



# FCC RADIO TEST REPORT

Applicant : Ubiquiti Inc.  
Address : 685 Third Avenue, New York, New York 10017,  
USA  
Equipment : UniFi Connect  
Model No. : UC-Display7  
Trade Name : UBIQUITI  
FCC ID : SWX-UCD7

**I HEREBY CERTIFY THAT :**

The sample was received on Mar. 24, 2021 and the testing was completed on Jul. 08, 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





## Contents

<b>1. Summary of Test Procedure and Test Results.....</b>	<b>5</b>
1.1 Applicable Standards .....	5
<b>2. Test Configuration of Equipment under Test .....</b>	<b>6</b>
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.....	9
2.5 General Information of Test.....	10
2.6 Measurement Uncertainty .....	10
<b>3. Test Equipment and Ancillaries Used for Tests .....</b>	<b>11</b>
<b>4. Antenna Requirements.....</b>	<b>13</b>
4.1 Antenna Construction and Directional Gain.....	13
<b>5. Test of AC Power Line Conducted Emission .....</b>	<b>14</b>
5.1 Test Limit .....	14
5.2 Test Procedures .....	14
5.3 Typical Test Setup .....	15
5.4 Test Result and Data.....	16
5.5 Test Photographs .....	18
<b>6. Test of Radiated Spurious Emission.....</b>	<b>19</b>
6.1 Test Limit .....	19
6.2 Test Procedures .....	20
6.3 Typical Test Setup .....	21
6.4 Test Result and Data (9KHz ~ 30MHz) .....	22
6.5 Test Result and Data (30MHz ~ 1GHz).....	22
6.6 Test Result and Data (1GHz ~ 25GHz).....	24
6.7 Restricted Bands of Operation .....	48
6.8 Test Photographs (30MHz ~ 1GHz).....	49
6.9 Test Photographs (1GHz ~ 25GHz).....	50
<b>7. Test of Conducted Spurious Emission .....</b>	<b>52</b>
7.1 Test Limit .....	52
7.2 Test Procedure .....	52
7.3 Test Setup Layout .....	52
7.4 Test Result and Data.....	52
<b>8. On Time, Duty Cycle and Measurement methods .....</b>	<b>61</b>
8.1 Test Limit .....	61
8.2 Test Procedure .....	61
8.3 Test Setup Layout .....	61
8.4 Test Result and Data.....	61
<b>9. 6dB Bandwidth Measurement Data .....</b>	<b>63</b>
9.1 Test Limit .....	63
9.2 Test Procedures .....	63
9.3 Test Setup Layout .....	63



9.4 Test Result and Data ..... 63

**10. Maximum Peak and Average Output Power ..... 66**

10.1 Test Limit ..... 66

10.2 Test Procedures ..... 66

10.3 Test Setup Layout ..... 66

10.4 Test Result and Data ..... 67

**11. Power Spectral Density ..... 68**

11.1 Test Limit ..... 68

11.2 Test Procedures ..... 68

11.3 Test Setup Layout ..... 68

11.4 Test Result and Data ..... 68

**12. Radio Frequency Exposure ..... 71**

12.1 Applicable Standards ..... 71

12.2 EUT Specification ..... 71

12.3 Test Results ..... 72

12.4 Calculation ..... 72

12.5 Maximum Permissible Exposure ..... 73



### History of this test report

Report No.	Issue Date	Description
21030206-TRFCC02	Jul. 26, 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, $\pi/4$ -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, $\pi/4$ -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: -0.90dBi For WLAN: 2412MHz~2462MHz:-0.90dBi 5180MHz~5240MHz:2.10dBi 5260MHz~5320MHz:2.10dBi 5500MHz~5720MHz:2.10dBi 5745MHz~5825MHz:2.10dBi

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

802.11n HT40 (2422MHz~2452MHz)

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

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



### 2.3 Test Mode and Test Software

- a. During testing, the interface cables and equipment positions were varied according to ANSI C63.10.
- 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
Adapter	UBIQUITI	GP-M015-QC	N/A	N/A
Micro USB Cable	kolin	EX-DLCP07	1m / NS	N/A
Radiated Emissions				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	ASUS	P2430U	N/A	Adapter / 1.8m / NS
Adapter	UBIQUITI	GP-M015-QC	N/A	N/A
Micro USB Cable	kolin	EX-DLCP07	1m / NS	N/A
AC Power Line Conducted Emission				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	DELL	Vostro 3560	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
Adapter	UBIQUITI	GP-M015-QC	N/A	N/A
POE	UBIQUITI	GP-H480-050G	N/A	0.6m / NS



## 2.5 General Information of Test

Test Site	<b>CerpPASS Technology Corporation Test Laboratory</b> Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881	
	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	2021/07/07~2021/07/08	23.3~24°C / 53~58%	Nick Guan
Radiated Emissions	3M02-NK	2021/06/28~2021/07/01	23~24°C / 42~45%	Nick Guan
AC Power Line Conducted Emission	CON01-NK	2021/07/08	27°C / 55%	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 Antenna	EMCO	3116	31974	2020/09/24	2021/09/23
EMI Receiver	ROHDE & SCHWARZ	ESCI	101200	2020/09/11	2021/09/10
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-38MS50314	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 & HUMIDITY 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	-0.90 dBi

2412-2462MHz

For Power directional gain=  $G_{ant} = -0.90\text{Bi}$

For PSD directional gain =  $G_{ant} = -0.90\text{Bi}$



## 5. Test of AC Power Line Conducted Emission

### 5.1 Test Limit

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

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

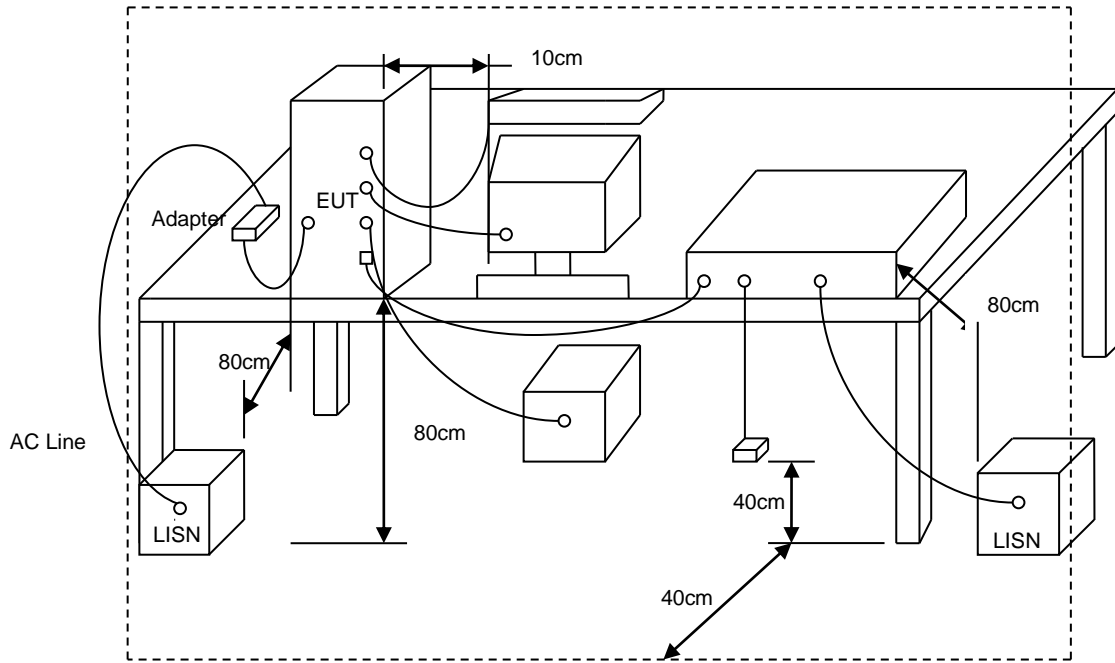
\*Decreases with the logarithm of the frequency.

### 5.2 Test Procedures

- 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.



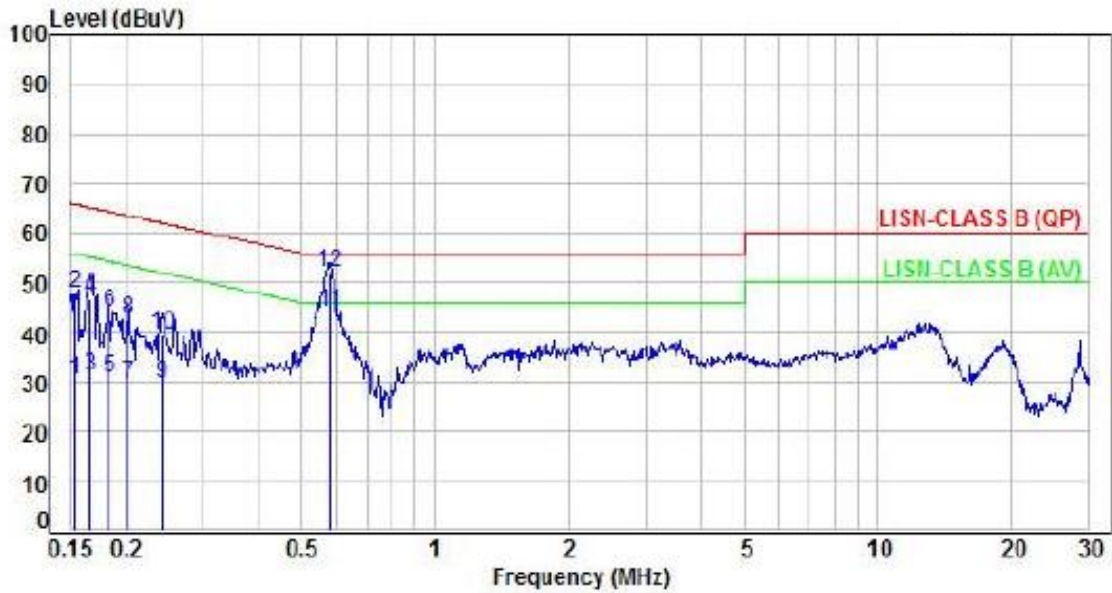
### 5.3 Typical Test Setup





5.4 Test Result and Data

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



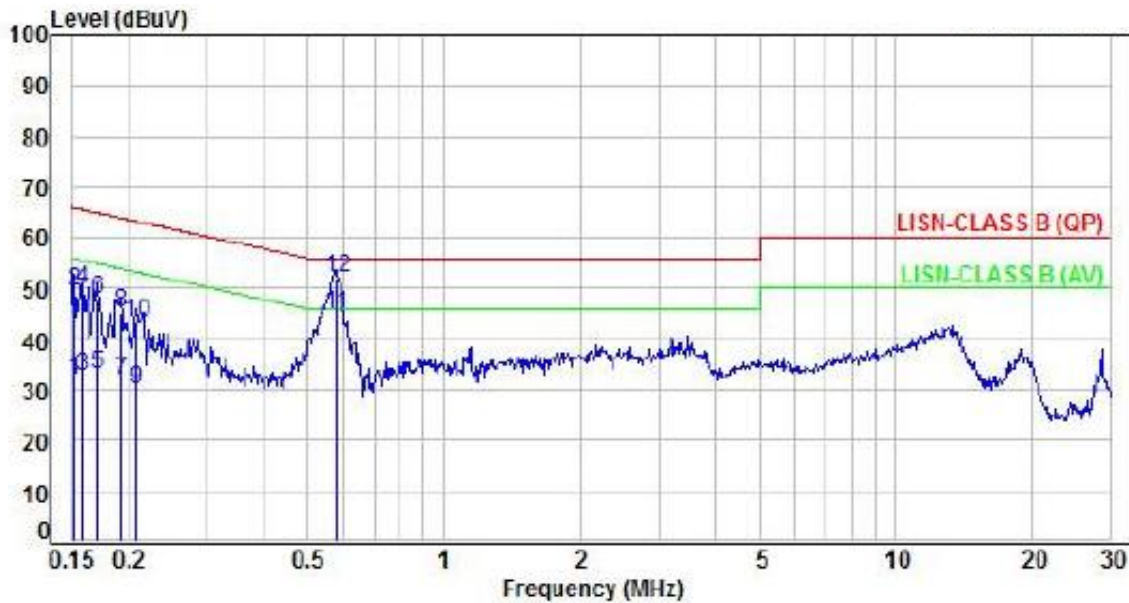
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.15	9.96	20.60	30.56	55.79	-25.23	Average	P
2	0.15	9.96	37.99	47.95	65.79	-17.84	QP	P
3	0.17	9.96	21.21	31.17	55.18	-24.01	Average	P
4	0.17	9.96	36.80	46.76	65.18	-18.42	QP	P
5	0.18	9.96	20.93	30.89	54.33	-23.44	Average	P
6	0.18	9.96	34.03	43.99	64.33	-20.34	QP	P
7	0.20	9.96	19.76	29.72	53.54	-23.82	Average	P
8	0.20	9.96	32.62	42.58	63.54	-20.96	QP	P
9	0.24	9.96	19.73	29.69	52.08	-22.39	Average	P
10	0.24	9.96	29.73	39.69	62.08	-22.39	QP	P
11	0.57	9.99	34.21	44.20	46.00	-1.80	Average	P
12	0.57	9.99	41.95	51.94	56.00	-4.06	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	22.01	31.98	55.90	-23.92	Average	P
2	0.15	9.97	39.59	49.56	65.90	-16.34	QP	P
3	0.16	9.97	22.88	32.85	55.56	-22.71	Average	P
4	0.16	9.97	39.83	49.80	65.56	-15.76	QP	P
5	0.17	9.97	22.95	32.92	54.90	-21.98	Average	P
6	0.17	9.97	38.06	48.03	64.90	-16.87	QP	P
7	0.19	9.97	22.05	32.02	53.98	-21.96	Average	P
8	0.19	9.97	35.45	45.42	63.98	-18.56	QP	P
9	0.21	9.97	20.24	30.21	53.27	-23.06	Average	P
10	0.21	9.97	33.35	43.32	63.27	-19.95	QP	P
11	0.58	10.00	35.00	45.00	46.00	-1.00	Average	P
12	0.58	10.00	41.98	51.98	56.00	-4.02	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

