



FCC RADIO TEST REPORT

Applicant : Willo 32, Inc
Address : 12 E 33rd Street, 10th Floor, New York NY, 10016
Equipment : Powered Toothbrush
Model No. : Willo W
Trade Name : Willo
FCC ID. : 2AVNVWILLO-W-3201

I HEREBY CERTIFY THAT :

The sample was received on Jun. 19, 2019 and the testing was completed on Jan. 14, 2020 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 / Supervisor

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.....	7
2.3 Test Mode and Test Software	8
2.4 Description of Test System.....	8
2.5 General Information of Test.....	9
2.6 Measurement Uncertainty	9
3. Test Equipment and Ancillaries Used for Tests	10
4. Antenna Requirements.....	12
4.1 Standard Applicable	12
4.2 Antenna Construction and Directional Gain.....	12
5. Test of AC Power Line Conducted Emission	13
5.1 Test Limit	13
5.2 Test Procedures	13
5.3 Typical Test Setup	14
5.4 Test Result and Data.....	15
5.5 Test Photographs	17
6. Test of Radiated Spurious Emission.....	18
6.1 Test Limit	18
6.2 Test Procedures	18
6.3 Typical Test Setup	19
6.4 Test Result and Data (9KHz ~ 30MHz)	20
6.5 Test Result and Data (30MHz ~ 1GHz).....	20
6.6 Test Result and Data (1GHz ~ 25GHz).....	22
6.7 Restricted Bands of Operation	46
6.8 Test Photographs (30MHz ~ 1GHz).....	47
6.9 Test Photographs (1GHz ~ 25GHz)	48
7. Test of Conducted Spurious Emission	48
7.1 Test Limit	49
7.2 Test Procedure	49
7.3 Test Setup Layout	49
7.4 Test Result and Data.....	49
8. On Time, Duty Cycle and Measurement methods	58
8.1 Test Limit	58
8.2 Test Procedure	58
8.3 Test Setup Layout	58
8.4 Test Result and Data.....	58
9. 6dB Bandwidth Measurement Data	60
9.1 Test Limit	60
9.2 Test Procedures	60



9.3	Test Setup Layout	60
9.4	Test Result and Data	60
10.	Maximum Peak and Average Output Power	63
10.1	Test Limit	63
10.2	Test Procedures	63
10.3	Test Setup Layout	63
10.4	Test Result and Data	63
11.	Power Spectral Density	65
11.1	Test Limit	65
11.2	Test Procedures	65
11.3	Test Setup Layout	65
11.4	Test Result and Data	65
12.	Radio Frequency Exposure	68
12.1	Applicable Standards	68
12.2	EUT Specification	68
12.3	Test Results	69
12.4	Calculation	69
12.5	Maximum Permissible Exposure	70



History of this test report

Report No.	Issue Date	Description
TEF11906034	Jan. 16, 2020	Original



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

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
2.1091	. Radio Frequency Exposure	PASS

*The principle of judgment is made according to the laboratory's reporting control and measurement uncertainty standard procedures.

*This EUT has been also tested and compiled with the requirement of FCC Part 15, Subpart B, recorded in a separate test report(TEFD1906034).



2. Test Configuration of Equipment under Test

2.1 Feature of Equipment

AC Adapter	Model No.: W18-036N1A Input: 100-240V~ 50/60Hz, 1A Output: 12V, 3A
Frequency Range	BT / BLE: 2402MHz~2480MHz 802.11b/g/n: 2412MHz~2462MHz
NFC Frequency Range	13.553MHz~13.567MHz
Modulation Mode	BT: GFSK, $\pi/4$ -DQPSK, 8DPSK BLE: GFSK NFC:ASK WLAN: 802.11b: CCK, DQPSK, DBPSK 802.11g/n: BPSK, QPSK, 16QAM, 64QAM
Data Rate	BT: GFSK: 1Mbps, $\pi/4$ -DQPSK: 2Mbps, 8DPSK: 3Mbps BLE: GFSK: 1Mbps WLAN: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS7, HT20/40
Antenna Type	PCB Antenna
Antenna Gain	2400-2483.5MHz: 10dBi BLE: 10dBi Bluetooth: 10dBi NFC: 0dBi

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or 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)
*01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	*11	2462
*06	2437	---	---

802.11n HT40 (2422MHz~2452MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
---	---	07	2442
---	---	08	2447
*03	2422	*09	2452
04	2427	---	---
05	2432	---	---
*06	2437	---	---

Note: Channels remarked * are selected to perform test.



2.3 Test Mode and Test Software

- During testing, the interface cables and equipment positions were varied according to ANSI C63.10.
- The complete test system included Remote workstation and EUT for RF test. The Remote workstation included Notebook.
- An executive program, "EspRFtest Tool: V1.1.0" under WIN 7 was executed to transmit and receive data via WLAN.
- The following test modes were performed for the test:

Conducted Emissions from the AC mains power ports	
Test Mode	Operating Description
1	802.11b (1Mbps)
2	802.11g (6Mbps)
3	802.11n HT20 (6.5Mbps)
4	802.11n HT40 (13.5Mbps)
caused "Test Mode 4" generated the worst case, it was reported as the final data.	
Radiation Emissions (30MHz ~ 1GHz)	
Test Mode	Operating Description
1	802.11b (1Mbps)
2	802.11g (6Mbps)
3	802.11n HT20 (6.5Mbps)
4	802.11n HT40 (13.5Mbps)
caused "Test Mode 4" generated the worst case, they were reported as the final data.	
Radiation Emissions (1GHz ~ 25GHz)	
Test Mode	Operating Description
1	802.11b (1Mbps)
2	802.11g (6Mbps)
3	802.11n HT20 (6.5Mbps)
4	802.11n HT40 (13.5Mbps)
caused "Test Mode 1~4" generated the worst case, they were reported as the final data.	

2.4 Description of Test System

N/A



2.5 General Information of Test

Test Site	Cerpass Technology Corporation Test Laboratory 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	
	FCC	TW1079,TW1439
	IC	4934E-1, 4934E-2
	VCCI	T-2205 for Telecommunication test C-4663 for Conducted emission test 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.	

Test Item	Test Site	Finish Date	Environmental Conditions	Tested By
RF Conducted	RFCON01-NK	2019/07/24	24°C / 60%	Vic Yeh
Radiated Emissions	3M02-NK	2020/01/14	23°C / 52%	Leon Huang
AC Power Line Conducted Emission	CON02-NK	2020/01/13	27°C / 49%	Leon Huang

2.6 Measurement Uncertainty

Measurement Item	Uncertainty
AC Power Line Conduction(150K~30MHz)	±1.60dB
Radiated Spurious Emission(9KHz~30MHz)	±3.405dB
Radiated Spurious Emission(30MHz~1GHz)	±5.326dB
Radiated Spurious Emission(1GHz~25GHz)	±5.918dB
Conducted Spurious Emission	±2.156dB
6dB Bandwidth	±4.401%
20dB Bandwidth	±4.40%
Occupied Bandwidth	±4.41%
Peak Output Power(Conducted Power Meter)	±1.31dB
Dwell Time	±0.11%
Duty Cycle	±0.17%



3. Test Equipment and Ancillaries Used for Tests

Test Item	Radiated Emissions				
Test Site	Semi Anechoic Room(3M02-NK)				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Bilog Antenna	Schwarzbeck	VULB9168	275	2019/09/24	2020/09/23
Bilog Antenna	Schwarzbeck	VULB9168	369	2019/03/29	2020/03/28
Active Loop Antenna	EMCO	6507	40855	2019/05/24	2020/05/23
Horn Antenna	EMCO	3115	31589	2019/04/01	2020/03/31
Horn Antenna	EMCO	3116	31974	2019/09/17	2020/09/16
EMI Receiver	ROHDE & SCHWARZ	ESCI	101423	2019/05/14	2020/05/13
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 40	100047	2019/03/28	2020/03/27
Spectrum Analyzer	ROHDE & SCHWARZ	FSV 40-N	102151	2019/08/02	2020/08/01
Preamplifier	EM Electronics corp.	EM330	60660	2019/03/11	2020/03/10
Preamplifier	EMC INSTRUMENTS	EMC051845SE	980333	2019/09/20	2020/09/19
Preamplifier	Agilent	8449B	3008A01954	2019/03/11	2020/03/10
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2019/11/07	2020/11/06
Bluetooth Tester	ROHDE & SCHWARZ	CBT	101133	2019/04/07	2020/04/06
Cable-3in1(30M-1G)	HARBOUR INDUSTRIES	LL142	CCE1315	2019/04/09	2020/04/08
Cable-3in1(30M-1G)	HARBOUR INDUSTRIES	LL142	CCE1316	2019/09/20	2020/09/19
Cable-0.5m(1G-40G)	HUBER SUHNER	SUCOFLEX 100	805443/4	2019/05/20	2020/05/19
Cable-3m(1G-40G)	HUBER SUHNER	SUCOFLEX 100	805796/4	2019/05/20	2020/05/19
Cable-8m(1G-40G)	HUBER SUHNER	SUCOFLEX 100	805795/4	2019/05/20	2020/05/19
E3	AUDIX	v8.2014-8-6	RK-000529	NA	NA

Test Item	RF Conducted				
Test Site	RFCON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
CAX Signal Analyzer	KEYSIGHT	N9000B	MY5710029 1	2018/11/01	2019/10/31
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 40	100047	2019/03/28	2020/03/27
Bluetooth Tester	ROHDE & SCHWARZ	CBT	101133	2019/04/07	2020/04/06
Attenuator	KEYSIGHT	8491B	MY3925070 5	2018/09/04	2019/09/03
TEMP & HUMIDITY CHAMBER	T-MACHINE	TMJ-9712	T-12-040111	2018/08/30	2019/08/29
Power Sensor	Anritsu	MA2411B	1207295	2019/04/09	2020/04/08



Test Item	AC Power Line Conducted Emission				
Test Site	CON02-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
EMI Receiver	ROHDE & SCHWARZ	ESCI	100821	2019/09/16	2020/09/15
Line Impedance Stabilization Network	Schwarzbeck	NSLK 8127	8127-516	2019/09/19	2020/09/18
TWO-LINE V-NETWORK	ROHDE & SCHWARZ	ENV216	102185	2019/07/05	2020/07/04
Cable-6m(9k~300M)	NA	EMC5D-BM-BM-6	130606	2019/03/14	2020/03/13
E3	AUDIX	v8.2014-8-6	RK-000536	NA	NA



4. Antenna Requirements

4.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.2 Antenna Construction and Directional Gain

Antenna Type	PCB Antenna
Antenna Gain	10 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 μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

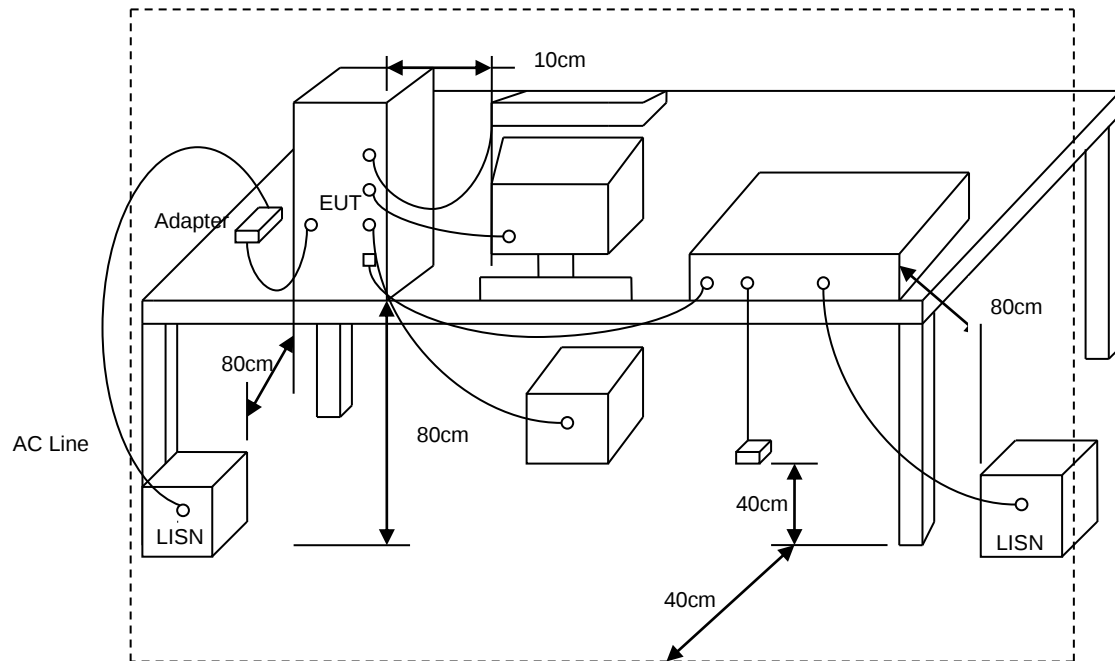
*Decreases with the logarithm of the frequency.

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.



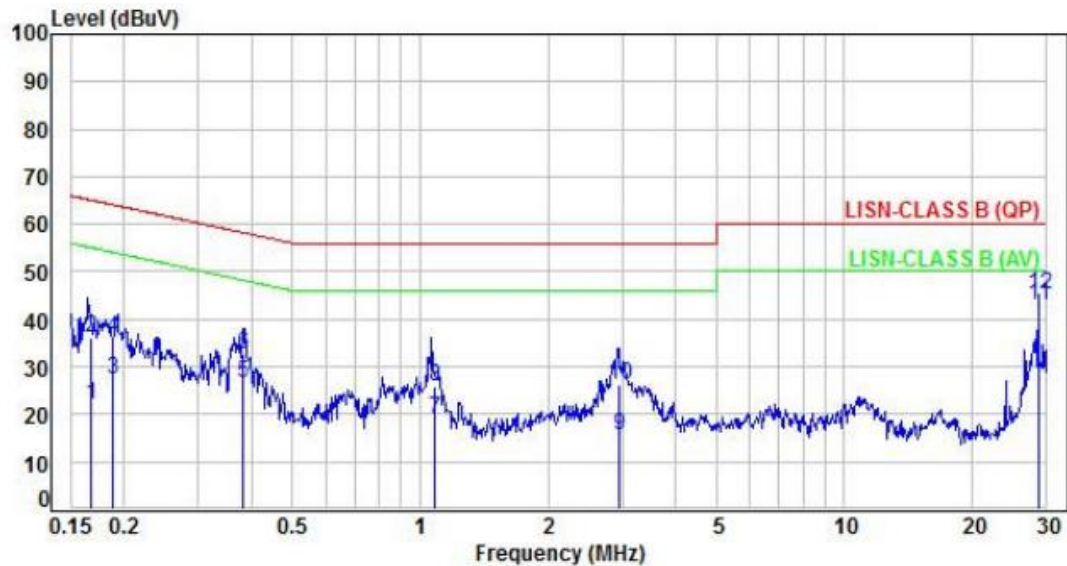
5.3 Typical Test Setup





5.4 Test Result and Data

Power	: AC 120V / 60Hz	Pol/Phase	: LINE
Test Mode	: Mode 4		:

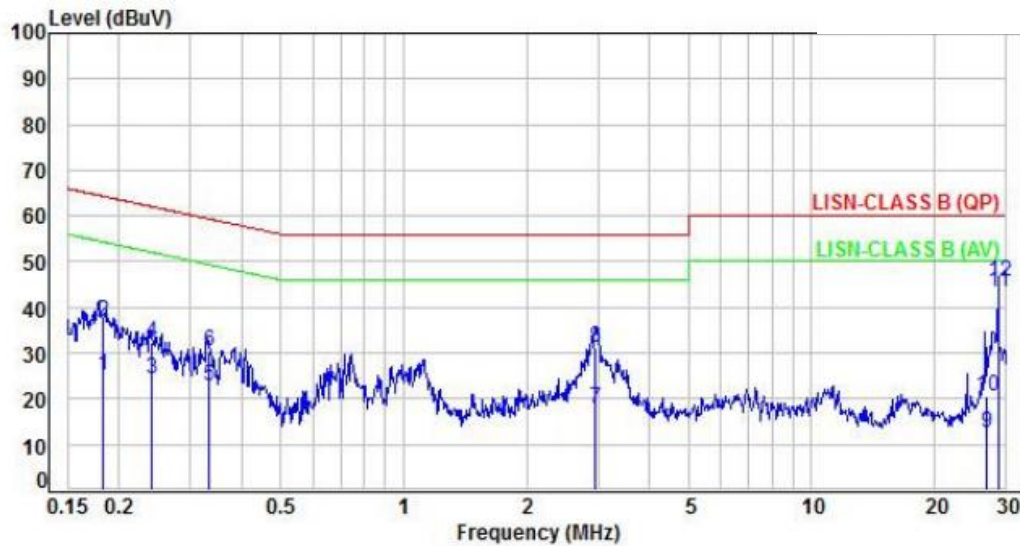


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.17	9.64	12.35	21.99	55.07	-33.08	Average	P
2	0.17	9.64	26.50	36.14	65.07	-28.93	QP	P
3	0.19	9.64	17.64	27.28	54.12	-26.84	Average	P
4	0.19	9.64	26.48	36.12	64.12	-28.00	QP	P
5	0.38	9.64	17.02	26.66	48.22	-21.56	Average	P
6	0.38	9.64	23.25	32.89	58.22	-25.33	QP	P
7	1.08	9.67	9.36	19.03	46.00	-26.97	Average	P
8	1.08	9.67	16.17	25.84	56.00	-30.16	QP	P
9	2.96	9.76	5.97	15.73	46.00	-30.27	Average	P
10	2.96	9.76	16.38	26.14	56.00	-29.86	QP	P
11	28.67	9.99	32.79	42.78	50.00	-7.22	Average	P
12	28.67	9.99	35.13	45.12	60.00	-14.88	QP	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



