



FCC RADIO TEST REPORT

Applicant : Ubiquiti Inc.

Address : 685 Third Avenue, New York, New York
10017 USA

Equipment : UniFi Network Power Strip

Model No. : USP-Strip

Trade Name : UBIQUITI

FCC ID : SWX-USPS

I HEREBY CERTIFY THAT :

The sample was received on Dec. 09, 2020 and the testing was completed on Dec. 28, 2021 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





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History of this test report

Report No.	Issued Date	Description
TEFI2003325	Jul. 03, 2020	Original
TEFI2012105	Jan. 04, 2022	RF-module on board: Change PCB board version.(remain same RF chip and circuit)



1. Summary of Test Procedure and Test Results

1.1 Applicable Standards

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(b)	. Maximum Peak and Average Output Power	PASS

*The lab has reduced the uncertainty risk factor from test equipment, environment and staff technicians which according to the standard on contract. Therefore, the test result will only be determined by standard requirement.



2. Test Configuration of Equipment under Test

2.1 Feature of Equipment

Operation Frequency Range	802.11b/g/n: 2400-2483.5MHz
Center Frequency Range	802.11b/g/n: 2412-2462MHz
Modulation Type	802.11b: CCK, DQPSK, DBPSK 802.11g/n: BPSK, QPSK, 16QAM, 64QAM
Modulation Technology	DSSS, OFDM
Data Rate	802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS7, HT20
Antenna Type	PCB Antenna
Antenna Gain	0dBi

Note: For more details, please refer to the User's manual of the EUT.

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	---	---

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, "EspRFtestTool ver2.0" under Windows OS system 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) , 120V/60 Hz
2	802.11g (6Mbps) , 120V/60 Hz
3	802.11n HT20 (6.5Mbps) , 120V/60 Hz
4	802.11b (1Mbps) , 240V/60 Hz
5	802.11g (6Mbps) , 240V/60 Hz
6	802.11n HT20 (6.5Mbps) , 240V/60 Hz
caused "Test Mode 3" generated the worst case, it was reported as the final data.	
Radiation Emissions (9KHz ~30MHz & 30MHz ~ 1GHz)	
Test Mode	Operating Description
1	802.11b (1Mbps), 120V/60 Hz
2	802.11g (6Mbps), 120V/60 Hz
3	802.11n HT20 (6.5Mbps) , 120V/60 Hz
caused "Test Mode 3" generated the worst case, they were reported as the final data.	
Radiation Emissions (1GHz ~ 25GHz)	
Test Mode	Operating Description
1	802.11b (1Mbps) , 120V/60 Hz
2	802.11g (6Mbps) , 120V/60 Hz
3	802.11n HT20 (6.5Mbps) , 120V/60 Hz
caused "Test Mode 1~3" generated the worst case, they were reported as the final data.	

Modulation Type	TX CONFIGURATION
802.11b	1TX
802.11g	1TX
802.11n HT20	1TX

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	Test Period	Environmental Conditions	Tested By
RF Conducted	RFCON01-NK	2021/03/26	23.9℃ / 59%	Nick Guan
Radiated Emissions (Below 1GHz)	3M02-NK	2021/12/23	22℃ / 51%	Dian Chen
Radiated Emissions (Above 1GHz)	3M02-NK	2020/12/29~2021/03/15	20~22℃ / 49~50%	Leon Huang Nick Guan
AC Power Line Conducted Emission	CON01-NK	2021/12/28	15℃ / 46%	Nick Guan



2.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Measurement Item	Uncertainty
AC Power Line Conduction(150K~30MHz)	$\pm 3.12\text{dB}$
Radiated Spurious Emission(9KHz~30MHz)	$\pm 3.4\text{dB}$
Radiated Spurious Emission(30MHz~1GHz)	$\pm 5.6\text{dB}$
Radiated Spurious Emission(1GHz~25GHz)	$\pm 6.597\text{dB}$
Conducted Spurious Emission	$\pm 2.022\text{dB}$
6dB Bandwidth	$\pm 4.482\%$
20dB Bandwidth	$\pm 4.40\%$
Occupied Bandwidth	$\pm 4.40\%$
Peak Output Power(Conducted Power Meter)	$\pm 1.02\text{dB}$
Dwell Time	$\pm 3.49\%$
Power Spectral Density	$\pm 1.963\text{dB}$
Duty Cycle	$\pm 3.47\%$



3. Test Equipment and Ancillaries Used for Tests

Test Item	Radiated Emissions (Below 1GHz)				
Test Site	Semi Anechoic Room(3M02-NK)				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Bilog Antenna	Schwarzbeck	VULB9168	369	2021/04/26	2022/04/25
Active Loop Antenna	EMCO	6507	40855	2021/06/10	2022/06/09
EMI Receiver	ROHDE & SCHWARZ	ESCI	101423	2021/06/30	2022/06/29
Spectrum Analyzer	ROHDE & SCHWARZ	FSV 40-N	102151	2021/08/06	2022/08/05
Preamplifier	EM Electronics corp.	EM330	60660	2021/03/18	2022/03/17
Cable-3in1(30M-1G)	HARBOUR INDUSTRIES	LL142	CCE1315	2021/04/12	2022/04/11
Cable-0.5m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	28420/2	2021/04/03	2022/04/02
Cable-3m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	MY2608/2	2021/04/09	2022/04/08
Cable-6m(9k~300M)	NA	CFD300-NL	NA	2021/03/15	2022/03/14
E3	AUDIX	v8.2014-8-6	RK-000529	NA	NA

Test Item	Radiated Emissions (Above 1GHz)				
Test Site	Semi Anechoic Room(3M02-NK)				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Horn Antenna	EMCO	3115	31601	2020/10/16	2021/10/15
Horn Antenna	EMCO	3116	31974	2020/09/24	2021/09/23
Spectrum Analyzer	ROHDE & SCHWARZ	FSV 40-N	102151	2020/08/03	2021/08/02
Preamplifier	Agilent	8449B	3008A01954	2020/03/16	2021/03/15
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2020/11/06	2021/11/05
Cable-0.5m(1G-18G)	HUBER SUHNER	SUCOFLEX 104	805443/4	2020/05/27	2021/05/26
Cable-3m(1G-18G)	HUBER SUHNER	SUCOFLEX 104	805796/4	2020/05/27	2021/05/26
Cable-8m(1G-18G)	HUBER SUHNER	SUCOFLEX 104	805795/4	2020/05/27	2021/05/26
Cable-0.5m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	28420/2	2020/04/01	2021/03/31
Cable-3m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	MY2608/2	2020/04/01	2021/03/31
Cable-0.5m(1G-40G)	Rapidtek	40GHZ 50CM	38MS-38MS50314	2020/04/09	2021/04/08
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
Spectrum Analyzer	ROHDE & SCHWARZ	FSV 40-N	101329	2020/07/07	2021/07/06
Bluetooth Tester	ROHDE & SCHWARZ	CBT	101133	2020/04/07	2021/04/06
CAX Signal Analyzer	KEYSIGHT	N9000B	MY57100339	2020/12/25	2021/12/24
Attenuator	KEYSIGHT	8491B	MY39250703	2020/04/17	2021/04/16
TEMP & HUMIDITY CHAMBER	T-MACHINE	TMJ-9712	T-12-040111	2020/08/25	2021/08/24
Power Meter	Anritsu	ML2495A	1224005	2020/04/17	2021/04/16
Power Sensor	Anritsu	MA2411B	1207295	2020/04/17	2021/04/16

Test Item	AC Power Line Conducted Emission				
Test Site	CON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
EMI Receiver	ROHDE & SCHWARZ	ESCI	101402	2021/03/12	2022/03/11
Line Impedance Stabilization Network	Schwarzbeck	NSLK 8127	8127-568	2021/06/02	2022/06/01
Pulse Limiter	ROHDE & SCHWARZ	ESH3-Z2	101934	2021/03/10	2022/03/09
Cable-6m(9k~300M)	NA	CFD300-NL	NA	2021/03/15	2022/03/14
E3	AUDIX	v8.2014-8-6	RK-000531	NA	NA



4. Antenna Requirements

4.1 Antenna Construction and Directional Gain

Antenna Type	PCB Antenna
Antenna Gain	0 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 C63.10-2013. 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

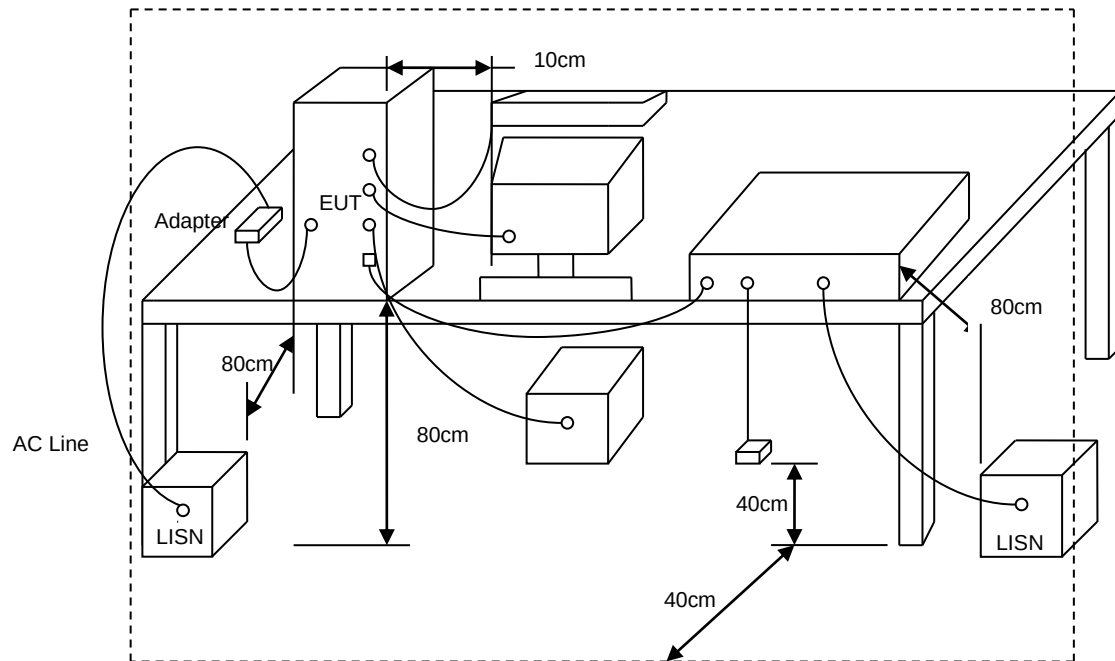
*Decreases with the logarithm of the frequency.

