FCC RADIO TEST REPORT

Applicant	:	Ubiquiti Inc
Address	:	685 Third Avenue, New York, New York 10017, USA
Equipment	:	UniFi Connect 13
Model No.	:	UC-Display13
Trade Name	:	UBIQUITI
FCC ID	:	SWX-UCD13

I HEREBY CERTIFY THAT :

The sample was received on Apr. 01, 2021 and the testing was completed on Jun. 26, 2021 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Mark Liao / Supervisor

Laboratory Accreditation:

Cerpass Technology Corporation Test Laboratory

Contents

History of this test report

Report No.	Issue Date	Description
21030229-TRFCC02	Aug. 13, 2021	Original

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(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 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.

*This EUT has been also tested and compiled with the requirement of FCC Part 15, Subpart B, recorded in a separate test report(21030206-TEFV01).

2. Test Configuration of Equipment under Test

2.1 Feature of Equipment

Frequency Range	NFC: 13.553MHz~13.567MHz BT / BLE: 2402MHz~2480MHz 802.11b/g/n: 2412MHz~2462MHzMHz 802.11a/n/ac: 5180MHz~5240MHz, 5260MHz~5320MHz, 5500MHz~5720MHz, 5745MHz~5825MHz
Modulation Type	NFC: ASK BT: GFSK, π/4-DQPSK, 8DPSK BLE: GFSK WLAN: 2.4GHz: 802.11b: CCK, DQPSK, DBPSK 802.11g/n: BPSK, QPSK, 16QAM, 64QAM, 5GHz: 802.11n/a: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM
Modulation Technology	DSSS, OFDM, FHSS, DTS,
Data Rate	BT: GFSK: 1Mbps, π/4-DQPSK: 2Mbps, 8DPSK: 3Mbps BLE: GFSK: 1Mbps WLAN: 2.4GHz: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS7, HT20/40 5GHz: 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS7, HT20/40 802.11ac: MCS0 – MCS9, VHT20/40/80
Antenna Type	Internal Antenna
Antenna Gain	For NFC: 13.553MHz~13.567MHz: 0dBi For BT / BLE: 2402MHz~2480MHz: 1.00dBi For WLAN: 2412MHz~2462MHz: 1.00dBi 5180MHz~5240MHz: 4.00dBi 5260MHz~5320MHz: 4.00dBi 5500MHz~5720MHz: 4.00dBi 5745MHz~5825MHz: 4.00dBi

Note:
1. EUT support TPC Function.
2. WLAN and BT can simultaneously transmission.
3. EUT supports DFS Client Mode, without radar detection.
4. EUT support indoor / outdoor function.
5. 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**	---	---

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

a. During testing, the interface cables and equipment positions were varied according to ANSI C63.10.
b. The complete test system included Remote workstation and EUT for RF test. The Remote workstation included Notebook.
c. An executive program, ” QRCT ver.4.0.00129.0” under Windows OS system was executed to transmit and receive data via WLAN.
d. The following test modes were performed for the test:

Conducted Emissions from the AC mains power ports	
Test Mode	Operating Description
1	802.11b (11Mbps) . Power from Adapter
2	802.11g (6Mbps) . Power from Adapter
3	802.11n HT20 (6.5Mbps) . Power from Adapter
4	802.11n HT40 (13.5Mbps) . Power from Adapter
5	802.11b (11Mbps) . Power from POE
6	802.11g (6Mbps) . Power from POE
7	802.11n HT20 (6.5Mbps) . Power from POE
8	802.11n HT40 (13.5Mbps) . Power from POE
caused “Test Mode 7” generated the worst case, it was reported as the final data.	
Radiation Emissions (9KHz ~30MHz & 30MHz ~ 1GHz)	
Test Mode	Operating Description
1	802.11b (11Mbps) . Power from Adapter
2	802.11g (6Mbps) . Power from Adapter
3	802.11n HT20 (6.5Mbps) . Power from Adapter
4	802.11n HT40 (13.5Mbps) . Power from Adapter
5	802.11b (11Mbps) . Power from POE
6	802.11g (6Mbps) . Power from POE
7	802.11n HT20 (6.5Mbps) . Power from POE
8	802.11n HT40 (13.5Mbps) . Power from POE
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 (11Mbps) . Power from Adapter
2	802.11g (6Mbps) . Power from Adapter
3	802.11n HT20 (6.5Mbps) . Power from Adapter
4	802.11n HT40 (13.5Mbps) . Power from Adapter
5	802.11b (11Mbps) . Power from POE
6	802.11g (6Mbps) . Power from POE
7	802.11n HT20 (6.5Mbps) . Power from POE
8	802.11n HT40 (13.5Mbps) . Power from POE
caused “Test Mode 1~4” 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
802.11n HT40	1TX

2.4 Description of Test System

RF Conducted				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	ASUS	P2430U	N/A	Adapter / 1.8m / NS
Micro USB Cable	kolin	EX-DLCP07	1m / NS	N/A
Adapter	UBIQUITI	GP-M015-QC	N/A	N/A
Radiated Emissions				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	ASUS	P2430U	N/A	Adapter / 1.8m / NS
Micro USB Cable	kolin	EX-DLCP07	1m / NS	N/A
Adapter	UBIQUITI	GP-M015-QC	N/A	N/A
AC Power Line Conducted Emission				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	ASUS	P2430U	N/A	Adapter / 1.8m / NS
RJ45 Cable	TE CONNECTIVITY	CAT5E	1.2m / NS	N/A
Micro USB Cable	kolin	EX-DLCP07	1m / NS	N/A
POE	UBIQUITI	GP-H480-050G	N/A	0.6m / NS
Adapter	UBIQUITI	GP-M015-QC	N/A	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	2021/06/23	26℃ / 40%	Nick Guan
Radiated Emissions	3M02-NK	2021/06/19~2021/06/22	24.5~25℃ / 43~46%	Nick Guan
AC Power Line Conducted Emission	CON01-NK	2021/06/26	24℃ / 51%	Dian Chen

2.6 Measurement Uncertainty

Measurement Item	Uncertainty
AC Power Line Conduction(150K~30MHz)	±3.63dB
Radiated Spurious Emission(9KHz~30MHz)	±3.4dB
Radiated Spurious Emission(30MHz~1GHz)	±5.6dB
Radiated Spurious Emission(1GHz~25GHz)	±6.6dB
Conducted Spurious Emission	±1.8dB
6dB Bandwidth	±4.4%
20dB Bandwidth	±4.4%
Occupied Bandwidth	±4.4%
Peak Output Power(Conducted Power Meter)	±1.1dB
Dwell Time / Deactivation Time	±1.2%
Power Spectral Density	±1.8dB
Duty Cycle	±1.2%

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	369	2021/04/26	2022/04/25
Active Loop Antenna	EMCO	6507	40855	2021/06/10	2022/06/09
Horn Antenna	EMCO	3115	31601	2020/10/16	2021/10/15
Horn Anrenna	EMCO	3116	31974	2020/09/24	2021/09/23
EMI Receiver	ROHDE & SCHWARZ	ESCI	101423	2020/06/23	2021/06/22
Spectrum Analyzer	ROHDE & SCHWARZ	FSV 40-N	102151	2020/08/03	2021/08/02
Preamplifier	EM Electronics corp.	EM330	60658	2020/10/20	2021/10/19
Preamplifier	EM Electronics corp.	EM330	60660	2021/03/18	2022/03/17
Preamplifier	Agilent	8449B	3008A01954	2021/03/22	2022/03/21
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2020/11/06	2021/11/05
Bluetooth Tester	ROHDE & SCHWARZ	CBT	101133	2021/04/19	2022/04/18
Cable-3in1(30M-1G)	HARBOUR INDUSTRIES	LL142	CCE1315	2021/04/12	2022/04/11
Cable-0.5m(1G-18G)	EMEC	EM104-SMSM-0.5M	CCE1354	2021/05/06	2022/05/05
Cable-3m(1G-18G)	EMEC	EM104-SMSM-3M	CCE1355	2021/05/06	2022/05/05
Cable-8m(1G-18G)	EMEC	EM104-SMSM-8M	CCE1356	2021/05/06	2022/05/05
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-0.5m(1G-40G)	Rapidtek	40GHZ 50CM	38MS-38MS50 314	2021/04/08	2022/04/07
Cable-6m(9k~300M)	NA	EMC5D-BM-BM-6	130605	2020/09/18	2021/09/17
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	102151	2020/08/03	2021/08/02
Bluetooth Tester	ROHDE & SCHWARZ	CBT	101133	2021/04/19	2022/04/18
CAX Signal Analyzer	KEYSIGHT	N9000B	MY57100339	2020/12/25	2021/12/24
Attenuator	KEYSIGHT	8491B	MY39250703	2021/04/09	2022/04/08
TEMP & HUMI CHAMBER	T-MACHINE	TMJ-9712	T-12-040111	2020/08/25	2021/08/24
Power Meter	Anritsu	ML2495A	1224005	2021/04/14	2022/04/13
Power Sensor	Anritsu	MA2411B	1207295	2021/04/14	2022/04/13

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	100821	2020/09/11	2021/09/10
Line Impedance Stabilization Network	Schwarzbeck	NSLK 8127	8127-516	2020/09/26	2021/09/25
Pulse Limiter	ROHDE & SCHWARZ	ESH3-Z2	101933	2020/09/17	2021/09/16
Cable-6m(9k~300M)	NA	EMC5D-BM-BM-6	130605	2020/09/18	2021/09/17
E3	AUDIX	v8.2014-8-6	RK-000531	NA	NA

4. Antenna Requirements

4.1 Antenna Construction and Directional Gain

Antenna Type	Internal Antenna
Antenna Gain	1.00 dBi

2412-2462MHz
For Power directional gain= G_{ant}= 1.00Bi
For PSD directional gain = G_{ant}= 1.00Bi

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.

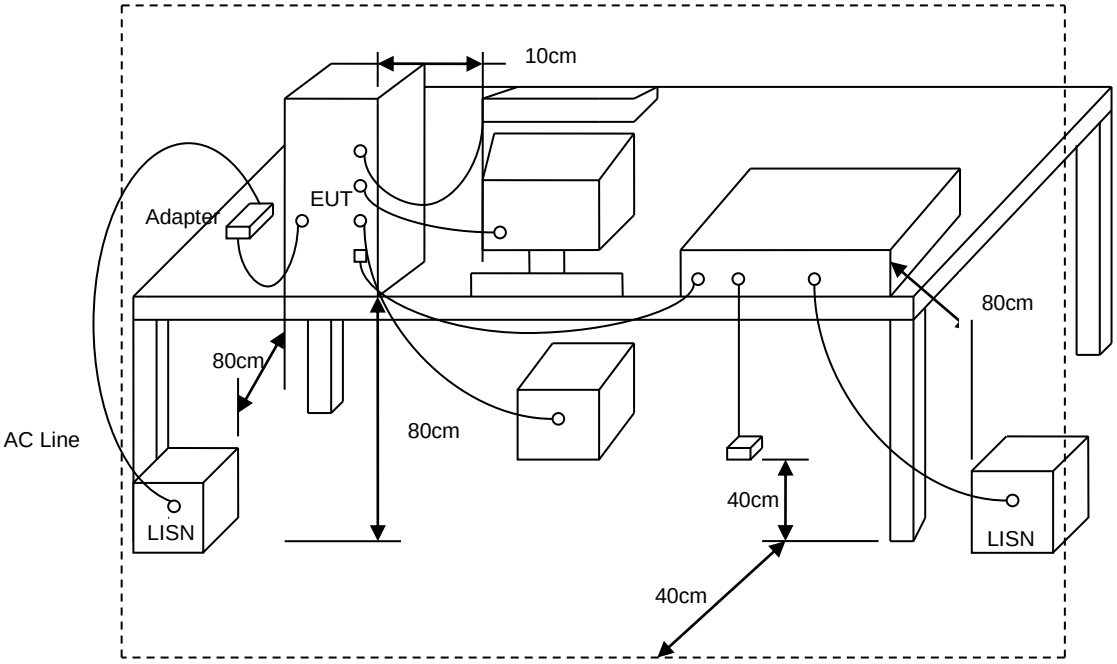
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

5.2 Test Procedures

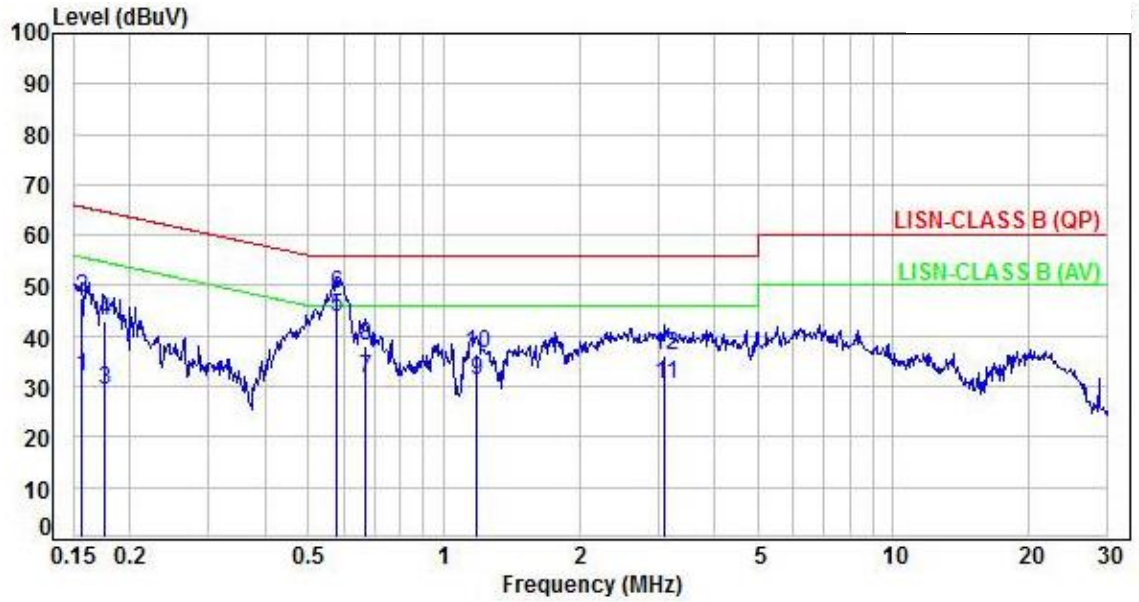
a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 kHz to 30 MHz was searched.
h. 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