Power	: AC 120V / 60Hz	Pol/Phase	: NEUTRAL
Test Mode	: Mode 4		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.18	9.63	15.55	25.18	54.33	-29.15	Average	P
2	0.18	9.63	27.40	37.03	64.33	-27.30	QP	P
3	0.24	9.63	14.71	24.34	52.07	-27.73	Average	P
4	0.24	9.63	22.60	32.23	62.07	-29.84	QP	P
5	0.33	9.64	13.08	22.72	49.38	-26.66	Average	P
6	0.33	9.64	20.70	30.34	59.38	-29.04	QP	P
7	2.95	9.75	8.19	17.94	46.00	-28.06	Average	P
8	2.95	9.75	21.60	31.35	56.00	-24.65	QP	P
9	26.97	10.06	2.66	12.72	50.00	-37.28	Average	P
10	26.97	10.06	10.64	20.70	60.00	-39.30	QP	P
11	28.67	10.07	33.20	43.27	50.00	-6.73	Average	P
12	28.67	10.07	35.42	45.49	60.00	-14.51	QP	P

Note: Level=Reading+Factor

Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



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

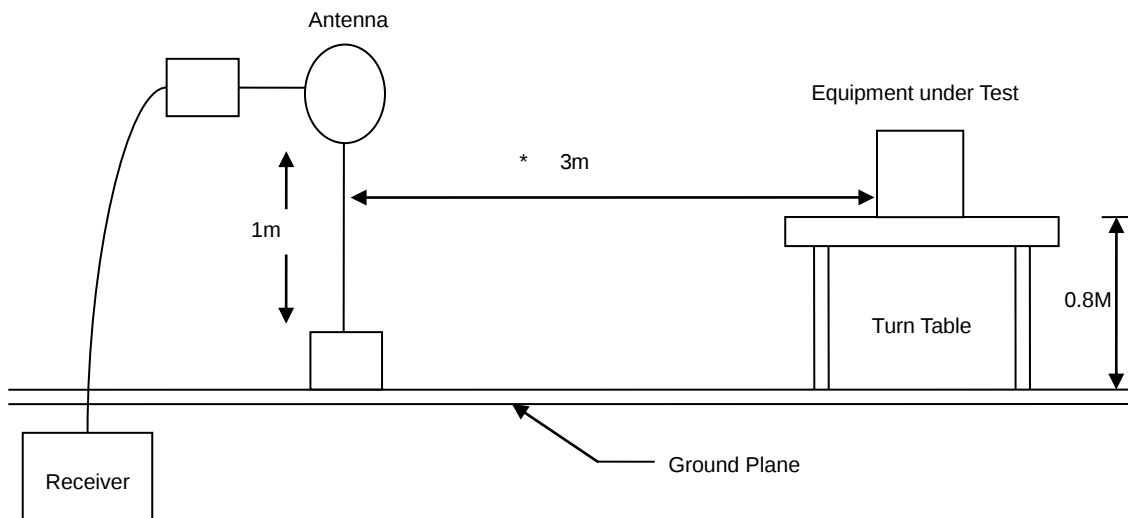
6.2 Test Procedures

- 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.

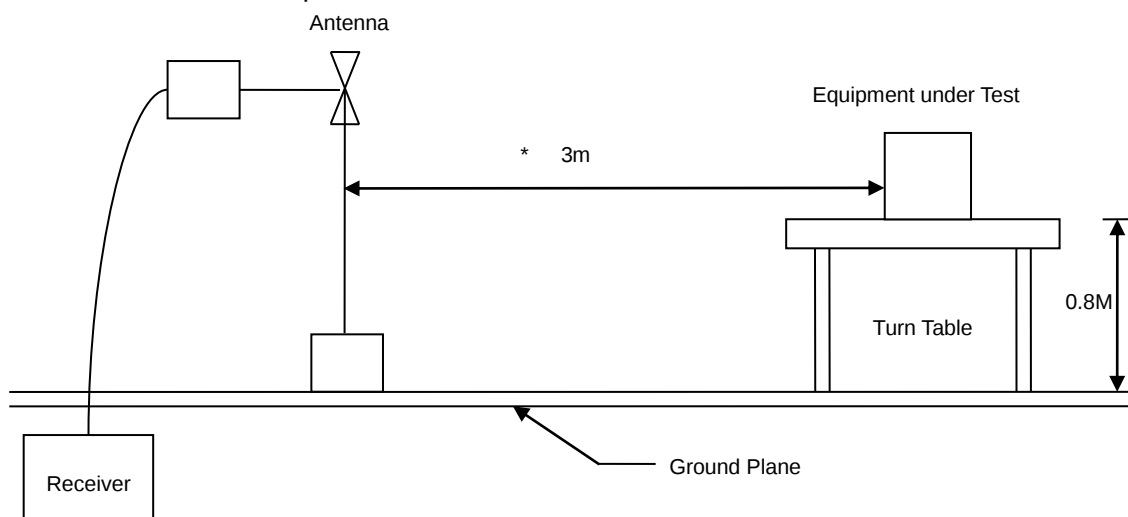


6.3 Typical Test Setup

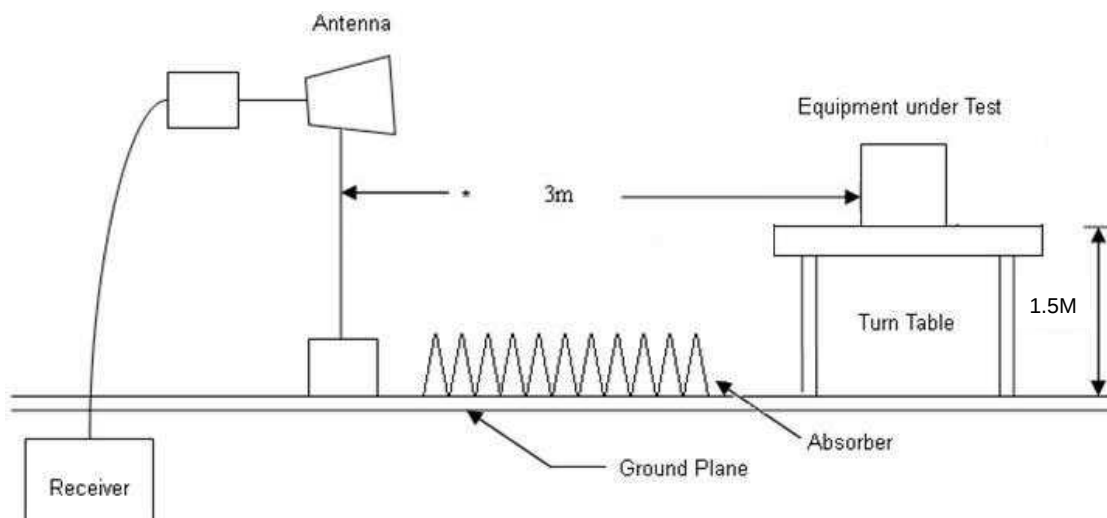
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup



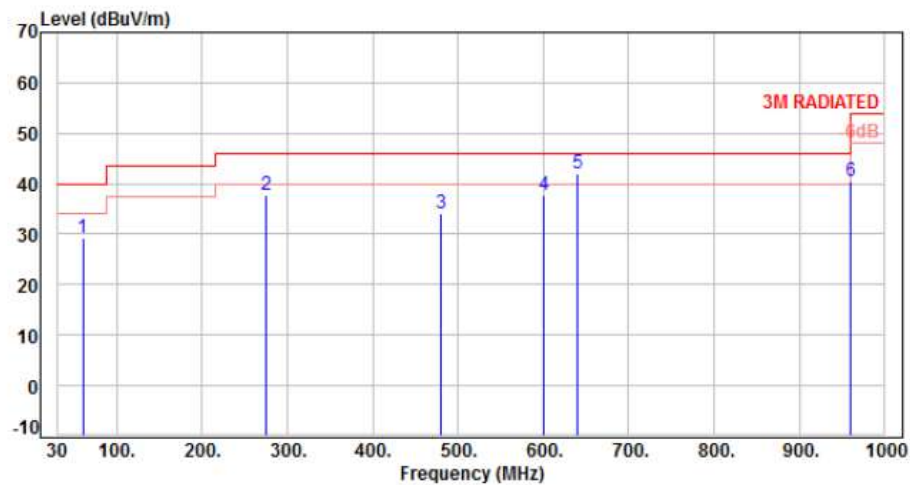


6.4 Test Result and Data (9KHz ~ 30MHz)

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

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

Power	: AC 120V /60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 4		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	60.07	-9.98	39.26	29.28	40.00	-10.72	Peak	400	0	P
2	274.44	-9.21	47.00	37.79	46.00	-8.21	Peak	400	0	P
3	480.08	-3.98	38.14	34.16	46.00	-11.84	Peak	400	0	P
4	600.36	-1.10	38.97	37.87	46.00	-8.13	Peak	400	0	P
5	640.13	-0.77	42.87	42.10	46.00	-3.90	Peak	400	0	P
6	960.23	4.14	36.47	40.61	54.00	-13.39	Peak	400	0	P

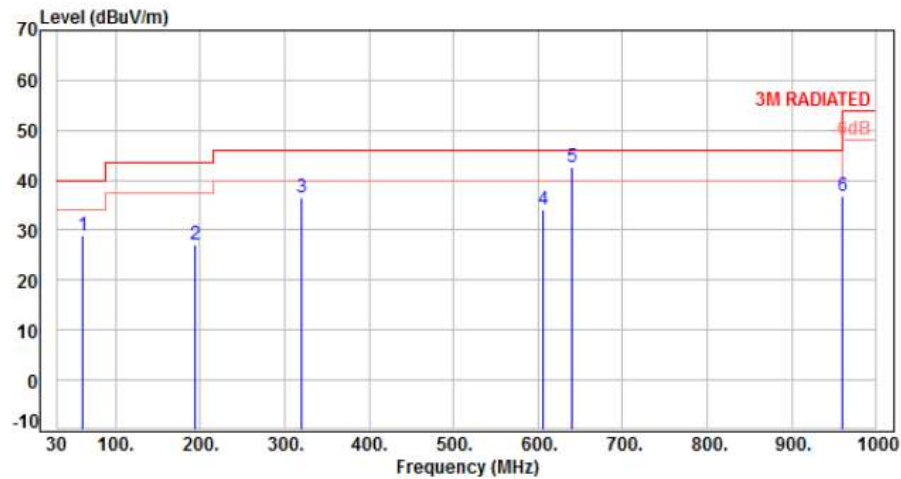
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V /60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 4		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	61.04	-10.17	39.07	28.90	40.00	-11.10	Peak	100	0	P
2	193.93	-11.93	38.91	26.98	43.50	-16.52	Peak	100	0	P
3	320.03	-7.85	44.24	36.39	46.00	-9.61	Peak	100	0	P
4	606.18	-0.97	34.94	33.97	46.00	-12.03	Peak	100	0	P
5	640.13	-0.77	43.50	42.73	46.00	-3.27	Peak	100	0	P
6	960.23	4.14	32.74	36.88	54.00	-17.12	Peak	100	0	P

Note: Level=Reading+Factor

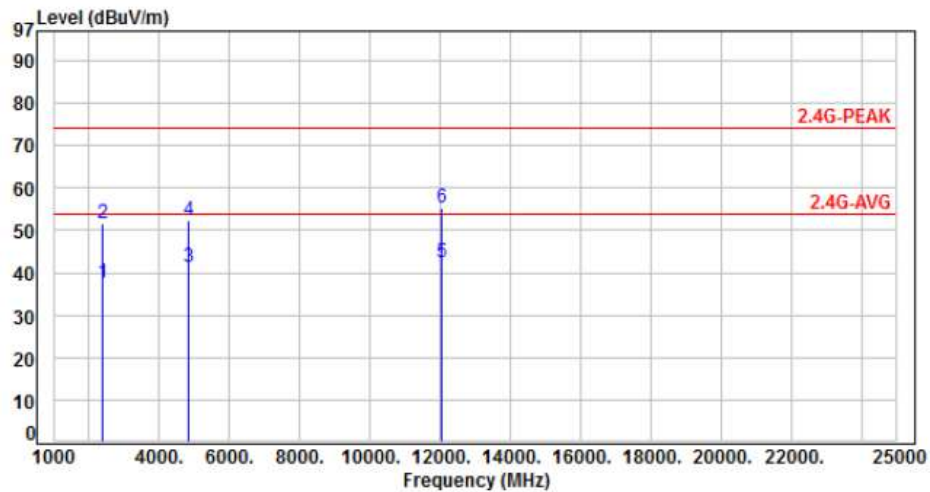
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



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

Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH01		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	41.25	37.61	54.00	-16.39	Average	100	204	P
2	2390.00	-3.64	55.23	51.59	74.00	-22.41	Peak	100	204	P
3	4824.00	3.76	37.62	41.38	54.00	-12.62	Average	122	137	P
4	4824.00	3.76	48.49	52.25	74.00	-21.75	Peak	122	137	P
5	12060.00	13.45	28.93	42.38	54.00	-11.62	Average	100	92	P
6	12060.00	13.45	41.86	55.31	74.00	-18.69	Peak	100	92	P

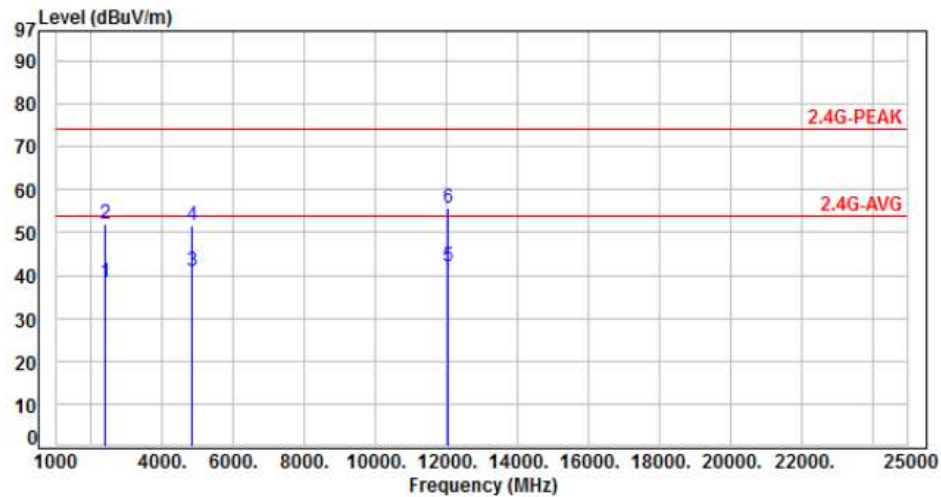
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH01		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	41.85	38.21	54.00	-15.79	Average	100	144	P
2	2390.00	-3.64	55.63	51.99	74.00	-22.01	Peak	100	144	P
3	4824.00	3.76	37.34	41.10	54.00	-12.90	Average	264	121	P
4	4824.00	3.76	47.89	51.65	74.00	-22.35	Peak	264	121	P
5	12060.00	13.45	28.60	42.05	54.00	-11.95	Average	100	355	P
6	12060.00	13.45	42.41	55.86	74.00	-18.14	Peak	100	355	P

