FCC Test Report

For

Bluetooth Dongle

Trade Name	:	**JS**
Model No.	:	**JE1101AW, JE111BW, JE1101DW**
FCC ID	:	**TQYBSJE1101AW00**
IC ID	:	**6233A-B1101AW0**
Report No.	:	**RF-A25-0604-186**
Date of Receipt	:	**June 27, 2006**
Date of Report	:	**June 30, 2006**

Prepared for

JAZZ HIPSTER CORPORATION

2Fd, No.512, Yuan-San Rd., Chung-Ho City, Taipei Hsien, Taiwan, R.O.C.

Prepared by

Central Research Technology Co.

EMC Test Laboratory

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NVLAP LAB CODE 200575-0

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Certification of Compliance

Equipment under Test	**: Bluetooth Dongle**
Trade Name	**: JS**
Model No.	**: JE1101AW, JE111BW, JE1101DW**
FCC IC	**: TQYBSJE1101AW00**
IC ID	**: 6233A-B1101AW0**
Manufacturer	**: Chiyu Electronics (SZ) Co.,Ltd**
Applicant	**: JAZZ HIPSTER CORPORATION**
Address	**: 2Fd, No.512, Yuan-San Rd., Chung-Ho City, Taipei Hsien, Taiwan, R.O.C.**
Applicable Standards	**: 47 CFR part 15, Subpart C** **RSS-210 Issue 6**
Date of Testing	**: June 27~29, 2006**
Deviation	**: N/A**
Condition of Test Sample	**: Prototype**

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 :** Jun 30, 2006
(Cathy Chen/ Technical Manager)

APPROVED BY : J. Y. Shih , **DATE :** June 30, 2006
(Tsun-Yu Shih/Laboratory Head)

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1 General Description

1.1 General Description of EUT

Equipment underTest	:	Bluetooth Dongle
Model No.	:	JE1101AW, JE111BW, JE1101DW
FCC ID	:	TQYBSJE1101AW00
IC ID	:	6233A-B1101AW03
Power in	:	Battery:3.7Vdc
Test Voltage	:	Battery:3.7Vdc(rechargeable Li battery)

1.2 Characteristic of E.U.T.

Frequency Range	: 2402~2480MHz
Channel Numbers	: 79
Function Modulation	: GFSK

The EUT contains a bluetooth function is used to transmit both control command and data. Please refer to the user's manual for the details.

Perform the function of EUT continuously by executing the test program – Zsound Utility supplied by its manufacturer.

1.3 Test Methodology

For this EUT, both conducted and radiated emissions were performed according to the procrdures illustrated in ANSI C63.4 and other required measurements were illustrated in separate sections of this test report for detail.

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

The EUT was tested with two functions and which are specified as different modes as below.

Mode	Function Type of the EUT	Function description
1	Transmitting Mode	The EUT transmits continuously by executing the test program
2	Battery Charge Mode	The battery of EUT is charged by connected Notebook through the USB cable of EUT.

1.4 Requirement for Compliance

(1) Conduction Emission Requirement

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.

(2) Radiated Emission Requirement

For intentional device, according to §15.209, the general requirement of field strength of radiated emissions from intentional radiator at a distance of 3 meters shall not exceed the below table.

Frequency (MHz)	Measurement Distance (m)	Field Strength (uV/m)	Field Strength (dBuV/m)
30 – 88	3	100	40.0
88 – 216	3	150	43.5
216 – 960	3	200	46.0
above 960	3	500	54.0

Note 1- The lower limit shall apply at the transition frequency.

(3) Hopping Channel Carrier Frequencies Separation and 20dB Bandwidth

According to 15.247(a)(1), frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

(4) Dwell Time on Each Channel

According to 15.247(a)(1)(iii), frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

(5) Maximun Peak Output Power

According to 15.247(b)(1), for frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

(6) 100kHz Bandedge

According to 15.247(d), in any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

(7) Restricted Band

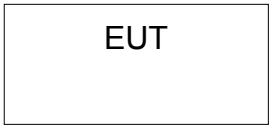
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
[2]1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	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.

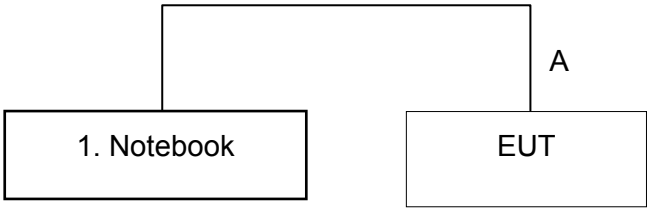
[2] Above 38.6

1.5 Layout of Setup

Mode 1:



Mode 2:



The Support Units :

No.	Unit	Model No./ Serial No.	FCC ID	Trade Name	Power Cord	Supported by lab.
1	Notebook	LATITUDE D400/ 34590451312	DoC	DELL	0.8m	✓

Connecting Cables :

No.	Cable	Length	Shielded	Core	Shielded Backshell	Supported by lab.	Note
A	USB Cable	0.9m					

Justification :

For both conducted and radiated emission below 1GHz, the system was configured for typical fashion as a customer could normal use it. The peripherals other than EUT was connected in normal standing by situation. Measurement was performed under the conduction that a computer program was excited to simulate data communication of EUT, and the transmission rate was setup maximum allowed by EUT.

For line conducted emission, only measurement of TX/RX and Charge mode operated, for the digital circuits portion also function normally whenever TX or RX is operated. For radiated emission, measurement of radiated emission from digital circuit is performed with channel 0, Channel 39 and channel 78 by transmitting mode.

1.6 Test Facility

Test Site	Type of Test Site	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.
☑ TR4	Shielding Room (5m×3m×3m)	For the RF conducted emission measurement.
☑ TR5	Shielding Room (8m×5m×4m)	For the Line conducted emission measurement.

Test Laboratory Competence Information

Central Research Technology Co. has been accredited/filed/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)	CNLA	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	Test facility list & NSA Data
	Canada	IC	4699A	Test facility list & NSA Data
	Japan	VCCI	R-1527,C-1609,T-131	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

All the measurement uncertainty evaluation procedures in this report are base on ETSI TR 100 028-1, 100 028-2,and ETSI TR 102 273-3. The assessed measurement uncertainties are:

Test Item	Measurement Uncertainty
Peak Output Power	Horizontal 4.44dB；Vertical 4.41dB
Bandedge	283 Hz
Carrier Frequencies Separation	283 Hz
Unwanted Emission (below 1GHz)	Horizontal 3.74dB；Vertical 3.85dB
Unwanted Emission (above 1GHz)	Horizontal 4.44dB；Vertical 4.41dB
Line Conducted Emission	2.26dB

2 Maximum Peak Output Power

Result: Pass

2.1 Applied standard

According to 15.247(b)(1), for frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

2.2 Measurement Procedure

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.

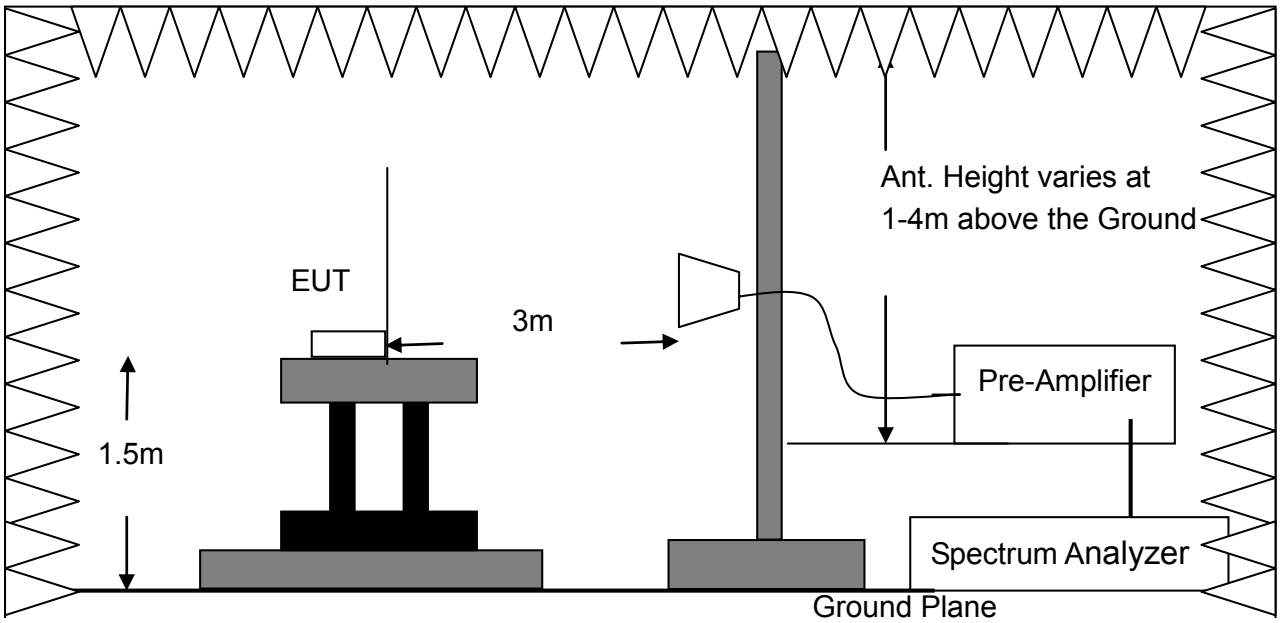
c. Rapidly sweep the signal in the fundamental frequency band by using the spectrum analyzer through the Maximum-peak detector.

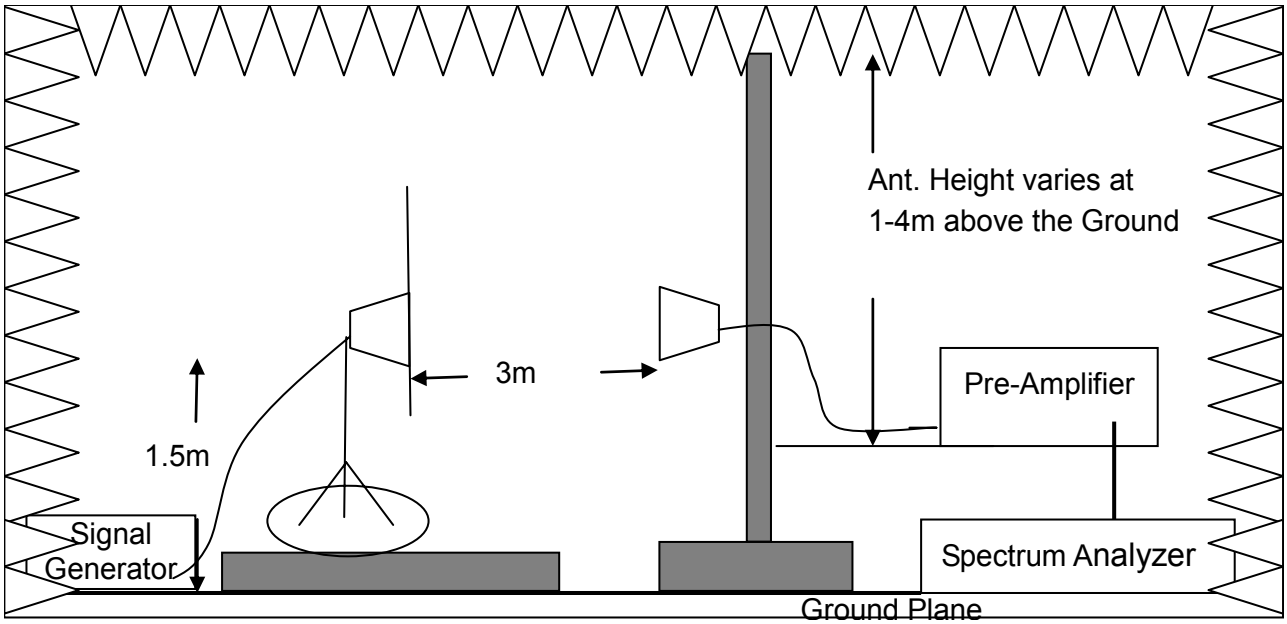
d. Rotate the EUT from 0° to 360° and position the receiving antenna at heights from 1 to 4 meters above the reference ground plane continuously to determine highest emission levels and record it.

e. Change the receiving antenna to another polarization to measure radiated emission by following step d again.

f. The EUT is replayed by substitution antenna which is connented to a signal generator. The signal generator adjusted until the level , record by step d. and e., is again measured on receiving device. Record the level of signal generator.

2.3 Test configuration





2.4 Test Instruments

Test Site and Equipment	Manufacturer	Model No./ Serial No.	Last Calibration Date	Calibration Due Date
Horn Antenna	AH	SAS-571/ 632	Aug. 11,2005	Aug. 11, 2006
Horn Antenna	R&S	HF906/ 359287/002	Aug. 11,2005	Aug. 11, 2006
Pre-Amplifier	MITEQ	JS4-00101800-28-5 A/742229	Aug. 3,2005	Aug. 3, 2006
Spectrum Analyzer	R&S	FSP40/ 10031	June 16,2006	June 16, 2007
Signal Generator	R&S	SMP03/ 835675/005	June 15,2006	June 15, 2007
TR1 Semi - anechoic Chamber	ETS. LINDGREN	TR1/ 17627-B	April 9, 2006	April 9, 2007

Note:

1. The calibrations are traceable to NML/ROC.
2. NCR:No Calibration Required.
3. The calibration date of the semi-anechoic chamber listed above is the date of NSA measurement.

Instrument Setting

RBW	VBW	Detector	Trace	Comment
100kHz	300kHz	Peak	Maxhold	

Climatic Condition

Ambient Temperature：24°C ; Relative Humidity : 75%

2.5 Test Data

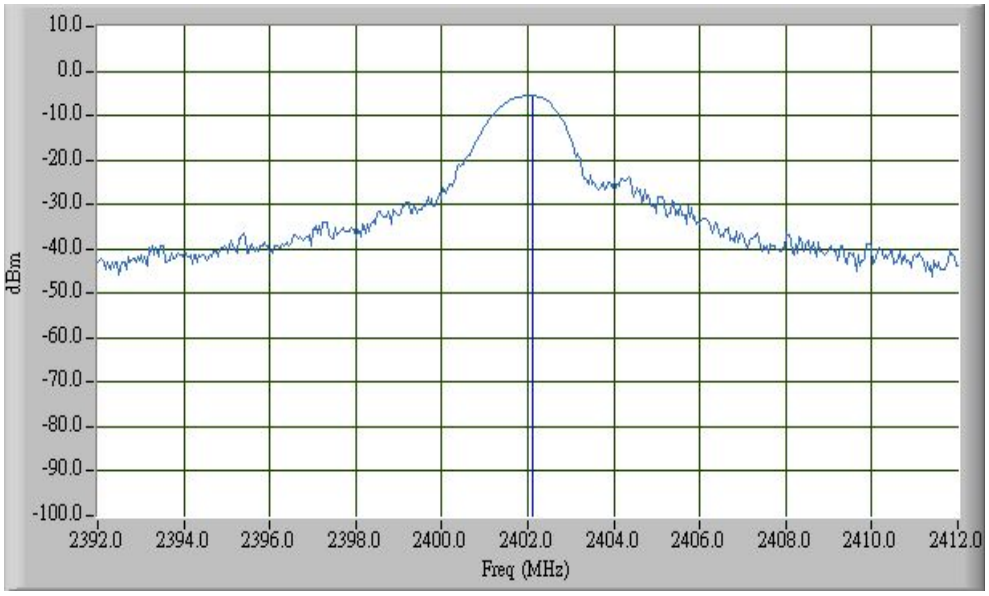
Test Mode : Mode 1, Continuously Transmitting Tester : Bill

Operating Frequency (MHz)	Reading Data (dBm)	Output Power of S.G. (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2402MHz	-15.93	-13.67	8.12	-5.55	30	35.55	Vertical
	-5.55	-3.54	8.12	4.59	30	25.41	Horizontal
2441MHz	-18.81	-16.00	8.16	-7.85	30	37.85	Vertical
	-7.44	-5.38	8.16	2.78	30	27.22	Horizontal
2480MHz	-22.39	-19.51	8.16	-11.35	30	41.35	Vertical
	-12.17	-9.99	8.16	-1.83	30	31.83	Horizontal

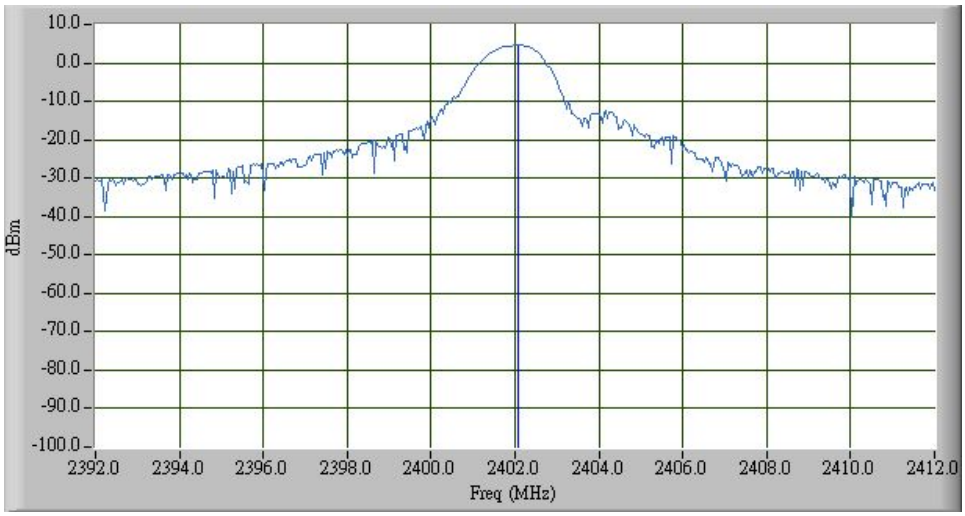
Note:

1. Correction Factor (dB)= Gain of TX Antenna – Cable Loss of cable
2. EIRP (dBm)= Output power of S.G. + Correction Factor
3. Margin (dB)= Limit – EIRP
4. ”*” means the emission level is too low to measure.

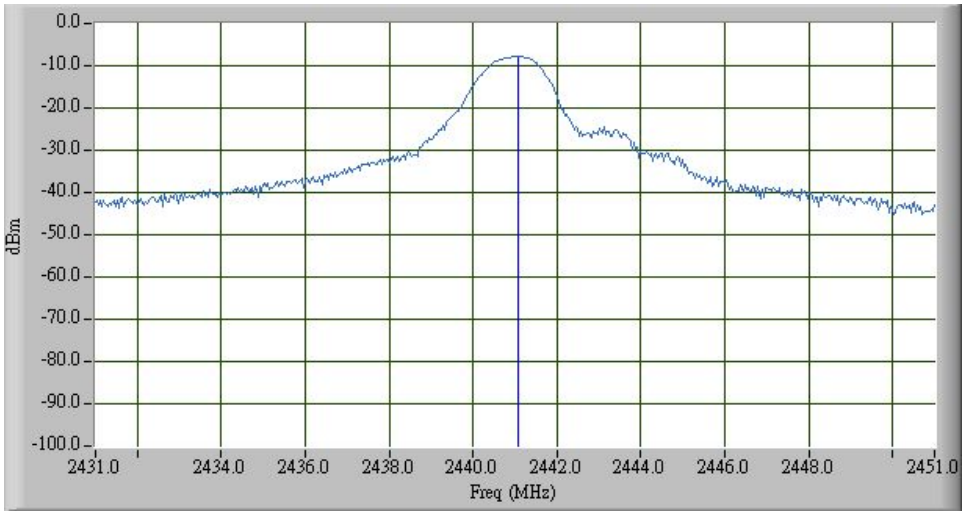
Low Channel (2402MHz), Vertical Polarization



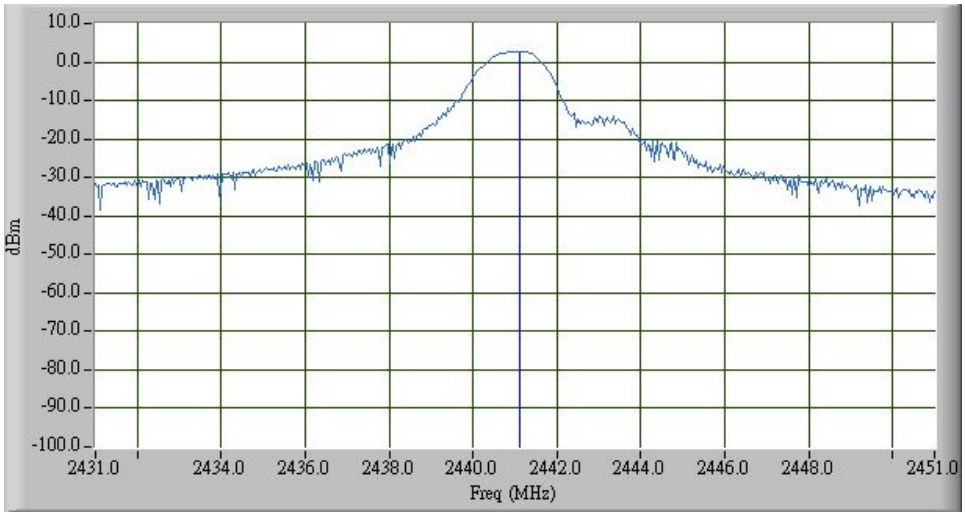
Low Channel (2402MHz), Horizontal Polarization



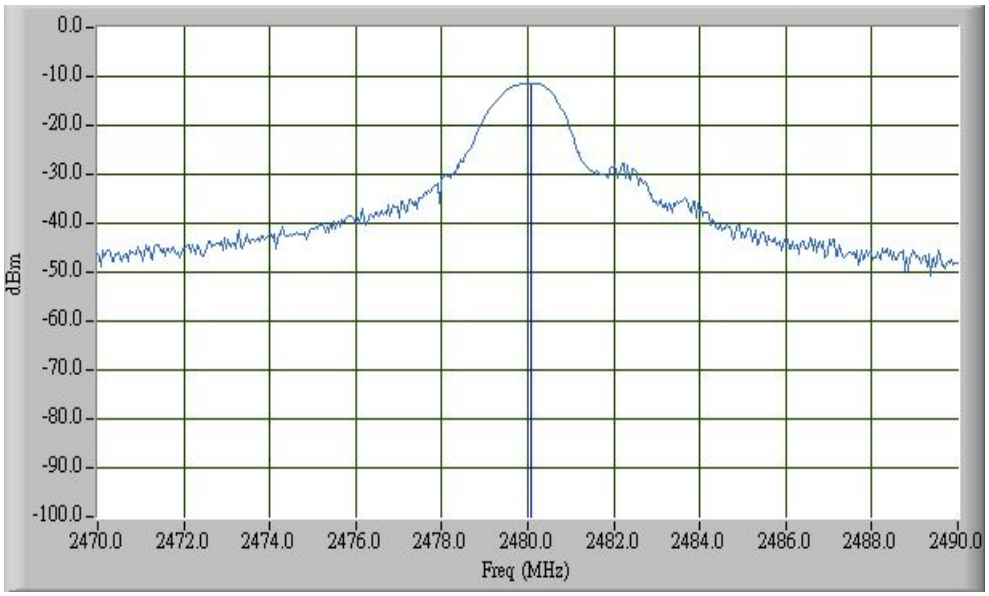
Middle Channel (2441MHz), Vertical Polarization



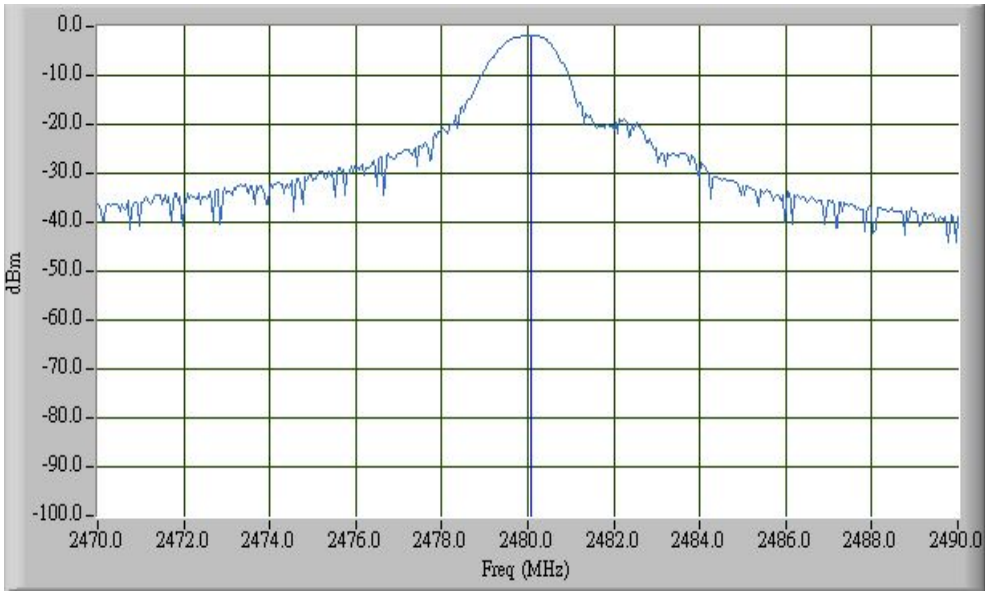
Middle Channel (2441MHz), Horizontal Polarization



High Channel (2480MHz), Vertical Polarization



High Channel (2480MHz), Horizontal Polarization



3 Band Edge

Result: Pass

3.1 Applied standard

According to 15.247(d),in any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

3.2 Measurement Procedure

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.

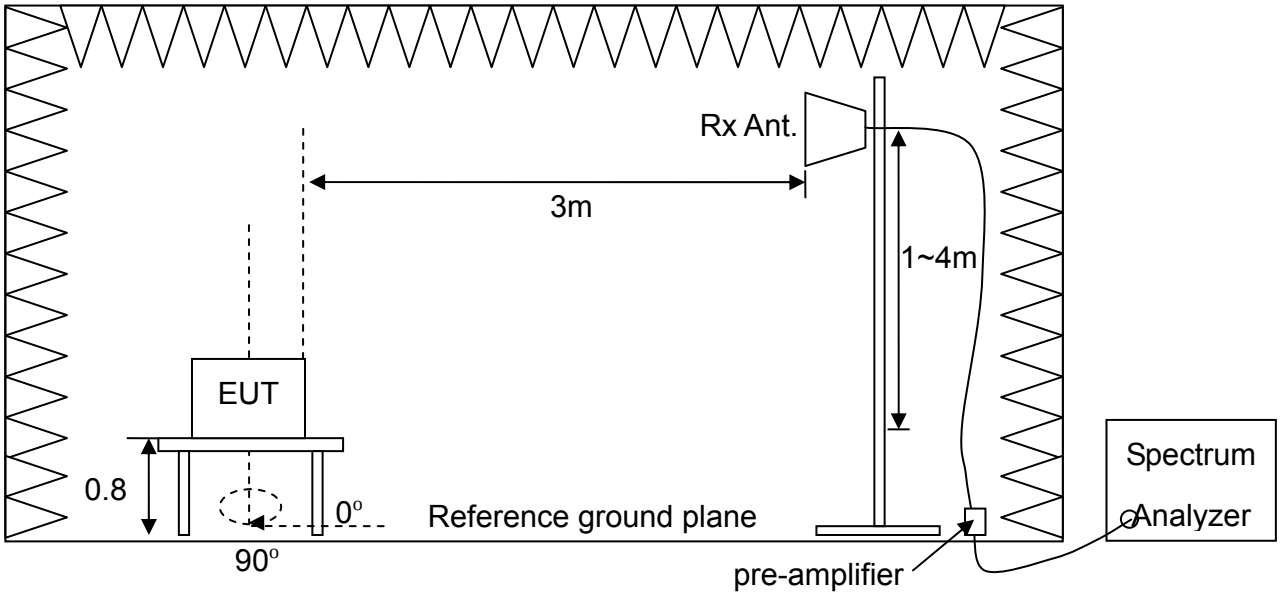
b. A software provided by client enabled the EUT to transmit data at at lowest and highest channel frequencies and hopping 79 channels individually.

c. Measure the band edge and compare with the required limit.

