



# FCC RADIO TEST REPORT

Applicant : ELO TOUCH SOLUTIONS, INC.  
Address : 670 N Mccarthy Blvd, Suite 100, MILPITAS,  
CA 95035, United States  
Equipment : Computer Box  
Model No. : ELO-KIT-EloView-Engine  
Trade Name : ELO  
FCC ID. : RBWENGINE

**I HEREBY CERTIFY THAT :**

The sample was received on Nov. 13, 2017 and the testing was carried out on Nov. 16, 2017 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Mark Liao / Assistant Manager

Tested by:

Spree Yei / Engineer

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory





Contents

- 1. **Summary of Test Procedure and Test Results.....5**
  - 1.1 Applicable Standards .....5
- 2. **Test Configuration of Equipment under Test ..... 6**
  - 2.1 Feature of Equipment.....6
  - 2.2 Carrier Frequency of Channels ..... 6
  - 2.3 Test Mode and Test Software .....7
  - 2.4 Description of Test System.....7
  - 2.5 General Information of Test.....8
  - 2.6 Measurement Uncertainty ..... 8
- 3. **Test Equipment and Ancillaries Used for Tests .....9**
- 4. **Antenna Requirements ..... 10**
  - 4.1 Antenna Construction and Directional Gain ..... 10
- 5. **Test of AC Power Line Conducted Emission ..... 11**
  - 5.1 Test Limit ..... 11
  - 5.2 Test Procedures ..... 11
  - 5.3 Typical Test Setup ..... 12
  - 5.4 Test Result and Data ..... 13
  - 5.5 Test Photographs ..... 15
- 6. **Test of Radiated Spurious Emission ..... 16**
  - 6.1 Test Limit ..... 16
  - 6.2 Test Procedures ..... 16
  - 6.3 Typical Test Setup ..... 17
  - 6.4 Test Result and Data (9KHz ~ 30MHz) ..... 18
  - 6.5 Test Result and Data (30MHz ~ 1GHz)..... 18
  - 6.6 Test Result and Data (1GHz ~ 25GHz).....20
  - 6.7 Restricted Bands of Operation ..... 38
  - 6.8 Test Photographs (30MHz ~ 1GHz) ..... 39
  - 6.9 Test Photographs (1GHz ~ 25GHz) ..... 40
- 7. **Test of Conducted Spurious Emission ..... 41**
  - 7.1 Test Limit ..... 41
  - 7.2 Test Procedure ..... 41
  - 7.3 Test Setup Layout ..... 41
  - 7.4 Test Result and Data ..... 41
- 8. **6dB Bandwidth Measurement Data ..... 48**
  - 8.1 Test Limit ..... 48
  - 8.2 Test Procedures ..... 48
  - 8.3 Test Setup Layout ..... 48
  - 8.4 Test Result and Data ..... 48
- 9. **Maximum Peak and Average Output Power ..... 51**
  - 9.1 Test Limit ..... 51
  - 9.2 Test Procedures ..... 51
  - 9.3 Test Setup Layout ..... 51



9.4 Test Result and Data ..... 51

**10. Power Spectral Density ..... 53**

10.1 Test Limit ..... 53

10.2 Test Procedures ..... 53

10.3 Test Setup Layout ..... 53

10.4 Test Result and Data ..... 53

**11. Radio Frequency Exposure ..... 56**

11.1 Applicable Standards ..... 56

11.2 EUT Specification ..... 56

11.3 Test Results ..... 57

11.4 Calculation ..... 57

11.5 Maximum Permissible Exposure ..... 57





# 1. Summary of Test Procedure and Test Results

## 1.1 Applicable Standards

ANSI C63.4:2014

ANSI C63.10:2013

FCC Rules and Regulations Part 15 Subpart C §15.247

KDB558074

KDB662911

FCC Rule	Description of Test	Result
15.203	. Antenna Requirement	Pass
15.207	. AC Power Line Conducted Emission	Pass
15.209 15.205	. Radiated Spurious Emission	Pass
15.247(d)	. Conducted Spurious Emission	Pass
15.247(a)(2)	. 6dB Bandwidth	Pass
15.247(b)	. Maximum Peak and Average Output Power	Pass
15.247(e)	. Power Spectral Density	Pass

This EUT has been also tested and compiled with the requirement of FCC Part 15, Subpart B, recorded in a separate test report.



## 2. Test Configuration of Equipment under Test

### 2.1 Feature of Equipment

Modulation Type	DSSS, OFDM, FHSS, GFSK, 8DPSK
Frequency Range	802.11b/g/n: 2412-2462MHz 802.11a/an: 5150-5250MHz, 5725-5850MHz BT: 2402~2480MHz BLE: 2402~2480MHz
Data Rate	WLAN: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS7, HT20 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11ac: MCS0 – MCS7, VHT20/40/80 BT: GFSK: 1Mbps $\pi/4$ -DQPSK: 2Mbps 8DPSK: 3Mbps BLE: GFSK: 1Mbps
Antenna Type/gain	2.4G: PCB Antenna / 3.68dBi 5G: PCB Antenna / 3.69dBi BT / BLE: PCB Antenna / 3.68dBi

Note:

1. For a more detailed features please refer to the User's Manual.

### 2.2 Carrier Frequency of Channels

802.11b, 802.11g, 802.11n HT20 (2412MHz~2462MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
<b>*01</b>	<b>2412</b>	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	<b>*11</b>	<b>2462</b>
<b>*06</b>	<b>2437</b>	---	---

Note: Channels remarked \* are selected to perform test.



### 2.3 Test Mode and Test Software

- a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
- b. An executive program, "QRCT:3.0.230.0" under WIN 7 was executed to transmit and receive data via WLAN.
- c. The following test modes were performed for the test:
  - Test Mode 1. 802.11b (1Mbps)
  - Test Mode 2. 802.11g (6Mbps)
  - Test Mode 3. 802.11n HT20 (6.5Mbps)For conduction test, caused "Test Mode 2" generated the worst case, it was reported as the final data.  
For radiation test (below 1GHz), caused "Test Mode 2" generated the worst case, it was reported as the final data.  
For radiation test (above 1GHz), "Test Mode 1,2,3" were reported as the final data.

### 2.4 Description of Test System

The EUT was tested alone. No support devices are needed for testing.



## 2.5 General Information of Test

Test Site	<b>CerpPASS Technology Corporation Test Laboratory</b> Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881 Address: No.68-1, Shihbachongsi, Shihding Township, New Taipei City 223, Taiwan, R.O.C. Tel: +886-2-2663-8582	
	FCC	TW1079, TW1061, TW1439
	IC	4934E-1, 4934E-2
	VCCI	T-2205 for Telecommunication Test C-4663 for Conducted emission test R-4399, R-4218 for Radiated emission test G-10812, G-10813 for radiated disturbance above 1GHz
Frequency Range Investigated:	Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 25,000MHz	
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.	

## 2.6 Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	Line / Neutral	±2.9076 dB
Radiated Emission	9 kHz ~ 25,000 MHz	Vertical / Horizontal	±0.948 dB
Spurious Emission (Conducted)	-	-	±4.011 dB
Maximum Peak and Average Output Power	-	-	±0.322 dB
Power Spectral Density	-	-	±0.322 dB
Bandwidth	-	-	74.224Hz





### 3. Test Equipment and Ancillaries Used for Tests

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
EMI Receiver	R&S	ESCI3	100443	2017/03/07	2018/03/06
LISN	Schwarzbeck	NSLK 8127	8127-568	2017/02/15	2018/02/14
Pulse Limiter	R&S	ESH3-Z2	101934	2017/02/14	2018/02/13
Bilog Antenna	Schwarzbeck	VULB9168	369	2017/03/15	2018/03/14
Active Loop Antenna	EMCO	6507	40855	2017/05/15	2018/05/14
Horn Antenna	EMCO	3115	31589	2017/02/18	2018/02/17
Horn Antenna	EMCO	3116	31970	2017/03/29	2018/03/28
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200207	2017/03/17	2018/03/16
Preamplifier	EM	EM330	60660	2017/02/25	2018/02/24
Preamplifier	EMC INSTRUMENTS	EMC051845SE	980333	2017/09/20	2018/09/19
Preamplifier	Agilent	8449B	3008A01954	2017/02/09	2018/02/08
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2017/11/10	2018/11/09
MXG MW Analog Signal Generator	KEYSIGHT	N5183A	MY50142931	2017/03/17	2018/03/16
Spectrum Analyzer	R&S	FSP40	100219	2017/07/01	2018/06/30
Bluetooth Tester	R&S	CBT	101133	2017/03/10	2018/03/09
Attenuator	KEYSIGHT	8491B	MY39250703	2017/03/07	2018/03/06
Rotary Attenuator	Agilent	8495B	MY42146680	2017/03/13	2018/03/12
Temp & Humi chamber	T-MACHINE	TMJ-9712	T-12-040111	2017/09/04	2018/09/03
Series Power Meter	Anritsu	ML2495A	1224005	2017/03/01	2018/02/28
Power Sensor	Anritsu	MA2411B	1207295	2017/03/01	2018/02/28
Cable	HUBER SUHNER	SUCOFLEX 102	28422/2	2017/02/25	2018/02/24
Cable	HUBER SUHNER	SUCOFLEX 102	28418/2	2017/02/25	2018/02/24
Software	Farad	Ez-EMC	ver.ct3a1	N/A	N/A
Software	AUDIX	E3	V8.2014-8-6	N/A	N/A
Software	Keysight	N7607B Signal Studio	v2.0.0.1	N/A	N/A
Software	Keysight	Inservice MonitorUtility	N/A	N/A	N/A



## 4. Antenna Requirements

### 4.1 Antenna Construction and Directional Gain

PCB antenna, 3.68 dBi

For Power directional gain=  $G_{ant}= 3.68$  dBi

For PSD directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / NANT]$   
= 3.68 (dBi)



## 5. Test of AC Power Line Conducted Emission

### 5.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz, according to the methods defined in ANSI C63.4-2014. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB $\mu$ V)	Average (dB $\mu$ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

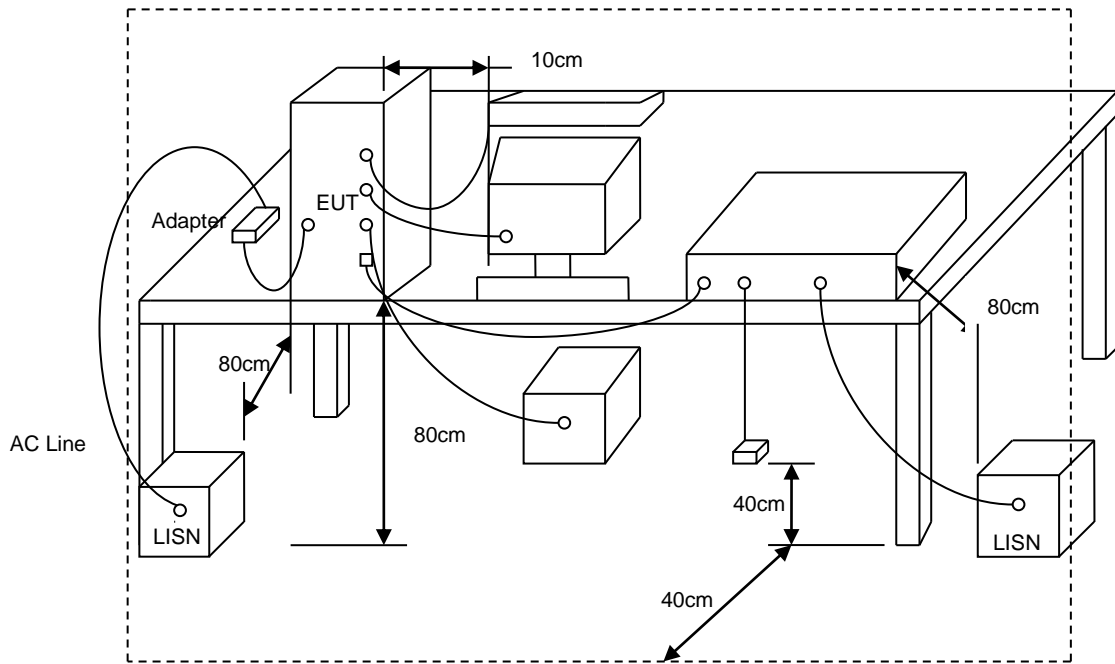
\*Decreases with the logarithm of the frequency.