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.



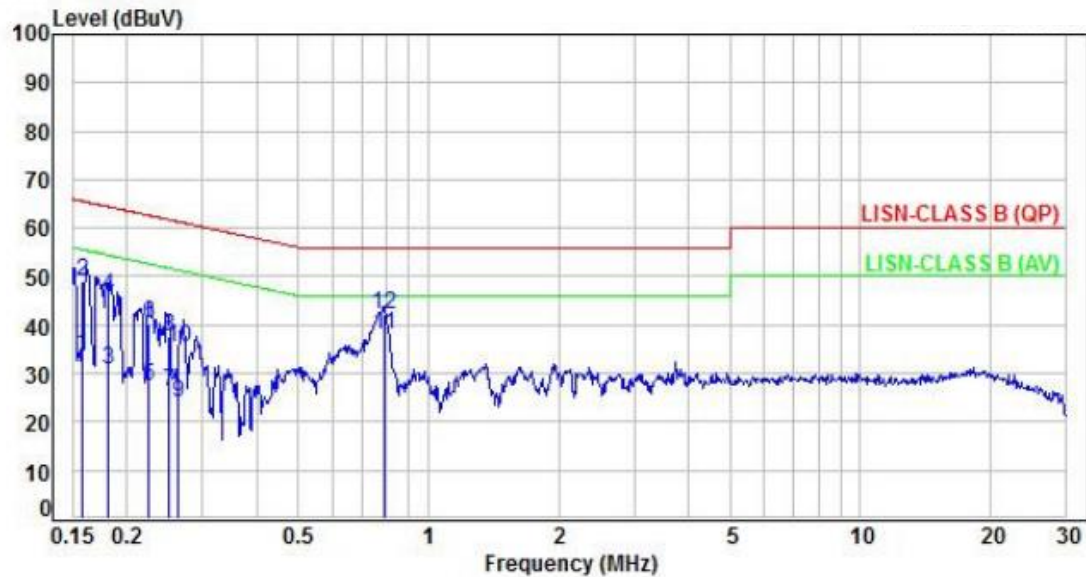
5.3 Typical Test Setup





5.4 Test Result and Data

Power	: AC 120V / 60Hz	Pol/Phase	: LINE
Test Mode	: Mode 3		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.16	9.97	23.92	33.89	55.58	-21.69	Average	P
2	0.16	9.97	39.24	49.21	65.58	-16.37	QP	P
3	0.18	9.97	20.93	30.90	54.47	-23.57	Average	P
4	0.18	9.97	35.92	45.89	64.47	-18.58	QP	P
5	0.23	9.97	17.58	27.55	52.62	-25.07	Average	P
6	0.23	9.97	30.32	40.29	62.62	-22.33	QP	P
7	0.25	9.97	16.34	26.31	51.75	-25.44	Average	P
8	0.25	9.97	27.67	37.64	61.75	-24.11	QP	P
9	0.26	9.97	13.99	23.96	51.32	-27.36	Average	P
10	0.26	9.97	25.23	35.20	61.32	-26.12	QP	P
11	0.79	10.03	28.08	38.11	46.00	-7.89	Average	P
12	0.79	10.03	32.27	42.30	56.00	-13.70	QP	P

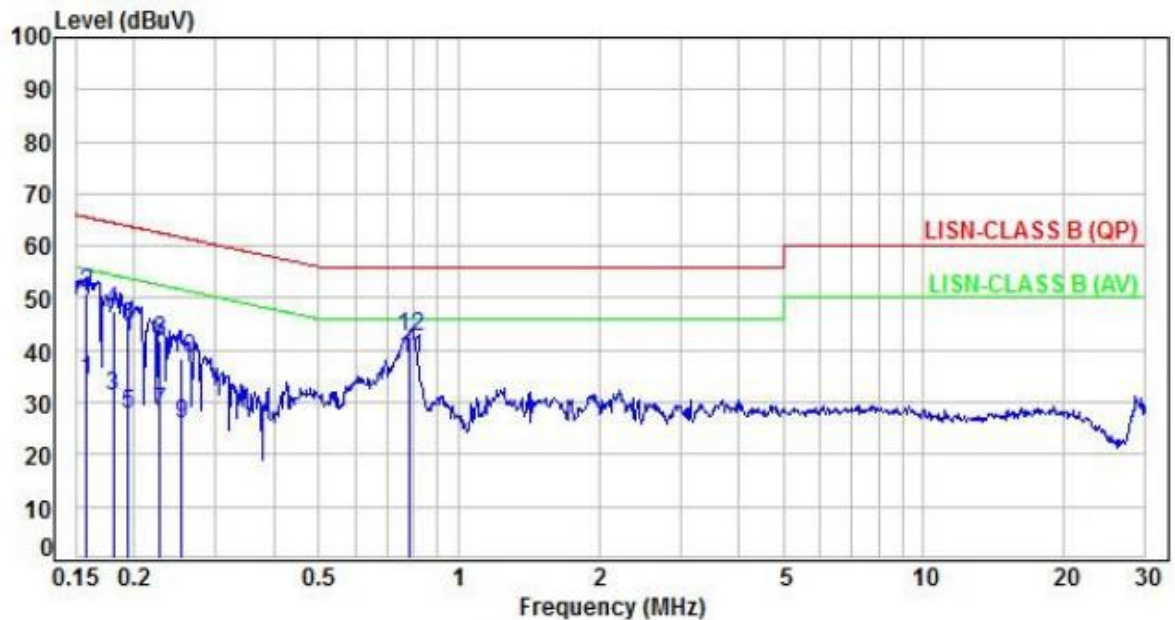
Note: Level=Reading+Factor

Margin=Level-Limit

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



Power	: AC 120V / 60Hz	Pol/Phase	: NEUTRAL
Test Mode	: Mode 3		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.16	9.97	24.30	34.27	55.59	-21.32	Average	P
2	0.16	9.97	41.10	51.07	65.59	-14.52	QP	P
3	0.18	9.97	21.37	31.34	54.47	-23.13	Average	P
4	0.18	9.97	37.71	47.68	64.47	-16.79	QP	P
5	0.19	9.97	17.95	27.92	53.87	-25.95	Average	P
6	0.19	9.97	34.57	44.54	63.87	-19.33	QP	P
7	0.23	9.97	18.14	28.11	52.57	-24.46	Average	P
8	0.23	9.97	31.87	41.84	62.57	-20.73	QP	P
9	0.25	9.97	16.05	26.02	51.63	-25.61	Average	P
10	0.25	9.97	28.45	38.42	61.63	-23.21	QP	P
11	0.79	10.02	28.50	38.52	46.00	-7.48	Average	P
12	0.79	10.02	32.68	42.70	56.00	-13.30	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

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. 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.
- e. 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.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. 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.
- h. 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.
- i. "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.

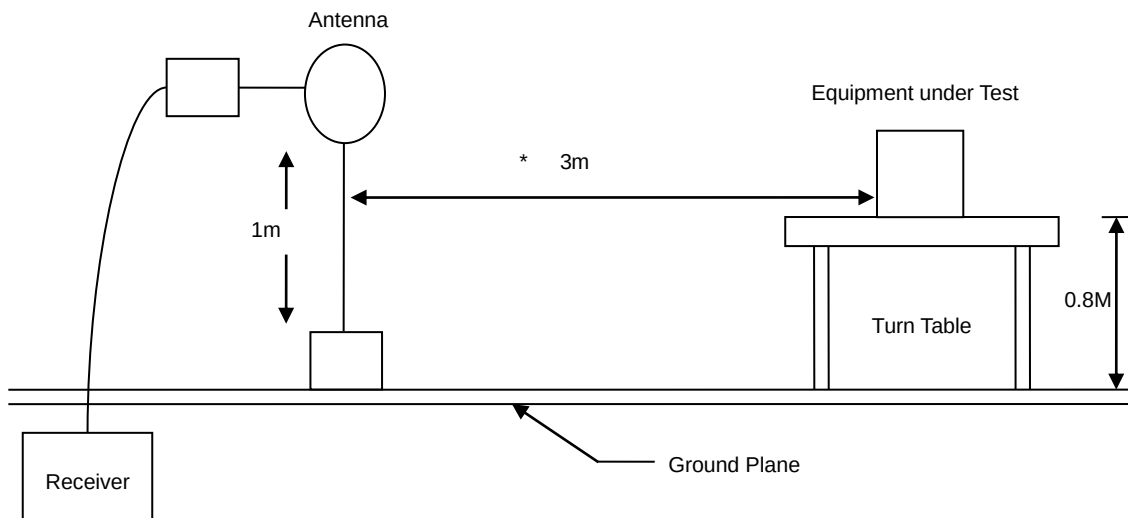
Note:

1. The supporting fixture shall permit orientation of the EUT in each of three orthogonal axis positions such that emissions from the EUT are maximized.
(Z-AXIS is the worst.)

