

FCC Test Report

for

Laser Wireless Presenter

Trade Name : INFINITER
Model Number : LR-12R,LR-12GR
FCC ID : S751240LR12
Report Number : RF-U070-0811-368
Date of Receipt : January 14, 2009
Date of Report : June 3, 2009

Prepared for

Quarton inc.

9F,185,Sec.1,Ta-Tung Rd.,His-Chih,Taipei Hsien,Taiwan. R.O.C.

Prepared by



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NVLAP LAB CODE 200575-0

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Verification of Compliance

Equipment under Test : Laser Wireless Presenter
Model No. : LR-12R,LR-12GR
FCC ID : S751240LR12
Manufacturer : Quarton inc.
Applicant : Quarton inc.
Address : 9F,185,Sec.1,Ta-Tung Rd.,His-Chih,Taipei Hsien,Taiwan.
R.O.C.
Applicable Standards : 47 CFR part 15, Subpart C
Date of Testing : Jan. 17 ~ 19, 2009
Deviation : N/A
Condition of Test Sample : Engineering Sample

We, **Central Research Technology Co.**, hereby certify that one sample of the designated product was tested in our facility during the period mentioned above. The test records, data evaluation and Equipment Under Test (EUT) configurations shown in the present report are true and accurate representation of the measurements of the sample's RF characteristics under the conditions herein specified.

The test results show that the EUT as described in the present report is in compliance with the requirements set forth in the standards mentioned above and apply to the tested sample identified in the present report only. The test report shall not be reproduced, except in its entirety, without the written approval of Central Research Technology Co.

PREPARED BY : Cathy Chen , DATE : June 3, 2009
(Cathy Chen/Technical Manager)

APPROVED BY : Sam Chien , DATE : June 3, 2009
(Sam Chien/ Laboratory Head)

Contents

1. General Description	4
1.1 General Description of EUT	4
1.2 Test Methodology	4
1.3 Applied standards	5
1.4 The Support Units	8
1.5 Layout of the Setup	8
1.6 Test Capability	9
1.7 Measurement Uncertainty	11
2. Field strength of Fundamental	12
2.1 Limits for Field strength of Fundamental	12
2.2 Test Instruments	13
2.3 Test Procedures	14
2.4 Test Configurations	15
2.5 Test Results	16
3. Radiated Emission Measurement	23
3.1 Limit for Radiated Emission Measurement	23
3.2 Test Instruments	24
3.3 Test Procedures	25
3.4 Test Configuration	26
3.5 Test Results	27

Attachment 1 – Photographs of the Test Configurations

Attachment 2 – External Photographs of EUT

Attachment 3 – Internal Photographs of EUT

1. General Description

1.1 General Description of EUT

E.U.T. : Laser Wireless Presenter
Model No. : LR-12R,LR-12GR
Power in : Supplied by Battery 3.0Vdc
Test Voltage : 3.0Vdc
Fundamental Frequency : 2405, 2408, 2411, 2414, 2417, 2420, 2423, 2432, 2435,
2438, 2444, 2447, 2450, 2453, 2461, 2464, 2467, 2470
MHz
Manufacturer : Quarton inc.
Function Description :
The EUT is prototype of the Laser Wireless Presenter. Please refer to the user's manual for the details.

1.2 Test Methodology

For this E.U.T., the radiated emissions measurement performed according to the procedures illustrated in ANSI C63.4:2003 and other required were illustrated in separate sections of this test report for detail.

Since the EUT is considered a portable unit, it was pre-tested on the positioned of each 3 axes. There for only the test data of the worse case- X axis was used for Radiated test.

1.3 Applied standards

(1) Field strength of Fundamental

According to 15.249(a), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field Strength of Fundamental (mV/m)	Field Strength of Harmonics (uV/m)
902 – 928 MHz	50	500
2400 – 2483.5 MHz	50	500
5725 – 5875 MHz	50	500
24.0 – 24.25 GHz	250	2500

(2) Radiation emission

According to 15.249(d), Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

(3) Radiated emission limits, general requirements.

According to 15.209, except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
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

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

(4) Restricted Band

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
² 1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(2)
13.36 - 13.41			

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

² Above 38.6

(5) Conducted Limit

For intentional device, according to §15.207(a) line conduction emission limit is as below table.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 - 5	56	46
5 - 30	60	50

* Decreases with the logarithm of the frequency.

1.4 The Support Units

No.	Unit	Model No./ Serial No.	Teade Name	PowerCode	Supported by lab.
NA	*	*	*	*	*

1.5 Layout of the Setup

Transmitter

Connecting Cables :

No.	Cable	Length	Shielded	Ferrite Core	Shielded Backshell	Supported by lab.	Note
N/A	*	*	*	*	*	*	*

Justification:

For both conducted and radiated emission below 1GHz, the system was configured for typical fashion as a customer could normal use it.

For radiated emission, measurement of radiated emission from digital circuit is performed with normal transmitting.

1.6 Test Capability

Test Facility

The test facility used for evaluating the conformance of the EUT with each standard in the present report meets what required in CISPR16-1-4, CISPR16-2-3 and ANSI C63.4.

Test Room	Type of Test Room	Descriptions
TR1	10m semi-anechoic chamber (23m×14m×9m)	Complying with the NSA requirements in documents CISPR 22 and ANSI C63.4. For the radiated emission measurement.
TR11	3m semi-anechoic chamber (9m × 6m × 6m)	
TR13	RF Chamber	For the RF conducted emission measurement.
TR5	Shielding Room (8m×5m×4m)	For the conducted emission measurement.

Test Laboratory Competence Information

Central Research Technology Co. has been accredited/registered/authorized by the agencies listed in the following table.

Certificate	Nation	Agency	Code	Mark
Accreditation Certificate	USA	NVLAP	200575-0	ISO/IEC 17025
	R.O.C. (Taiwan)	TAF	0905	ISO/IEC 17025
	R.O.C. (Taiwan)	BSMI	SL2-IN-E-0033, SL2-IS-E-0033, SL2-R1/R2-E-0033, SL2-A1-E-0033	ISO/IEC 17025
Site Filing Document	USA	FCC	474046, TW1053	Test facility list & NSA Data
	Canada	IC	4699A-1,-3	Test facility list & NSA Data
	Japan	VCCI	R-1527,C-1609,T-131,T-1441	Test facility list & NSA Data
Authorization Certificate	Norway	Nemko	ELA 212	ISO/IEC 17025

The copy of each certificate can be downloaded from our web site: www.crc-lab.com

1.7 Measurement Uncertainty

The assessed measurement uncertainty with a suitable coverage factor K to ensure 95% confidence level for the normal distribution are shown as below, the values are less than U_{cisp} in table 1 of CISPR 16-4-2.

Test Item	Measurement Uncertainty	
Radiated Emission: (30MHz~200MHz)	Horizontal: 2.8dB ; Vertical: 3.5 dB	
Radiated Emission: (200MHz~1GHz)	Horizontal: 3.4dB ; Vertical: 2.8dB	
Radiated Emission: (1GHz~18GHz)	Horizontal: 2.5dB ; Vertical: 2.4dB	
Radiated Emission: (18GHz~26.5GHz)	Horizontal: 4.0dB ; Vertical: 3.9dB	
Line Conducted Emission	ESH2-Z5	3.1dB
	ENV 4200	3.8dB

2. Field strength of Fundamental

Result: PASS

2.1 Limits for Field strength of Fundamental

Fundamental Frequency	Peak	Average
☐ 902 – 928 MHz	500mV/m (114dBuV/m)	50mV/m (94dBuV/m)
☒ 2400 – 2483.5 MHz	500 mV/m (114dBuV/m)	50 mV/m (94dBuV/m)
☐ 5725 – 5875 MHz	500 mV/m (114dBuV/m)	50 mV/m (94dBuV/m)
☐ 24.0 – 24.25 GHz	2500 mV/m (128dBuV/m)	250 mV/m (108dBuV/m)

2.2 Test Instruments

Test Site and Equipment	Manufacturer	Model No./ Serial No.	Last Calibration Date	Calibration Due Date
Spectrum Analyzer	Agilent	E4407B/ MY45106795	Mar. 19, 2008	Mar. 19, 2009
Horn Antenna	EMCO	3117/ 57416	Feb. 25, 2008	Feb. 25, 2009
Pre-Amplifier	MITEQ	AMF-4D- 005180-24- 10P/1072961	Dec. 19, 2008	Dec. 19, 2009
TR11 Semi - anechoic Chamber	ETS. LINDGREN	TR11/ 906-A	Jun. 30, 2008	Jun. 30, 2009

Note :

1. The calibrations are traceable to NML/ROC.
2. NCR: No Calibration Required

Instrument Setting

RBW	VBW	Detector	Trace	Comment
1MHz	1MHz	Peak	Maxhold	Peak
1MHz	10Hz	Peak	Maxhold	Average

Climatic Condition

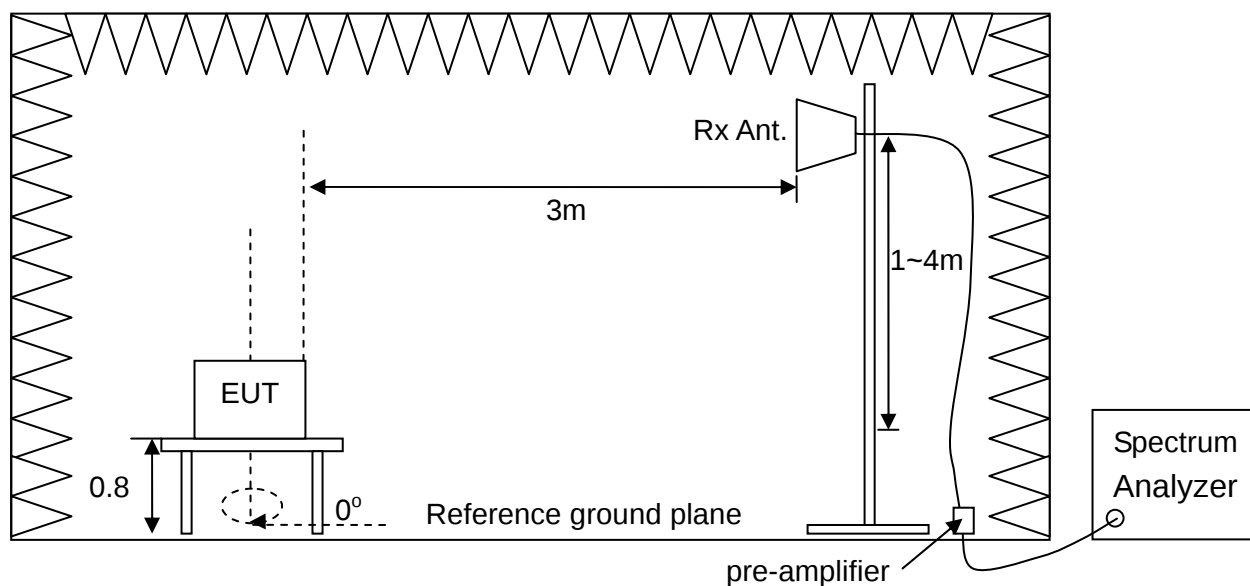
Ambient Temperature : 23°C;

Relative Humidity : 52%

2.3 Test Procedures

- a. The EUT was set up per the test configuration figured in the next section of this chapter to simulate the typical usage per the user's manual.
- b. A software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.
- c. If the EUT is tabletop equipment, it was placed on a wooden table with a height of 0.8 meters above the reference ground plane in the semi-anechoic chamber. If the EUT is floor-standing equipment, it was placed on a non-conducted support with a height of 12 millimeters above the reference ground plane in the semi-anechoic chamber.
- d. The EUT was set 3m away from the interference receiving antenna.
- e. Rapidly sweep the signal in the test frequency range by using the spectrum through the Maximum-peak detector.
- f. Rotate the EUT from 0° to 360° and position the receiving antenna at heights from 1 to 4 meters above the reference ground plane continuously to determine higher emission level and record it.
- g. Then measure frequency found from step f. by using the spectrum with rotating the EUT and positioning the receiving antenna height to determine the maximum level.
- h. Set the spectrum detector to be Peak or Average to find out the maximum level occurred.
- i. Record frequency, azimuth angle of the turntable, height, and polarization of the receiving antenna and compare the maximum level with the required limit.
- j. Change the receiving antenna to another polarization to measure radiated emission by following step e. to i. again.

2.4 Test Configurations



2.5 Test Results

Test Mode : Transmitter

Test Distance : 3m

Tester : Bill

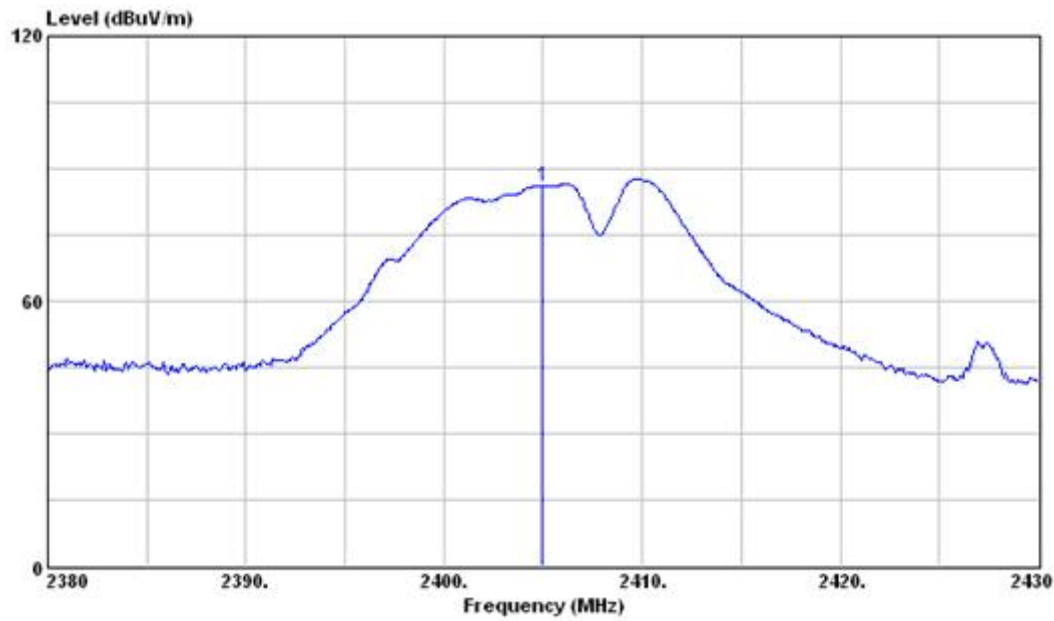
Frequency (MHz)	Polarization	Reading Data (dBuV)		Correction Factor (dB/m)	Output Field Strength (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
		PK	AV		PK	AV	PK	AV	PK	AV
2405	V	114.20	106.25	-27.97	86.23	78.28	114	94	27.77	15.72
	H	115.68	107.08	-27.97	87.71	79.11	114	94	26.29	14.89
2438	V	112.42	104.38	-27.92	84.50	76.46	114	94	29.50	17.54
	H	115.76	107.62	-27.92	87.84	79.70	114	94	26.16	14.30
2470	V	109.48	101.58	-27.87	81.61	73.71	114	94	32.39	20.29
	H	116.23	107.93	-27.87	88.36	80.06	114	94	25.64	13.94