### 5.2 Test Procedures

- The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- Connect EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connecting to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



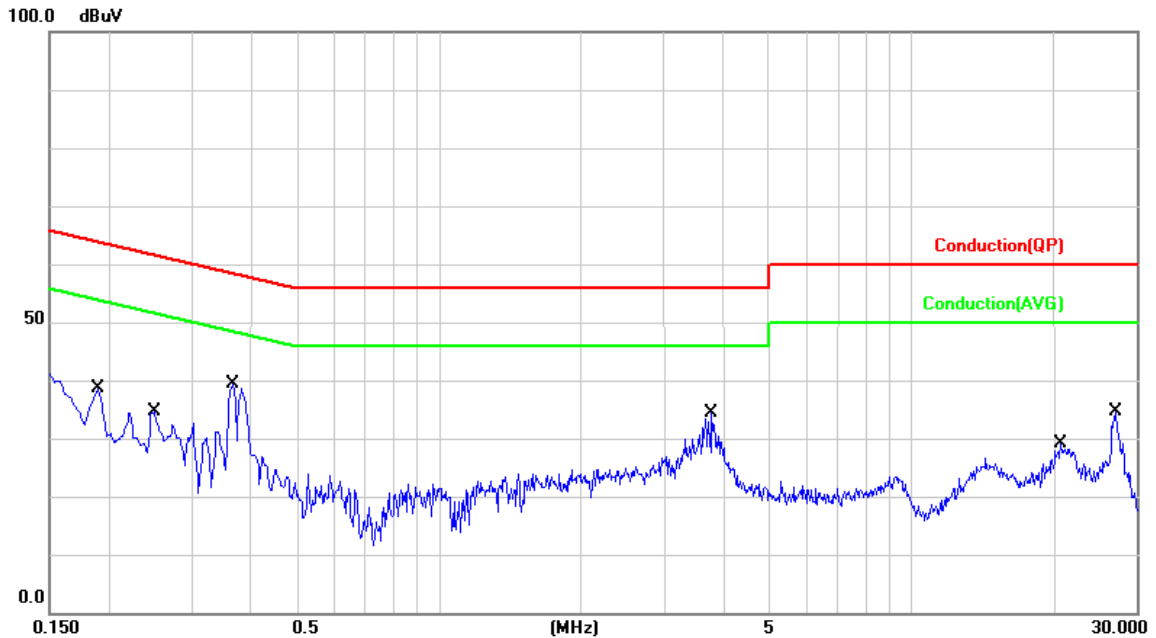
### 5.3 Typical Test Setup





### 5.4 Test Result and Data

Power	: AC 120V	Pol/Phase	: LINE
Test Mode	: Mode 2	Temperature	: 20 °C
Test date	: Nov. 16, 2017	Humidity	: 58 %

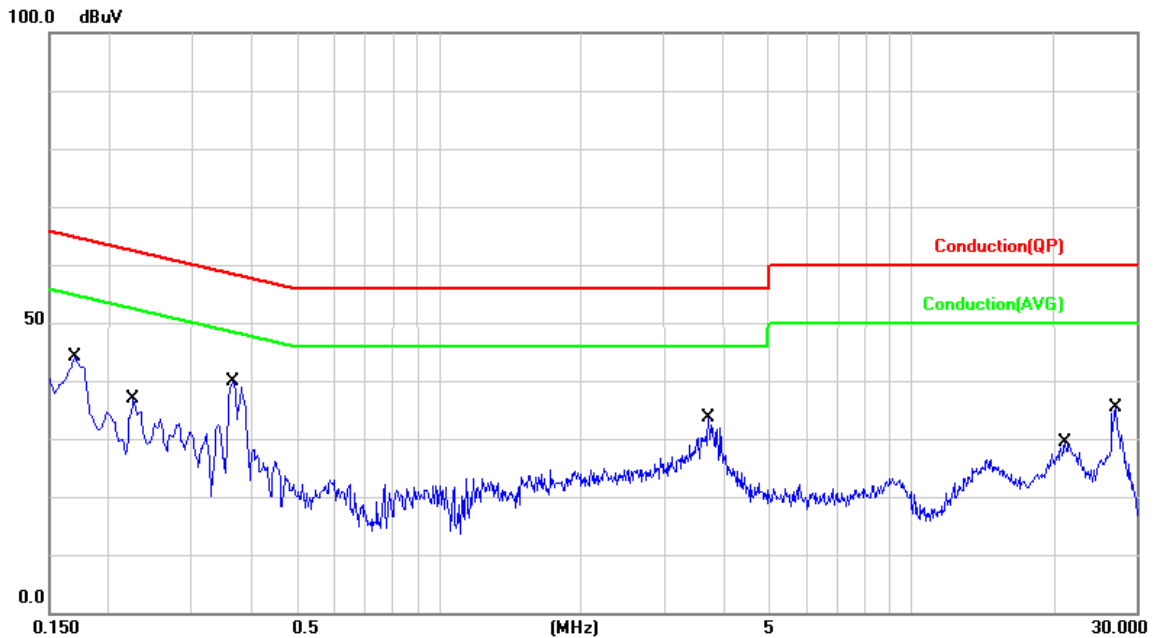


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1900	9.91	26.23	36.14	64.03	-27.89	QP	P
2	0.1900	9.91	17.49	27.40	54.03	-26.63	AVG	P
3	0.2500	9.91	21.06	30.97	61.75	-30.78	QP	P
4	0.2500	9.91	16.33	26.24	51.75	-25.51	AVG	P
5	0.3660	9.93	28.86	38.79	58.59	-19.80	QP	P
6	0.3660	9.93	25.11	35.04	48.59	-13.55	AVG	P
7	3.7860	10.08	19.09	29.17	56.00	-26.83	QP	P
8	3.7860	10.08	8.65	18.73	46.00	-27.27	AVG	P
9	20.7500	10.46	12.42	22.88	60.00	-37.12	QP	P
10	20.7500	10.46	6.80	17.26	50.00	-32.74	AVG	P
11	27.1820	10.57	19.46	30.03	60.00	-29.97	QP	P
12	27.1820	10.57	11.89	22.46	50.00	-27.54	AVG	P

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator



Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode	: Mode 2	Temperature	: 20 °C
Test date	: Nov. 16, 2017	Humidity	: 58 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1700	9.91	29.61	39.52	64.96	-25.44	QP	P
2	0.1700	9.91	20.57	30.48	54.96	-24.48	AVG	P
3	0.2260	9.91	21.93	31.84	62.59	-30.75	QP	P
4	0.2260	9.91	14.45	24.36	52.59	-28.23	AVG	P
5	0.3660	9.93	28.90	38.83	58.59	-19.76	QP	P
6	0.3660	9.93	24.91	34.84	48.59	-13.75	AVG	P
7	3.7220	10.08	18.10	28.18	56.00	-27.82	QP	P
8	3.7220	10.08	8.98	19.06	46.00	-26.94	AVG	P
9	21.2540	10.47	13.17	23.64	60.00	-36.36	QP	P
10	21.2540	10.47	7.36	17.83	50.00	-32.17	AVG	P
11	27.0500	10.57	19.02	29.59	60.00	-30.41	QP	P
12	27.0500	10.57	11.61	22.18	50.00	-27.82	AVG	P

Note: Level = Reading + Factor

Margin = Level – Limit

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator



## 6. Test of Radiated Spurious Emission

### 6.1 Test Limit

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, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
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

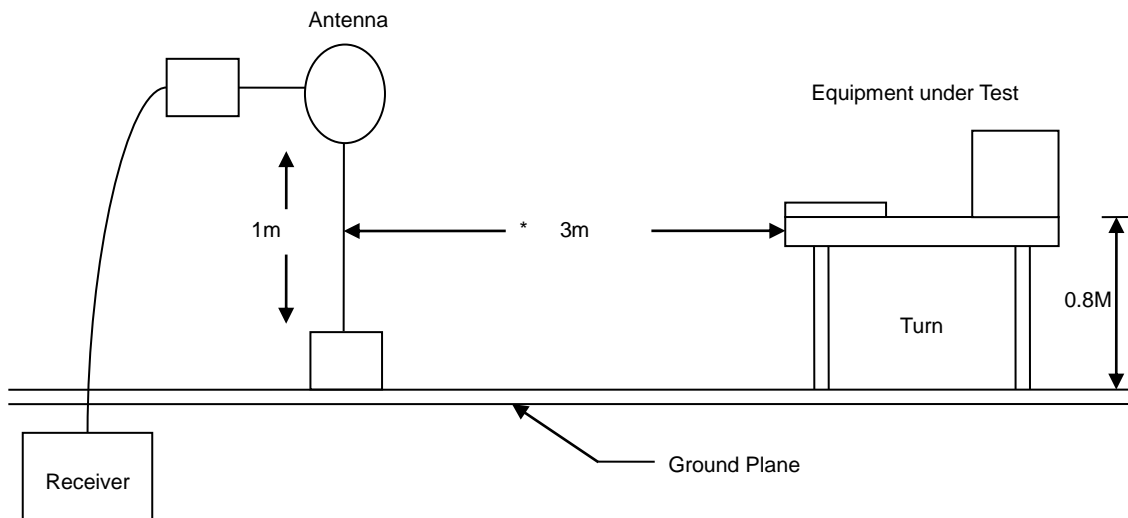
### 6.2 Test Procedures

- The EUT was placed on a rotatable table top 0.8 meter above ground.
- The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- The table was rotated 360 degrees to determine the position of the highest radiation.
- The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.

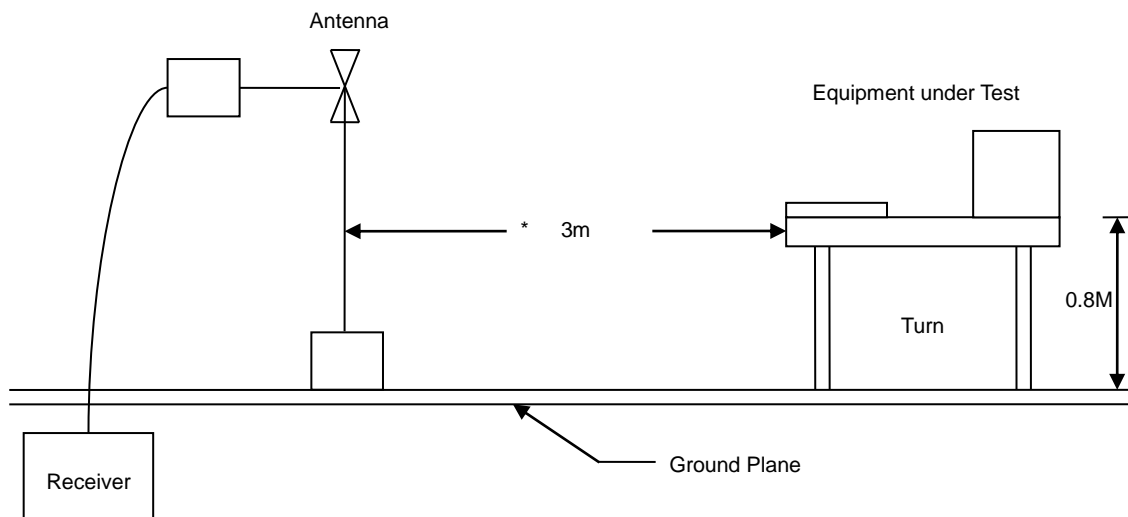


### 6.3 Typical Test Setup

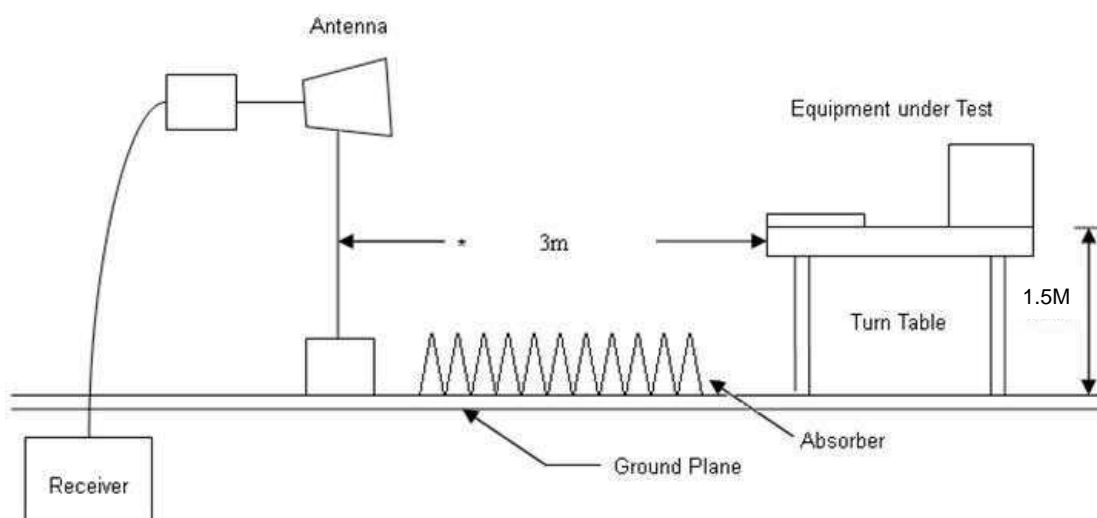
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup





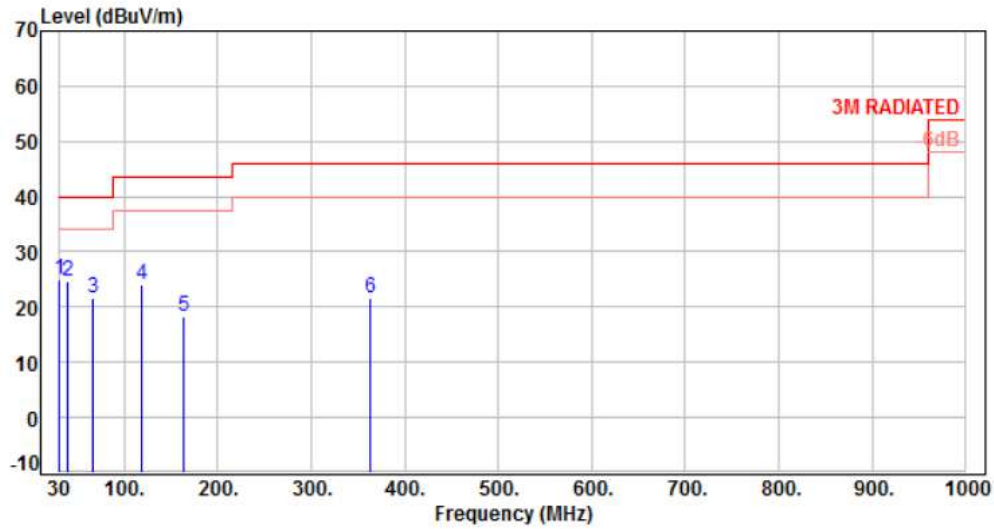


6.4 Test Result and Data (9KHz ~ 30MHz)

The 9kHz - 30MHz spurious emission is under limit 20dB more.