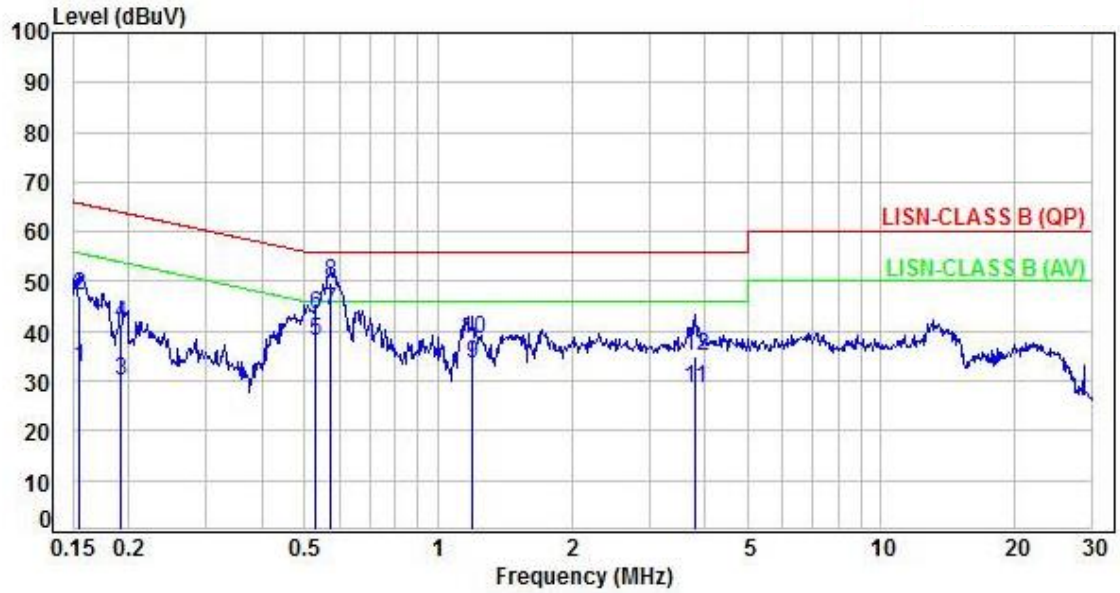
Power	:	From POE DC48V	Pol/Phase	:	LINE
Test Mode	:	Mode 7		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.16	9.96	21.82	31.78	55.65	-23.87	Average	P
2	0.16	9.96	37.45	47.41	65.65	-18.24	QP	P
3	0.18	9.96	19.47	29.43	54.64	-25.21	Average	P
4	0.18	9.96	33.19	43.15	64.64	-21.49	QP	P
5	0.58	9.99	33.70	43.69	46.00	-2.31	Average	P
6	0.58	9.99	38.22	48.21	56.00	-7.79	QP	P
7	0.67	10.00	21.52	31.52	46.00	-14.48	Average	P
8	0.67	10.00	28.08	38.08	56.00	-17.92	QP	P
9	1.18	10.05	21.32	31.37	46.00	-14.63	Average	P
10	1.18	10.05	26.39	36.44	56.00	-19.56	QP	P
11	3.11	10.18	20.10	30.28	46.00	-15.72	Average	P
12	3.11	10.18	25.87	36.05	56.00	-19.95	QP	P

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

Power	:	From POE DC48V	Pol/Phase	:	NEUTRAL
Test Mode	:	Mode 7		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.15	9.97	22.72	32.69	55.74	-23.05	Average	P
2	0.15	9.97	37.34	47.31	65.74	-18.43	QP	P
3	0.19	9.97	20.12	30.09	53.93	-23.84	Average	P
4	0.19	9.97	31.48	41.45	63.93	-22.48	QP	P
5	0.53	9.99	28.21	38.20	46.00	-7.80	Average	P
6	0.53	9.99	33.28	43.27	56.00	-12.73	QP	P
7	0.57	10.00	34.18	44.18	46.00	-1.82	Average	P
8	0.57	10.00	39.78	49.78	56.00	-6.22	QP	P
9	1.20	10.05	23.40	33.45	46.00	-12.55	Average	P
10	1.20	10.05	28.45	38.50	56.00	-17.50	QP	P
11	3.80	10.18	18.52	28.70	46.00	-17.30	Average	P
12	3.80	10.18	24.85	35.03	56.00	-20.97	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.

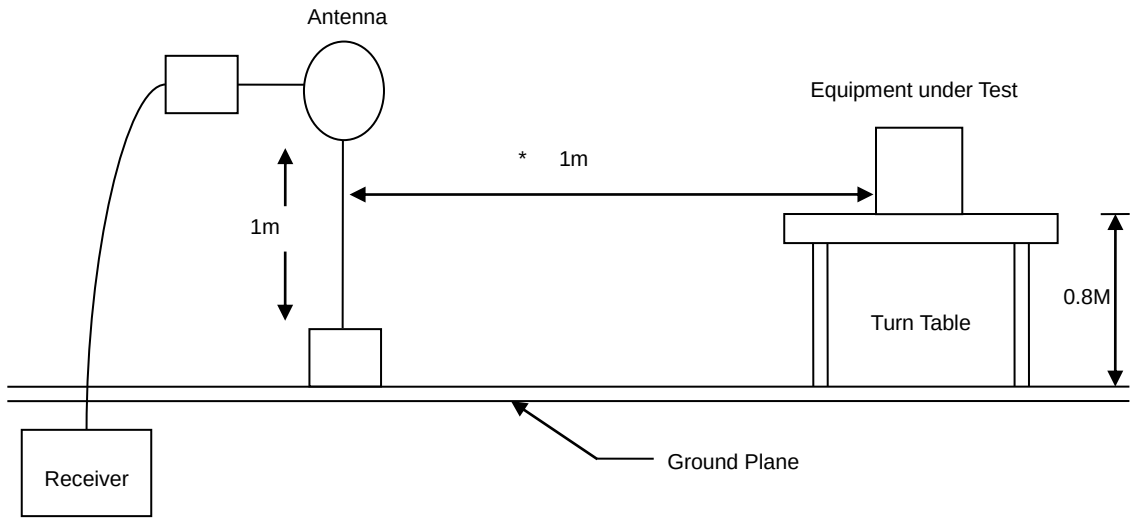
h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

i. “Cone of radiation” has been considered to be 3dB bandwidth of the measurement antenna.

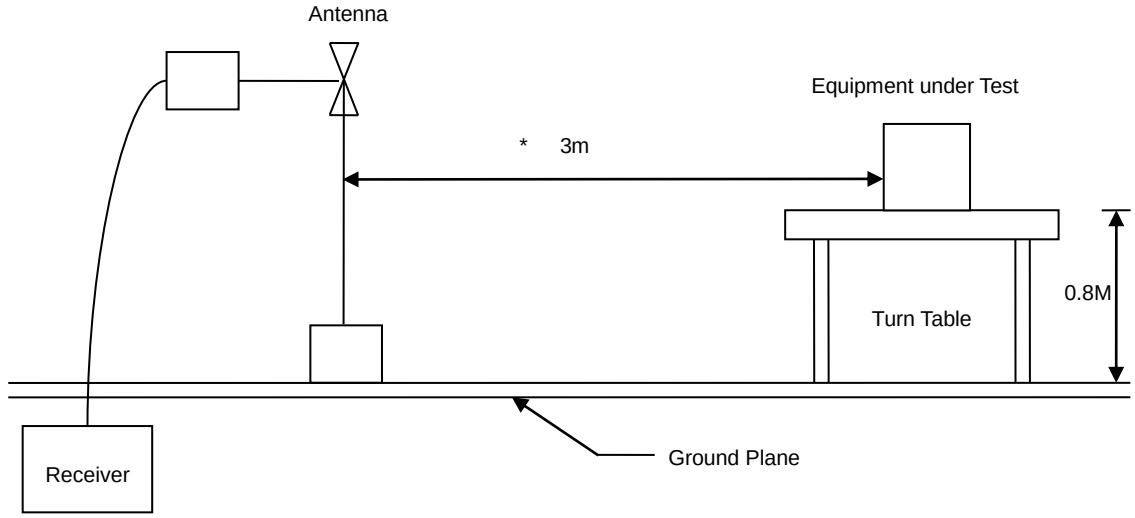
Note: The supporting fixture shall permit orientation of the EUT in each of three orthogonal axis positions such that emissions from the EUT are maximized.
(Y-AXIS is the worst.)

6.3 Typical Test Setup

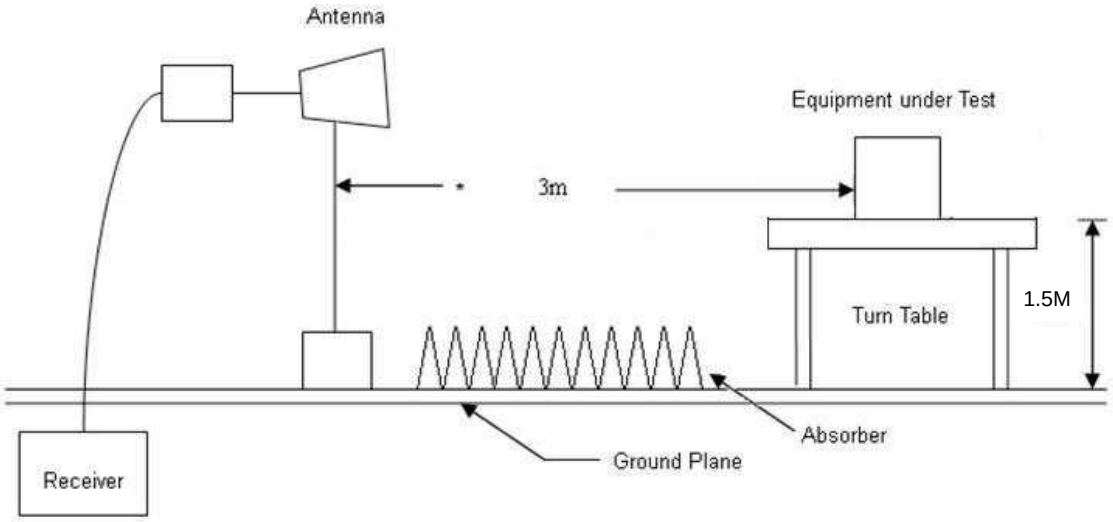
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup

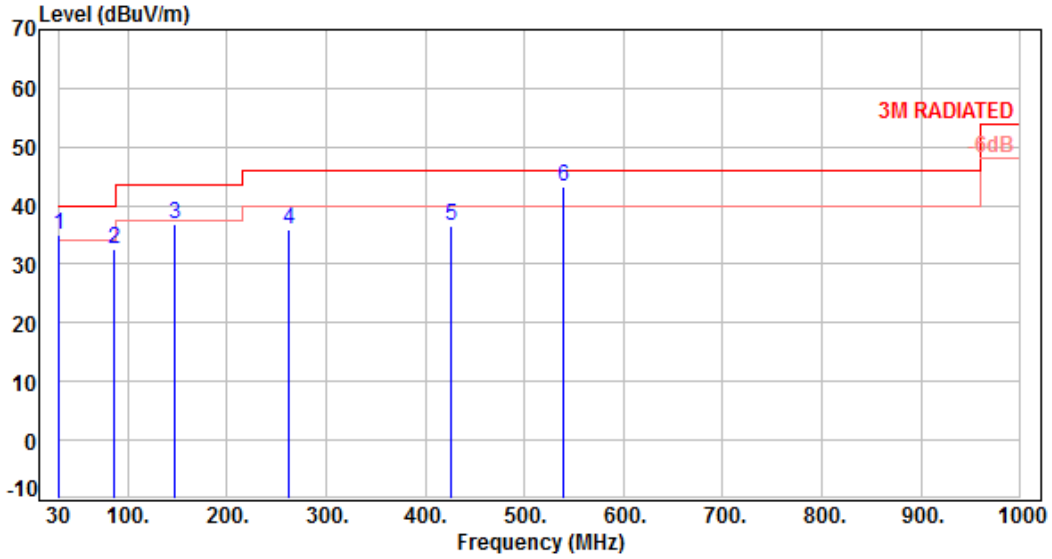


6.4 Test Result and Data (9KHz ~ 30MHz)

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

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

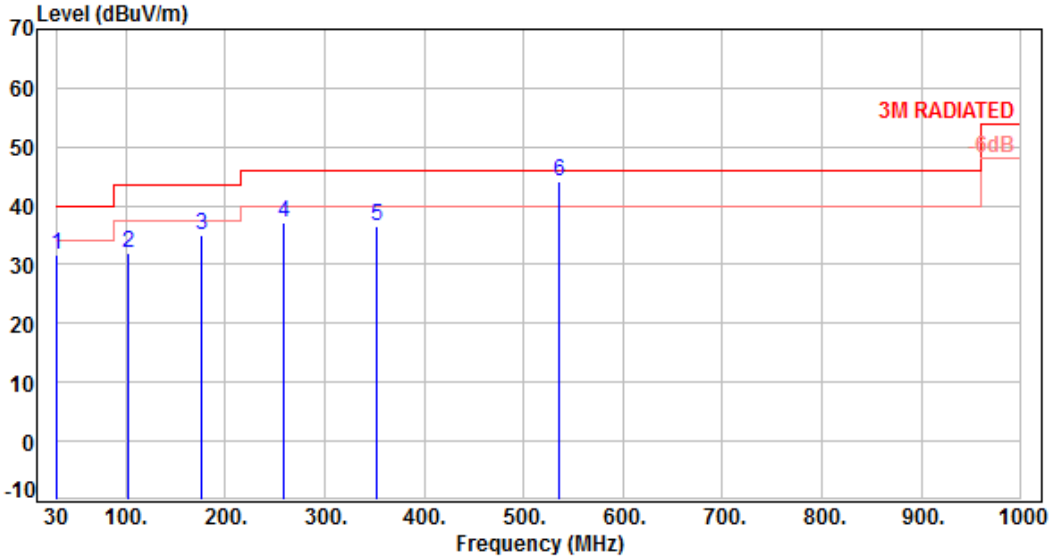
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	30.00	-11.62	46.71	35.09	40.00	-4.91	QP	100	15	P
2	86.55	-16.27	48.81	32.54	40.00	-7.46	Peak	400	360	P
3	146.87	-10.92	47.69	36.77	43.50	-6.73	Peak	400	360	P
4	263.19	-11.04	46.98	35.94	46.00	-10.06	Peak	400	360	P
5	426.57	-6.33	42.78	36.45	46.00	-9.55	Peak	400	360	P
6	539.34	-3.96	47.18	43.22	46.00	-2.78	QP	125	122	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		:	