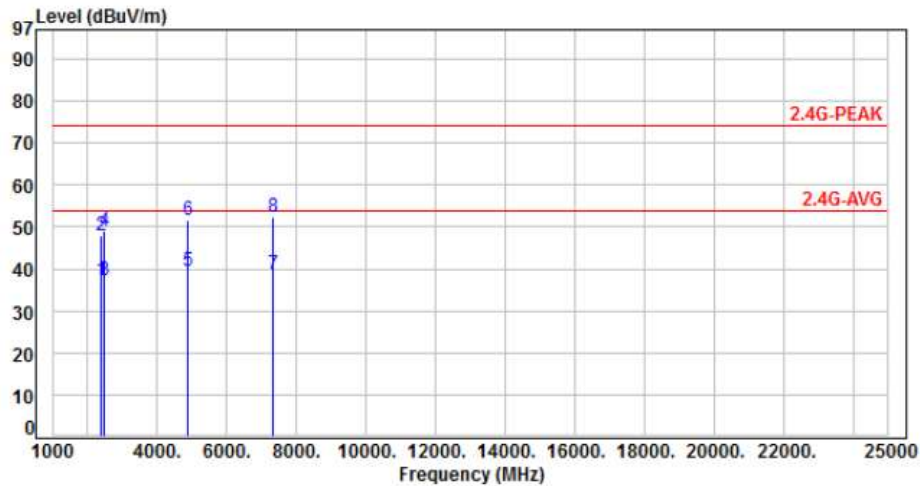
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	40.88	37.24	54.00	-16.76	Average	106	211	P
2	2390.00	-3.64	51.76	48.12	74.00	-25.88	Peak	106	211	P
3	2483.50	-3.30	40.62	37.32	54.00	-16.68	Average	106	211	P
4	2483.50	-3.30	52.42	49.12	74.00	-24.88	Peak	106	211	P
5	4874.00	3.95	35.60	39.55	54.00	-14.45	Average	110	130	P
6	4874.00	3.95	47.60	51.55	74.00	-22.45	Peak	110	130	P
7	7311.00	8.84	29.85	38.69	54.00	-15.31	Average	100	81	P
8	7311.00	8.84	43.55	52.39	74.00	-21.61	Peak	100	81	P

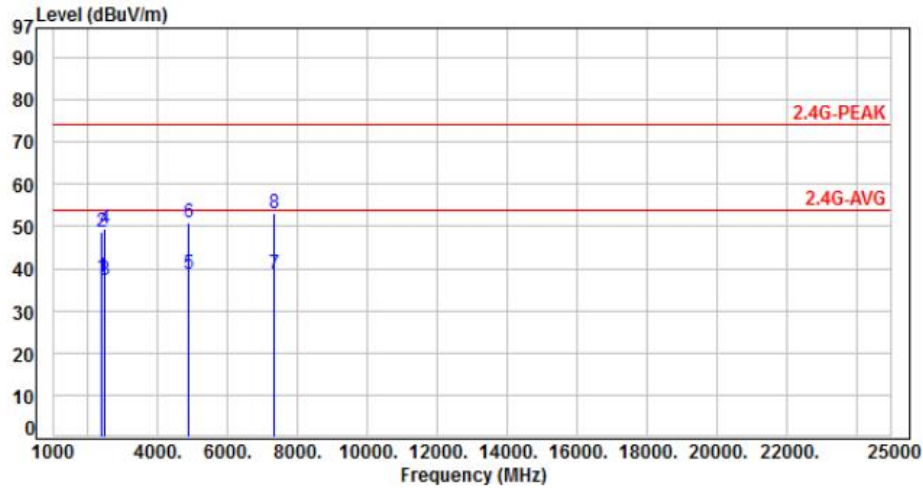
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	41.52	37.88	54.00	-16.12	Average	100	153	P
2	2390.00	-3.64	52.44	48.80	74.00	-25.20	Peak	100	153	P
3	2483.50	-3.30	40.57	37.27	54.00	-16.73	Average	100	153	P
4	2483.50	-3.30	52.66	49.36	74.00	-24.64	Peak	100	153	P
5	4874.00	3.95	34.62	38.57	54.00	-15.43	Average	117	120	P
6	4874.00	3.95	46.80	50.75	74.00	-23.25	Peak	117	120	P
7	7311.00	8.84	29.81	38.65	54.00	-15.35	Average	100	296	P
8	7311.00	8.84	44.22	53.06	74.00	-20.94	Peak	100	296	P

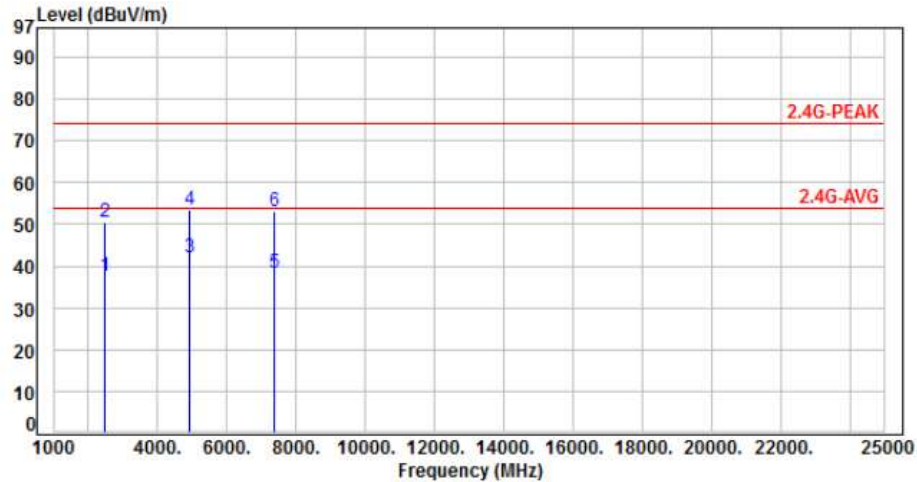
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH11		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	40.84	37.54	54.00	-16.46	Average	100	220	P
2	2483.50	-3.30	53.87	50.57	74.00	-23.43	Peak	100	220	P
3	4924.00	4.10	37.80	41.90	54.00	-12.10	Average	100	125	P
4	4924.00	4.10	49.30	53.40	74.00	-20.60	Peak	100	125	P
5	7386.00	8.94	29.53	38.47	54.00	-15.53	Average	100	91	P
6	7386.00	8.94	44.23	53.17	74.00	-20.83	Peak	100	91	P

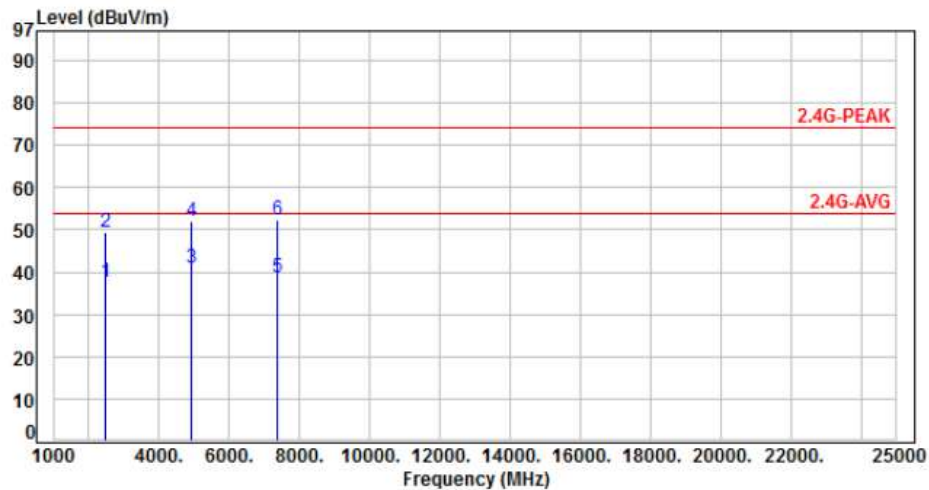
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH11		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	41.10	37.80	54.00	-16.20	Average	100	162	P
2	2483.50	-3.30	52.63	49.33	74.00	-24.67	Peak	100	162	P
3	4924.00	4.10	36.90	41.00	54.00	-13.00	Average	126	117	P
4	4924.00	4.10	47.88	51.98	74.00	-22.02	Peak	126	117	P
5	7386.00	8.94	29.88	38.82	54.00	-15.18	Average	100	311	P
6	7386.00	8.94	43.47	52.41	74.00	-21.59	Peak	100	311	P

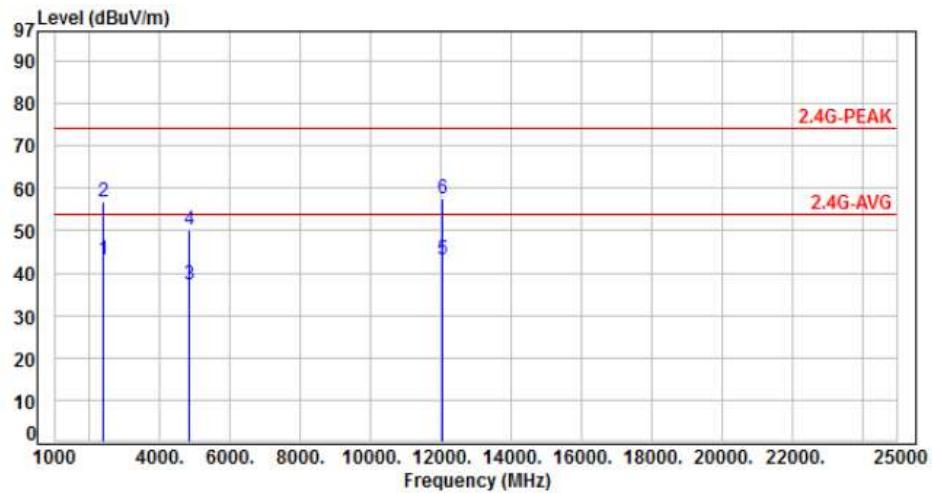
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, CH01		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	46.70	43.06	54.00	-10.94	Average	140	249	P
2	2390.00	-3.64	60.60	56.96	74.00	-17.04	Peak	140	249	P
3	4824.00	3.76	33.59	37.35	54.00	-16.65	Average	133	131	P
4	4824.00	3.76	46.49	50.25	74.00	-23.75	Peak	133	131	P
5	12060.00	13.45	29.57	43.02	54.00	-10.98	Average	100	84	P
6	12060.00	13.45	44.11	57.56	74.00	-16.44	Peak	100	84	P

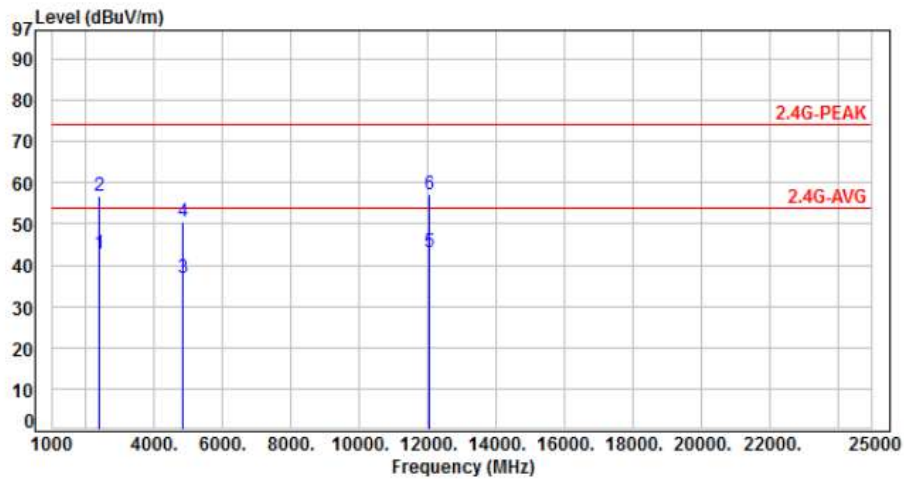
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, CH01		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	46.52	42.88	54.00	-11.12	Average	171	292	P
2	2390.00	-3.64	60.30	56.66	74.00	-17.34	Peak	171	292	P
3	4824.00	3.76	33.19	36.95	54.00	-17.05	Average	230	122	P
4	4824.00	3.76	46.69	50.45	74.00	-23.55	Peak	230	122	P
5	12060.00	13.45	29.66	43.11	54.00	-10.89	Average	100	324	P
6	12060.00	13.45	43.75	57.20	74.00	-16.80	Peak	100	324	P

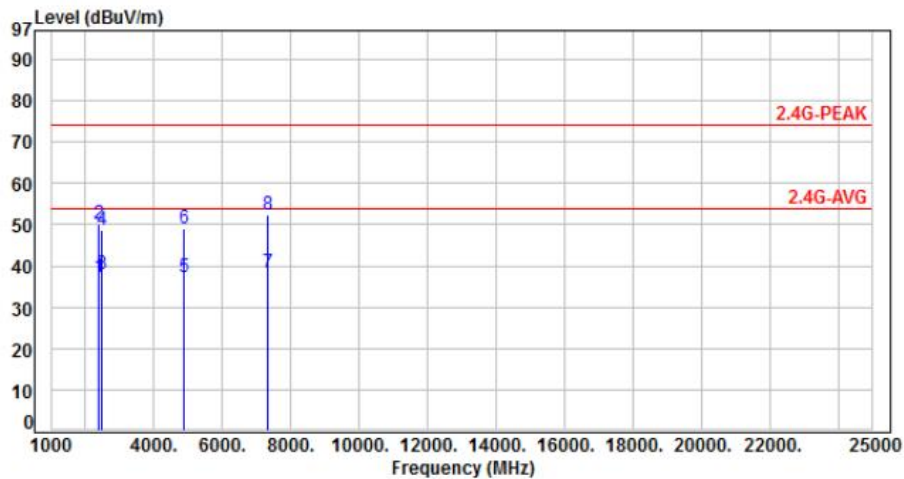
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	40.88	37.24	54.00	-16.76	Average	110	220	P
2	2390.00	-3.64	53.62	49.98	74.00	-24.02	Peak	110	220	P
3	2483.50	-3.30	41.14	37.84	54.00	-16.16	Average	110	220	P
4	2483.50	-3.30	52.10	48.80	74.00	-25.20	Peak	110	220	P
5	4874.00	3.95	33.23	37.18	54.00	-16.82	Average	141	130	P
6	4874.00	3.95	44.95	48.90	74.00	-25.10	Peak	141	130	P
7	7311.00	8.84	29.65	38.49	54.00	-15.51	Average	100	95	P
8	7311.00	8.84	43.46	52.30	74.00	-21.70	Peak	100	95	P

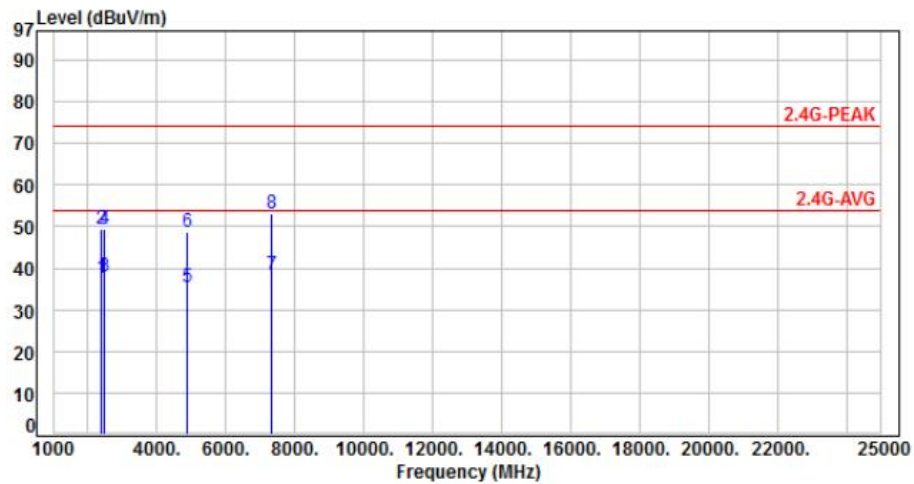
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	41.36	37.72	54.00	-16.28	Average	100	163	P
2	2390.00	-3.64	53.22	49.58	74.00	-24.42	Peak	100	163	P
3	2483.50	-3.30	41.11	37.81	54.00	-16.19	Average	100	163	P
4	2483.50	-3.30	52.67	49.37	74.00	-24.63	Peak	100	163	P
5	4874.00	3.95	31.32	35.27	54.00	-18.73	Average	255	122	P
6	4874.00	3.95	44.78	48.73	74.00	-25.27	Peak	255	122	P
7	7311.00	8.84	29.62	38.46	54.00	-15.54	Average	100	315	P
8	7311.00	8.84	44.22	53.06	74.00	-20.94	Peak	100	315	P