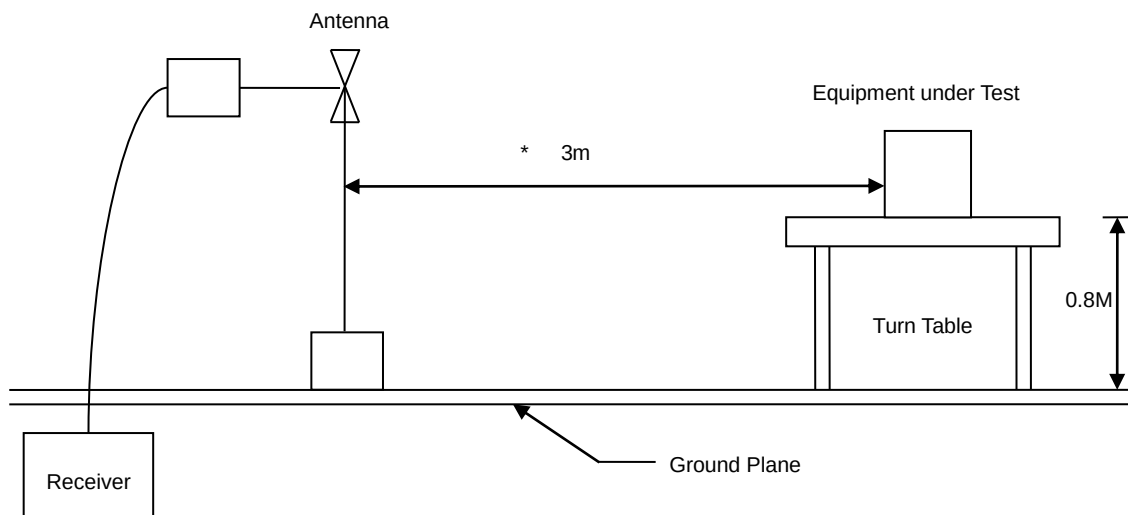


6.3 Typical Test Setup

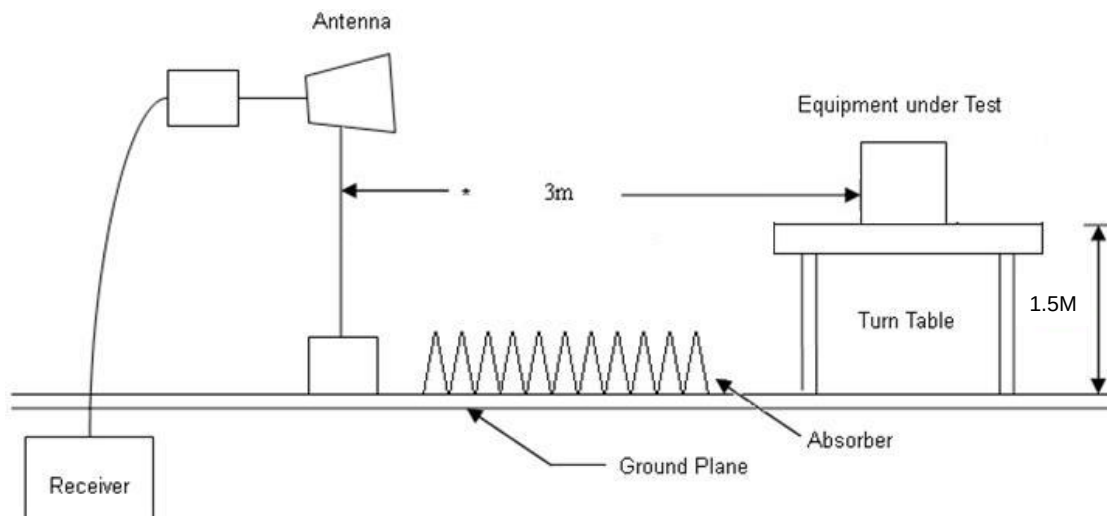
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup



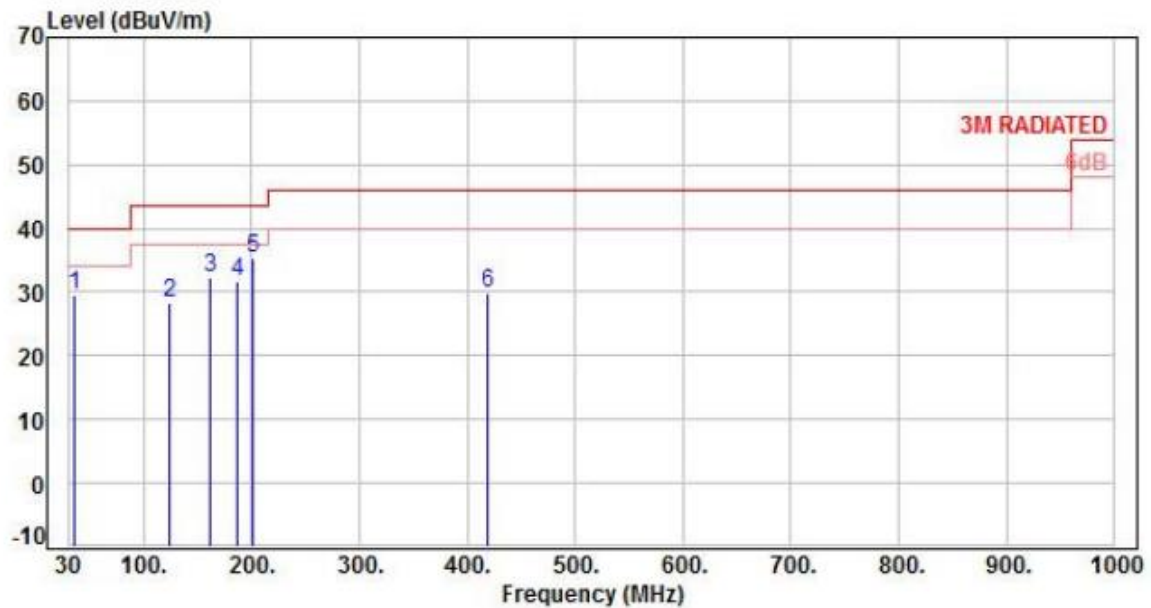


6.4 Test Result and Data (9KHz ~ 30MHz)

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 3		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	35.82	-12.81	42.23	29.42	40.00	-10.58	Peak	400	360	P
2	123.12	-13.68	41.90	28.22	43.50	-15.28	Peak	400	360	P
3	160.95	-11.70	43.84	32.14	43.50	-11.36	Peak	400	360	P
4	186.17	-13.55	45.34	31.79	43.50	-11.71	Peak	400	360	P
5	201.69	-13.53	48.89	35.36	43.50	-8.14	Peak	400	360	P
6	418.00	-7.50	37.43	29.93	46.00	-16.07	Peak	400	360	P

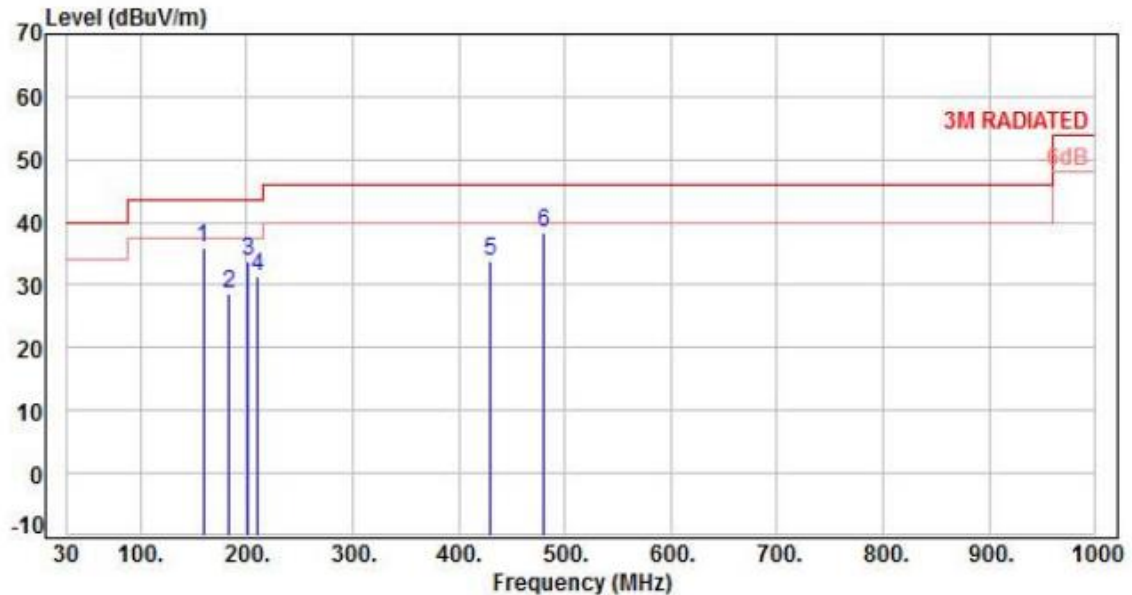
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