6.5 Test Result and Data (30MHz ~ 1GHz)

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 2	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

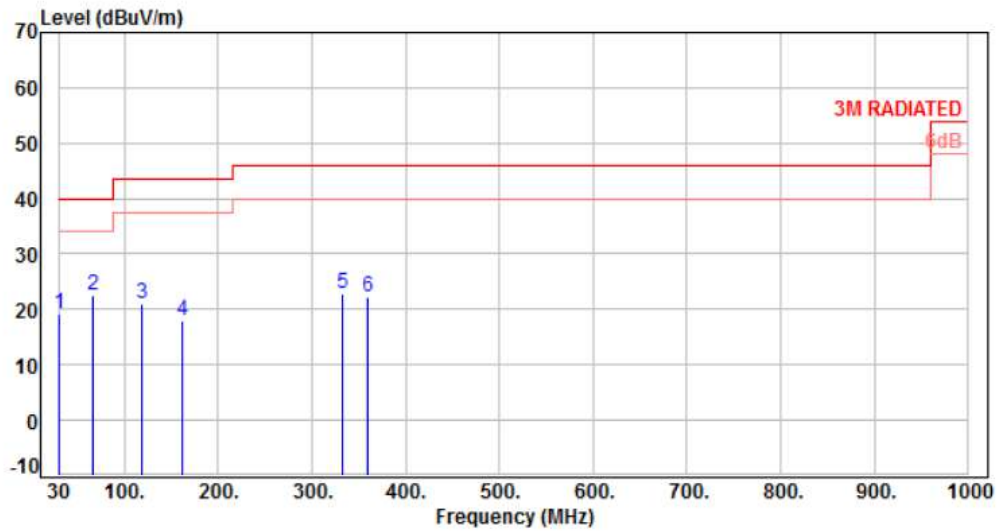


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	30.00	-10.92	35.91	24.99	40.00	-15.01	Peak	400	0	P
2	39.70	-10.38	34.95	24.57	40.00	-15.43	Peak	400	0	P
3	65.89	-11.28	32.88	21.60	40.00	-18.40	Peak	400	0	P
4	119.24	-12.49	36.46	23.97	43.50	-19.53	Peak	400	0	P
5	163.86	-9.93	28.13	18.20	43.50	-25.30	Peak	400	0	P
6	363.68	-7.08	28.84	21.76	46.00	-24.24	Peak	400	0	P

Note: Level=Reading+Factor  
Margin=Level-Limit  
Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	30.00	-10.92	30.23	19.31	40.00	-20.69	Peak	100	0	P
2	66.86	-11.44	34.00	22.56	40.00	-17.44	Peak	100	0	P
3	118.27	-12.58	33.63	21.05	43.50	-22.45	Peak	100	0	P
4	160.95	-9.86	27.75	17.89	43.50	-25.61	Peak	100	0	P
5	332.64	-7.95	30.66	22.71	46.00	-23.29	Peak	100	0	P
6	359.80	-7.20	29.41	22.21	46.00	-23.79	Peak	100	0	P

Note: Level=Reading+Factor

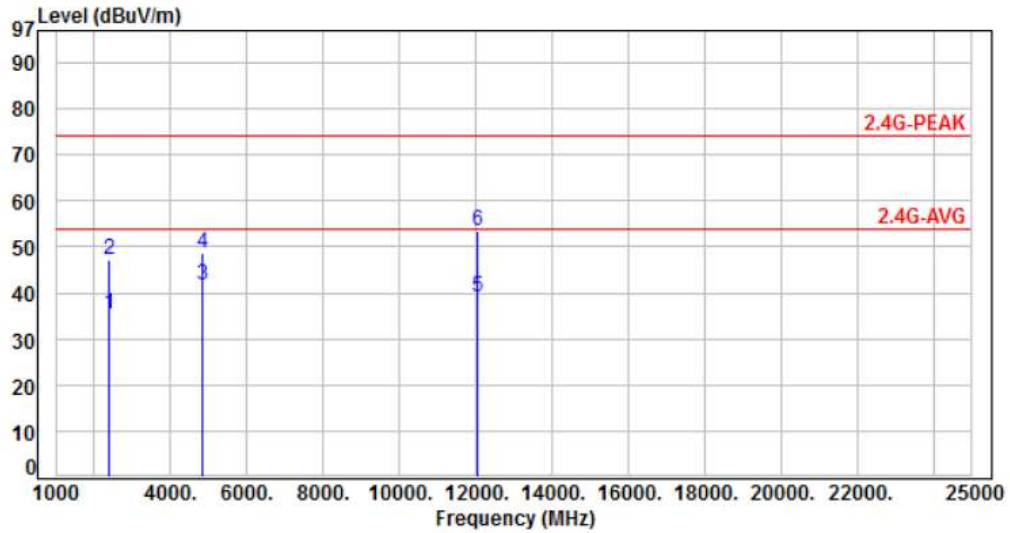
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



6.6 Test Result and Data (1GHz ~ 25GHz)

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH01	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

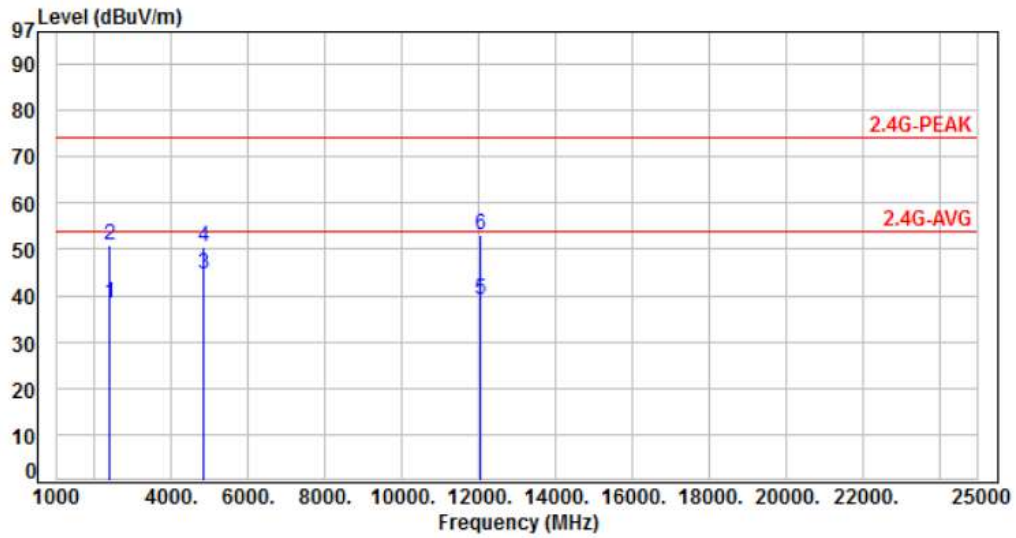


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-18.95	54.20	35.25	54.00	-18.75	Average	351	321	P
2	2390.00	-18.95	66.20	47.25	74.00	-26.75	Peak	351	321	P
3	4824.00	-13.23	54.92	41.69	54.00	-12.31	Average	376	308	P
4	4824.00	-13.23	62.00	48.77	74.00	-25.23	Peak	376	308	P
5	12060.00	-5.95	45.20	39.25	54.00	-14.75	Average	350	330	P
6	12060.00	-5.95	59.60	53.65	74.00	-20.35	Peak	350	330	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH01	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

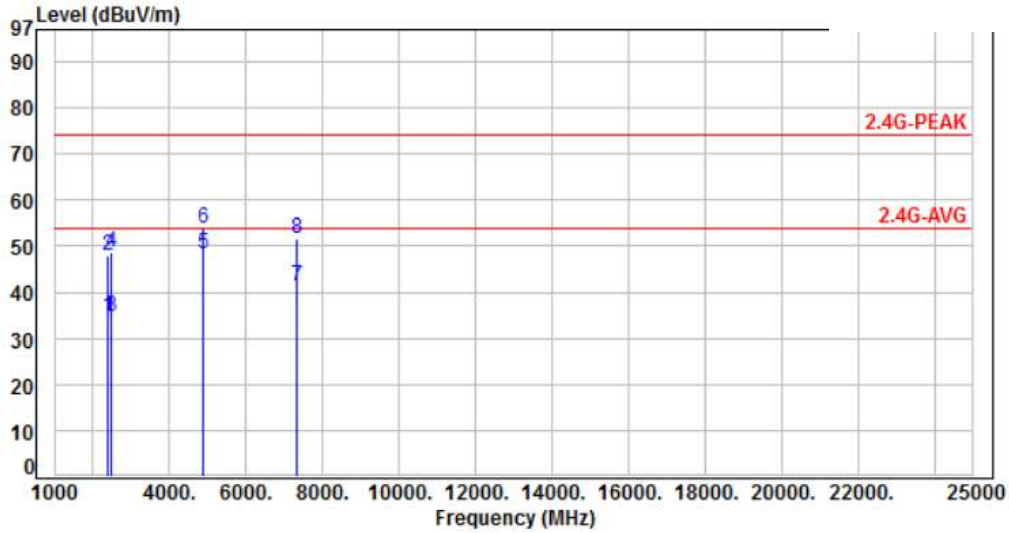


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-18.95	57.44	38.49	54.00	-15.51	Average	380	15	P
2	2390.00	-18.95	69.92	50.97	74.00	-23.03	Peak	380	15	P
3	4824.00	-13.23	57.72	44.49	54.00	-9.51	Average	347	312	P
4	4824.00	-13.23	63.60	50.37	74.00	-23.63	Peak	347	312	P
5	12060.00	-5.95	45.20	39.25	54.00	-14.75	Average	335	307	P
6	12060.00	-5.95	58.93	52.98	74.00	-21.02	Peak	335	307	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH06	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

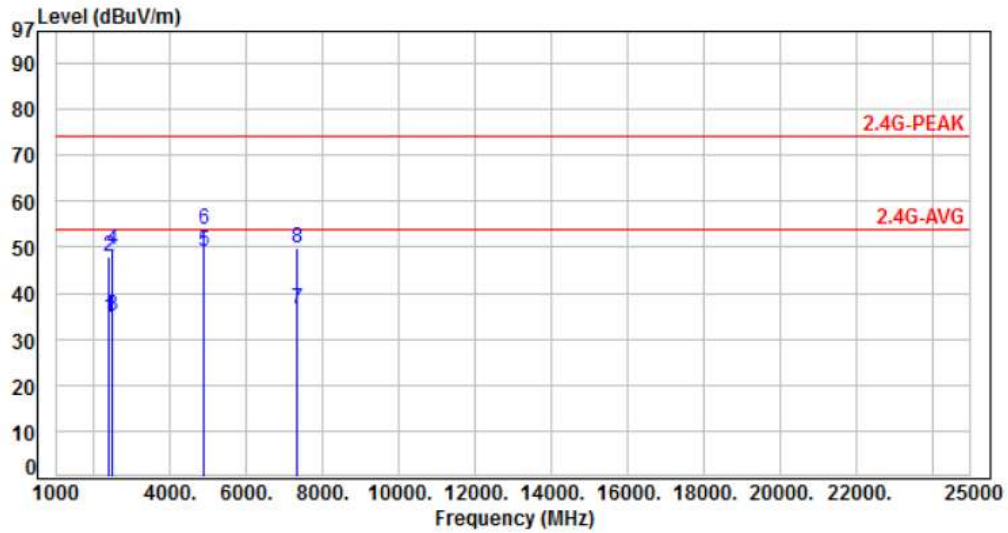


No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-18.95	53.60	34.65	54.00	-19.35	Average	395	16	P
2	2390.00	-18.95	67.00	48.05	74.00	-25.95	Peak	395	16	P
3	2483.50	-18.71	53.50	34.79	54.00	-19.21	Average	395	16	P
4	2483.50	-18.71	67.50	48.79	74.00	-25.21	Peak	395	16	P
5	4874.00	-13.11	61.55	48.44	54.00	-5.56	Average	345	288	P
6	4874.00	-13.11	66.88	53.77	74.00	-20.23	Peak	345	288	P
7	7311.00	-10.18	51.62	41.44	54.00	-12.56	Average	350	119	P
8	7311.00	-10.18	61.89	51.71	74.00	-22.29	Peak	350	119	P

Note: Level=Reading+Factor  
Margin=Level-Limit  
Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH06	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

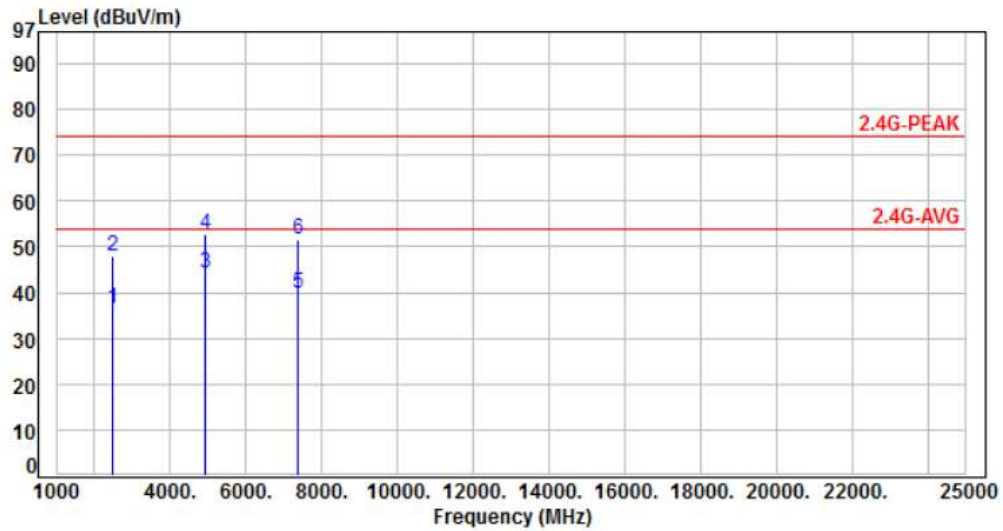


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-18.95	53.50	34.55	54.00	-19.45	Average	300	335	P
2	2390.00	-18.95	66.87	47.92	74.00	-26.08	Peak	300	335	P
3	2483.50	-18.71	53.80	35.09	54.00	-18.91	Average	300	335	P
4	2483.50	-18.71	68.20	49.49	74.00	-24.51	Peak	300	335	P
5	4874.00	-13.11	62.00	48.89	54.00	-5.11	Average	359	308	P
6	4874.00	-13.11	67.10	53.99	74.00	-20.01	Peak	359	308	P
7	7311.00	-10.18	46.59	36.41	54.00	-17.59	Average	379	29	P
8	7311.00	-10.18	59.95	49.77	74.00	-24.23	Peak	379	29	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH11	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