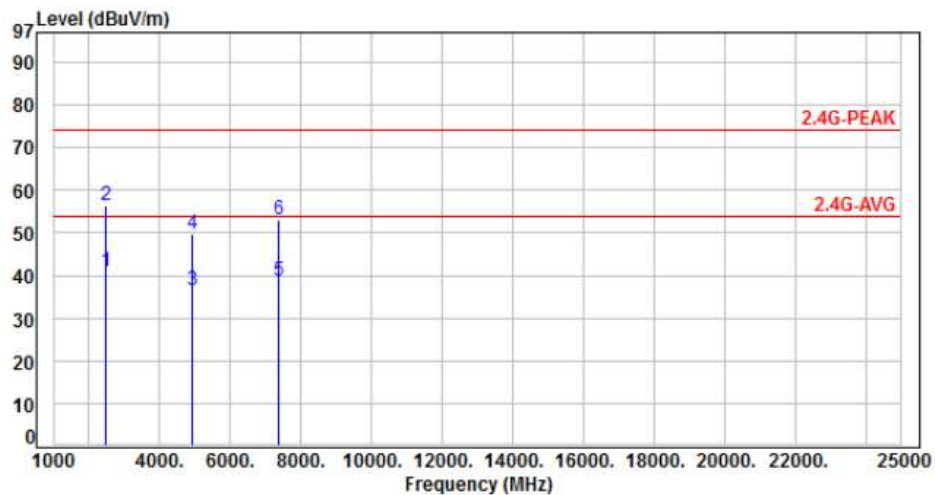
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, CH11		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	44.22	40.92	54.00	-13.08	Average	100	230	P
2	2483.50	-3.30	59.62	56.32	74.00	-17.68	Peak	100	230	P
3	4924.00	4.10	32.53	36.63	54.00	-17.37	Average	100	133	P
4	4924.00	4.10	45.76	49.86	74.00	-24.14	Peak	100	133	P
5	7386.00	8.94	29.79	38.73	54.00	-15.27	Average	100	91	P
6	7386.00	8.94	44.11	53.05	74.00	-20.95	Peak	100	91	P

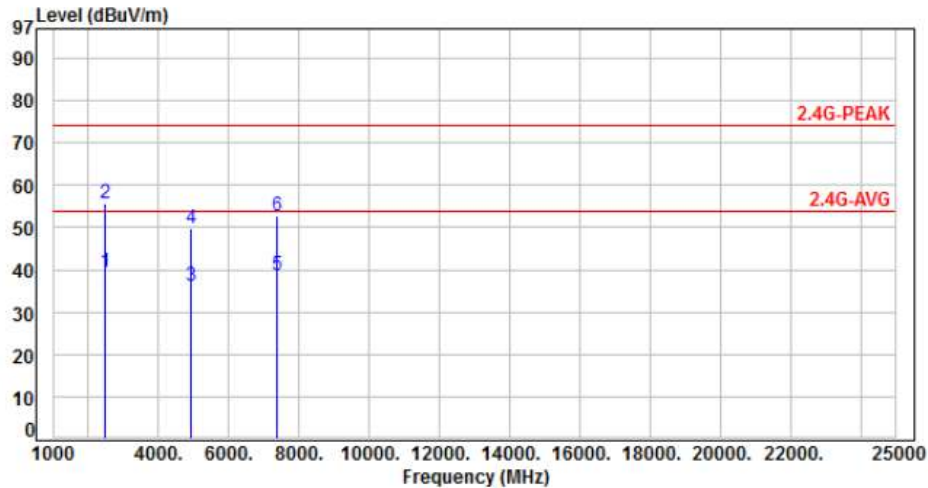
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, CH11		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	42.64	39.34	54.00	-14.66	Average	100	358	P
2	2483.50	-3.30	58.87	55.57	74.00	-18.43	Peak	100	358	P
3	4924.00	4.10	31.95	36.05	54.00	-17.95	Average	277	111	P
4	4924.00	4.10	45.60	49.70	74.00	-24.30	Peak	277	111	P
5	7386.00	8.94	29.88	38.82	54.00	-15.18	Average	100	295	P
6	7386.00	8.94	43.65	52.59	74.00	-21.41	Peak	100	295	P

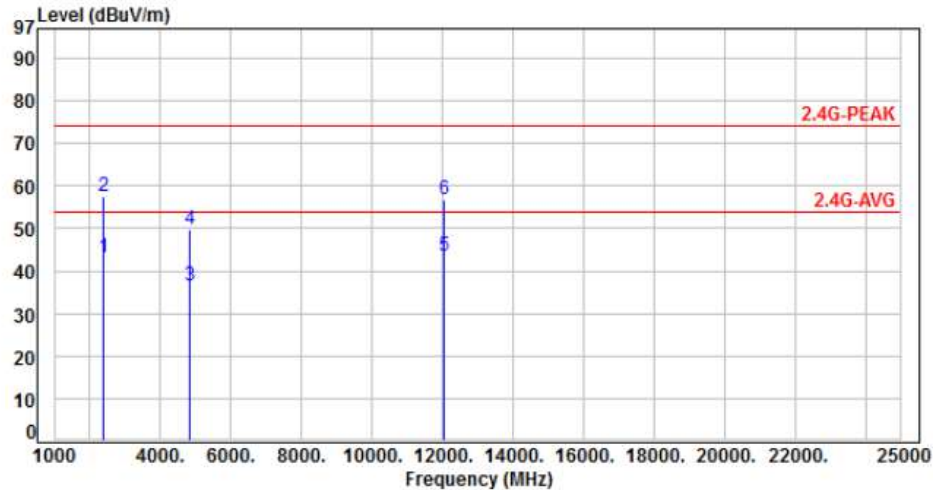
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 3, CH01		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	46.90	43.26	54.00	-10.74	Average	140	273	P
2	2390.00	-3.64	61.20	57.56	74.00	-16.44	Peak	140	273	P
3	4824.00	3.76	32.79	36.55	54.00	-17.45	Average	100	136	P
4	4824.00	3.76	46.09	49.85	74.00	-24.15	Peak	100	136	P
5	12060.00	13.45	30.12	43.57	54.00	-10.43	Average	100	76	P
6	12060.00	13.45	43.47	56.92	74.00	-17.08	Peak	100	76	P

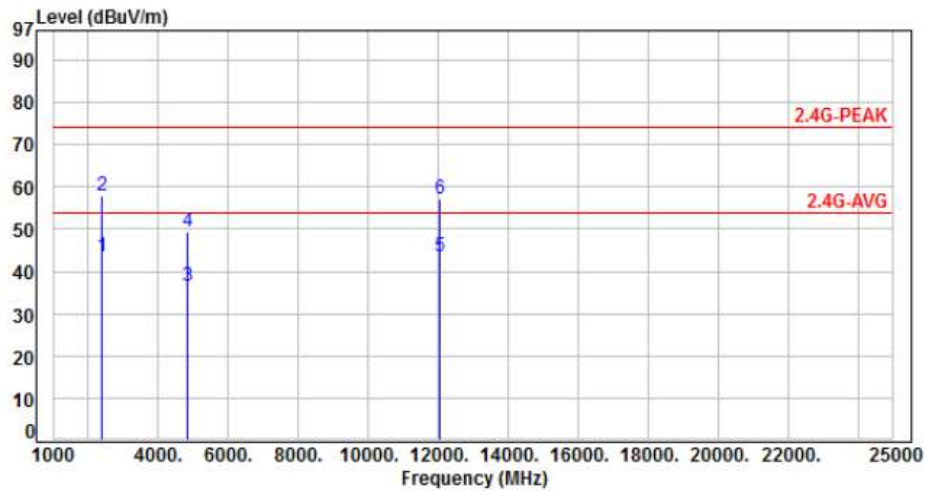
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 3, CH01		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	47.21	43.57	54.00	-10.43	Average	180	288	P
2	2390.00	-3.64	61.50	57.86	74.00	-16.14	Peak	180	288	P
3	4824.00	3.76	32.87	36.63	54.00	-17.37	Average	100	122	P
4	4824.00	3.76	45.79	49.55	74.00	-24.45	Peak	100	122	P
5	12060.00	13.45	30.11	43.56	54.00	-10.44	Average	100	344	P
6	12060.00	13.45	43.66	57.11	74.00	-16.89	Peak	100	344	P

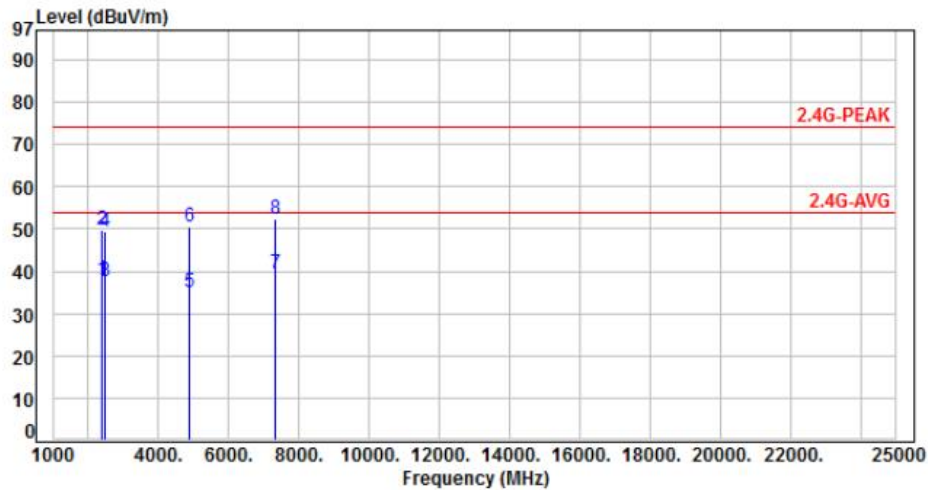
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 3, CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	41.52	37.88	54.00	-16.12	Average	133	216	P
2	2390.00	-3.64	53.61	49.97	74.00	-24.03	Peak	133	216	P
3	2483.50	-3.30	41.05	37.75	54.00	-16.25	Average	133	216	P
4	2483.50	-3.30	52.73	49.43	74.00	-24.57	Peak	133	216	P
5	4874.00	3.95	31.22	35.17	54.00	-18.83	Average	112	124	P
6	4874.00	3.95	46.51	50.46	74.00	-23.54	Peak	112	124	P
7	7311.00	8.84	30.51	39.35	54.00	-14.65	Average	100	85	P
8	7311.00	8.84	43.68	52.52	74.00	-21.48	Peak	100	85	P

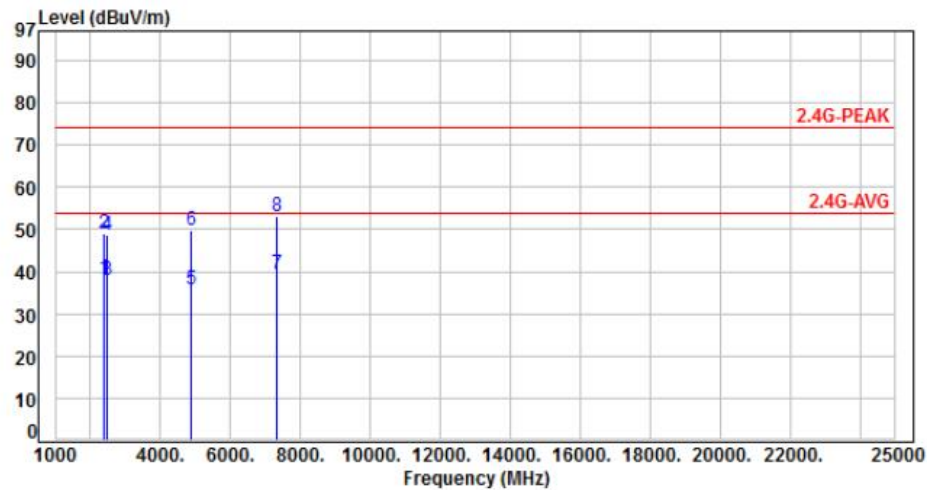
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 3, CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	42.11	38.47	54.00	-15.53	Average	100	184	P
2	2390.00	-3.64	52.76	49.12	74.00	-24.88	Peak	100	184	P
3	2483.50	-3.30	41.42	38.12	54.00	-15.88	Average	100	184	P
4	2483.50	-3.30	51.87	48.57	74.00	-25.43	Peak	100	184	P
5	4874.00	3.95	31.68	35.63	54.00	-18.37	Average	100	134	P
6	4874.00	3.95	45.78	49.73	74.00	-24.27	Peak	100	134	P
7	7311.00	8.84	30.46	39.30	54.00	-14.70	Average	100	342	P
8	7311.00	8.84	44.10	52.94	74.00	-21.06	Peak	100	342	P

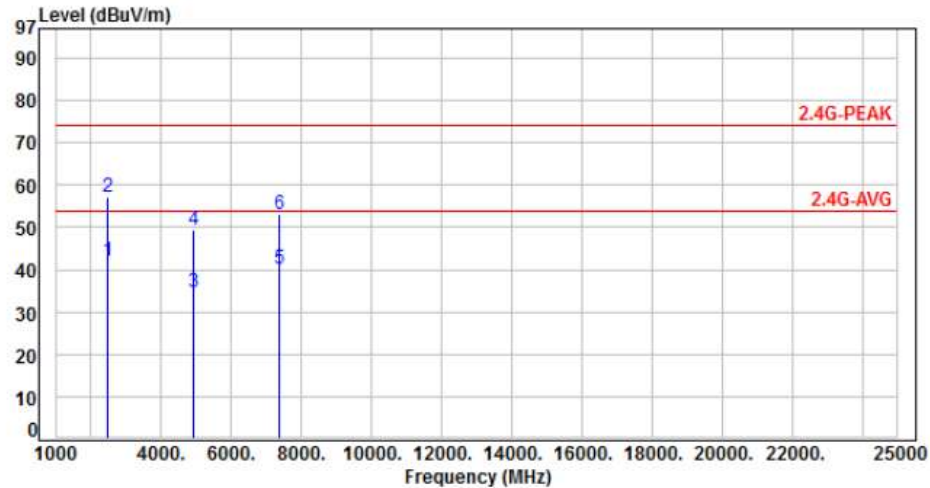
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, CH11		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	45.29	41.99	54.00	-12.01	Average	100	233	P
2	2483.50	-3.30	60.49	57.19	74.00	-16.81	Peak	100	233	P
3	4924.00	4.10	30.56	34.66	54.00	-19.34	Average	100	142	P
4	4924.00	4.10	45.47	49.57	74.00	-24.43	Peak	100	142	P
5	7386.00	8.94	31.25	40.19	54.00	-13.81	Average	100	91	P
6	7386.00	8.94	44.12	53.06	74.00	-20.94	Peak	100	91	P

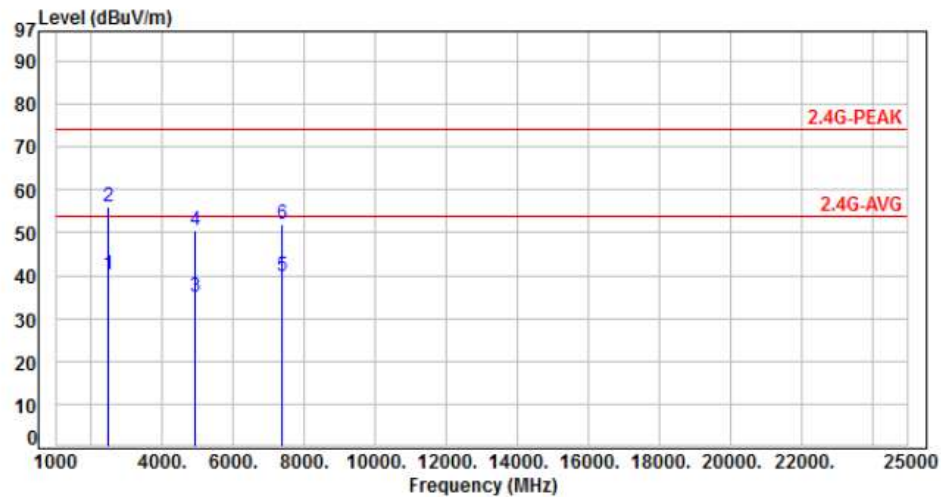
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, CH11		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	43.46	40.16	54.00	-13.84	Average	152	349	P
2	2483.50	-3.30	59.54	56.24	74.00	-17.76	Peak	152	349	P
3	4924.00	4.10	31.11	35.21	54.00	-18.79	Average	113	128	P
4	4924.00	4.10	46.25	50.35	74.00	-23.65	Peak	113	128	P
5	7386.00	8.94	30.85	39.79	54.00	-14.21	Average	100	351	P
6	7386.00	8.94	43.17	52.11	74.00	-21.89	Peak	100	351	P