3.3 Test configuration

Conducted Measurement

Radiated Measurement



3.4 Test Instruments

Test Site and Equipment	Manufacturer	Model No./ Serial No.	Last Calibration Date	Calibration Due Date
TR1 Semi - anechoic Chamber	ETS. LINDGREN	TR1/ 17627-B	April 9, 2006	April 9, 2007
Shielded Room	ETS.LINDGREN	TR4/ 15353-E	NCR	NCR
Spectrum Analyzer	R&S	FSP40/ 100031	June 16,2006	June 16, 2007
Spectrum Analyzer	Agilent	E4407B/ MY45106795	March 3, 2006	March 3,2007
Antenna	R&S	HF906/ 359287/001	Aug. 11, 2005	Aug. 11, 2006
Pre-amplifier	MITEQ	JS4-00101800-28-5 A/742229	Aug. 3, 2005	Aug. 3, 2006

Note:

1. The calibrations are traceable to NML/ROC.
2. NCR:No Calibration Required.
3. The calibration date of the semi-anechoic chamber listed above is the date of NSA measurement.

Instrument Setting

RBW	VBW	Detector	Trace	Comment
100kHz	100kHz	Peak	Maxhold	Conducted Measurement
1MHz	3MHz	Peak	Maxhold	Radiated Measurement Peak
1MHz	10Hz	Peak	Maxhold	Radiated Measurement Average

Climatic Condition

Ambient Temperature：24°C ; Relative Humidity : 75%

3.5 Test Data

Conducted Measurement

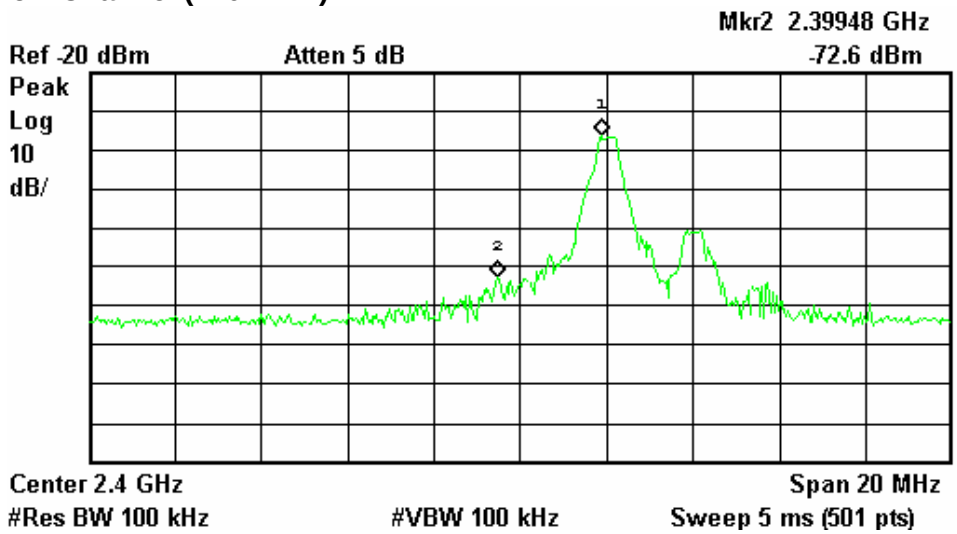
Test Mode : Mode 1, Continuously Transmitting **Tester** : Bill

Operating Frequency (MHz)	Maximum Emission Level (dBm)	Emission Frequency (MHz)	Emission Outside of the band (dBm)	Attenuation (dB)	Limit (dB)	Margin (dB)
2402	-36.43	2399.48	-72.60	36.17	20	16.17
2480	-43.53	2483.66	-78.12	34.59	20	14.59

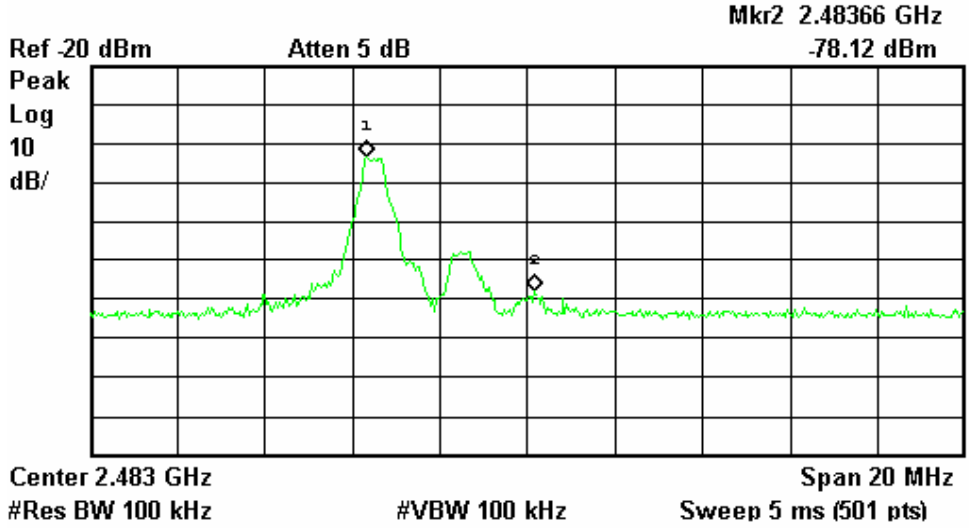
Note:

1. Attenuation (dB) = Maximum Emission Level - Emission Outside of the band
2. Margin (dB) = Attenuation – Limit

Low Channel (2402MHz)



High Channel (2480MHz)



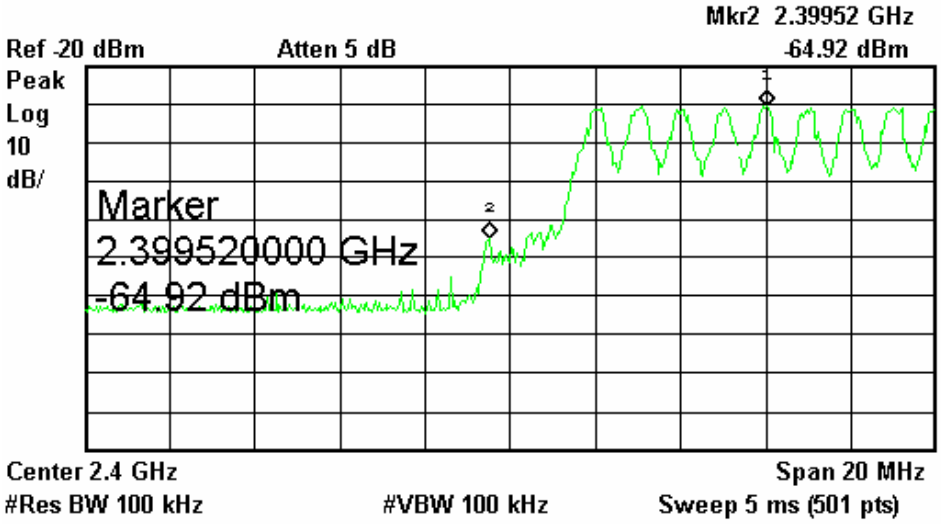
Test Mode : Mode 1, Hopping **Tester : Bill**

Band	Maximum Emission Level (dBm)	Emission Frequency (MHz)	Emission Outside of the band (dBm)	Attenuation (dB)	Limit (dB)	Margin (dB)
Lowest	-30.54	2399.52	-64.92	34.38	20	14.38
Highest	-32.99	2483.94	-77.77	44.78	20	24.78

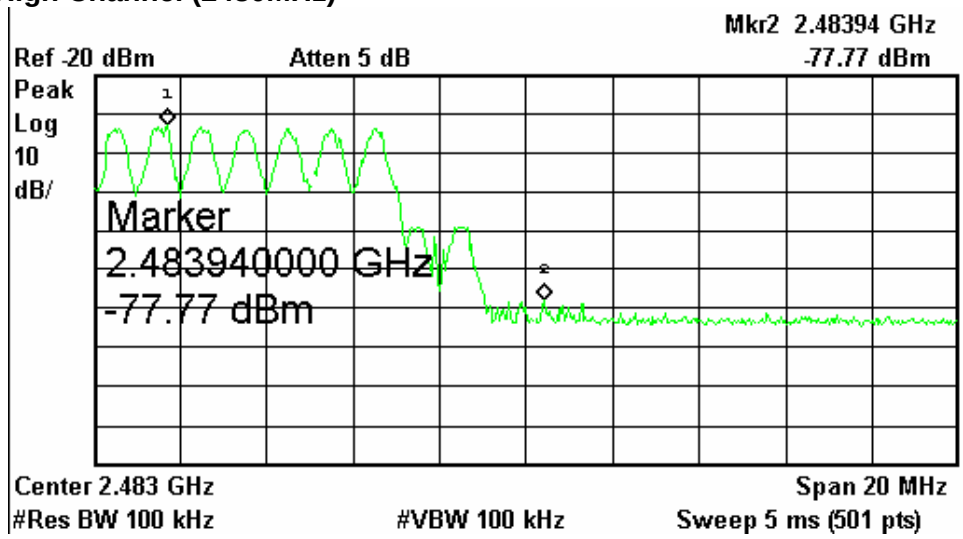
Note:

1. Attenuation (dB) = Maximum Emission Level - Emission Outside of the band
2. Margin (dB) = Attenuation – Limit

Low Channel (2402MHz)



High Channel (2480MHz)



Radiated Measurement

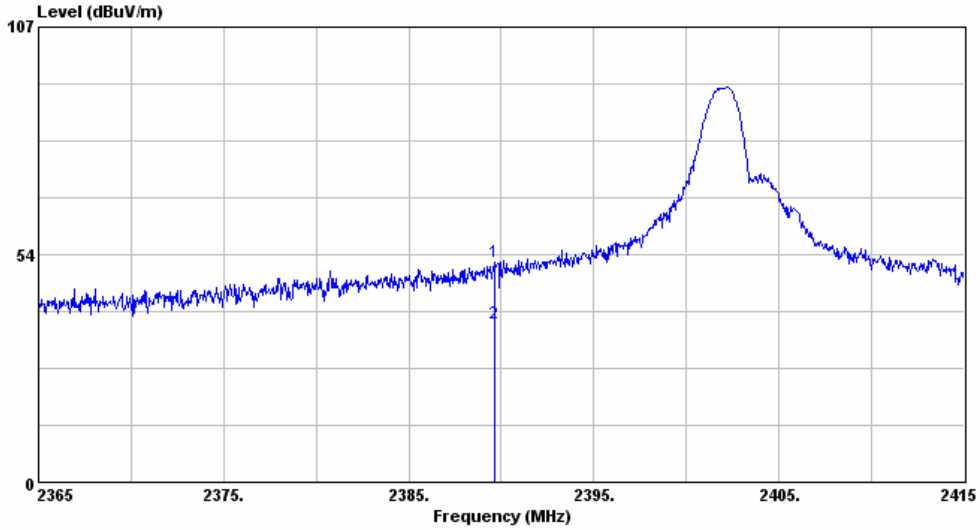
Test Mode : Mode 1, Continuously Transmitting **Tester : Bill**

Operating Frequency (MHz)	Antenna 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.
2402	V	2389.60	52.51	38.18	-0.85	51.66	37.33	74.00	54.00	22.34	16.67
2402	H	2389.75	52.60	38.20	-0.85	51.75	37.35	74.00	54.00	22.25	16.65
2480	V	2483.50	61.37	37.51	-0.75	60.62	36.76	74.00	54.00	13.38	17.24
2480	H	2483.50	66.82	41.32	-0.75	66.07	40.57	74.00	54.00	7.93	13.43

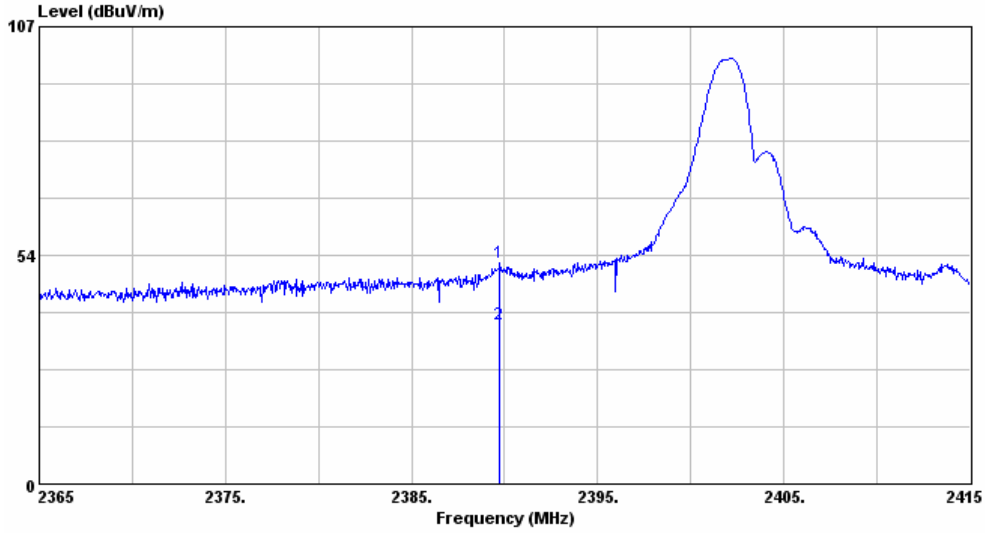
Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission (dBuV/m) = Reading Data + Correction Factor
3. Margin(dB) = Limit – Emission
4. "*" : The emission is too low to be measured.

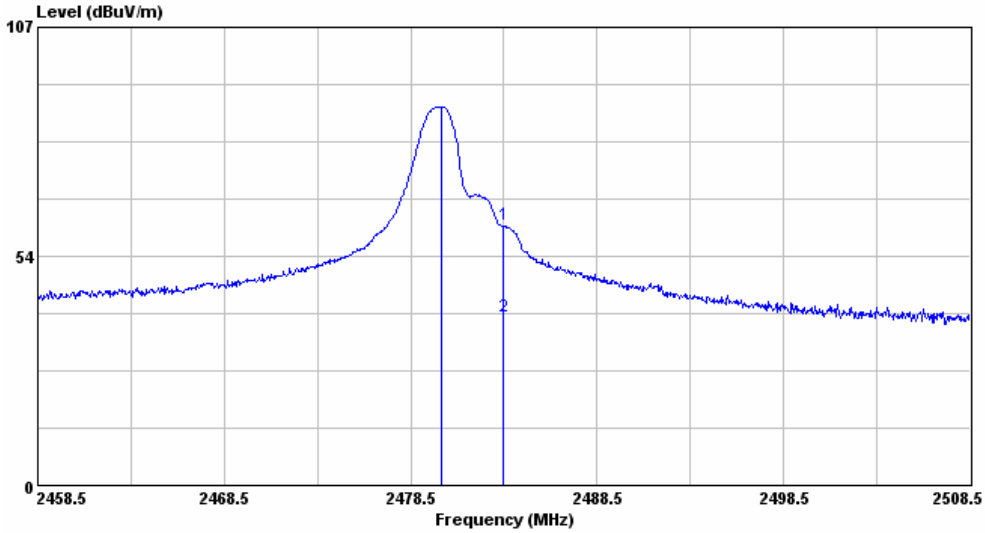
Low Channel (2402MHz), V Polarization



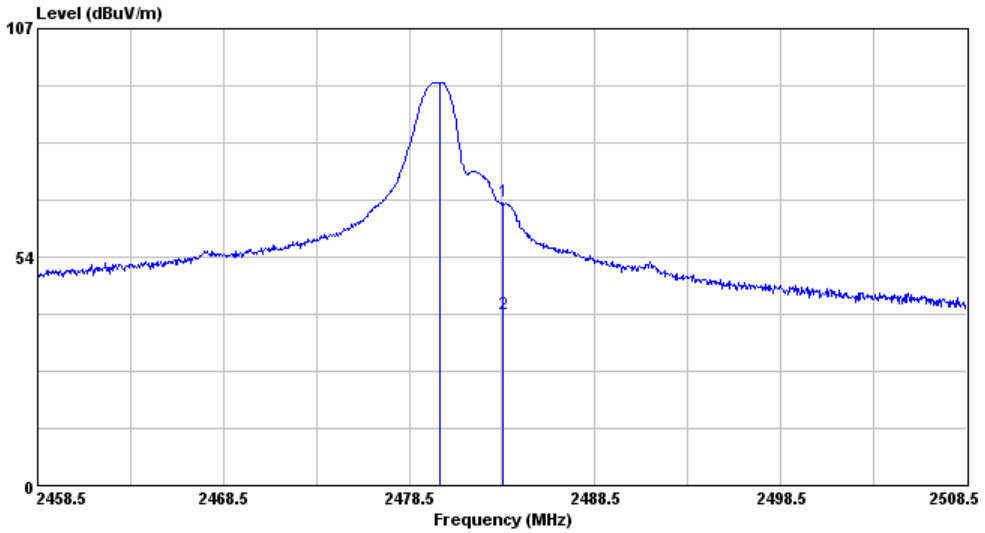
Low Channel (2402MHz), H Polarization



High Channel (2480MHz), V Polarization



High Channel (2480MHz), H Polarization



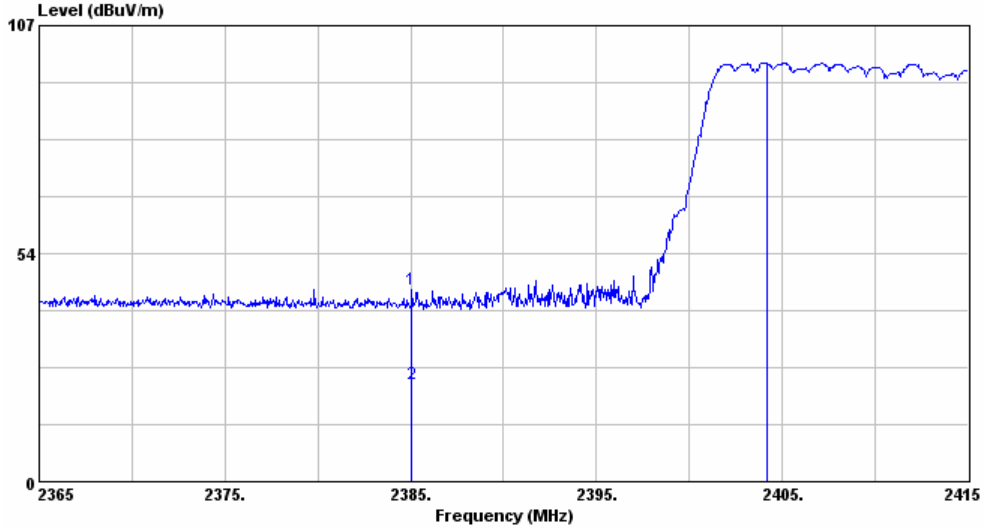
Test Mode : Mode 1, Hopping **Tester : Bill**

Band edge	Antenna 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	2389.15	46.06	26.40	-0.86	45.20	25.54	74.00	54.00	28.80	28.46
Lowest	H	2385.05	50.67	34.10	-0.85	49.82	33.25	74.00	54.00	24.18	20.75
Highest	V	2484.15	46.75	25.09	-0.76	45.99	24.33	74.00	54.00	28.01	29.67
Highest	H	2483.50	50.52	33.87	-0.75	49.77	33.12	74.00	54.00	24.23	20.88

Note:

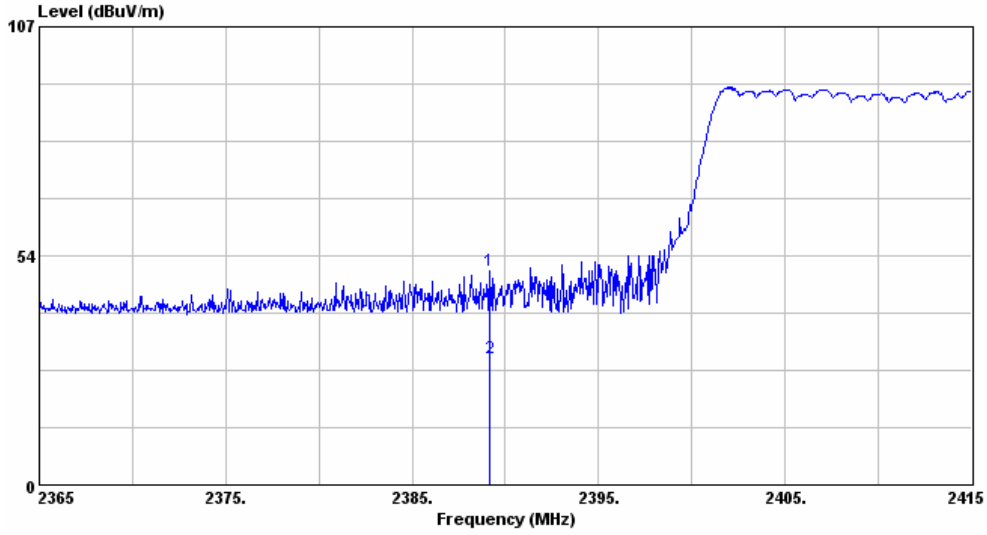
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission (dBuV/m) = Reading Data + Correction Factor
3. Margin(dB) = Limit – Emission
4. "*" : The emission is too low to be measured.

Low Channel (2402MHz), V Polarization

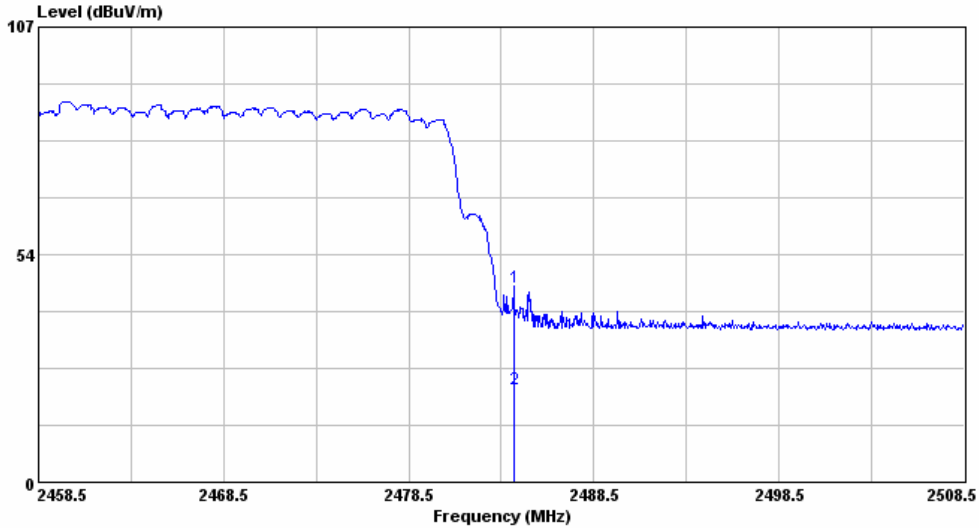


V

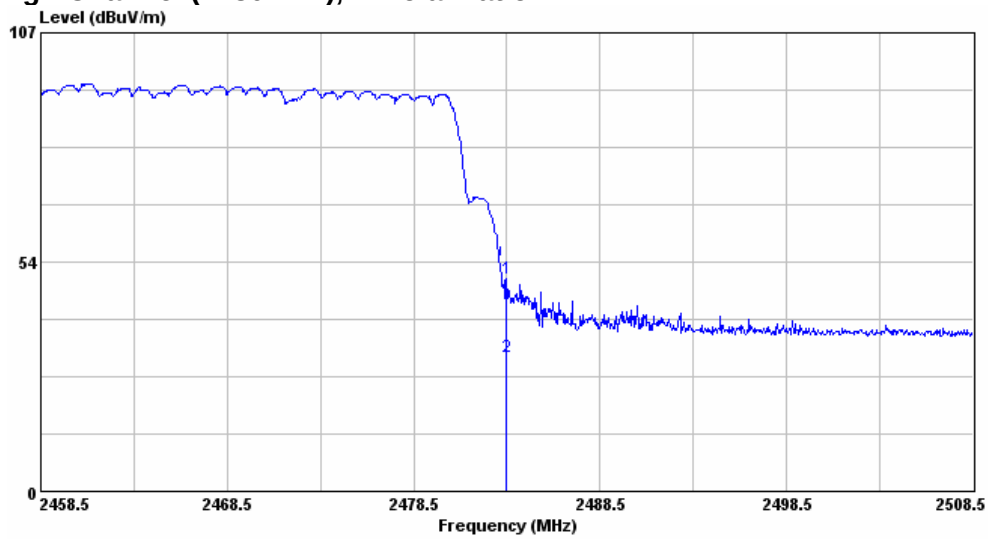
Low Channel (2402MHz), H Polarization



High Channel (2480MHz), V Polarization



High Channel (2480MHz), H Polarization



4 Hopping Channel Carrier Frequencies Spacing

Result: Pass

4.1 Applied standard

According to 15.247(a)(1), frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

4.2 Measurement Procedure

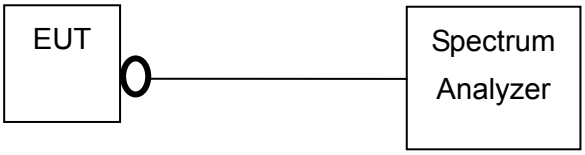
a. The EUT was set up per the test configuration figured in the next section of this chapter to simulate the typical usage per the user's manual.

b. A software provided by client enabled the EUT to transmit data at lowest, middle and highest channel frequencies individually.

c. Measurement the 20dB bandwidth and compare with 25kHz to determine the required carrier frequency spacing.

d. Measure frequency spacing and compare with the required limit.