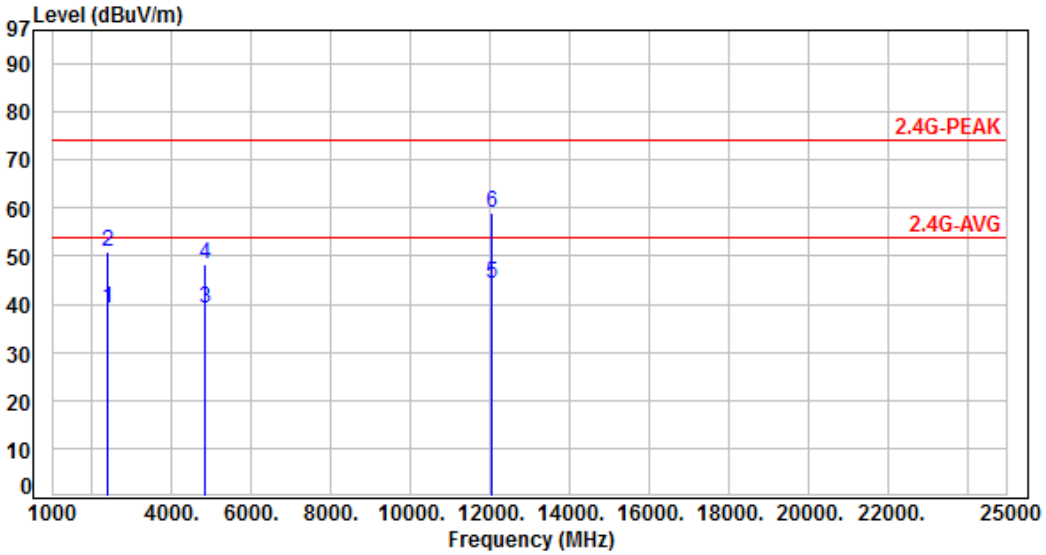


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	30.00	-11.62	43.32	31.70	40.00	-8.30	Peak	400	360	P
2	102.24	-15.21	47.13	31.92	43.50	-11.58	Peak	400	360	P
3	176.25	-11.70	46.78	35.08	43.50	-8.42	Peak	400	360	P
4	259.24	-11.20	48.36	37.16	46.00	-8.84	Peak	400	360	P
5	352.66	-8.36	44.86	36.50	46.00	-9.50	Peak	400	360	P
6	536.42	-4.09	48.27	44.18	46.00	-1.82	QP	150	231	P

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

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

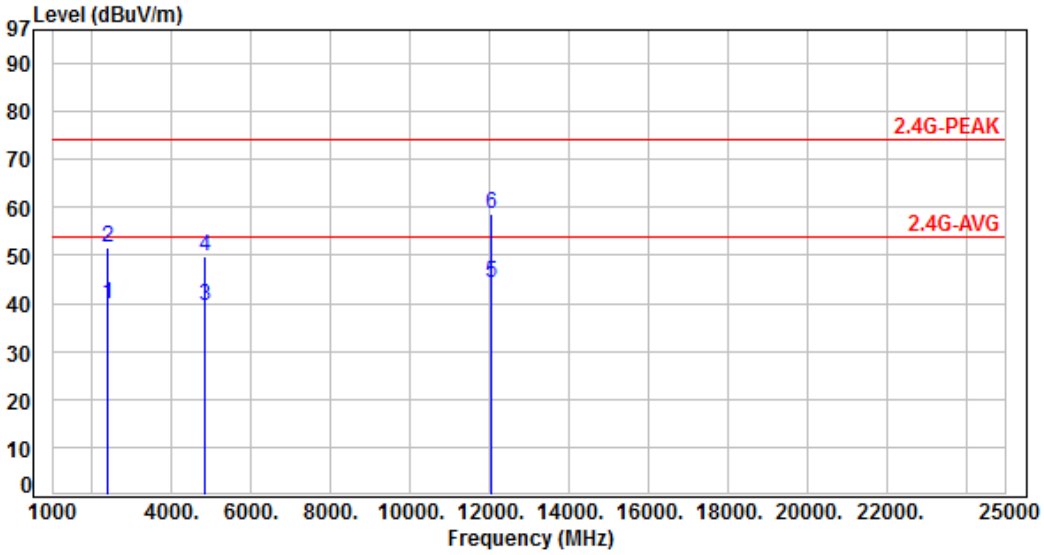
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH01		:	



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	-3.62	42.87	39.25	54.00	-14.75	Average	104	212	P
2	2390.00	-3.62	54.50	50.88	74.00	-23.12	Peak	104	212	P
3	4824.00	3.73	35.20	38.93	54.00	-15.07	Average	193	124	P
4	4824.00	3.73	44.67	48.40	74.00	-25.60	Peak	193	124	P
5	12060.00	13.35	30.91	44.26	54.00	-9.74	Average	100	138	P
6	12060.00	13.35	45.83	59.18	74.00	-14.82	Peak	100	138	P

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

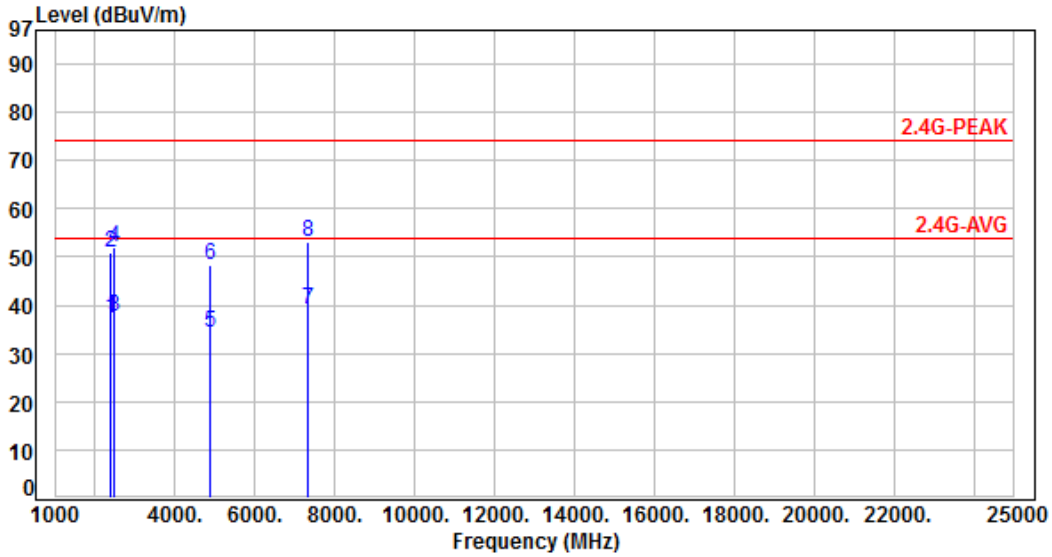
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH01		:	



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	-3.62	43.58	39.96	54.00	-14.04	Average	285	162	P
2	2390.00	-3.62	55.15	51.53	74.00	-22.47	Peak	285	162	P
3	4824.00	3.73	35.84	39.57	54.00	-14.43	Average	187	195	P
4	4824.00	3.73	46.03	49.76	74.00	-24.24	Peak	187	195	P
5	12060.00	13.35	30.94	44.29	54.00	-9.71	Average	100	212	P
6	12060.00	13.35	45.31	58.66	74.00	-15.34	Peak	100	212	P

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

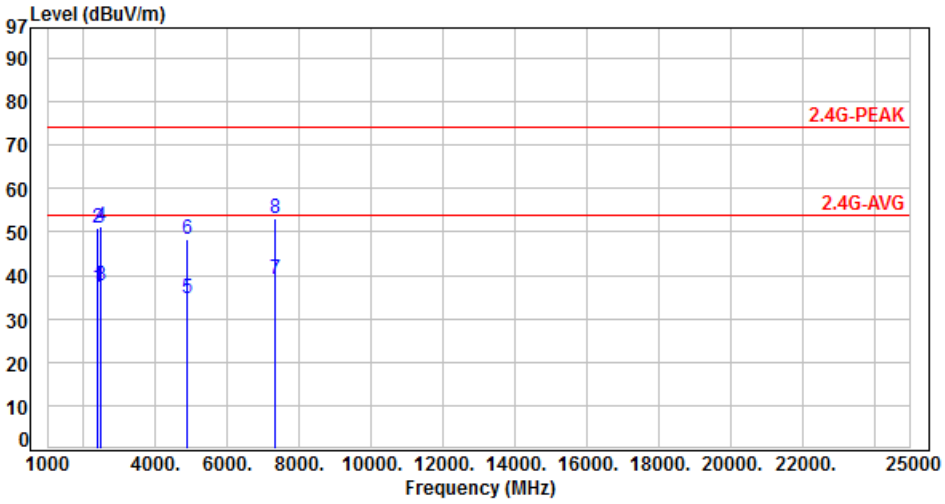
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH06		:	



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	-3.62	40.86	37.24	54.00	-16.76	Average	242	276	P
2	2390.00	-3.62	54.55	50.93	74.00	-23.07	Peak	242	276	P
3	2483.50	-3.40	40.95	37.55	54.00	-16.45	Average	242	276	P
4	2483.50	-3.40	55.27	51.87	74.00	-22.13	Peak	242	276	P
5	4874.00	3.90	30.58	34.48	54.00	-19.52	Average	194	149	P
6	4874.00	3.90	44.40	48.30	74.00	-25.70	Peak	194	149	P
7	7311.00	8.48	30.63	39.11	54.00	-14.89	Average	100	165	P
8	7311.00	8.48	44.69	53.17	74.00	-20.83	Peak	100	165	P

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

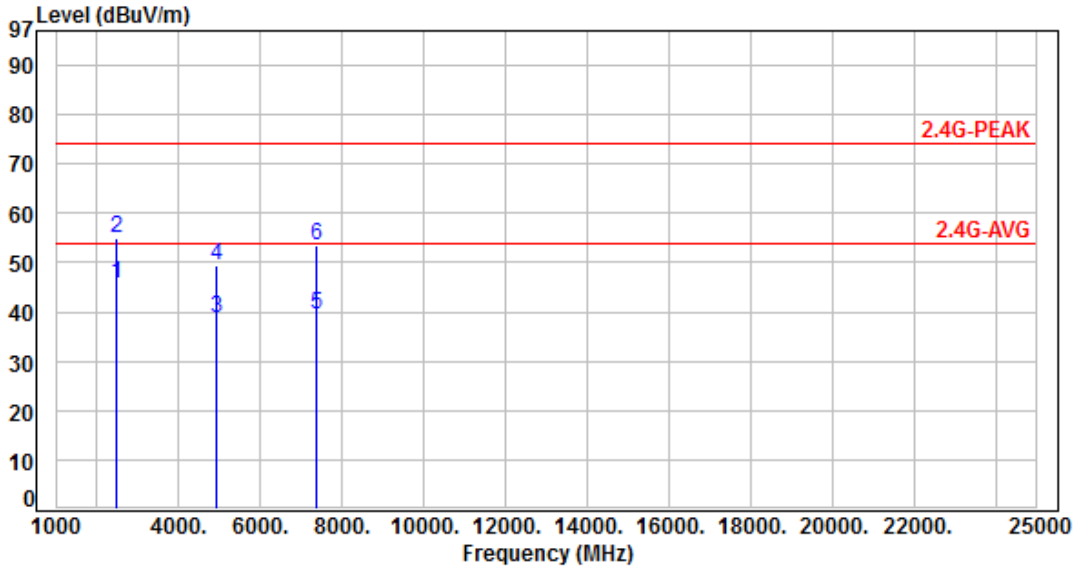
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH06		:	



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	-3.62	40.74	37.12	54.00	-16.88	Average	168	302	P
2	2390.00	-3.62	54.39	50.77	74.00	-23.23	Peak	168	302	P
3	2483.50	-3.40	41.06	37.66	54.00	-16.34	Average	168	302	P
4	2483.50	-3.40	54.56	51.16	74.00	-22.84	Peak	168	302	P
5	4874.00	3.90	30.76	34.66	54.00	-19.34	Average	183	191	P
6	4874.00	3.90	44.31	48.21	74.00	-25.79	Peak	183	191	P
7	7311.00	8.48	30.78	39.26	54.00	-14.74	Average	100	182	P
8	7311.00	8.48	44.75	53.23	74.00	-20.77	Peak	100	182	P