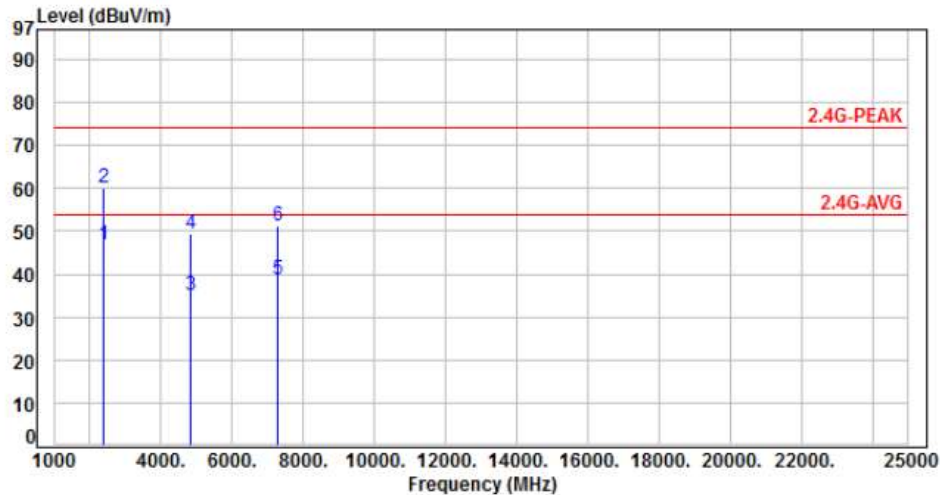
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 4, CH03		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	50.50	46.86	54.00	-7.14	Average	140	250	P
2	2390.00	-3.64	63.60	59.96	74.00	-14.04	Peak	140	250	P
3	4844.00	3.85	31.26	35.11	54.00	-18.89	Average	100	129	P
4	4844.00	3.85	45.57	49.42	74.00	-24.58	Peak	100	129	P
5	7266.00	8.62	30.24	38.86	54.00	-15.14	Average	100	113	P
6	7266.00	8.62	42.82	51.44	74.00	-22.56	Peak	100	113	P

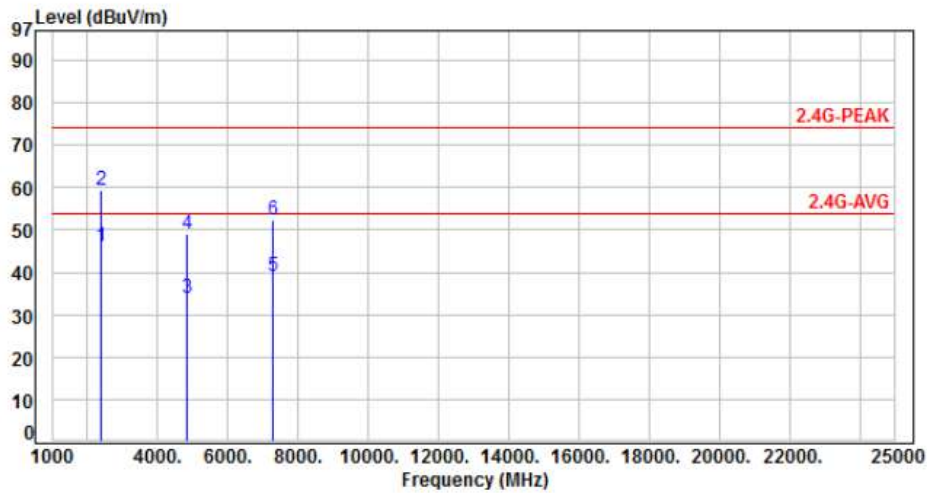
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 4, CH03		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	49.68	46.04	54.00	-7.96	Average	173	288	P
2	2390.00	-3.64	62.90	59.26	74.00	-14.74	Peak	173	288	P
3	4844.00	3.85	30.25	34.10	54.00	-19.90	Average	100	174	P
4	4844.00	3.85	45.21	49.06	74.00	-24.94	Peak	100	174	P
5	7266.00	8.62	30.51	39.13	54.00	-14.87	Average	100	283	P
6	7266.00	8.62	43.67	52.29	74.00	-21.71	Peak	100	283	P

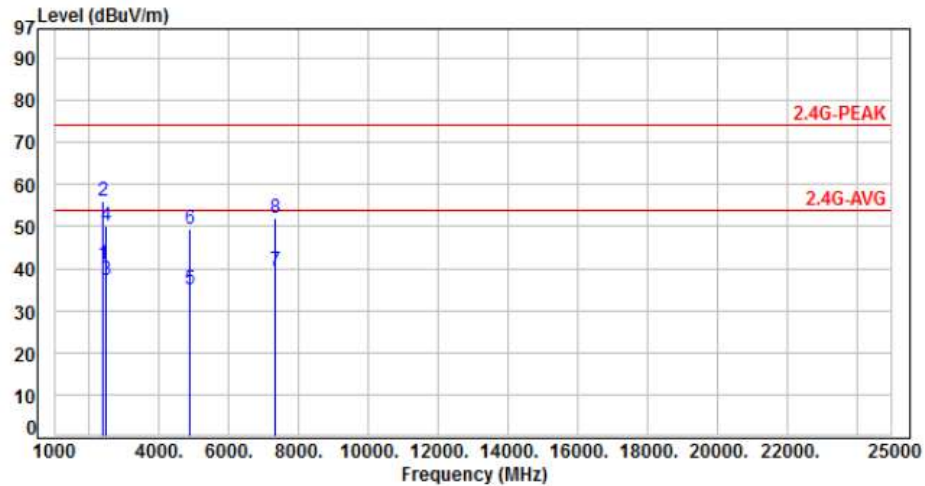
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 4, CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	44.50	40.86	54.00	-13.14	Average	143	244	P
2	2390.00	-3.64	59.70	56.06	74.00	-17.94	Peak	143	244	P
3	2483.50	-3.30	40.61	37.31	54.00	-16.69	Average	143	244	P
4	2483.50	-3.30	53.62	50.32	74.00	-23.68	Peak	143	244	P
5	4874.00	3.95	31.22	35.17	54.00	-18.83	Average	100	135	P
6	4874.00	3.95	45.62	49.57	74.00	-24.43	Peak	100	135	P
7	7311.00	8.84	30.45	39.29	54.00	-14.71	Average	100	92	P
8	7311.00	8.84	43.21	52.05	74.00	-21.95	Peak	100	92	P

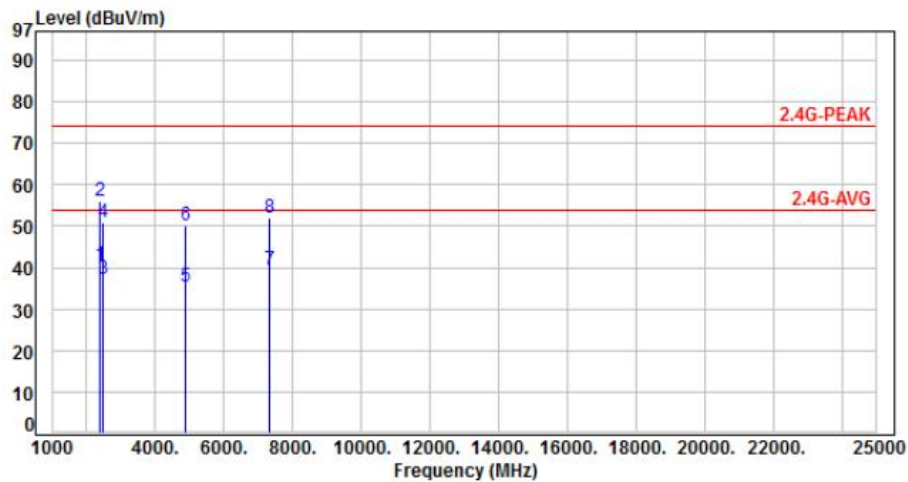
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 4, CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.64	44.26	40.62	54.00	-13.38	Average	170	289	P
2	2390.00	-3.64	59.70	56.06	74.00	-17.94	Peak	170	289	P
3	2483.50	-3.30	40.68	37.38	54.00	-16.62	Average	170	289	P
4	2483.50	-3.30	54.25	50.95	74.00	-23.05	Peak	170	289	P
5	4874.00	3.95	31.33	35.28	54.00	-18.72	Average	122	163	P
6	4874.00	3.95	46.32	50.27	74.00	-23.73	Peak	122	163	P
7	7311.00	8.84	30.68	39.52	54.00	-14.48	Average	100	328	P
8	7311.00	8.84	43.24	52.08	74.00	-21.92	Peak	100	328	P

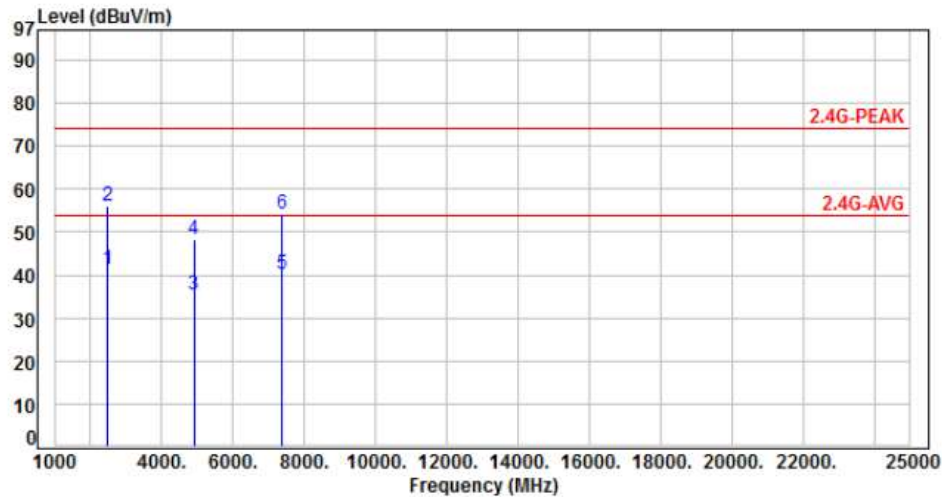
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 4, CH09		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	44.71	41.41	54.00	-12.59	Average	100	210	P
2	2483.50	-3.30	59.20	55.90	74.00	-18.10	Peak	100	210	P
3	4904.00	4.05	31.41	35.46	54.00	-18.54	Average	100	135	P
4	4904.00	4.05	44.21	48.26	74.00	-25.74	Peak	100	135	P
5	7356.00	8.86	31.33	40.19	54.00	-13.81	Average	100	107	P
6	7356.00	8.86	45.26	54.12	74.00	-19.88	Peak	100	107	P

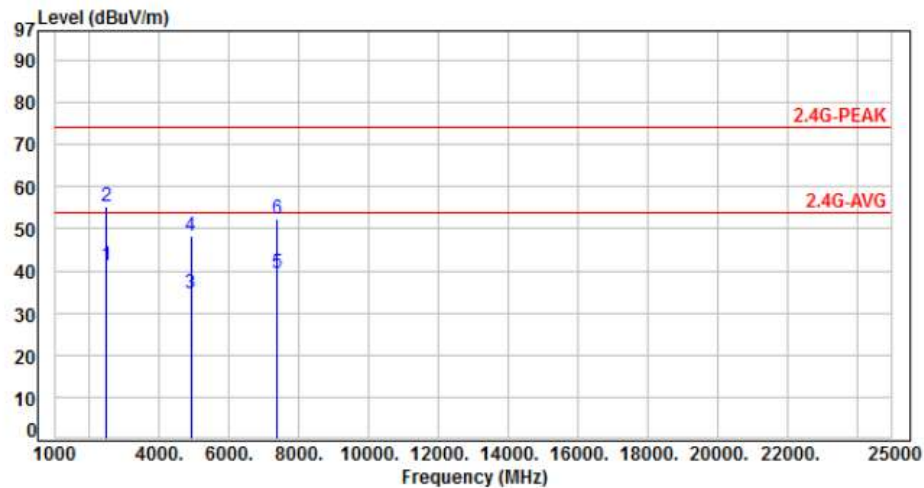
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 4, CH09		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.30	44.51	41.21	54.00	-12.79	Average	120	145	P
2	2483.50	-3.30	58.66	55.36	74.00	-18.64	Peak	120	145	P
3	4904.00	4.05	30.46	34.51	54.00	-19.49	Average	100	155	P
4	4904.00	4.05	44.30	48.35	74.00	-25.65	Peak	100	155	P
5	7356.00	8.86	30.46	39.32	54.00	-14.68	Average	100	322	P
6	7356.00	8.86	43.41	52.27	74.00	-21.73	Peak	100	322	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

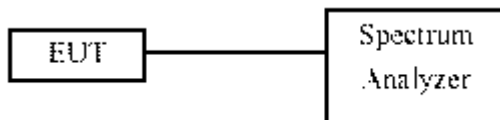
7.1 Test Limit

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

7.2 Test Procedure

- The transmitter output was connected to the spectrum analyzer via a low loss cable.
- 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.
- 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.
- The band edges was measured and recorded.

7.3 Test Setup Layout

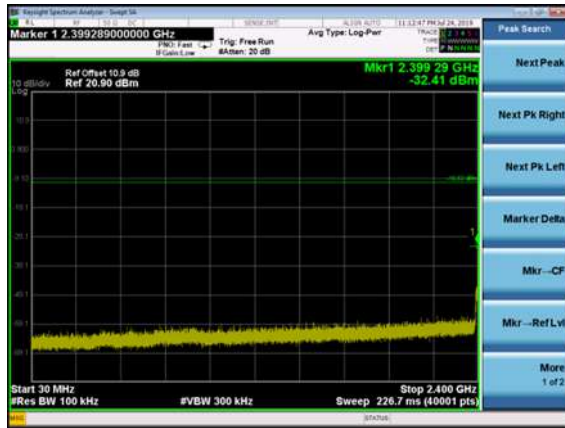


7.4 Test Result and Data

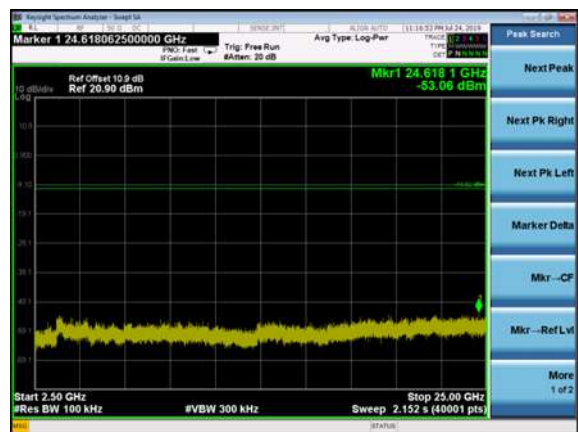
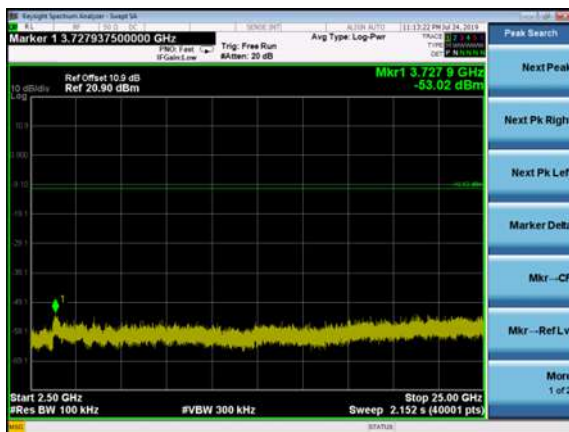
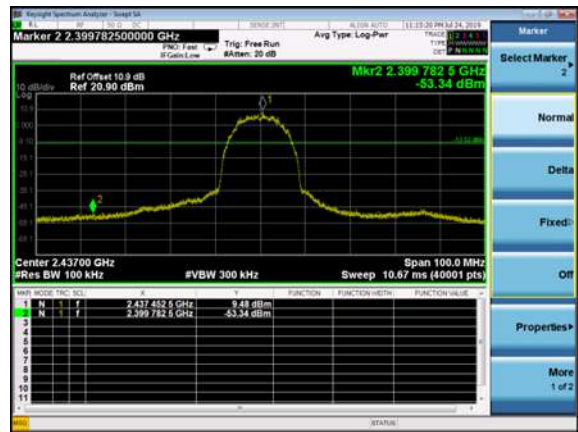
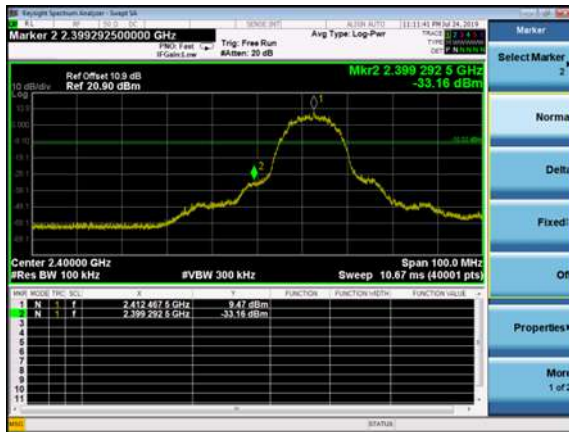
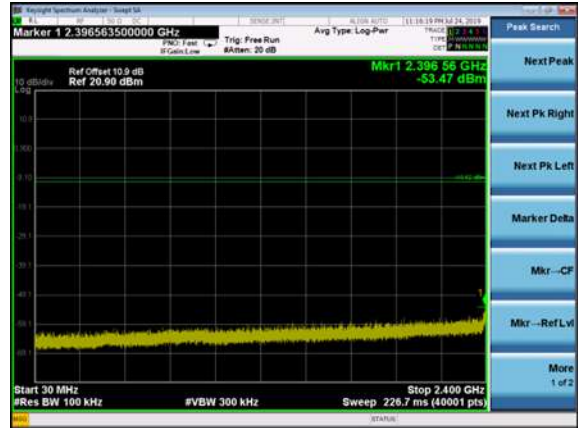
Note: Test plots refers to the following pages.