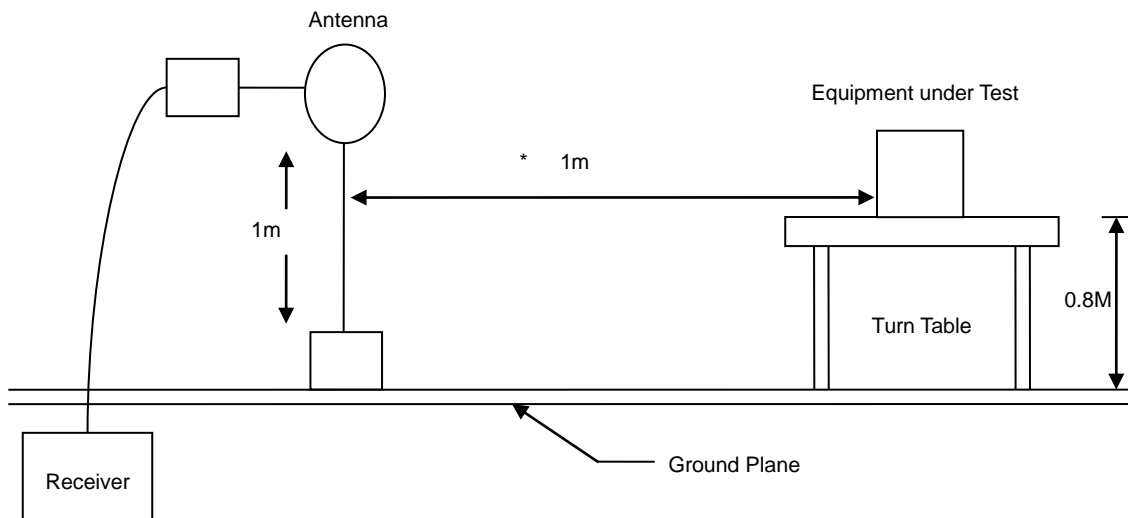
- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- 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.)

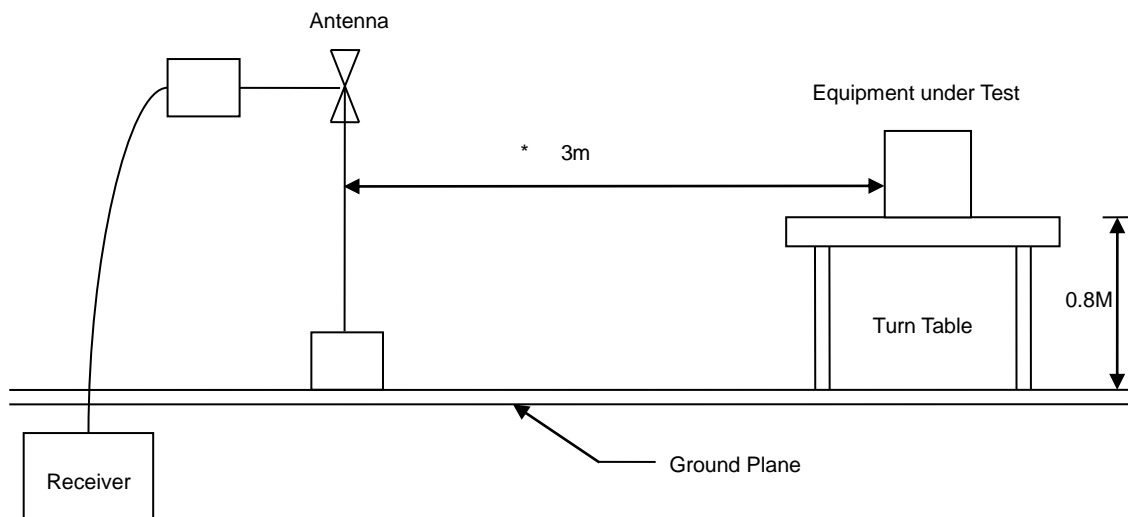


### 6.3 Typical Test Setup

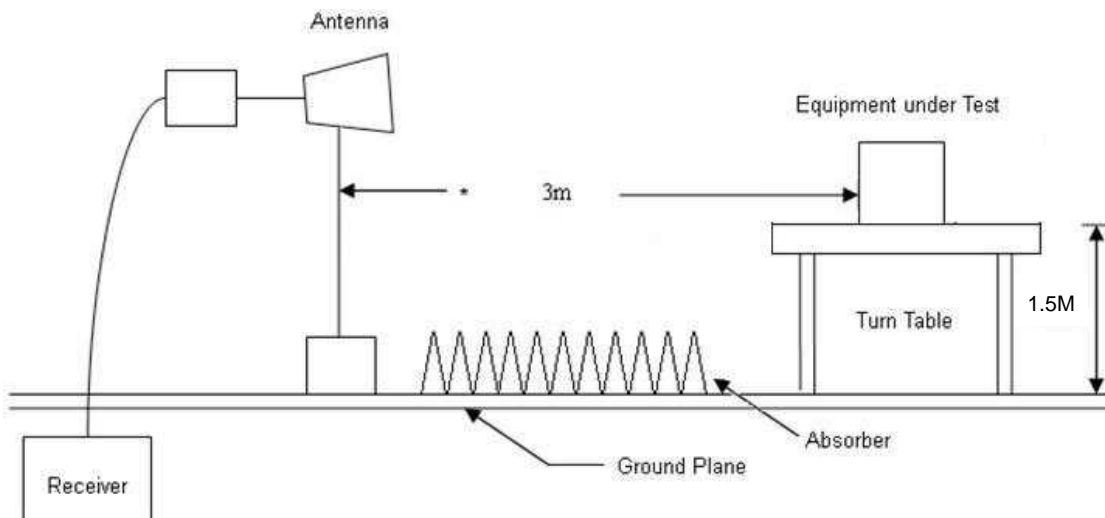
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup



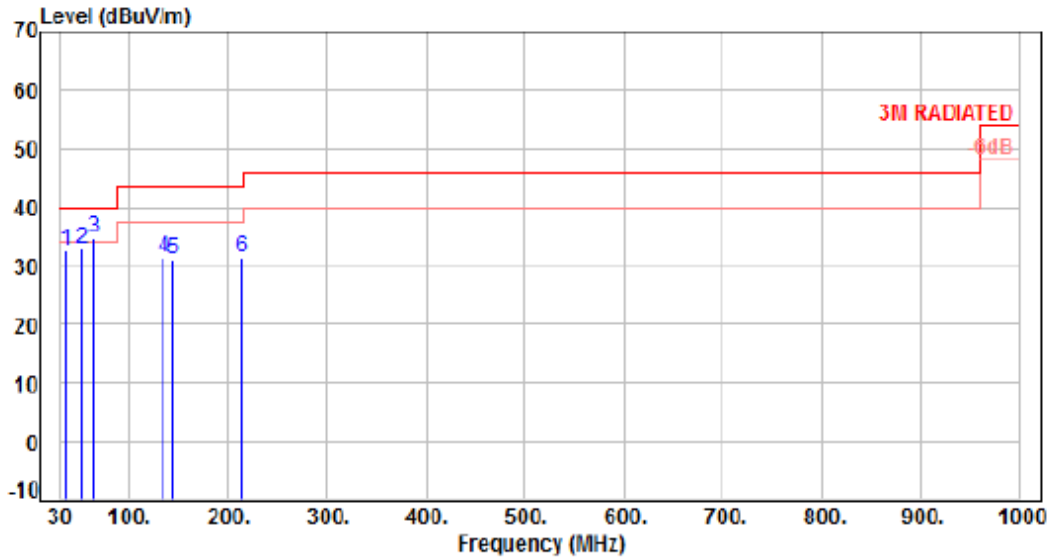


### 6.4 Test Result and Data (9KHz ~ 30MHz)

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		:

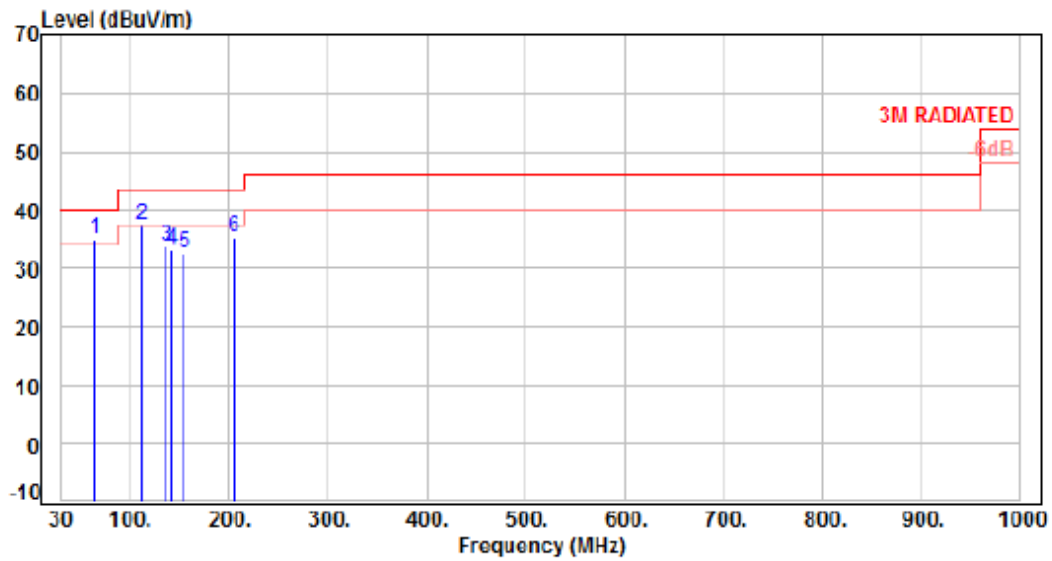


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	35.82	-11.60	44.16	32.56	40.00	-7.44	QP	100	322	P
2	51.34	-10.69	43.47	32.78	40.00	-7.22	QP	100	39	P
3	64.92	-12.29	46.93	34.64	40.00	-5.36	QP	100	359	P
4	134.76	-11.41	42.74	31.33	43.50	-12.17	Peak	400	360	P
5	144.46	-10.93	41.94	31.01	43.50	-12.49	Peak	400	360	P
6	214.30	-12.90	44.41	31.51	43.50	-11.99	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		:



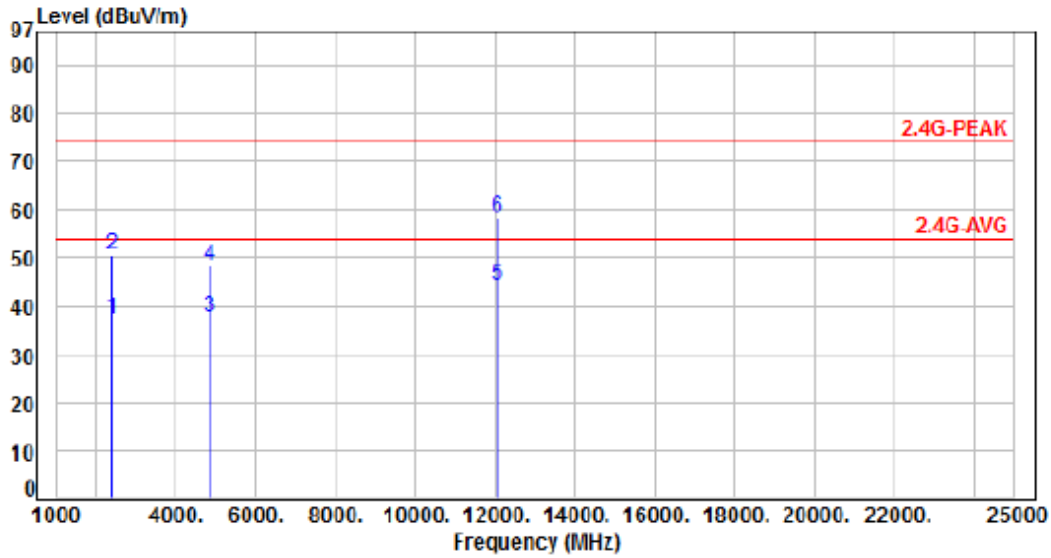
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	63.95	-12.12	47.05	34.93	40.00	-5.07	Peak	400	0	P
2	111.48	-13.92	51.41	37.49	43.50	-6.01	Peak	400	0	P
3	136.70	-11.40	45.20	33.80	43.50	-9.70	Peak	400	0	P
4	142.52	-10.99	44.25	33.26	43.50	-10.24	Peak	400	0	P
5	154.16	-10.86	43.30	32.44	43.50	-11.06	Peak	400	0	P
6	204.60	-13.23	48.46	35.23	43.50	-8.27	Peak	400	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		:

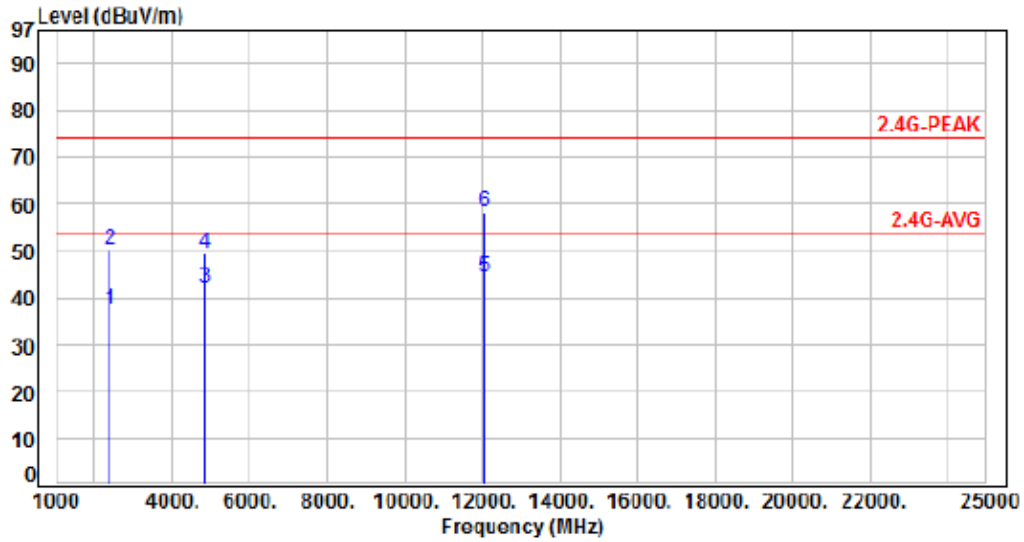


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	40.84	37.22	54.00	-16.78	Average	171	258	P
2	2390.00	-3.62	54.19	50.57	74.00	-23.43	Peak	171	258	P
3	4824.00	3.73	33.94	37.67	54.00	-16.33	Average	100	137	P
4	4824.00	3.73	44.41	48.14	74.00	-25.86	Peak	100	137	P
5	12060.00	13.35	30.96	44.31	54.00	-9.69	Average	100	239	P
6	12060.00	13.35	44.82	58.17	74.00	-15.83	Peak	100	239	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		:



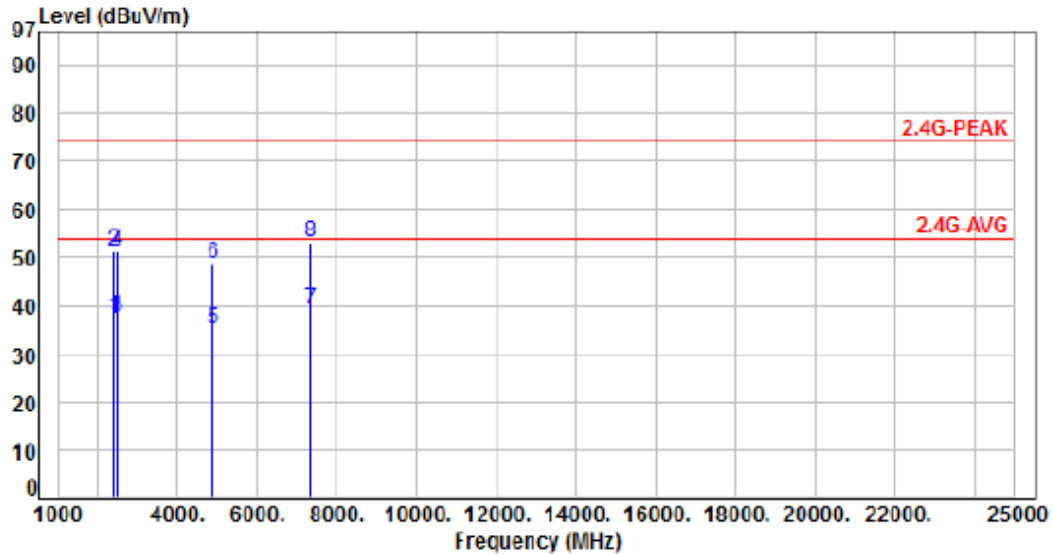
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	40.95	37.33	54.00	-16.67	Average	108	140	P
2	2390.00	-3.62	53.77	50.15	74.00	-23.85	Peak	108	140	P
3	4824.00	3.73	38.16	41.89	54.00	-12.11	Average	158	178	P
4	4824.00	3.73	45.79	49.52	74.00	-24.48	Peak	158	178	P
5	12060.00	13.35	31.01	44.36	54.00	-9.64	Average	108	169	P
6	12060.00	13.35	44.99	58.34	74.00	-15.66	Peak	108	169	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		:

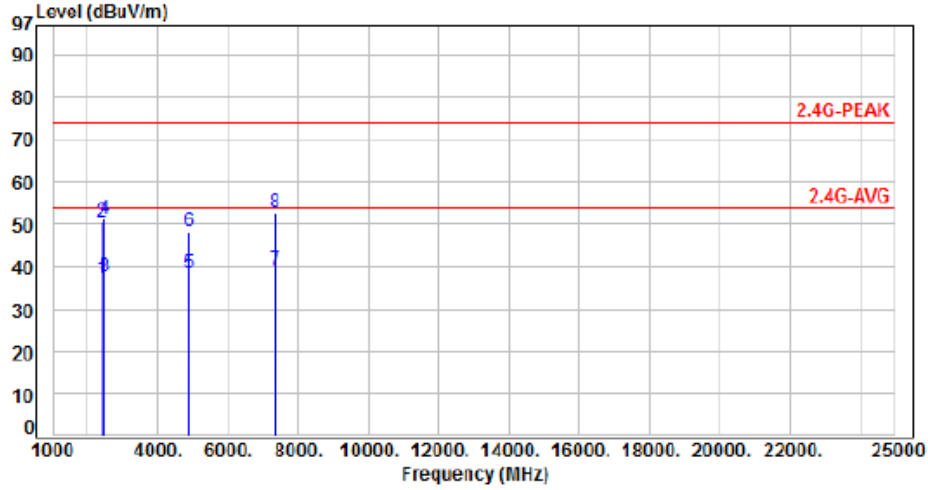


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	40.72	37.10	54.00	-16.90	Average	246	298	P
2	2390.00	-3.62	54.75	51.13	74.00	-22.87	Peak	246	298	P
3	2483.50	-3.40	40.93	37.53	54.00	-16.47	Average	246	298	P
4	2483.50	-3.40	54.70	51.30	74.00	-22.70	Peak	246	298	P
5	4874.00	3.90	31.13	35.03	54.00	-18.97	Average	204	173	P
6	4874.00	3.90	44.82	48.72	74.00	-25.28	Peak	204	173	P
7	7311.00	8.48	30.46	38.94	54.00	-15.06	Average	100	293	P
8	7311.00	8.48	44.51	52.99	74.00	-21.01	Peak	100	293	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		:

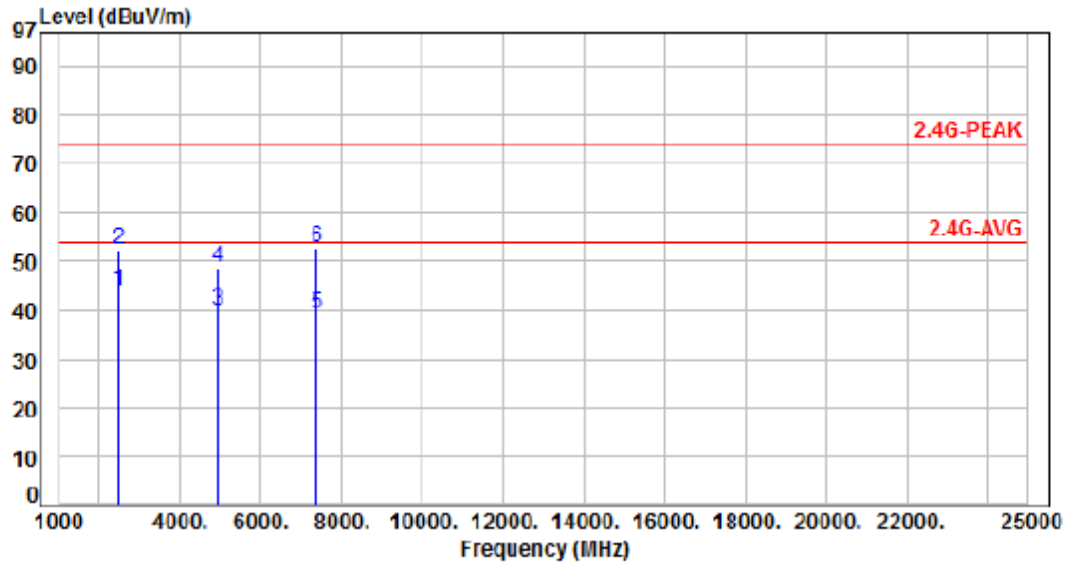


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	40.79	37.17	54.00	-16.83	Average	166	141	P
2	2390.00	-3.62	53.98	50.36	74.00	-23.64	Peak	166	141	P
3	2483.50	-3.40	41.13	37.73	54.00	-16.27	Average	166	141	P
4	2483.50	-3.40	54.59	51.19	74.00	-22.81	Peak	166	141	P
5	4874.00	3.90	34.48	38.38	54.00	-15.62	Average	164	168	P
6	4874.00	3.90	44.31	48.21	74.00	-25.79	Peak	164	168	P
7	7311.00	8.48	30.51	38.99	54.00	-15.01	Average	100	120	P
8	7311.00	8.48	44.26	52.74	74.00	-21.26	Peak	100	120	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	47.22	43.82	54.00	-10.18	Average	228	254	P
2	2483.50	-3.40	55.89	52.49	74.00	-21.51	Peak	228	254	P
3	4924.00	4.10	35.83	39.93	54.00	-14.07	Average	100	175	P
4	4924.00	4.10	44.68	48.78	74.00	-25.22	Peak	100	175	P
5	7386.00	8.59	30.46	39.05	54.00	-14.95	Average	100	235	P
6	7386.00	8.59	44.33	52.92	74.00	-21.08	Peak	100	235	P