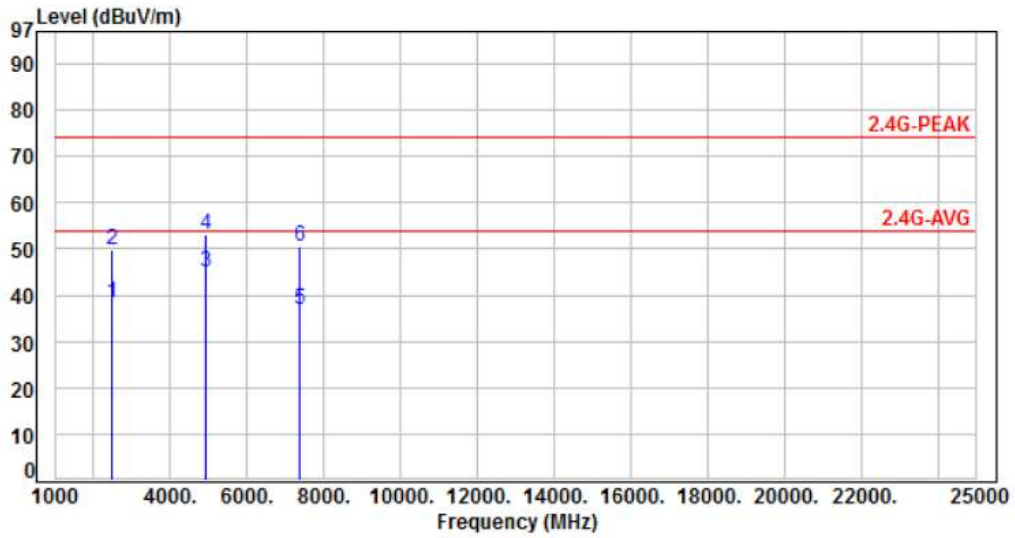


No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2486.00	-18.71	55.20	36.49	54.00	-17.51	Average	389	267	P
2	2486.00	-18.71	66.80	48.09	74.00	-25.91	Peak	389	267	P
3	4924.00	-12.98	57.30	44.32	54.00	-9.68	Average	367	274	P
4	4924.00	-12.98	65.60	52.62	74.00	-21.38	Peak	367	274	P
5	7386.00	-10.00	49.79	39.79	54.00	-14.21	Average	354	121	P
6	7386.00	-10.00	61.69	51.69	74.00	-22.31	Peak	354	121	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH11	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



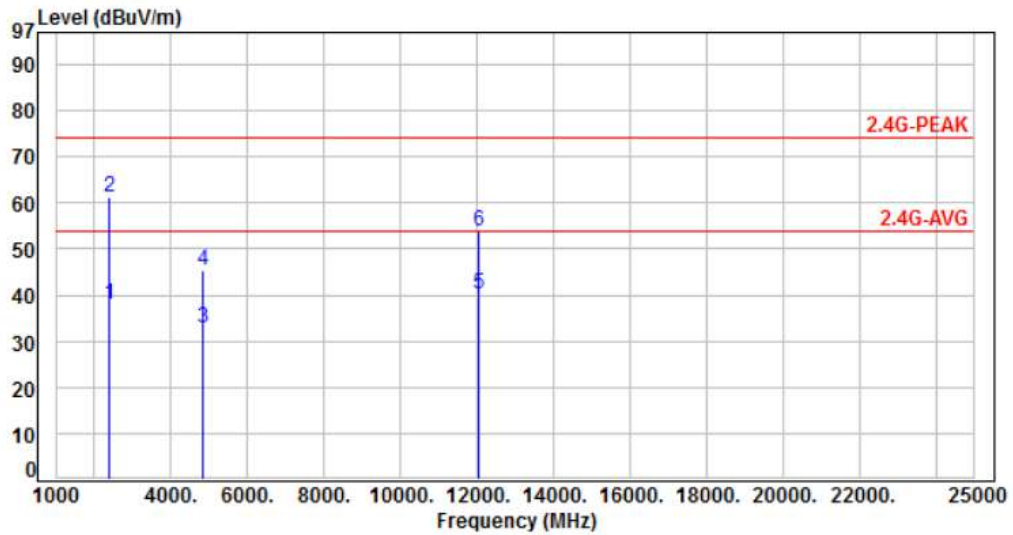
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2486.00	-18.71	56.96	38.25	54.00	-15.75	Average	319	15	P
2	2486.00	-18.71	68.50	49.79	74.00	-24.21	Peak	319	15	P
3	4924.00	-12.98	57.84	44.86	54.00	-9.14	Average	374	310	P
4	4924.00	-12.98	65.93	52.95	74.00	-21.05	Peak	374	310	P
5	7386.00	-10.00	46.99	36.99	54.00	-17.01	Average	376	112	P
6	7386.00	-10.00	60.49	50.49	74.00	-23.51	Peak	376	112	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor





Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, CH01	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

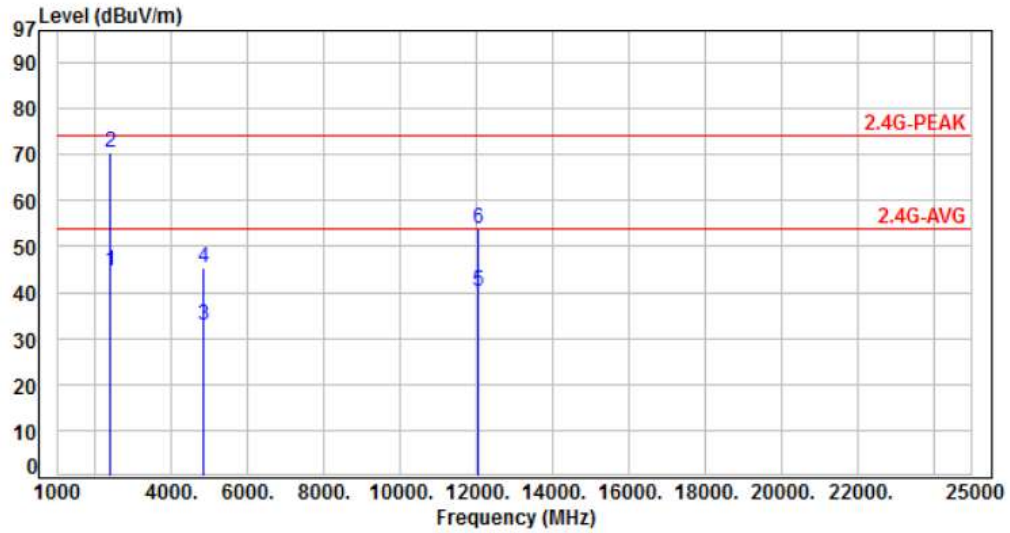


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-18.95	56.90	37.95	54.00	-16.05	Average	399	262	P
2	2390.00	-18.95	80.20	61.25	74.00	-12.75	Peak	399	262	P
3	4824.00	-13.23	45.90	32.67	54.00	-21.33	Average	337	288	P
4	4824.00	-13.23	58.67	45.44	74.00	-28.56	Peak	337	288	P
5	12060.00	-5.95	46.20	40.25	54.00	-13.75	Average	357	331	P
6	12060.00	-5.95	59.70	53.75	74.00	-20.25	Peak	357	331	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, CH01	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

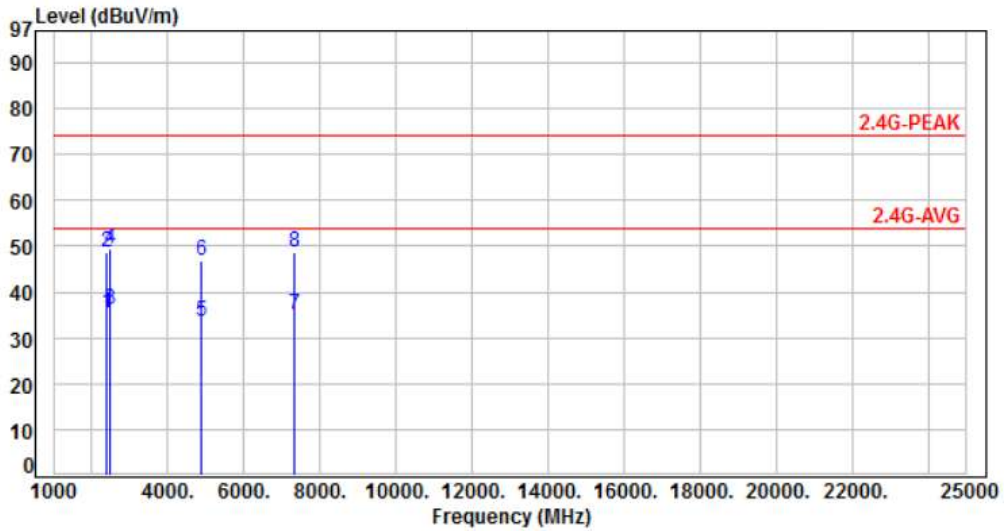


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-18.95	63.50	44.55	54.00	-9.45	Average	372	360	P
2	2390.00	-18.95	89.50	70.55	74.00	-3.45	Peak	372	360	P
3	4824.00	-13.23	45.95	32.72	54.00	-21.28	Average	311	360	P
4	4824.00	-13.23	58.50	45.27	74.00	-28.73	Peak	311	360	P
5	12060.00	-5.95	46.30	40.35	54.00	-13.65	Average	311	360	P
6	12060.00	-5.95	59.80	53.85	74.00	-20.15	Peak	311	360	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, CH06	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

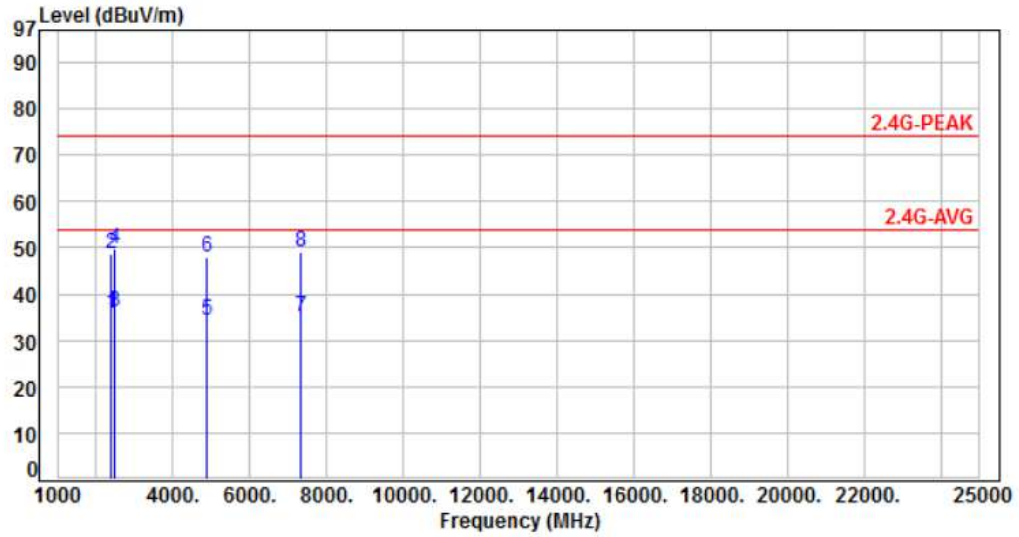


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-18.95	54.30	35.35	54.00	-18.65	Average	392	266	P
2	2390.00	-18.95	67.50	48.55	74.00	-25.45	Peak	392	266	P
3	2483.50	-18.71	54.90	36.19	54.00	-17.81	Average	392	266	P
4	2483.50	-18.71	68.20	49.49	74.00	-24.51	Peak	392	266	P
5	4874.00	-13.11	46.70	33.59	54.00	-20.41	Average	362	296	P
6	4874.00	-13.11	60.10	46.99	74.00	-27.01	Peak	362	296	P
7	7311.00	-10.18	45.19	35.01	54.00	-18.99	Average	328	18	P
8	7311.00	-10.18	58.93	48.75	74.00	-25.25	Peak	328	18	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, CH06	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

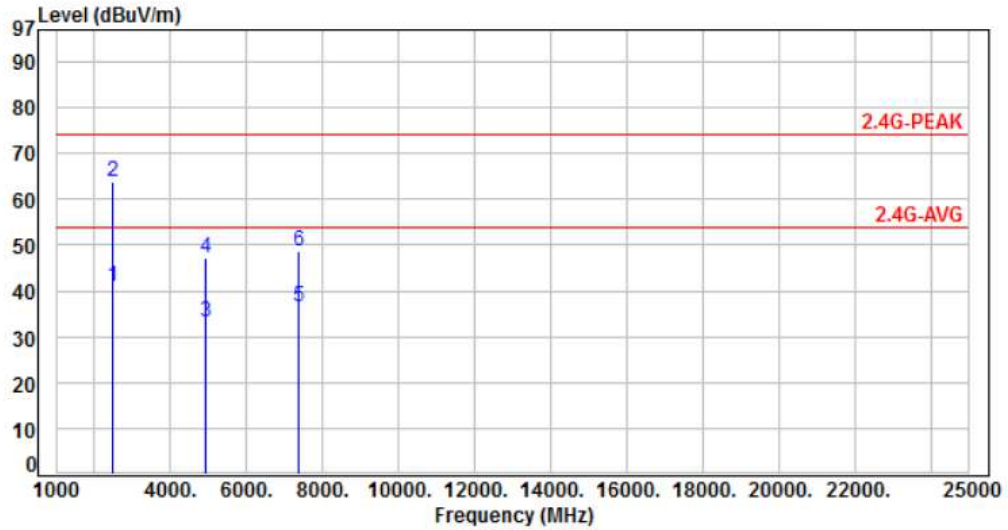


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-18.95	54.60	35.65	54.00	-18.35	Average	190	325	P
2	2390.00	-18.95	67.80	48.85	74.00	-25.15	Peak	190	325	P
3	2483.50	-18.71	54.80	36.09	54.00	-17.91	Average	190	325	P
4	2483.50	-18.71	68.50	49.79	74.00	-24.21	Peak	190	325	P
5	4874.00	-13.11	47.40	34.29	54.00	-19.71	Average	354	16	P
6	4874.00	-13.11	61.20	48.09	74.00	-25.91	Peak	354	16	P
7	7311.00	-10.18	45.19	35.01	54.00	-18.99	Average	362	344	P
8	7311.00	-10.18	59.24	49.06	74.00	-24.94	Peak	362	344	P

Note: Level=Reading+Factor  
Margin=Level-Limit  
Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, CH11	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