Modulation Mode: 802.11b, CH 01

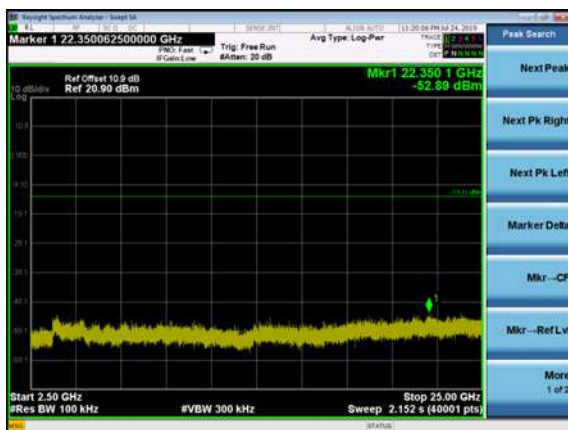
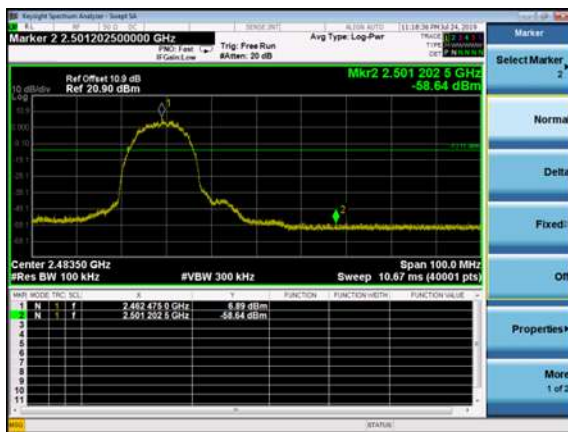
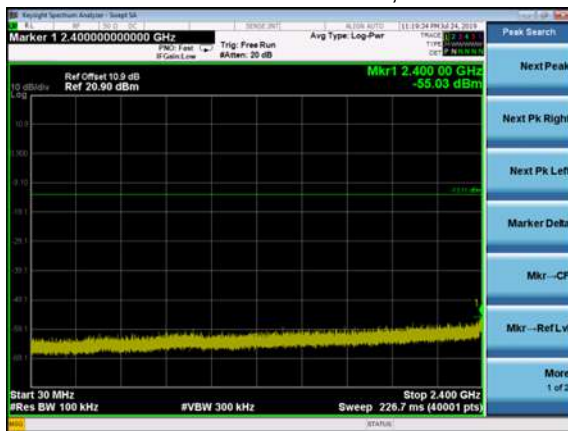


Modulation Mode: 802.11b, CH 06



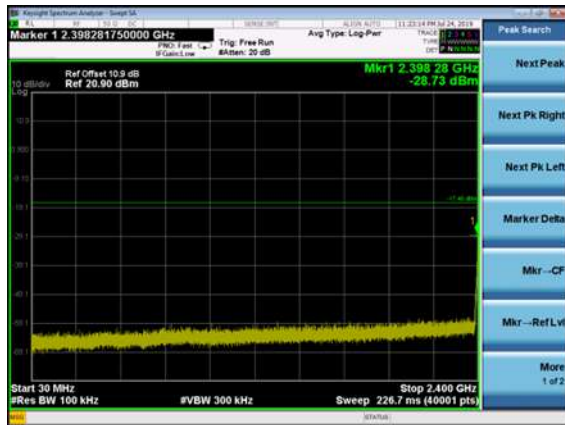


Modulation Mode: 802.11b, CH 11

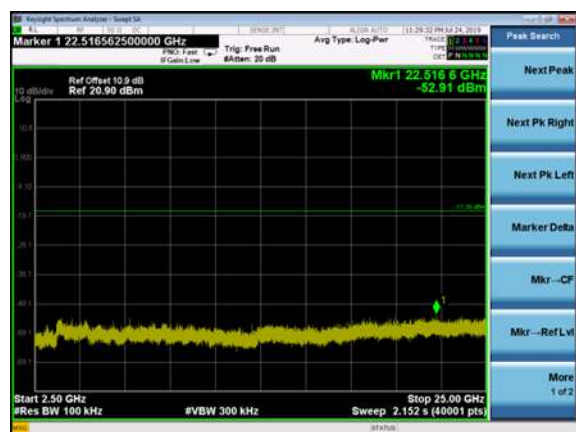
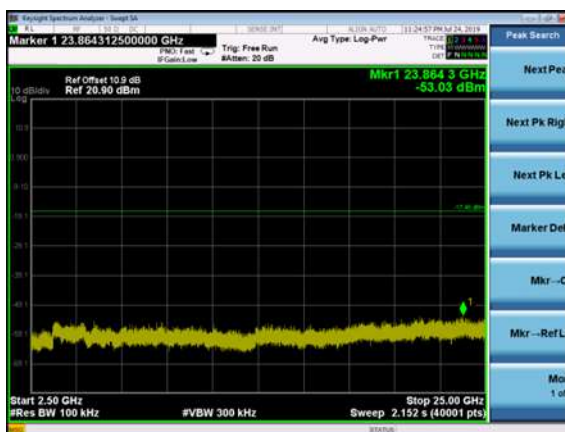
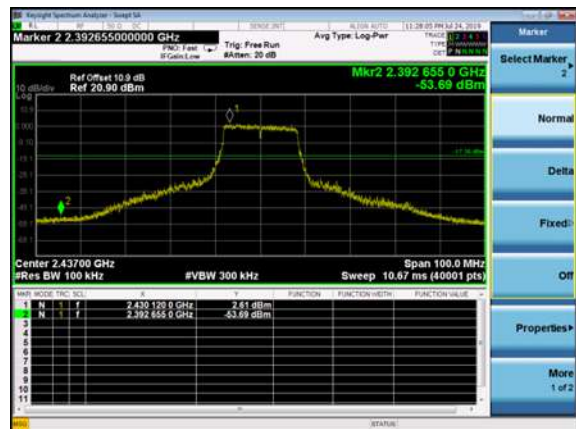
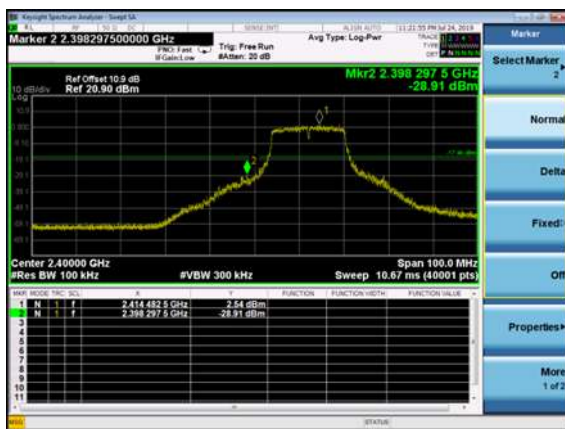
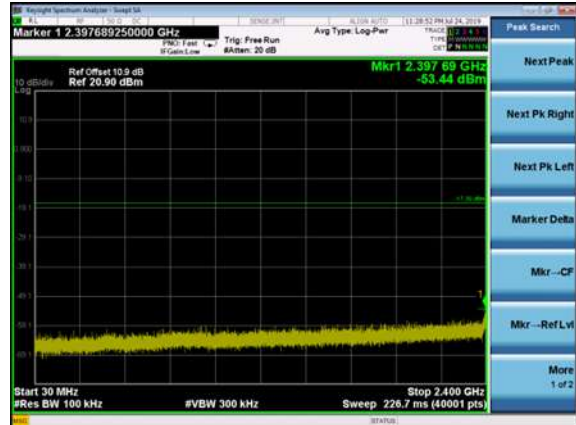




Modulation Mode: 802.11g, CH 01

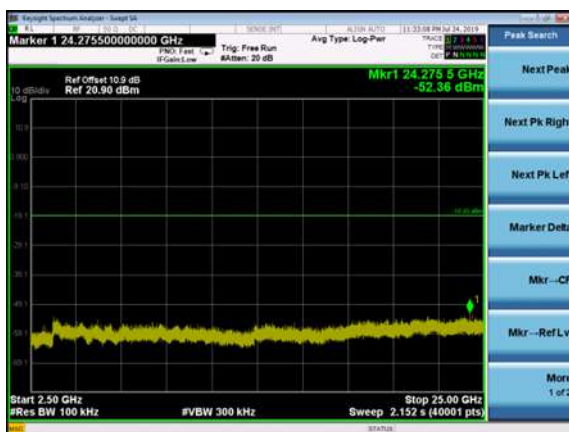
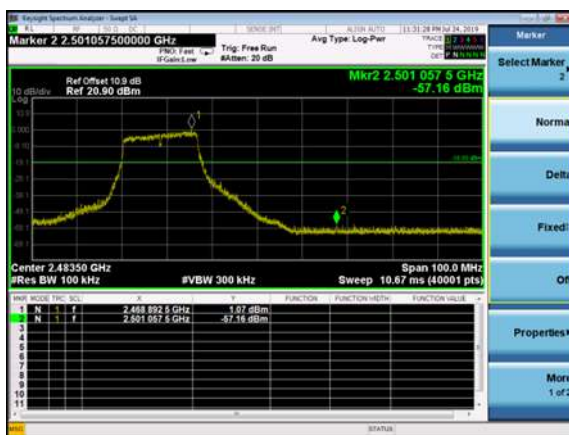
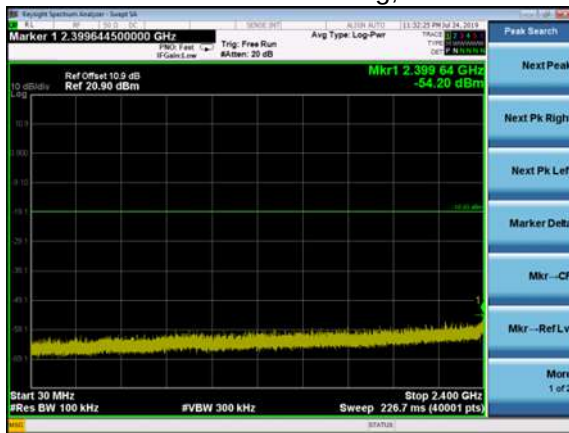


Modulation Mode: 802.11g, CH 06



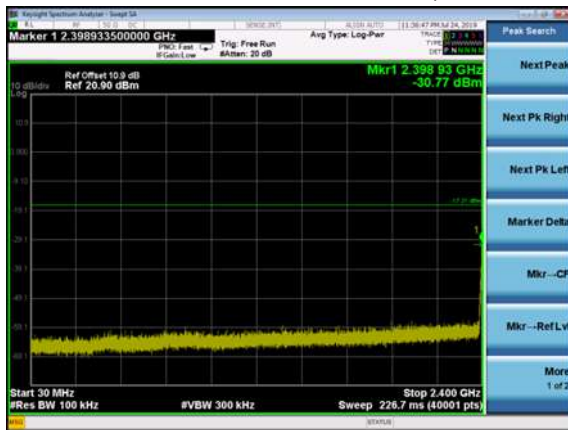


Modulation Mode: 802.11g, CH 11

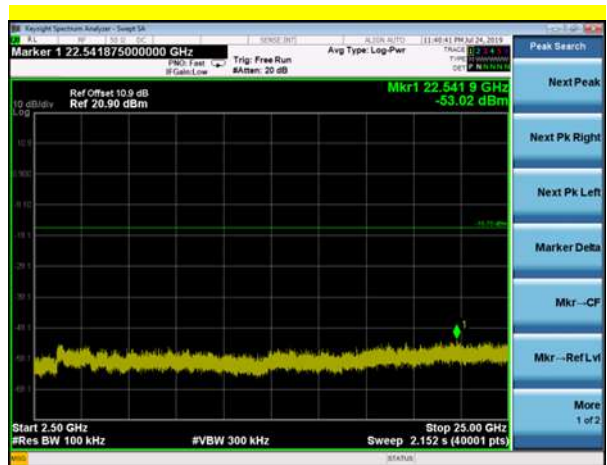
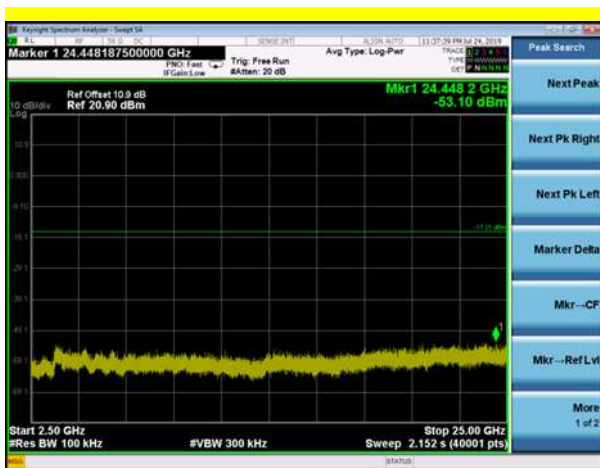
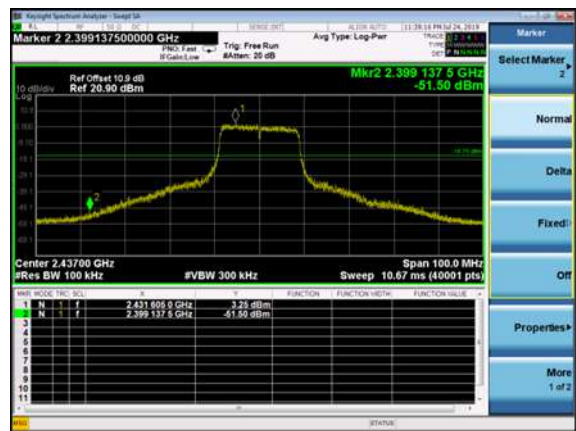
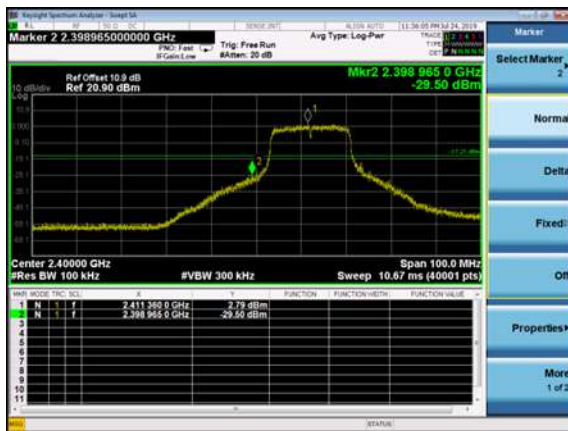
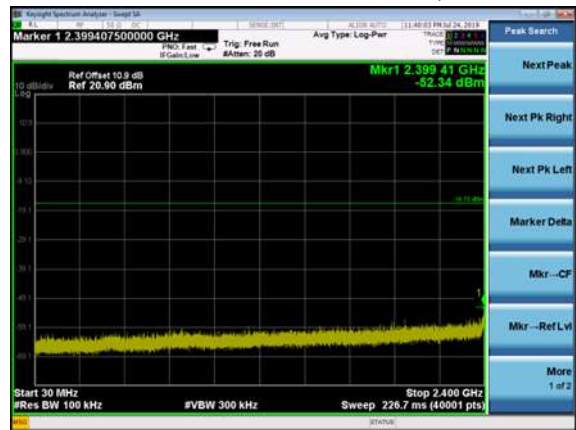