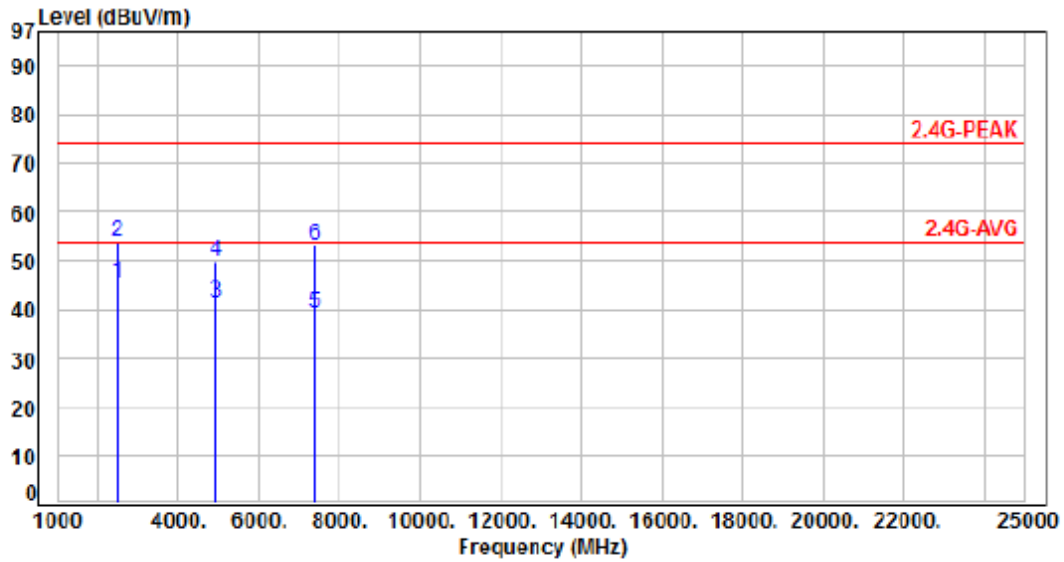
Note: Level=Reading+Factor

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	48.64	45.24	54.00	-8.76	Average	100	141	P
2	2483.50	-3.40	57.17	53.77	74.00	-20.23	Peak	100	141	P
3	4924.00	4.10	37.18	41.28	54.00	-12.72	Average	224	230	P
4	4924.00	4.10	45.59	49.69	74.00	-24.31	Peak	224	230	P
5	7386.00	8.59	30.45	39.04	54.00	-14.96	Average	100	117	P
6	7386.00	8.59	44.52	53.11	74.00	-20.89	Peak	100	117	P

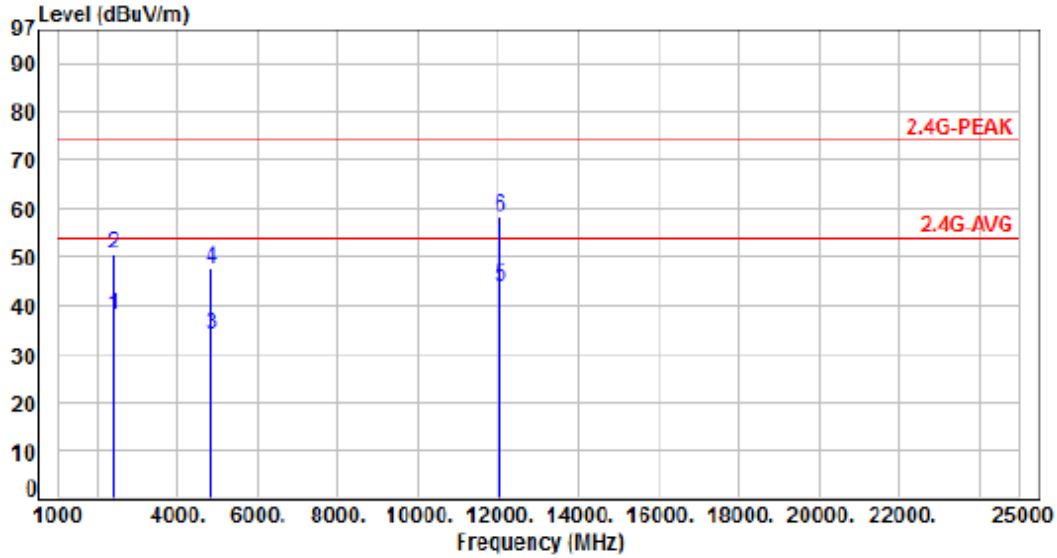
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



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

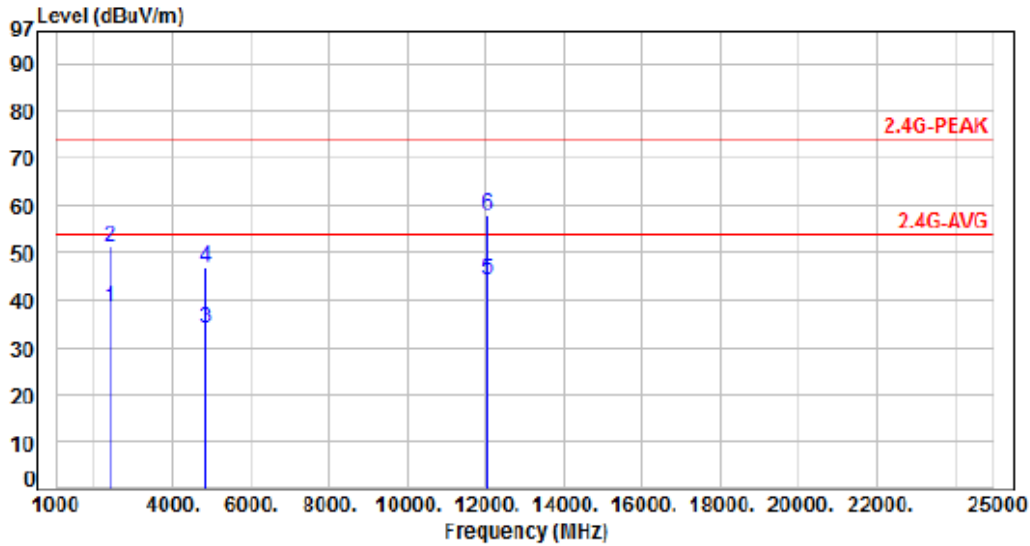


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	41.61	37.99	54.00	-16.01	Average	159	251	P
2	2390.00	-3.62	54.32	50.70	74.00	-23.30	Peak	159	251	P
3	4824.00	3.73	30.11	33.84	54.00	-20.16	Average	100	272	P
4	4824.00	3.73	43.69	47.42	74.00	-26.58	Peak	100	272	P
5	12060.00	13.35	30.68	44.03	54.00	-9.97	Average	100	283	P
6	12060.00	13.35	44.78	58.13	74.00	-15.87	Peak	100	283	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		:

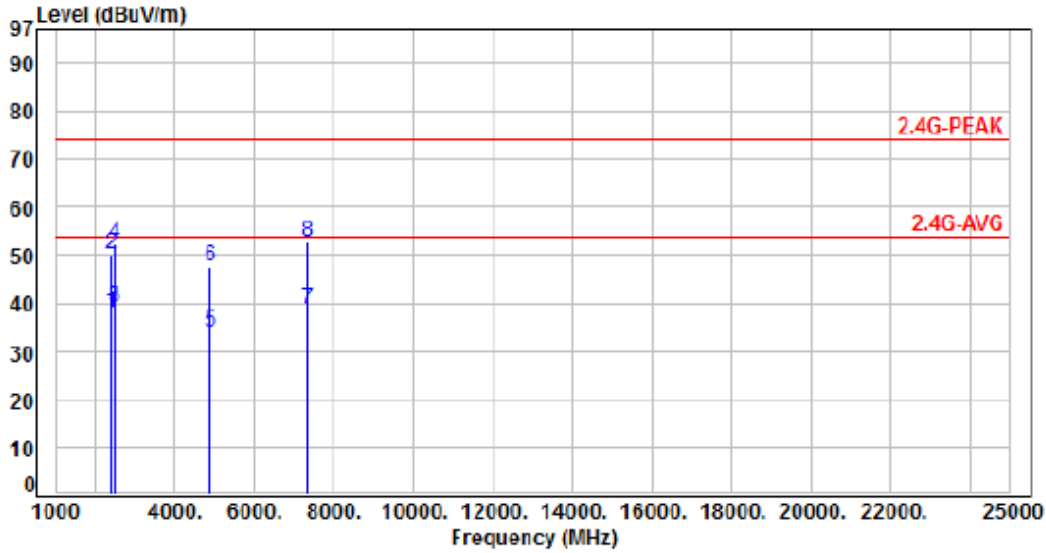


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	41.91	38.29	54.00	-15.71	Average	174	143	P
2	2390.00	-3.62	54.74	51.12	74.00	-22.88	Peak	174	143	P
3	4824.00	3.73	30.19	33.92	54.00	-20.08	Average	100	127	P
4	4824.00	3.73	43.29	47.02	74.00	-26.98	Peak	100	127	P
5	12060.00	13.35	30.97	44.32	54.00	-9.68	Average	100	180	P
6	12060.00	13.35	44.55	57.90	74.00	-16.10	Peak	100	180	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		:

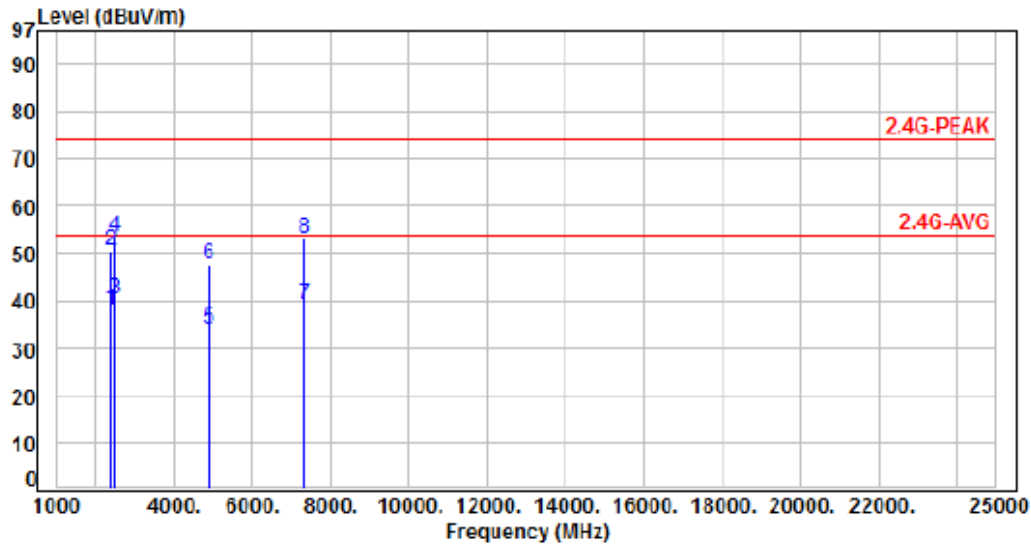


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	41.79	38.17	54.00	-15.83	Average	189	266	P
2	2390.00	-3.62	53.95	50.33	74.00	-23.67	Peak	189	266	P
3	2483.50	-3.40	42.65	39.25	54.00	-14.75	Average	189	266	P
4	2483.50	-3.40	55.83	52.43	74.00	-21.57	Peak	189	266	P
5	4874.00	3.90	30.18	34.08	54.00	-19.92	Average	100	249	P
6	4874.00	3.90	43.56	47.46	74.00	-26.54	Peak	100	249	P
7	7311.00	8.48	30.42	38.90	54.00	-15.10	Average	100	253	P
8	7311.00	8.48	44.34	52.82	74.00	-21.18	Peak	100	253	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		:



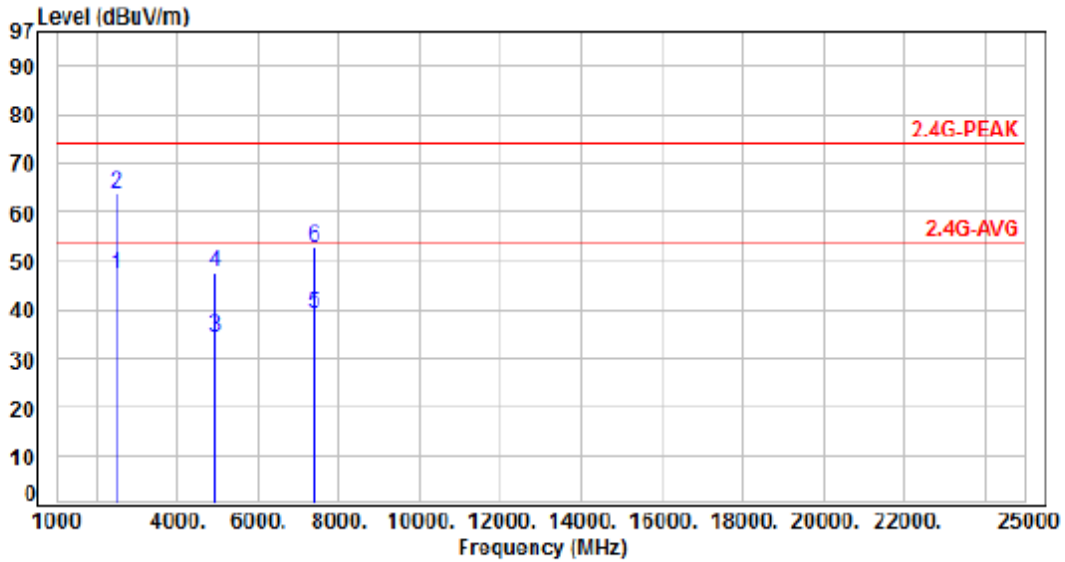
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	41.71	38.09	54.00	-15.91	Average	100	140	P
2	2390.00	-3.62	54.13	50.51	74.00	-23.49	Peak	100	140	P
3	2483.50	-3.40	43.59	40.19	54.00	-13.81	Average	100	140	P
4	2483.50	-3.40	56.79	53.39	74.00	-20.61	Peak	100	140	P
5	4874.00	3.90	30.11	34.01	54.00	-19.99	Average	100	159	P
6	4874.00	3.90	43.81	47.71	74.00	-26.29	Peak	100	159	P
7	7311.00	8.48	30.64	39.12	54.00	-14.88	Average	100	102	P
8	7311.00	8.48	44.63	53.11	74.00	-20.89	Peak	100	102	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		:

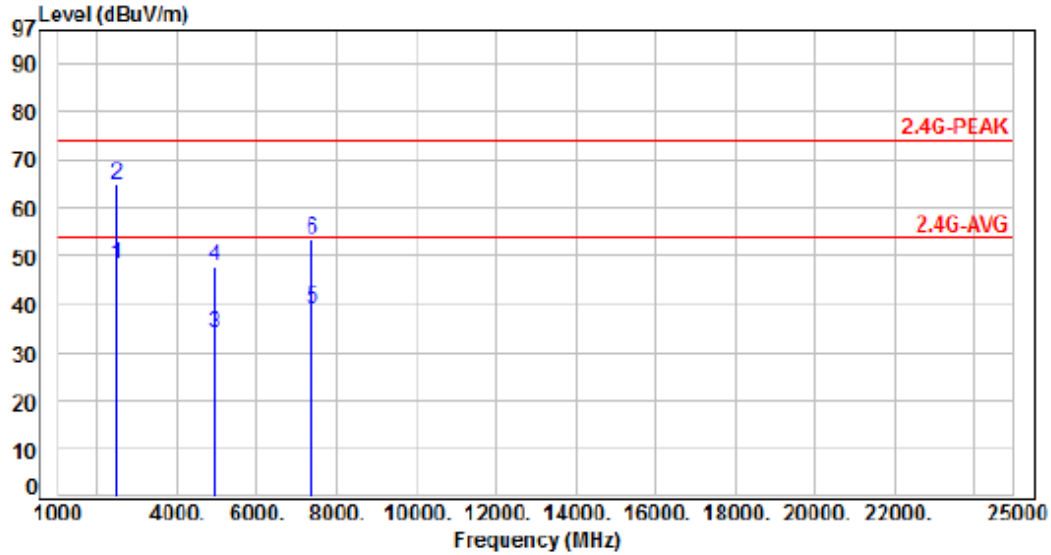


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.40	50.58	47.18	54.00	-6.82	Average	189	263	P
2	2483.50	-3.40	67.25	63.85	74.00	-10.15	Peak	189	263	P
3	4924.00	4.10	30.03	34.13	54.00	-19.87	Average	100	257	P
4	4924.00	4.10	43.37	47.47	74.00	-26.53	Peak	100	257	P
5	7386.00	8.59	30.54	39.13	54.00	-14.87	Average	100	317	P
6	7386.00	8.59	44.09	52.68	74.00	-21.32	Peak	100	317	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		:

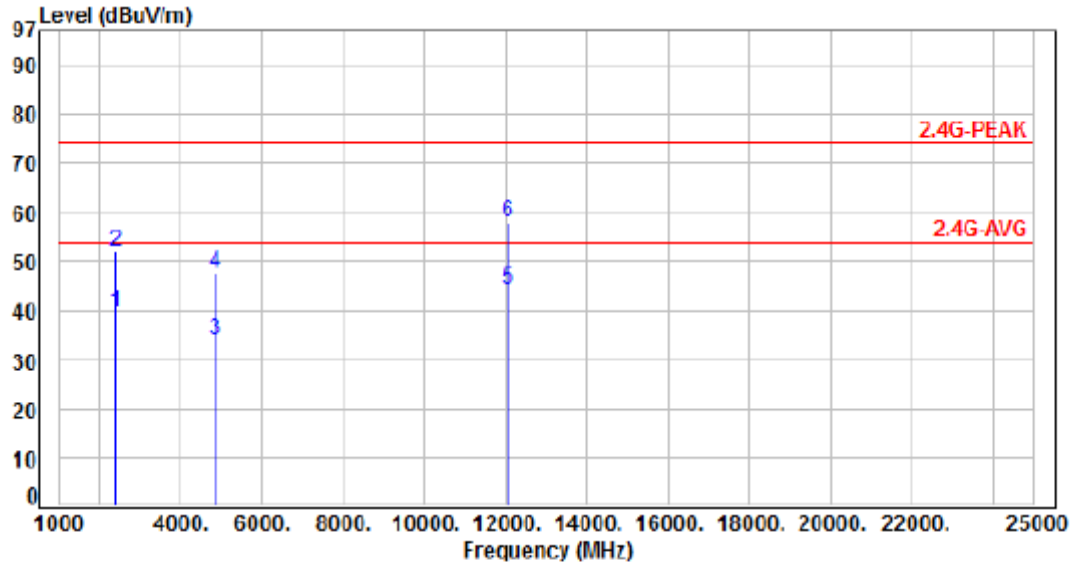


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.40	51.64	48.24	54.00	-5.76	Average	110	142	P
2	2483.50	-3.40	68.33	64.93	74.00	-9.07	Peak	110	142	P
3	4924.00	4.10	29.89	33.99	54.00	-20.01	Average	100	175	P
4	4924.00	4.10	43.99	48.09	74.00	-25.91	Peak	100	175	P
5	7386.00	8.59	30.43	39.02	54.00	-14.98	Average	100	129	P
6	7386.00	8.59	44.83	53.42	74.00	-20.58	Peak	100	129	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		:

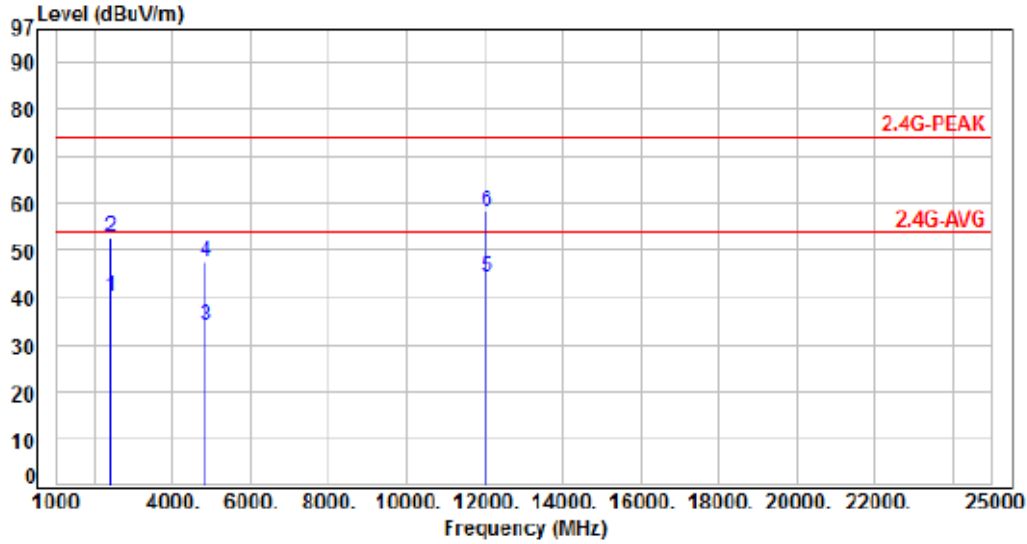


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	42.96	39.34	54.00	-14.66	Average	159	253	P
2	2390.00	-3.62	55.68	52.06	74.00	-21.94	Peak	159	253	P
3	4824.00	3.73	30.23	33.96	54.00	-20.04	Average	100	296	P
4	4824.00	3.73	43.81	47.54	74.00	-26.46	Peak	100	296	P
5	12060.00	13.35	30.98	44.33	54.00	-9.67	Average	100	318	P
6	12060.00	13.35	44.51	57.86	74.00	-16.14	Peak	100	318	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		:

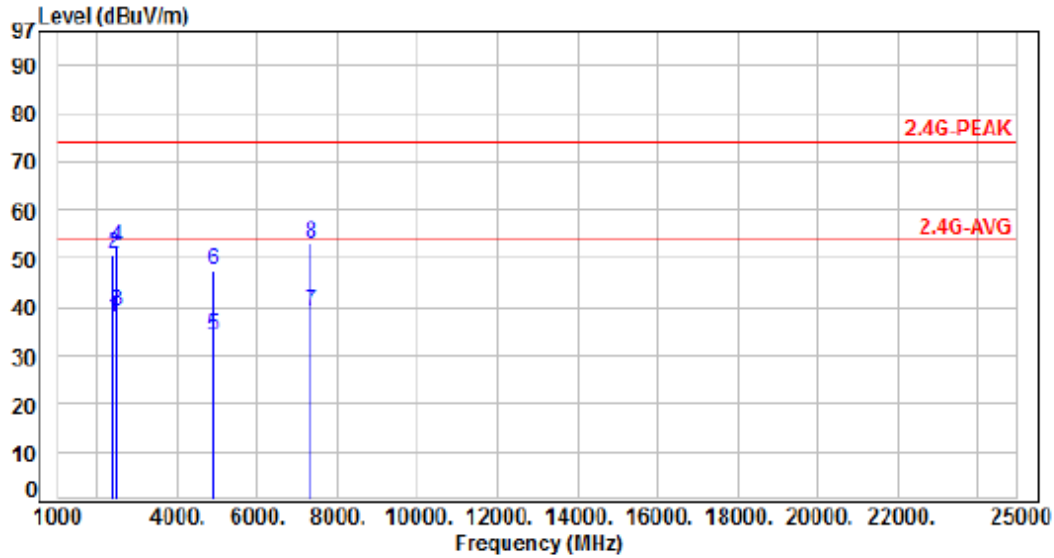


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	43.74	40.12	54.00	-13.88	Average	100	143	P
2	2390.00	-3.62	56.32	52.70	74.00	-21.30	Peak	100	143	P
3	4824.00	3.73	30.26	33.99	54.00	-20.01	Average	100	161	P
4	4824.00	3.73	43.81	47.54	74.00	-26.46	Peak	100	161	P
5	12060.00	13.35	30.83	44.18	54.00	-9.82	Average	100	107	P
6	12060.00	13.35	44.80	58.15	74.00	-15.85	Peak	100	107	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		:

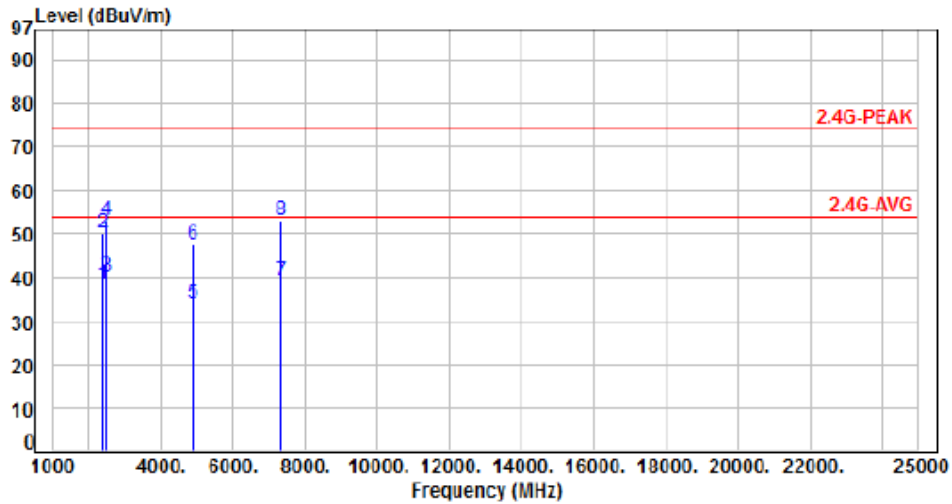


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	41.39	37.77	54.00	-16.23	Average	193	252	P
2	2390.00	-3.62	54.56	50.94	74.00	-23.06	Peak	193	252	P
3	2483.50	-3.40	42.42	39.02	54.00	-14.98	Average	193	252	P
4	2483.50	-3.40	55.69	52.29	74.00	-21.71	Peak	193	252	P
5	4874.00	3.90	30.17	34.07	54.00	-19.93	Average	100	275	P
6	4874.00	3.90	43.51	47.41	74.00	-26.59	Peak	100	275	P
7	7311.00	8.48	30.75	39.23	54.00	-14.77	Average	100	210	P
8	7311.00	8.48	44.63	53.11	74.00	-20.89	Peak	100	210	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		:

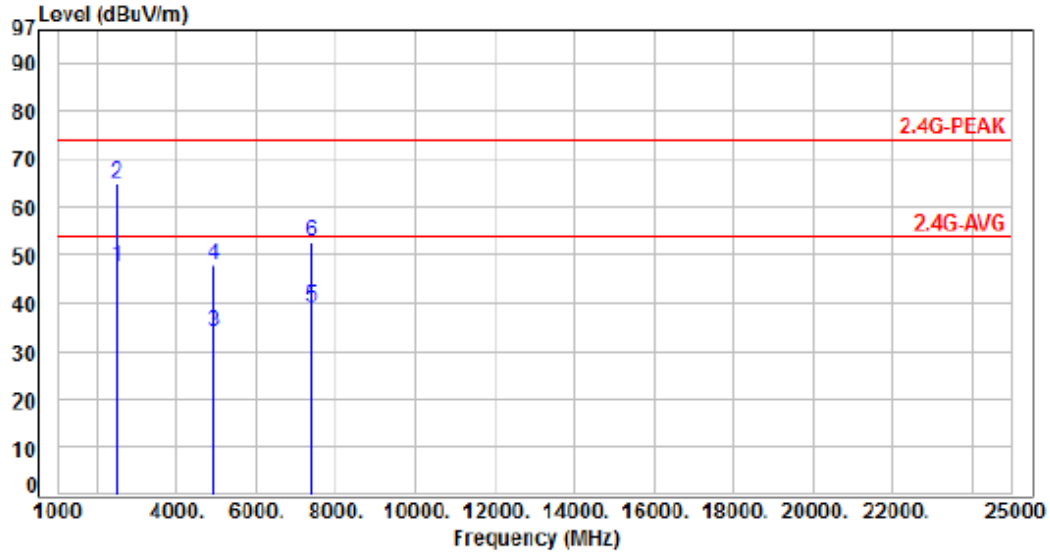


No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	41.83	38.21	54.00	-15.79	Average	163	139	P
2	2390.00	-3.62	53.76	50.14	74.00	-23.86	Peak	163	139	P
3	2483.50	-3.40	43.42	40.02	54.00	-13.98	Average	163	139	P
4	2483.50	-3.40	56.67	53.27	74.00	-20.73	Peak	163	139	P
5	4874.00	3.90	30.12	34.02	54.00	-19.98	Average	100	160	P
6	4874.00	3.90	43.66	47.56	74.00	-26.44	Peak	100	160	P
7	7311.00	8.48	30.63	39.11	54.00	-14.89	Average	100	116	P
8	7311.00	8.48	44.52	53.00	74.00	-21.00	Peak	100	116	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		:

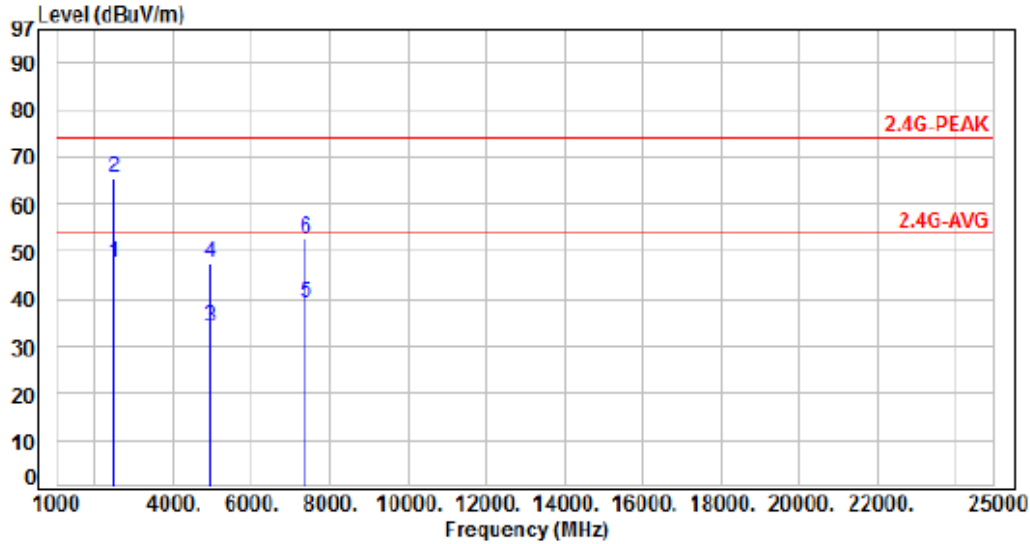


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.40	50.80	47.40	54.00	-6.60	Average	237	287	P
2	2483.50	-3.40	68.43	65.03	74.00	-8.97	Peak	237	287	P
3	4924.00	4.10	29.97	34.07	54.00	-19.93	Average	100	307	P
4	4924.00	4.10	43.85	47.95	74.00	-26.05	Peak	100	307	P
5	7386.00	8.59	30.39	38.98	54.00	-15.02	Average	100	256	P
6	7386.00	8.59	44.32	52.91	74.00	-21.09	Peak	100	256	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		:



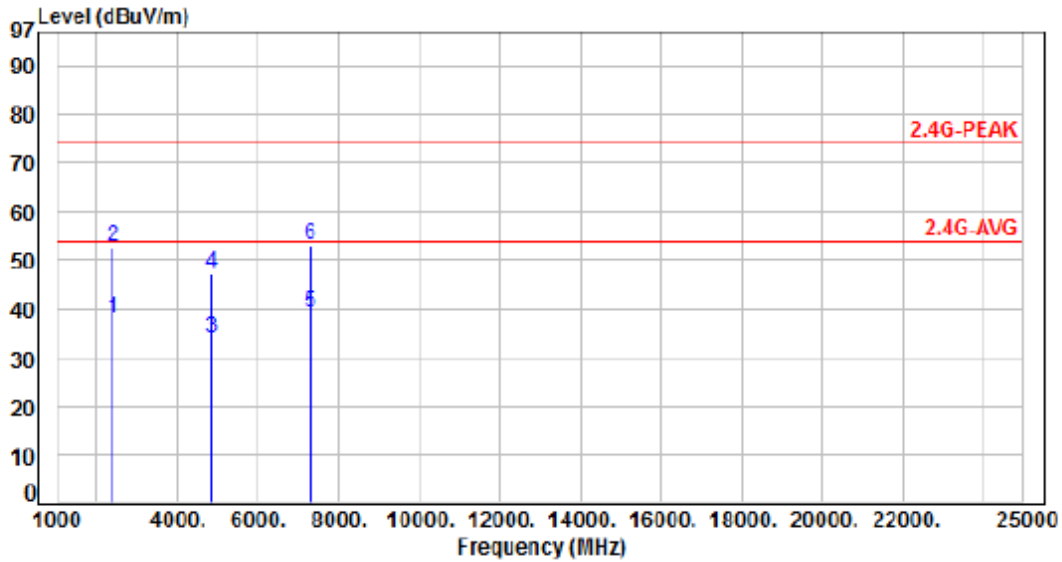
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.40	51.15	47.75	54.00	-6.25	Average	100	140	P
2	2483.50	-3.40	69.13	65.73	74.00	-8.27	Peak	100	140	P
3	4924.00	4.10	29.92	34.02	54.00	-19.98	Average	100	126	P
4	4924.00	4.10	43.43	47.53	74.00	-26.47	Peak	100	126	P
5	7386.00	8.59	30.43	39.02	54.00	-14.98	Average	100	169	P
6	7386.00	8.59	44.28	52.87	74.00	-21.13	Peak	100	169	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		:

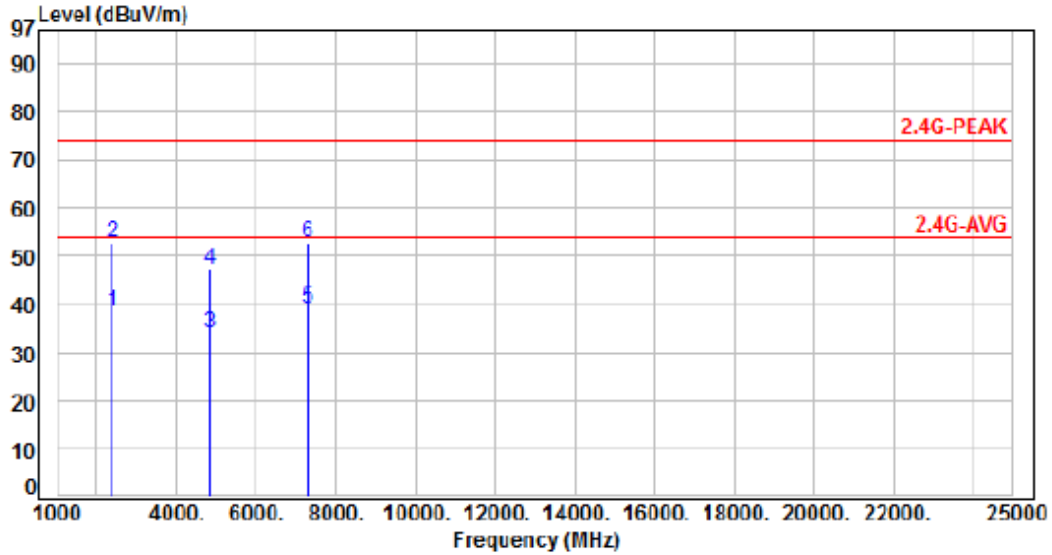


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	41.53	37.91	54.00	-16.09	Average	161	252	P
2	2390.00	-3.62	56.32	52.70	74.00	-21.30	Peak	161	252	P
3	4844.00	3.80	30.10	33.90	54.00	-20.10	Average	100	284	P
4	4844.00	3.80	43.56	47.36	74.00	-26.64	Peak	100	284	P
5	7266.00	8.30	30.72	39.02	54.00	-14.98	Average	100	302	P
6	7266.00	8.30	44.93	53.23	74.00	-20.77	Peak	100	302	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		:

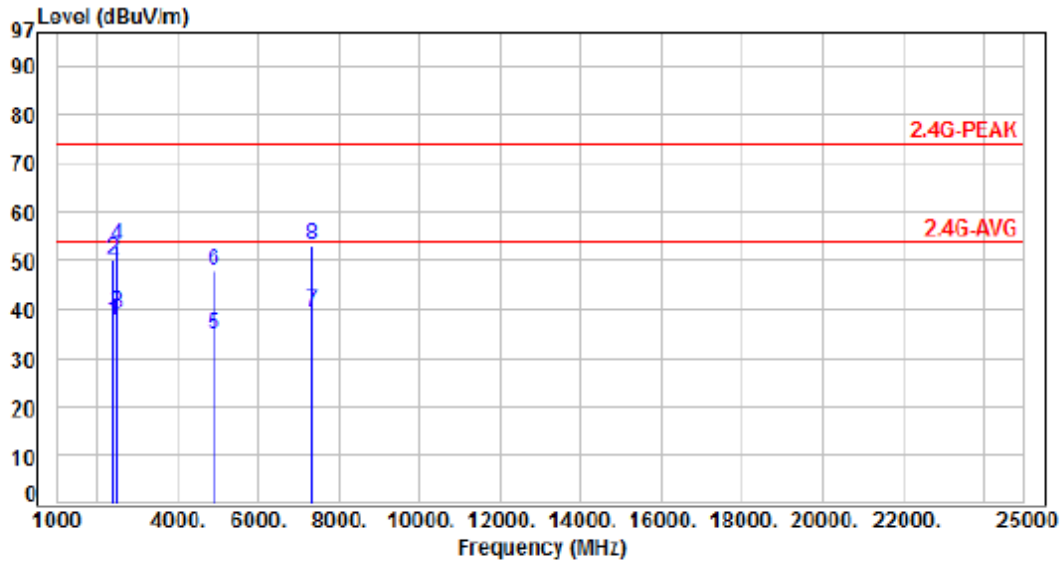


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	41.81	38.19	54.00	-15.81	Average	100	141	P
2	2390.00	-3.62	56.42	52.80	74.00	-21.20	Peak	100	141	P
3	4844.00	3.80	30.15	33.95	54.00	-20.05	Average	100	123	P
4	4844.00	3.80	43.48	47.28	74.00	-26.72	Peak	100	123	P
5	7266.00	8.30	30.80	39.10	54.00	-14.90	Average	100	192	P
6	7266.00	8.30	44.56	52.86	74.00	-21.14	Peak	100	192	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		:

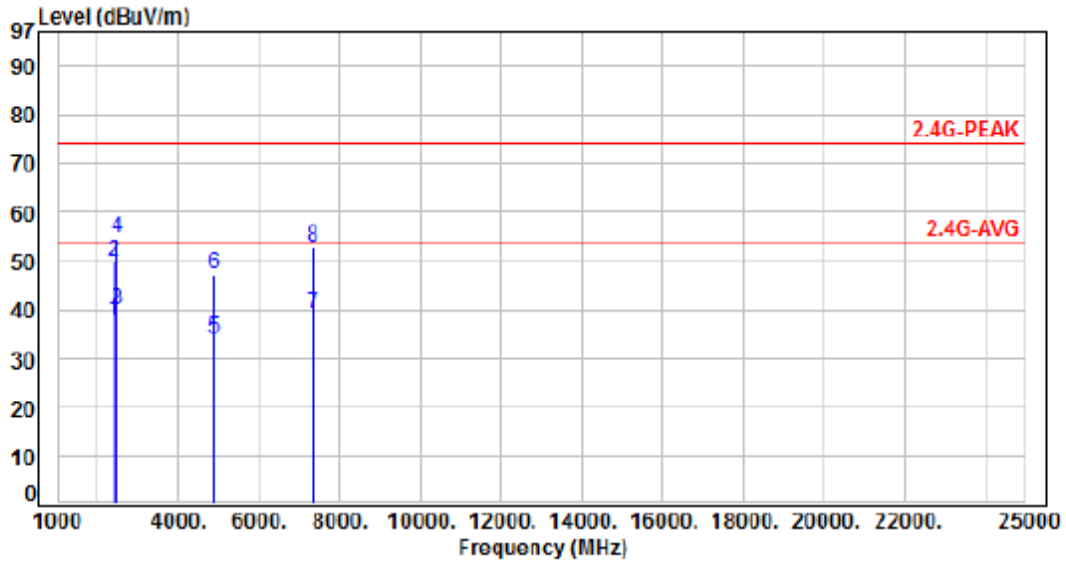


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	41.11	37.49	54.00	-16.51	Average	100	267	P
2	2390.00	-3.62	53.79	50.17	74.00	-23.83	Peak	100	267	P
3	2483.50	-3.40	42.46	39.06	54.00	-14.94	Average	100	267	P
4	2483.50	-3.40	56.52	53.12	74.00	-20.88	Peak	100	267	P
5	4874.00	3.90	30.84	34.74	54.00	-19.26	Average	100	293	P
6	4874.00	3.90	43.87	47.77	74.00	-26.23	Peak	100	293	P
7	7311.00	8.48	30.82	39.30	54.00	-14.70	Average	100	252	P
8	7311.00	8.48	44.76	53.24	74.00	-20.76	Peak	100	252	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		:

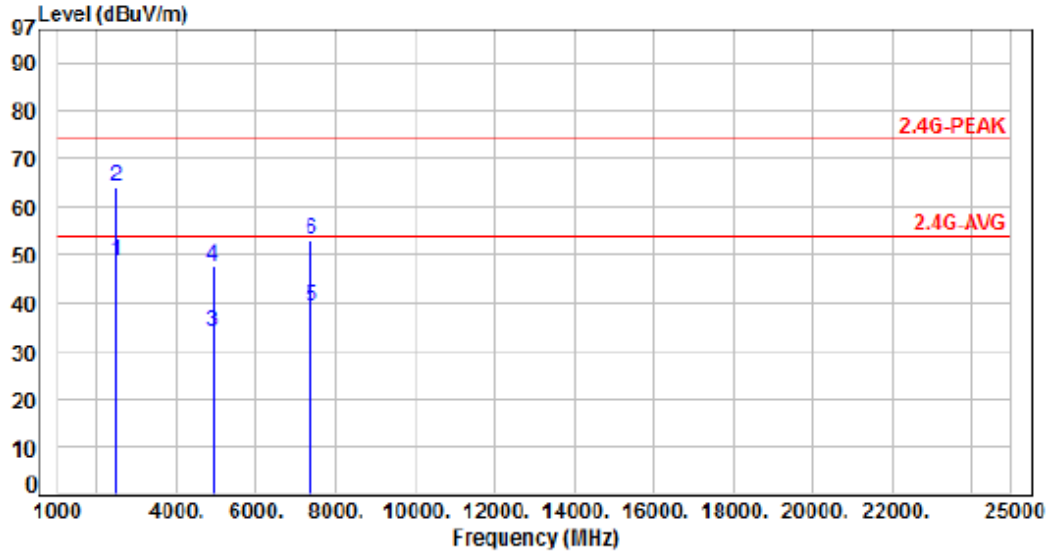


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.62	41.28	37.66	54.00	-16.34	Average	100	141	P
2	2390.00	-3.62	53.49	49.87	74.00	-24.13	Peak	100	141	P
3	2483.50	-3.40	43.10	39.70	54.00	-14.30	Average	100	141	P
4	2483.50	-3.40	57.87	54.47	74.00	-19.53	Peak	100	141	P
5	4874.00	3.90	30.01	33.91	54.00	-20.09	Average	100	129	P
6	4874.00	3.90	43.15	47.05	74.00	-26.95	Peak	100	129	P
7	7311.00	8.48	30.74	39.22	54.00	-14.78	Average	100	167	P
8	7311.00	8.48	44.27	52.75	74.00	-21.25	Peak	100	167	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		:

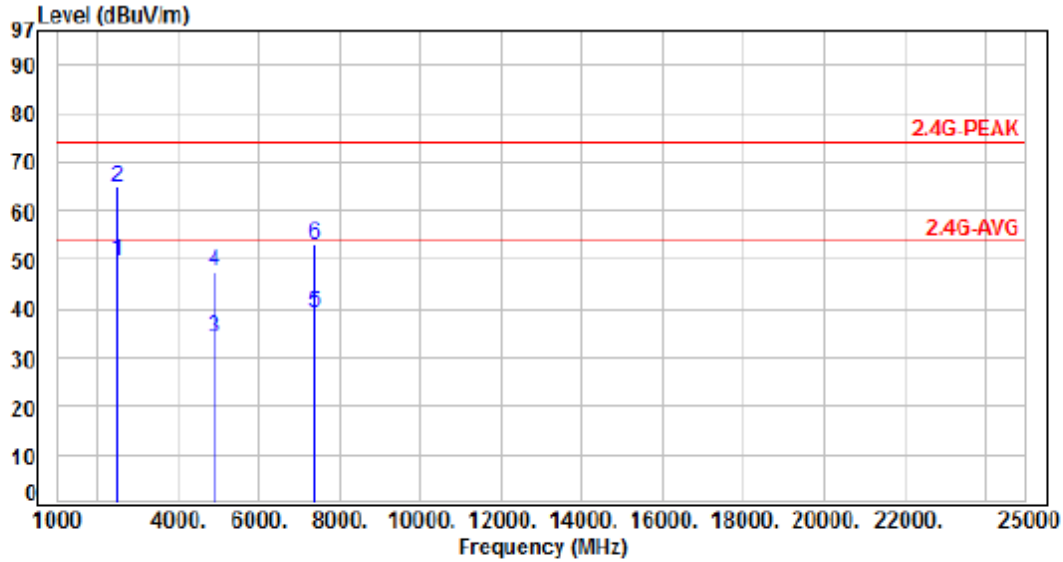


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-3.40	52.16	48.76	54.00	-5.24	Average	238	278	P
2	2483.50	-3.40	67.68	64.28	74.00	-9.72	Peak	238	278	P
3	4904.00	4.00	29.94	33.94	54.00	-20.06	Average	100	252	P
4	4904.00	4.00	43.57	47.57	74.00	-26.43	Peak	100	252	P
5	7356.00	8.58	30.68	39.26	54.00	-14.74	Average	100	286	P
6	7356.00	8.58	44.69	53.27	74.00	-20.73	Peak	100	286	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	53.16	49.76	54.00	-4.24	Average	100	143	P
2	2483.50	-3.40	68.40	65.00	74.00	-9.00	Peak	100	143	P
3	4904.00	4.00	30.04	34.04	54.00	-19.96	Average	100	169	P
4	4904.00	4.00	43.57	47.57	74.00	-26.43	Peak	100	169	P
5	7356.00	8.58	30.62	39.20	54.00	-14.80	Average	100	196	P
6	7356.00	8.58	44.59	53.17	74.00	-20.83	Peak	100	196	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

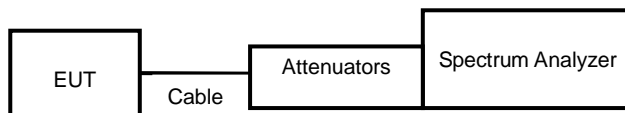
### 7.1 Test Limit

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.

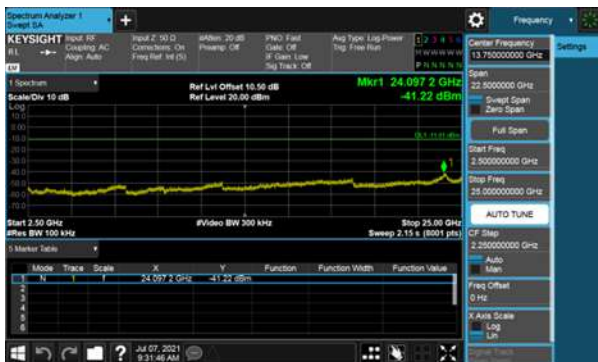
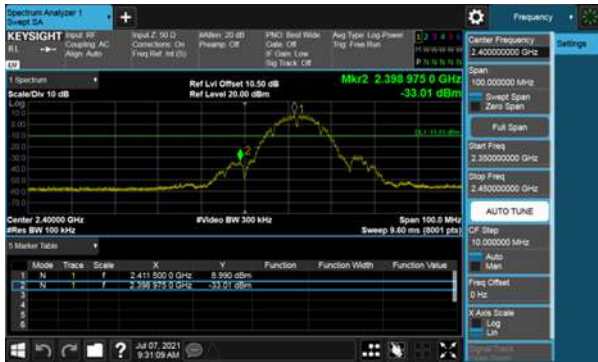