4.3 Test configuration



4.4 Test Instruments

Test Site and Equipment	Manufacturer	Model No./ Serial No.	Last Calibration Date	Calibration Due Date
Shielded Room	ETS.LINDGREN	TR4/ 15353-F	NCR	NCR
Spectrum Analyzer	Agilent	E4407B/ MY45106795	March 3,2006	March 3,2007

Note:

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

Instrument Setting

RBW	VBW	Detector	Trace	Comment
10kHz	100kHz	Peak	Maxhold	20dB Bandwidth
30kHz	100kHz	Peak	Maxhold	Carrier Spacing

Climatic Condition

Ambient Temperature：25°C ; Relative Humidity : 74%

4.5 Test Data

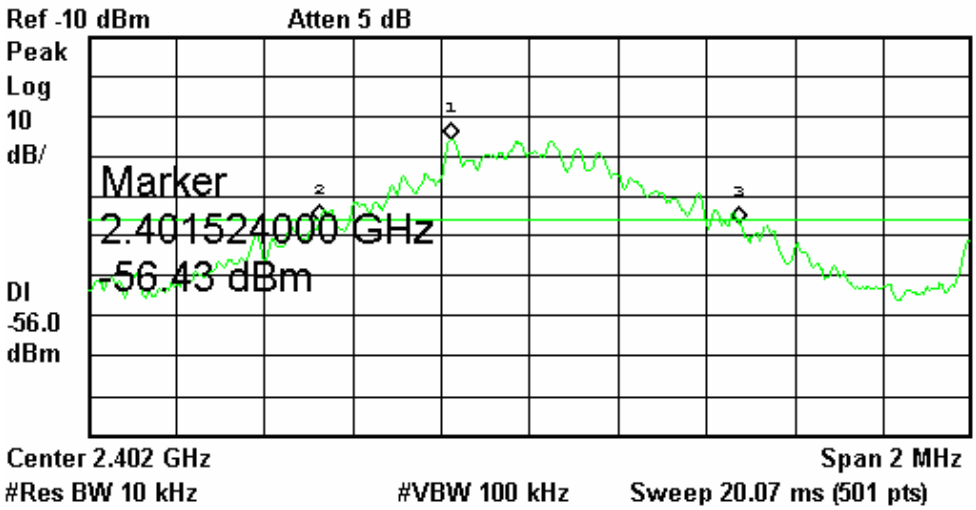
20dB bandwidth

Test Mode : Mode 1, Continuously Transmitting **Tester :** Bill

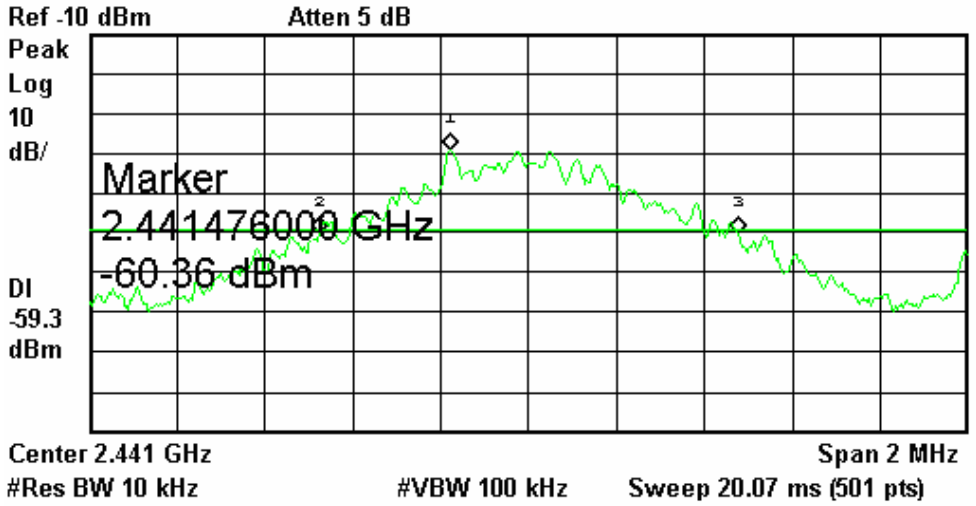
Operating Frequency (MHz)	20dB Bandwidth (kHz)
2402	948
2441	952
2480	948

Measured 20dB bandwidth is 952 KHz. According to 15.247(a)(1), hopping channel carrier frequencies spacing should be greater than 952kHz.

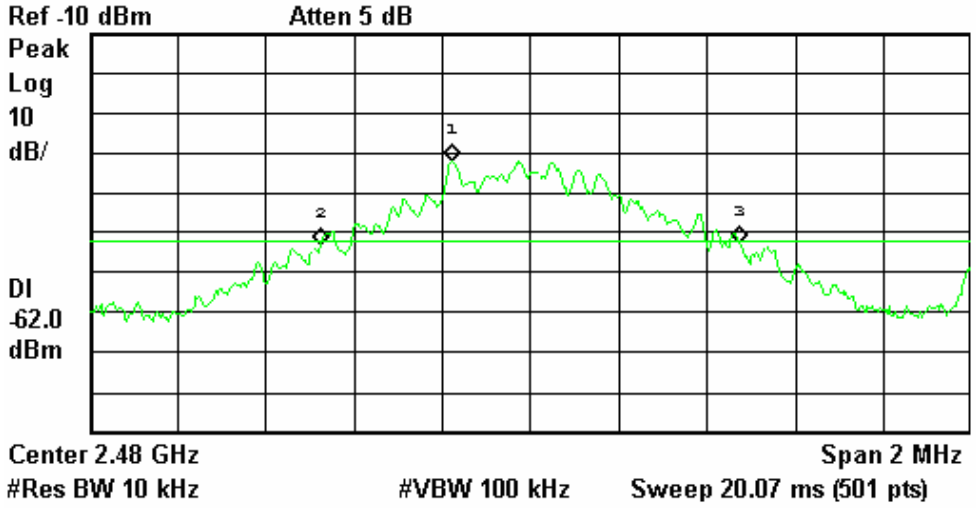
Low Channel (2402MHz)



Middle Channel (2441MHz)



High Channel (2480MHz)

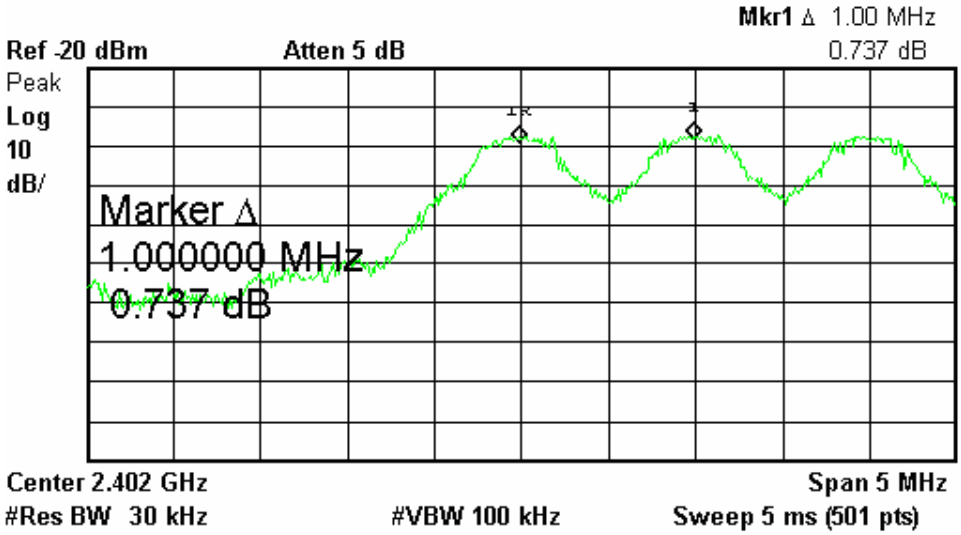


Hopping Channel Carrier Frequencies spacing

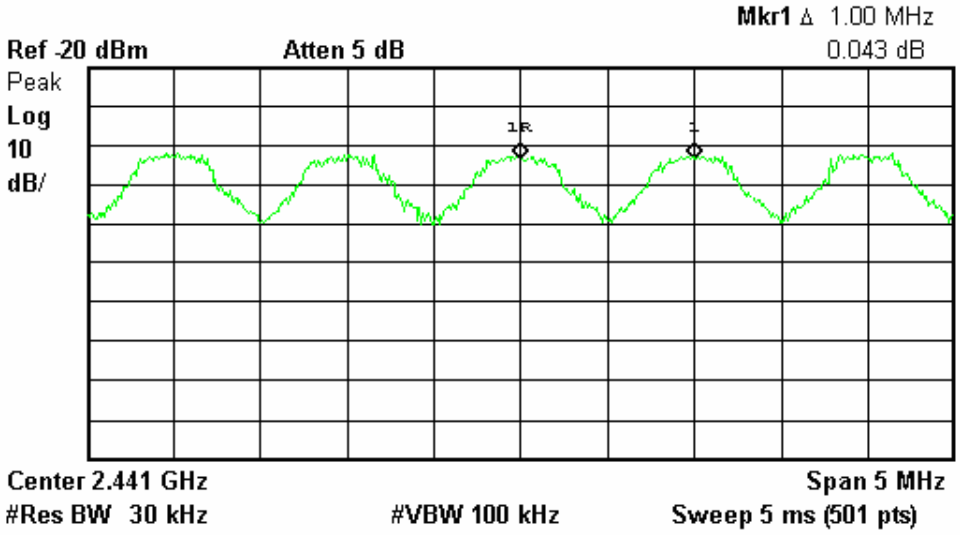
Test Mode : Mode 1, Continuously Transmitting **Tester :** Bill

Operating Frequency (MHz)	Carrier Spacing (kHz)	Limit (kHz)	Margin (kHz)
2402	1000	952	48
2441	1000	952	48
2480	1010	952	58

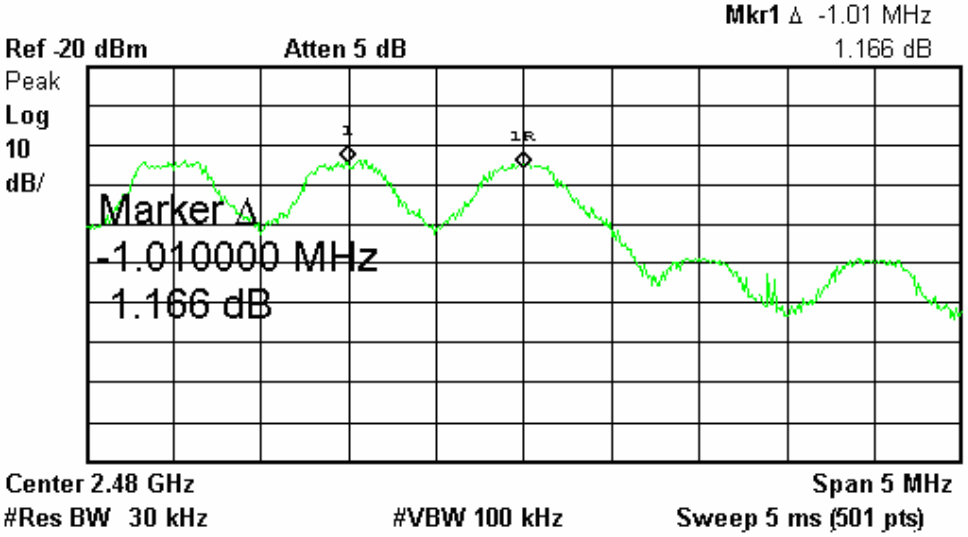
Low Channel (2402MHz)



Middle Channel (2441MHz)



High Channel (2480MHz)



5 Number of Hopping Channels

Result: 79 Hopping Channels

5.1 Applied standard

According to 15.247(b)(1), for frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

5.2 Measurement Procedure

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 data at all channels.

c. Measure number of hopping channels and compare with the required limit.

5.3 Test configuration

See section 4.3.

5.4 Test Instruments

See section 4.4.

Instrument Setting

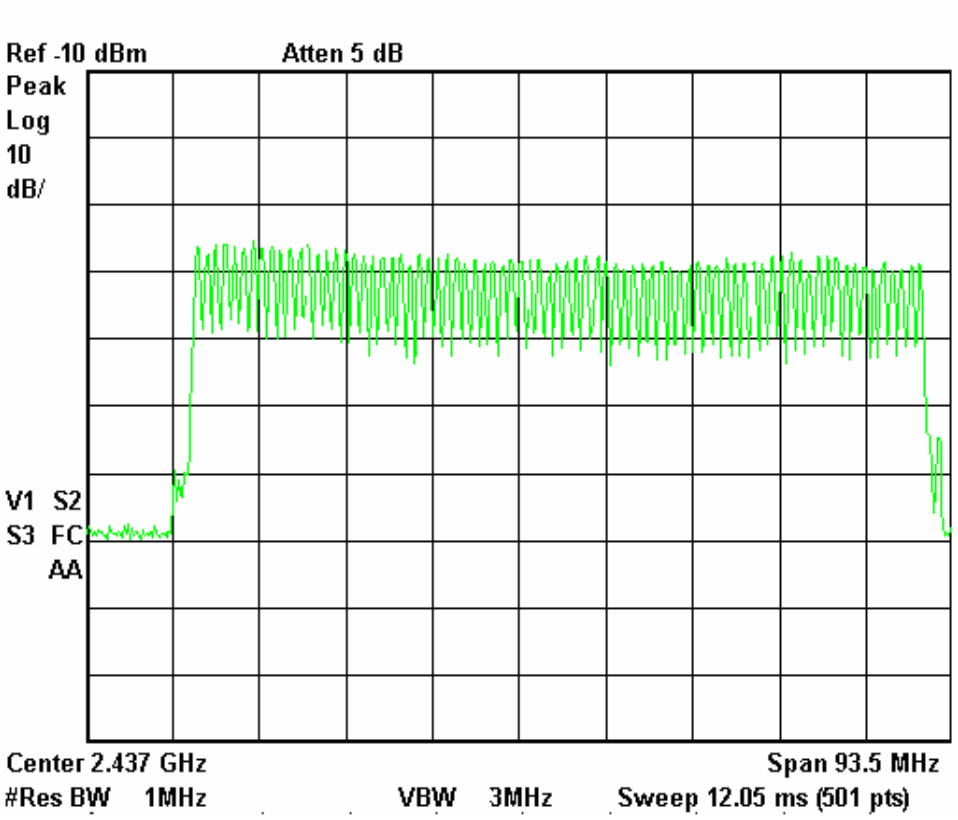
RBW	VBW	Detector	Trace	Comment
1MHz	3MHz	Peak	Maxhold	

Climatic Condition

Ambient Temperature：25°C ; Relative Humidity : 74%

5.5 Test Data

Test Mode : Mode 1, Hopping **Tester : Bill**



6 Radiated Emission

Result: Pass

6.1 Applied standard

According to 15.247(c),in any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

6.2 Measurement Procedure

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.

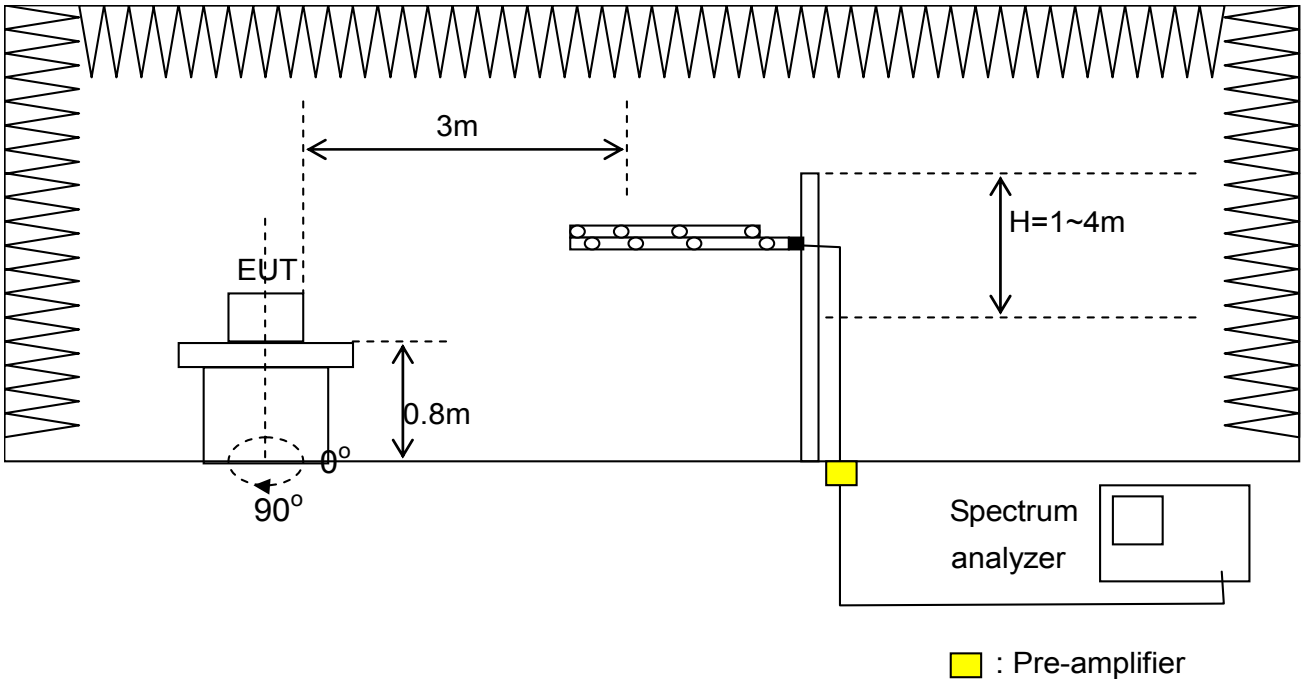
k. Change the receiving antenna to another polarization to measure radiated emission by following step e. to j. again.

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.

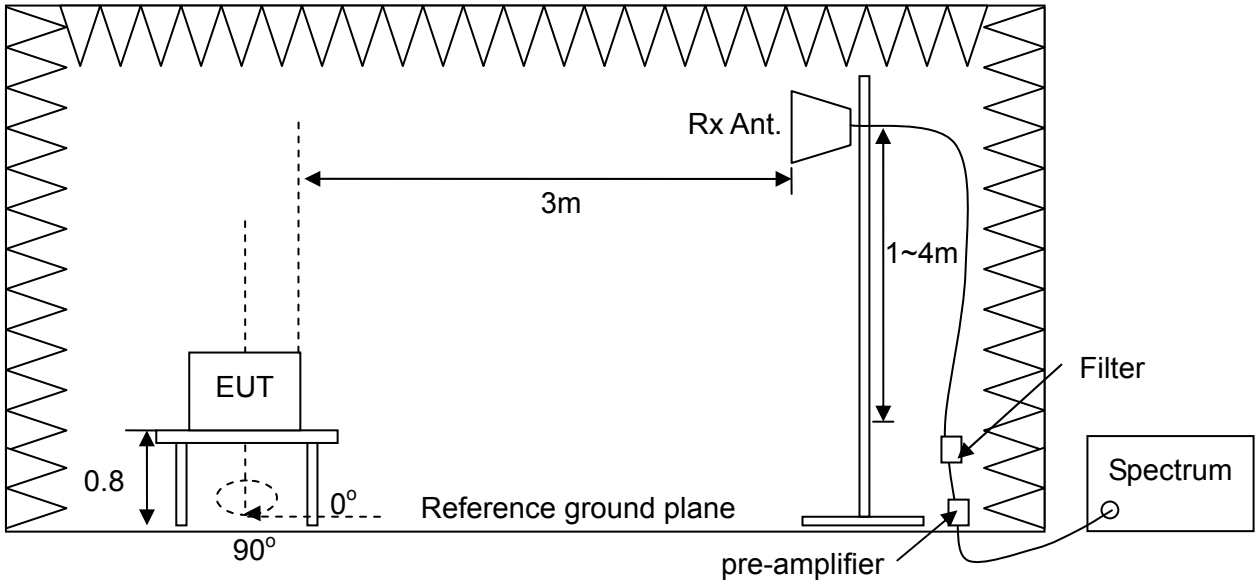
m. If the peak emission level above 1000MHz measured from step f. is 20dB lower than the limit specified, then the emission values presented will be the peak value only. Otherwise, accurate A.V. value will be measured and presented.

6.3 Test configuration

Below 1GHz



Above 1GHz



6.4 Test Instruments

Test Site and Equipment	Manufacturer	Model No./ Serial No.	Last Calibration Date	Calibration Due Date
TR1 Semi - anechoic Chamber	ETS. LINDGREN	TR1/ 17627-B	April 9, 2006	April 9, 2007
Test Receiver	R&S	ESCS30/836858/020	July 30, 2005	July 30, 2006
Spectrum Analyzer*	R&S	FSP40/ 100031	June 16,2006	June 16, 2007
Antenna	R&S	HL562/ 360543/010	July 7, 2006	July 7, 2006
Antenna*	R&S	HF906/ 359287/002	Aug, 11, 2005	Aug. 11, 2006
Antenna*	EMCO	3116/ 20552	Dec. 13, 2005	Dec. 13, 2006
Pre-amplifier*	MITEQ	JS4-00101800-28-5 A/742229	Aug. 3, 2005	Aug. 3, 2006
Pre-amplifier*	MITEQ	JS4-18002600-30-5 A/ 741923	June 27, 2006	June 27, 2007
Pre-amplifier*	MITEQ	AMF-6F-260400-33-8P/ 928336	June 27, 2006	June 27, 2007
Pre-amplifier	Mini Circuit	ZKL-2/ 002	April 9, 2006	April 9, 2007
High-Pass Filter*	MCI	H04G13G1/2467-01	March 31, 2006	March 31, 2007

Note:

1. "*" : These instruments are used only for the measurement of emission frequency above 1000MHz.
2. The calibrations are traceable to NML/ROC.
3. NCR : No Calibration Required.
4. The calibration date of the semi-anechoic chamber listed above is the date of NSA measurement.

Instrument Setting

RBW	VBW	Detector	Trace	Comment
120kHz	N/A	Quasi-Peak	Maxhold	Below 1GHz
1MHz	3MHz	Peak	Maxhold	Above 1GHz, Peak
1MHz	10Hz	Peak	Maxhold	Above 1GHz, Average

Climatic Condition

Ambient Temperature：24°C ; Relative Humidity : 75%

6.5 Test Data

Radiated Emission Measurement below 1000MHz

Test Mode : **Channel 0(2402MHz), Mode 1, Continuously Transmitting**

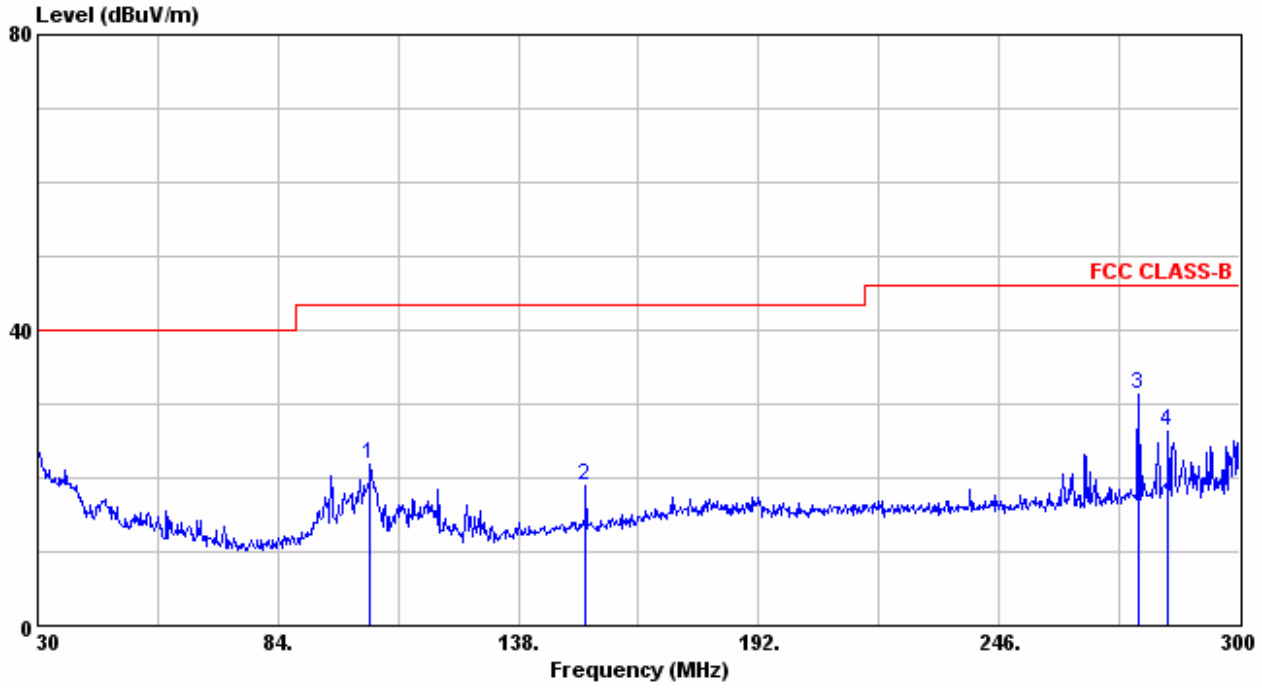
Test Distance : 3m **Tester** : Bill

Polarization : Vertical **Frequency Range** : 30MHz~300MHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	104.79	43.02	-21.24	21.78	43.50	21.72
2	153.12	39.05	-20.00	19.05	43.50	24.45
3	277.32	46.76	-15.37	31.39	46.00	14.61
4	284.07	41.55	-15.21	26.34	46.00	19.66

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Mode : **Channel 0(2402MHz), Mode 1, Continuously Transmitting**