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

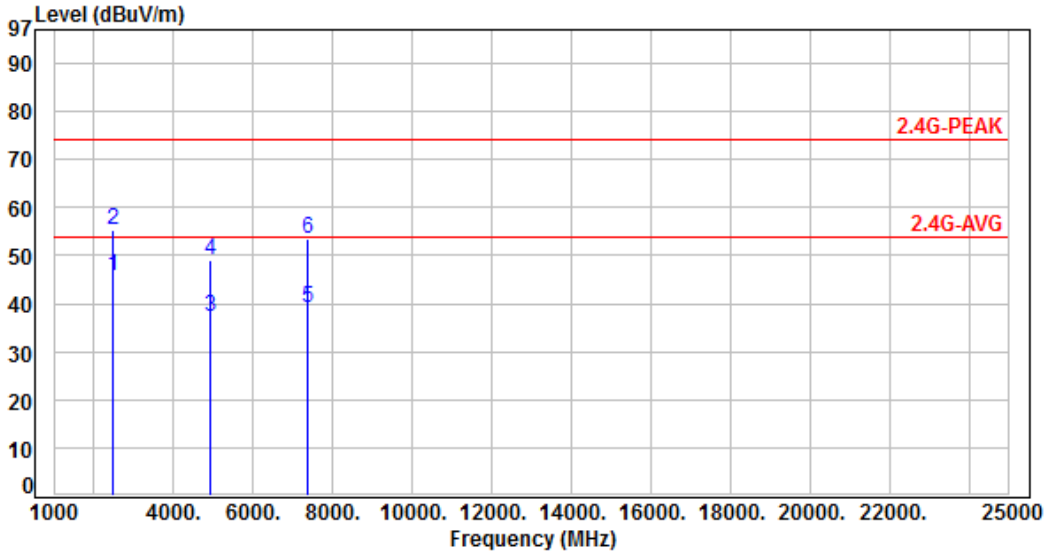
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH11		:	



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	-3.40	49.23	45.83	54.00	-8.17	Average	349	250	P
2	2483.50	-3.40	58.37	54.97	74.00	-19.03	Peak	349	250	P
3	4924.00	4.10	34.61	38.71	54.00	-15.29	Average	168	128	P
4	4924.00	4.10	45.29	49.39	74.00	-24.61	Peak	168	128	P
5	7386.00	8.59	30.72	39.31	54.00	-14.69	Average	100	158	P
6	7386.00	8.59	44.89	53.48	74.00	-20.52	Peak	100	158	P

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

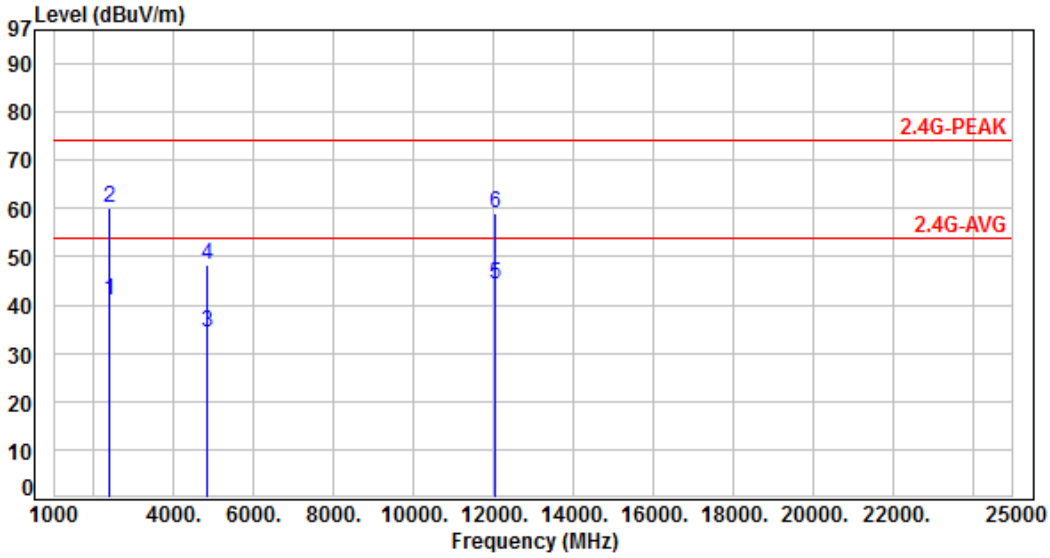
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH11		:	



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	-3.40	48.97	45.57	54.00	-8.43	Average	240	167	P
2	2483.50	-3.40	58.63	55.23	74.00	-18.77	Peak	240	167	P
3	4924.00	4.10	33.14	37.24	54.00	-16.76	Average	187	140	P
4	4924.00	4.10	44.96	49.06	74.00	-24.94	Peak	187	140	P
5	7386.00	8.59	30.63	39.22	54.00	-14.78	Average	100	173	P
6	7386.00	8.59	44.94	53.53	74.00	-20.47	Peak	100	173	P

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

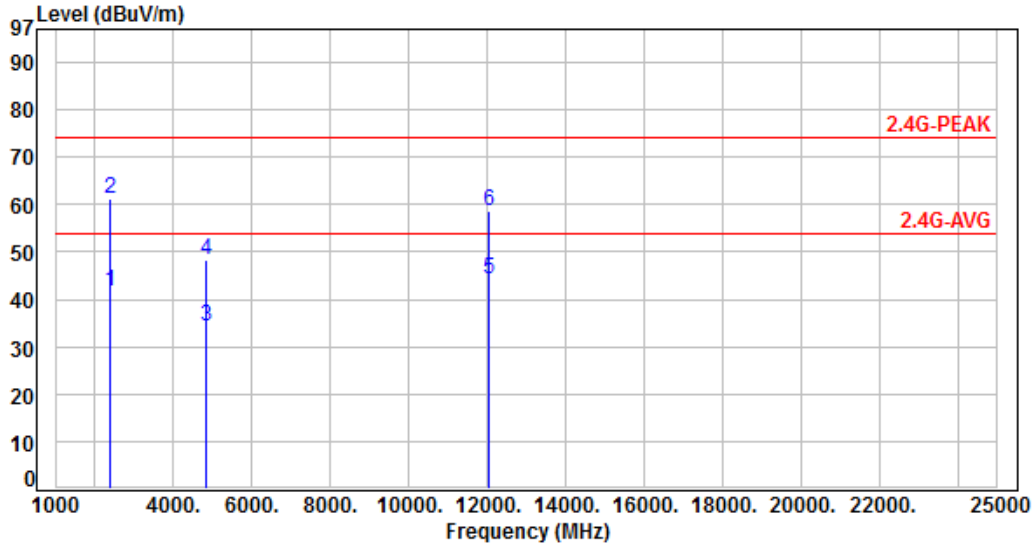
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH01		:	



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	-3.62	44.74	41.12	54.00	-12.88	Average	100	216	P
2	2390.00	-3.62	63.63	60.01	74.00	-13.99	Peak	100	216	P
3	4824.00	3.73	30.62	34.35	54.00	-19.65	Average	185	116	P
4	4824.00	3.73	44.76	48.49	74.00	-25.51	Peak	185	116	P
5	12060.00	13.35	30.98	44.33	54.00	-9.67	Average	100	131	P
6	12060.00	13.35	45.61	58.96	74.00	-15.04	Peak	100	131	P

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

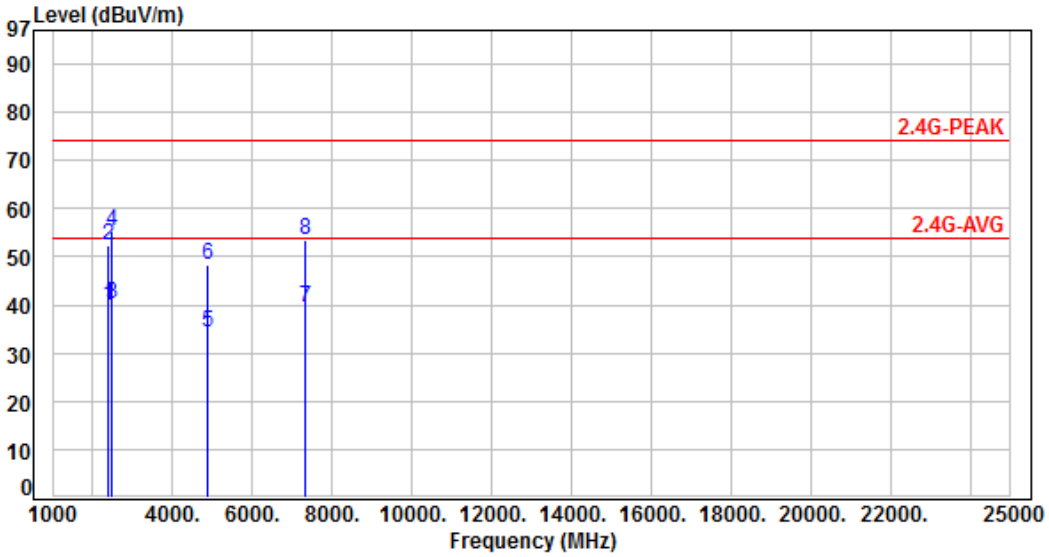
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH01		:	



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	-3.62	45.29	41.67	54.00	-12.33	Average	190	299	P
2	2390.00	-3.62	64.92	61.30	74.00	-12.70	Peak	190	299	P
3	4824.00	3.73	30.48	34.21	54.00	-19.79	Average	192	203	P
4	4824.00	3.73	44.62	48.35	74.00	-25.65	Peak	192	203	P
5	12060.00	13.35	31.08	44.43	54.00	-9.57	Average	100	208	P
6	12060.00	13.35	45.16	58.51	74.00	-15.49	Peak	100	208	P

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

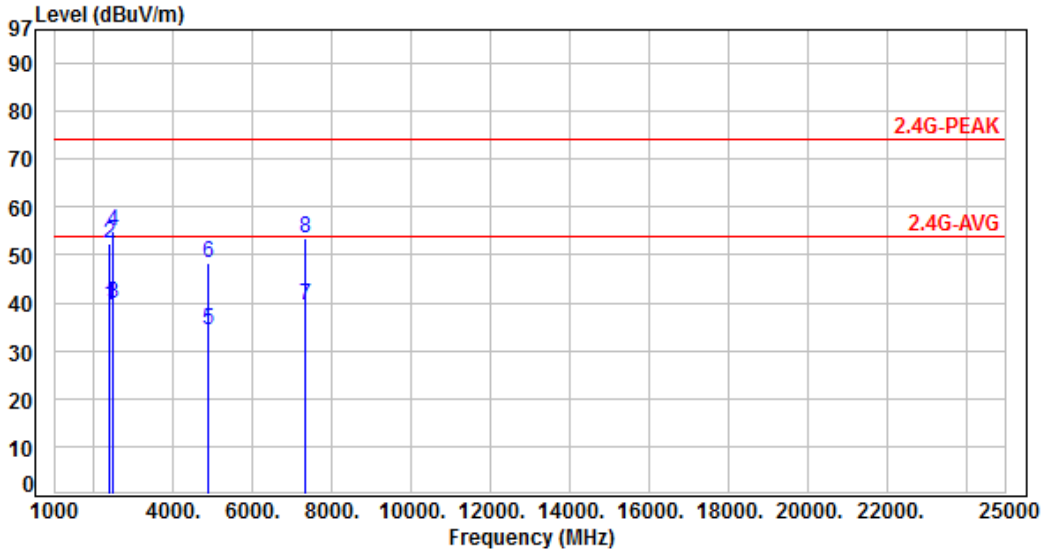
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH06		:	



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	-3.62	43.32	39.70	54.00	-14.30	Average	255	276	P
2	2390.00	-3.62	56.13	52.51	74.00	-21.49	Peak	255	276	P
3	2483.50	-3.40	43.48	40.08	54.00	-13.92	Average	255	276	P
4	2483.50	-3.40	58.73	55.33	74.00	-18.67	Peak	255	276	P
5	4874.00	3.90	30.42	34.32	54.00	-19.68	Average	198	152	P
6	4874.00	3.90	44.25	48.15	74.00	-25.85	Peak	198	152	P
7	7311.00	8.48	30.92	39.40	54.00	-14.60	Average	100	163	P
8	7311.00	8.48	44.87	53.35	74.00	-20.65	Peak	100	163	P

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

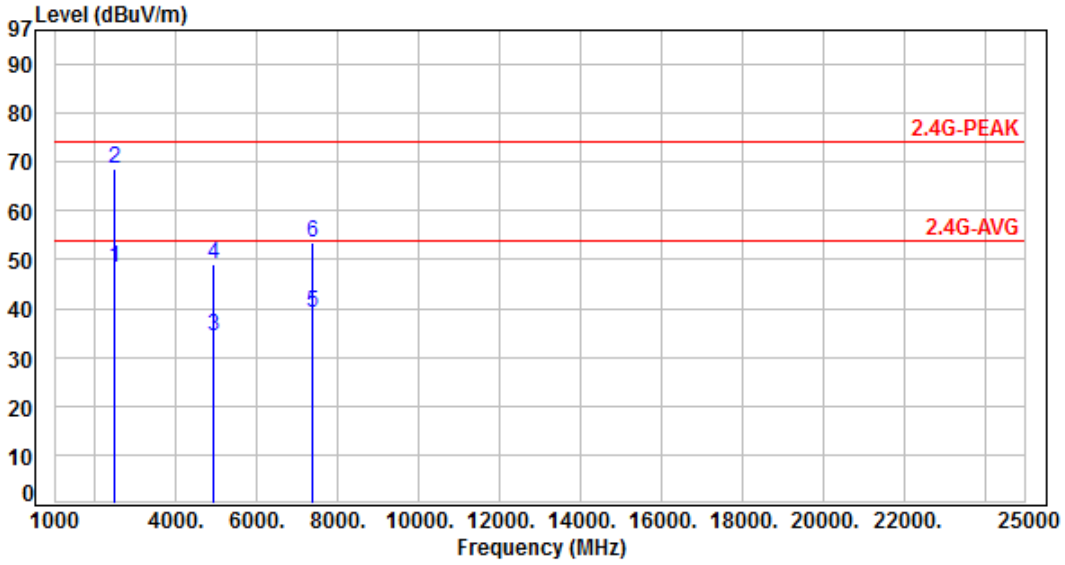
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH06		:	