Note :

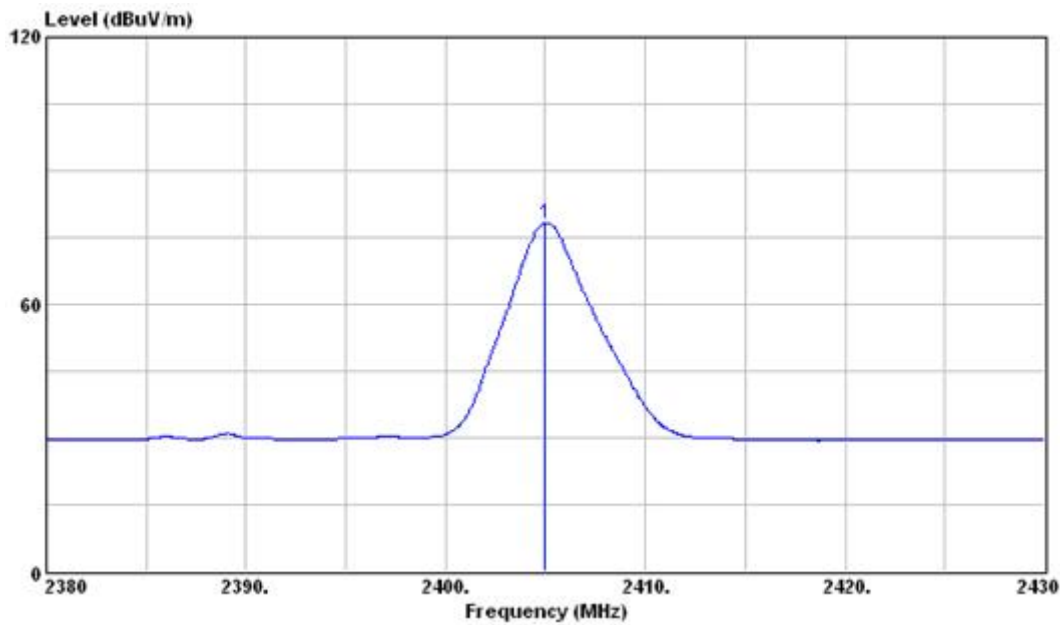
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Output Field Strength (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Output Field Strength

2405MHz

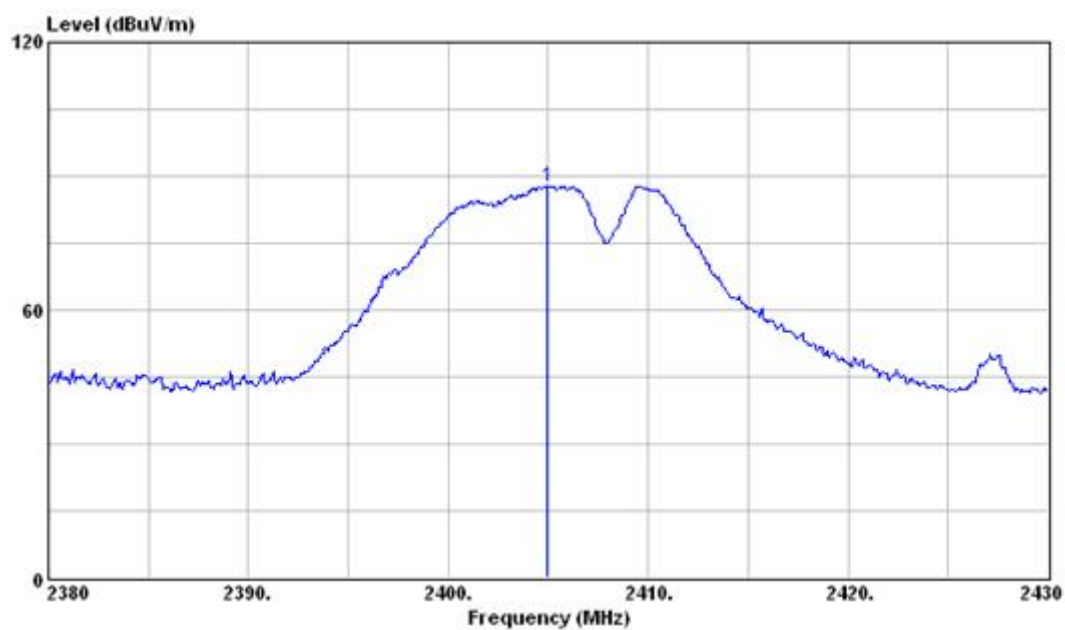
Vertical Polarization - Peak



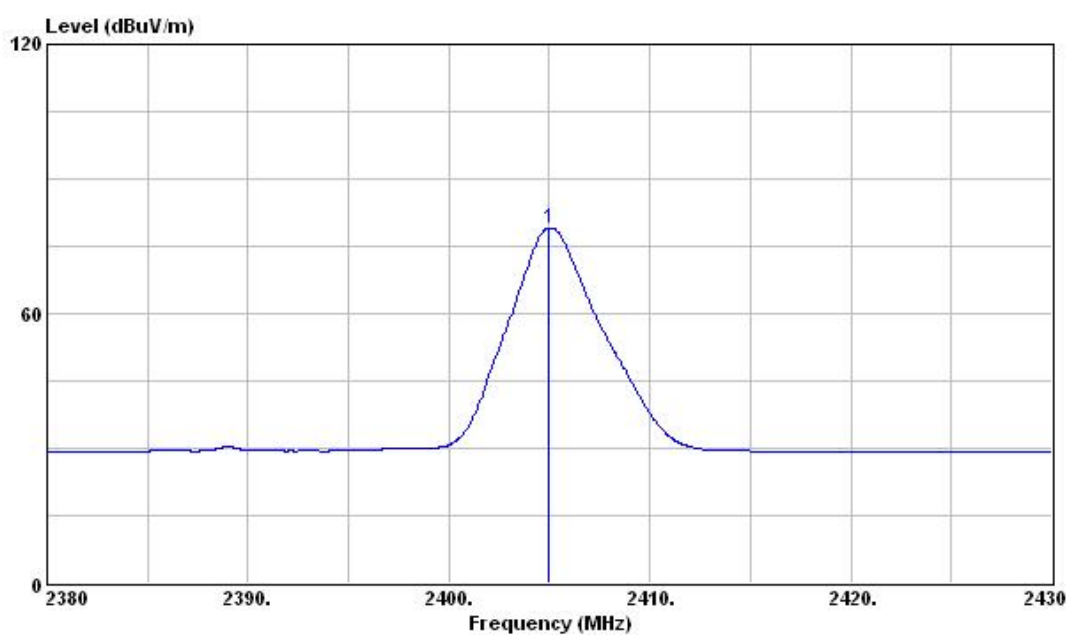
Vertical Polarization - Average



Horizontal Polarization - Peak

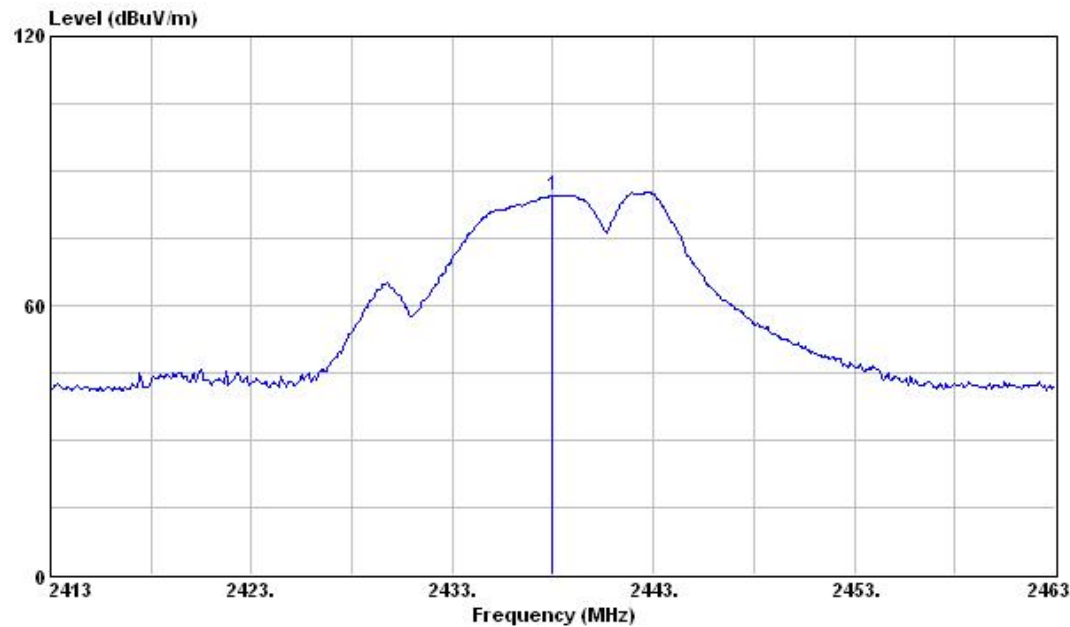


Horizontal Polarization - Average

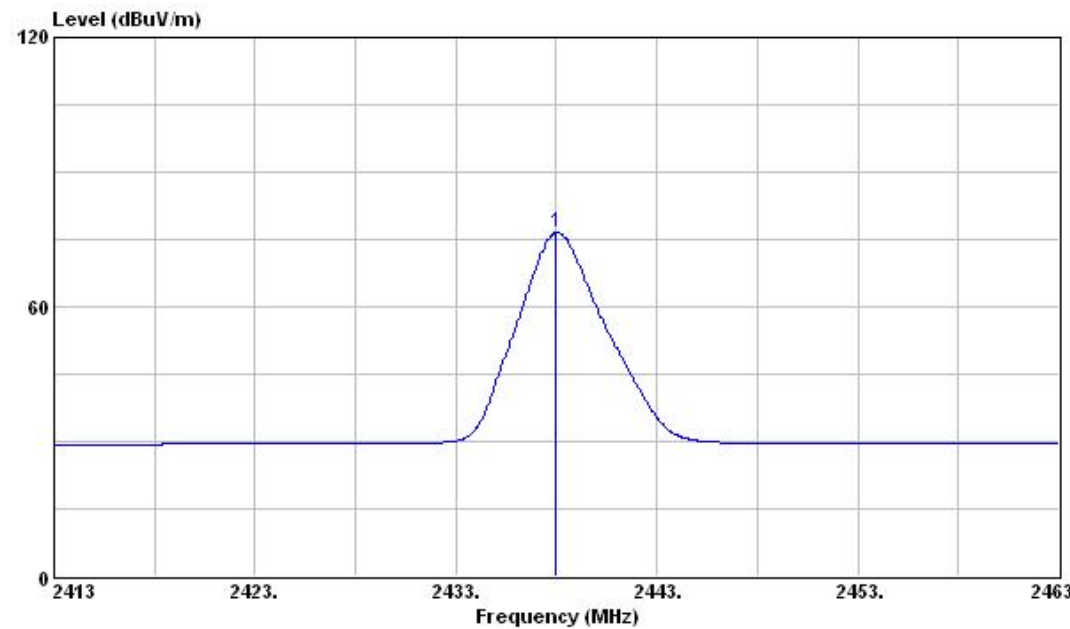


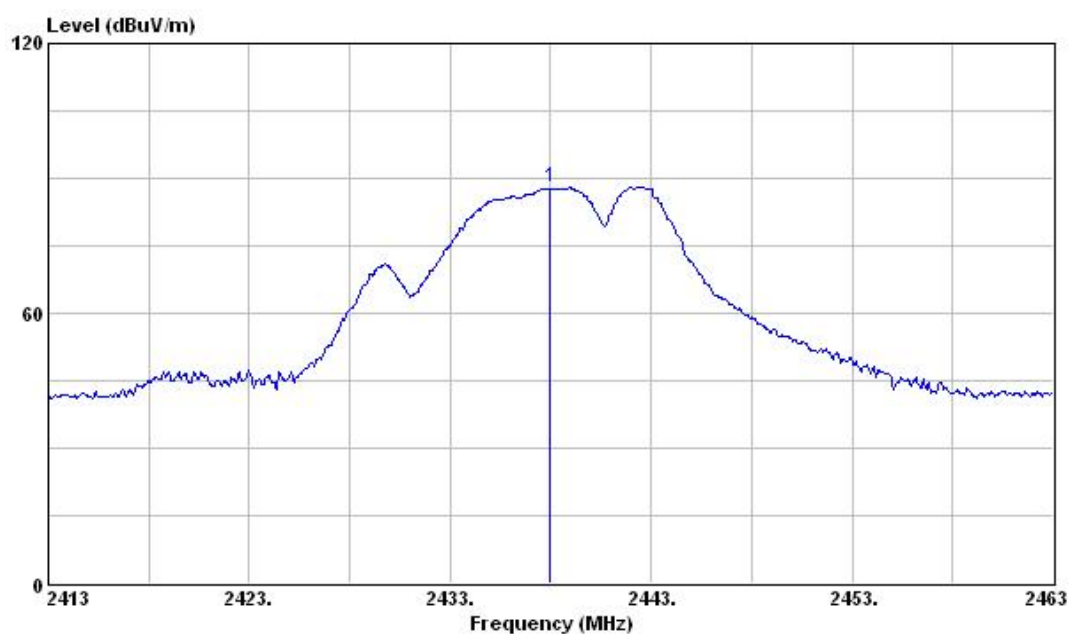
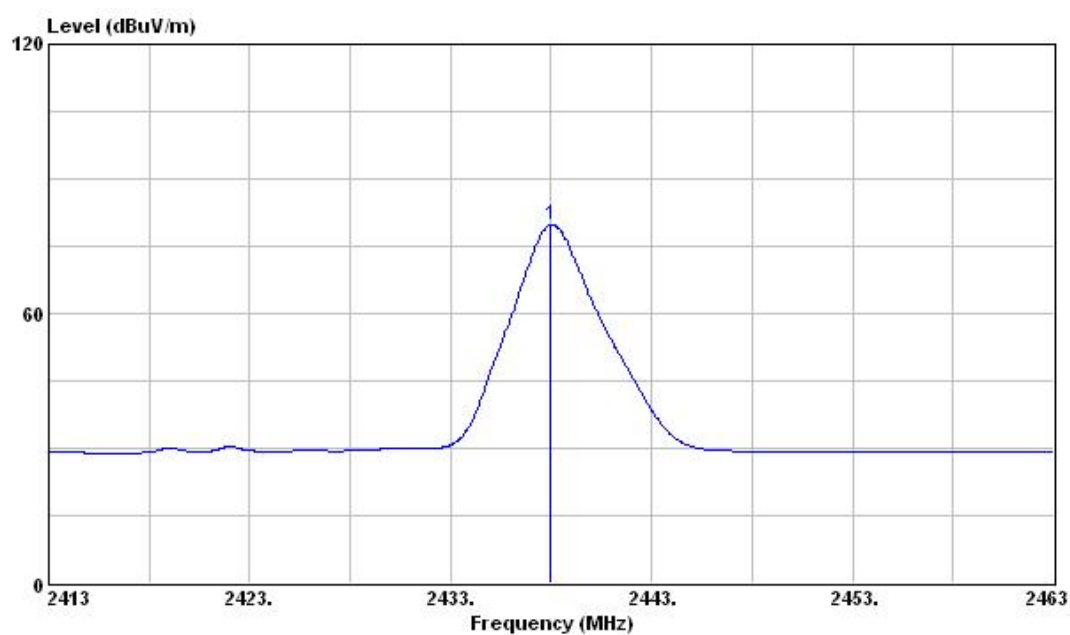
2438MHz