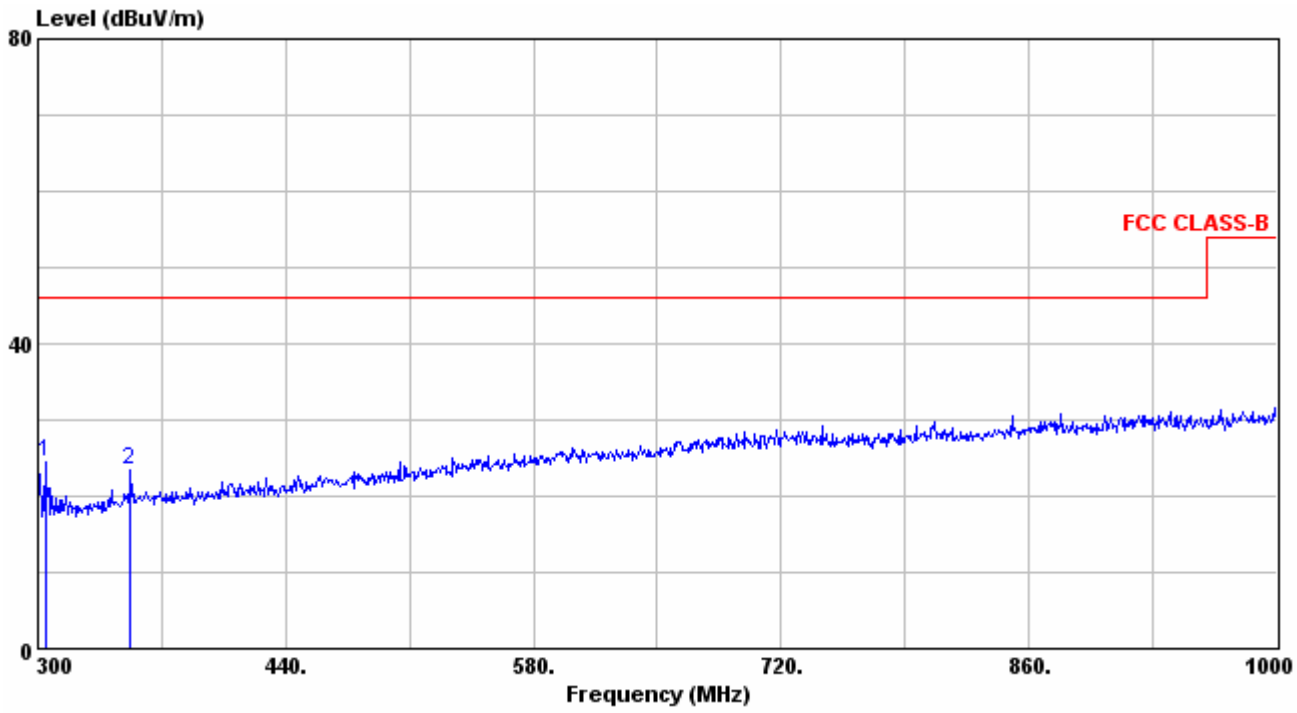
Test Distance : 3m **Tester** : Bill

Polarization : Vertical **Frequency Range** : 300MHz~1GHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	304.20	39.24	-14.67	39.24	46.00	6.76
2	352.50	35.85	-12.39	35.85	46.00	10.15

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Mode : **Channel 0(2402MHz), Mode 1, Continuously Transmitting**

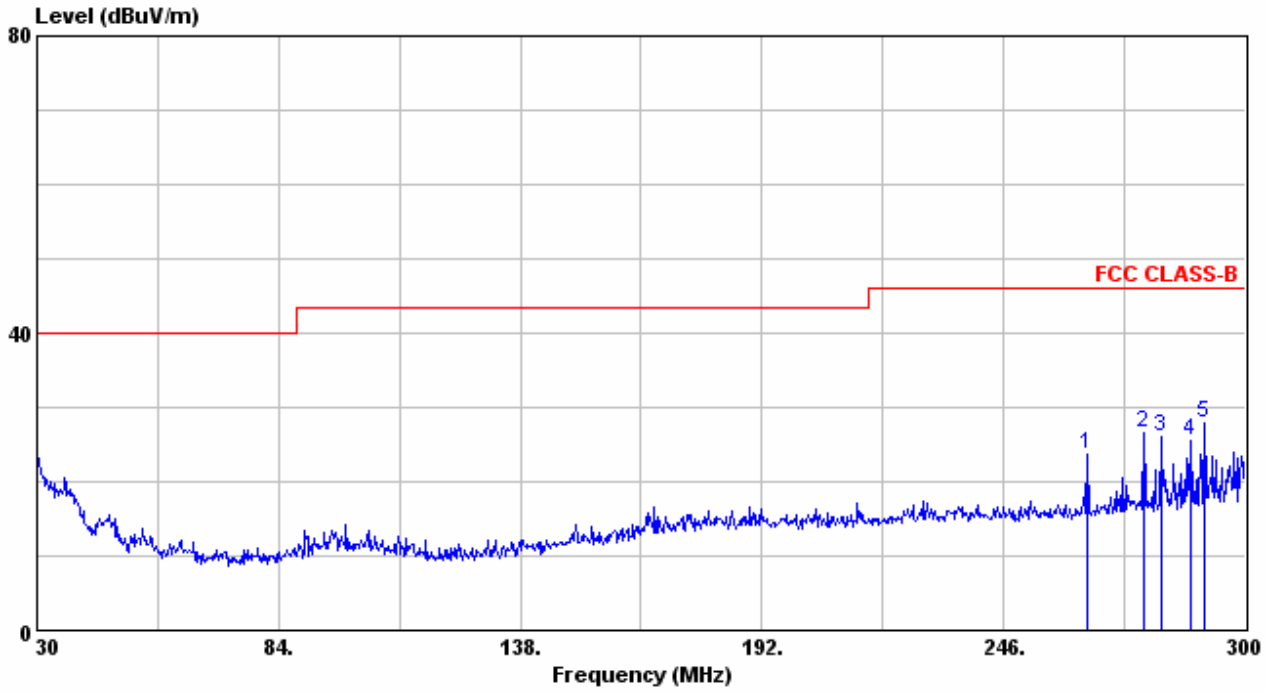
Test Distance : 3m **Tester** : Bill

Polarization : Horizontal **Frequency Range** : 30MHz~300MHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	264.63	39.44	-15.87	23.57	46.00	22.43
2	277.32	41.85	-15.37	26.48	46.00	19.52
3	281.10	41.39	-15.26	26.13	46.00	19.87
4	287.58	40.71	-15.14	25.57	46.00	20.43
5	290.82	43.05	-15.08	27.97	46.00	18.03

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Mode : **Channel 0(2402MHz), Mode 1, Continuously Transmitting**

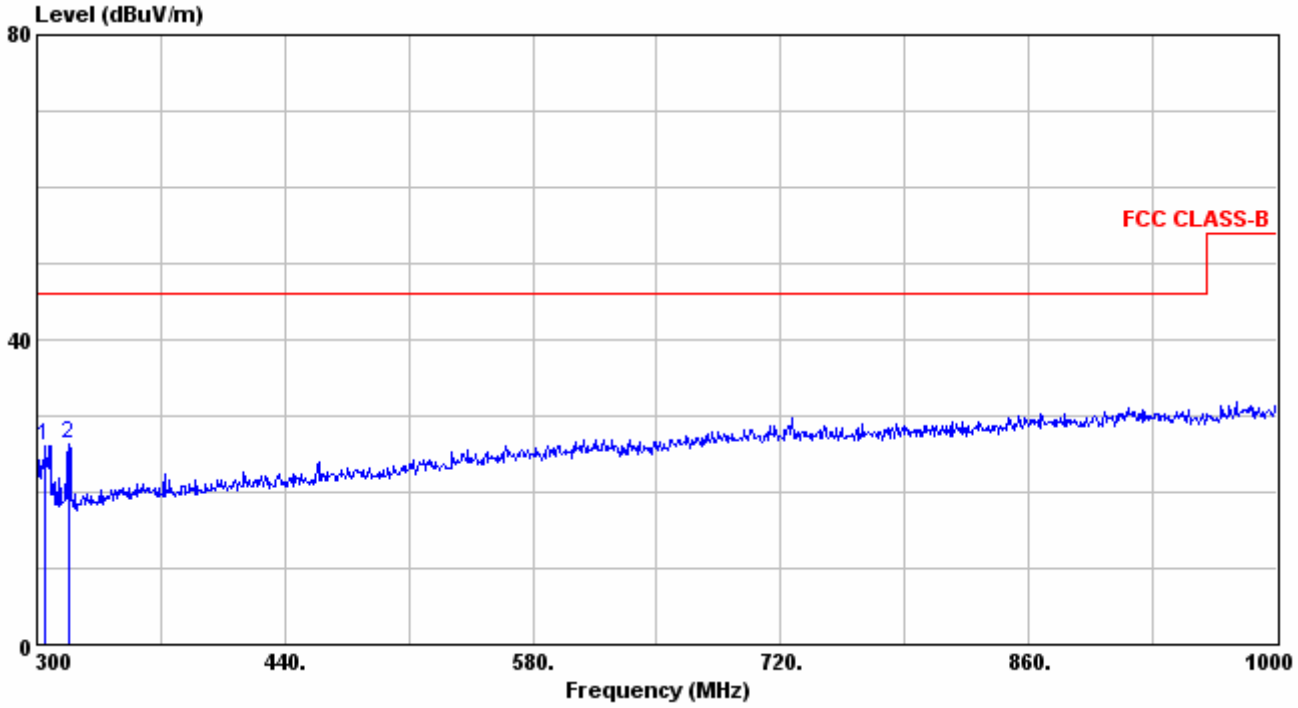
Test Distance : 3m **Tester** : Bill

Polarization : Horizontal **Frequency Range** : 300MHz~1GHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	304.90	40.72	-14.64	26.08	46.00	19.92
2	318.20	40.17	-13.95	26.22	46.00	19.78

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Mode : **Channel 39(2441MHz), Mode 1, Continuously Transmitting**

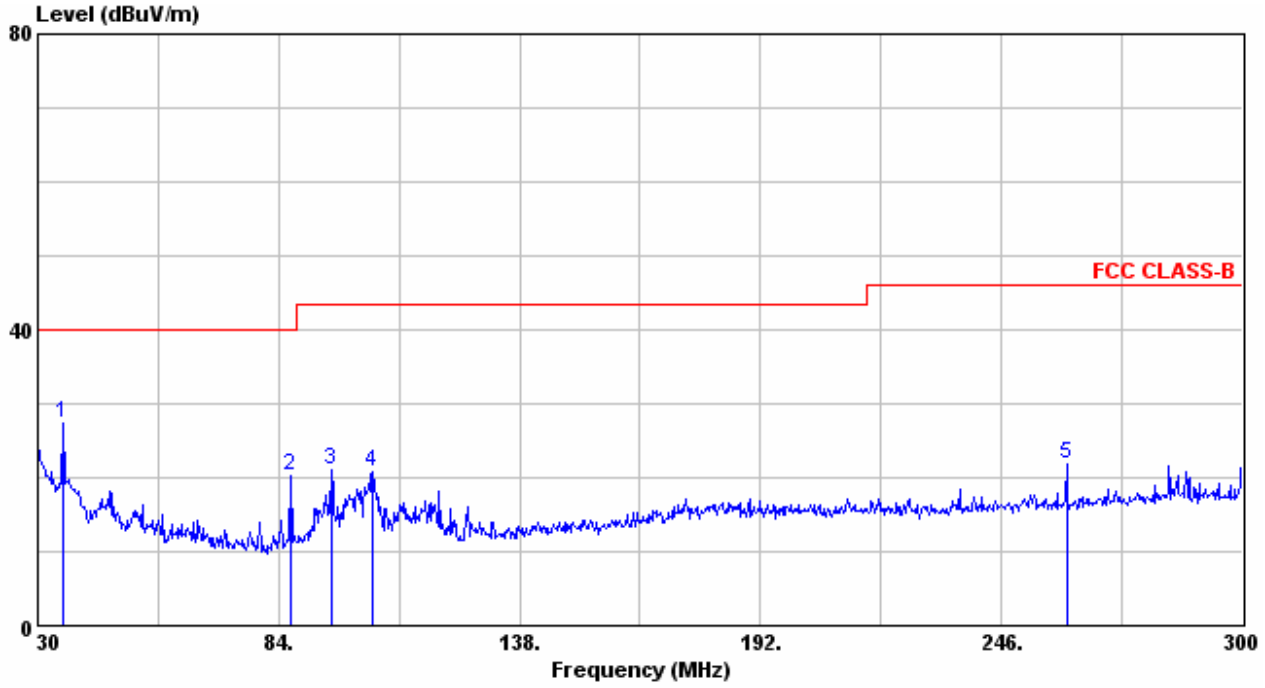
Test Distance : 3m **Tester** : Bill

Polarization : Vertical **Frequency Range** : 30MHz~300MHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	35.67	42.82	-15.42	27.40	40.00	12.60
2	86.70	42.35	-21.99	20.36	40.00	19.64
3	95.88	42.04	-21.04	21.00	43.50	22.50
4	105.06	42.09	-21.28	20.81	43.50	22.69
5	260.58	37.80	-16.07	21.73	46.00	24.27

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Mode : **Channel 39(2441MHz), Mode 1, Continuously Transmitting**

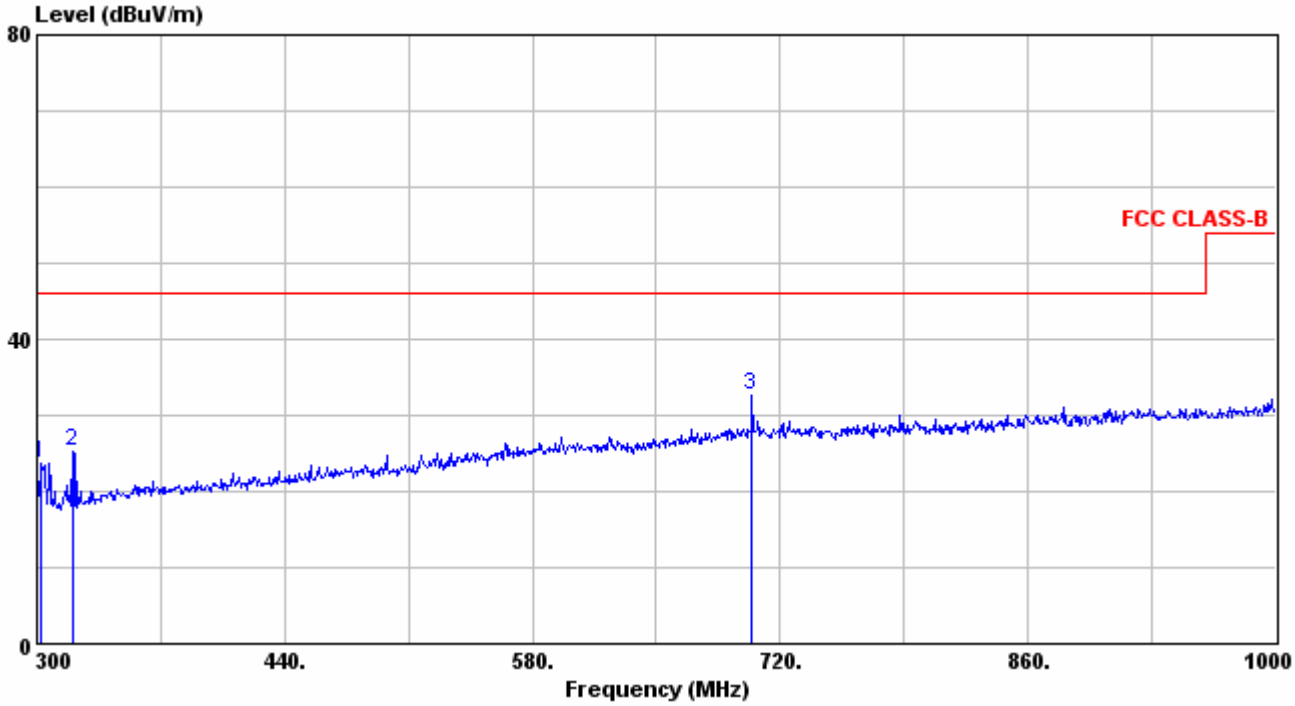
Test Distance : 3m **Tester** : Bill

Polarization : Vertical **Frequency Range** : 300MHz~1GHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	302.80	38.50	-14.75	23.75	46.00	22.25
2	320.30	39.11	-13.84	25.27	46.00	20.73
3	703.90	37.35	-4.77	32.58	46.00	13.42

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Mode : **Channel 39(2441MHz), Mode 1, Continuously Transmitting**

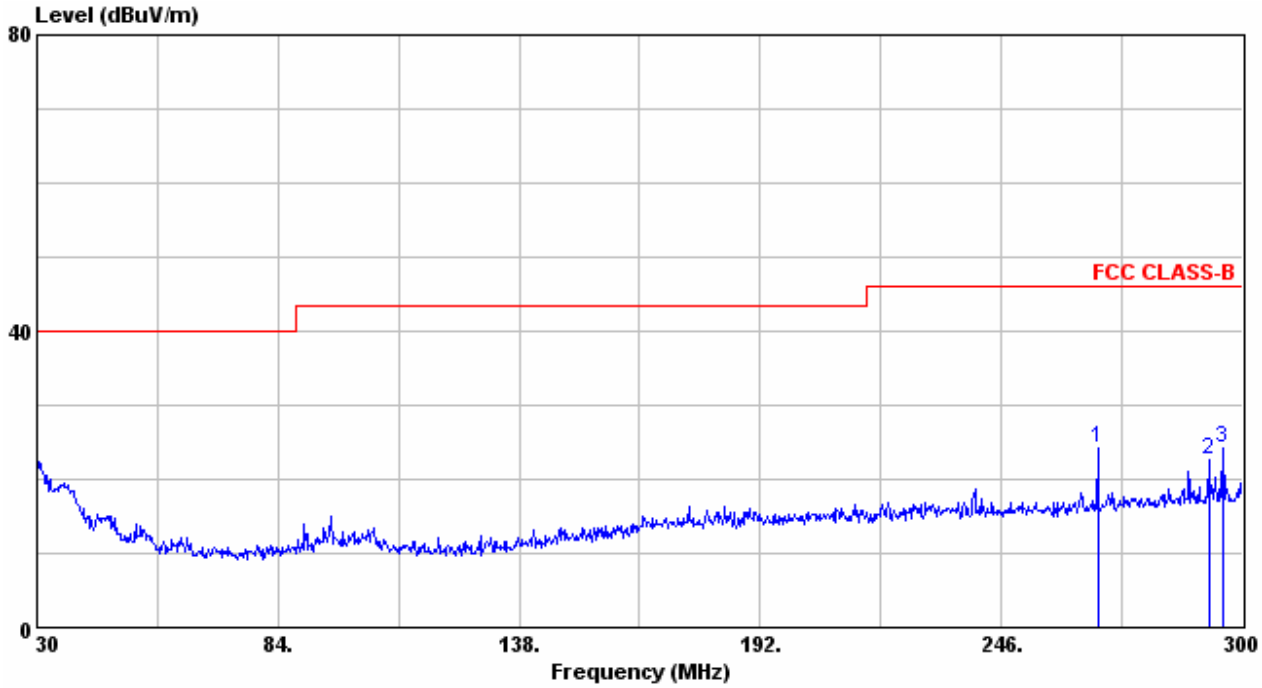
Test Distance : 3m **Tester** : Bill

Polarization : Horizontal **Frequency Range** : 30MHz~300MHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	267.60	39.90	-15.72	24.18	46.00	21.82
2	292.44	37.57	-15.04	22.53	46.00	23.47
3	295.68	39.21	-14.98	24.23	46.00	21.77

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Mode : **Channel 39(2441MHz), Mode 1, Continuously Transmitting**

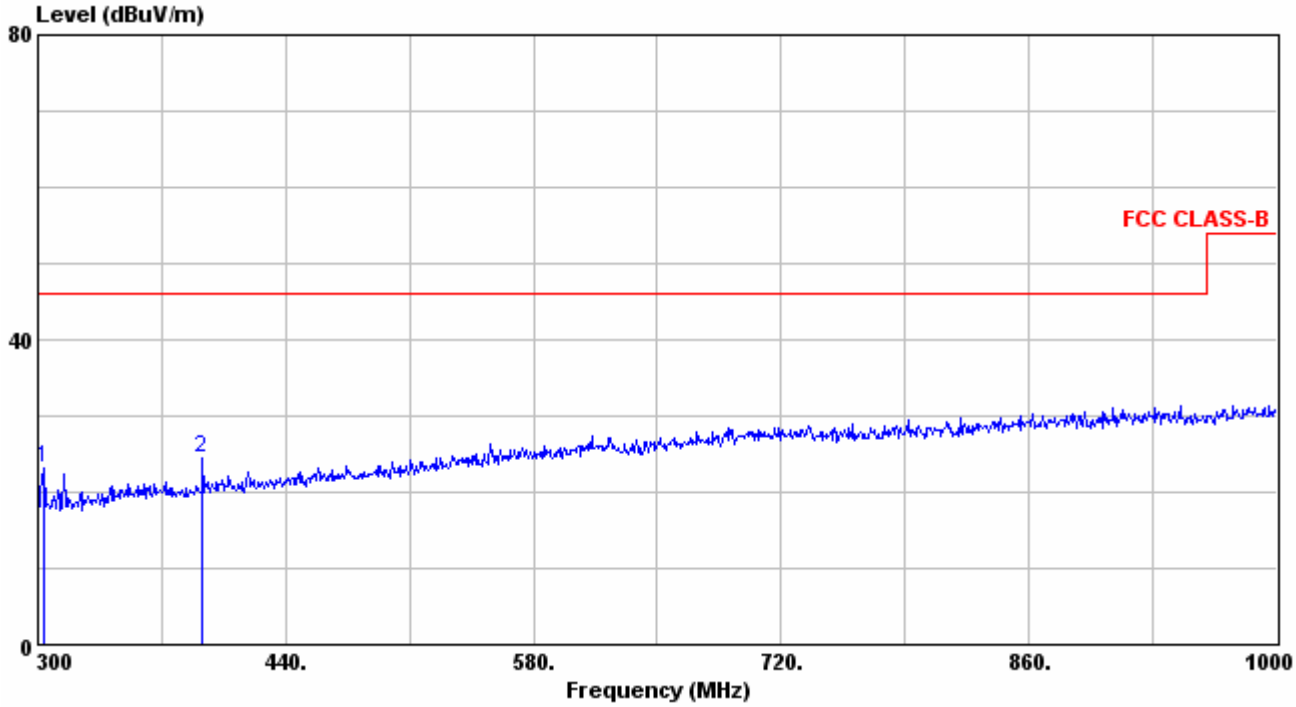
Test Distance : 3m **Tester** : Bill

Polarization : Horizontal **Frequency Range** : 300MHz~1GHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	303.50	37.83	-14.72	23.11	46.00	22.89
2	393.10	36.07	-11.56	24.51	46.00	21.49

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Model : **Channel 78(2480MHz), Mode 1, Continuously Transmitting**

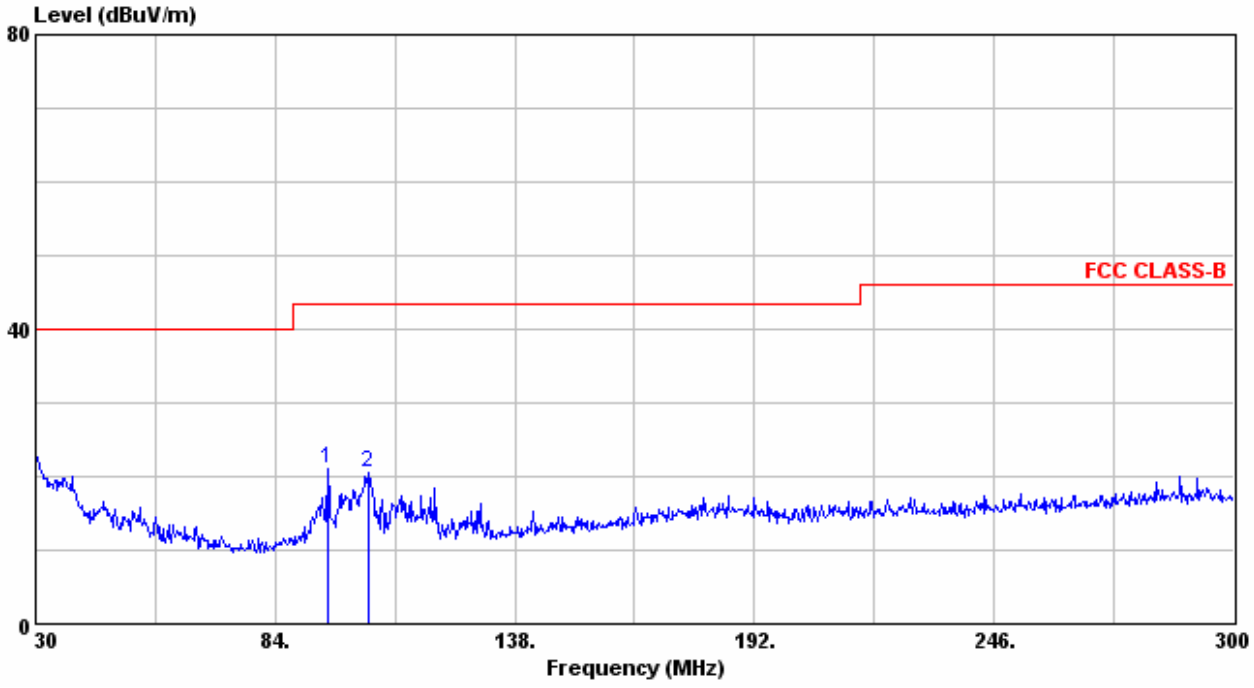
Test Distance : 3m **Tester** : Bill

Polarization : Vertical **Frequency Range** : 30MHz~300MHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	95.88	42.06	-21.04	21.02	43.50	22.48
2	105.06	41.79	-21.28	20.51	43.50	22.99

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Model : **Channel 78(2480MHz), Mode 1, Continuously Transmitting**

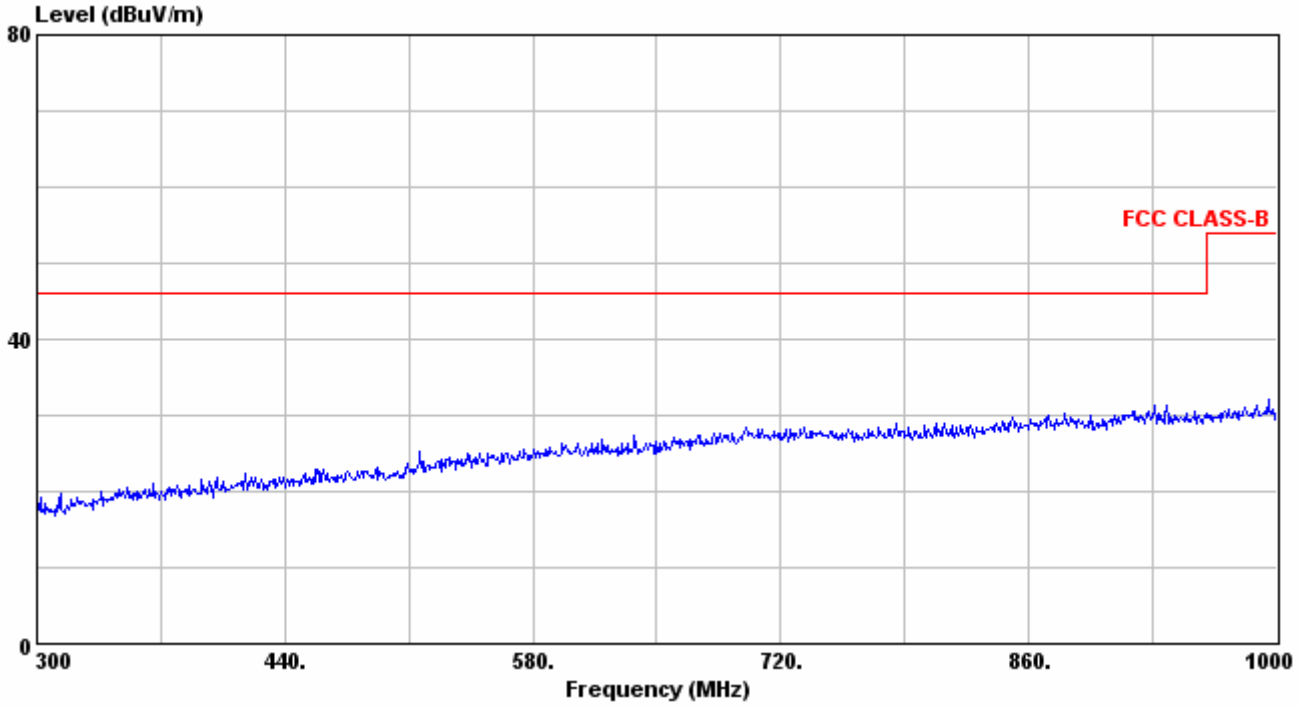
Test Distance : 3m **Tester** : Bill

Polarization : Vertical **Frequency Range** : 300MHz~1GHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*	*	*	*	*	*