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



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	159.01	-11.51	47.50	35.99	43.50	-7.51	Peak	400	360	P
2	183.26	-13.30	41.99	28.69	43.50	-14.81	Peak	400	360	P
3	201.69	-13.53	47.25	33.72	43.50	-9.78	Peak	400	360	P
4	210.42	-13.88	45.37	31.49	43.50	-12.01	Peak	400	360	P
5	429.64	-7.00	40.69	33.69	46.00	-12.31	Peak	400	360	P
6	480.08	-6.09	44.56	38.47	46.00	-7.53	Peak	400	360	P

Note: Level=Reading+Factor

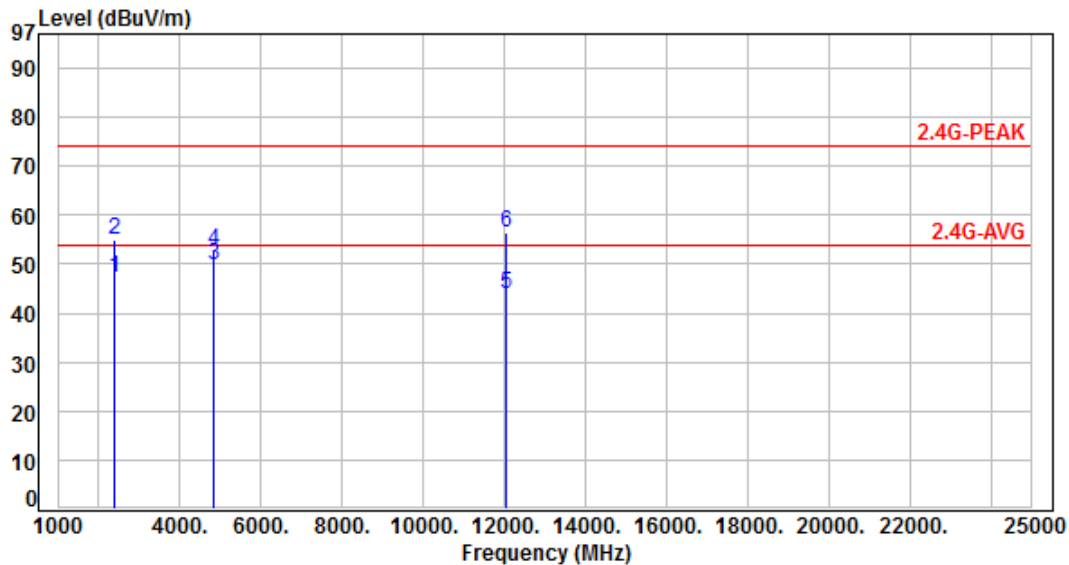
Margin=Level-Limit

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	-2.89	50.09	47.20	54.00	-6.80	Average	100	60	P
2	2390.00	-2.89	57.82	54.93	74.00	-19.07	Peak	100	60	P
3	4824.00	4.73	45.02	49.75	54.00	-4.25	Average	110	40	P
4	4824.00	4.73	48.11	52.84	74.00	-21.16	Peak	110	40	P
5	12060.00	14.70	29.36	44.06	54.00	-9.94	Average	100	75	P
6	12060.00	14.70	41.80	56.50	74.00	-17.50	Peak	100	75	P

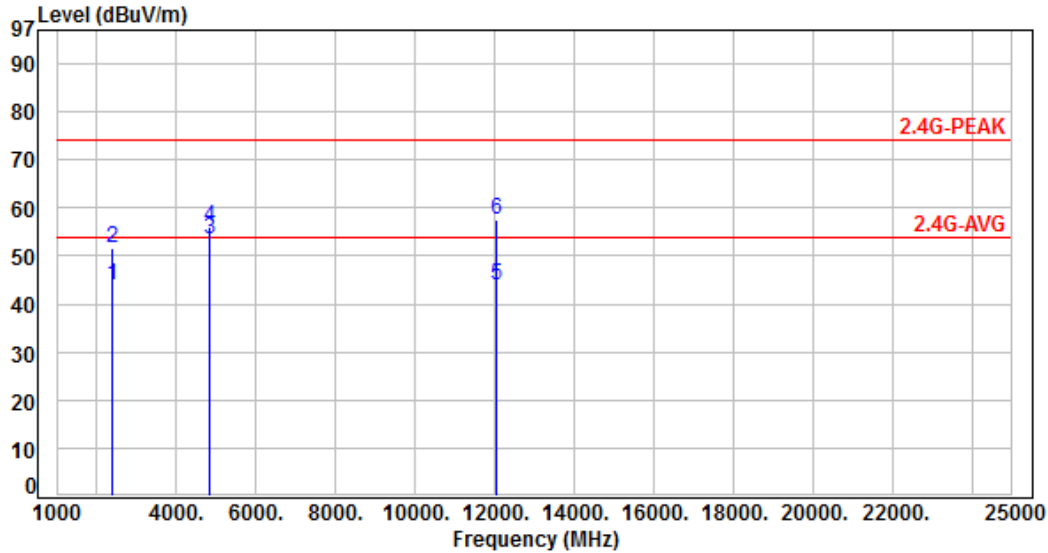
Note: Level=Reading+Factor

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	-2.89	46.69	43.80	54.00	-10.20	Average	100	60	P
2	2390.00	-2.89	54.68	51.79	74.00	-22.21	Peak	100	60	P
3	4824.00	4.73	48.81	53.54	54.00	-0.46	Average	100	153	P
4	4824.00	4.73	51.27	56.00	74.00	-18.00	Peak	100	153	P
5	12060.00	14.70	29.25	43.95	54.00	-10.05	Average	100	280	P
6	12060.00	14.70	42.91	57.61	74.00	-16.39	Peak	100	280	P

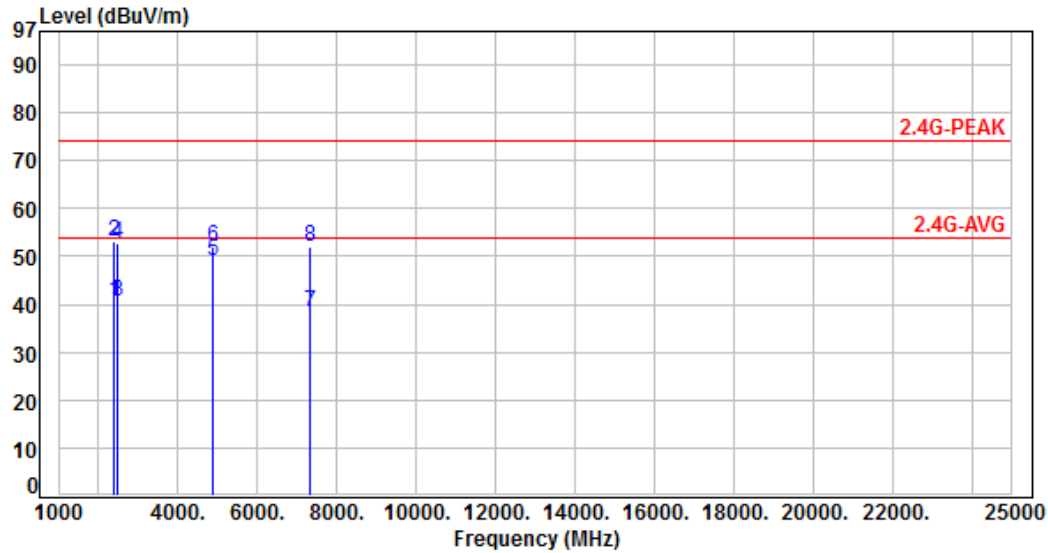
Note: Level=Reading+Factor

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	-2.89	43.53	40.64	54.00	-13.36	Average	100	50	P
2	2390.00	-2.89	56.09	53.20	74.00	-20.80	Peak	100	50	P
3	2483.50	-2.66	43.17	40.51	54.00	-13.49	Average	100	50	P
4	2483.50	-2.66	55.51	52.85	74.00	-21.15	Peak	100	50	P
5	4874.00	4.89	44.02	48.91	54.00	-5.09	Average	100	50	P
6	4874.00	4.89	47.28	52.17	74.00	-21.83	Peak	100	50	P
7	7311.00	9.81	28.52	38.33	54.00	-15.67	Average	100	75	P
8	7311.00	9.81	42.30	52.11	74.00	-21.89	Peak	100	75	P

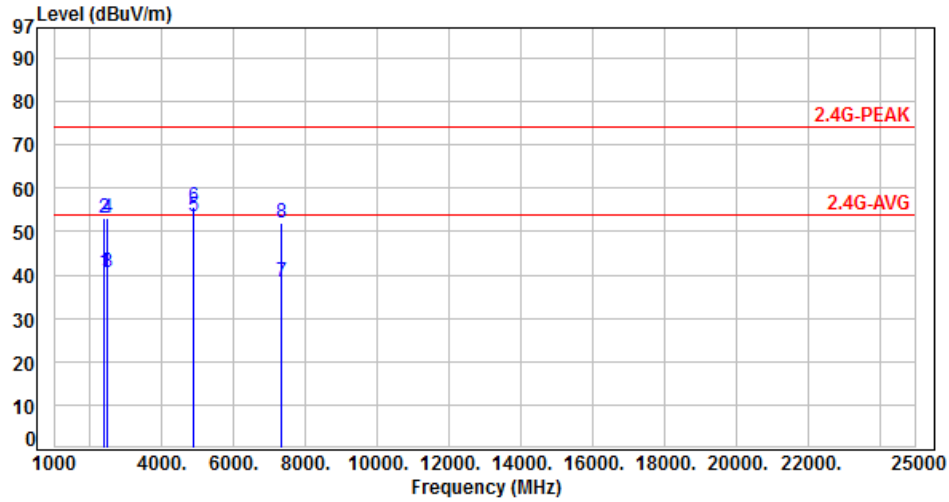
Note: Level=Reading+Factor

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	-2.89	43.40	40.51	54.00	-13.49	Average	100	65	P
2	2390.00	-2.89	56.01	53.12	74.00	-20.88	Peak	100	65	P
3	2483.50	-2.66	43.24	40.58	54.00	-13.42	Average	100	65	P
4	2483.50	-2.66	55.84	53.18	74.00	-20.82	Peak	100	65	P
5	4874.00	4.89	48.55	53.44	54.00	-0.56	Average	110	153	P
6	4874.00	4.89	50.94	55.83	74.00	-18.17	Peak	110	153	P
7	7311.00	9.81	28.68	38.49	54.00	-15.51	Average	100	280	P
8	7311.00	9.81	42.16	51.97	74.00	-22.03	Peak	100	280	P