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	-3.62	42.94	39.32	54.00	-14.68	Average	155	305	P
2	2390.00	-3.62	55.99	52.37	74.00	-21.63	Peak	155	305	P
3	2483.50	-3.40	43.37	39.97	54.00	-14.03	Average	155	305	P
4	2483.50	-3.40	58.44	55.04	74.00	-18.96	Peak	155	305	P
5	4874.00	3.90	30.51	34.41	54.00	-19.59	Average	176	188	P
6	4874.00	3.90	44.27	48.17	74.00	-25.83	Peak	176	188	P
7	7311.00	8.48	30.96	39.44	54.00	-14.56	Average	100	191	P
8	7311.00	8.48	44.98	53.46	74.00	-20.54	Peak	100	191	P

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

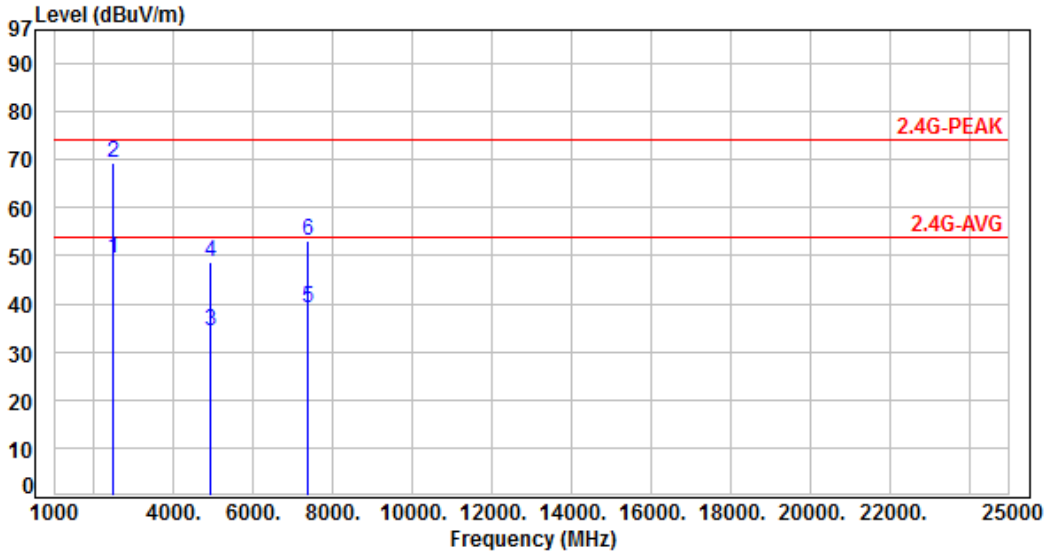
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH11		:	



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	-3.40	51.82	48.42	54.00	-5.58	Average	337	245	P
2	2483.50	-3.40	72.11	68.71	74.00	-5.29	Peak	337	245	P
3	4924.00	4.10	30.27	34.37	54.00	-19.63	Average	174	133	P
4	4924.00	4.10	44.84	48.94	74.00	-25.06	Peak	174	133	P
5	7386.00	8.59	30.61	39.20	54.00	-14.80	Average	100	151	P
6	7386.00	8.59	44.84	53.43	74.00	-20.57	Peak	100	151	P

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

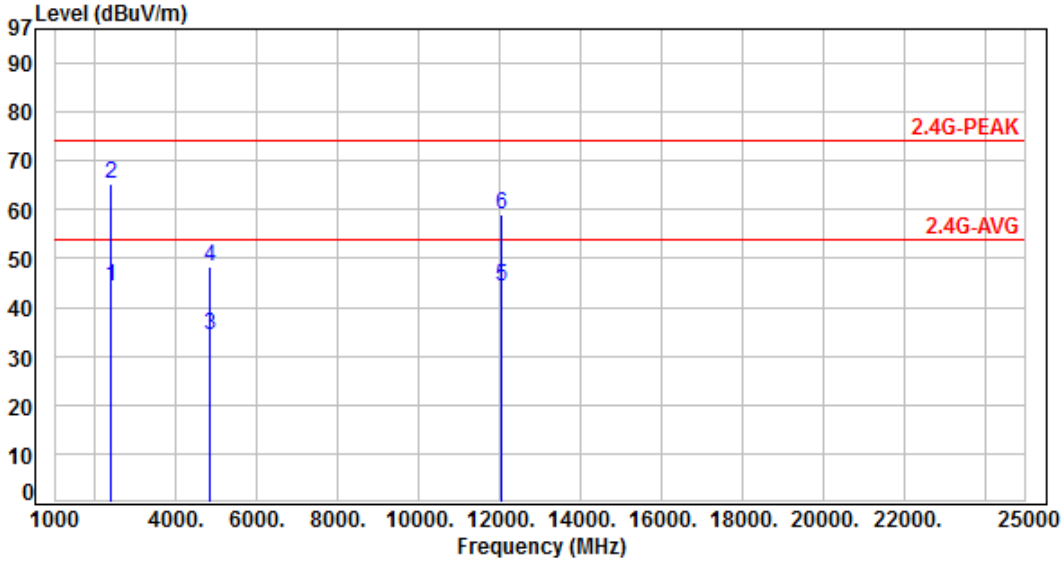
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH11		:	



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	-3.40	52.69	49.29	54.00	-4.71	Average	240	166	P
2	2483.50	-3.40	72.71	69.31	74.00	-4.69	Peak	240	166	P
3	4924.00	4.10	30.18	34.28	54.00	-19.72	Average	182	193	P
4	4924.00	4.10	44.57	48.67	74.00	-25.33	Peak	182	193	P
5	7386.00	8.59	30.58	39.17	54.00	-14.83	Average	100	195	P
6	7386.00	8.59	44.68	53.27	74.00	-20.73	Peak	100	195	P

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

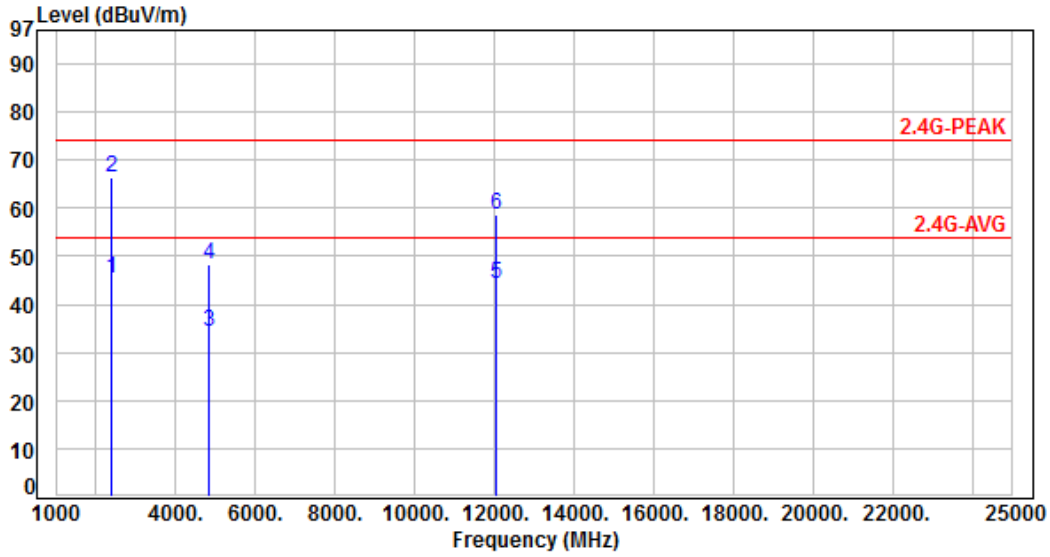
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH01		:	



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	-3.62	47.77	44.15	54.00	-9.85	Average	100	211	P
2	2390.00	-3.62	68.75	65.13	74.00	-8.87	Peak	100	211	P
3	4824.00	3.73	30.51	34.24	54.00	-19.76	Average	177	123	P
4	4824.00	3.73	44.53	48.26	74.00	-25.74	Peak	177	123	P
5	12060.00	13.35	30.88	44.23	54.00	-9.77	Average	100	129	P
6	12060.00	13.35	45.49	58.84	74.00	-15.16	Peak	100	129	P

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

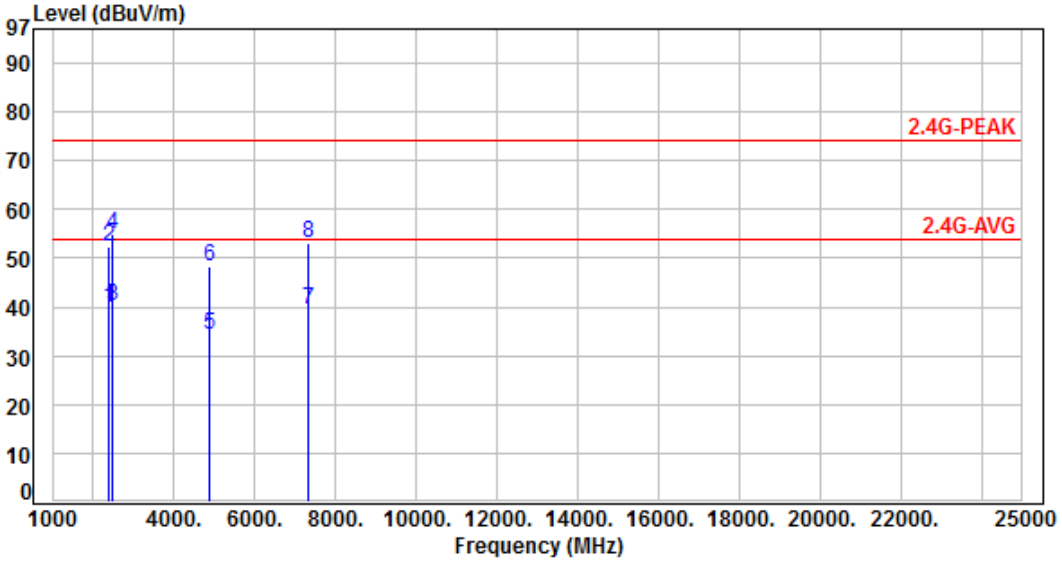
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, CH01		:	



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	-3.62	49.01	45.39	54.00	-8.61	Average	255	157	P
2	2390.00	-3.62	69.95	66.33	74.00	-7.67	Peak	255	157	P
3	4824.00	3.73	30.62	34.35	54.00	-19.65	Average	188	197	P
4	4824.00	3.73	44.50	48.23	74.00	-25.77	Peak	188	197	P
5	12060.00	13.35	30.97	44.32	54.00	-9.68	Average	100	203	P
6	12060.00	13.35	45.32	58.67	74.00	-15.33	Peak	100	203	P

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

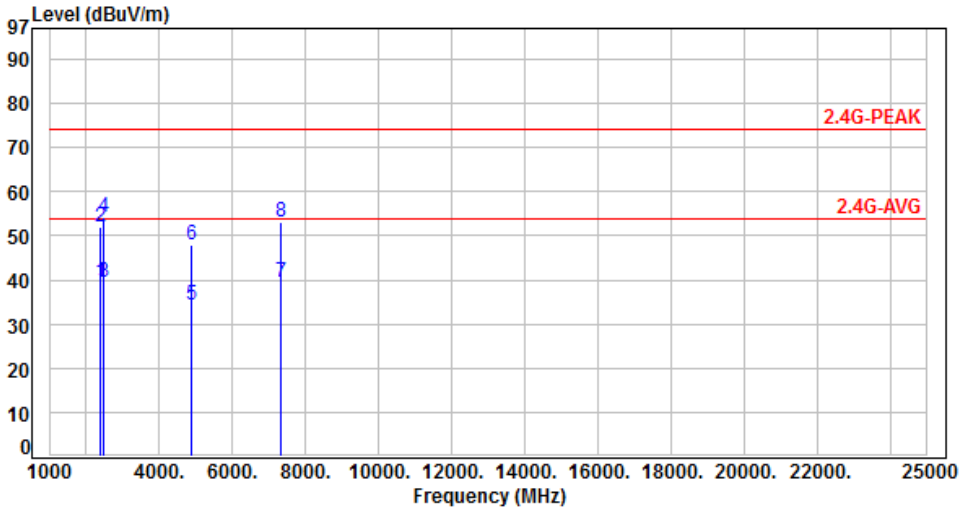
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH06		:	



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	-3.62	43.48	39.86	54.00	-14.14	Average	254	277	P
2	2390.00	-3.62	55.93	52.31	74.00	-21.69	Peak	254	277	P
3	2483.50	-3.40	43.57	40.17	54.00	-13.83	Average	254	277	P
4	2483.50	-3.40	58.46	55.06	74.00	-18.94	Peak	254	277	P
5	4874.00	3.90	30.30	34.20	54.00	-19.80	Average	185	141	P
6	4874.00	3.90	44.38	48.28	74.00	-25.72	Peak	185	141	P
7	7311.00	8.48	30.84	39.32	54.00	-14.68	Average	100	159	P
8	7311.00	8.48	44.72	53.20	74.00	-20.80	Peak	100	159	P