Vertical Polarization - Peak



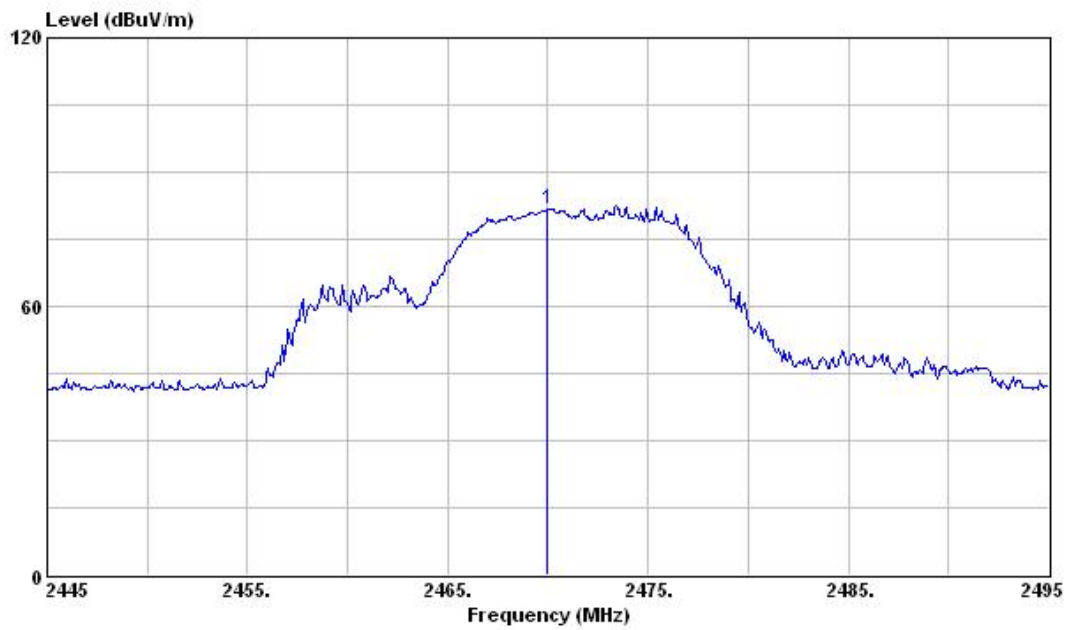
Vertical Polarization - Average



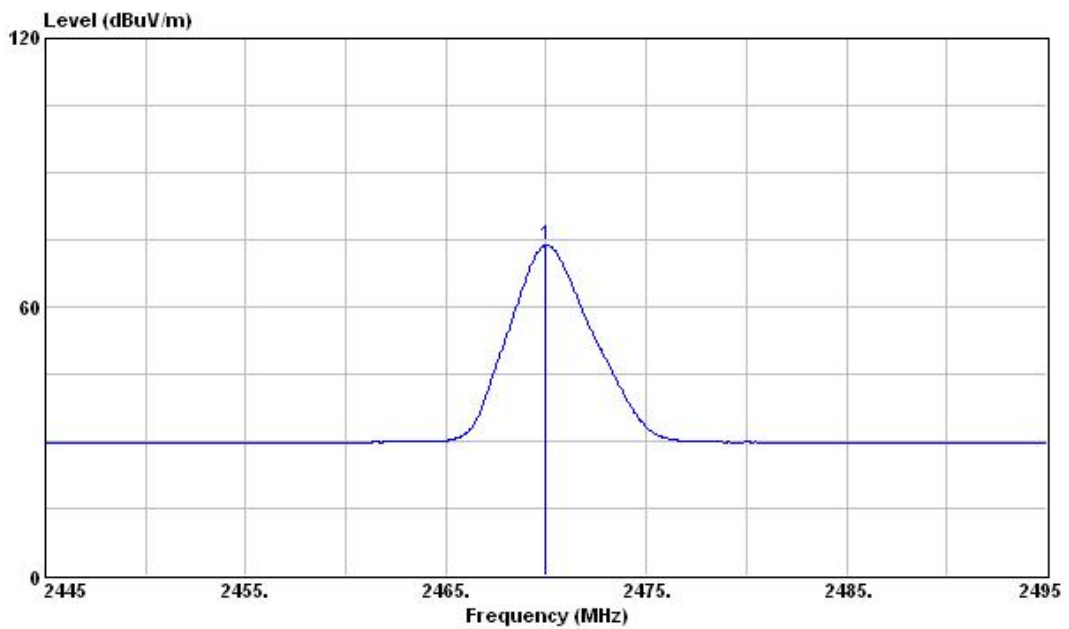
Horizontal Polarization - Peak**Horizontal Polarization - Average**

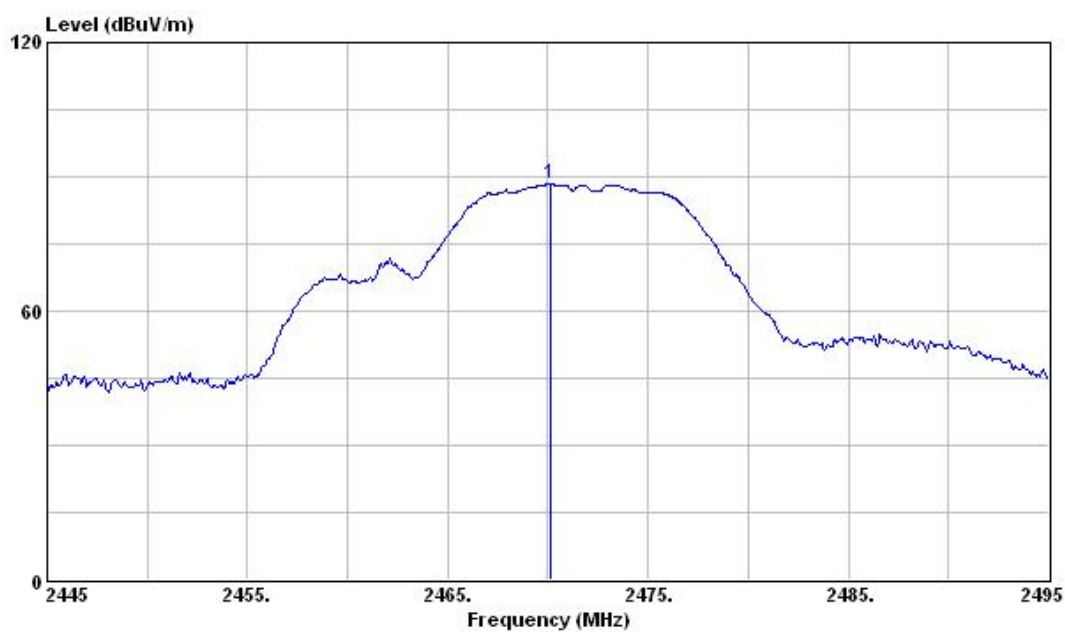
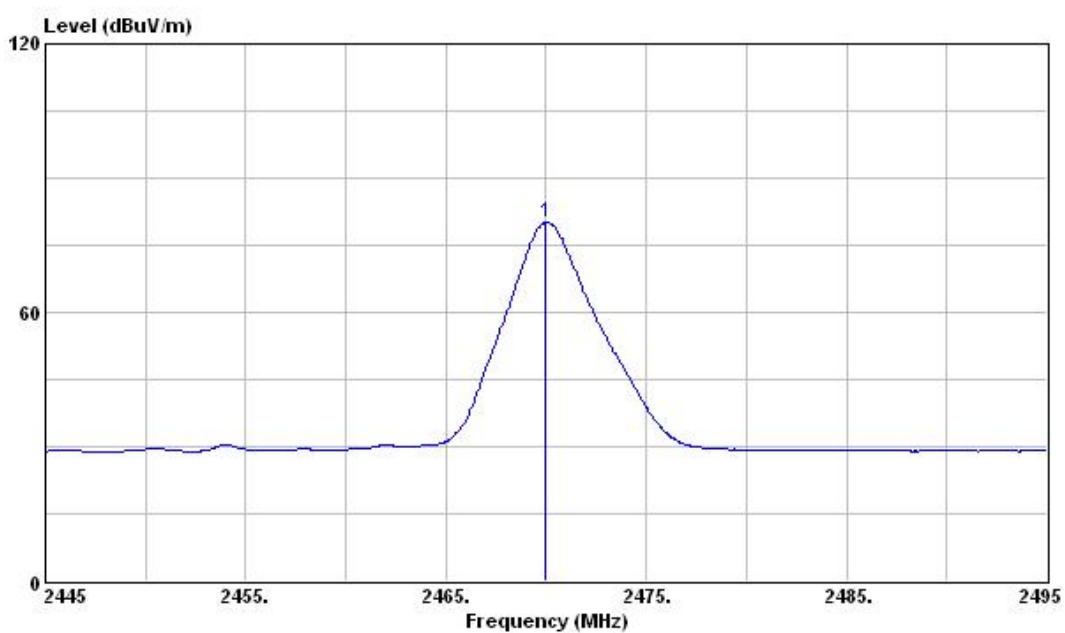
2470MHz

Vertical Polarization - Peak



Vertical Polarization - Average



Horizontal Polarization - Peak**Horizontal Polarization - Average**

3. Radiated Emission Measurement

Result: PASS

3.1 Limit for Radiated Emission Measurement

Limit for Harmonics Radiation Emission Measurement

Fundamental Frequency	Field Strength of Harmonics
☐ 902 – 928 MHz	500 uV/m (54dBuV/m)
☒ 2400 – 2483.5 MHz	500 uV/m (54dBuV/m)
☐ 5725 – 5875 MHz	500 uV/m (54dBuV/m)
☐ 24.0 – 24.25 GHz	2500 uV/m(68dBuV/m)

Limit for Other Emissions except Harmonics

Frequency (MHz)	Quasi-peak (dBμV/m)	
30 to 88	40	
88 to 216	43.5	
216 to 960	46	
960 to 1000	54	
Frequency (MHz)	Peak (dBμV/m)	Average (dBμV/m)
Above 1000	74	54
Note 1- The lower limit shall apply at the transition frequency. Note 2- Additional provisions may be required for cases where interference occurs.		

3.2 Test Instruments

Test Site and Equipment	Manufacturer	Model No./ Serial No.	Last Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESCI/ 100019	Nov. 24, 2008	Nov. 24, 2009
Spectrum Analyzer	Agilent	E4407B/ MY45106795	Mar. 19, 2008	Mar. 19, 2009
Broadband Antenna	EMCO	3142C/ 52088	Jul. 25, 2008	Jul. 25, 2009
Horn Antenna	EMCO	3117/ 57416	Feb. 25, 2008	Feb. 25, 2009
Pre-Amplifier	MITEQ	AMF-4D-005180-24-10P/1072961	Dec. 19, 2008	Dec. 19, 2009
Pre-Amplifier	Mini Circuit	ZKL-2/ 004	Aug. 13, 2008	Aug. 13, 2009
TR11 Semi - anechoic Chamber	ETS. LINDGREN	TR11/ 906-A	Jun. 30, 2008	Jun. 30, 2009

Note :

1. The calibrations are traceable to NML/ROC.
2. NCR:No Calibration Required

Instrument Setting

RBW	VBW	Detector	Trace	Comment
120kHz	N/A	Quasi-Peak	Maxhold	Below 1GHz
1MHz	1MHz	Peak	Maxhold	Above 1GHz Peak
1MHz	10Hz	Peak	Maxhold	Above 1GHz Average

Climatic Condition

Ambient Temperature : 23°C;