Modulation Mode: 802.11n HT20, CH01

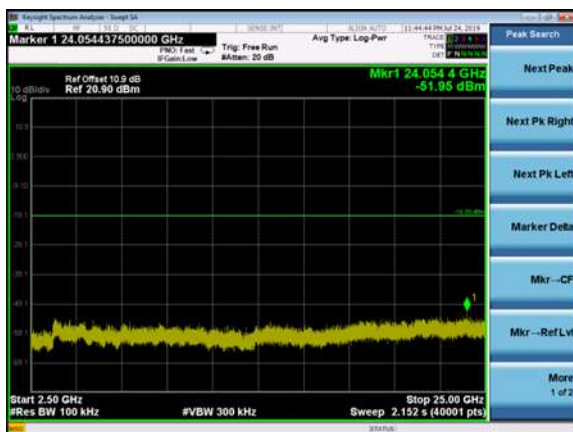
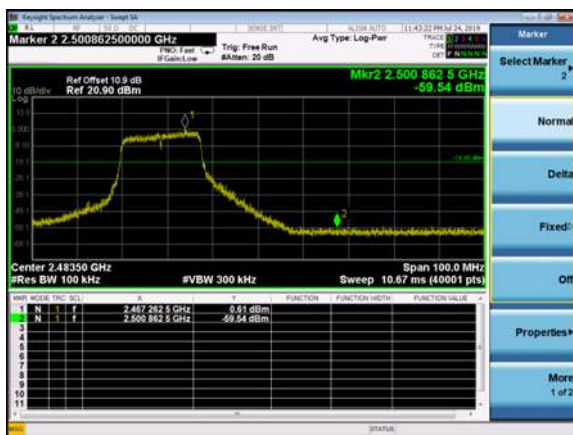
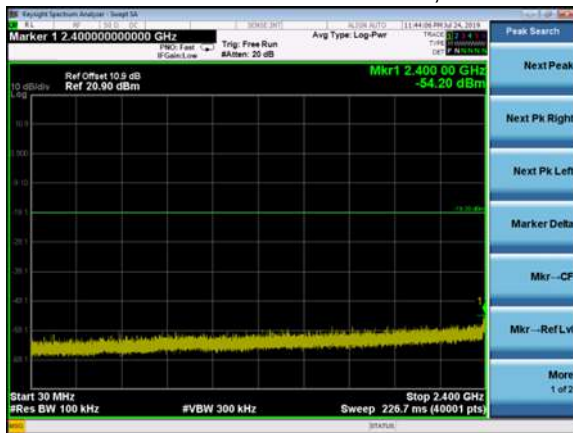


Modulation Mode: 802.11n HT20, CH06



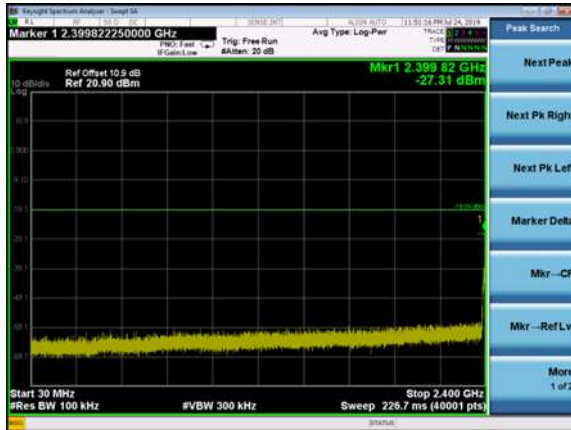


Modulation Mode: 802.11n HT20, CH11

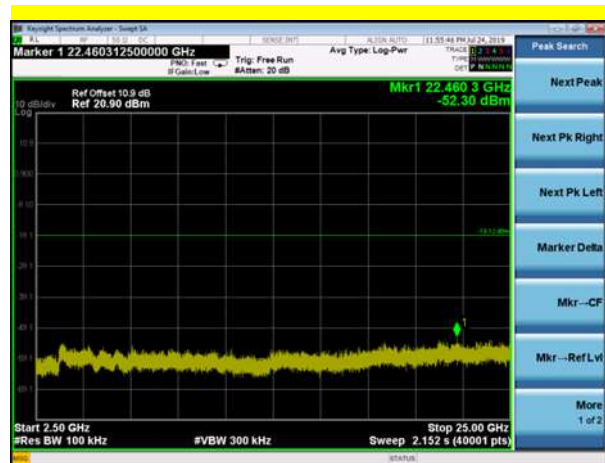
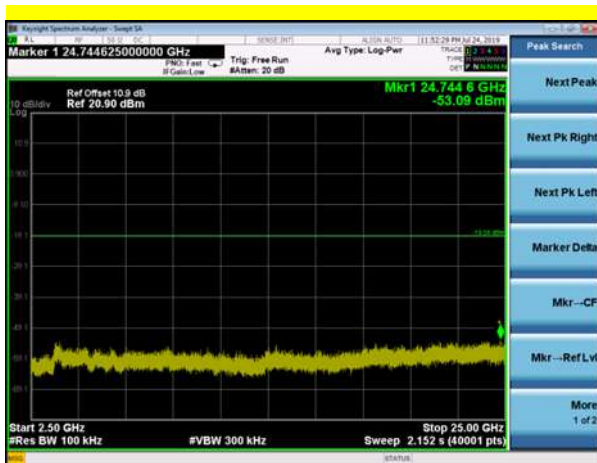
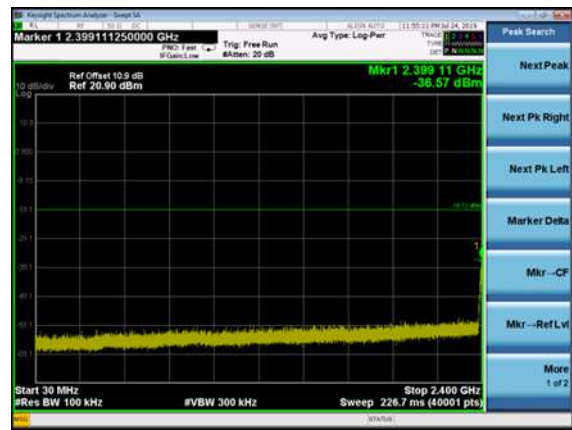




Modulation Mode: 802.11n HT40, CH03

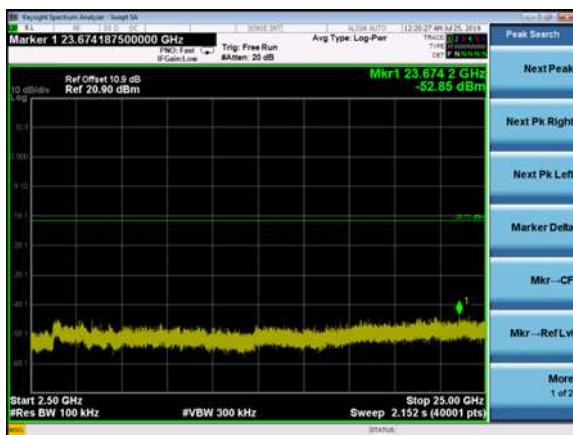
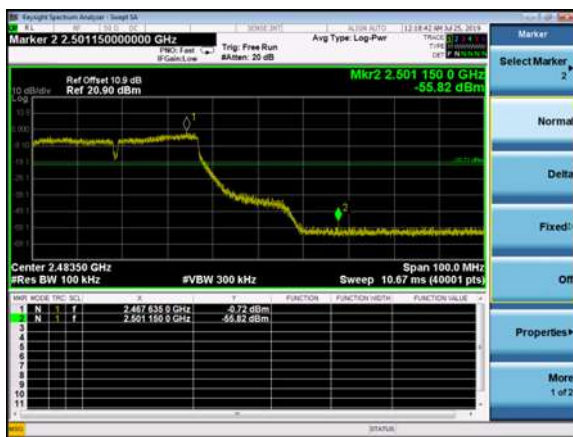
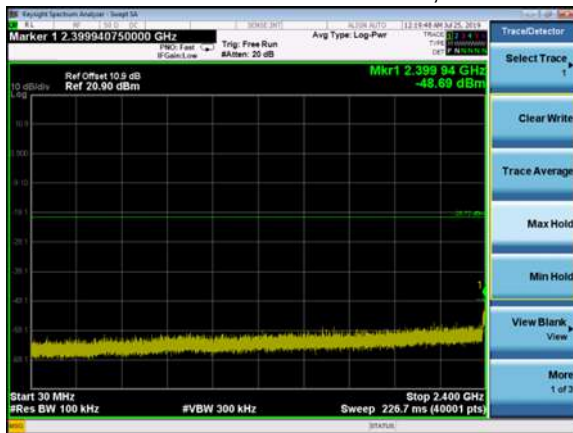


Modulation Mode: 802.11n HT40, CH06





Modulation Mode: 802.11n HT40, CH09





8. On Time, Duty Cycle and Measurement methods

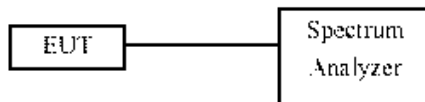
8.1 Test Limit

None; for reporting purposes only.

8.2 Test Procedure

Zero-Span Spectrum Analyzer Method.

8.3 Test Setup Layout



8.4 Test Result and Data

Modulation Mode	On Time (ms)	Period Time (ms)	Duty Cycle (%)
11b,1M	100.00	100.00	100.00%
11g,6M	100.00	100.00	100.00%
11n HT20	100.00	100.00	100.00%
11n HT40	100.00	100.00	100.00%



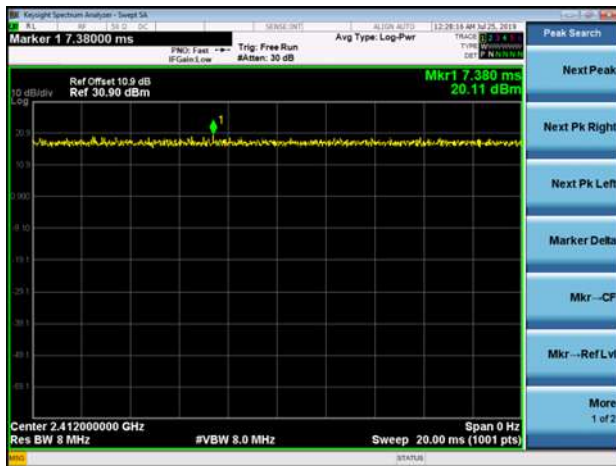
Modulation Mode: 802.11b (1Mbps)



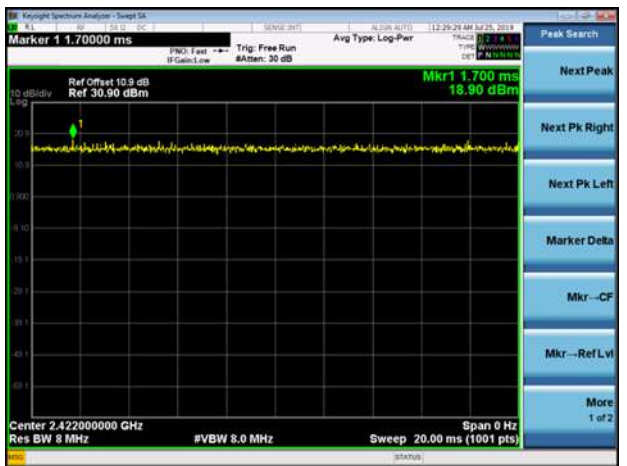
Modulation Mode: 802.11g (6Mbps)



Modulation Mode: 802.11n HT20 (6.5Mbps)



Modulation Mode: 802.11n HT40 (13.5Mbps)





9. 6dB Bandwidth Measurement Data

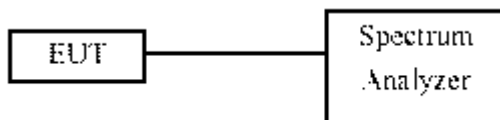
9.1 Test Limit

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

9.2 Test Procedures

- The transmitter output was connected to the spectrum analyzer.
- Set RBW of spectrum analyzer to 100 KHz and VBW to 300 KHz.
- 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.

9.3 Test Setup Layout

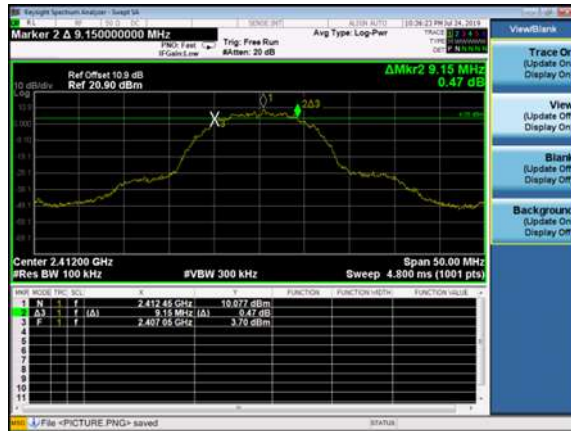


9.4 Test Result and Data

Modulation Mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
11b	1	2412	9.15	0.5
	6	2437	9.20	0.5
	11	2462	9.45	0.5
11g	1	2412	16.45	0.5
	6	2437	16.55	0.5
	11	2462	16.40	0.5
11n HT20	1	2412	17.30	0.5
	6	2437	17.30	0.5
	11	2462	17.25	0.5
11n HT40	3	2422	35.60	0.5
	6	2437	36.40	0.5
	9	2452	36.40	0.5