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

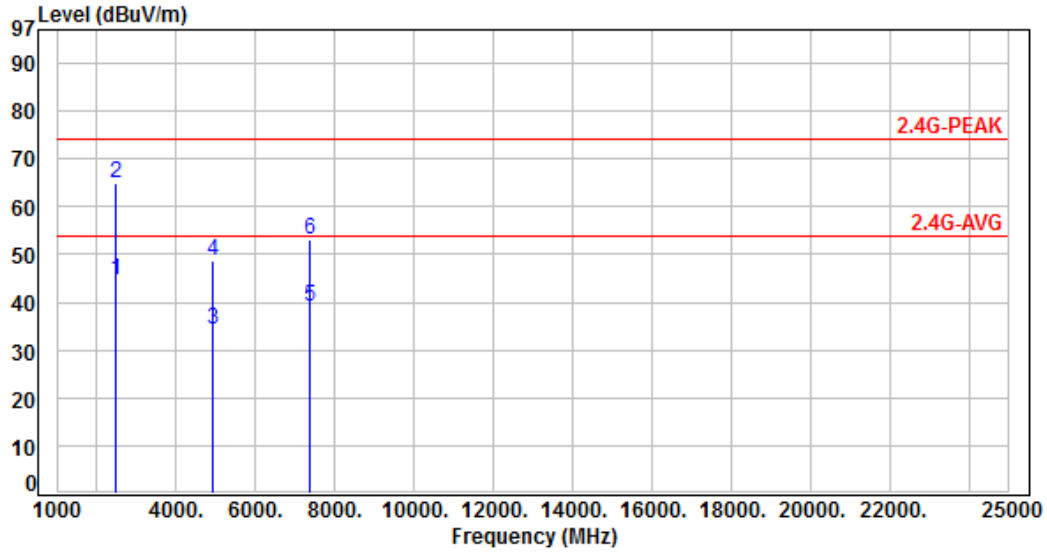
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, CH06		:	



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	-3.62	43.06	39.44	54.00	-14.56	Average	181	305	P
2	2390.00	-3.62	55.51	51.89	74.00	-22.11	Peak	181	305	P
3	2483.50	-3.40	42.89	39.49	54.00	-14.51	Average	181	305	P
4	2483.50	-3.40	57.78	54.38	74.00	-19.62	Peak	181	305	P
5	4874.00	3.90	30.43	34.33	54.00	-19.67	Average	172	193	P
6	4874.00	3.90	44.10	48.00	74.00	-26.00	Peak	172	193	P
7	7311.00	8.48	30.91	39.39	54.00	-14.61	Average	100	186	P
8	7311.00	8.48	44.76	53.24	74.00	-20.76	Peak	100	186	P

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

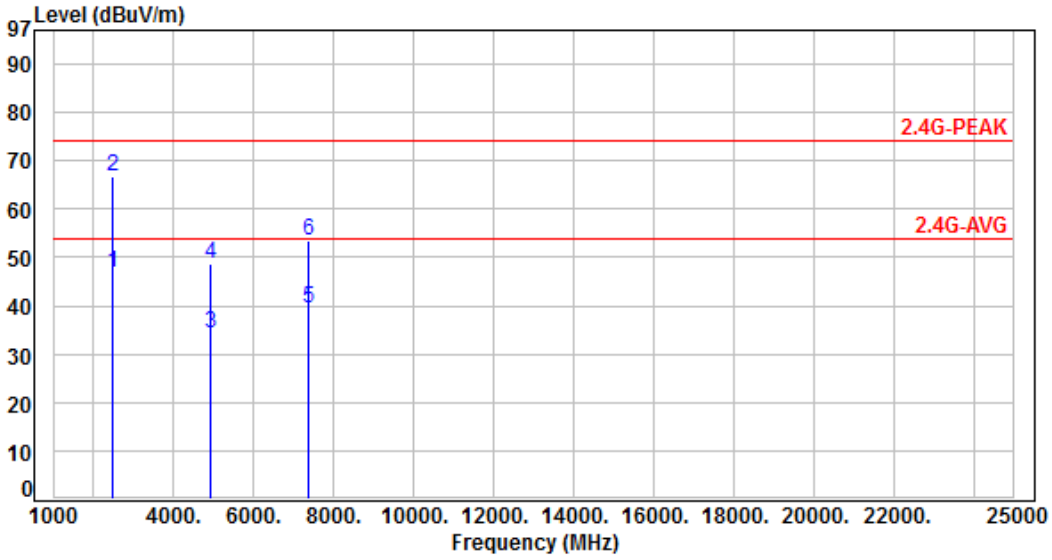
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH11		:	



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	-3.40	48.07	44.67	54.00	-9.33	Average	278	211	P
2	2483.50	-3.40	68.46	65.06	74.00	-8.94	Peak	278	211	P
3	4924.00	4.10	30.06	34.16	54.00	-19.84	Average	177	142	P
4	4924.00	4.10	44.43	48.53	74.00	-25.47	Peak	177	142	P
5	7386.00	8.59	30.38	38.97	54.00	-15.03	Average	100	147	P
6	7386.00	8.59	44.61	53.20	74.00	-20.80	Peak	100	147	P

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

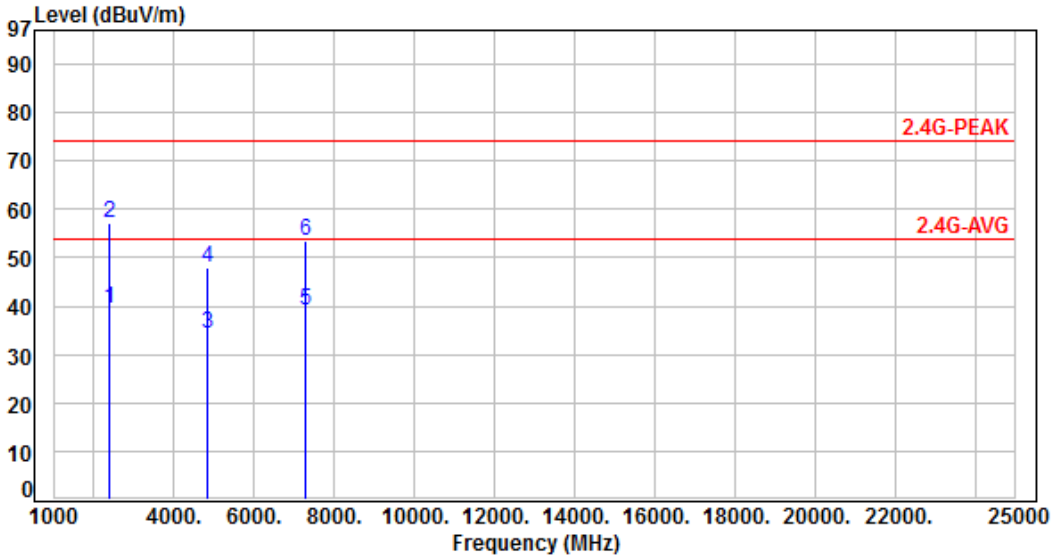
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, CH11		:	



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	-3.40	50.08	46.68	54.00	-7.32	Average	185	204	P
2	2483.50	-3.40	70.01	66.61	74.00	-7.39	Peak	185	204	P
3	4924.00	4.10	30.28	34.38	54.00	-19.62	Average	194	208	P
4	4924.00	4.10	44.69	48.79	74.00	-25.21	Peak	194	208	P
5	7386.00	8.59	30.72	39.31	54.00	-14.69	Average	100	182	P
6	7386.00	8.59	44.77	53.36	74.00	-20.64	Peak	100	182	P

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

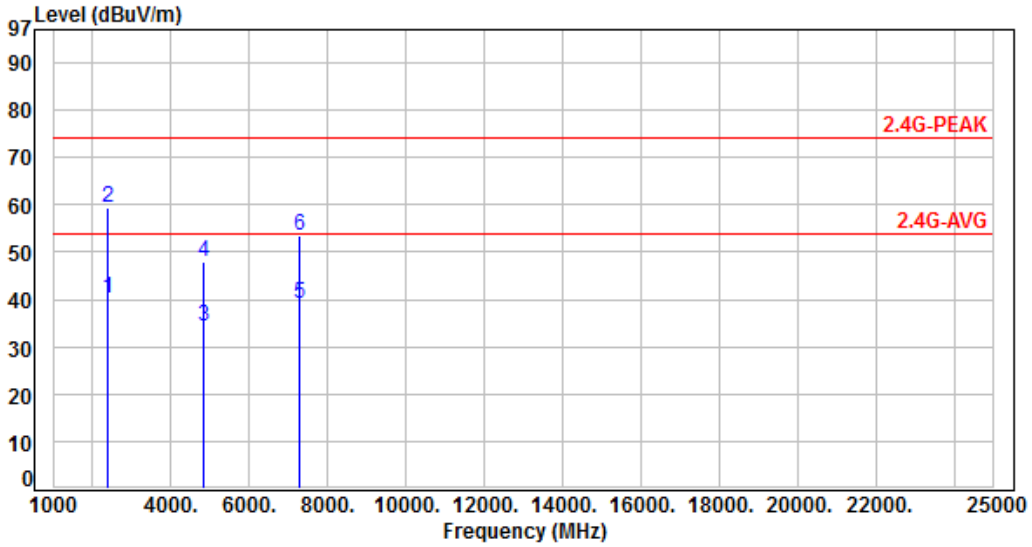
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 4, CH03		:	



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	-3.62	43.12	39.50	54.00	-14.50	Average	100	213	P
2	2390.00	-3.62	60.90	57.28	74.00	-16.72	Peak	100	213	P
3	4844.00	3.80	30.32	34.12	54.00	-19.88	Average	168	114	P
4	4844.00	3.80	44.24	48.04	74.00	-25.96	Peak	168	114	P
5	7266.00	8.30	30.79	39.09	54.00	-14.91	Average	100	125	P
6	7266.00	8.30	45.33	53.63	74.00	-20.37	Peak	100	125	P

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

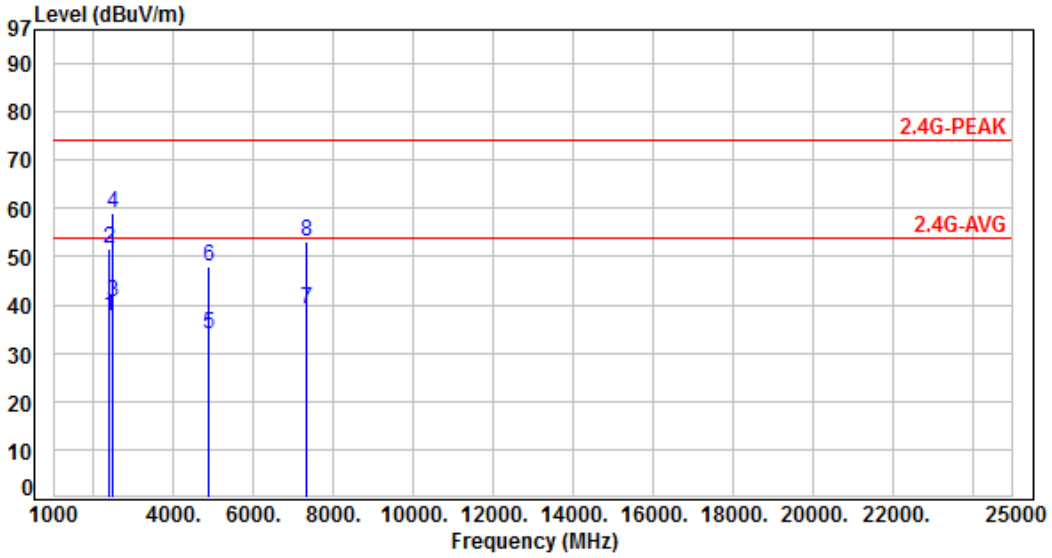
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 4, CH03		:	



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	-3.62	43.98	40.36	54.00	-13.64	Average	254	162	P
2	2390.00	-3.62	62.87	59.25	74.00	-14.75	Peak	254	162	P
3	4844.00	3.80	30.50	34.30	54.00	-19.70	Average	192	201	P
4	4844.00	3.80	44.32	48.12	74.00	-25.88	Peak	192	201	P
5	7266.00	8.30	30.84	39.14	54.00	-14.86	Average	100	205	P
6	7266.00	8.30	45.19	53.49	74.00	-20.51	Peak	100	205	P

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

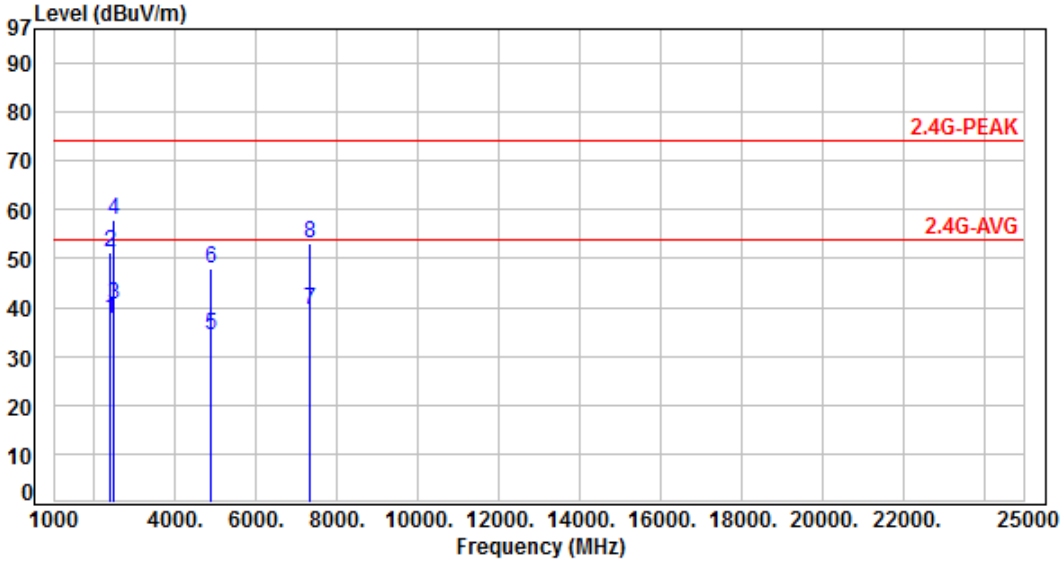
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 4, CH06		:	