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



est Model : **Channel 78(2480MHz), Mode 1, Continuously Transmitting**

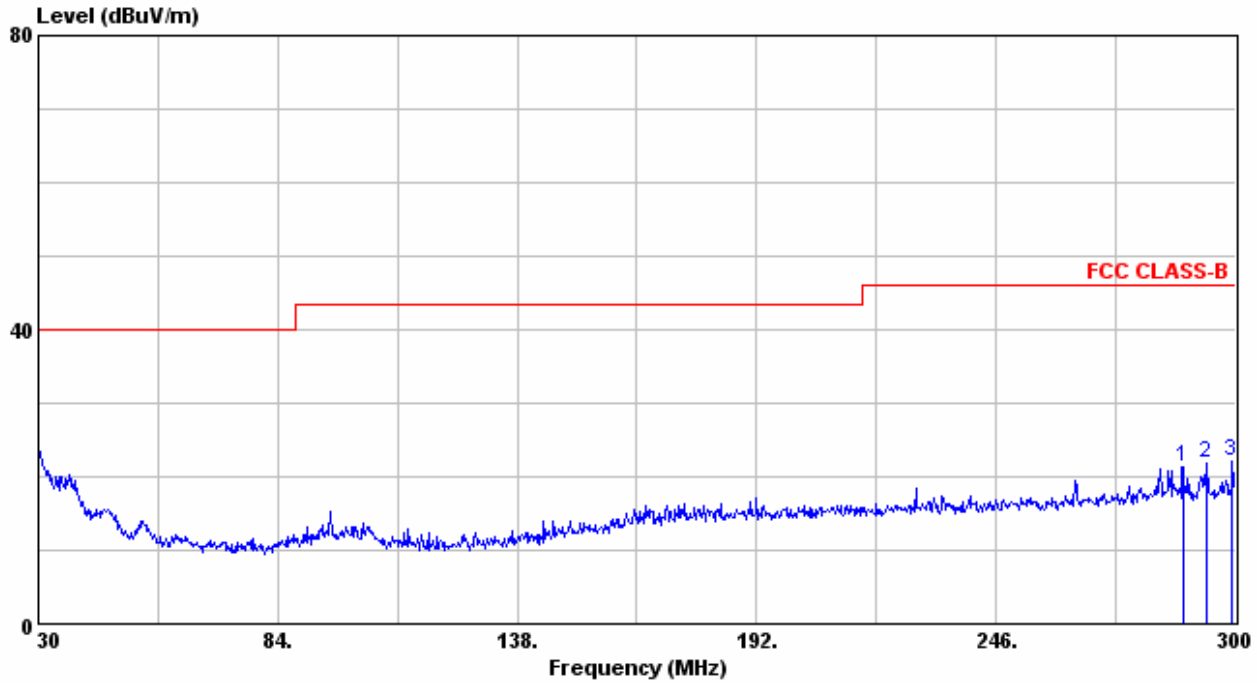
Test Distance : 3m **Tester** : Bill

Polarization : Horizontal **Frequency Range** : 30MHz~300MHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	288.12	36.33	-15.13	21.20	46.00	24.80
2	293.25	36.81	-15.04	21.77	46.00	24.23
3	299.19	36.94	-14.91	22.03	46.00	23.97

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Model : **Channel 78(2480MHz), Mode 1, Continuously Transmitting**

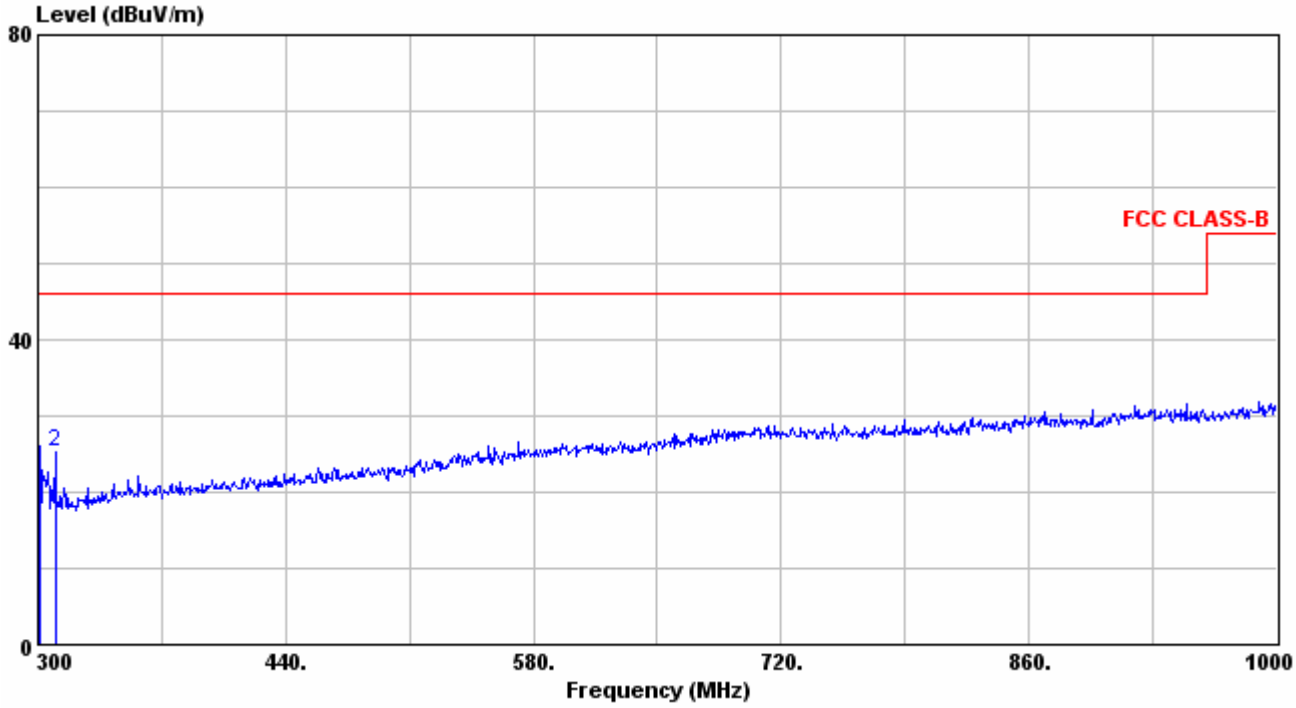
Test Distance : 3m **Tester** : Bill

Polarization : Horizontal **Frequency Range:** 300MHz~1GHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	301.40	40.86	-14.82	26.04	46.00	19.96
2	309.80	39.56	-14.38	25.18	46.00	20.82

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Mode : **Mode 1, Hopping**

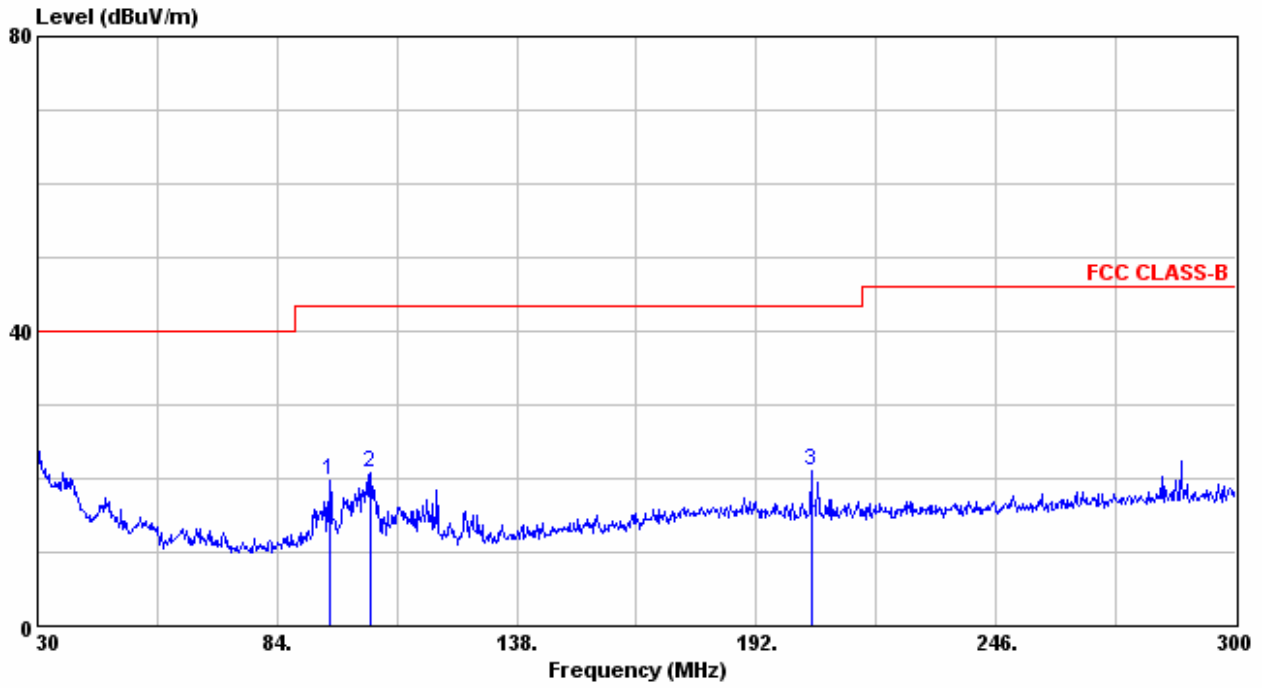
Test Distance : 3m **Tester** : Bill

Polarization : Vertical **Frequency Range** : 30MHz~300MHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	95.88	40.79	-21.04	19.75	43.50	23.75
	105.06	42.20	-21.28	20.92	43.50	22.58
	204.42	39.02	-17.96	21.06	43.50	22.44

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Mode : **Mode 1, Hopping**

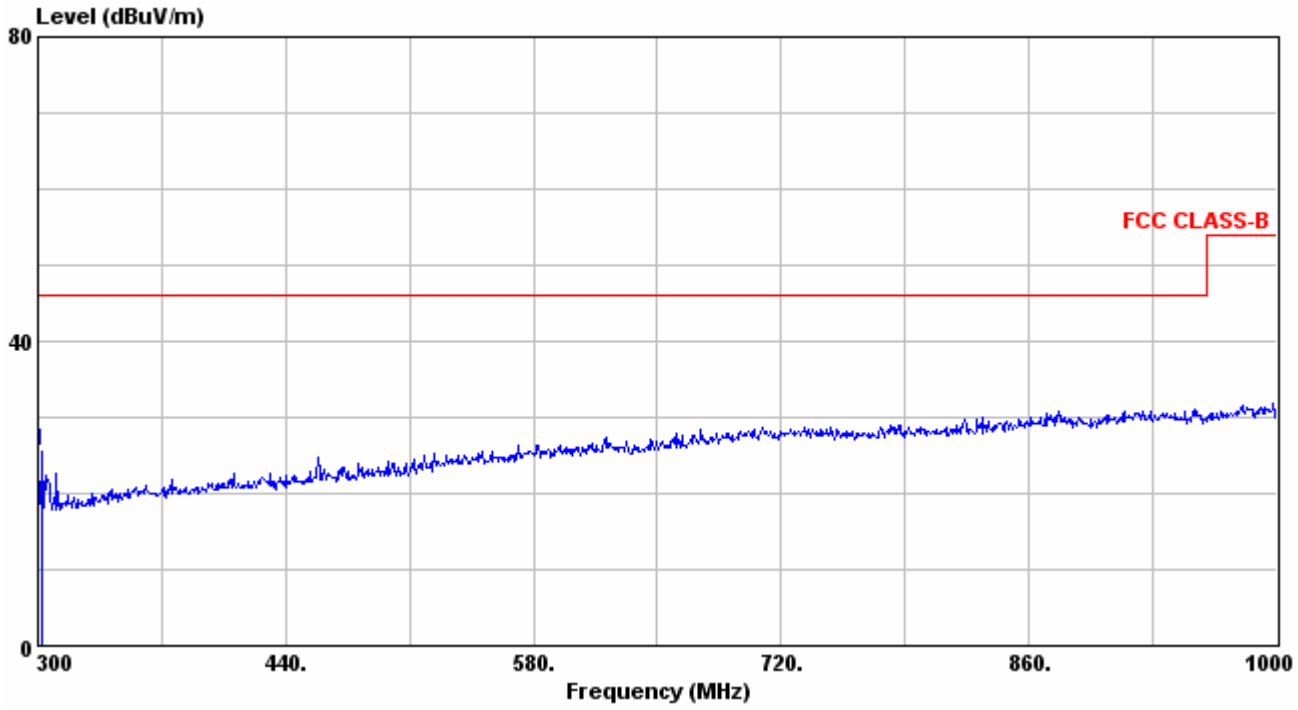
Test Distance : 3m **Tester** : Bill

Polarization : Vertical **Frequency Range** : 300MHz~1GHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	302.80	40.25	-14.75	25.50	46.00	20.50

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Mode : **Mode 1, Hopping**

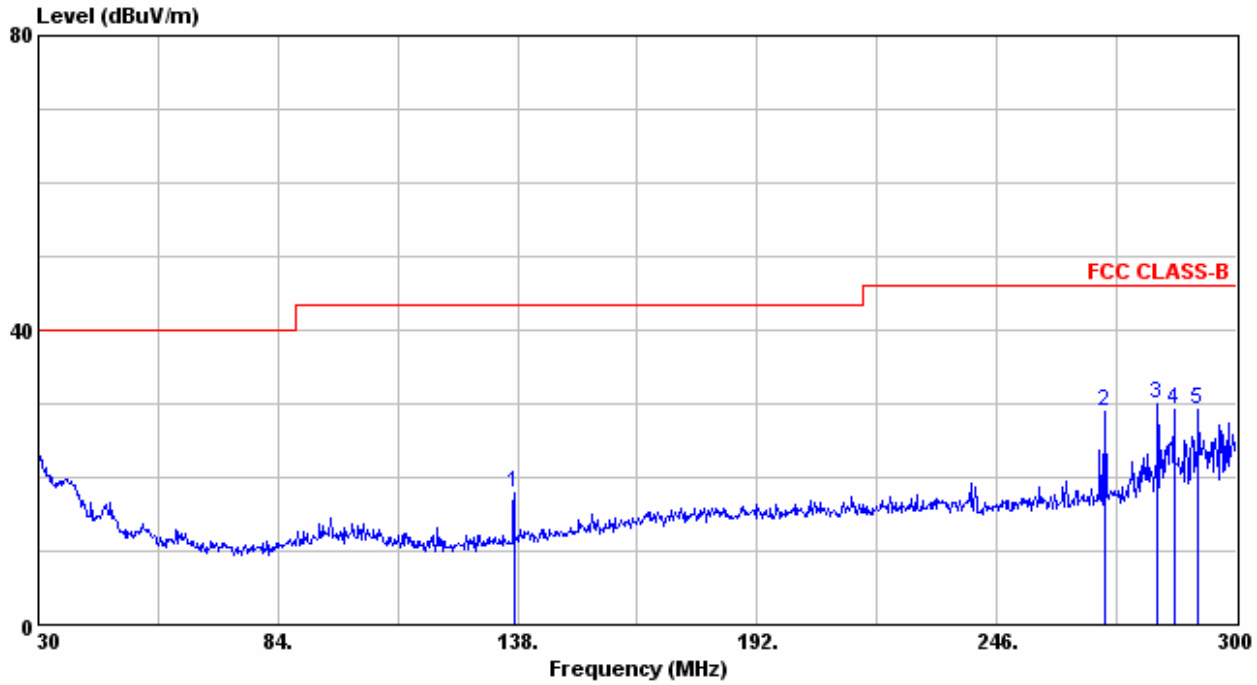
Test Distance : 3m **Tester** : Bill

Polarization : Horizontal **Frequency Range** : 30MHz~300MHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	137.19	39.46	-21.45	18.01	43.50	25.49
2	270.30	44.43	-15.60	28.83	46.00	17.17
3	282.18	45.30	-15.24	30.06	46.00	15.94
4	285.96	44.51	-15.17	29.34	46.00	16.66
5	291.36	44.31	-15.08	29.23	46.00	16.77

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Mode : **Mode 1, Hopping**

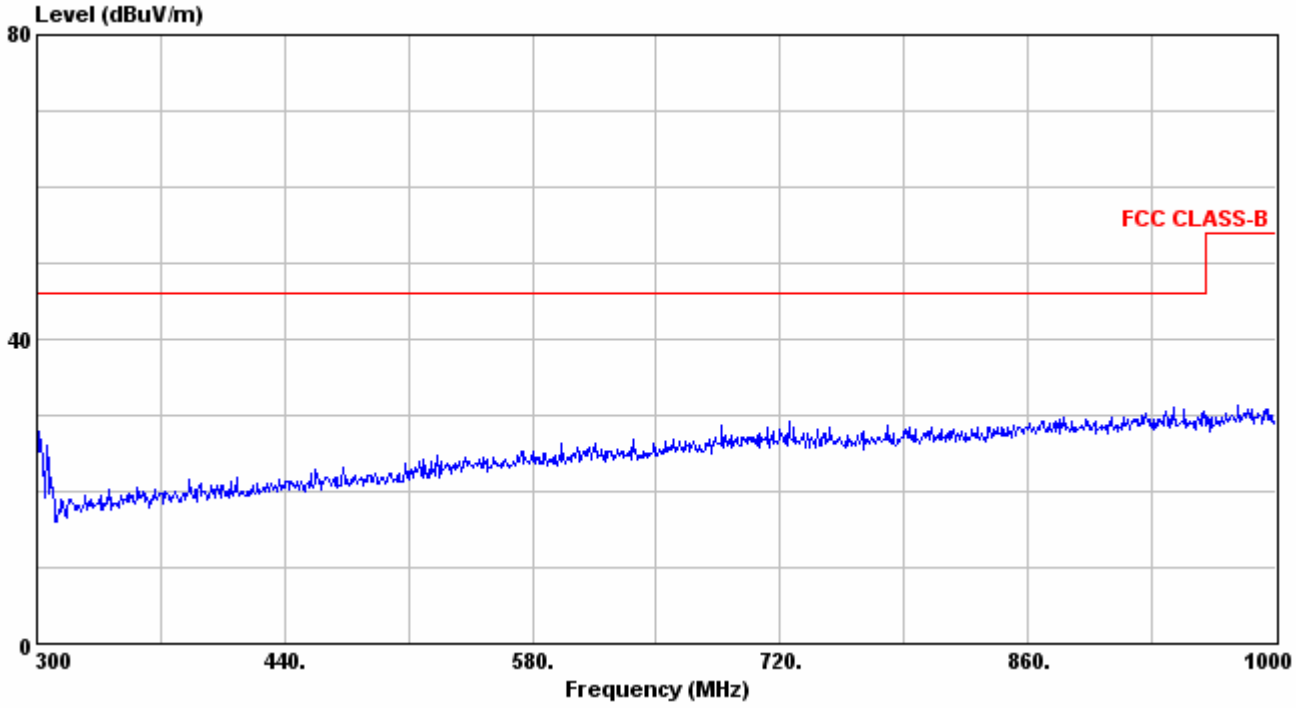
Test Distance : 3m **Tester** : Bill

Polarization : Horizontal **Frequency Range** : 300MHz~1GHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	300.00	45.02	-14.90	30.12	46.00	15.88

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Model : **Channel 0(2402MHz), Mode1 , Continuously Receiving**

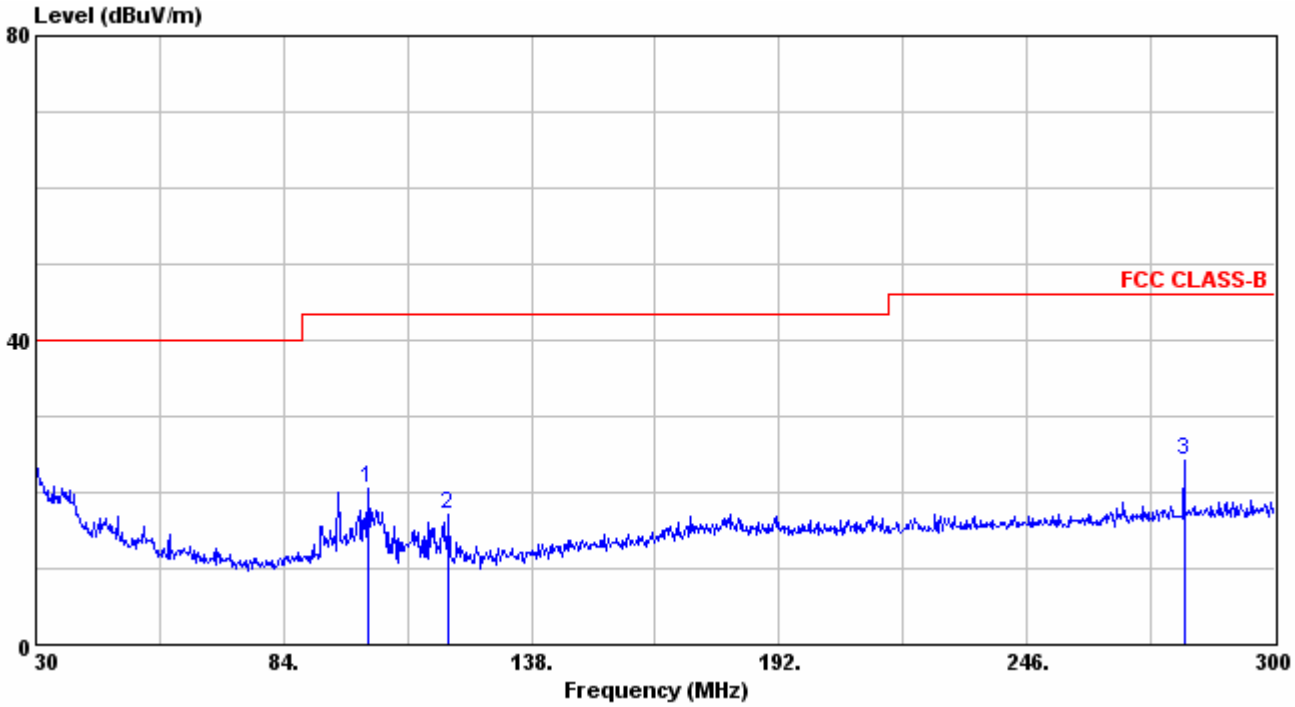
Test Distance : 3m **Tester** : Bill

Antenna Polarization: Vertical **Frequency Range :** 30MHz~300MHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	102.36	41.47	-20.99	20.48	43.50	23.02
2	119.91	39.41	-22.43	16.98	43.50	26.52
3	280.29	39.38	-15.27	24.11	46.00	21.89

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Model : **Channel 0(2402MHz), Mode 1, Continuously Receiving**

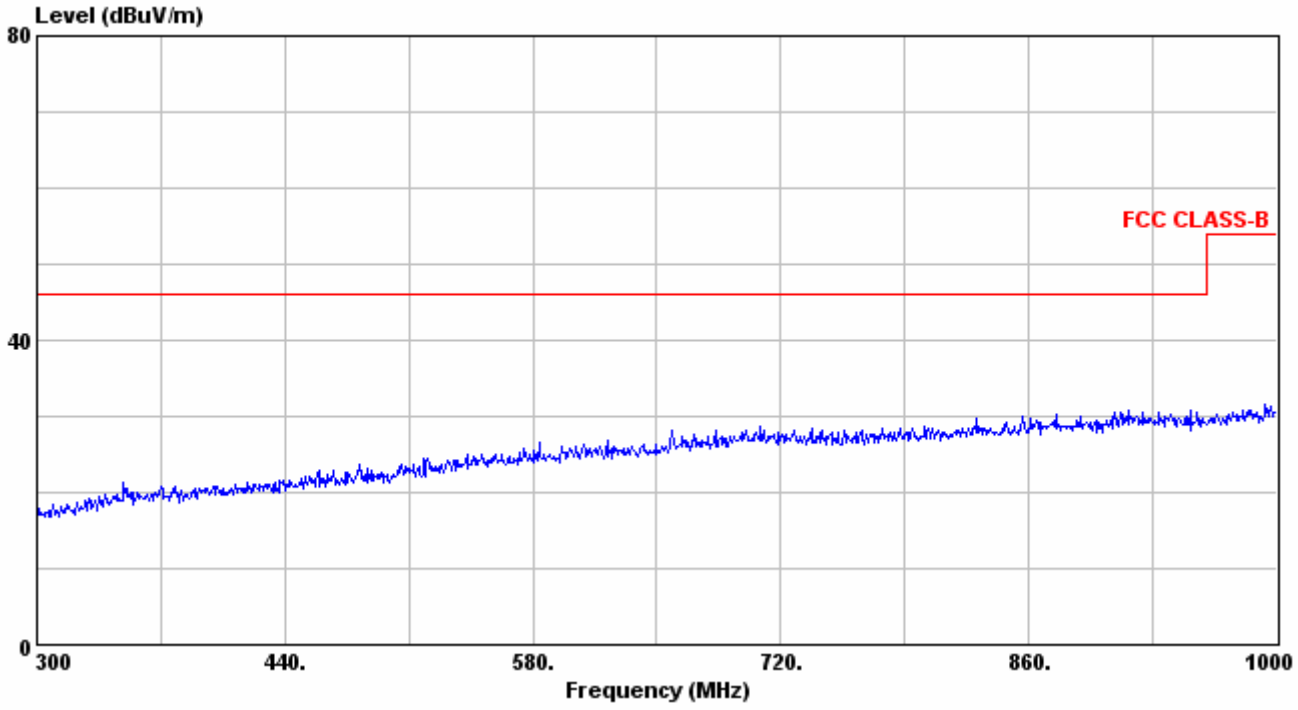
Test Distance : 3m **Tester** : Bill

Antenna Polarization: Vertical **Frequency Range :** 300MHz~1GHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*	*	*	*	*	*

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Mode : **Channel 0(2402MHz), Mode 1, Continuously Receiving**