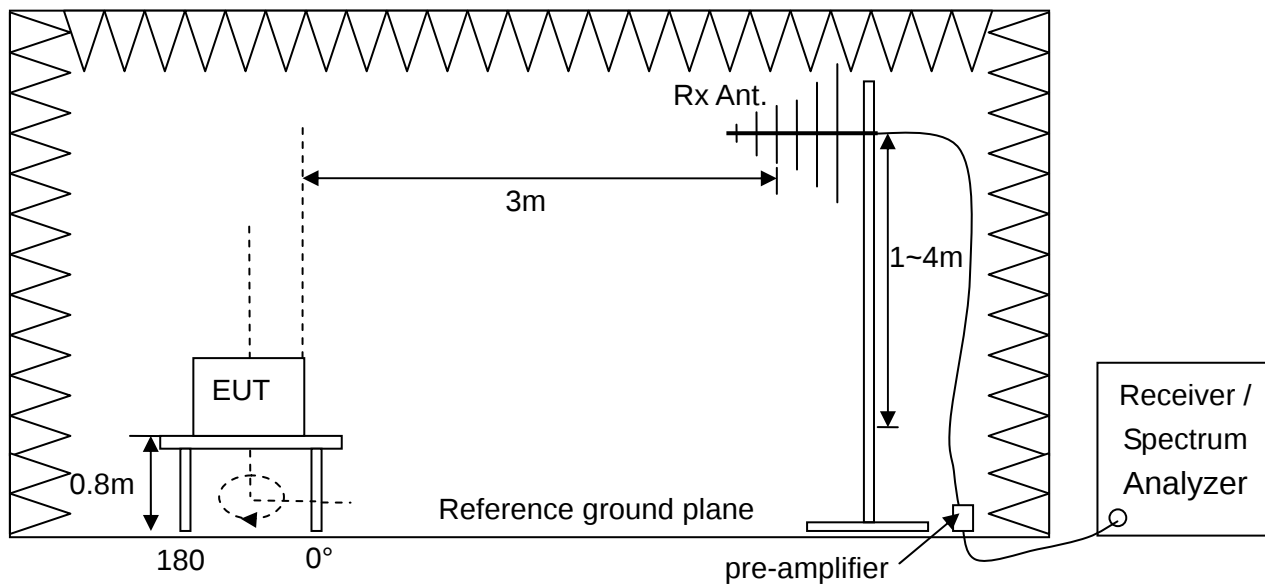
Relative Humidity : 52%

3.3 Test Procedures

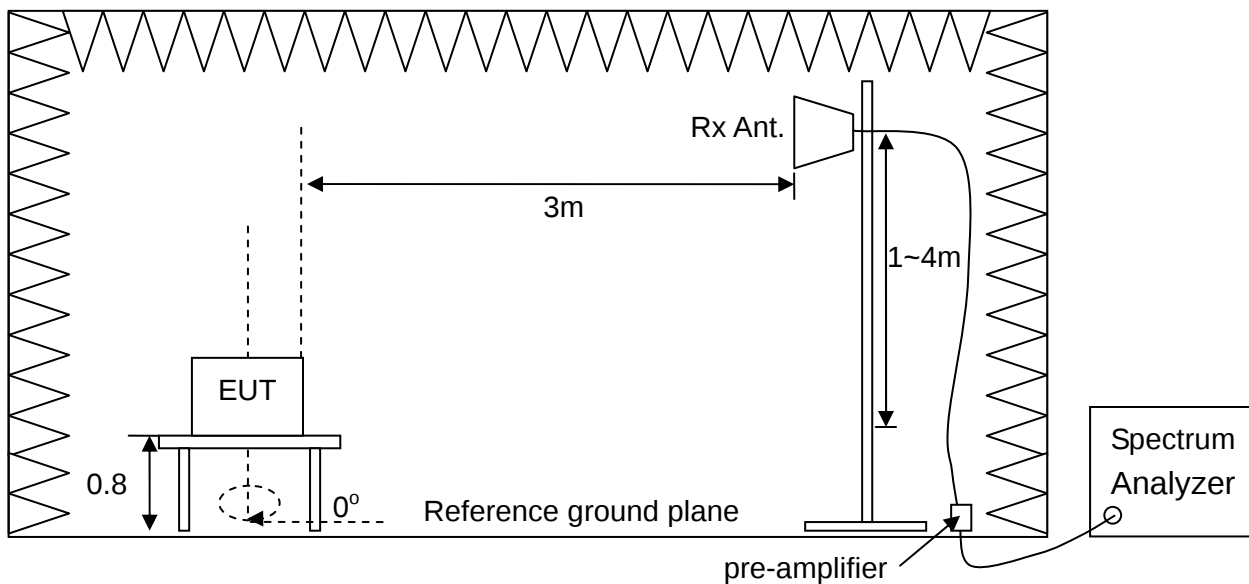
- a. The EUT was set up per the test configuration figured in the next section of this chapter to simulate the typical usage per the user's manual.
- b. A software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.
- c. If the EUT is tabletop equipment, it was placed on a wooden table with a height of 0.8 meters above the reference ground plane in the semi-anechoic chamber. If the EUT is floor-standing equipment, it was placed on a non-conducted support with a height of 12 millimeters above the reference ground plane in the semi-anechoic chamber.
- d. The EUT was set 3m away from the interference receiving antenna.
- e. Rapidly sweep the signal in the test frequency range by using the spectrum through the Maximum-peak detector.
- f. Rotate the EUT from 0° to 360° and position the receiving antenna at heights from 1 to 4 meters above the reference ground plane continuously to determine at least six frequencies associated with higher emission levels and record them.
- g. Then measure each frequency found from step f. by using the spectrum with rotating the EUT and positioning the receiving antenna height to determine the maximum level.
- h. For measurement of frequency below 1000MHz, set the receiver detector to be Quasi-Peak per CISPR 16-1 to find out the maximum level occurred.
- i. For measurement of frequency above 1000MHz, set the spectrum detector to be Peak or Average to find out the maximum level occurred, if any.
- j. Record frequency, azimuth angle of the turntable, height, and polarization of the receiving antenna and compare the maximum level with the required limit.
- k. Change the receiving antenna to another polarization to measure radiated emission by following step e. to j. again.
- l. If the peak emission level below 1000MHz measured from step f. is 4dB lower than the limit specified, then the emission values presented will be the peak value only. Otherwise, accurate Q.P. value will be measured and presented.
- m. If the peak emission level above 1000MHz measured from step f. is 20dB lower than the limit specified, then the emission values presented will be the peak value only. Otherwise, accurate A.V. value will be measured and presented.

3.4 Test Configuration

Radiated Emission Measurement below 1000MHz



Radiated Emission Measurement above 1000MHz



3.5 Test Results

Band Edge

Test Mode : Transmitter

Test Distance : 3m

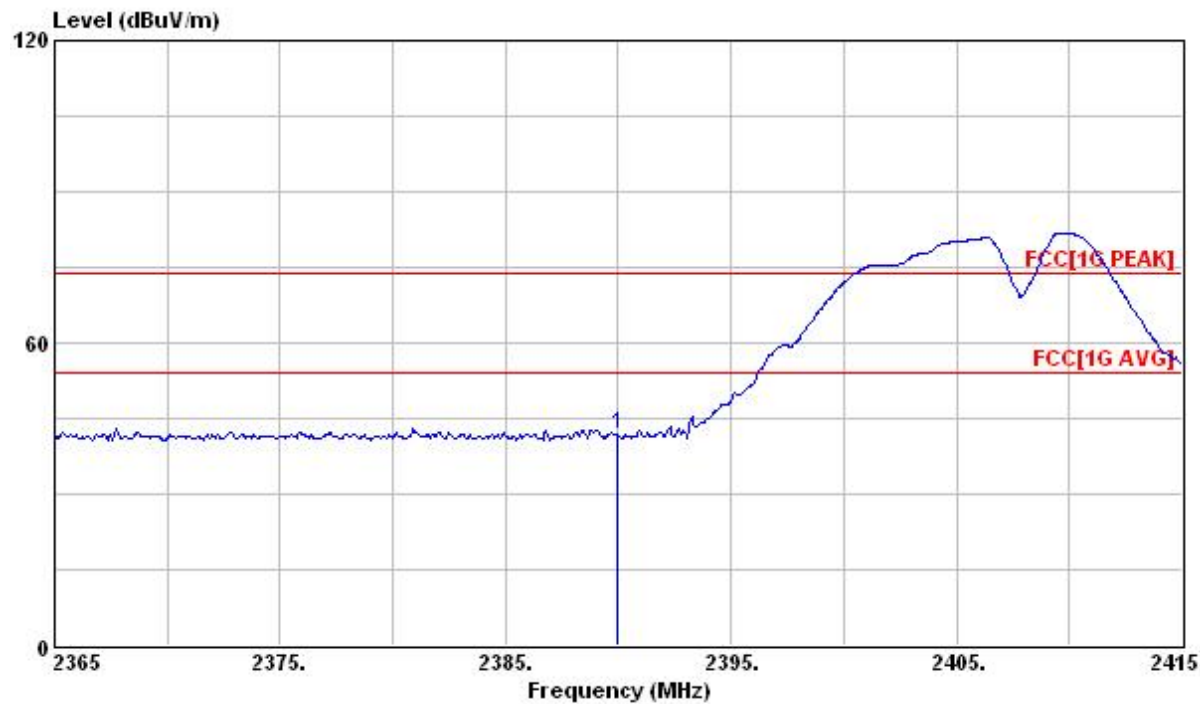
Tester : Bill

Test Range	Polarization	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
			PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
Lowest	V	2400.00	69.72	57.74	-27.99	41.73	29.75	74	54	32.27	24.25
	H	2400.00	72.80	57.85	-27.99	44.81	29.86	74	54	29.19	24.14
Highest	V	2483.50	78.83	57.63	-27.84	50.99	29.79	74	54	23.01	24.21
	H	2483.50	81.68	56.92	-27.84	53.84	29.08	74	54	20.16	24.92

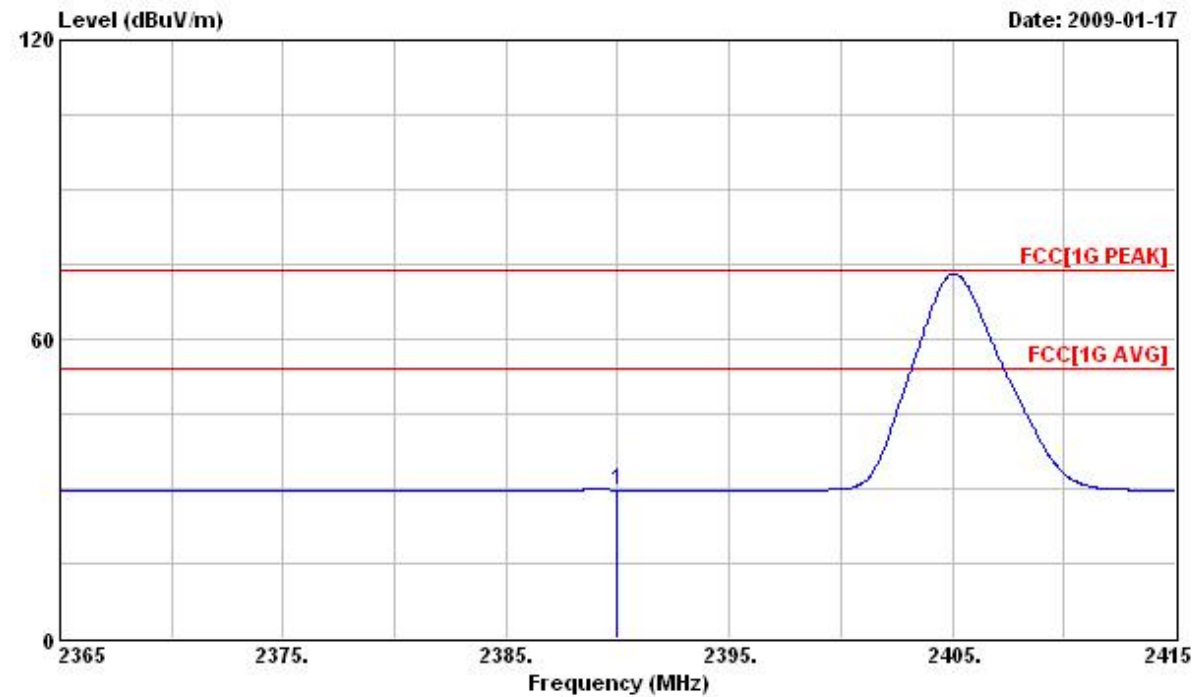
Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level