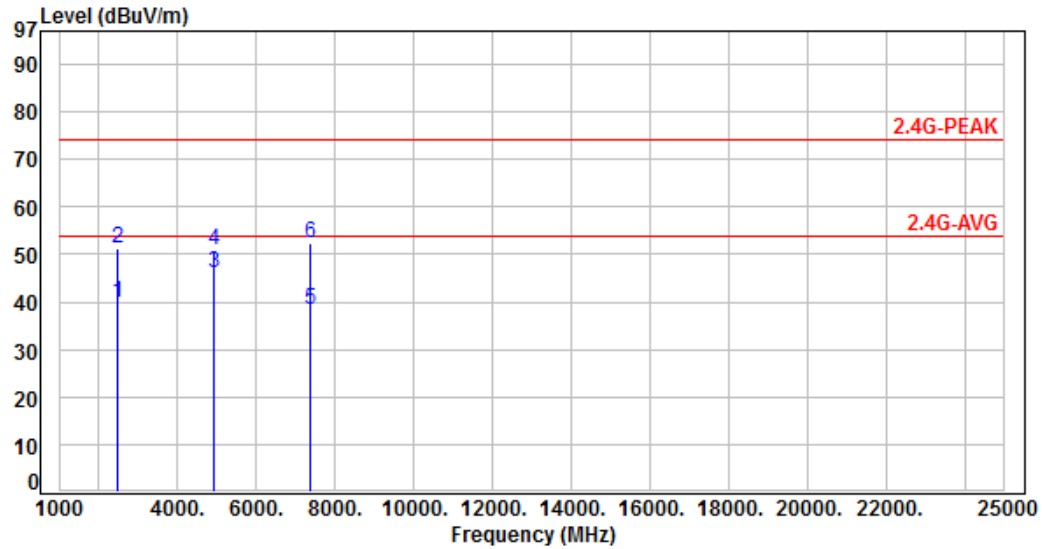
Note: Level=Reading+Factor

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	-2.66	42.66	40.00	54.00	-14.00	Average	100	10	P
2	2483.50	-2.66	54.11	51.45	74.00	-22.55	Peak	100	10	P
3	4924.00	5.10	40.98	46.08	54.00	-7.92	Average	100	45	P
4	4924.00	5.10	45.65	50.75	74.00	-23.25	Peak	100	45	P
5	7386.00	9.94	28.46	38.40	54.00	-15.60	Average	100	75	P
6	7386.00	9.94	42.58	52.52	74.00	-21.48	Peak	100	75	P

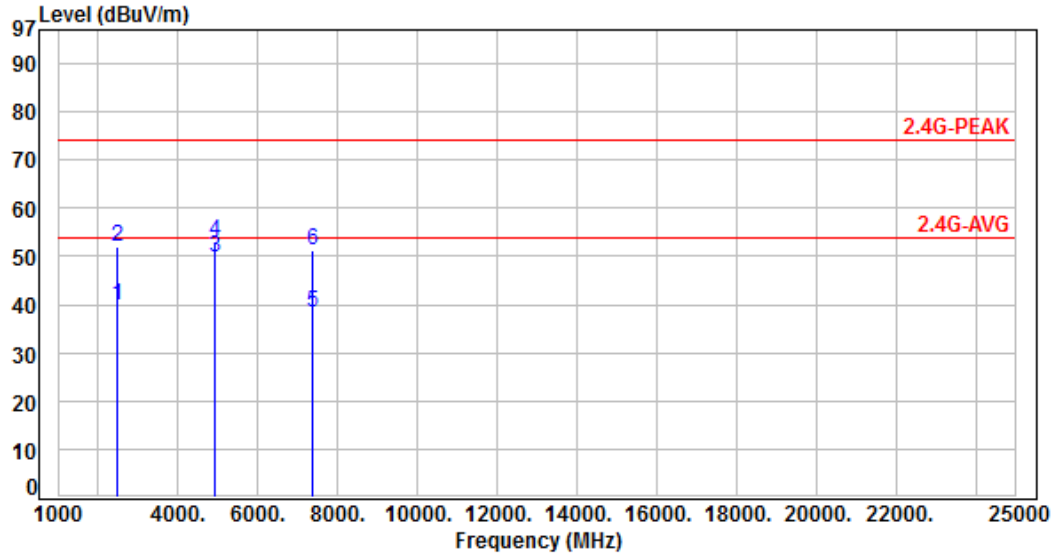
Note: Level=Reading+Factor

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	-2.66	42.68	40.02	54.00	-13.98	Average	112	128	P
2	2483.50	-2.66	54.65	51.99	74.00	-22.01	Peak	112	128	P
3	4924.00	5.10	44.55	49.65	54.00	-4.35	Average	110	153	P
4	4924.00	5.10	48.17	53.27	74.00	-20.73	Peak	110	153	P
5	7386.00	9.94	28.52	38.46	54.00	-15.54	Average	100	280	P
6	7386.00	9.94	41.39	51.33	74.00	-22.67	Peak	100	280	P

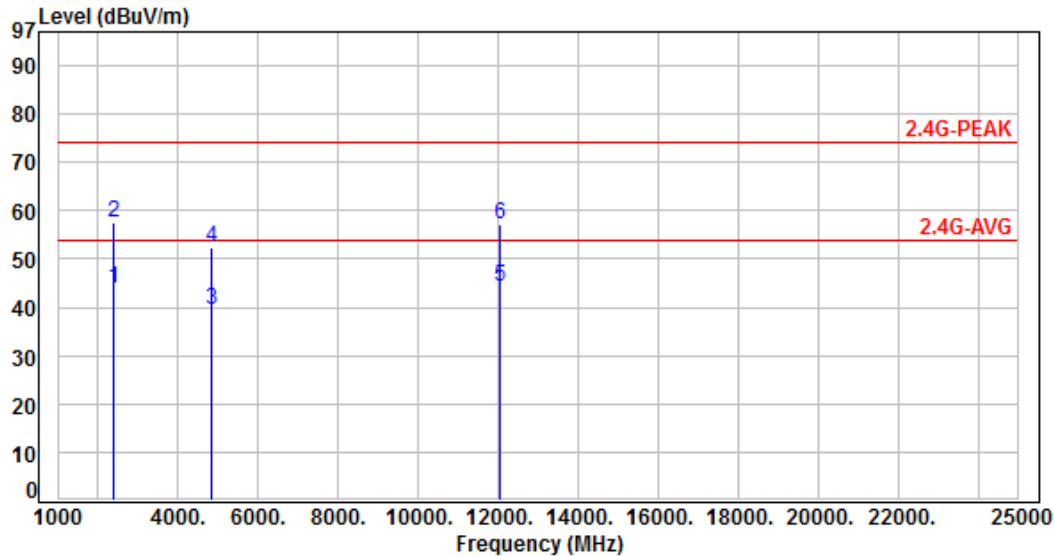
Note: Level=Reading+Factor

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	-2.89	46.71	43.82	54.00	-10.18	Average	113	154	P
2	2390.00	-2.89	60.32	57.43	74.00	-16.57	Peak	113	154	P
3	4824.00	4.73	34.79	39.52	54.00	-14.48	Average	117	242	P
4	4824.00	4.73	47.57	52.30	74.00	-21.70	Peak	117	242	P
5	12060.00	14.70	29.58	44.28	54.00	-9.72	Average	100	72	P
6	12060.00	14.70	42.54	57.24	74.00	-16.76	Peak	100	72	P