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	-3.62	41.15	37.53	54.00	-16.47	Average	257	163	P
2	2390.00	-3.62	55.26	51.64	74.00	-22.36	Peak	257	163	P
3	2483.50	-3.40	44.14	40.74	54.00	-13.26	Average	257	163	P
4	2483.50	-3.40	62.31	58.91	74.00	-15.09	Peak	257	163	P
5	4874.00	3.90	30.15	34.05	54.00	-19.95	Average	177	126	P
6	4874.00	3.90	44.11	48.01	74.00	-25.99	Peak	177	126	P
7	7311.00	8.48	30.75	39.23	54.00	-14.77	Average	100	153	P
8	7311.00	8.48	44.59	53.07	74.00	-20.93	Peak	100	153	P

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

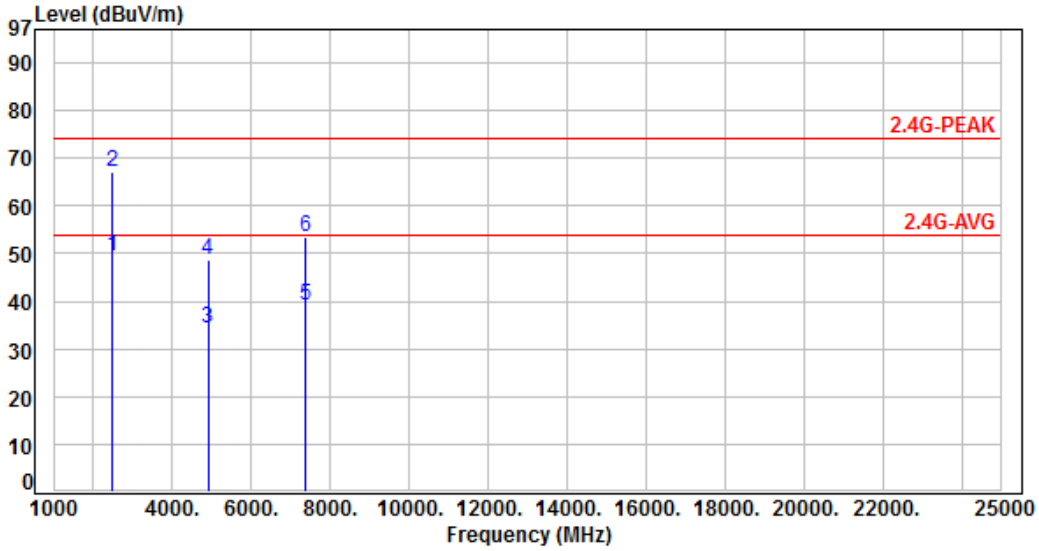
Power	:	AC 120V / 60Hz	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 4, CH06		:	



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	-3.62	41.42	37.80	54.00	-16.20	Average	177	298	P
2	2390.00	-3.62	54.78	51.16	74.00	-22.84	Peak	177	298	P
3	2483.50	-3.40	44.06	40.66	54.00	-13.34	Average	177	298	P
4	2483.50	-3.40	61.43	58.03	74.00	-15.97	Peak	177	298	P
5	4874.00	3.90	30.24	34.14	54.00	-19.86	Average	185	199	P
6	4874.00	3.90	43.91	47.81	74.00	-26.19	Peak	185	199	P
7	7311.00	8.48	30.86	39.34	54.00	-14.66	Average	100	184	P
8	7311.00	8.48	44.53	53.01	74.00	-20.99	Peak	100	184	P

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

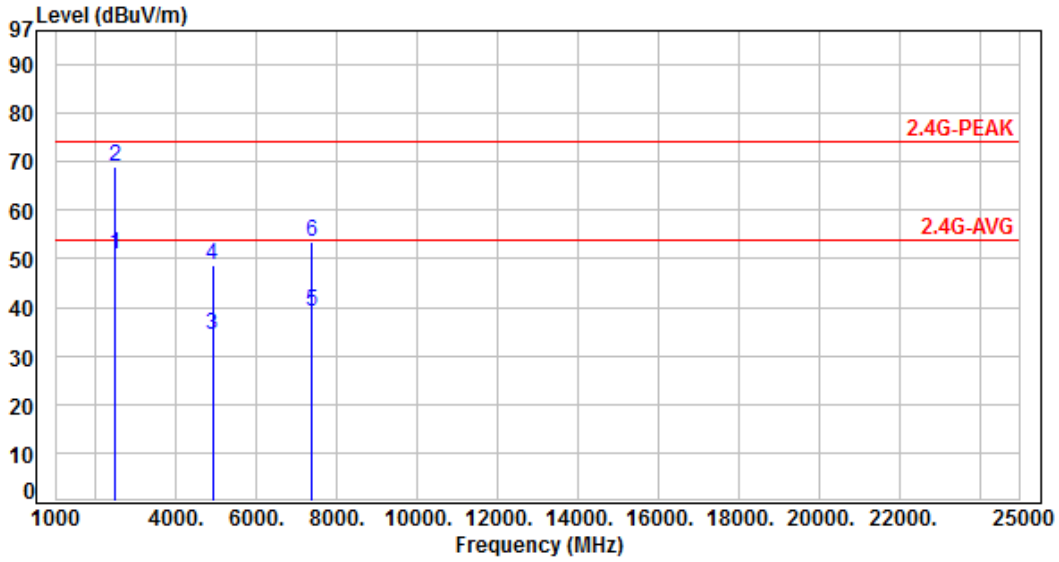
Power	:	AC 120V / 60Hz	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 4, CH09		:	



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	-3.40	52.93	49.53	54.00	-4.47	Average	285	162	P
2	2483.50	-3.40	70.43	67.03	74.00	-6.97	Peak	285	162	P
3	4904.00	4.00	30.23	34.23	54.00	-19.77	Average	172	147	P
4	4904.00	4.00	44.60	48.60	74.00	-25.40	Peak	172	147	P
5	7356.00	8.58	30.46	39.04	54.00	-14.96	Average	100	139	P
6	7356.00	8.58	44.74	53.32	74.00	-20.68	Peak	100	139	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	-3.40	54.18	50.78	54.00	-3.22	Average	242	167	P
2	2483.50	-3.40	72.48	69.08	74.00	-4.92	Peak	242	167	P
3	4904.00	4.00	30.38	34.38	54.00	-19.62	Average	185	202	P
4	4904.00	4.00	44.80	48.80	74.00	-25.20	Peak	185	202	P
5	7356.00	8.58	30.64	39.22	54.00	-14.78	Average	100	188	P
6	7356.00	8.58	44.87	53.45	74.00	-20.55	Peak	100	188	P

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

6.7 Restricted Bands of Operation

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

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

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

7. Test of Conducted Spurious Emission

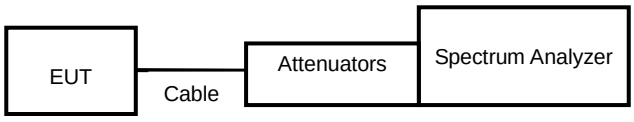
7.1 Test Limit

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

7.2 Test Procedure

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

7.3 Test Setup Layout

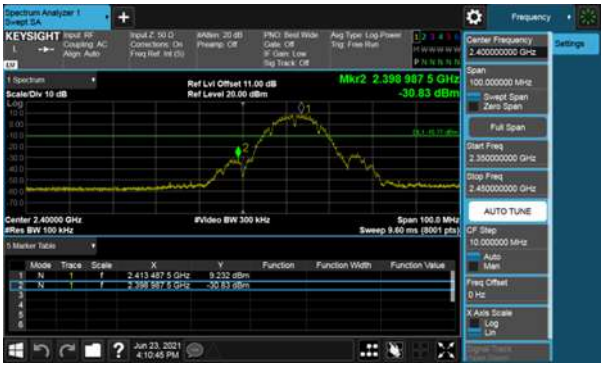


7.4 Test Result and Data

Note: Test plots refers to the following pages.

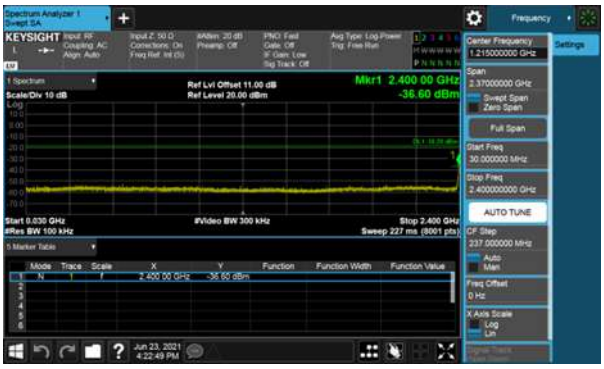
Modulation Type: 802.11b, CH 01

Modulation Type: 802.11b, CH 06

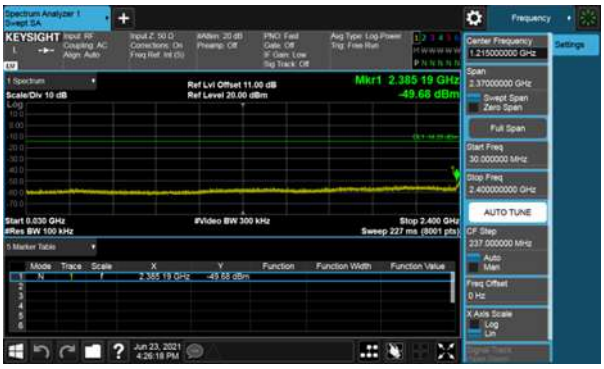


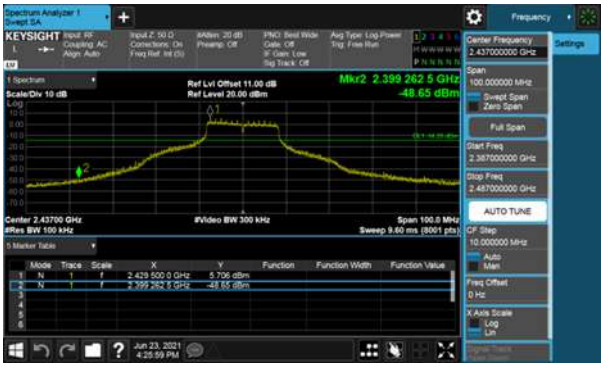
Modulation Type: 802.11b, CH 11

Modulation Type: 802.11g, CH 01



Modulation Type: 802.11g, CH 06

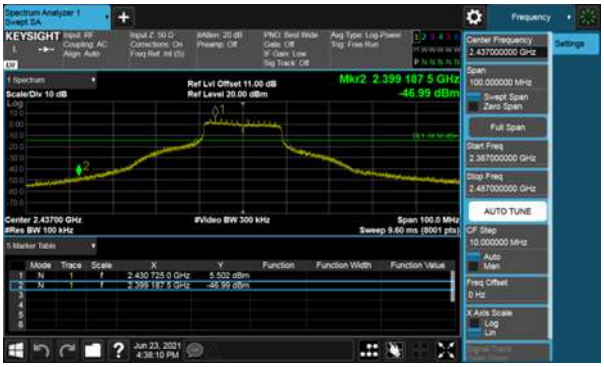




Modulation Type: 802.11g, CH 11

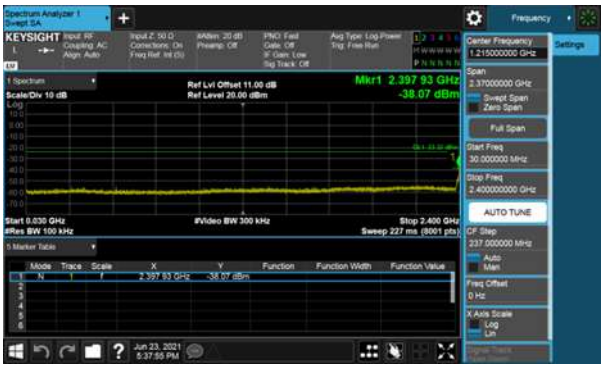
Modulation Type: 802.11n HT20, CH01

Modulation Type: 802.11n HT20, CH06

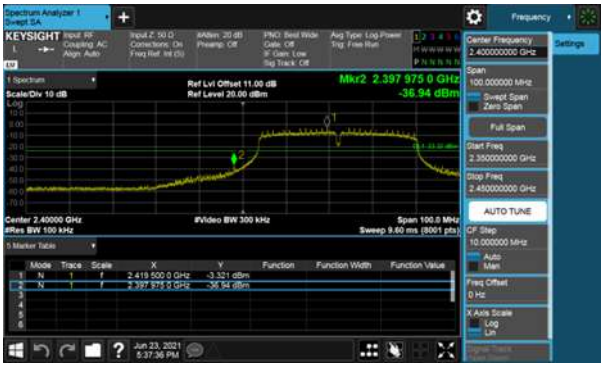


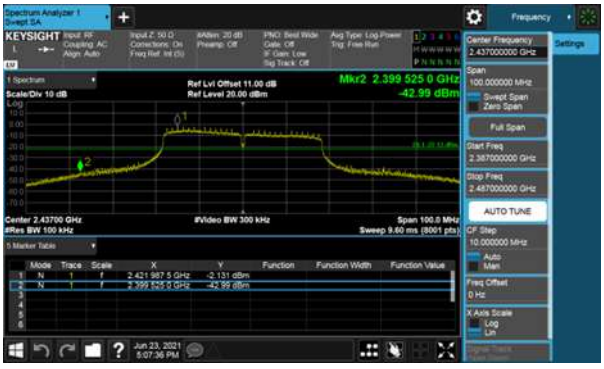
Modulation Type: 802.11n HT20, CH11

Modulation Type: 802.11n HT40, CH03

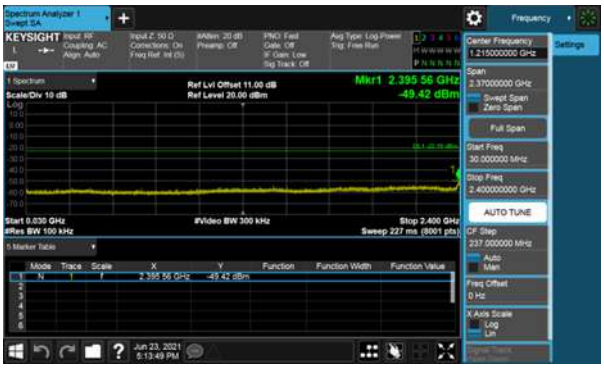


Modulation Type: 802.11n HT40, CH06





Modulation Type: 802.11n HT40, CH09



8. On Time, Duty Cycle and Measurement methods

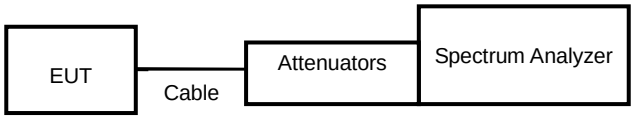
8.1 Test Limit

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 Type	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 Type: 802.11b(1Mbps)