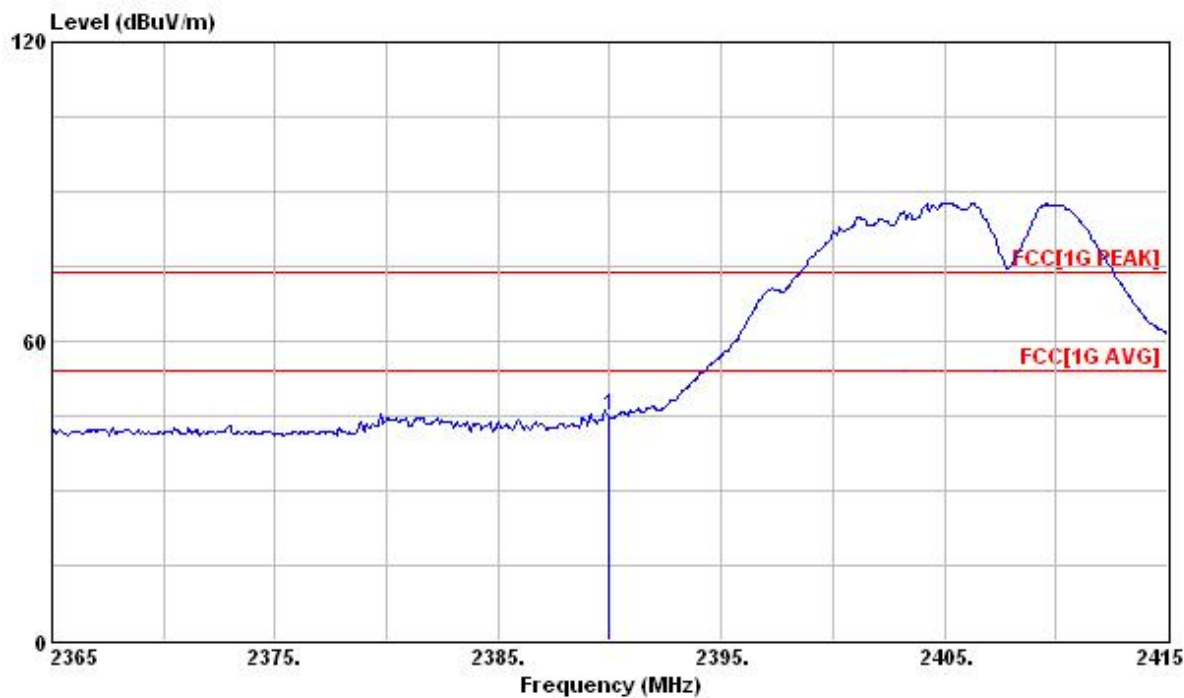
Lowest Channel, Vertical - Peak



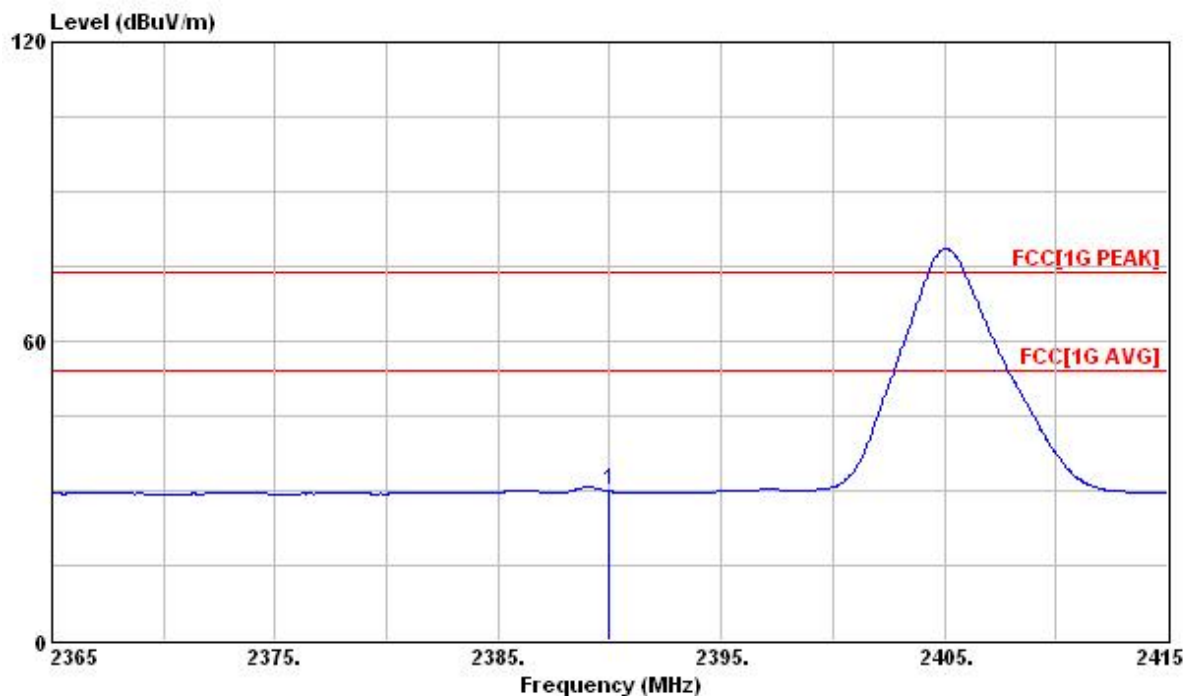
Lowest Channel, Vertical - Average



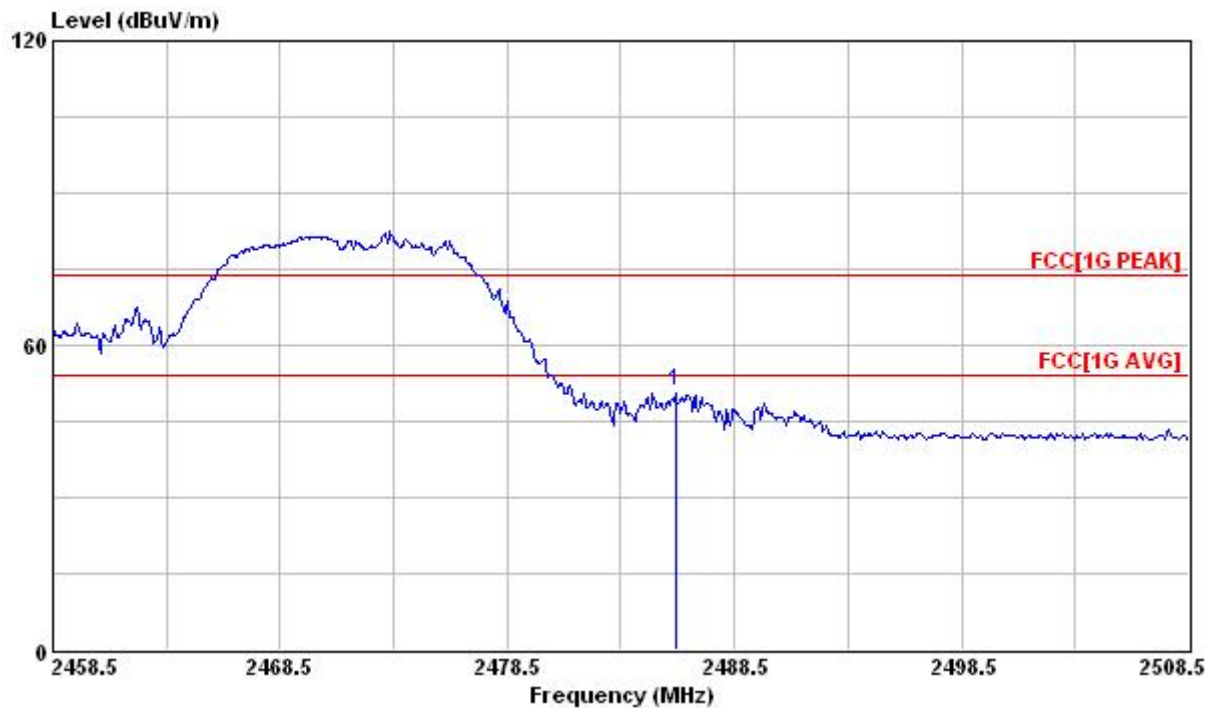
Lowest Channel, Horizontal - Peak



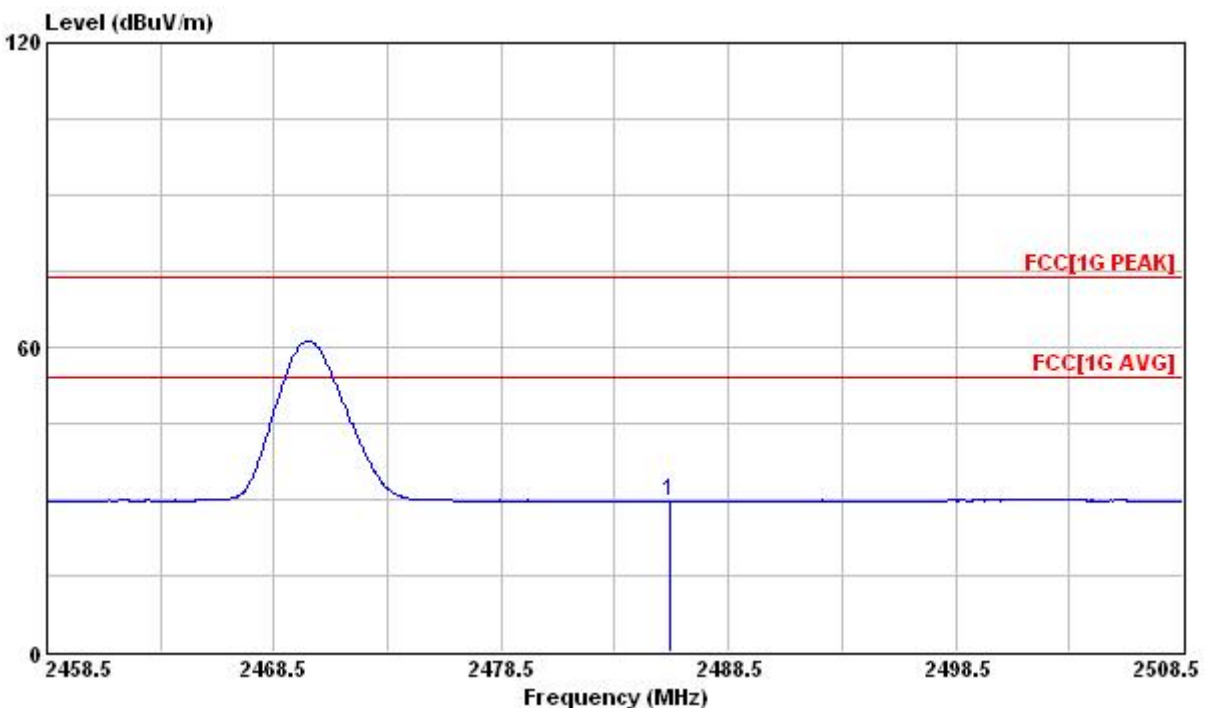
Lowest Channel, Horizontal - Average



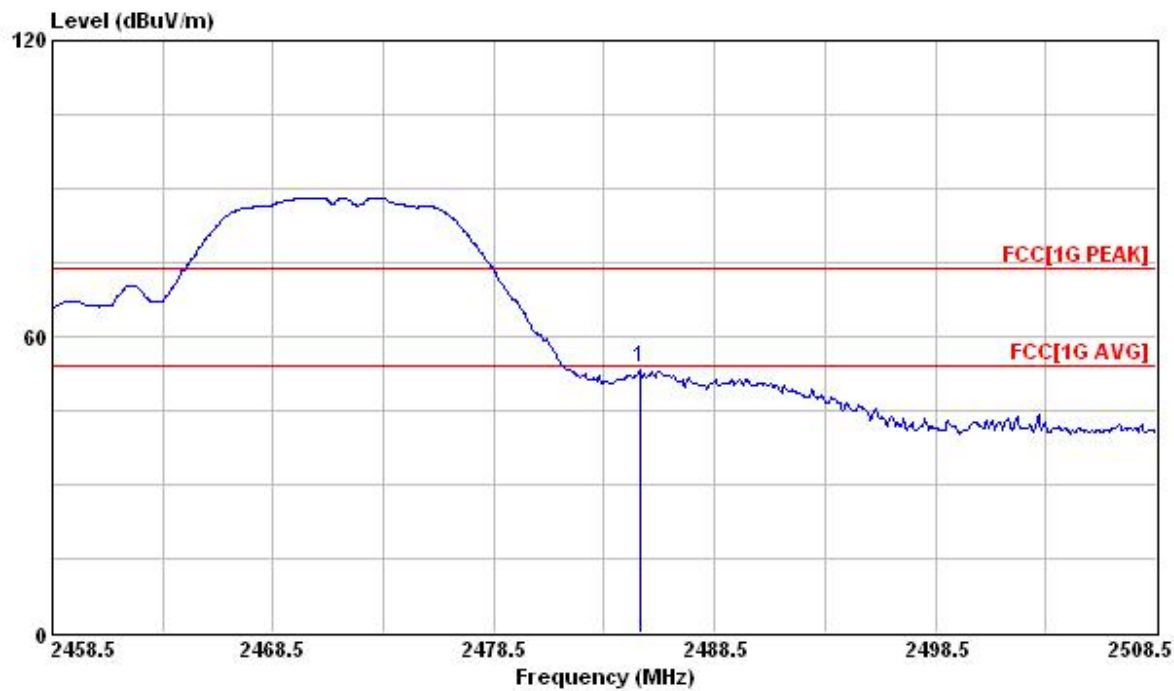
Highest Channel, Vertical - Peak



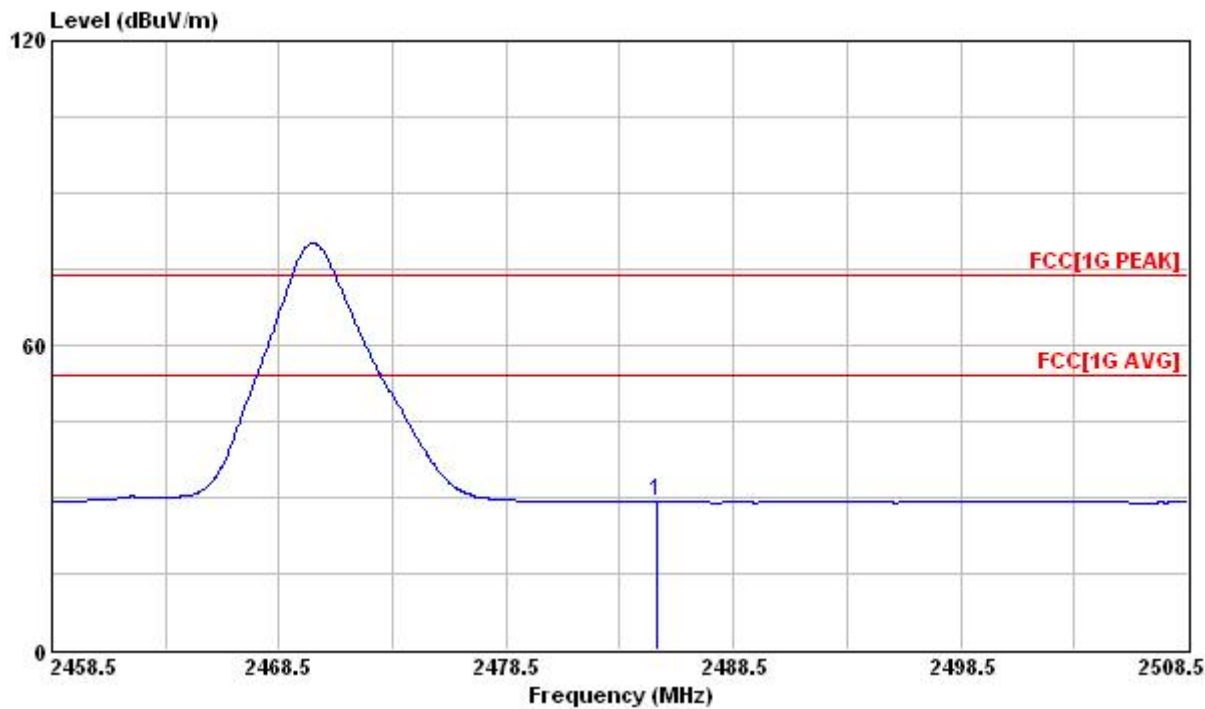
Highest Channel, Vertical - Average



Highest Channel, Horizontal - Peak



Highest Channel, Horizontal - Average



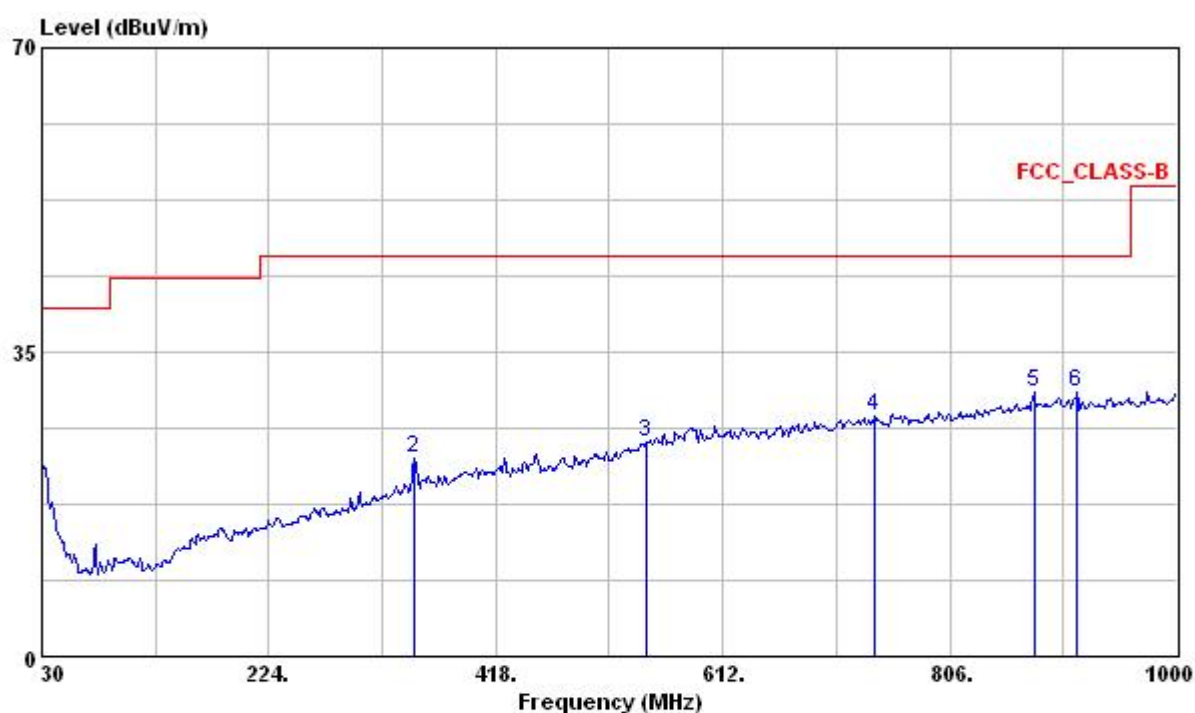
Radiated Emission Measurement

Below 1000MHz

Test Mode : 2405MHz, Transmitter

Test Distance : 3m Tester : Bill

Polarization : Vertical Frequency Range : 30MHz~1000MHz

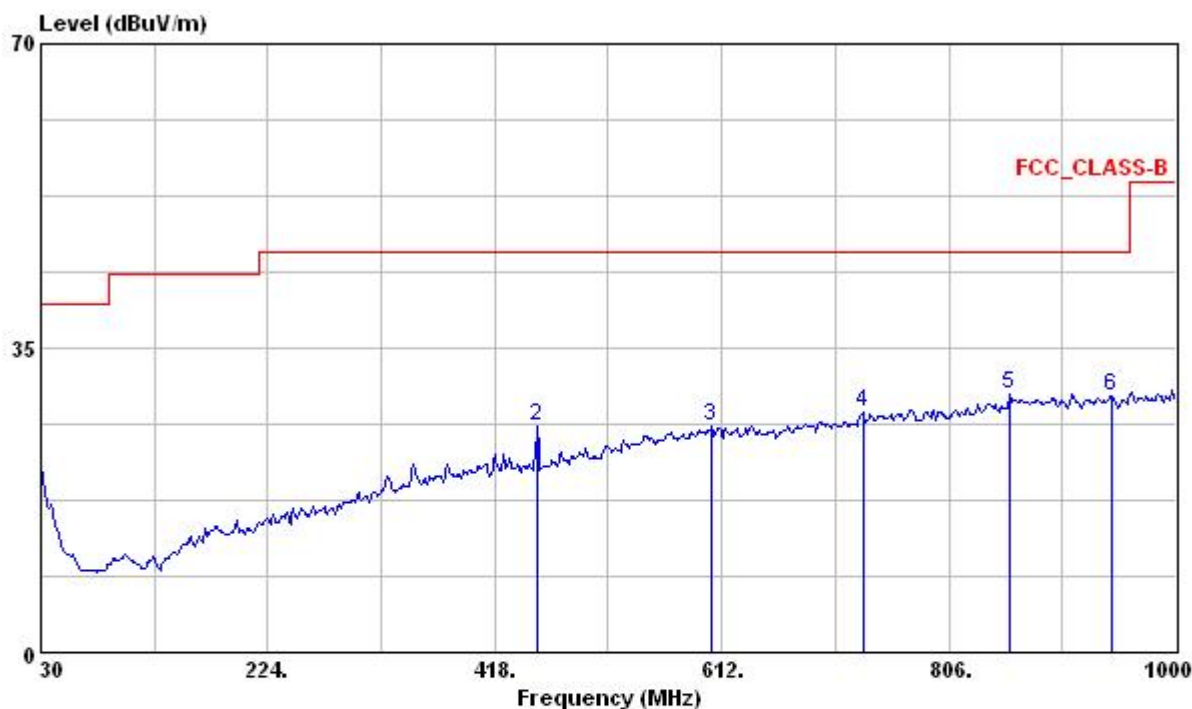


	Freq	Level	Read	Limit	Over	Ant	Table		
	MHz	dBuV/m	Level	Factor	Line	Limit	Pos	Pos	Pol/Phase
			dBuV	dB/m	dBuV/m	dB	cm	deg	Remark
1	30.000	21.85	30.38	-8.53	40.00	-18.15	---	---	VERTICAL
2	348.160	22.86	33.48	-10.62	46.00	-23.14	---	---	VERTICAL
3	547.010	24.62	30.38	-5.76	46.00	-21.38	---	---	VERTICAL
4	741.980	27.63	30.55	-2.92	46.00	-18.37	---	---	VERTICAL
5	877.780	30.28	31.35	-1.07	46.00	-15.72	---	---	VERTICAL
6	914.640	30.47	31.09	-0.62	46.00	-15.53	---	---	VERTICAL

Note:

1. Emission Level = reading value + correction factor.
2. Correction factor = cable loss + antenna factor – gain of pre-amplifier.
3. Q.P is abbreviation of quasi-peak.

Test Mode : 2405MHz, Transmitter
Test Distance : 3m **Tester** : Bill
Polarization : Horizontal **Frequency Range** : 30MHz~1000MHz

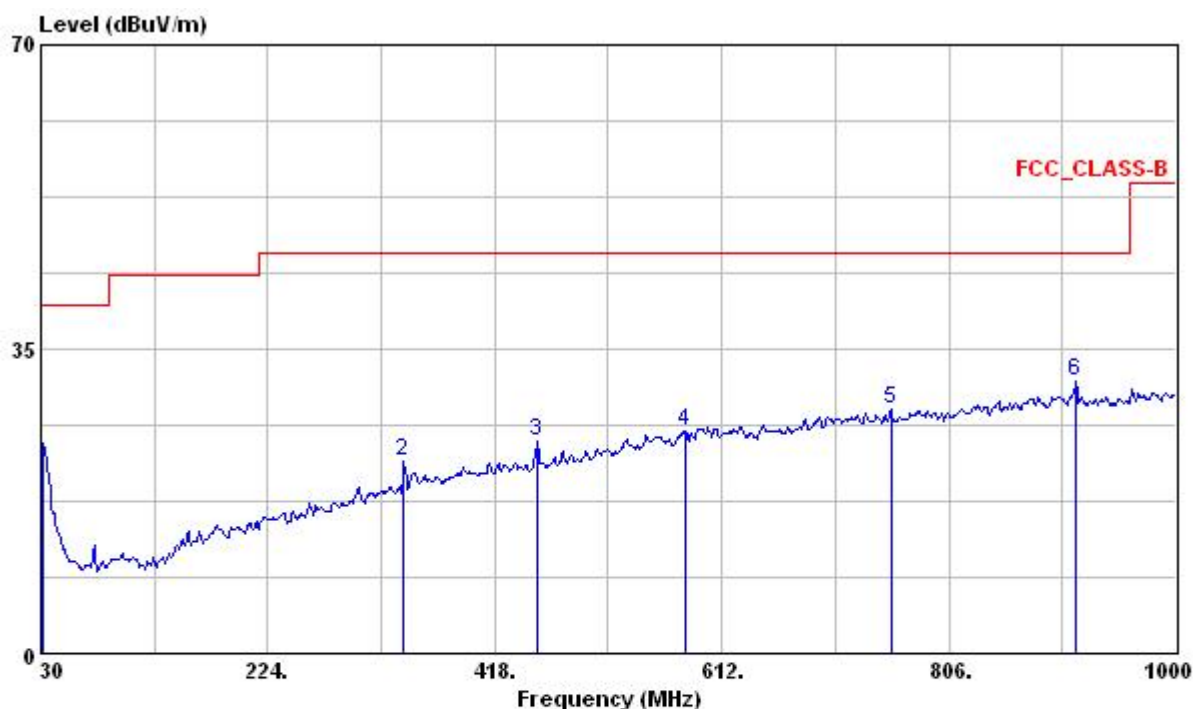


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	30.000	21.39	29.92	-8.53	40.00	-18.61	---	---	HORIZONTAL	Peak
2	454.860	25.94	34.25	-8.31	46.00	-20.06	---	---	HORIZONTAL	Peak
3	603.270	25.92	30.62	-4.70	46.00	-20.08	---	---	HORIZONTAL	Peak
4	732.280	27.58	30.55	-2.97	46.00	-18.42	---	---	HORIZONTAL	Peak