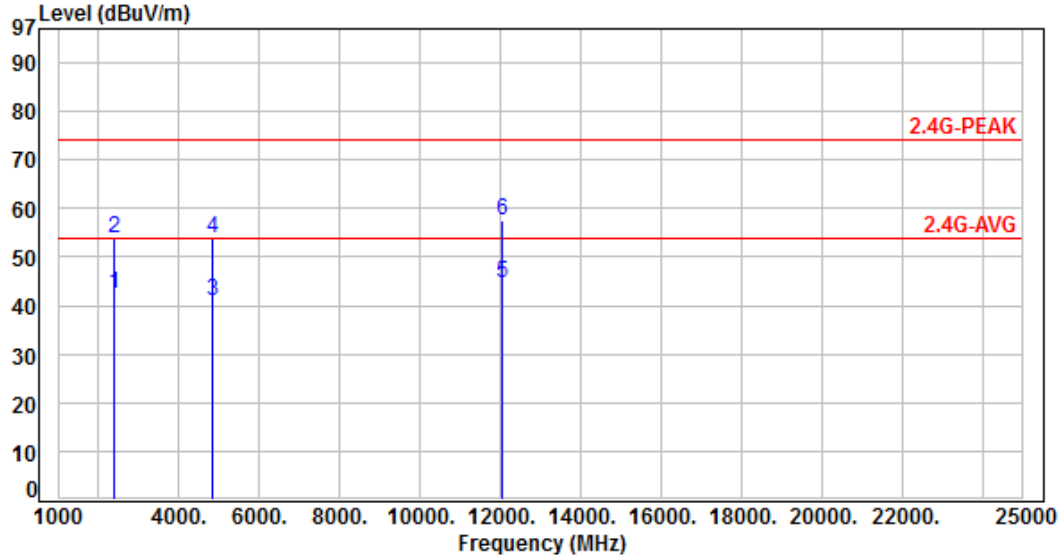
Note: Level=Reading+Factor

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	-2.89	45.36	42.47	54.00	-11.53	Average	132	54	P
2	2390.00	-2.89	56.87	53.98	74.00	-20.02	Peak	132	54	P
3	4824.00	4.73	36.07	40.80	54.00	-13.20	Average	100	142	P
4	4824.00	4.73	48.94	53.67	74.00	-20.33	Peak	100	142	P
5	12060.00	14.70	29.79	44.49	54.00	-9.51	Average	100	273	P
6	12060.00	14.70	42.65	57.35	74.00	-16.65	Peak	100	273	P

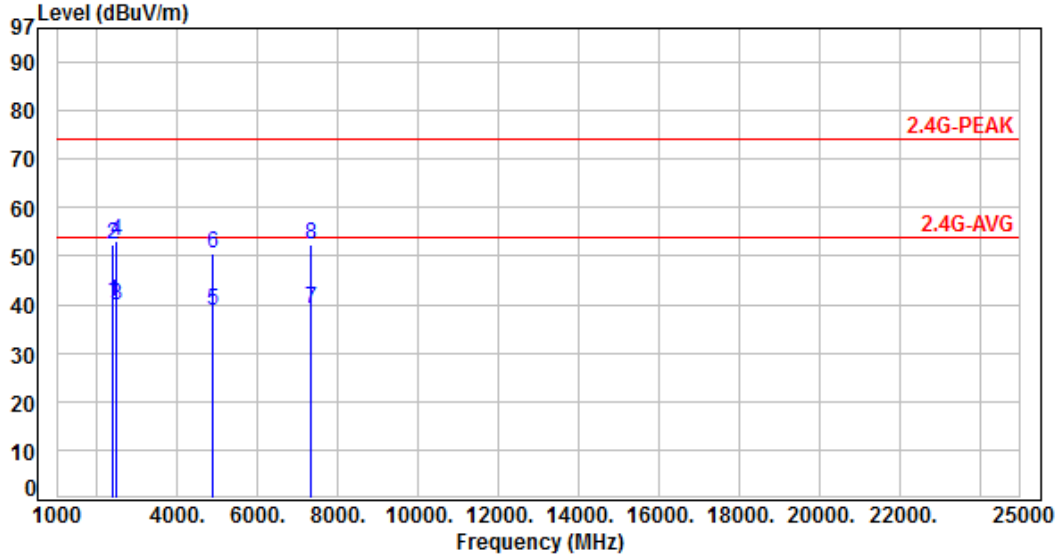
Note: Level=Reading+Factor

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	-2.89	43.41	40.52	54.00	-13.48	Average	140	137	P
2	2390.00	-2.89	55.44	52.55	74.00	-21.45	Peak	140	137	P
3	2483.50	-2.66	42.59	39.93	54.00	-14.07	Average	140	137	P
4	2483.50	-2.66	55.73	53.07	74.00	-20.93	Peak	140	137	P
5	4874.00	4.89	33.67	38.56	54.00	-15.44	Average	111	245	P
6	4874.00	4.89	45.55	50.44	74.00	-23.56	Peak	111	245	P
7	7311.00	9.81	29.28	39.09	54.00	-14.91	Average	100	65	P
8	7311.00	9.81	42.61	52.42	74.00	-21.58	Peak	100	65	P

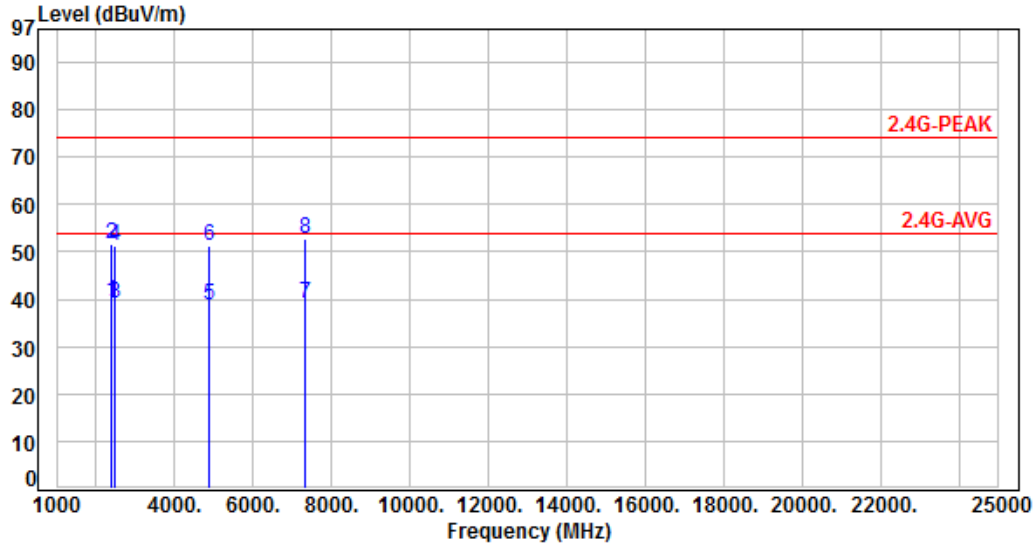
Note: Level=Reading+Factor

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	-2.89	42.40	39.51	54.00	-14.49	Average	102	186	P
2	2390.00	-2.89	54.39	51.50	74.00	-22.50	Peak	102	186	P
3	2483.50	-2.66	41.71	39.05	54.00	-14.95	Average	102	186	P
4	2483.50	-2.66	53.81	51.15	74.00	-22.85	Peak	102	186	P
5	4874.00	4.89	33.98	38.87	54.00	-15.13	Average	108	147	P
6	4874.00	4.89	46.29	51.18	74.00	-22.82	Peak	108	147	P
7	7311.00	9.81	29.21	39.02	54.00	-14.98	Average	100	268	P
8	7311.00	9.81	43.02	52.83	74.00	-21.17	Peak	100	268	P

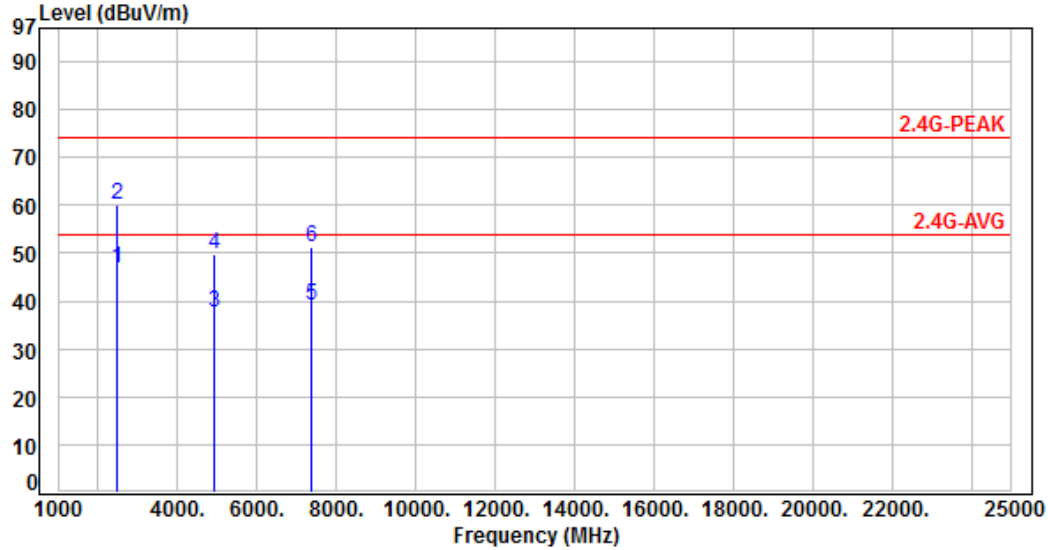
Note: Level=Reading+Factor

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	-2.66	49.61	46.95	54.00	-7.05	Average	118	164	P
2	2483.50	-2.66	62.90	60.24	74.00	-13.76	Peak	118	164	P
3	4924.00	5.10	32.63	37.73	54.00	-16.27	Average	133	241	P
4	4924.00	5.10	44.87	49.97	74.00	-24.03	Peak	133	241	P
5	7386.00	9.94	29.31	39.25	54.00	-14.75	Average	100	71	P
6	7386.00	9.94	41.32	51.26	74.00	-22.74	Peak	100	71	P