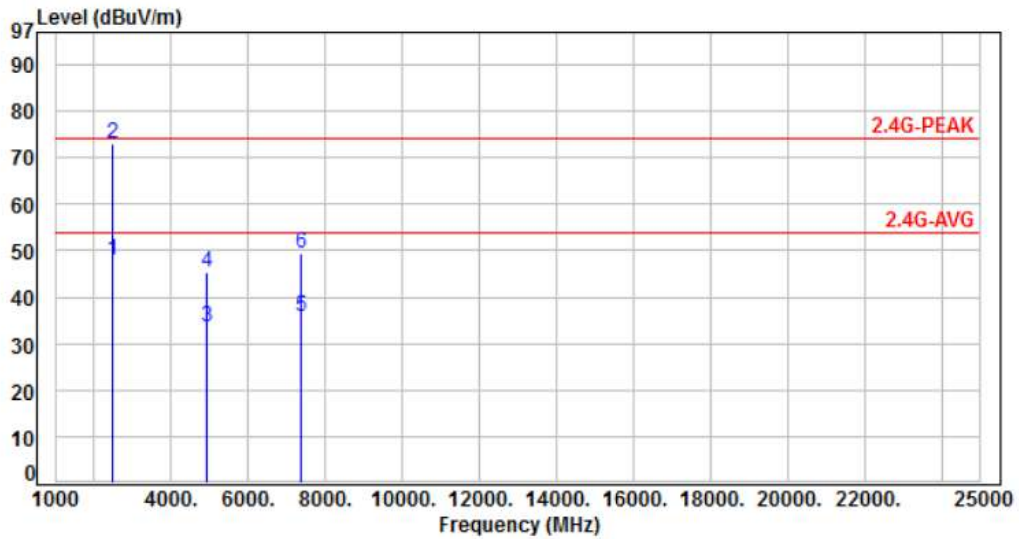


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-18.71	59.50	40.79	54.00	-13.21	Average	388	271	P
2	2483.50	-18.71	82.50	63.79	74.00	-10.21	Peak	388	271	P
3	4924.00	-12.98	46.20	33.22	54.00	-20.78	Average	348	270	P
4	4924.00	-12.98	60.20	47.22	74.00	-26.78	Peak	348	270	P
5	7386.00	-10.00	46.60	36.60	54.00	-17.40	Average	331	354	P
6	7386.00	-10.00	58.78	48.78	74.00	-25.22	Peak	331	354	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, CH11	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

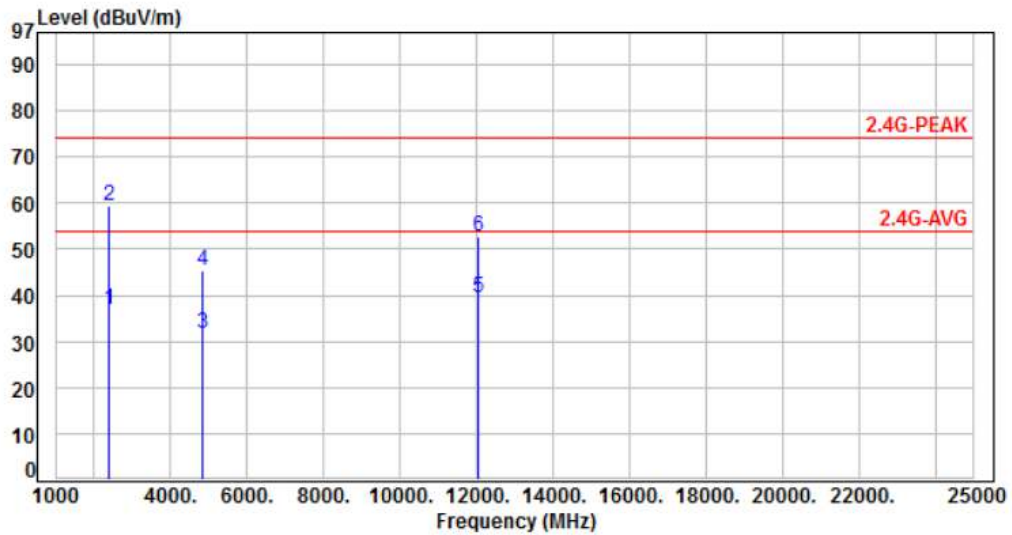


No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-18.71	66.70	47.99	54.00	-6.01	Average	360	22	P
2	2483.50	-18.71	91.60	72.89	74.00	-1.11	Peak	360	22	P
3	4924.00	-12.98	46.44	33.46	54.00	-20.54	Average	399	339	P
4	4924.00	-12.98	58.24	45.26	74.00	-28.74	Peak	399	339	P
5	7386.00	-10.00	45.92	35.92	54.00	-18.08	Average	320	351	P
6	7386.00	-10.00	59.46	49.46	74.00	-24.54	Peak	320	351	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 3, CH01	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

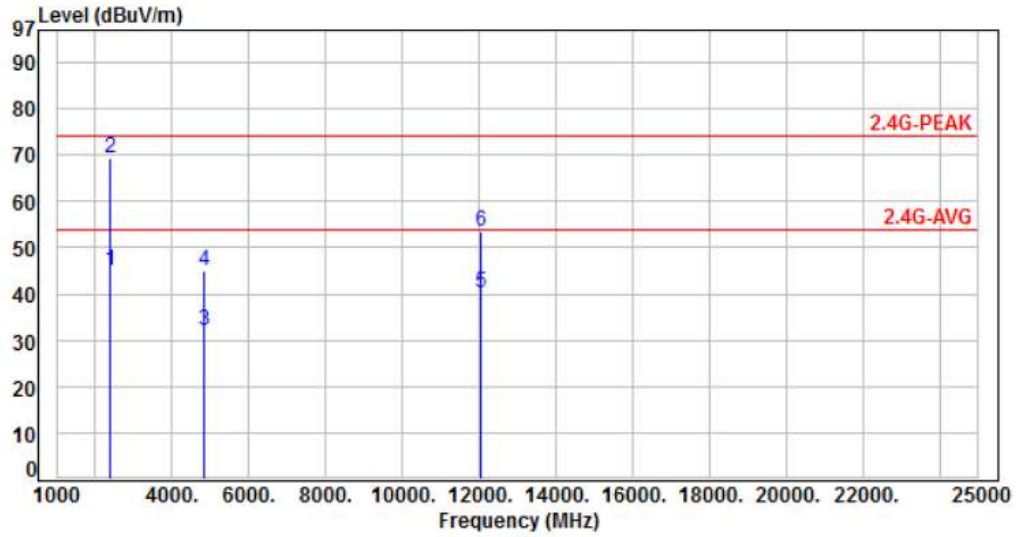


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-18.95	55.80	36.85	54.00	-17.15	Average	361	238	P
2	2390.00	-18.95	78.50	59.55	74.00	-14.45	Peak	361	238	P
3	4824.00	-13.23	44.90	31.67	54.00	-22.33	Average	334	270	P
4	4824.00	-13.23	58.69	45.46	74.00	-28.54	Peak	334	270	P
5	12060.00	-5.95	45.41	39.46	54.00	-14.54	Average	300	154	P
6	12060.00	-5.95	58.77	52.82	74.00	-21.18	Peak	300	154	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 3, CH01	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



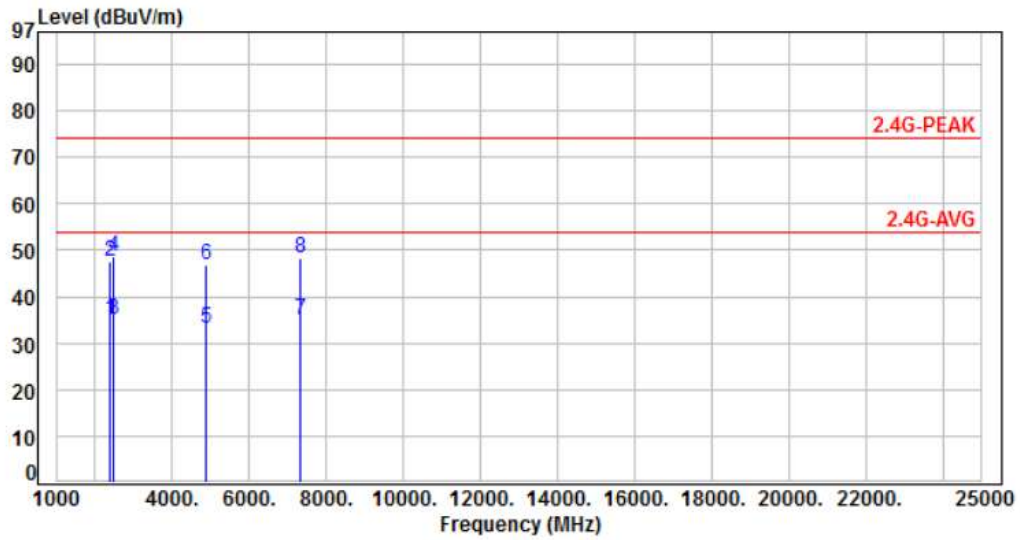
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-18.95	64.10	45.15	54.00	-8.85	Average	254	0	P
2	2390.00	-18.95	88.20	69.25	74.00	-4.75	Peak	254	0	P
3	4824.00	-13.23	45.40	32.17	54.00	-21.83	Average	172	354	P
4	4824.00	-13.23	58.20	44.97	74.00	-29.03	Peak	172	354	P
5	12060.00	-5.95	46.10	40.15	54.00	-13.85	Average	374	339	P
6	12060.00	-5.95	59.25	53.30	74.00	-20.70	Peak	374	339	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor





Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 3, CH06	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

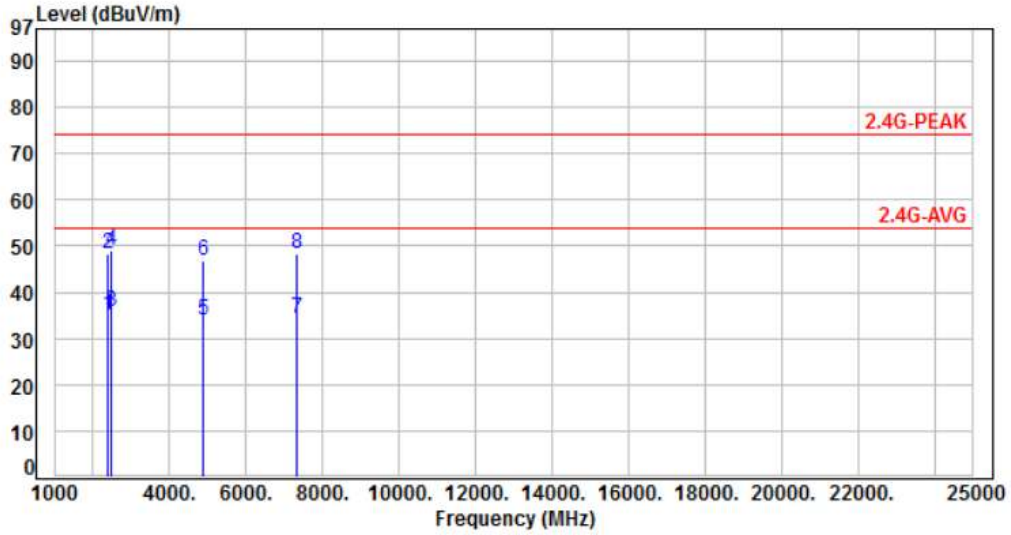


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-18.95	54.10	35.15	54.00	-18.85	Average	400	19	P
2	2390.00	-18.95	66.40	47.45	74.00	-26.55	Peak	400	19	P
3	2483.50	-18.71	53.80	35.09	54.00	-18.91	Average	400	19	P
4	2483.50	-18.71	67.50	48.79	74.00	-25.21	Peak	400	19	P
5	4874.00	-13.11	46.20	33.09	54.00	-20.91	Average	357	41	P
6	4874.00	-13.11	59.77	46.66	74.00	-27.34	Peak	357	41	P
7	7311.00	-10.18	45.21	35.03	54.00	-18.97	Average	375	300	P
8	7311.00	-10.18	58.60	48.42	74.00	-25.58	Peak	375	300	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 3, CH06	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

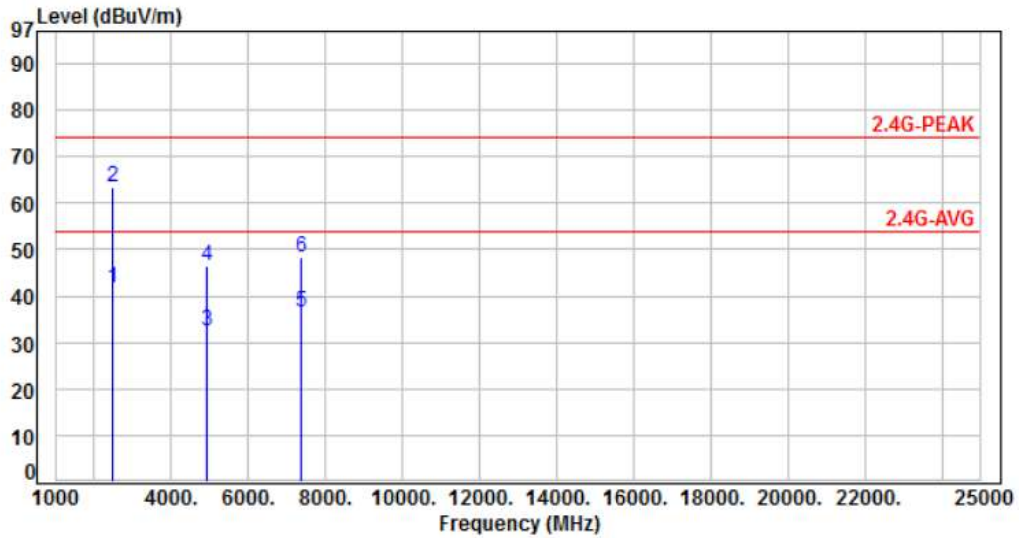


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-18.95	54.11	35.16	54.00	-18.84	Average	270	333	P
2	2390.00	-18.95	67.20	48.25	74.00	-25.75	Peak	270	333	P
3	2483.50	-18.71	54.40	35.69	54.00	-18.31	Average	270	333	P
4	2483.50	-18.71	67.90	49.19	74.00	-24.81	Peak	270	333	P
5	4874.00	-13.11	46.90	33.79	54.00	-20.21	Average	355	360	P
6	4874.00	-13.11	59.80	46.69	74.00	-27.31	Peak	355	360	P
7	7311.00	-10.18	44.59	34.41	54.00	-19.59	Average	377	0	P
8	7311.00	-10.18	58.62	48.44	74.00	-25.56	Peak	377	0	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 3, CH11	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %

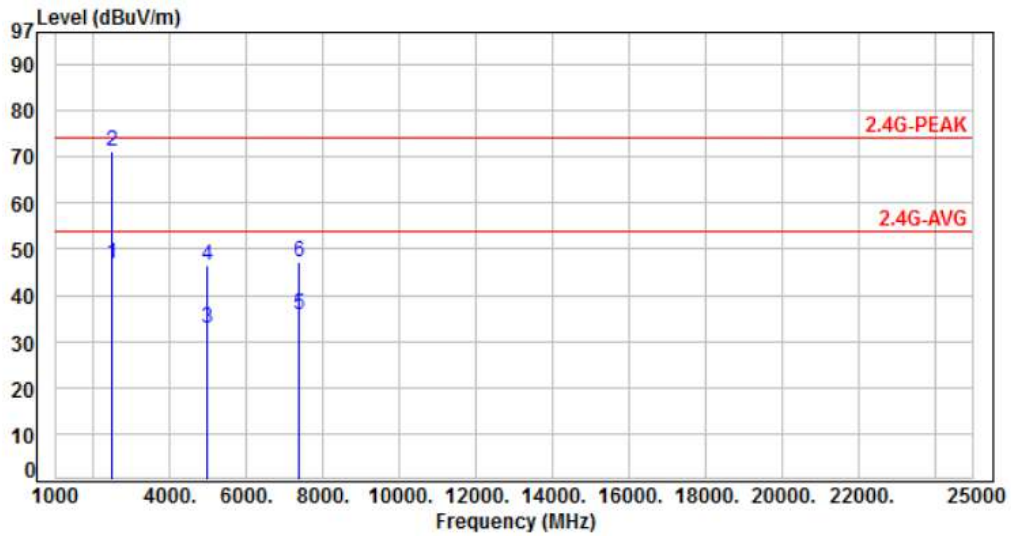


No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-18.71	60.30	41.59	54.00	-12.41	Average	380	260	P
2	2483.50	-18.71	82.10	63.39	74.00	-10.61	Peak	380	260	P
3	4924.00	-12.98	45.50	32.52	54.00	-21.48	Average	400	281	P
4	4924.00	-12.98	59.30	46.32	74.00	-27.68	Peak	400	281	P
5	7386.00	-10.00	46.50	36.50	54.00	-17.50	Average	351	277	P
6	7386.00	-10.00	58.31	48.31	74.00	-25.69	Peak	351	277	P

Note: Level=Reading+Factor  
Margin=Level-Limit  
Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 3, CH11	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-18.71	65.73	47.02	54.00	-6.98	Average	360	11	P
2	2483.50	-18.71	90.00	71.29	74.00	-2.71	Peak	360	11	P
3	4974.00	-12.85	45.79	32.94	54.00	-21.06	Average	311	310	P
4	4974.00	-12.85	59.19	46.34	74.00	-27.66	Peak	311	310	P
5	7386.00	-10.00	45.65	35.65	54.00	-18.35	Average	358	360	P
6	7386.00	-10.00	57.21	47.21	74.00	-26.79	Peak	358	360	P

Note: Level=Reading+Factor  
 Margin=Level-Limit  
 Factor=Antenna Factor + cable loss - Amplifier Factor



### 6.7 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.250
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

\*\* : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz



## 7. Test of Conducted Spurious Emission

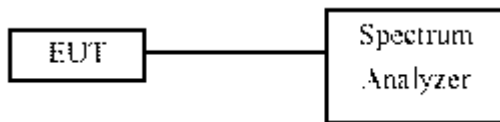
### 7.1 Test Limit

Below -20dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

### 7.2 Test Procedure

- a. The transmitter output was connected to the spectrum analyzer via a low lose cable.
- b. Set RBW of spectrum analyzer to 100 KHz and VBW of spectrum analyzer to 300 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
- c. Peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20dB relative to the maximum measured in-band peak PSD level.
- d. The band edges was measured and recorded.

### 7.3 Test Setup Layout



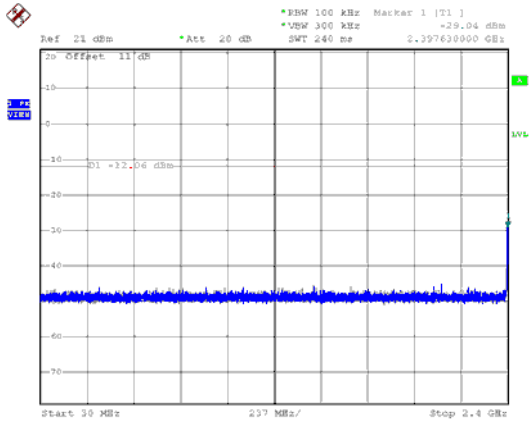
### 7.4 Test Result and Data

Test Result	: PASS	Temperature	: 22°C
Test Date	: Nov. 16, 2017	Humidity	: 67%

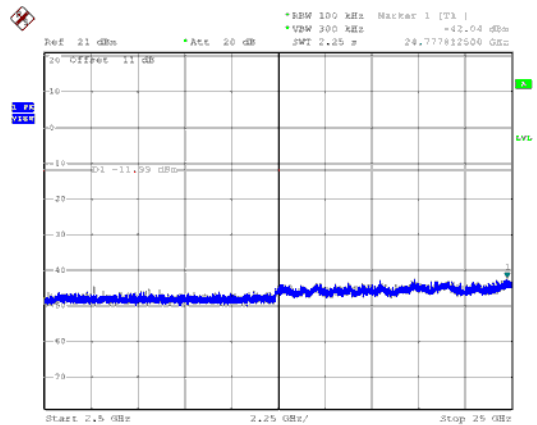
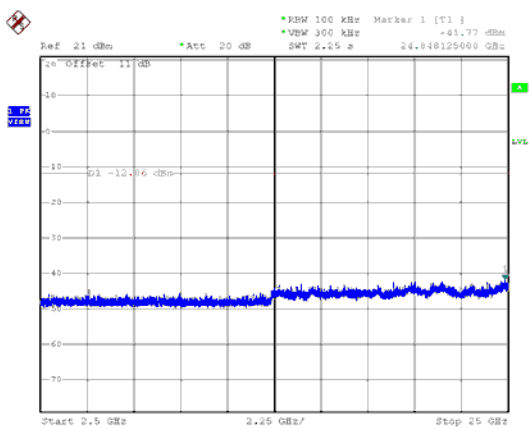
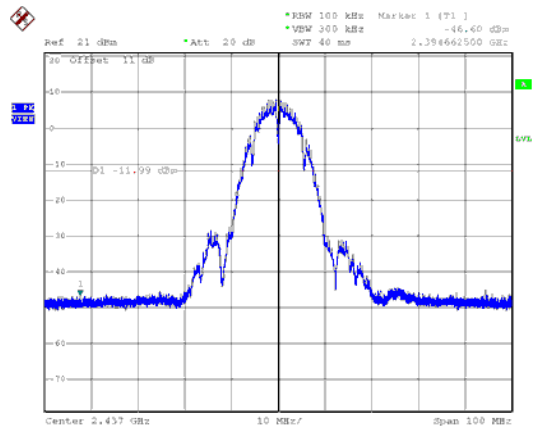
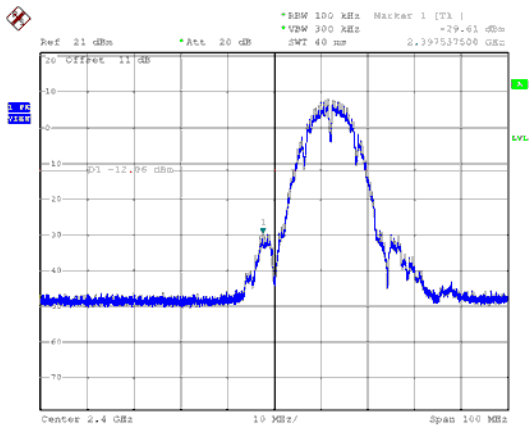
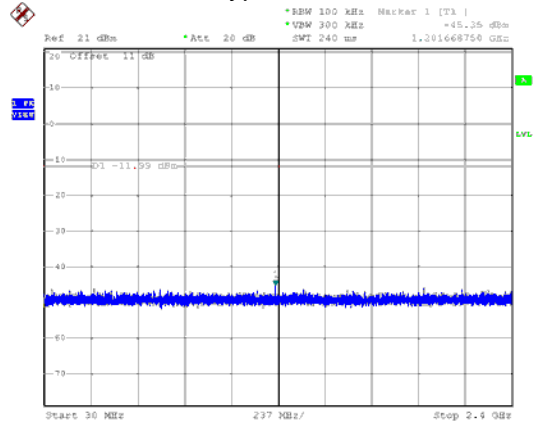
Note: Test plots refers to the following pages.



Modulation Type: 802.11b, CH 01

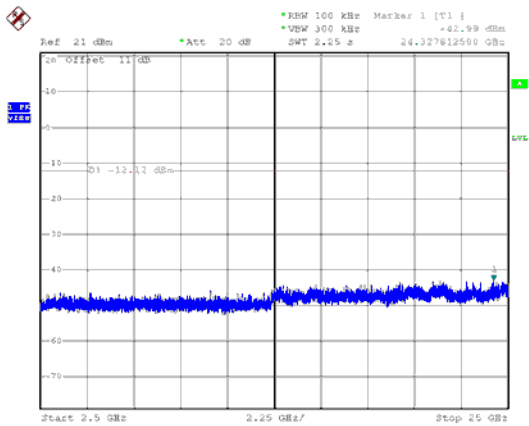
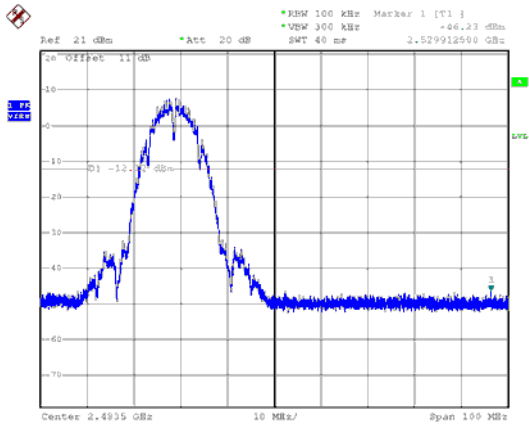
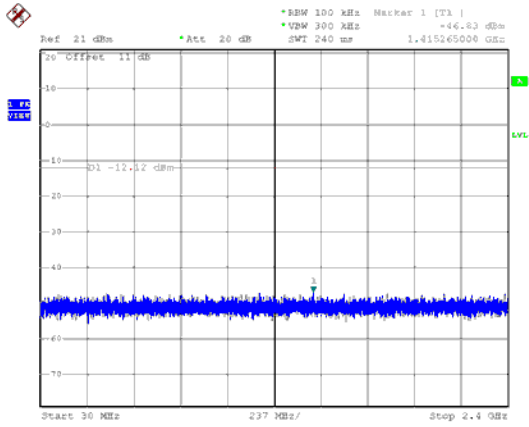


Modulation Type: 802.11b, CH 06





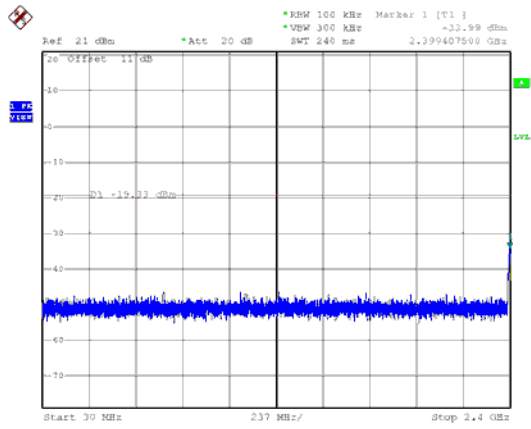
Modulation Type: 802.11b, CH 11



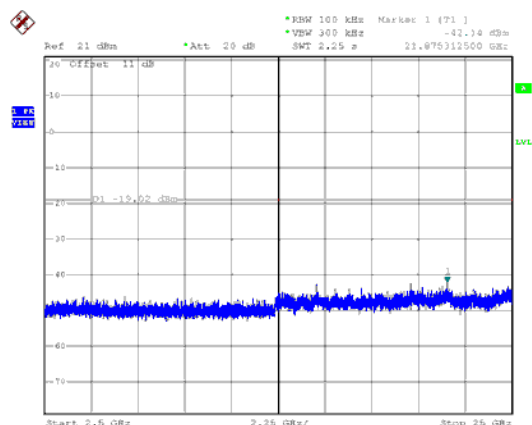
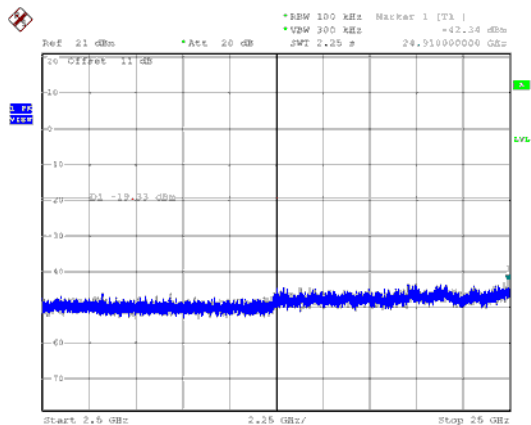
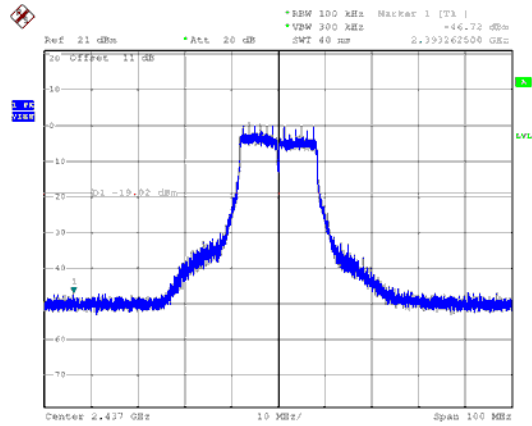
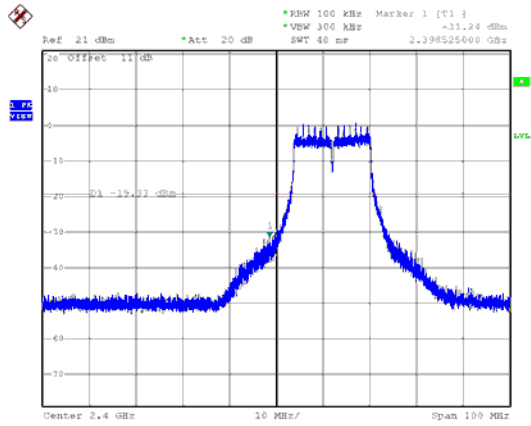
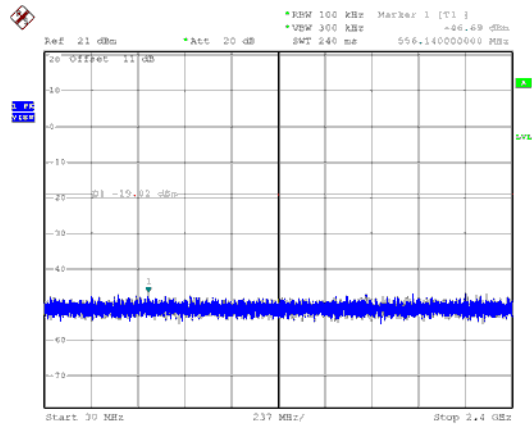