Modulation Type: 802.11n HT40(13.5Mbps)

Modulation Type: 802.11g(6Mbps)

Modulation Type: 802.11n HT20(6.5Mbps)

9. 6dB Bandwidth Measurement Data

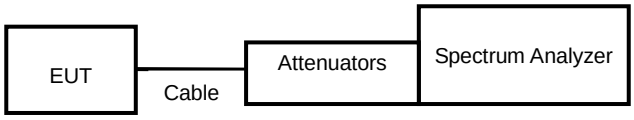
9.1 Test Limit

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

9.2 Test Procedures

a. The transmitter output was connected to the spectrum analyzer.
b. Set RBW of spectrum analyzer to 100 KHz and VBW to 300 KHz.
c. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.
d. The 6dB Bandwidth was measured and recorded.

9.3 Test Setup Layout



9.4 Test Result and Data

Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
			ANT A	
11b	1	2412	9.06	0.5
	6	2437	9.03	0.5
	11	2462	9.03	0.5
11g	1	2412	16.35	0.5
	6	2437	15.81	0.5
	11	2462	16.41	0.5
11n HT20	1	2412	17.31	0.5
	6	2437	16.38	0.5
	11	2462	17.58	0.5
11n HT40	3	2422	35.10	0.5
	6	2437	34.20	0.5
	9	2452	35.70	0.5

Modulation Type: 802.11b
CH01

Modulation Type: 802.11g
CH01

CH06

CH06

CH11

CH11

Modulation Type: 802.11n HT20
CH01

Modulation Type: 802.11n HT40
CH03

CH06

CH06

CH11

CH09

10. Maximum Peak and Average Output Power

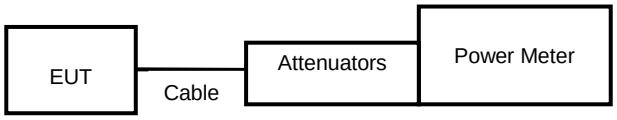
10.1 Test Limit

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

Setting	Modulation Mode	Channel	Frequency (MHz)	Conducted(peak) output power (dBm)	Total PK power (dBm)	Total PK power (mW)	Powe Limit (dBm)
				ANT A			
16	11b	1	2412	20.05	20.05	101.158	30.00
15.5		6	2437	19.21	19.21	83.368	30.00
17		11	2462	20.24	20.24	105.682	30.00
12	11g	1	2412	20.07	20.07	101.625	30.00
18		6	2437	22.15	22.15	164.059	30.00
15		11	2462	21.13	21.13	129.718	30.00
13	11n HT20	1	2412	20.36	20.36	108.643	30.00
17.5		6	2437	22.25	**22.25**	167.880	30.00
13		11	2462	20.29	20.29	106.905	30.00
11	11n HT40	3	2422	18.52	18.52	71.121	30.00
11		6	2437	19.23	19.23	83.753	30.00
12		9	2452	20.21	20.21	104.954	30.00

Setting	Modulation Mode	Channel	Frequency (MHz)	Conducted(average) output power (dBm)	Total AV power (dBm)	Total AV power (mW)	Powe Limit (dBm)
				ANT A			
16	11b	1	2412	17.72	17.72	59.156	NA
15.5		6	2437	16.76	16.76	47.424	NA
17		11	2462	17.87	17.87	61.235	NA
12	11g	1	2412	12.18	12.18	16.520	NA
18		6	2437	16.37	16.37	43.351	NA
15		11	2462	14.28	14.28	26.792	NA
13	11n HT20	1	2412	12.59	12.59	18.155	NA
17.5		6	2437	16.51	16.51	44.771	NA
13		11	2462	12.70	12.70	18.621	NA
11	11n HT40	3	2422	10.19	10.19	10.447	NA
11		6	2437	11.03	11.03	12.677	NA
12		9	2452	12.14	12.14	16.368	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

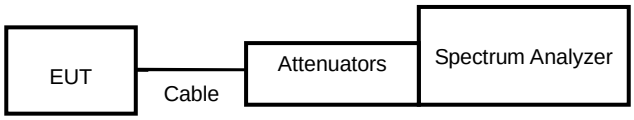
11.2 Test Procedures

a. The transmitter output was connected to spectrum analyzer.

b. The spectrum analyzer's resolution bandwidth were set at 3kHz RBW and 10KHz VBW as that of the fundamental frequency. Set the sweep time=auto couple.

c. The power spectral density was measured and recorded.

11.3 Test Setup Layout

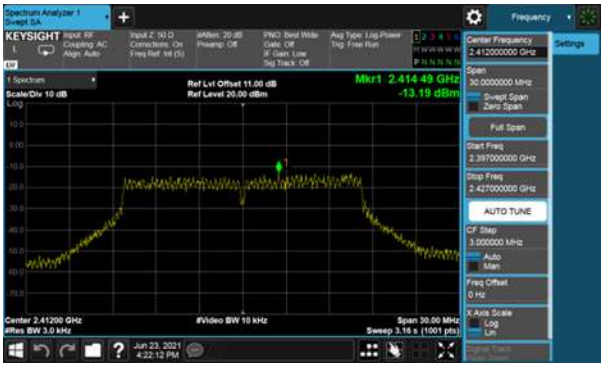


11.4 Test Result and Data

Modulation Type	Channel	Frequency (MHz)	Maximum Power Density of 3KHz Bandwidth(dBm) ANT A	Sum chain (dBm)	Duty Cycle CF(dB)	Total PSD (dBm)	Limit (dBm)
11b	1	2412	-4.66	-4.66	0.00	-4.66	8.00
	6	2437	-7.01	-7.01	0.00	-7.01	8.00
	11	2462	-6.82	-6.82	0.00	-6.82	8.00
11g	1	2412	-13.19	-13.19	0.00	-13.19	8.00
	6	2437	-8.78	-8.78	0.00	-8.78	8.00
	11	2462	-13.19	-13.19	0.00	-13.19	8.00
11n HT20	1	2412	-12.04	-12.04	0.00	-12.04	8.00
	6	2437	-9.06	-9.06	0.00	-9.06	8.00
	11	2462	-15.25	-15.25	0.00	-15.25	8.00
11n HT40	3	2422	-17.80	-17.80	0.00	-17.80	8.00
	6	2437	-15.80	-15.80	0.00	-15.80	8.00
	9	2452	-17.53	-17.53	0.00	-17.53	8.00

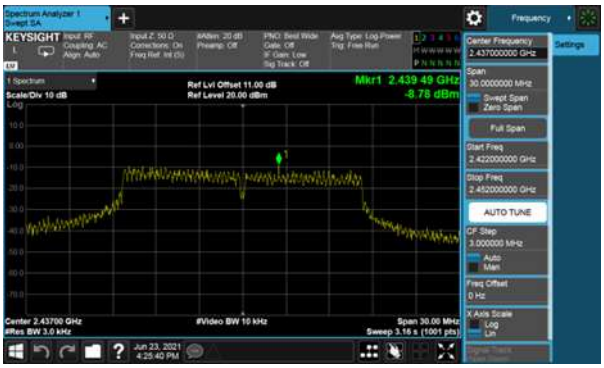
Modulation Type: 802.11b
CH01

Modulation Type: 802.11g
CH01



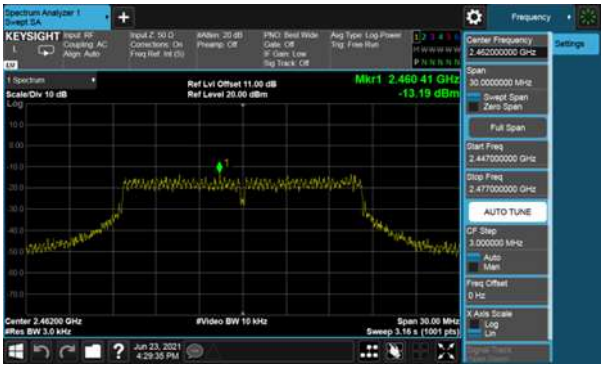
CH06

CH06

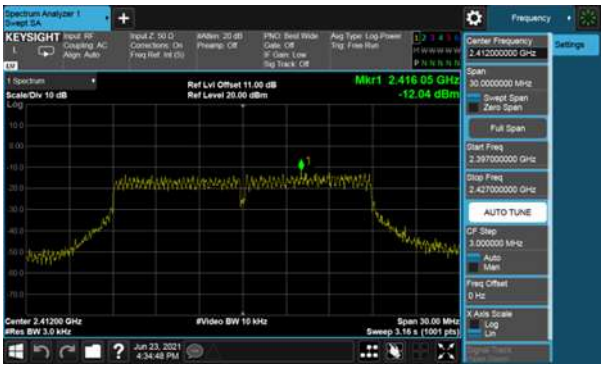


CH11

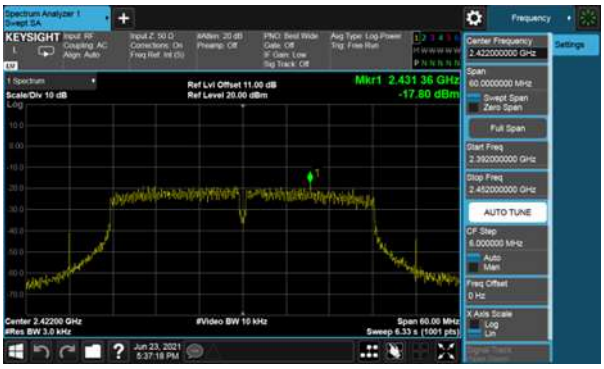
CH11



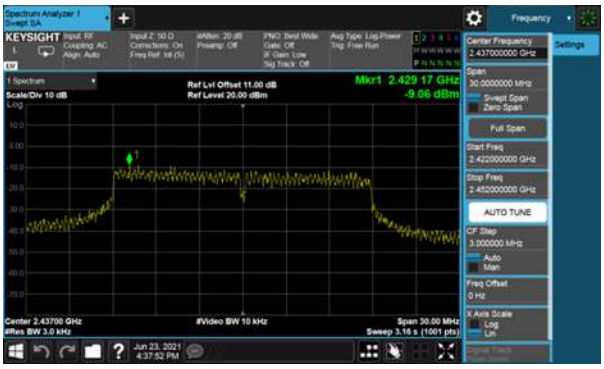
Modulation Type: 802.11n HT20
CH01



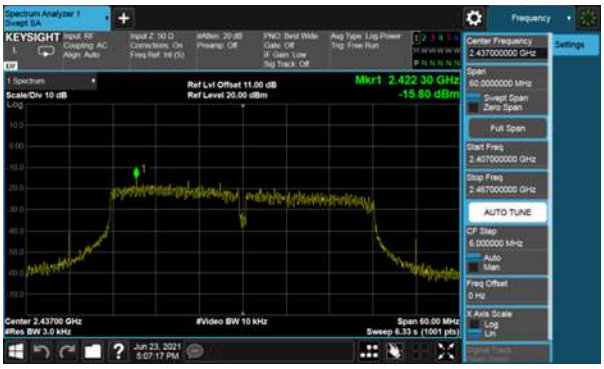
Modulation Type: 802.11n HT40
CH03



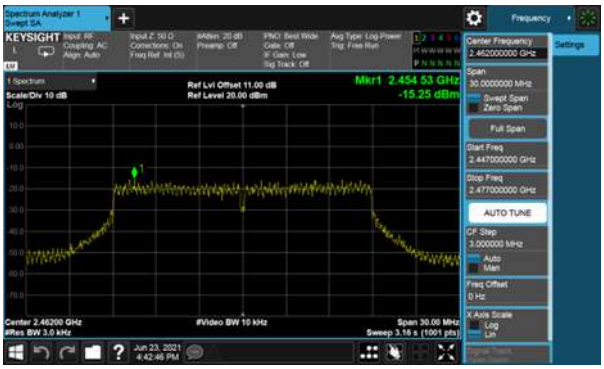
CH06



CH06



CH11



CH09