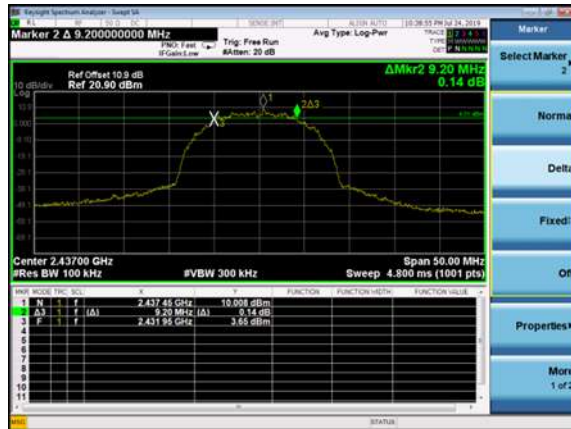
Modulation Mode: 802.11b
CH01



Modulation Mode: 802.11g
CH01



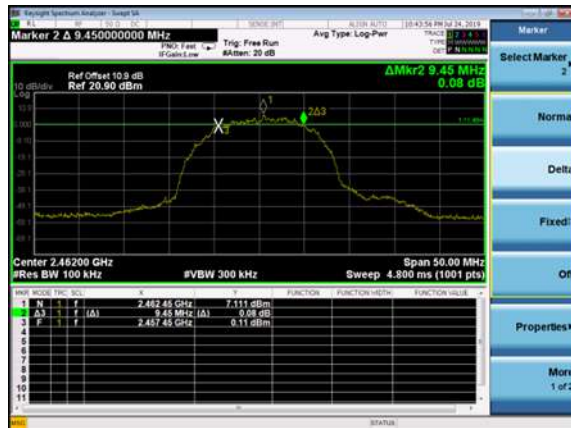
CH06



CH06



CH11

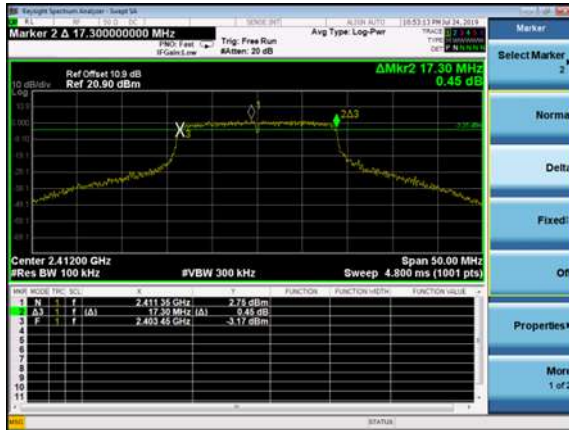


CH11

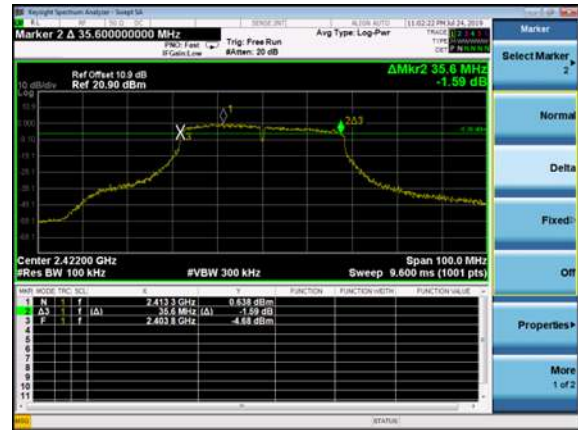




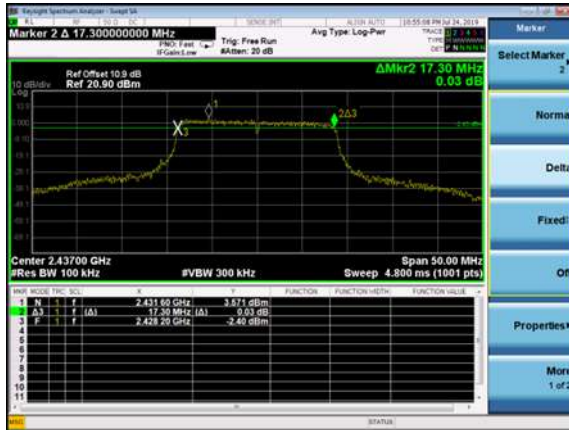
Modulation Mode: 802.11n HT20
CH01



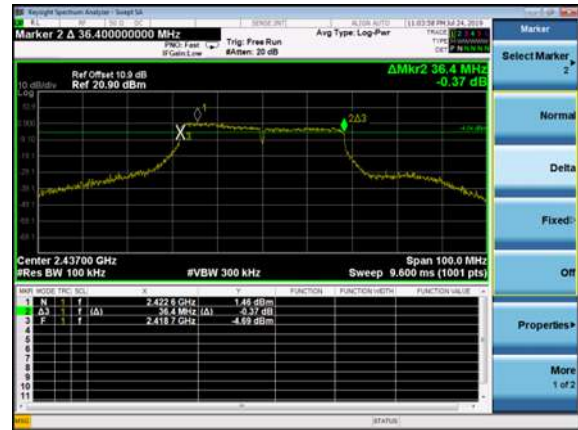
Modulation Mode: 802.11n HT40
CH03



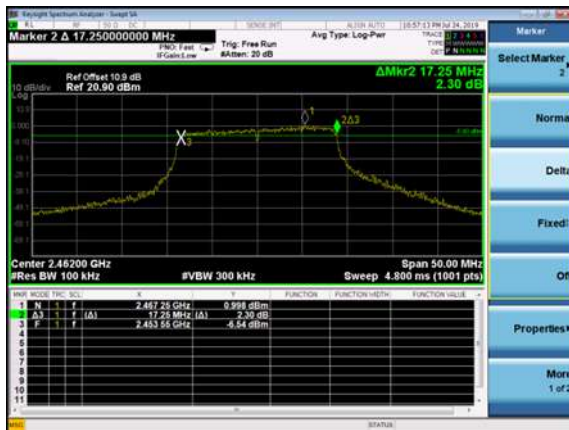
CH06



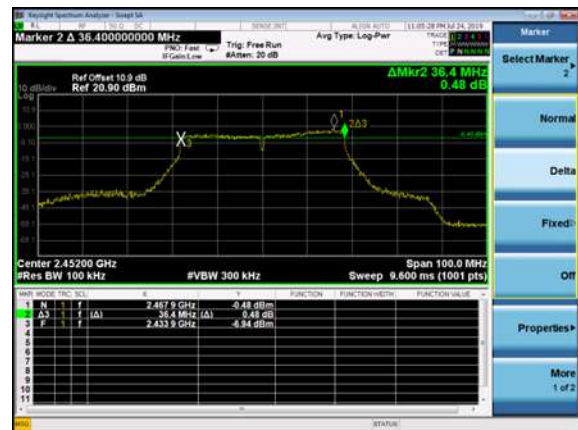
CH06



CH11



CH09





10. Maximum Peak and Average Output Power

10.1 Test Limit

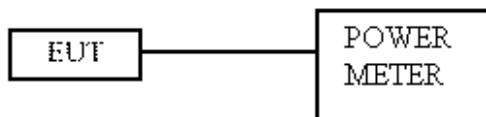
The Maximum Peak Output Power Measurement is 30dBm.

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

10.2 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.

10.3 Test Setup Layout



10.4 Test Result and Data

Modulation Mode	Channel	Frequency (MHz)	Conducted(peak) output power (dBm)	Total PK power (dBm)	Total PK power (mW)	Powe Limit (dBm)
11b	1	2412	11.98	11.98	15.776	26.00
	6	2437	19.11	19.11	81.470	26.00
	11	2462	12.77	12.77	18.923	26.00
11g	1	2412	12.58	12.58	18.113	26.00
	6	2437	20.18	20.18	104.232	26.00
	11	2462	14.53	14.53	28.379	26.00
11n HT20	1	2412	12.97	12.97	19.815	26.00
	6	2437	20.55	20.55	113.501	26.00
	11	2462	14.78	14.78	30.061	26.00
11n HT40	3	2422	16.06	16.06	40.365	26.00
	6	2437	20.74	20.74	118.577	26.00
	9	2452	16.82	16.82	48.084	26.00



Modulation Mode	Channel	Frequency (MHz)	Conducted(average) output power (dBm)	Total AV power (dBm)	Total AV power (mW)	Powe Limit (dBm)
11b	1	2412	8.87	8.87	7.709	NA
	6	2437	16.45	16.45	44.157	NA
	11	2462	9.59	9.59	9.099	NA
11g	1	2412	7.05	7.05	5.070	NA
	6	2437	15.12	15.12	32.509	NA
	11	2462	8.68	8.68	7.379	NA
11n HT20	1	2412	6.98	6.98	4.989	NA
	6	2437	15.06	15.06	32.063	NA
	11	2462	8.46	8.46	7.015	NA
11n HT40	3	2422	10.58	10.58	11.429	NA
	6	2437	15.62	15.62	36.475	NA
	9	2452	10.85	10.85	12.162	NA

Note: Average power is for reference only.



11. Power Spectral Density

11.1 Test Limit

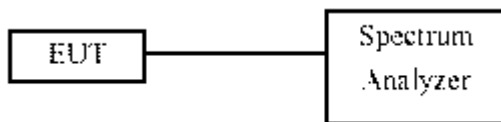
The Maximum of Power Spectral Density Measurement is 8dBm.

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

11.2 Test Procedures

- The transmitter output was connected to spectrum analyzer.
- 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.
- The power spectral density was measured and recorded.

11.3 Test Setup Layout

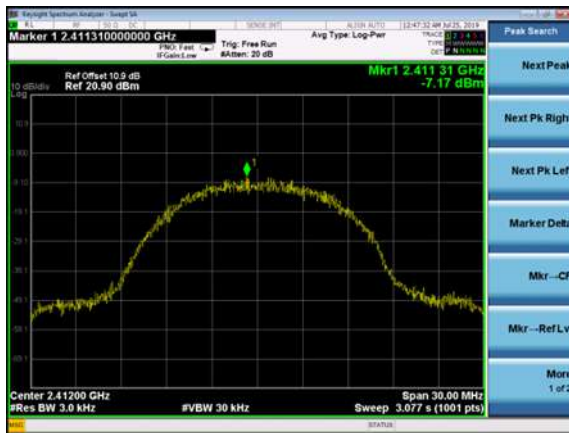


11.4 Test Result and Data

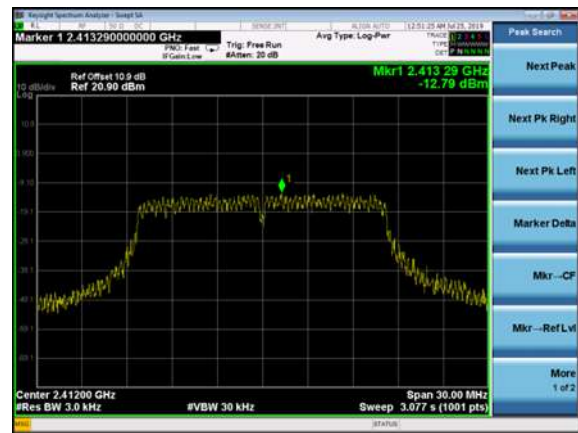
Modulation Mode	Channel	Frequency (MHz)	Maximum Power Density of 3KHz Bandwidth(dBm)	Sum chain (dBm)	Duty Cycle CF(dB)	Total PSD (dBm)	Limit (dBm)
11b	1	2412	-7.17	-7.17	0.00	-7.17	4.00
	6	2437	-6.80	-6.80	0.00	-6.80	4.00
	11	2462	-9.93	-9.93	0.00	-9.93	4.00
11g	1	2412	-12.79	-12.79	0.00	-12.79	4.00
	6	2437	-12.08	-12.08	0.00	-12.08	4.00
	11	2462	-13.88	-13.88	0.00	-13.88	4.00
11n HT20	1	2412	-12.19	-12.19	0.00	-12.19	4.00
	6	2437	-11.66	-11.66	0.00	-11.66	4.00
	11	2462	-13.37	-13.37	0.00	-13.37	4.00
11n HT40	3	2422	-13.31	-13.31	0.00	-13.31	4.00
	6	2437	-12.79	-12.79	0.00	-12.79	4.00
	9	2452	-15.76	-15.76	0.00	-15.76	4.00



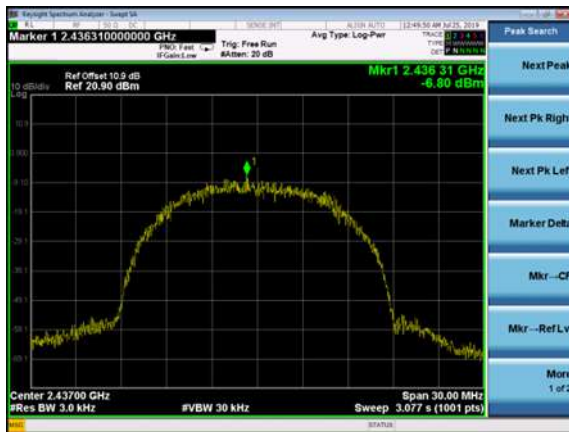
Modulation Mode: 802.11b
CH01



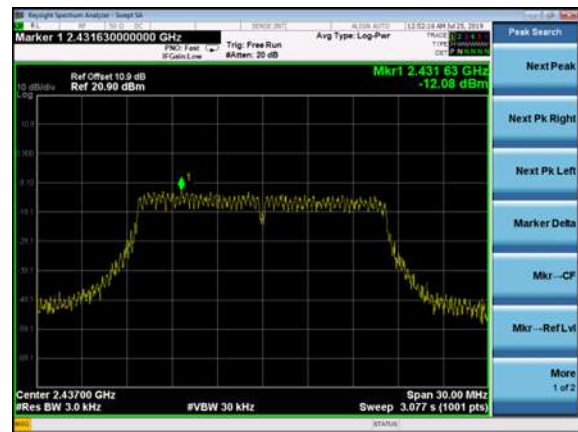
Modulation Mode: 802.11g
CH01



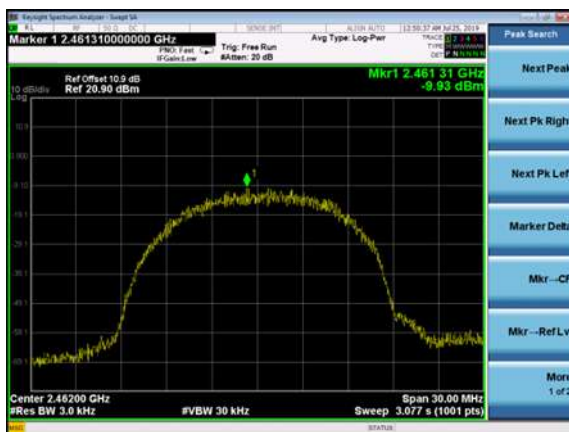
CH06



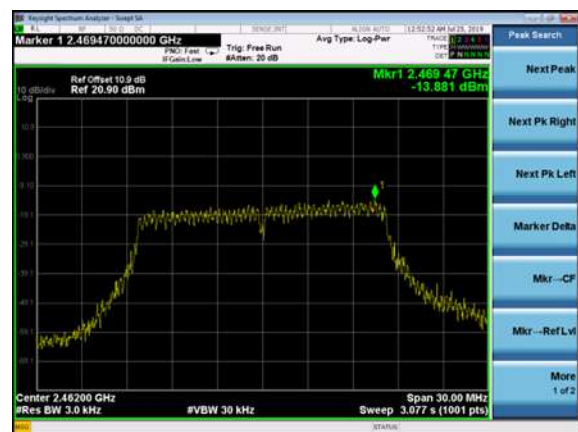
CH06

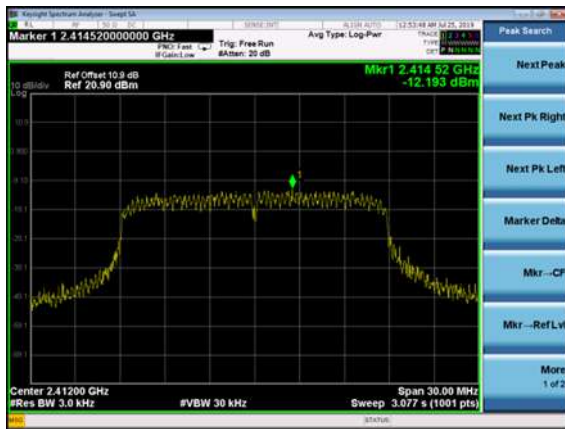
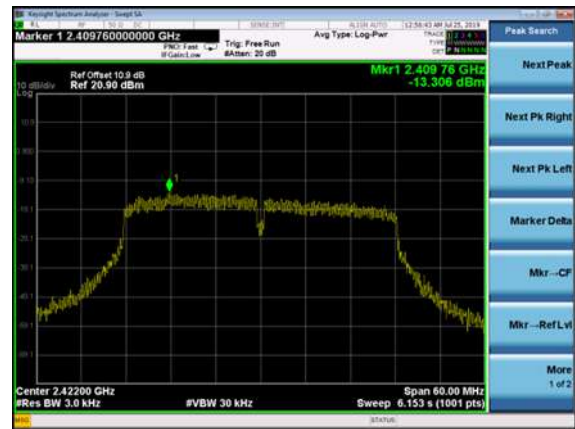


CH11

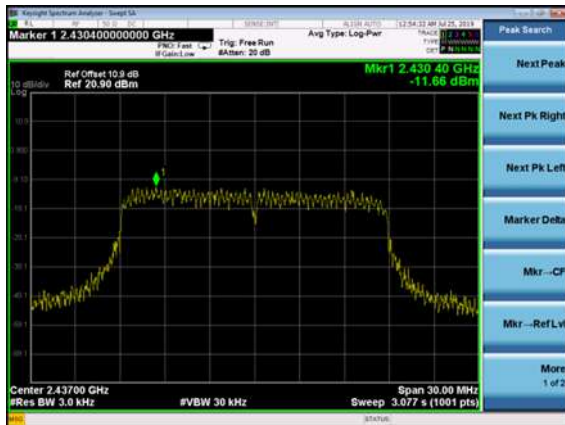


CH11

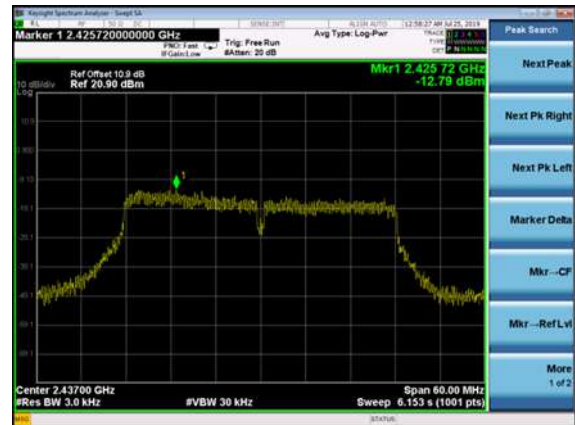


Modulation Mode: 802.11n HT20
CH01Modulation Mode: 802.11n HT40
CH03

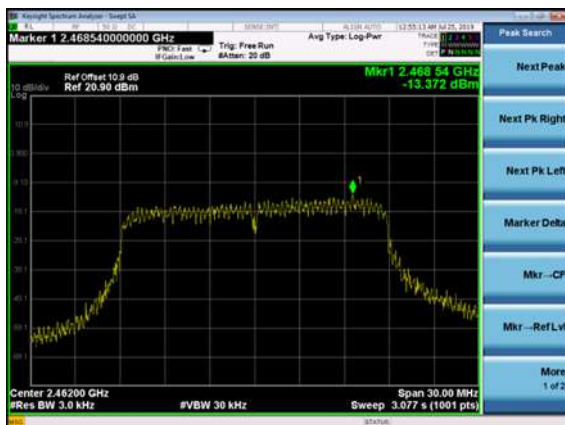
CH06



CH06



CH11



CH09