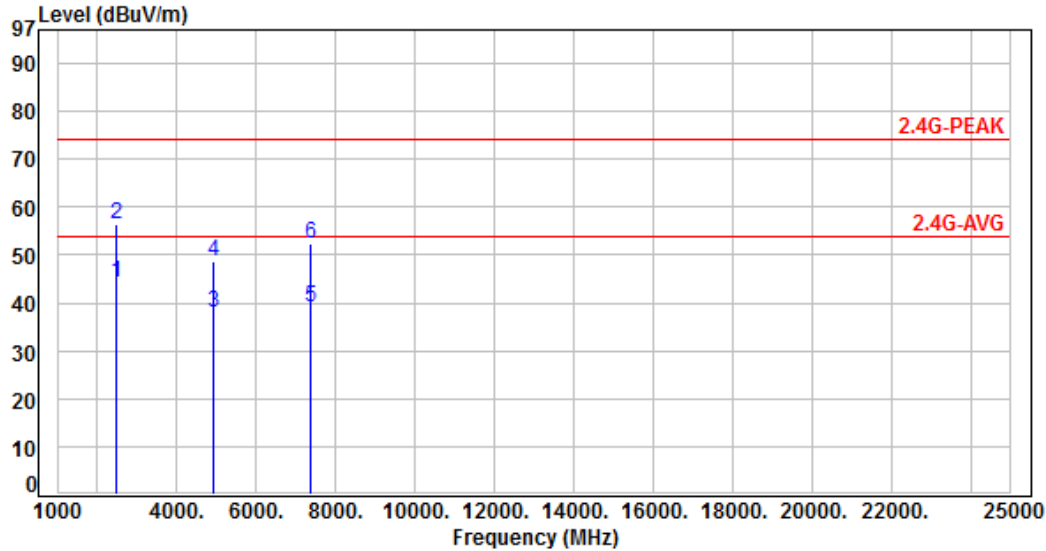
Note: Level=Reading+Factor

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	-2.66	47.07	44.41	54.00	-9.59	Average	123	127	P
2	2483.50	-2.66	59.02	56.36	74.00	-17.64	Peak	123	127	P
3	4924.00	5.10	32.79	37.89	54.00	-16.11	Average	107	151	P
4	4924.00	5.10	43.52	48.62	74.00	-25.38	Peak	107	151	P
5	7386.00	9.94	29.15	39.09	54.00	-14.91	Average	100	269	P
6	7386.00	9.94	42.25	52.19	74.00	-21.81	Peak	100	269	P

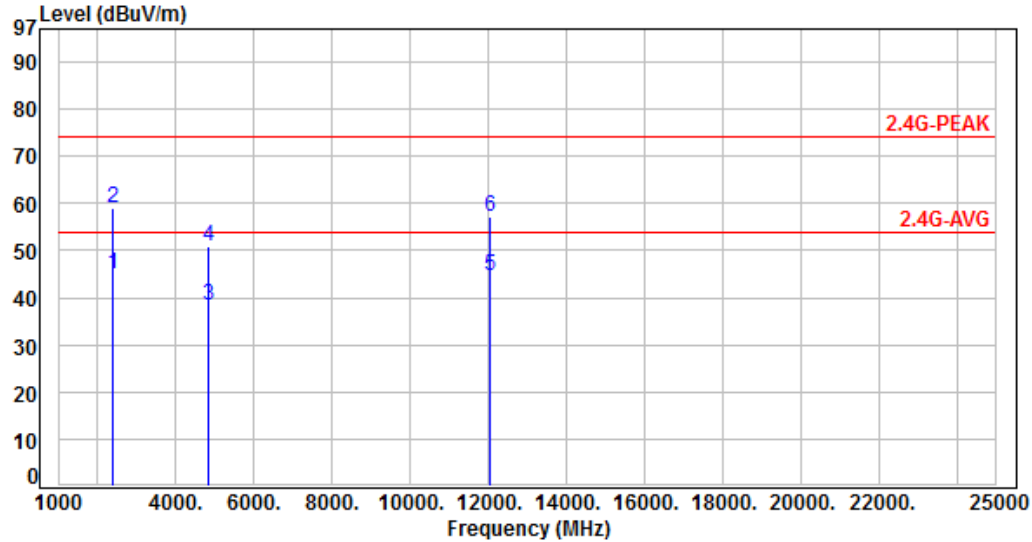
Note: Level=Reading+Factor

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	-2.89	47.71	44.82	54.00	-9.18	Average	100	50	P
2	2390.00	-2.89	61.87	58.98	74.00	-15.02	Peak	100	50	P
3	4824.00	4.73	33.55	38.28	54.00	-15.72	Average	112	46	P
4	4824.00	4.73	46.18	50.91	74.00	-23.09	Peak	112	46	P
5	12060.00	14.70	29.78	44.48	54.00	-9.52	Average	100	78	P
6	12060.00	14.70	42.34	57.04	74.00	-16.96	Peak	100	78	P

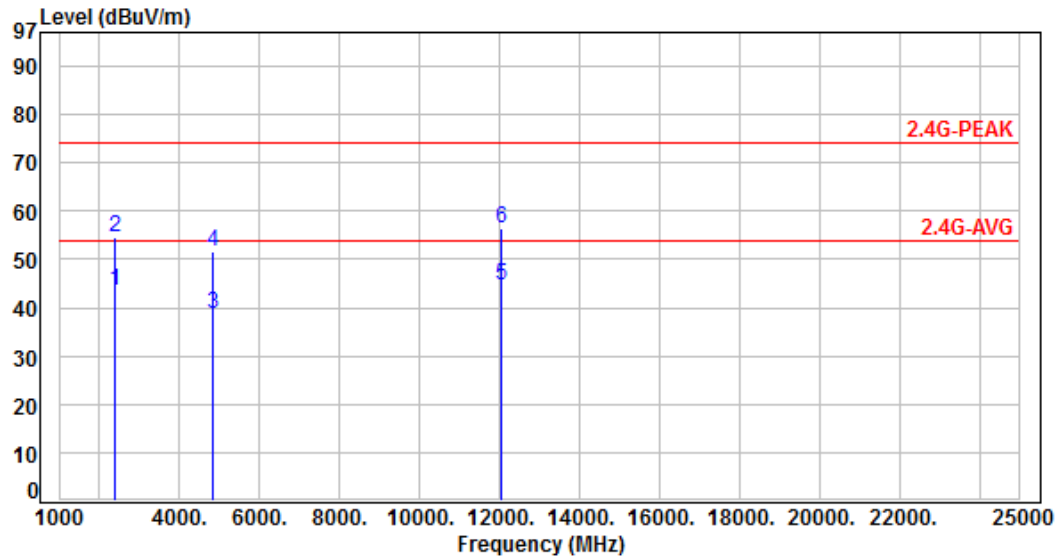
Note: Level=Reading+Factor

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	-2.89	46.44	43.55	54.00	-10.45	Average	100	155	P
2	2390.00	-2.89	57.61	54.72	74.00	-19.28	Peak	100	155	P
3	4824.00	4.73	34.12	38.85	54.00	-15.15	Average	105	147	P
4	4824.00	4.73	46.78	51.51	74.00	-22.49	Peak	105	147	P
5	12060.00	14.70	29.84	44.54	54.00	-9.46	Average	100	284	P
6	12060.00	14.70	41.89	56.59	74.00	-17.41	Peak	100	284	P

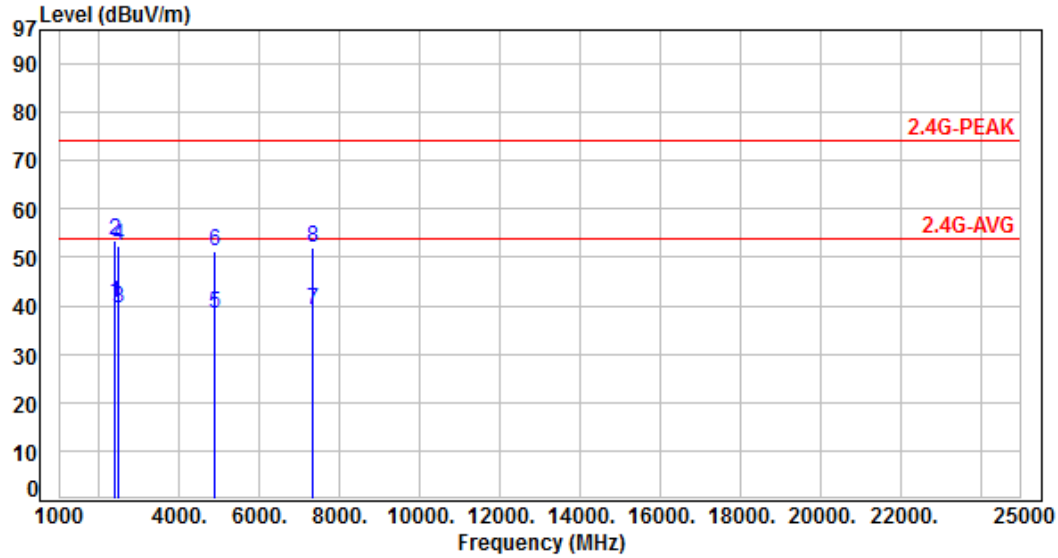
Note: Level=Reading+Factor

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	-2.89	43.50	40.61	54.00	-13.39	Average	142	138	P
2	2390.00	-2.89	56.22	53.33	74.00	-20.67	Peak	142	138	P
3	2483.50	-2.66	42.20	39.54	54.00	-14.46	Average	142	138	P
4	2483.50	-2.66	54.99	52.33	74.00	-21.67	Peak	142	138	P
5	4874.00	4.89	33.55	38.44	54.00	-15.56	Average	120	244	P
6	4874.00	4.89	46.24	51.13	74.00	-22.87	Peak	120	244	P
7	7311.00	9.81	29.24	39.05	54.00	-14.95	Average	100	68	P
8	7311.00	9.81	42.17	51.98	74.00	-22.02	Peak	100	68	P