5	858.380	29.66	31.12	-1.46	46.00	-16.34	---	---	HORIZONTAL	Peak
6	945.680	29.47	30.09	-0.62	46.00	-16.53	---	---	HORIZONTAL	Peak

Note:

1. Emission Level = reading value + correction factor.
2. Correction factor = cable loss + antenna factor – gain of pre-amplifier.
3. Q.P is abbreviation of quasi-peak.

Test Mode : 2438MHz, Transmitter
Test Distance : 3m **Tester** : Bill
Polarization : Vertical **Frequency Range** : 30MHz~1000MHz

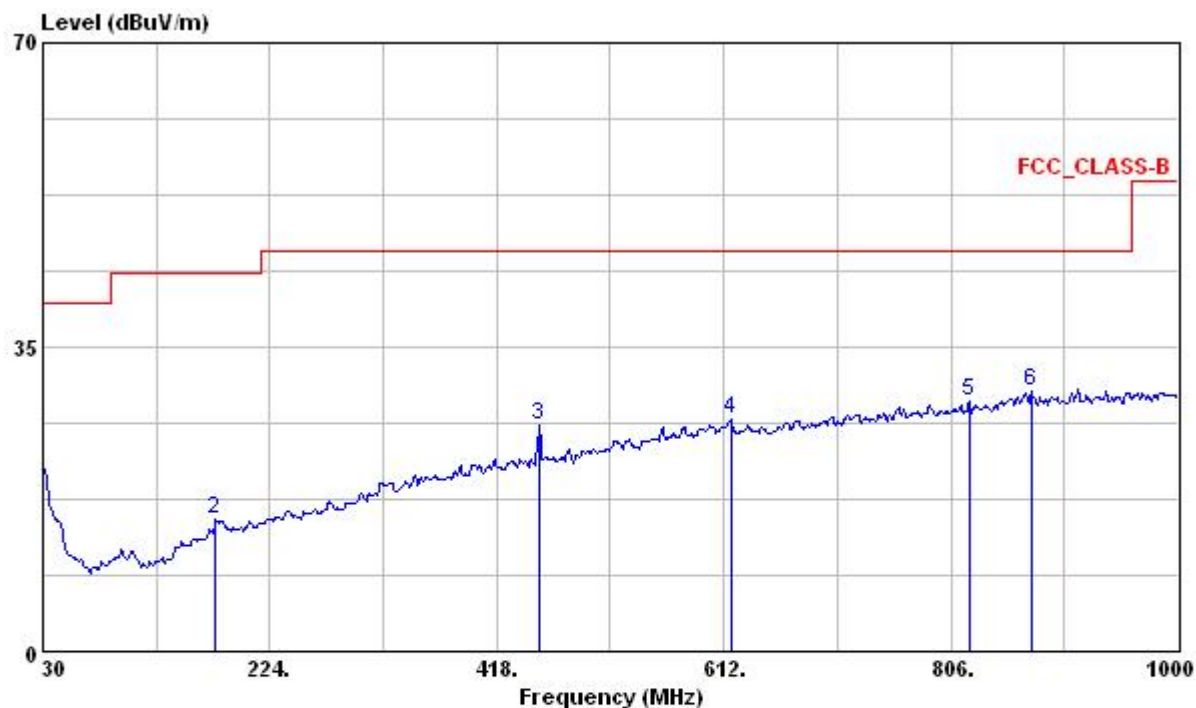


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	31.940	24.23	33.98	-9.75	40.00	-15.77	---	---	VERTICAL	Peak
2	340.400	22.20	33.12	-10.92	46.00	-23.80	---	---	VERTICAL	Peak
3	454.860	24.47	32.78	-8.31	46.00	-21.53	---	---	VERTICAL	Peak
4	580.960	25.66	30.74	-5.08	46.00	-20.34	---	---	VERTICAL	Peak
5	756.530	28.10	30.92	-2.82	46.00	-17.90	---	---	VERTICAL	Peak
6	914.640	31.37	31.99	-0.62	46.00	-14.63	---	---	VERTICAL	Peak

Note:

1. Emission Level = reading value + correction factor.
2. Correction factor = cable loss + antenna factor – gain of pre-amplifier.
3. Q.P is abbreviation of quasi-peak.

Test Mode : 2438MHz, Transmitter
Test Distance : 3m **Tester** : Bill
Polarization : Horizontal **Frequency Range** : 30MHz~1000MHz



	Freq	Level	Read	Limit	Over	Ant	Table		
	MHz	dBuV/m	Level	Factor	Line	Limit	Pos	Pos	Pol/Phase
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	Remark
1	30.000	21.14	29.67	-8.53	40.00	-18.86	---	---	HORIZONTAL Peak
2	177.440	15.24	31.04	-15.80	43.50	-28.26	---	---	HORIZONTAL Peak
3	454.860	26.09	34.40	-8.31	46.00	-19.91	---	---	HORIZONTAL Peak
4	617.820	26.78	31.48	-4.70	46.00	-19.22	---	---	HORIZONTAL Peak
5	821.520	28.80	30.94	-2.14	46.00	-17.20	---	---	HORIZONTAL Peak
6	874.870	29.92	31.05	-1.13	46.00	-16.08	---	---	HORIZONTAL Peak

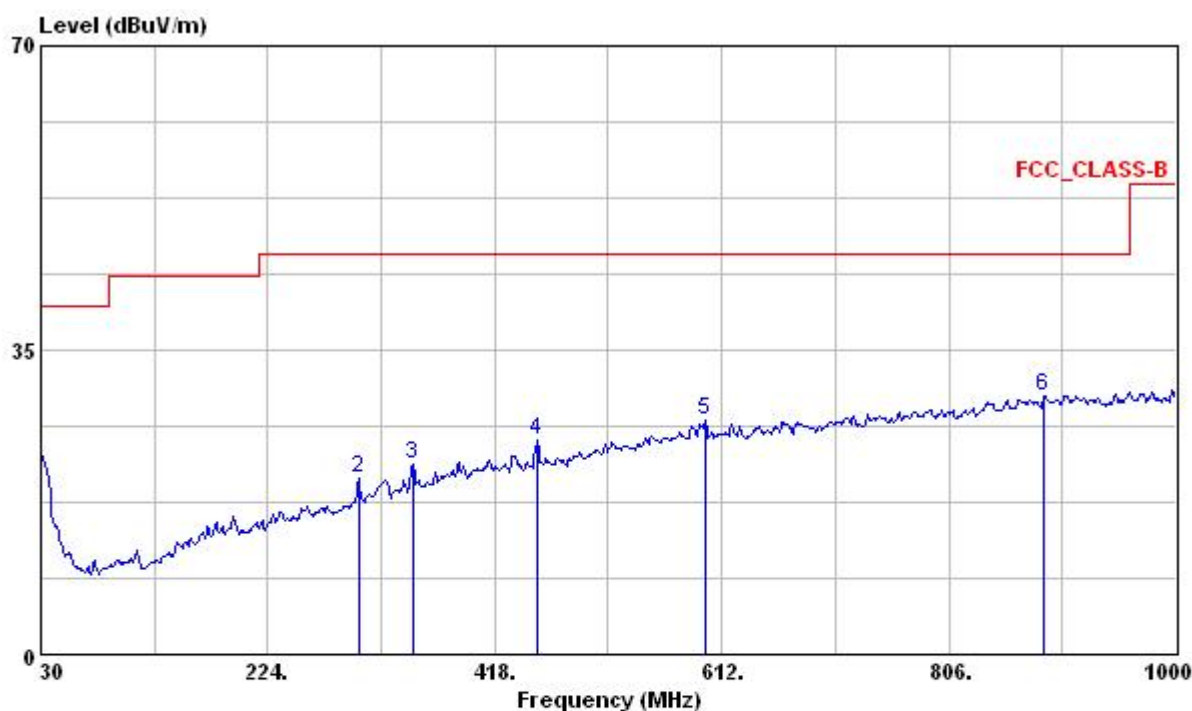
Note:

1. Emission Level = reading value + correction factor.
2. Correction factor = cable loss + antenna factor – gain of pre-amplifier.
3. Q.P is abbreviation of quasi-peak.