Modulation Type: 802.11g, CH 01

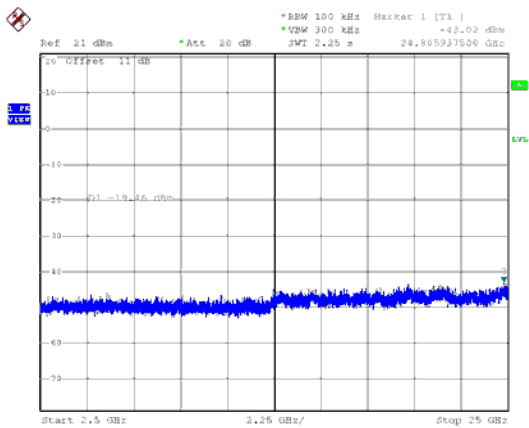
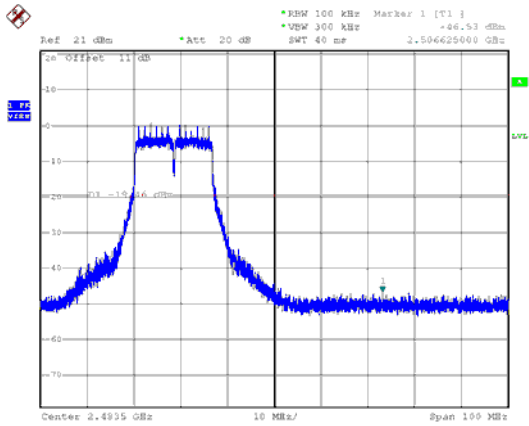
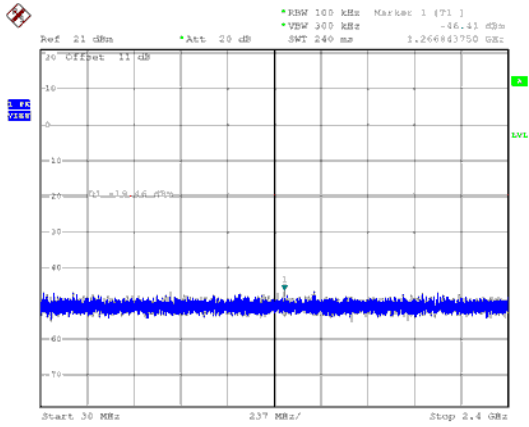


Modulation Type: 802.11g, CH 06



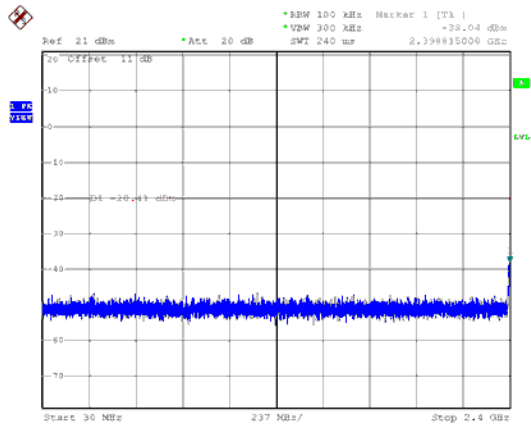


Modulation Type: 802.11g, CH 11

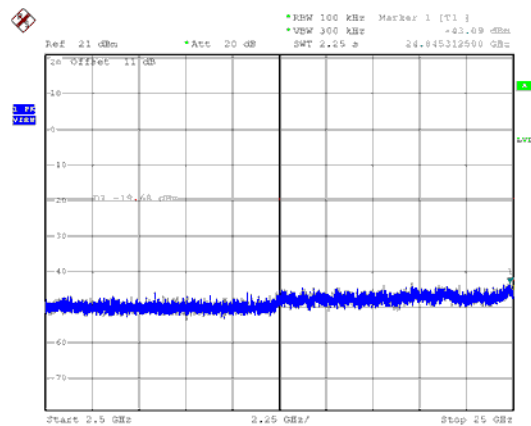
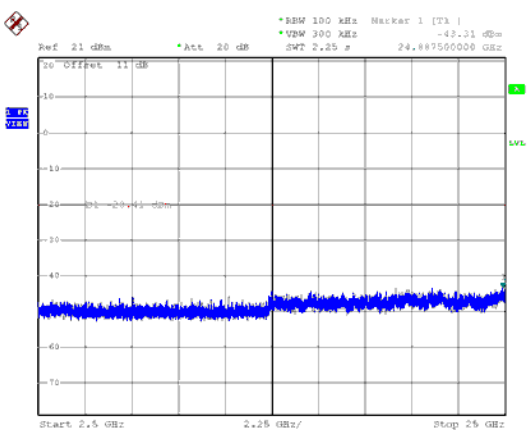
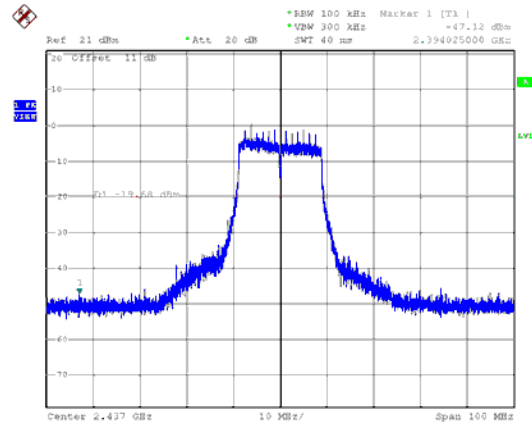
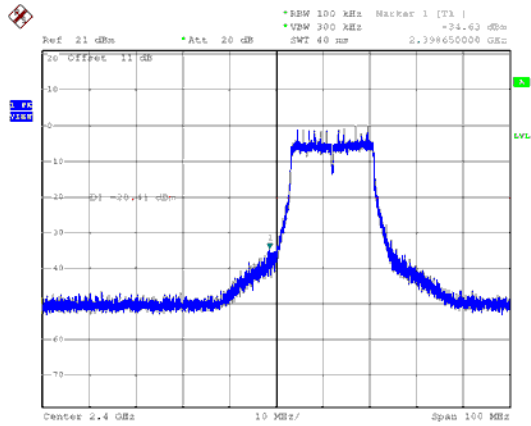
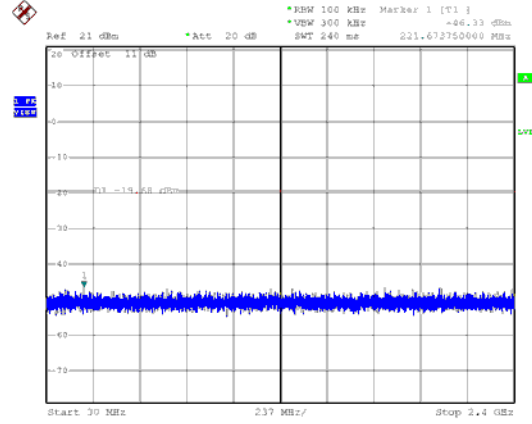




Modulation Type: 802.11n HT20, CH01

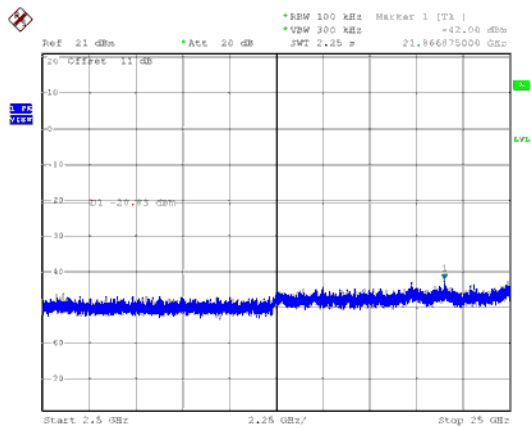
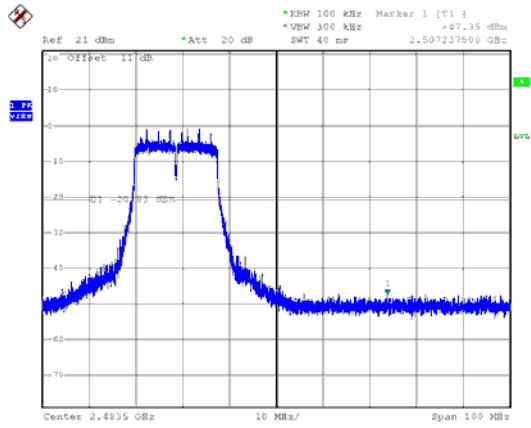
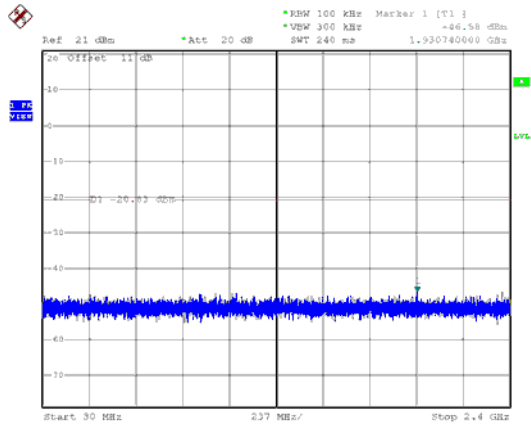


Modulation Type: 802.11n HT20, CH06





Modulation Type: 802.11n HT20, CH11





## 8. 6dB Bandwidth Measurement Data

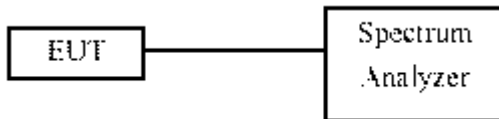
### 8.1 Test Limit

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

### 8.2 Test Procedures

- The transmitter output was connected to the spectrum analyzer.
- Set RBW of spectrum analyzer to 1~5% of the emission bandwidth and VBW  $\geq$  3x RBW.
- The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.
- The 6dB Bandwidth was measured and recorded.

### 8.3 Test Setup Layout



### 8.4 Test Result and Data

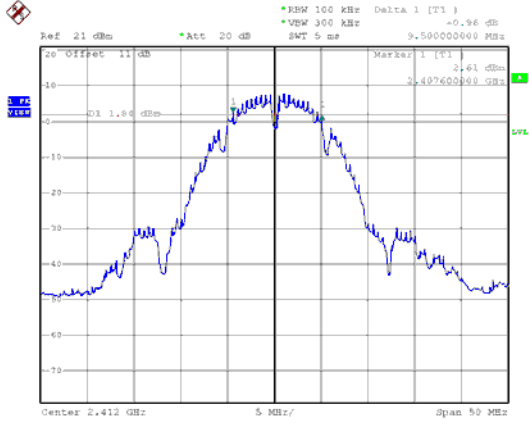
Test Result : PASS Temperature : 22°C  
Test Date : Nov. 16, 2017 Humidity : 67%

Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (KHz)
IEEE 802.11b (1Mbps)	01	2412	9.50	500
	06	2437	9.60	500
	11	2462	9.10	500
IEEE 802.11g (6Mbps)	01	2412	16.40	500
	06	2437	16.50	500
	11	2462	16.40	500
IEEE 802.11n HT20 (6.5Mbps)	01	2412	17.60	500
	06	2437	17.70	500
	11	2462	17.60	500