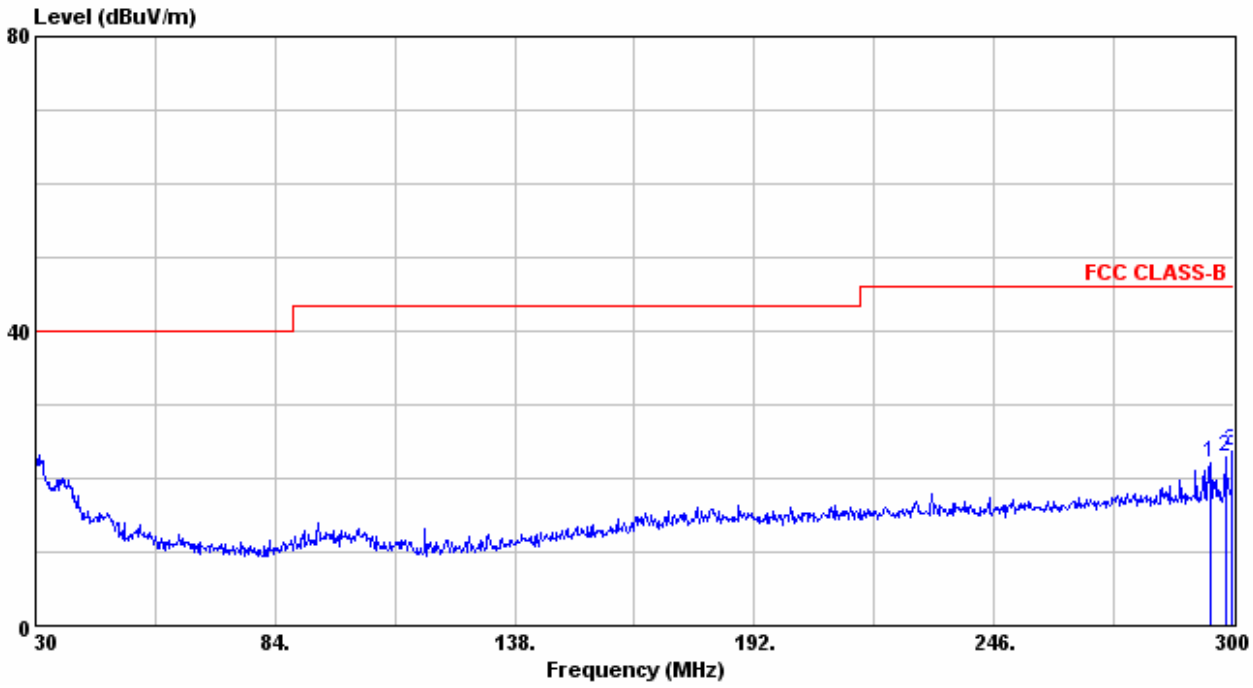
Test Distance : 3m **Tester** : Bill

Polarization : Horizontal **Frequency Range** : 30MHz~300MHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	294.87	37.14	-15.01	22.13	46.00	23.87
2	298.11	37.83	-14.94	22.89	46.00	23.11
3	299.73	38.61	-14.90	23.71	46.00	22.29

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Mode : **Channel 0(2402MHz), Mode1, Continuously Receiving**

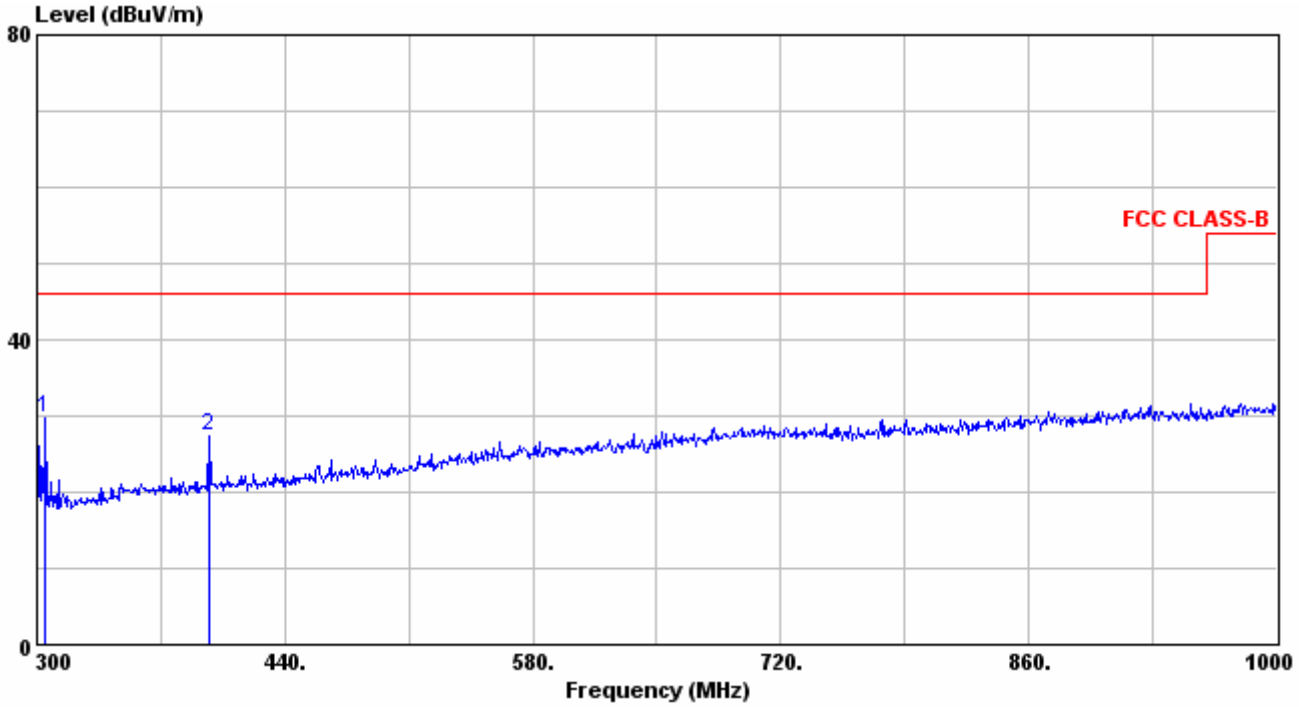
Test Distance : 3m **Tester** : Bill

Polarization : Horizontal **Frequency Range** : 300MHz~1GHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	304.90	44.35	-14.64	29.71	46.00	16.29
2	397.30	38.88	-11.44	27.44	46.00	18.56

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Model : **Channel 39(2441MHz), Mode 1, Continuously Receiving**

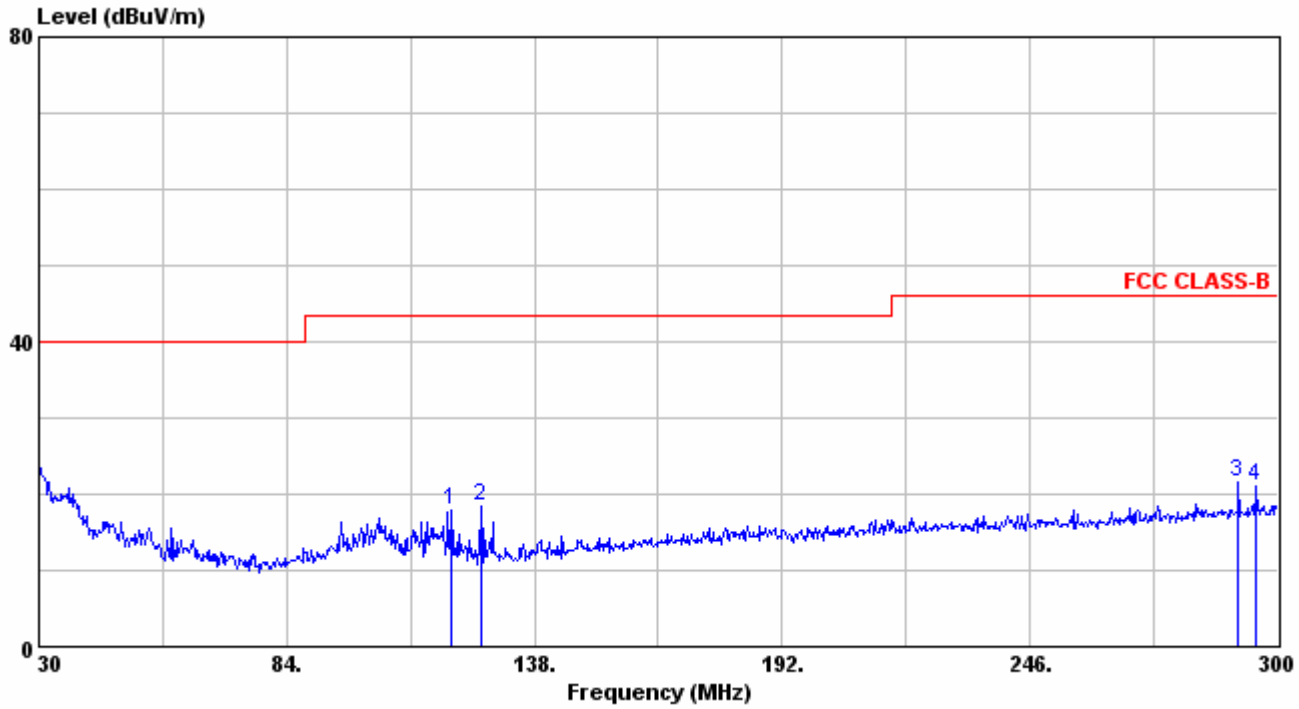
Test Distance : 3m **Tester** : Bill

Antenna Polarization: Vertical **Frequency Range :** 30MHz~300MHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	119.91	40.20	-22.43	17.77	43.50	25.73
2	126.39	40.59	-22.15	18.44	43.50	25.06
3	291.36	36.59	-15.08	21.51	46.00	24.49
4	295.41	35.98	-14.99	20.99	46.00	25.01

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Model : **Channel 39(2441MHz), Mode 1, Continuously Receiving**

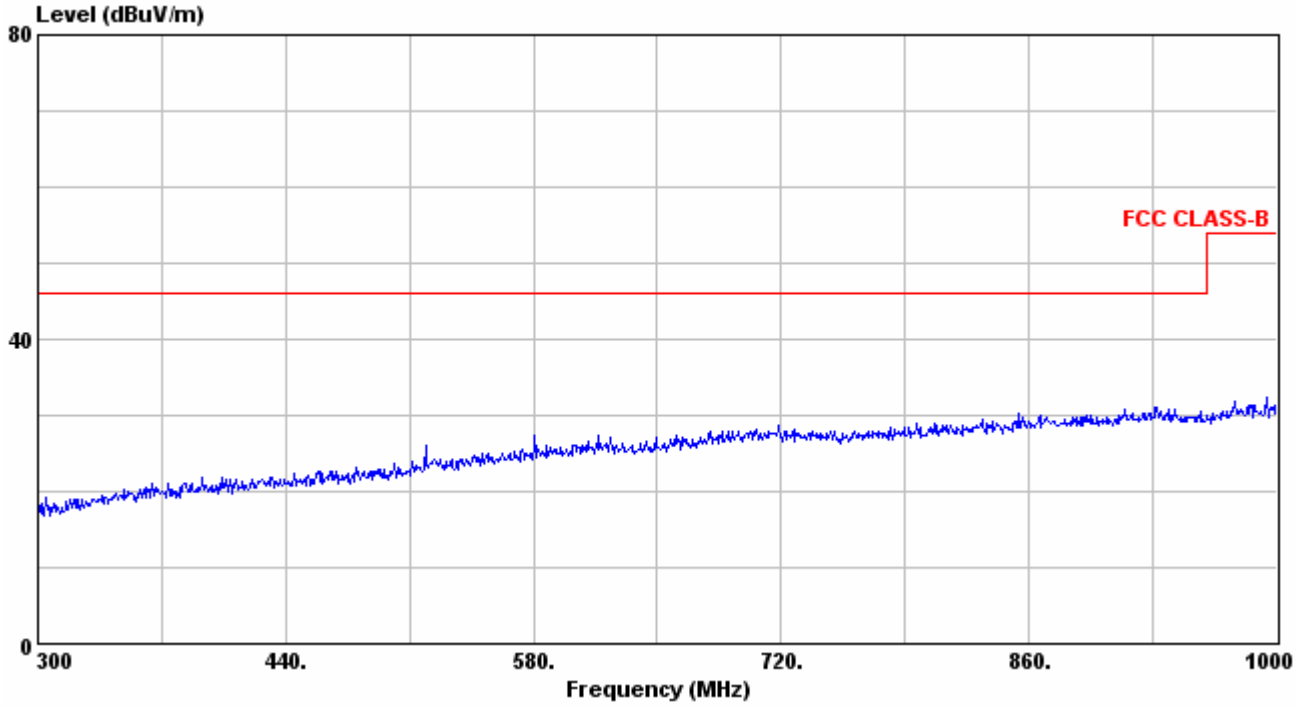
Test Distance : 3m **Tester** : Bill

Antenna Polarization: Vertical **Frequency Range :** 300MHz~1GHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*	*	*	*	*	*

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Model : **Channel 39(2441MHz), Mode 1, Continuously Receiving**

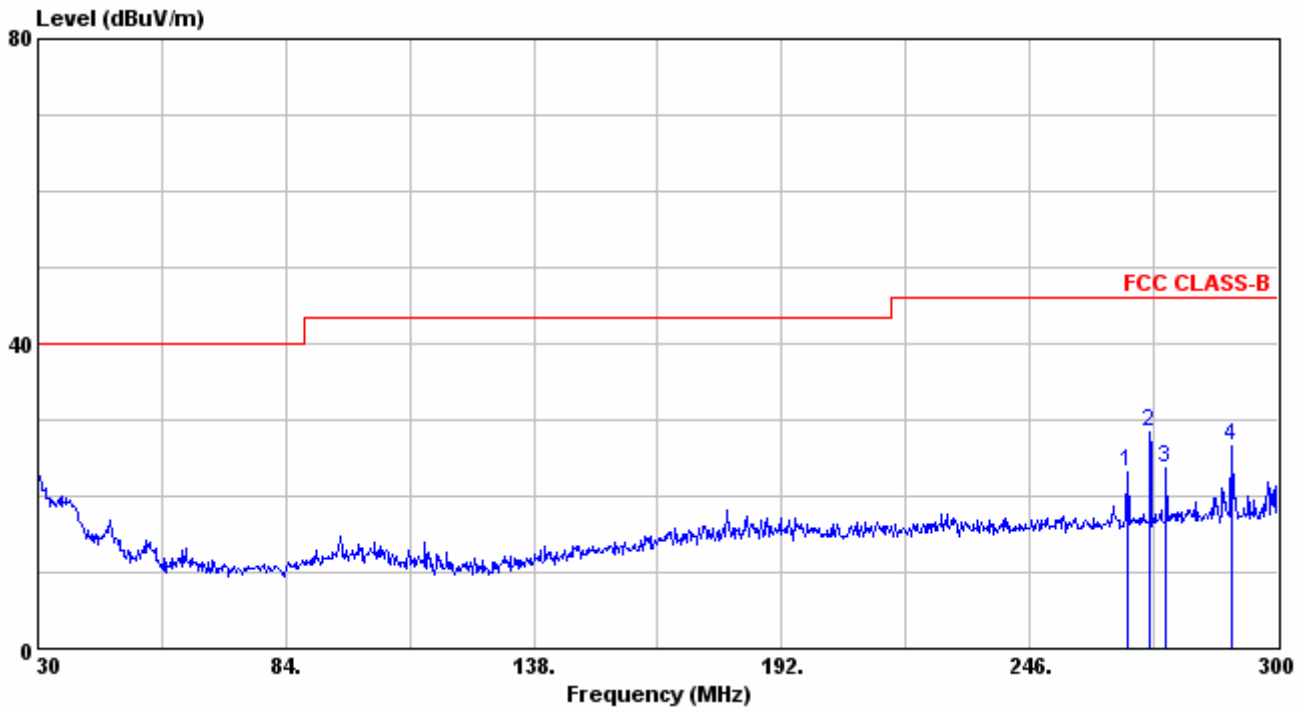
Test Distance : 3m **Tester** : Bill

Antenna Polarization: Horizontal **Frequency Range :** 30MHz~300MHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	267.33	38.96	-15.74	23.22	46.00	22.78
2	272.19	44.01	-15.54	28.47	46.00	17.53
3	275.70	39.06	-15.42	23.64	46.00	22.36
4	290.01	41.67	-15.10	26.57	46.00	19.43

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Model : **Channel 39(2441MHz), Mode 1, Continuously Receiving**

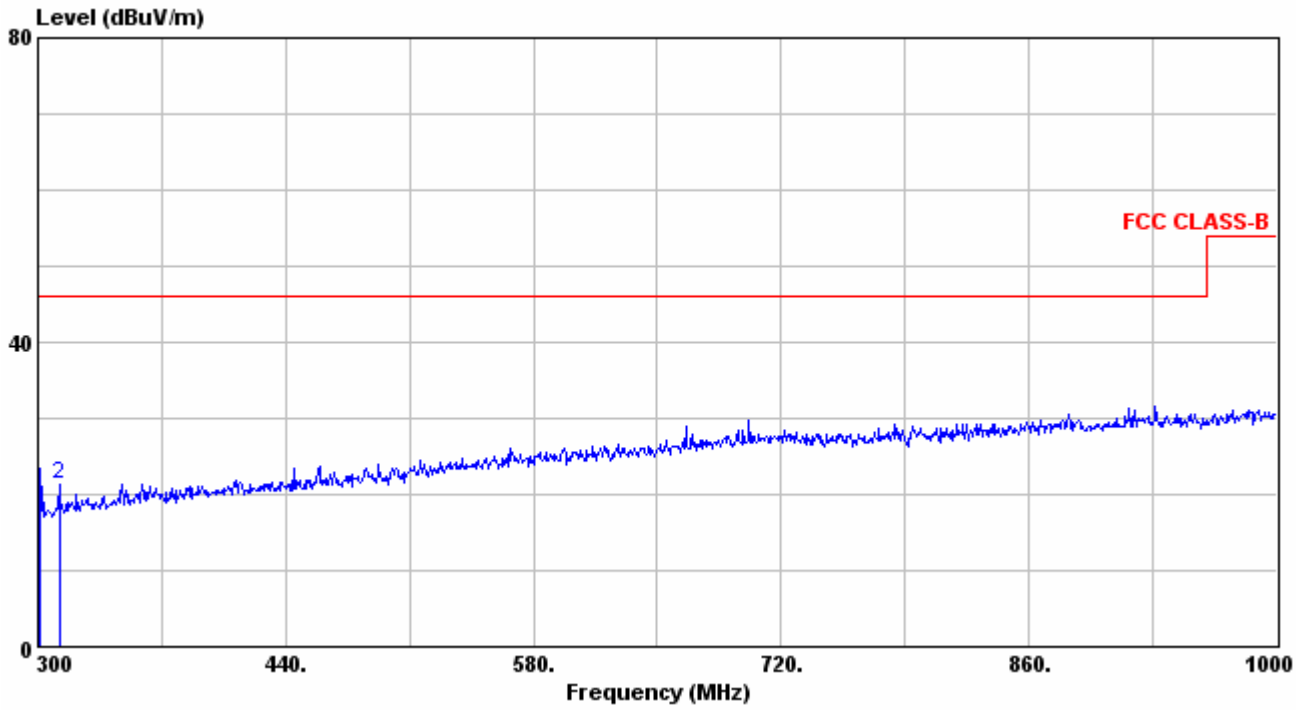
Test Distance : 3m **Tester** : Bill

Antenna Polarization: Horizontal **Frequency Range :** 300MHz~1GHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	301.40	38.12	-14.82	23.30	46.00	22.70
2	311.90	35.50	-14.27	21.23	46.00	24.77

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Model : **Channel 78(2480MHz), Mode 1, Continuously Receiving**

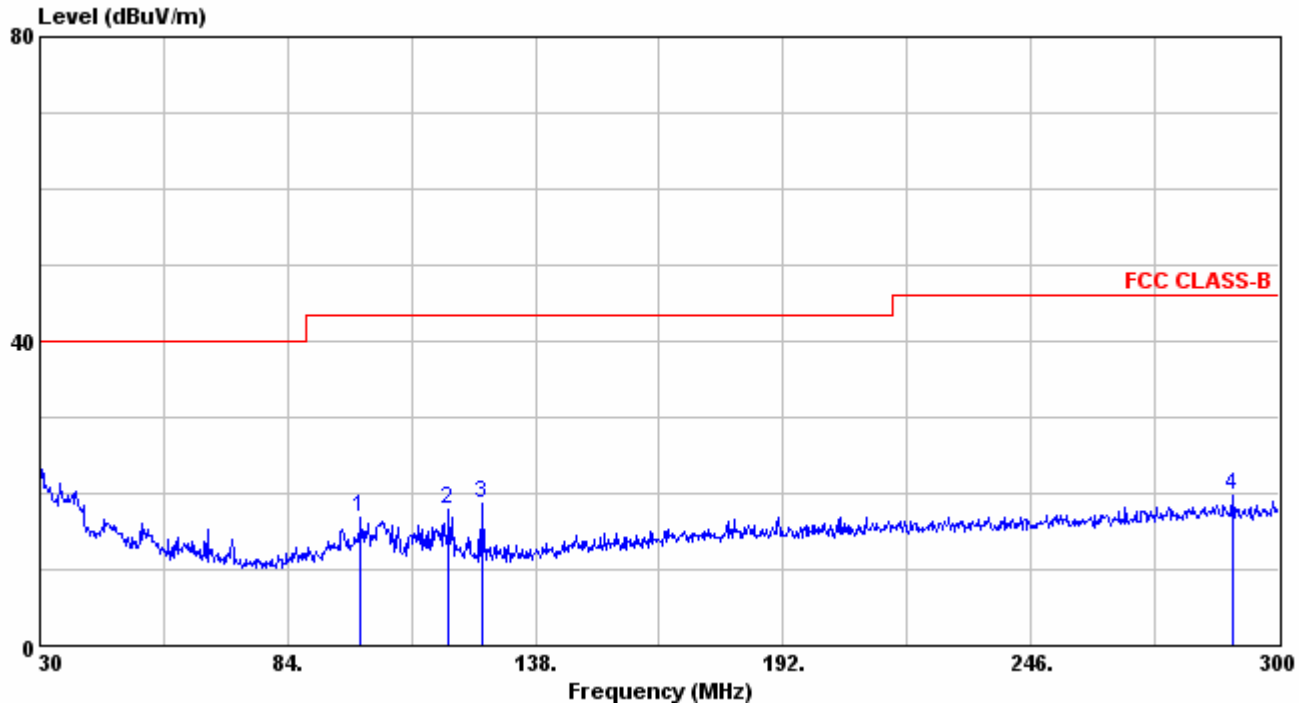
Test Distance : 3m **Tester** : Bill

Antenna Polarization: Vertical **Frequency Range :** 30MHz~300MHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	99.93	37.64	-20.73	16.91	43.50	26.59
2	119.10	40.29	-22.38	17.91	43.50	25.59
3	126.39	40.80	-22.15	18.65	43.50	24.85
4	290.01	34.87	-15.10	19.77	46.00	26.23

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Model : **Channel 78(2480MHz), Mode 1, Continuously Receiving**

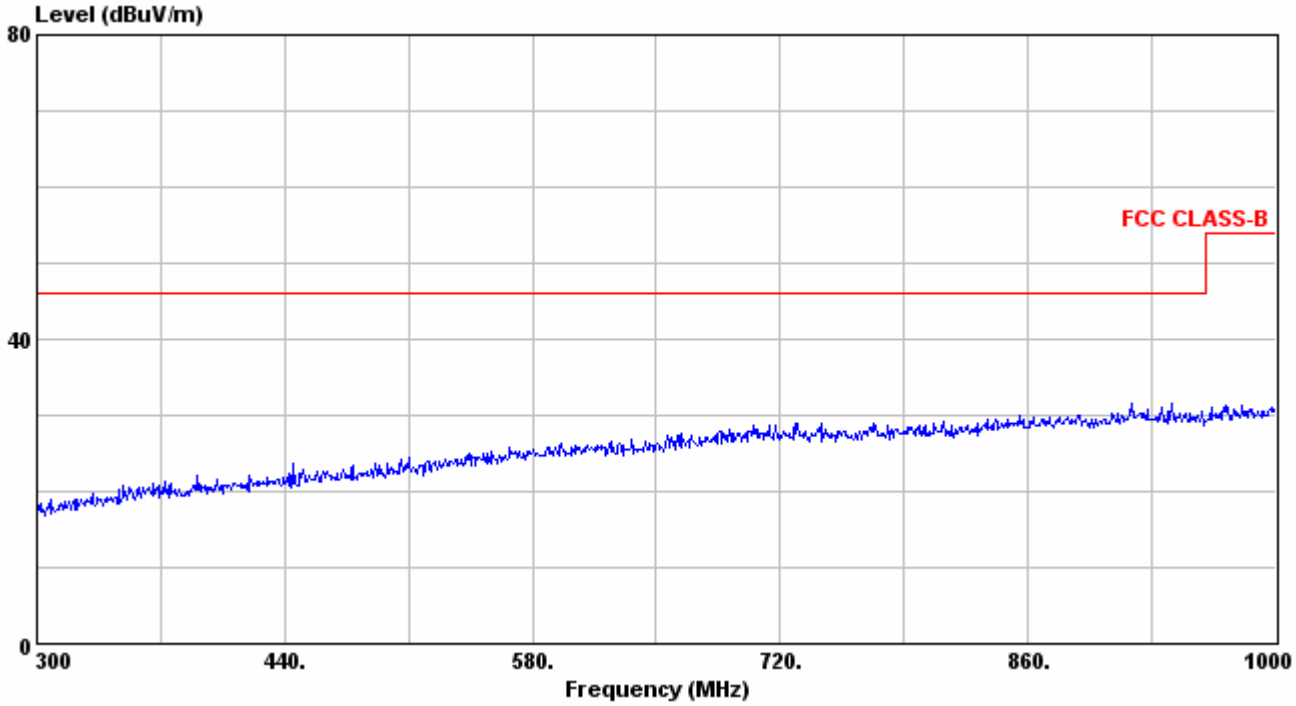
Test Distance : 3m **Tester** : Bill

Antenna Polarization: Vertical **Frequency Range :** 300MHz~1GHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	*	*	*	*	*	*

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Model : **Channel 78(2480MHz), Mode 1, Continuously Receiving**