Modulation Type: 802.11b, CH 01

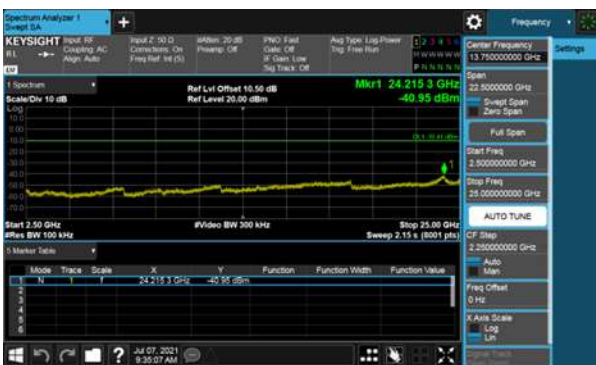


Modulation Type: 802.11b, CH 06





Modulation Type: 802.11b, CH 11

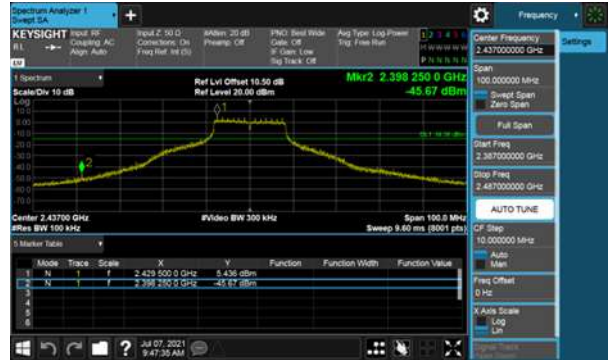




Modulation Type: 802.11g, CH 01

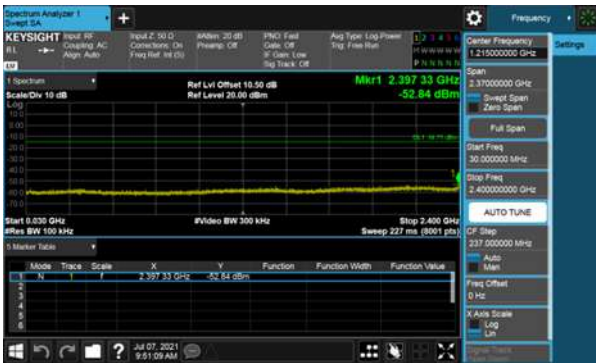


Modulation Type: 802.11g, CH 06





Modulation Type: 802.11g, CH 11





Modulation Type: 802.11n HT20, CH01



Modulation Type: 802.11n HT20, CH06







Modulation Type: 802.11n HT20, CH11

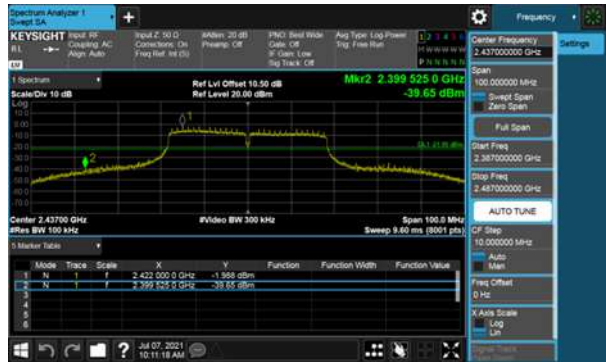




Modulation Type: 802.11n HT40, CH03



Modulation Type: 802.11n HT40, CH06





Modulation Type: 802.11n HT40, CH09







## 8. On Time, Duty Cycle and Measurement methods

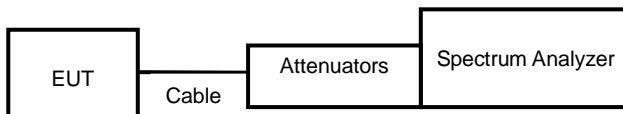
### 8.1 Test Limit

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%



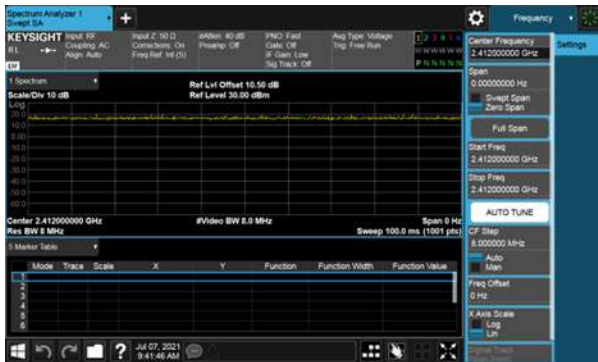
Modulation Type: 802.11b(1Mbps)



Modulation Type: 802.11n HT40(13.5Mbps)



Modulation Type: 802.11g(6Mbps)



Modulation Type: 802.11n HT20(6.5Mbps)





### 9. 6dB Bandwidth Measurement Data

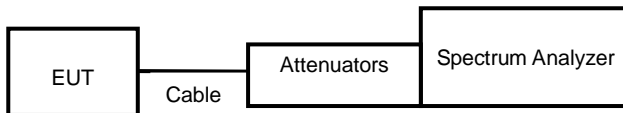
#### 9.1 Test Limit

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	8.55	0.5
	6	2437	8.55	0.5
	11	2462	8.55	0.5
11g	1	2412	16.32	0.5
	6	2437	16.38	0.5
	11	2462	16.11	0.5
11n HT20	1	2412	17.22	0.5
	6	2437	17.19	0.5
	11	2462	17.37	0.5
11n HT40	3	2422	35.10	0.5
	6	2437	35.40	0.5
	9	2452	35.64	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

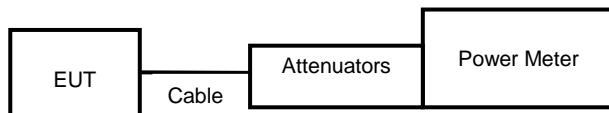
The Maximum Peak Output Power Measurement is 30dBm.

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)	Power Limit (dBm)
				ANT A			
15	11b	1	2412	20.24	20.24	105.682	30.00
15		6	2437	19.43	19.43	87.700	30.00
16		11	2462	20.30	20.30	107.152	30.00
10.5	11g	1	2412	19.56	19.56	90.365	30.00
16		6	2437	21.40	21.40	138.038	30.00
15.5		11	2462	21.31	21.31	135.207	30.00
11.5	11n HT20	1	2412	20.28	20.28	106.660	30.00
16		6	2437	21.47	<b>21.47</b>	140.281	30.00
12.5		11	2462	20.21	20.21	104.954	30.00
10	11n HT40	3	2422	18.16	18.16	65.464	30.00
10		6	2437	18.62	<b>18.62</b>	72.778	30.00
11		9	2452	19.69	<b>19.69</b>	93.111	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			
15	11b	1	2412	17.80	17.80	60.256	NA
15		6	2437	16.88	16.88	48.753	NA
16		11	2462	17.77	17.77	59.841	NA
10.5	11g	1	2412	11.72	11.72	14.859	NA
16		6	2437	15.63	15.63	36.559	NA
15.5		11	2462	15.02	15.02	31.769	NA
11.5	11n HT20	1	2412	12.68	12.68	18.535	NA
16		6	2437	15.76	15.76	37.670	NA
12.5		11	2462	12.69	12.69	18.578	NA
10	11n HT40	3	2422	9.96	9.96	9.908	NA
10		6	2437	10.56	10.56	11.376	NA
11		9	2452	11.86	11.86	15.346	NA

Note: Average power is for reference only.



### 11. Power Spectral Density

#### 11.1 Test Limit

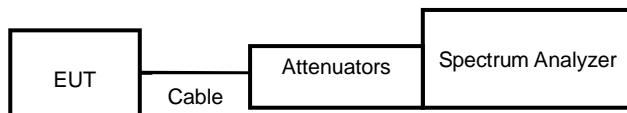
The Maximum of Power Spectral Density Measurement is 8dBm.

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)	Sum chain (dBm)	Duty Cycle CF(dB)	Total PSD (dBm)	Limit (dBm)
			ANT A				
11b	1	2412	-5.64	-5.64	0.00	-5.64	8.00
	6	2437	-4.06	-4.06	0.00	-4.06	8.00
	11	2462	-5.40	-5.40	0.00	-5.40	8.00
11g	1	2412	-12.17	-12.17	0.00	-12.17	8.00
	6	2437	-8.93	-8.93	0.00	-8.93	8.00
	11	2462	-9.63	-9.63	0.00	-9.63	8.00
11n HT20	1	2412	-12.41	-12.41	0.00	-12.41	8.00
	6	2437	-9.57	-9.57	0.00	-9.57	8.00
	11	2462	-12.28	-12.28	0.00	-12.28	8.00
11n HT40	3	2422	-16.21	-16.21	0.00	-16.21	8.00
	6	2437	-16.48	-16.48	0.00	-16.48	8.00
	9	2452	-15.89	-15.89	0.00	-15.89	8.00

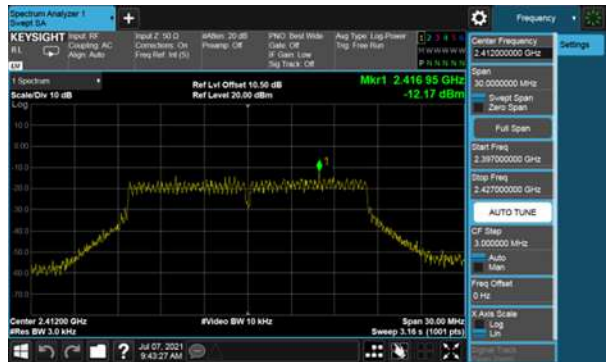




Modulation Type: 802.11b  
CH01



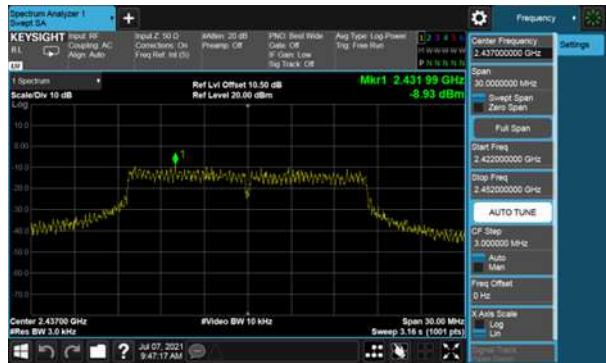
Modulation Type: 802.11g  
CH01



CH06



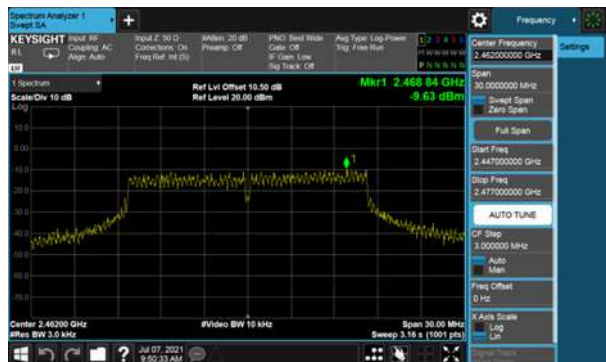
CH06



CH11



CH11

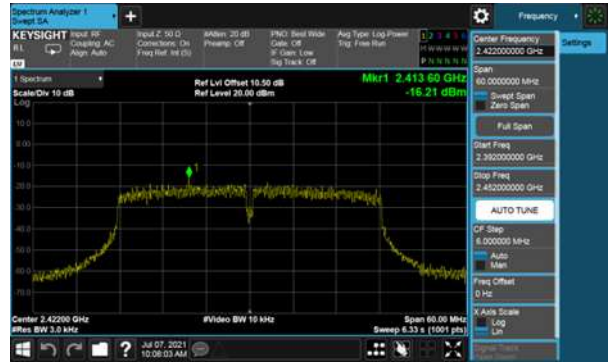




Modulation Type: 802.11n HT20  
CH01



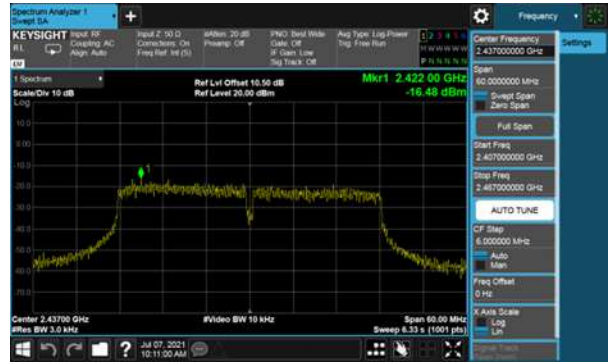
Modulation Type: 802.11n HT40  
CH03



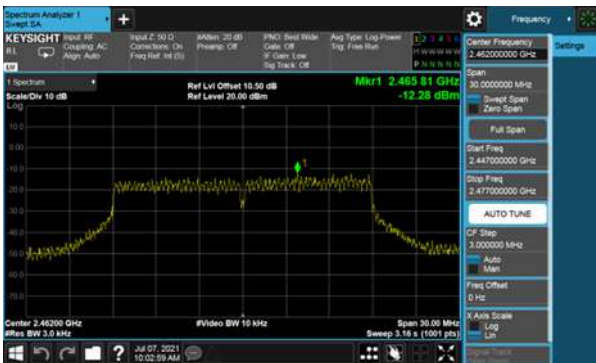
CH06



CH06



CH11



CH09