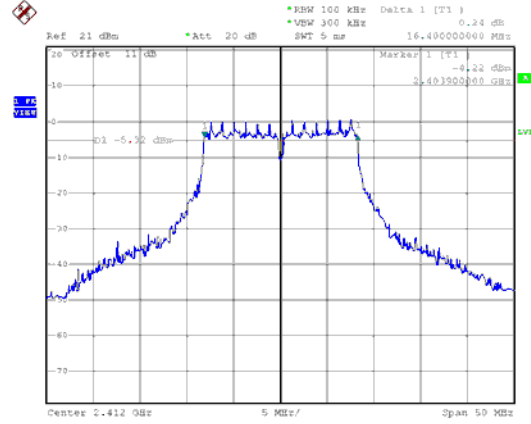


6dB Bandwidth

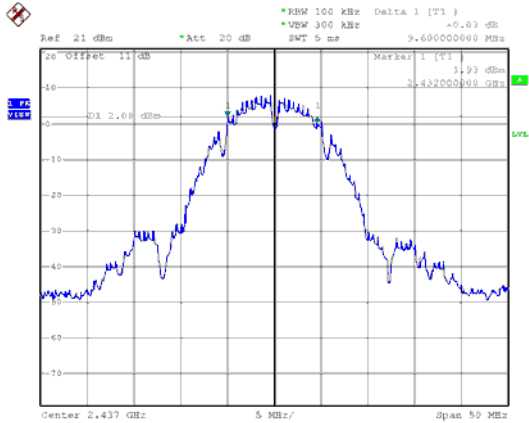
Modulation Type: 802.11b  
CH01



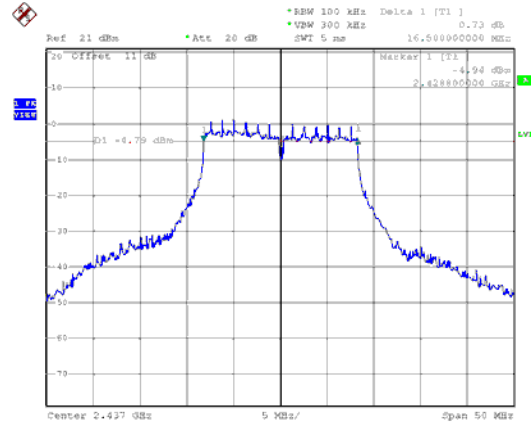
Modulation Type: 802.11g  
CH01



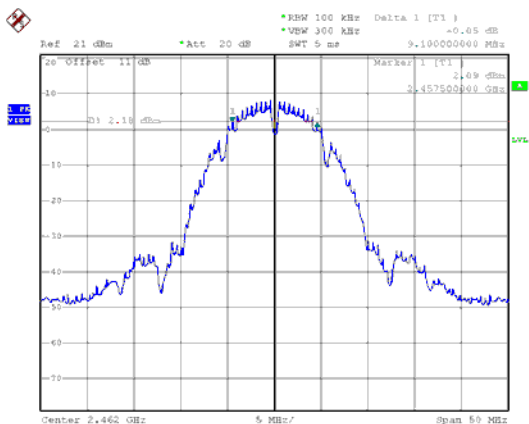
CH06



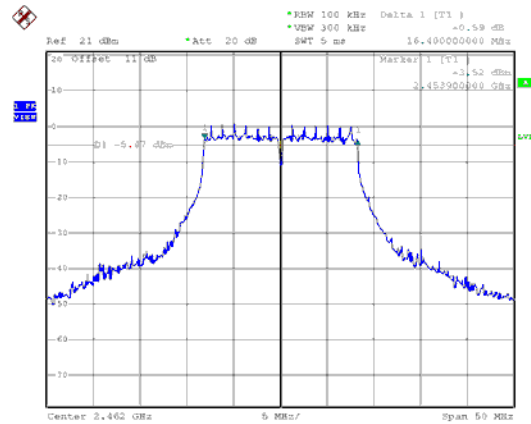
CH06



CH11

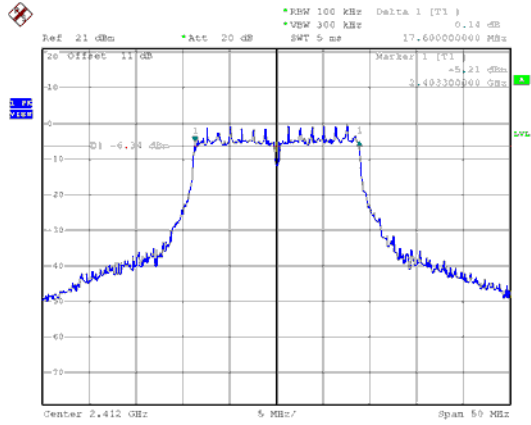


CH11

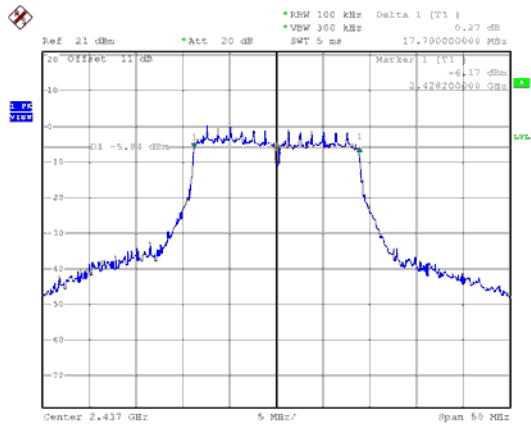




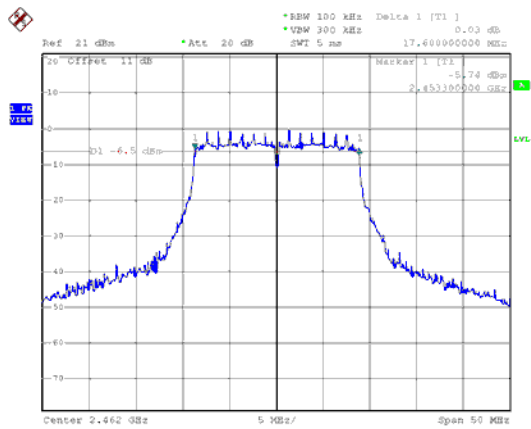
Modulation Type: 802.11n HT20  
CH01



CH06



CH11





## 9. Maximum Peak and Average Output Power

### 9.1 Test Limit

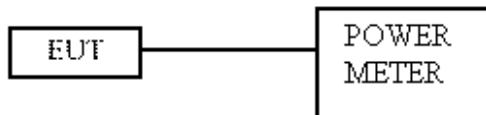
The Maximum Peak Output Power Measurement is 30dBm.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

### 9.2 Test Procedures

The antenna port (RF output) of the EUT was connected to the input (RF input) of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

### 9.3 Test Setup Layout



### 9.4 Test Result and Data

Test Result : PASS

Temperature : 22°C

Test Date : Nov. 16, 2017

Humidity : 67%

Modulation Type	Channel	Freq. (MHz)	Peak Power Output (dBm)	Total Power (mW)	Total Power (dBm)	Power Limit (dBm)
IEEE 802.11b (1Mbps)	01	2412	19.12	81.658	19.12	30.00
	06	2437	19.22	83.560	19.22	30.00
	11	2462	19.42	87.498	19.42	30.00
IEEE 802.11g (6Mbps)	01	2412	19.6	91.201	19.60	30.00
	06	2437	19.92	98.175	19.92	30.00
	11	2462	19.99	99.770	19.99	30.00
IEEE 802.11n HT20 (6.5Mbps)	01	2412	18.95	78.524	18.95	30.00
	06	2437	19.15	82.224	19.15	30.00
	11	2462	19.27	84.528	19.27	30.00





Modulation Type	Channel	Freq. (MHz)	Average Power Output (dBm)	Total Power (mW)	Total Power (dBm)	Power Limit (dBm)
IEEE 802.11b (1Mbps)	01	2412	16.81	47.973	16.81	30.00
	06	2437	16.85	48.417	16.85	30.00
	11	2462	16.78	47.643	16.78	30.00
IEEE 802.11g (6Mbps)	01	2412	12.22	16.672	12.22	30.00
	06	2437	12.3	16.982	12.30	30.00
	11	2462	12.12	16.293	12.12	30.00
IEEE 802.11n HT20 (6.5Mbps)	01	2412	11.12	12.942	11.12	30.00
	06	2437	11.1	12.882	11.10	30.00
	11	2462	11.15	13.032	11.15	30.00

Note: Average power is for reference only.



# 10. Power Spectral Density

## 10.1 Test Limit

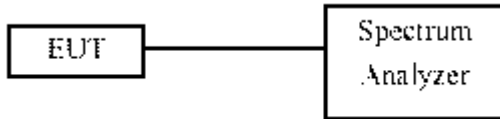
The Maximum of Power Spectral Density Measurement is 8dBm.

If transmitting antennas of directional gain greater than 6 dBi are used, the power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

## 10.2 Test Procedures

- a. The transmitter output was connected to spectrum analyzer.
- b. The spectrum analyzer's resolution bandwidth were set at 3kHz RBW and 30KHz VBW as that of the fundamental frequency. Set the sweep time=auto couple.
- c. The power spectral density was measured and recorded.

## 10.3 Test Setup Layout



## 10.4 Test Result and Data

Test Result : PASS

Temperature : 22°C

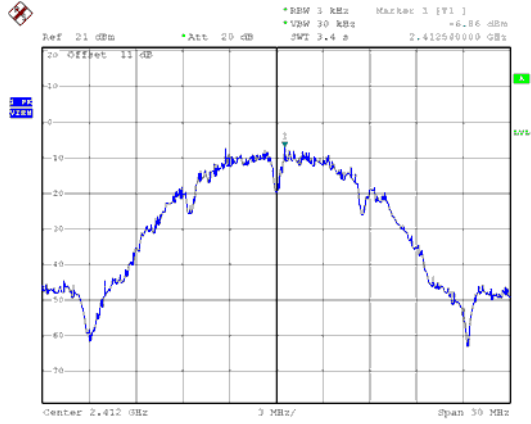
Test Date : Nov. 16, 2017

Humidity : 67%

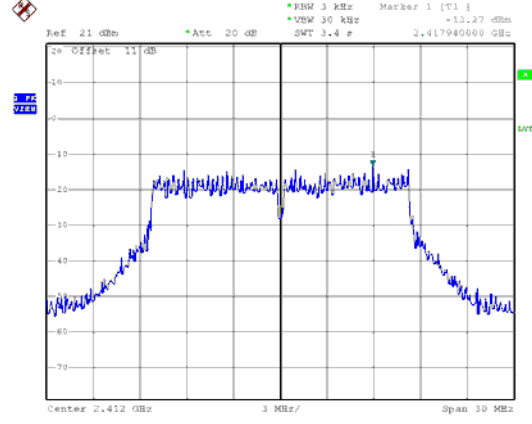
Modulation Type	Channel	Frequency (MHz)	Maximum Power Density of 3 kHz Bandwidth (dBm)	Sum chain (dBm)	Duty Cycle CF(dB)	Total PSD (dBm)	Limit (dBm)
IEEE 802.11b (1Mbps)	01	2412	-6.86	-6.86	0.00	-6.86	8.00
	06	2437	-6.21	-6.21	0.00	-6.21	8.00
	11	2462	-7.21	-7.21	0.00	-7.21	8.00
IEEE 802.11g (6Mbps)	01	2412	-13.27	-13.27	0.00	-13.27	8.00
	06	2437	-12.79	-12.79	0.00	-12.79	8.00
	11	2462	-13.77	-13.77	0.00	-13.77	8.00
IEEE 802.11n HT20 (6.5Mbps)	01	2412	-15.16	-15.16	0.00	-15.16	8.00
	06	2437	-15.5	-15.50	0.00	-15.50	8.00
	11	2462	-15.45	-15.45	0.00	-15.45	8.00



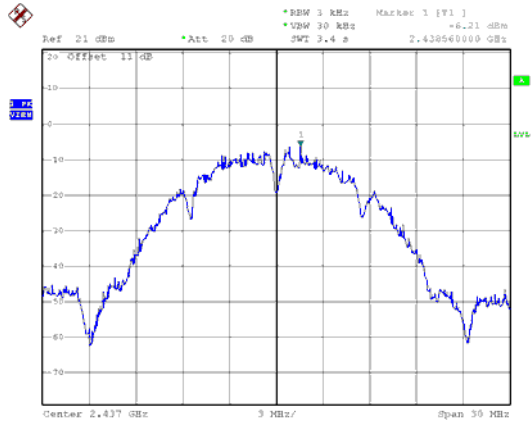
Modulation Type: 802.11b  
CH01



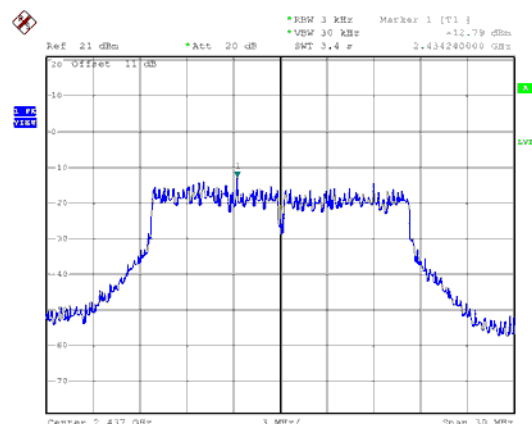
Modulation Type: 802.11g  
CH01



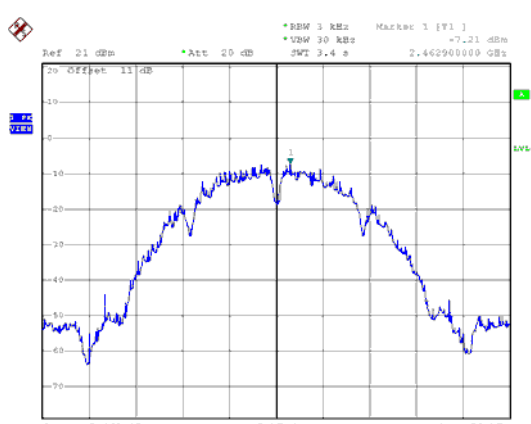
CH06



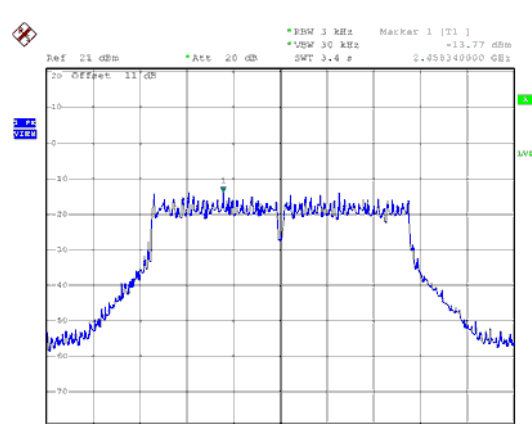
CH06



CH11

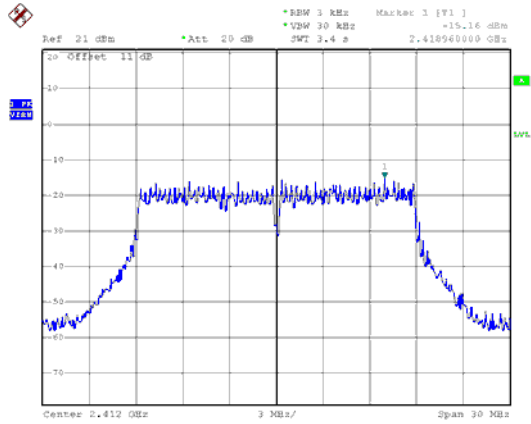


CH11

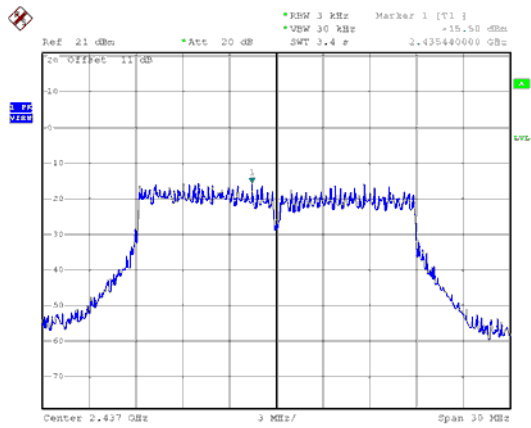




Modulation Type: 802.11n HT20  
CH01



CH06



CH11