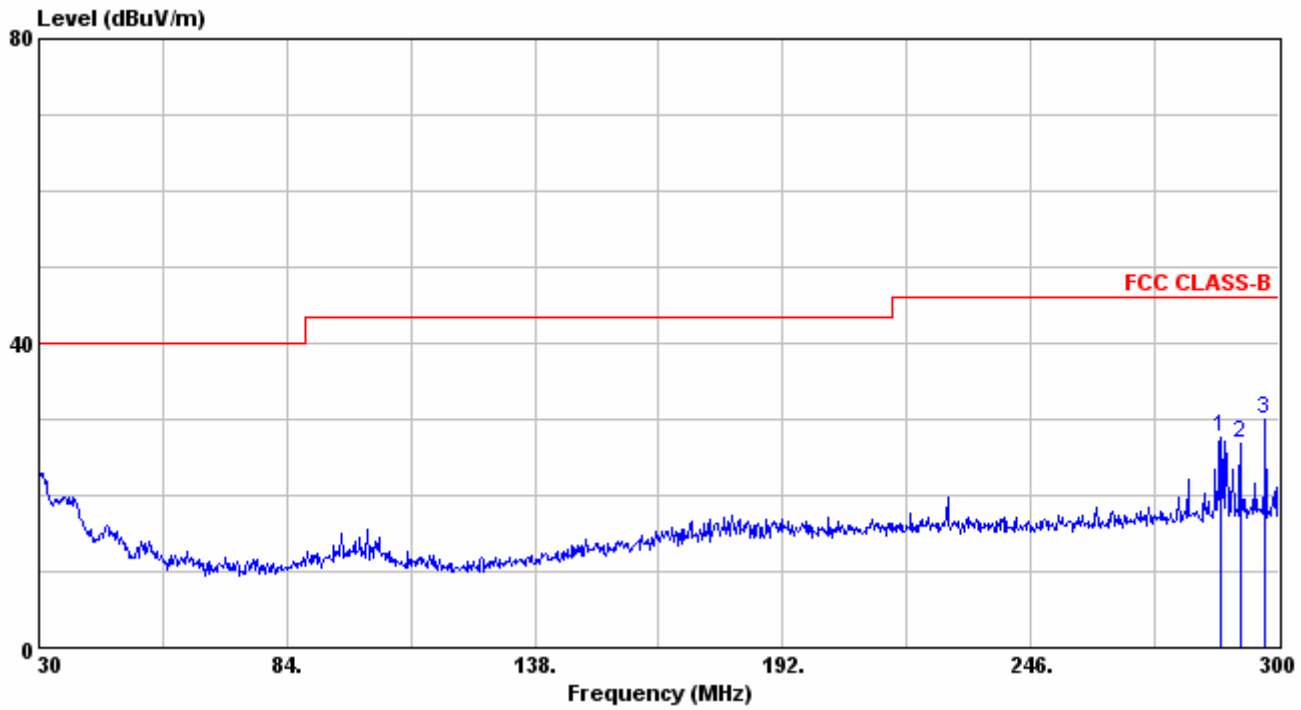
Test Distance : 3m **Tester** : Bill

Antenna Polarization: Horizontal **Frequency Range :** 30MHz~300MHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	287.31	42.77	-15.15	27.62	46.00	18.38
2	291.63	41.95	-15.06	26.89	46.00	19.11
3	297.03	44.84	-14.96	29.88	46.00	16.12

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Test Model : **Channel 78(2480MHz), Mode 1, Continuously Receiving**

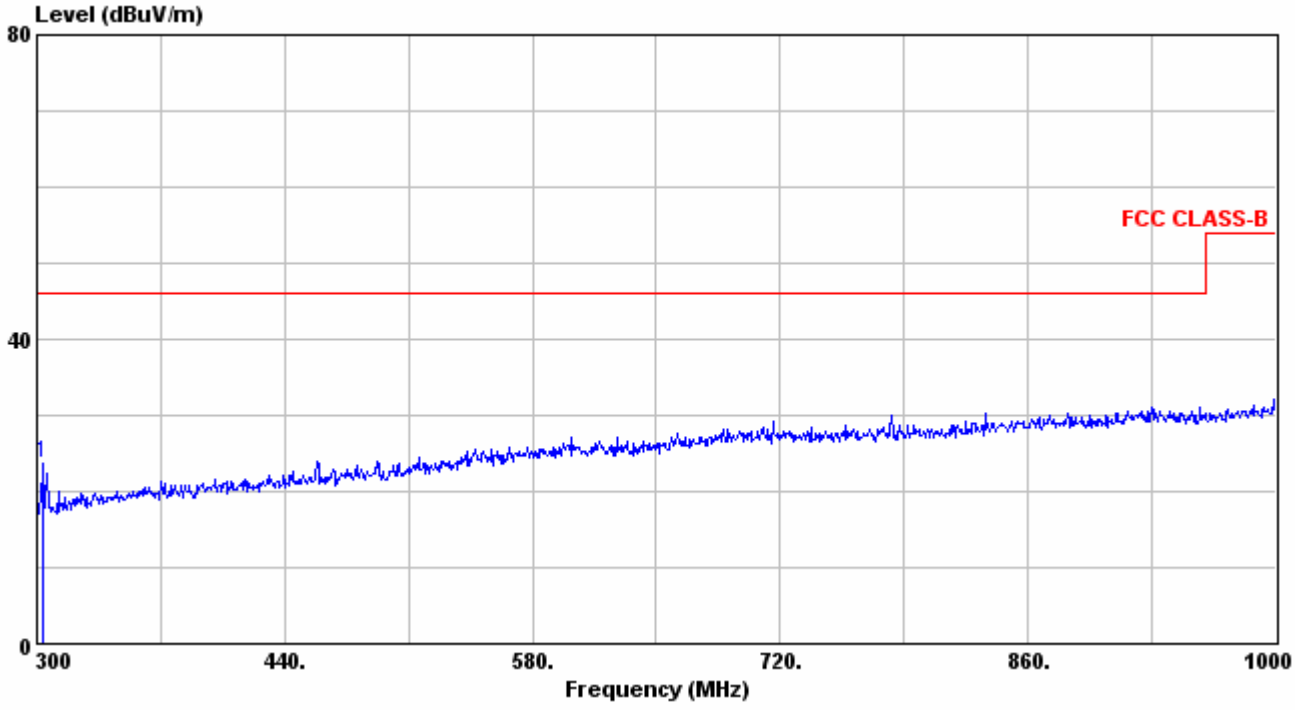
Test Distance : 3m **Tester** : Bill

Antenna Polarization: Horizontal **Frequency Range :** 300MHz~1GHz

	Frequency (MHz)	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	303.50	38.29	-14.72	23.57	46.00	22.43

Note:

1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level
4. "*": The emission is too low to be measured.



Radiated Emission Measurement above 1000MHz

Test Model : **Channel 0(2402MHz), Mode 1, Continuously Transmitting**

Test Distance : 3m **Tester** : Bill

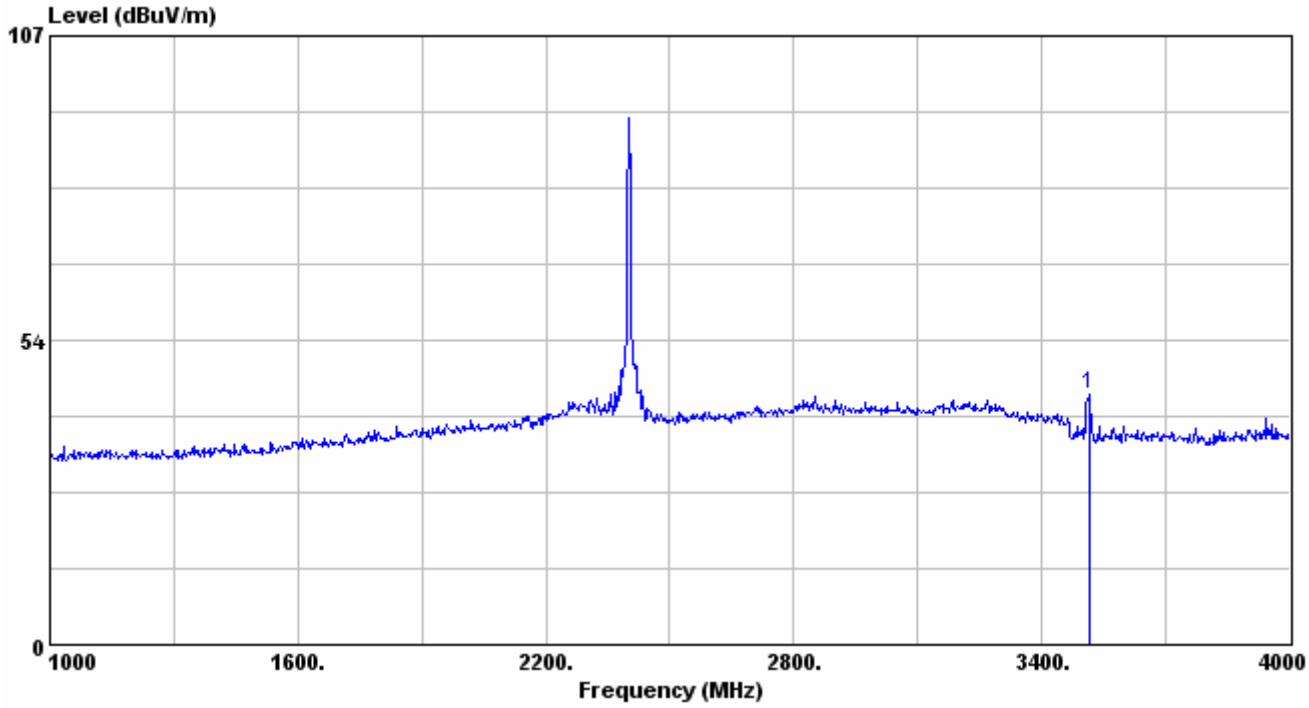
Antenna Polarization : Vertical **Frequency Range** :1GHz~25GHz

	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
1	3517	43.57	*	0.47	44.04	*	74	54	29.96	*
2	4804	*	*	*	*	*	74	54	*	*
3	7206	*	*	*	*	*	74	54	*	*
4	9608	*	*	*	*	*	74	54	*	*
5	12010	*	*	*	*	*	74	54	*	*
6	14412	*	*	*	*	*	74	54	*	*
7	16814	*	*	*	*	*	74	54	*	*
8	19216	*	*	*	*	*	74	54	*	*
9	21618	*	*	*	*	*	74	54	*	*
10	24020	*	*	*	*	*	74	54	*	*
11	25000	*	*	*	*	*	74	54	*	*

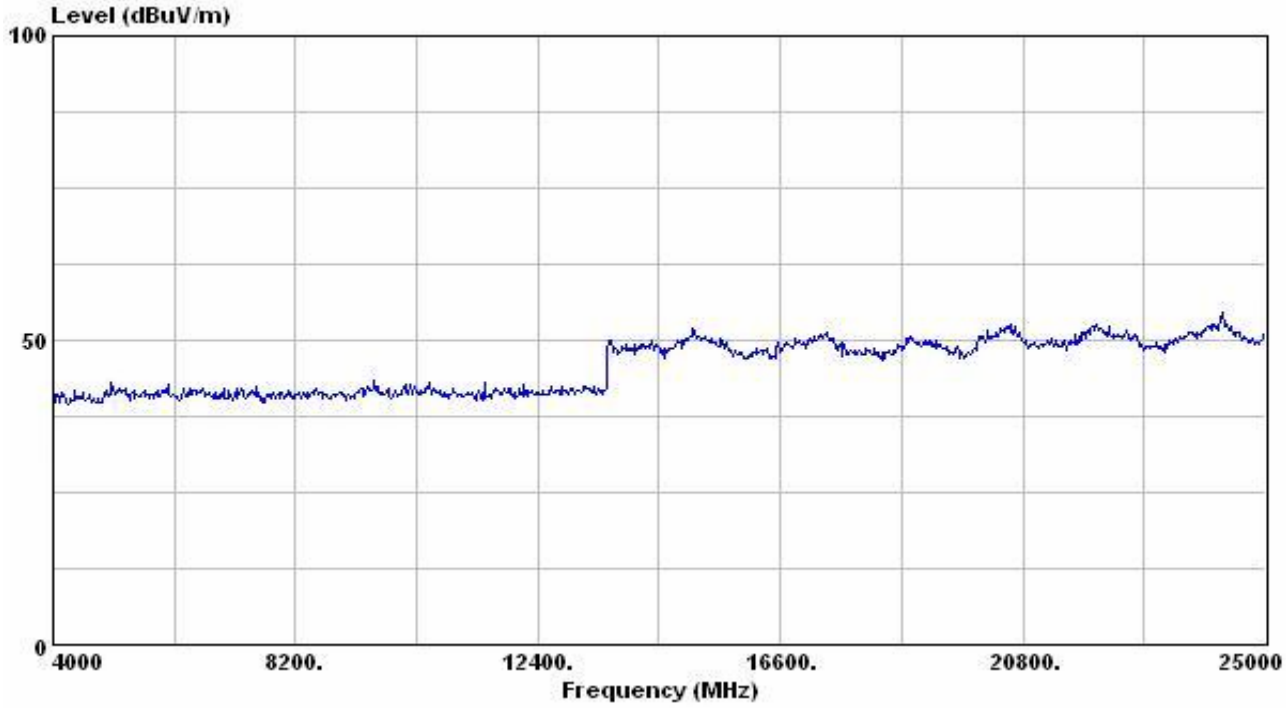
Note:

1. Emission Level (dBuV/m) = Reading Data + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “*“: The emission is too low to be measured.

1GHz~4GHz



4GHz~25GHz



Test Model : **Channel 0(2402MHz), Mode 1, Continuously Transmitting**

Test Distance : 3m **Tester** : Bill

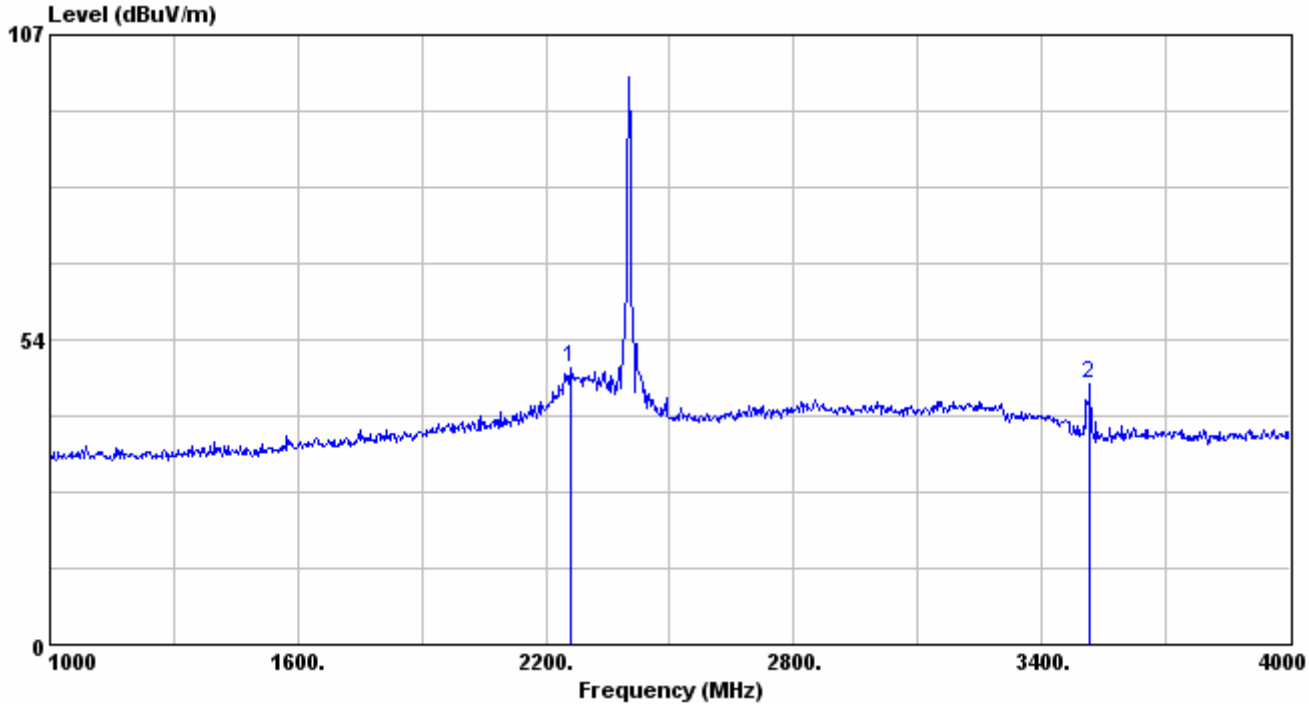
Antenna Polarization : Horizontal **Frequency Range** :1GHz~25GHz

	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
1	2260	49.68	*	-1.05	48.63	*	74	54	25.37	*
2	3517	45.19	*	0.47	45.66	*	74	54	28.34	*
3	4804	*	*	*	*	*	74	54	*	*
4	7206	*	*	*	*	*	74	54	*	*
5	9608	*	*	*	*	*	74	54	*	*
6	12010	*	*	*	*	*	74	54	*	*
7	14412	*	*	*	*	*	74	54	*	*
8	16814	*	*	*	*	*	74	54	*	*
9	19216	*	*	*	*	*	74	54	*	*
10	21618	*	*	*	*	*	74	54	*	*
11	24020	*	*	*	*	*	74	54	*	*
12	25000	*	*	*	*	*	74	54	*	*

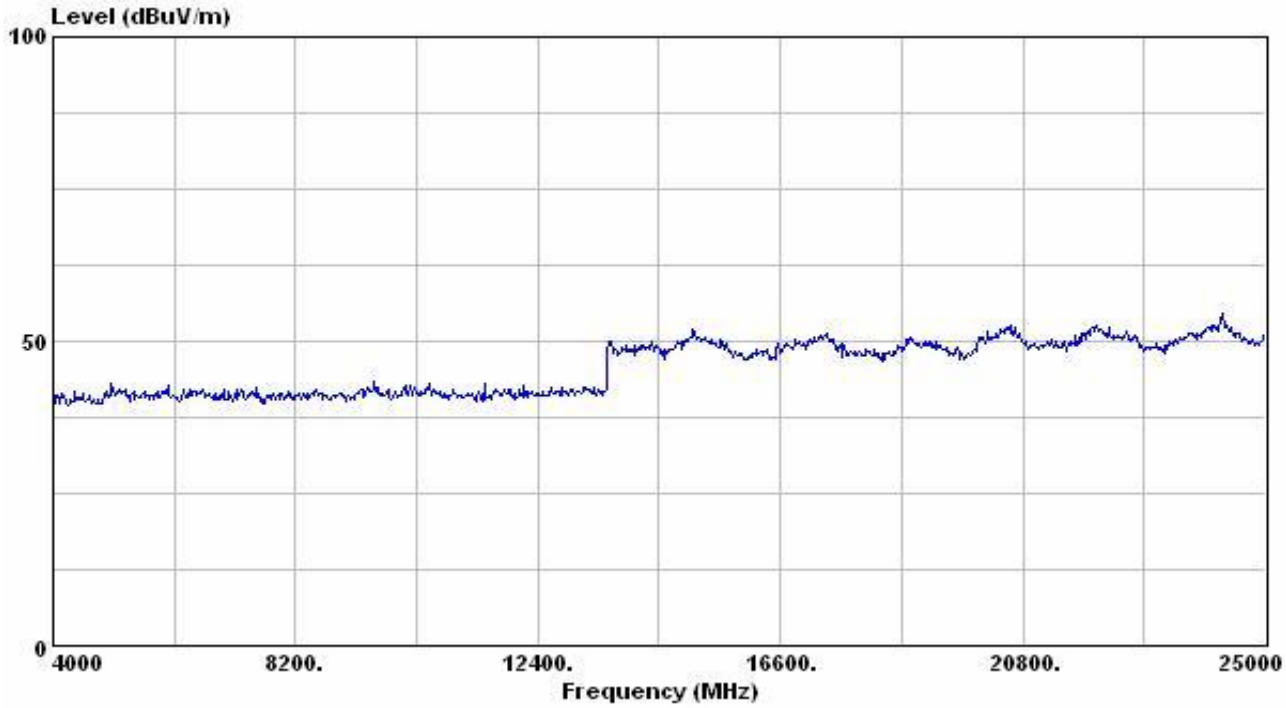
Note:

1. Emission Level (dBuV/m) = Reading Data + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “*“: The emission is too low to be measured.

1GHz~4GHz



4GHz~25GHz



Test Model : **Channel 39(2441MHz), Mode 1, Continuously Transmitting**

Test Distance : 3m **Tester** : Bill

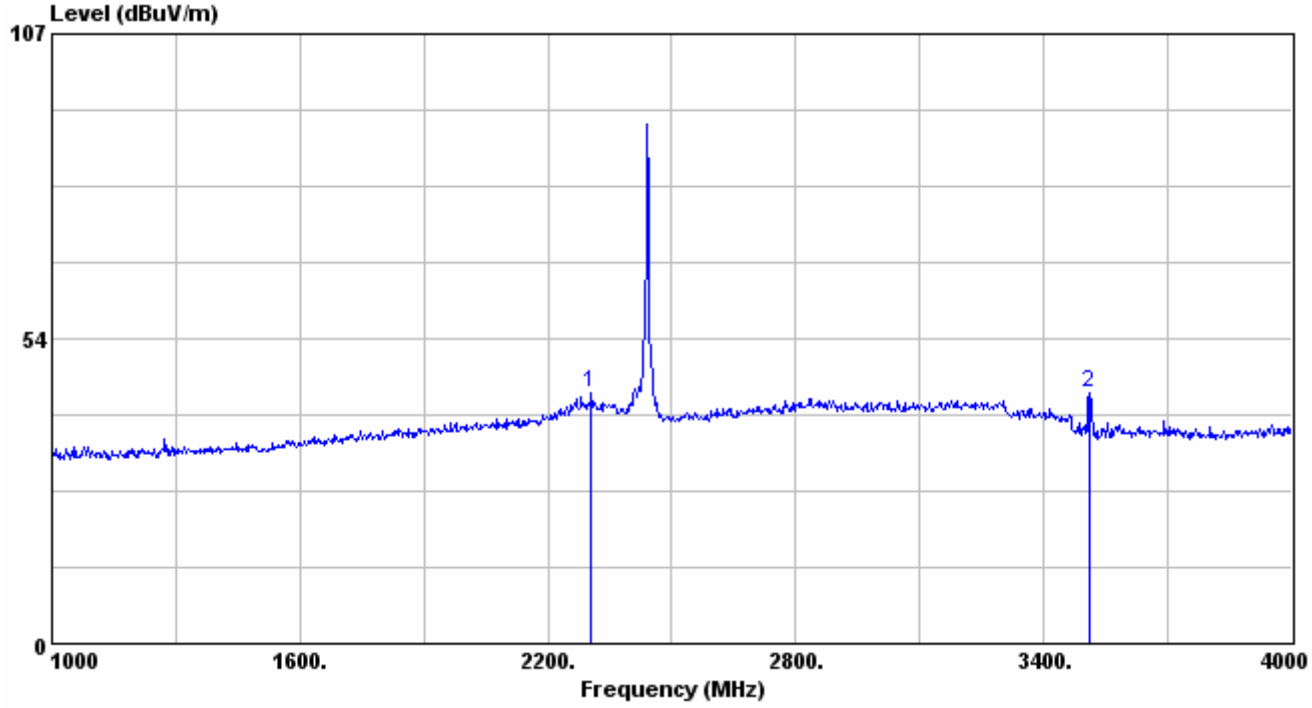
Antenna Polarization : Vertical **Frequency Range** :1GHz~25GHz

	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
1	2305	45.10	*	-1.12	43.98	*	74	54	30.02	*
2	3511	43.68	*	0.44	44.12	*	74	54	29.88	*
3	4882	*	*	*	*	*	74	54	*	*
4	7323	*	*	*	*	*	74	54	*	*
5	9764	*	*	*	*	*	74	54	*	*
6	12205	*	*	*	*	*	74	54	*	*
7	14646	*	*	*	*	*	74	54	*	*
8	17087	*	*	*	*	*	74	54	*	*
9	19528	*	*	*	*	*	74	54	*	*
10	21969	*	*	*	*	*	74	54	*	*
11	24410	*	*	*	*	*	74	54	*	*
12	25000	*	*	*	*	*	74	54	*	*

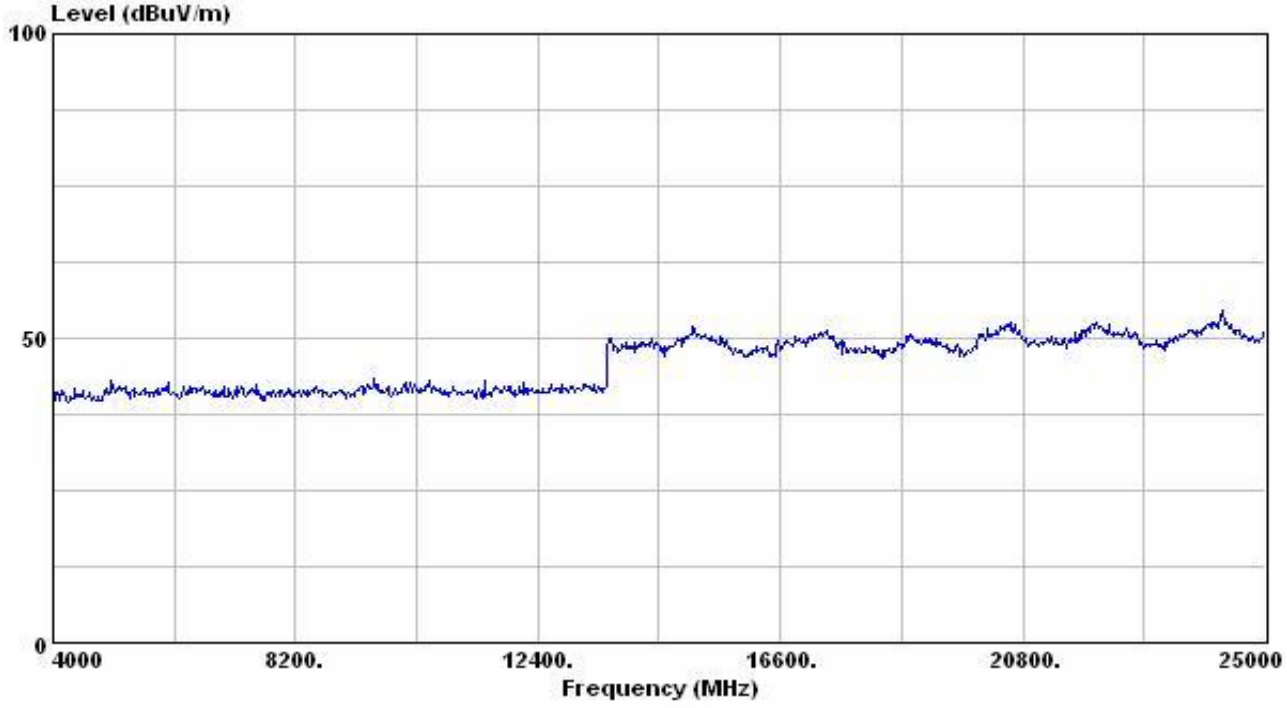
Note:

1. Emission Level (dBuV/m) = Reading Data + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “*“: The emission is too low to be measured.
6. It don’t any emission up 8GHz, so only provide painting on channel 0.

