB EMCR V1.2	MORLAB	V1.0

4.4 Radiated Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Receiver	MY54130016	N9038A	Agilent	2019.07.26	2020.07.25
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2019.05.08	2020.05.09
Test Antenna - Horn	9170C-531	BBHA9170	Schwarzbeck	2019.02.15	2020.02.14
Test Antenna - Loop	1519-022	FMZB1519	Schwarzbeck	2019.07.26	2020.07.25
Test Antenna - Horn	01774	BBHA 9120D	Schwarzbeck	2019.07.26	2020.07.25
Coaxial cable (N male) (9KHz-30MHz)	CB04	EMC04	Morlab	N/A	N/A
Coaxial cable (N male) (30MHz-26GHz)	CB02	EMC02	Morlab	N/A	N/A
Coaxial cable (N male) (30MHz-26GHz)	CB03	EMC03	Morlab	N/A	N/A
Coaxial cable (N male) (30MHz-40GHz)	CB05	EMC05	Morlab	N/A	N/A
1-18GHz pre-Amplifier	MA02	TS-PR18	Rohde& Schwarz	2019.05.08	2020.05.09
18-26.5GHz pre-Amplifier	MA03	TS-PR18	Rohde& Schwarz	2019.05.08	2020.05.09
26GHz -40GHz pre-Amplifier	MA05	BBV9721	Rohde& Schwarz	2019.05.08	2020.05.09
Notch Filter	N/A	WRCG-5150-5350	Wainwright	2018.12.01	2019.11.30
Notch Filter	N/A	WRCG-5470-5725	Wainwright	2018.12.01	2019.11.30
Notch Filter	N/A	WRCG-5725-5850	Wainwright	2018.12.01	2019.11.30
ADAPTER	N/A	A1374	APPLE	N/A	N/A

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Anechoic Chamber	N/A	9m*6m*6m	CRT	2017.11.19	2020.11.18

END OF REPORT