Test Mode : 2470MHz, Transmitter

Test Distance : 3m Tester : Bill

Polarization : Vertical Frequency Range : 30MHz~1000MHz

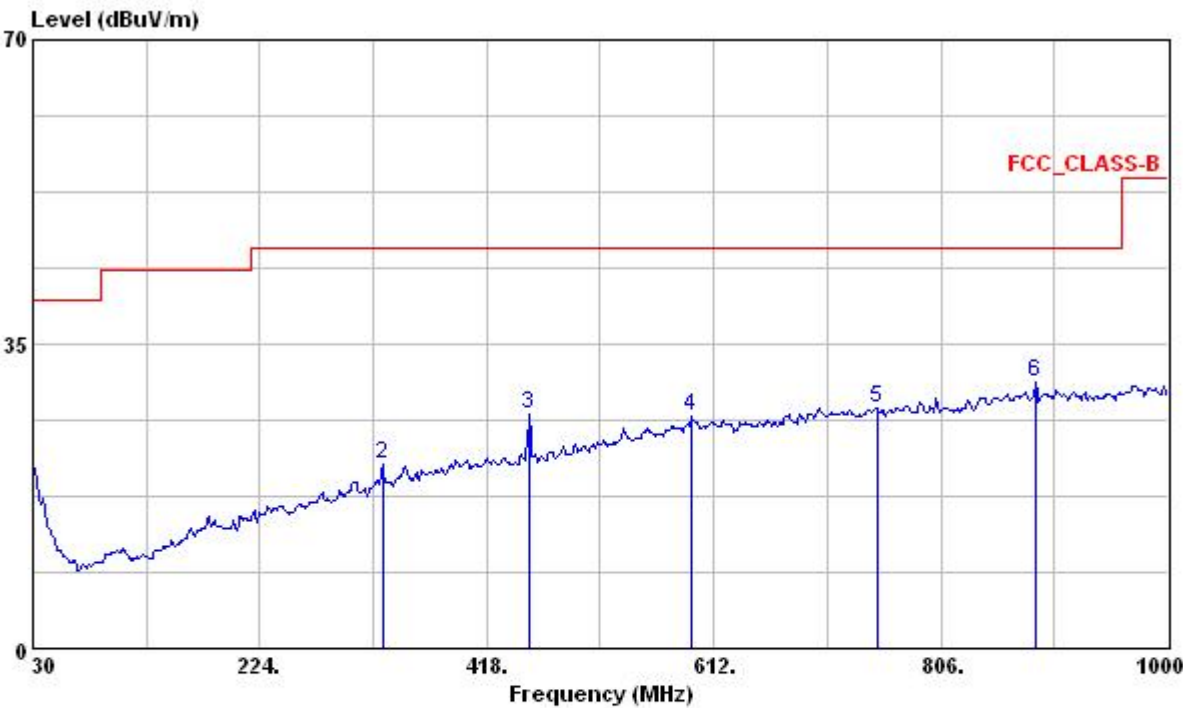


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	30.000	23.33	31.86	-8.53	40.00	-16.67	---	---	VERTICAL	Peak
2	301.600	20.33	32.73	-12.40	46.00	-25.67	---	---	VERTICAL	Peak
3	348.160	21.96	32.58	-10.62	46.00	-24.04	---	---	VERTICAL	Peak
4	454.860	24.62	32.93	-8.31	46.00	-21.38	---	---	VERTICAL	Peak
5	598.420	26.92	31.65	-4.73	46.00	-19.08	---	---	VERTICAL	Peak
6	887.480	29.75	30.63	-0.88	46.00	-16.25	---	---	VERTICAL	Peak

Note:

1. Emission Level = reading value + correction factor.
2. Correction factor = cable loss + antenna factor – gain of pre-amplifier.
3. Q.P is abbreviation of quasi-peak.

Test Mode : 2470MHz, Transmitter
Test Distance : 3m Tester : Bill
Polarization : Horizontal Frequency Range : 30MHz~1000MHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	30.000	21.17	29.70	-8.53	40.00	-18.83	---	---	HORIZONTAL	Peak
2	328.760	21.28	32.64	-11.36	46.00	-24.72	---	---	HORIZONTAL	Peak
3	454.860	26.88	35.19	-8.31	46.00	-19.12	---	---	HORIZONTAL	Peak
4	593.570	26.72	31.55	-4.83	46.00	-19.28	---	---	HORIZONTAL	Peak
5	751.680	27.69	30.55	-2.86	46.00	-18.31	---	---	HORIZONTAL	Peak
6 @	887.480	30.55	31.43	-0.88	46.00	-15.45	---	---	HORIZONTAL	Peak

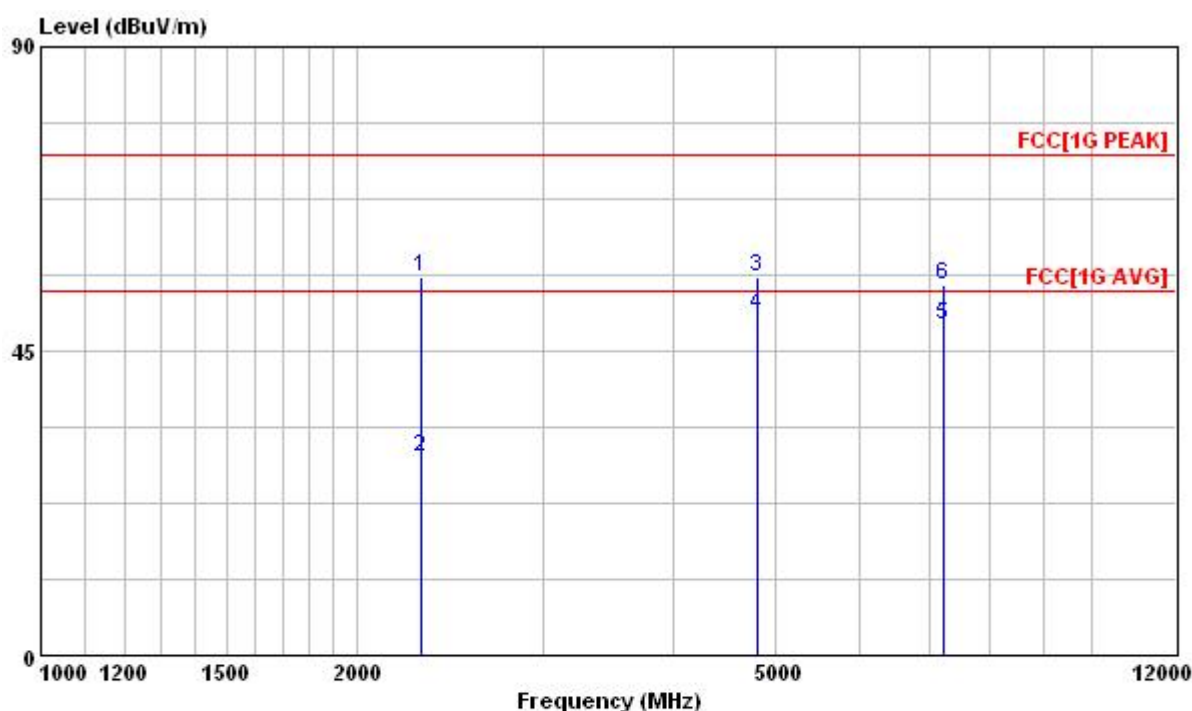
- Note:
1. Emission Level = reading value + correction factor.
 2. Correction factor = cable loss + antenna factor – gain of pre-amplifier.
 3. Q.P is abbreviation of quasi-peak.

Above 1000MHz

Test Mode : 2405MHz, Transmitter

Test Distance : 3m Tester : Bill

Polarization : Vertical Frequency Range : 1GHz ~ 12GHz



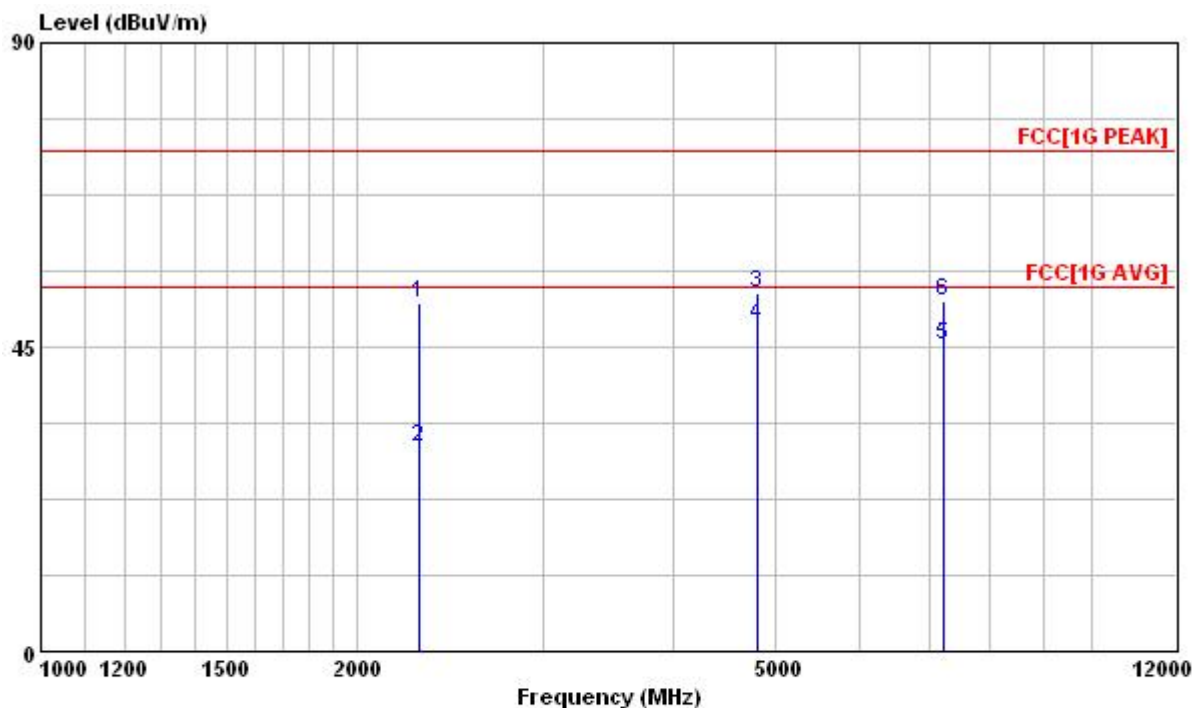
	Freq	Level	Read	Limit	Over	Ant	Table		
	MHz	dBuV/m	Level	Factor	Line	Limit	Pos	Pos	Pol/Phase
			dBuV	dB/m	dBuV/m	dB	cm	deg	Remark
1	2294.475	55.88	84.02	-28.14	74.00	-18.12	101	213	VERTICAL
2	2294.475	29.22	57.36	-28.14	54.00	-24.78	101	213	VERTICAL
3	4810.075	56.06	80.73	-24.67	74.00	-17.94	163	272	VERTICAL
4 @	4810.075	50.26	74.93	-24.67	54.00	-3.74	163	272	VERTICAL
5 @	7214.800	48.90	68.64	-19.74	54.00	-5.10	148	338	VERTICAL
6	7214.800	54.88	74.62	-19.74	74.00	-19.12	148	338	VERTICAL

Note:

1. Emission Level = reading value + correction factor.
2. Correction factor = cable loss + antenna factor – gain of pre-amplifier.

No signal can be detected from 12GHz to 25GHz, so the graphs are omitted above 12GHz.