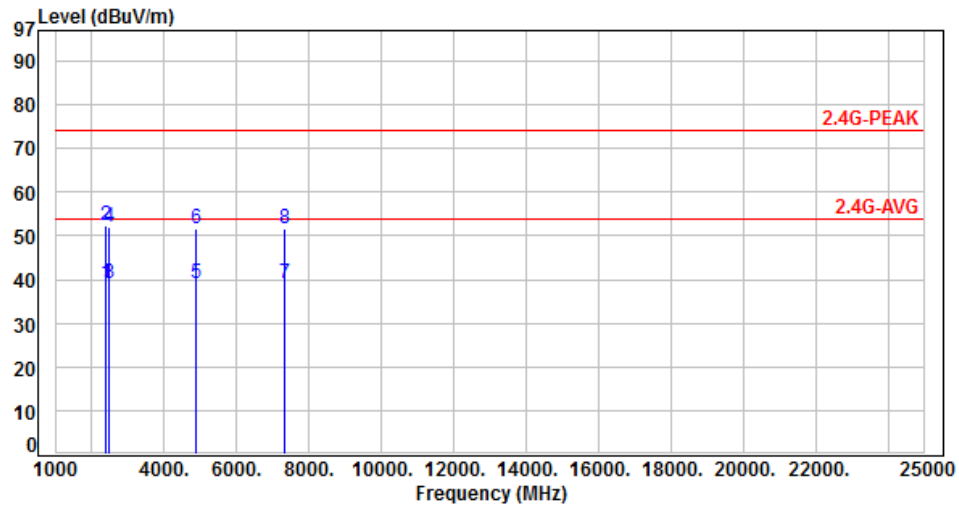
Note: Level=Reading+Factor

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	-2.89	42.13	39.24	54.00	-14.76	Average	104	188	P
2	2390.00	-2.89	55.16	52.27	74.00	-21.73	Peak	104	188	P
3	2483.50	-2.66	41.75	39.09	54.00	-14.91	Average	104	188	P
4	2483.50	-2.66	54.53	51.87	74.00	-22.13	Peak	104	188	P
5	4874.00	4.89	34.12	39.01	54.00	-14.99	Average	103	149	P
6	4874.00	4.89	46.58	51.47	74.00	-22.53	Peak	103	149	P
7	7311.00	9.81	29.27	39.08	54.00	-14.92	Average	100	270	P
8	7311.00	9.81	41.69	51.50	74.00	-22.50	Peak	100	270	P

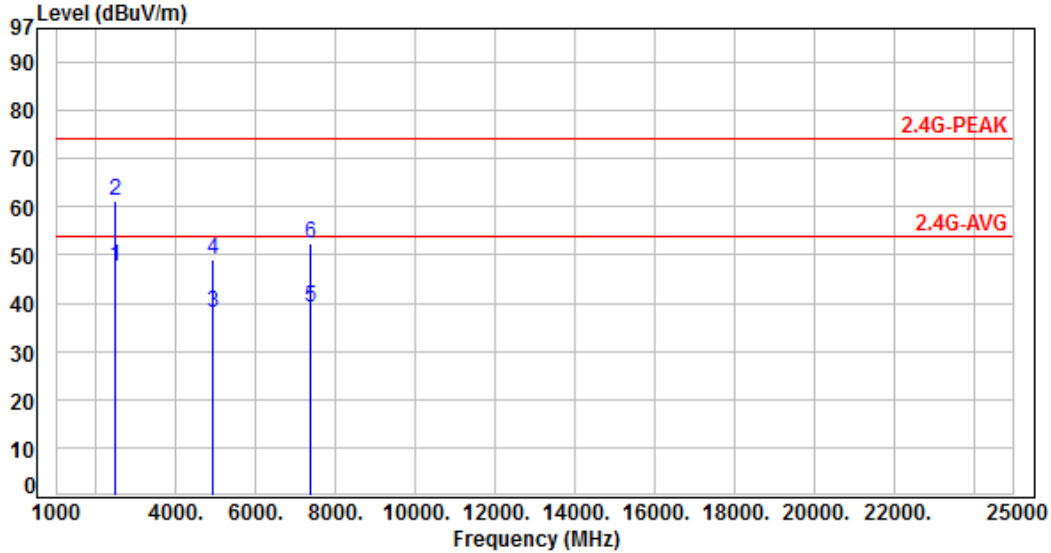
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	AC 120V / 60HZ	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, 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	-2.66	50.26	47.60	54.00	-6.40	Average	113	166	P
2	2483.50	-2.66	64.07	61.41	74.00	-12.59	Peak	113	166	P
3	4924.00	5.10	32.93	38.03	54.00	-15.97	Average	114	243	P
4	4924.00	5.10	44.07	49.17	74.00	-24.83	Peak	114	243	P
5	7386.00	9.94	29.22	39.16	54.00	-14.84	Average	100	73	P
6	7386.00	9.94	42.61	52.55	74.00	-21.45	Peak	100	73	P

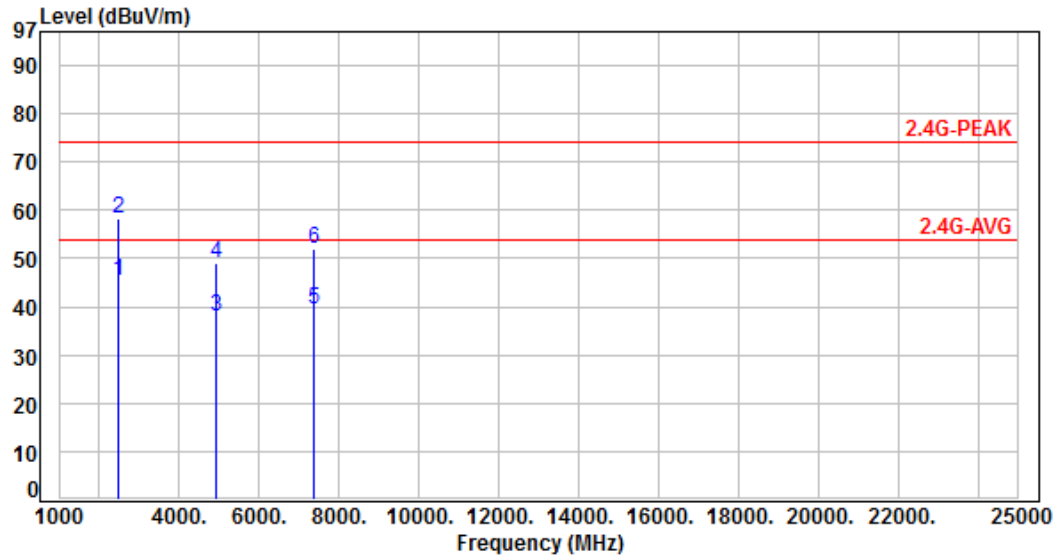
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60HZ	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 3, 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	-2.66	47.86	45.20	54.00	-8.80	Average	118	125	P
2	2483.50	-2.66	61.07	58.41	74.00	-15.59	Peak	118	125	P
3	4924.00	5.10	33.07	38.17	54.00	-15.83	Average	108	151	P
4	4924.00	5.10	44.12	49.22	74.00	-24.78	Peak	108	151	P
5	7386.00	9.94	29.34	39.28	54.00	-14.72	Average	100	268	P
6	7386.00	9.94	42.17	52.11	74.00	-21.89	Peak	100	268	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. Maximum Peak and Average Output Power

7.1 Test Limit

The Maximum Peak Output Power Measurement is 30dBm.

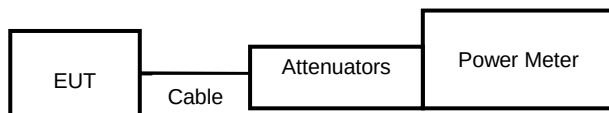
If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

7.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 11.9.2.3.2

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.

7.3 Test Setup Layout



**7.4 Test Result and Data**

Setting	Modulation Mode	Channel	Frequency (MHz)	Conducted(peak) output power (dBm)	Total PK power (dBm)	Total PK power (mW)	Power Limit (dBm)
				ANT A			
14	11b	1	2412	16.53	16.53	44.978	30.00
14		6	2437	16.68	16.68	46.559	30.00
30		11	2462	12.70	12.70	18.621	30.00
6	11g	1	2412	19.39	19.39	86.896	30.00
0		6	2437	20.28	20.28	106.660	30.00
0		11	2462	20.21	20.21	104.954	30.00
18	11n HT20	1	2412	17.71	17.71	59.020	30.00
0		6	2437	20.30	20.30	107.152	30.00
0		11	2462	20.11	20.11	102.565	30.00

Setting	Modulation Mode	Channel	Frequency (MHz)	Conducted(average) output power (dBm)	Total AV power (dBm)	Total AV power (mW)	Power Limit (dBm)
				ANT A			
14	11b	1	2412	13.13	13.13	20.559	NA
14		6	2437	13.20	13.20	20.893	NA
30		11	2462	9.16	9.16	8.241	NA
6	11g	1	2412	13.17	13.17	20.749	NA
0		6	2437	14.71	14.71	29.580	NA
0		11	2462	14.02	14.02	25.235	NA
18	11n HT20	1	2412	11.70	11.70	14.791	NA
0		6	2437	14.79	14.79	30.130	NA
0		11	2462	14.05	14.05	25.410	NA

Note: Average power is for reference only.