Test Mode : 2405MHz, Transmitter
Test Distance : 3m **Tester** : Bill
Polarization : Horizontal **Frequency Range** : 1GHz ~ 12GHz



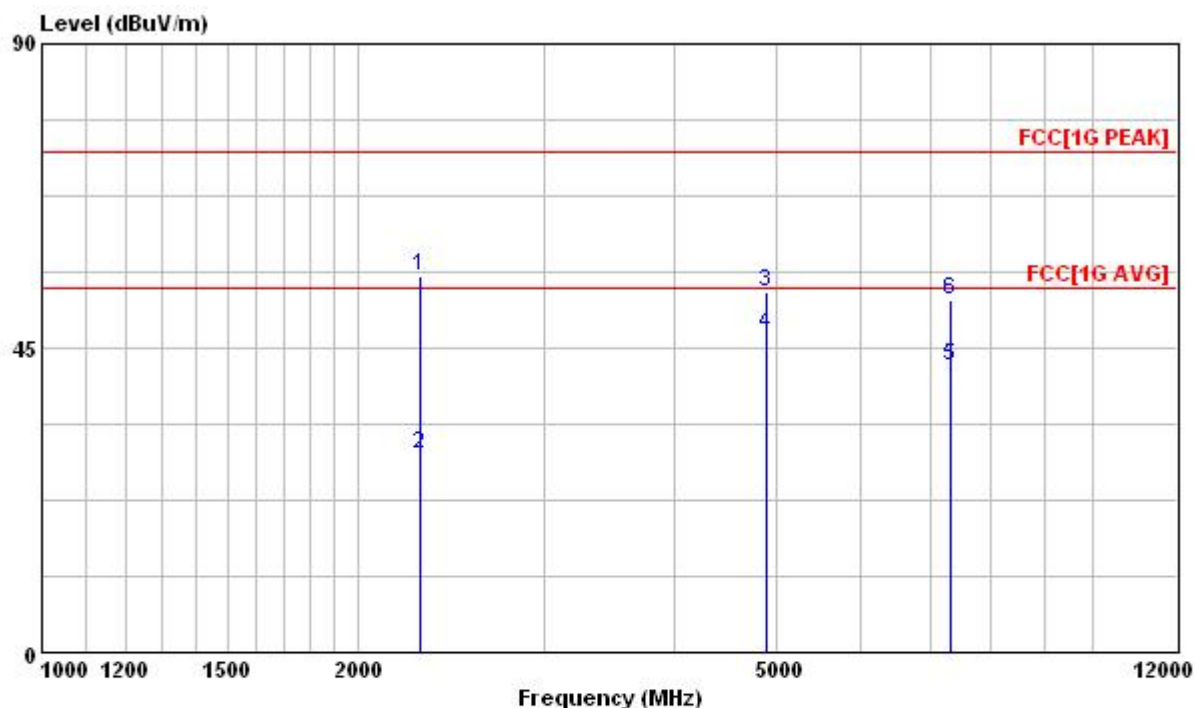
	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2294.450	51.60	79.74	-28.14	74.00	-22.40	168	305	HORIZONTAL	Peak
2	2294.450	30.26	58.40	-28.14	54.00	-23.74	168	305	HORIZONTAL	Average
3	4809.950	53.01	77.68	-24.67	74.00	-20.99	214	254	HORIZONTAL	Peak
4	4809.950	48.16	72.83	-24.67	54.00	-5.84	214	254	HORIZONTAL	Average
5	7215.087	45.15	64.89	-19.74	54.00	-8.85	181	14	HORIZONTAL	Average
6	7215.087	51.86	71.60	-19.74	74.00	-22.14	181	14	HORIZONTAL	Peak

Note:

1. Emission Level = reading value + correction factor.
2. Correction factor = cable loss + antenna factor – gain of pre-amplifier.

No signal can be detected from 12GHz to 25GHz, so the graphs are omitted above 12GHz.

Test Mode : 2438MHz, Transmitter
Test Distance : 3m **Tester** : Bill
Polarization : Vertical **Frequency Range** : 1GHz ~ 12GHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2294.300	55.74	83.88	-28.14	74.00	-18.26	101	210	VERTICAL	Peak
2	2294.300	29.26	57.40	-28.14	54.00	-24.74	101	210	VERTICAL	Average
3	4875.987	53.22	78.03	-24.81	74.00	-20.78	100	272	VERTICAL	Peak
4	4875.987	46.96	71.77	-24.81	54.00	-7.04	100	272	VERTICAL	Average
5	7314.362	42.32	61.81	-19.49	54.00	-11.68	101	169	VERTICAL	Average
6	7314.362	52.22	71.71	-19.49	74.00	-21.78	101	169	VERTICAL	Peak

Note:

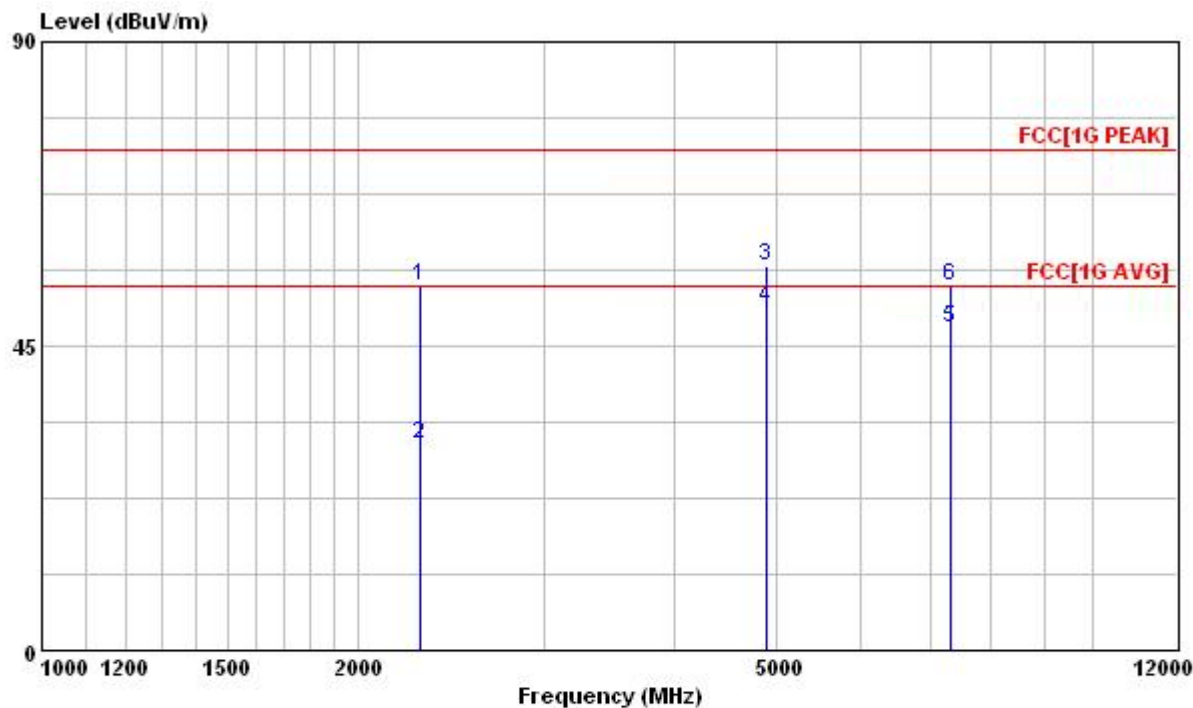
1. Emission Level = reading value + correction factor.
2. Correction factor = cable loss + antenna factor – gain of pre-amplifier.

No signal can be detected from 12GHz to 25GHz, so the graphs are omitted above 12GHz.

Test Mode : 2438MHz, Transmitter

Test Distance : 3m Tester : Bill

Polarization : Horizontal Frequency Range : 1GHz ~ 12GHz



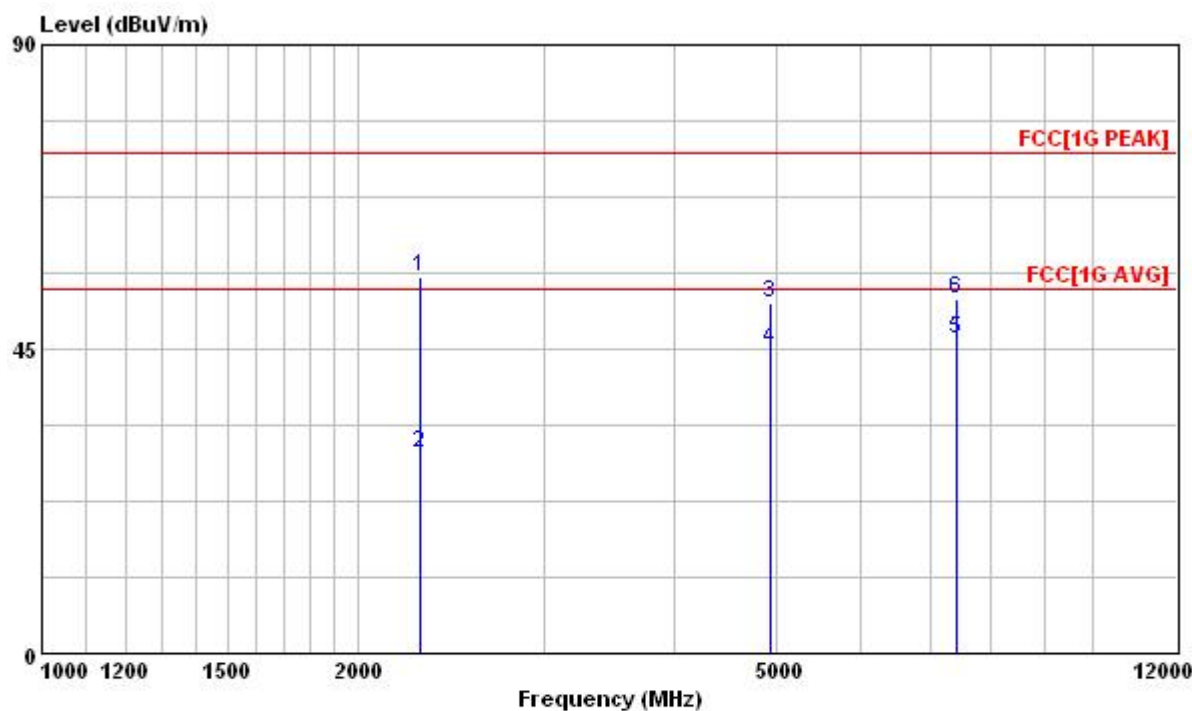
	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2294.238	53.89	82.03	-28.14	74.00	-20.11	166	306	HORIZONTAL	Peak
2	2294.238	30.37	58.51	-28.14	54.00	-23.63	166	306	HORIZONTAL	Average
3	4876.075	56.98	81.79	-24.81	74.00	-17.02	225	336	HORIZONTAL	Peak
4	4876.075	50.72	75.53	-24.81	54.00	-3.28	225	336	HORIZONTAL	Average
5	7314.075	47.56	67.05	-19.49	54.00	-6.44	197	0	HORIZONTAL	Average
6	7314.075	53.95	73.44	-19.49	74.00	-20.05	197	0	HORIZONTAL	Peak

Note:

1. Emission Level = reading value + correction factor.
2. Correction factor = cable loss + antenna factor – gain of pre-amplifier.

No signal can be detected from 12GHz to 25GHz, so the graphs are omitted above 12GHz.

Test Mode : 2470MHz, Transmitter
Test Distance : 3m **Tester** : Bill
Polarization : Vertical **Frequency Range** : 1GHz ~ 12GHz



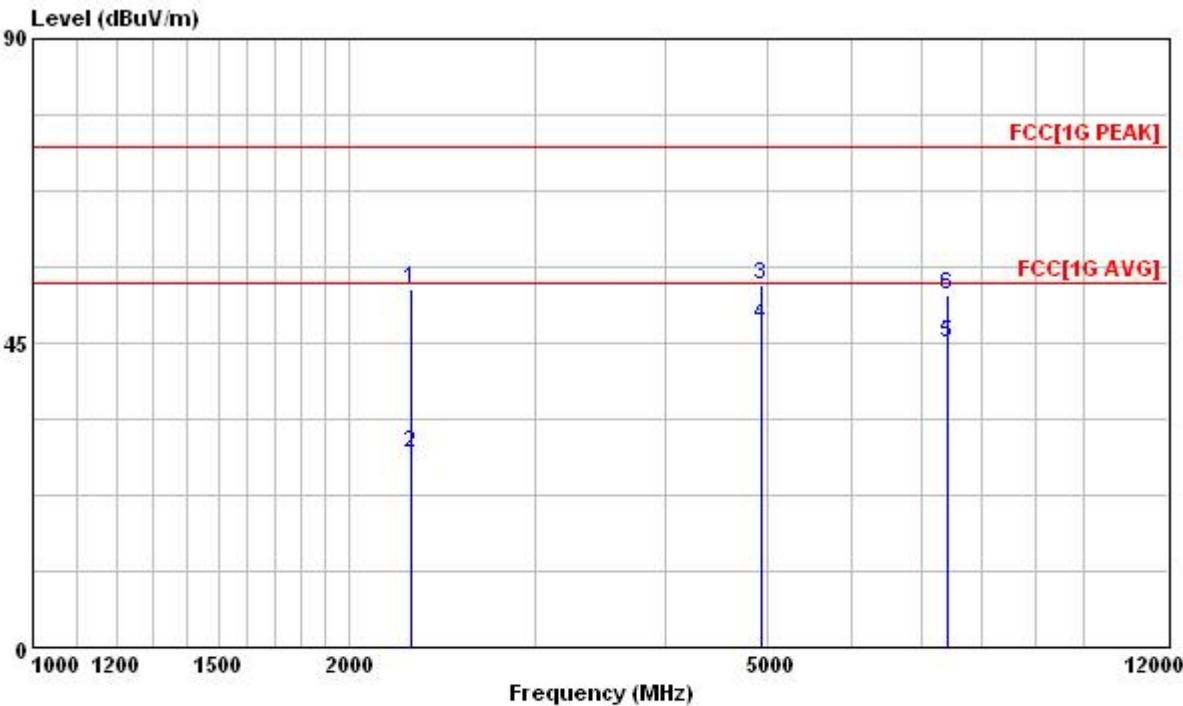
	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2294.137	55.58	83.72	-28.14	74.00	-18.42	101	208	VERTICAL	Peak
2	2294.137	29.55	57.69	-28.14	54.00	-24.45	101	208	VERTICAL	Average
3	4940.087	51.87	76.73	-24.86	74.00	-22.13	144	360	VERTICAL	Peak
4	4940.087	45.12	69.98	-24.86	54.00	-8.88	144	360	VERTICAL	Average
5	7410.150	46.52	66.05	-19.53	54.00	-7.48	176	259	VERTICAL	Average
6	7410.150	52.35	71.88	-19.53	74.00	-21.65	176	259	VERTICAL	Peak

Note:

1. Emission Level = reading value + correction factor.
2. Correction factor = cable loss + antenna factor – gain of pre-amplifier.

No signal can be detected from 12GHz to 25GHz, so the graphs are omitted above 12GHz.

Test Mode : 2470MHz, Transmitter
Test Distance : 3m Tester : Bill
Polarization : Horizontal Frequency Range : 1GHz ~ 12GHz



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2294.125	52.94	81.08	-28.14	74.00	-21.06	166	296	HORIZONTAL	Peak
2	2294.125	28.85	56.99	-28.14	54.00	-25.15	166	296	HORIZONTAL	Average
3	4940.125	53.54	78.40	-24.86	74.00	-20.46	241	346	HORIZONTAL	Peak
4 @	4940.125	47.76	72.62	-24.86	54.00	-6.24	241	346	HORIZONTAL	Average
5	7410.063	45.08	64.61	-19.53	54.00	-8.92	189	24	HORIZONTAL	Average
6	7410.063	52.16	71.69	-19.53	74.00	-21.84	189	24	HORIZONTAL	Peak

Note:

- 1. Emission Level = reading value + correction factor.
- 2. Correction factor = cable loss + antenna factor – gain of pre-amplifier.

No signal can be detected from 12GHz to 25GHz, so the graphs are omitted above 12GHz.