1GHz~4GHz



4GHz~25GHz



Test Model : **Channel 39(2441MHz), Mode 1, Continuously Transmitting**

Test Distance : 3m **Tester** : Bill

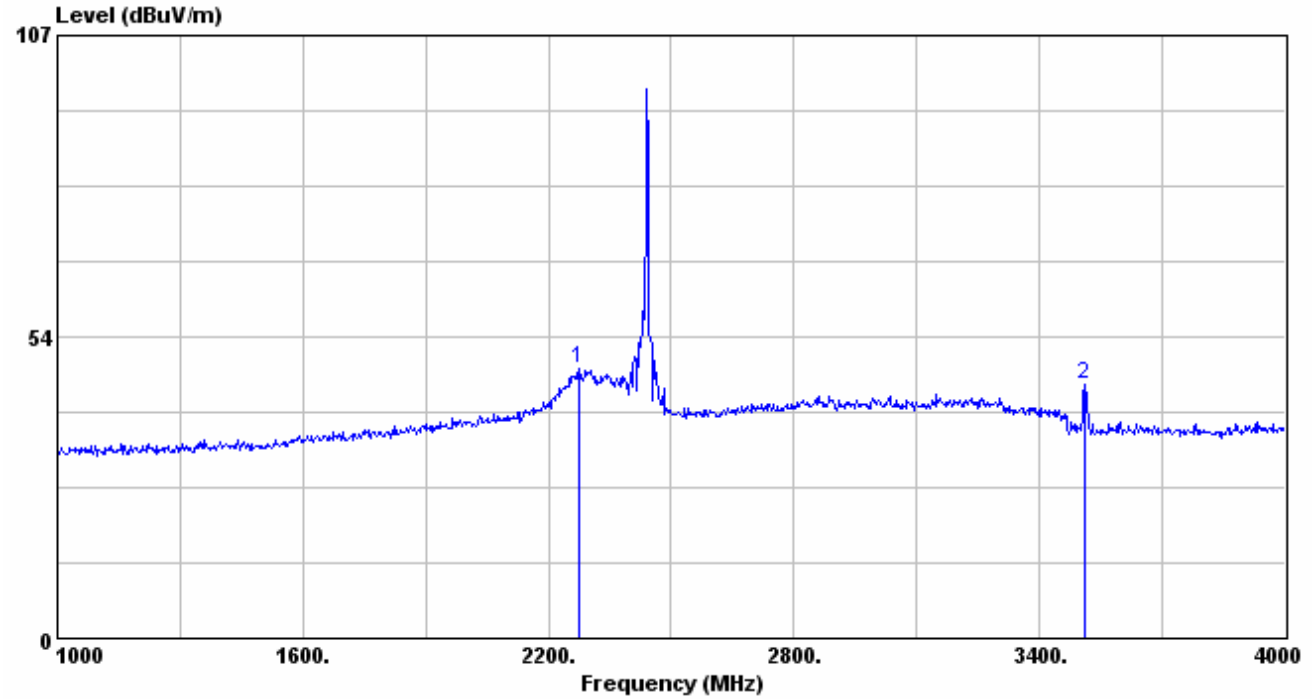
Antenna Polarization : Horizontal **Frequency Range** :1GHz~25GHz

	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
1	2275	48.91	*	-1.08	47.83	*	74	54	26.17	*
2	3511	44.56	*	0.44	45.00	*	74	54	29.00	*
3	4882	*	*	*	*	*	74	54	*	*
4	7323	*	*	*	*	*	74	54	*	*
5	9764	*	*	*	*	*	74	54	*	*
6	12205	*	*	*	*	*	74	54	*	*
7	14646	*	*	*	*	*	74	54	*	*
8	17087	*	*	*	*	*	74	54	*	*
9	19528	*	*	*	*	*	74	54	*	*
10	21969	*	*	*	*	*	74	54	*	*
11	24410	*	*	*	*	*	74	54	*	*
12	25000	*	*	*	*	*	74	54	*	*

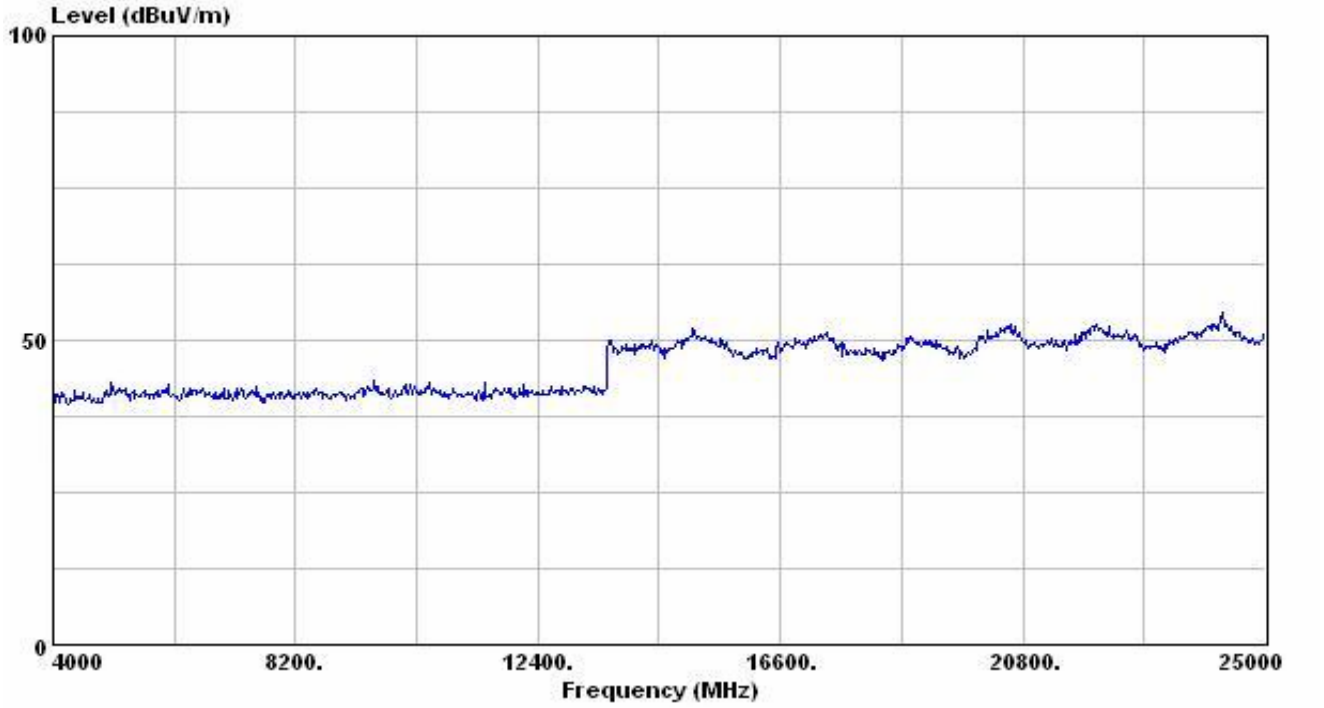
Note:

1. Emission Level (dBuV/m) = Reading Data + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “*“: The emission is too low to be measured.

1GHz~4GHz



4GHz~25GHz



Test Model : **Channel 78(2480MHz), Mode 1, Continuously Transmitting**

Test Distance : 3m **Tester** : Bill

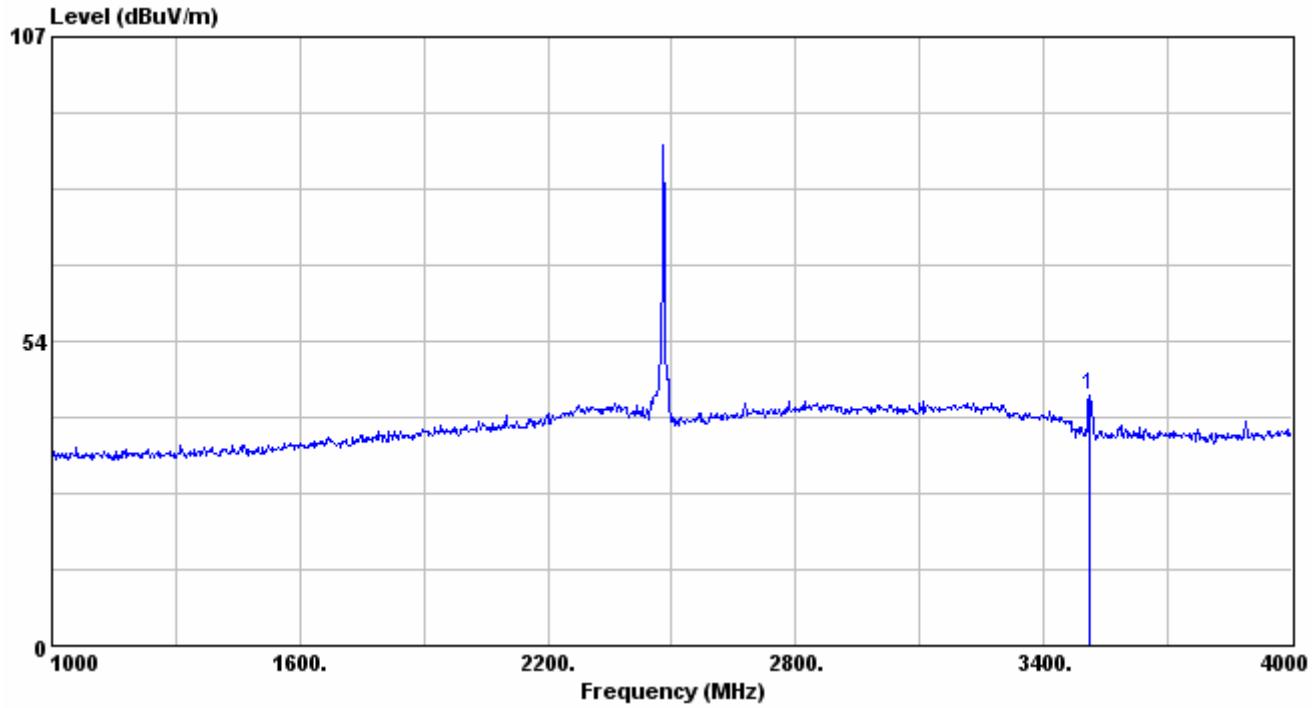
Antenna Polarization : Vertical **Frequency Range** :1GHz~25GHz

	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
1	3511	45.50	*	0.44	43.94	*	74	54	30.06	*
2	4960	*	*	*	*	*	74	54	*	*
3	7440	*	*	*	*	*	74	54	*	*
4	9920	*	*	*	*	*	74	54	*	*
5	12400	*	*	*	*	*	74	54	*	*
6	14880	*	*	*	*	*	74	54	*	*
7	17360	*	*	*	*	*	74	54	*	*
8	19840	*	*	*	*	*	74	54	*	*
9	22320	*	*	*	*	*	74	54	*	*
10	24800	*	*	*	*	*	74	54	*	*
11	25000	*	*	*	*	*	74	54	*	*

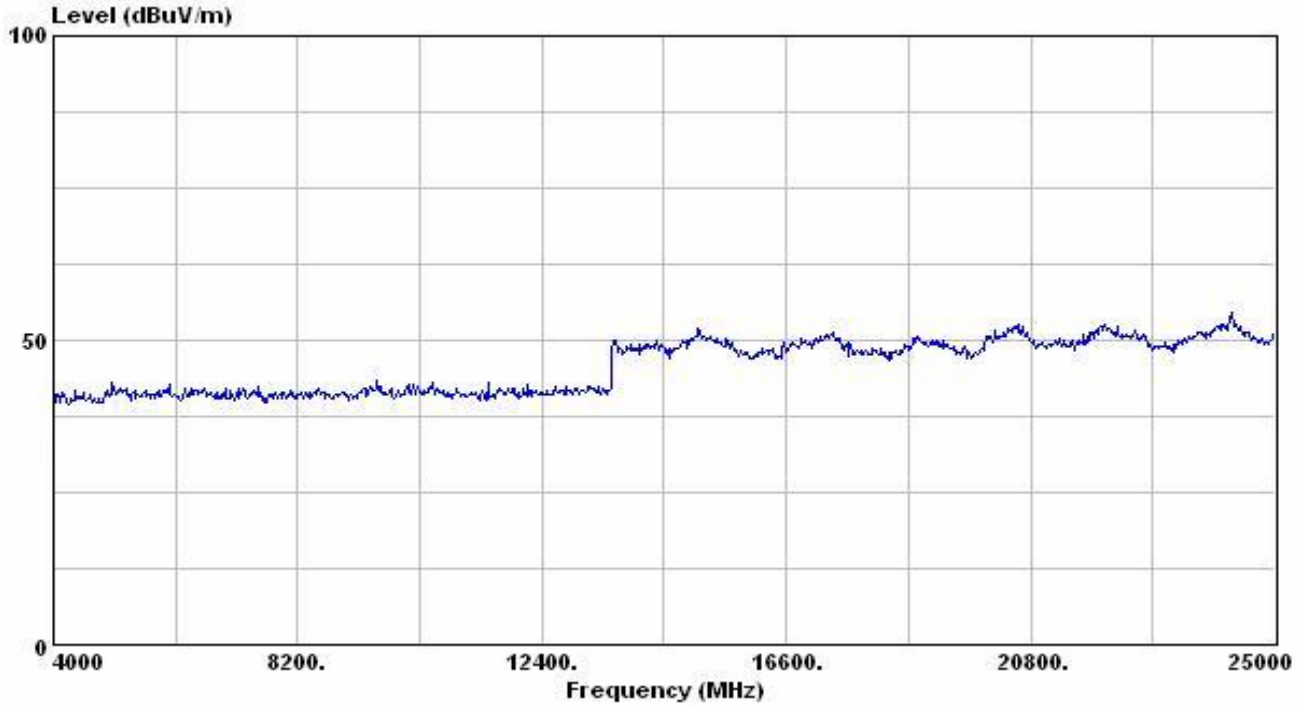
Note:

1. Emission Level (dBuV/m) = Reading Data + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “*“: The emission is too low to be measured.

1GHz~4GHz



4GHz~25GHz



Test Model : **Channel 78(2480MHz), Mode 1, Continuously Transmitting**

Test Distance : 3m **Tester** : Bill

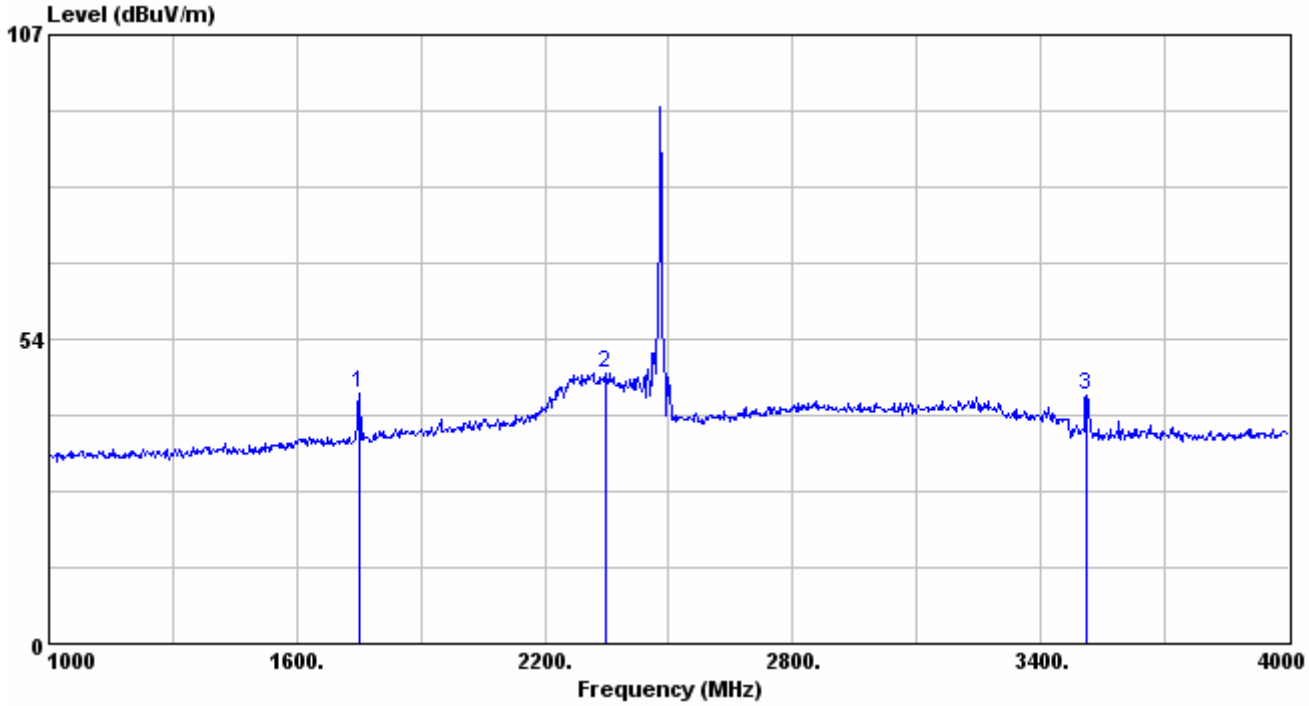
Antenna Polarization : Horizontal **Frequency Range :**1GHz~25GHz

	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
1	1753	47.84	*	-3.85	43.99	*	74	54	30.01	*
2	2347	48.59	*	-0.99	47.60	*	74	54	26.40	*
3	3511	43.28	*	0.44	43.72	*	74	54	30.28	*
4	4960	*	*	*	*	*	74	54	*	*
5	7440	*	*	*	*	*	74	54	*	*
6	9920	*	*	*	*	*	74	54	*	*
7	12400	*	*	*	*	*	74	54	*	*
8	14880	*	*	*	*	*	74	54	*	*
9	17360	*	*	*	*	*	74	54	*	*
10	19840	*	*	*	*	*	74	54	*	*
11	22320	*	*	*	*	*	74	54	*	*
12	24800	*	*	*	*	*	74	54	*	*
13	25000	*	*	*	*	*	74	54	*	*

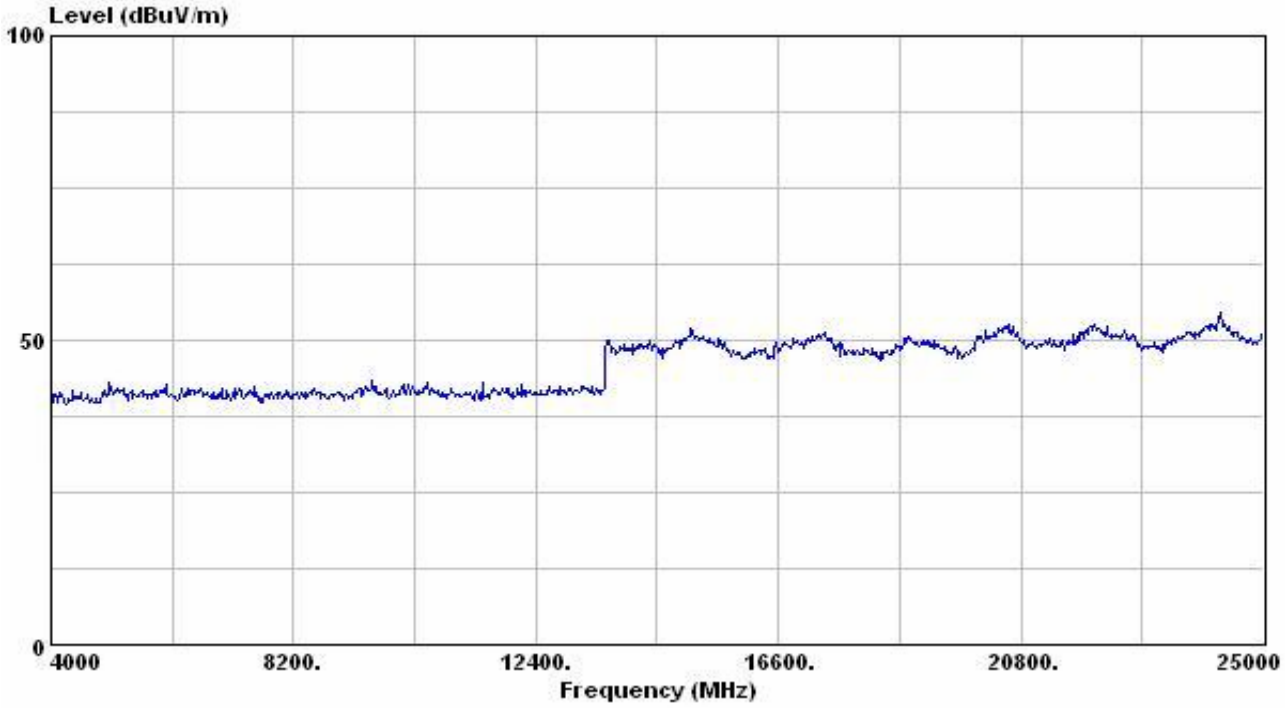
Note:

1. Emission Level (dBuV/m) = Reading Data + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “*“: The emission is too low to be measured.

1GHz~4GHz



4GHz~25GHz



Test Model : **Mode 1, Hooping**

Test Distance : 3m **Tester** : Bill

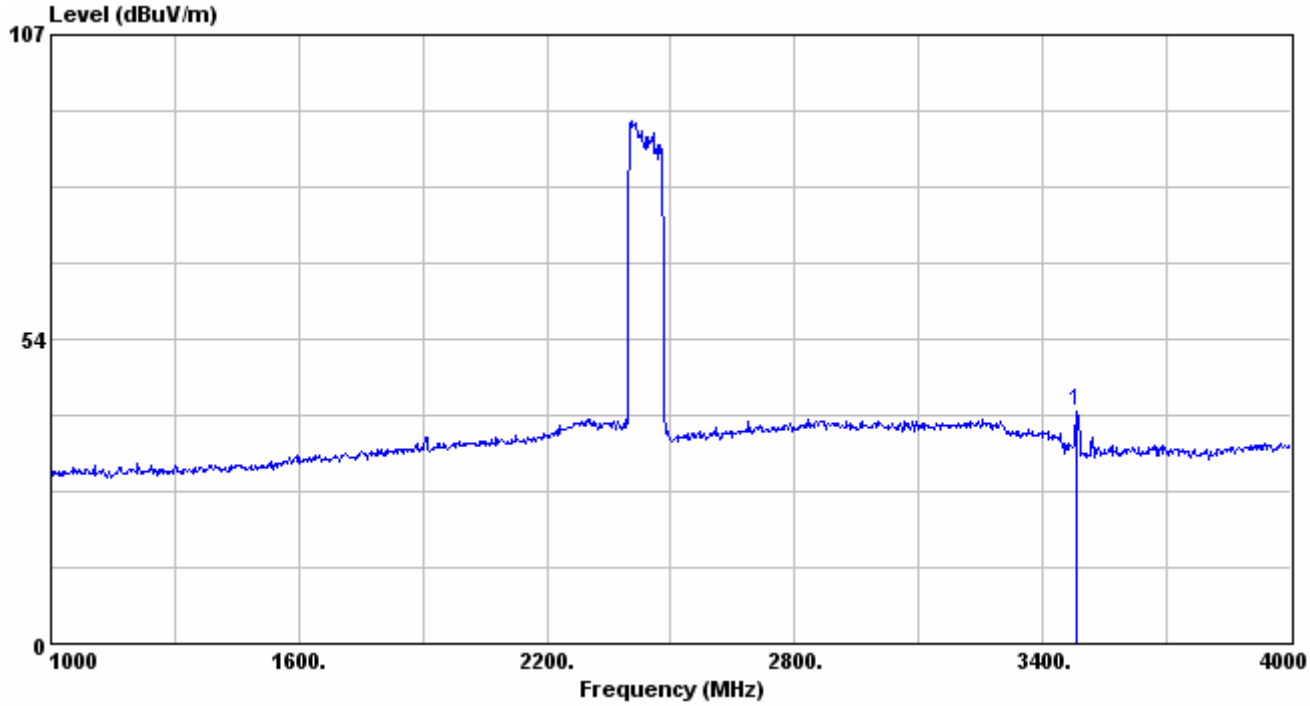
Antenna Polarization : Vertical **Frequency Range** :1GHz~25GHz

	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
1	3481	40.48	*	0.50	40.98	*	74	54	33.02	*

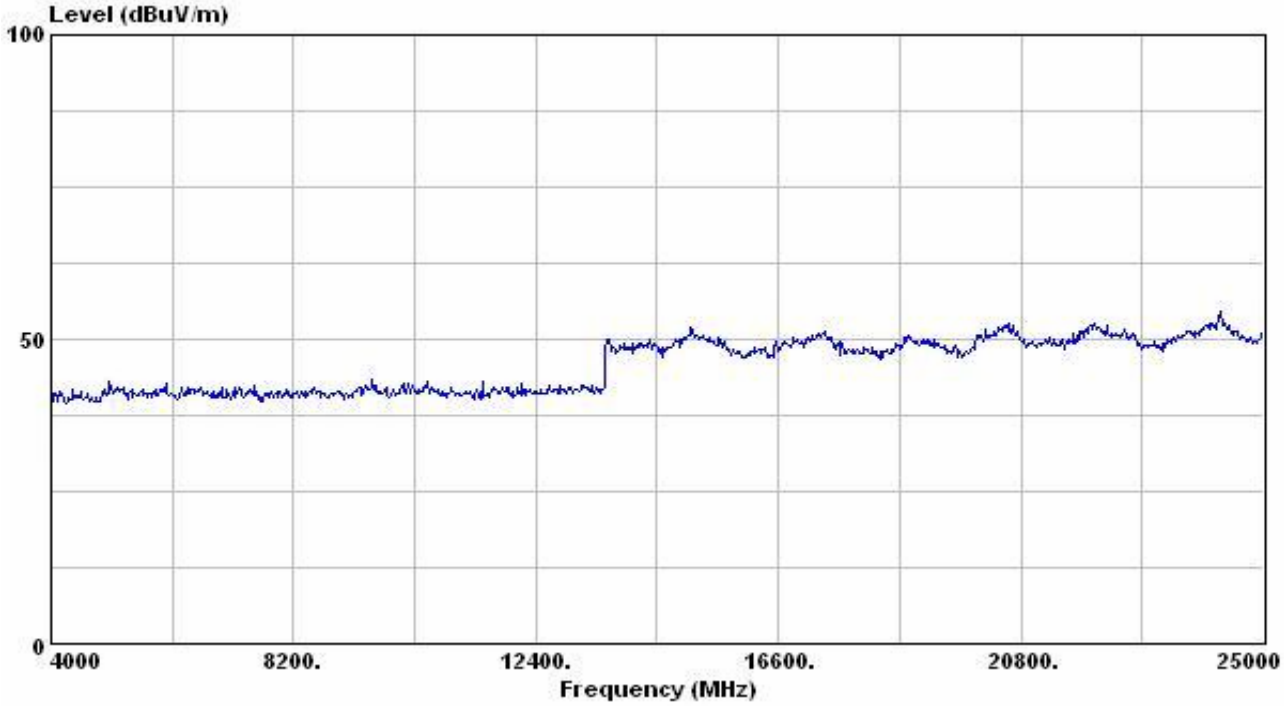
Note:

1. Emission Level (dBuV/m) = Reading Data + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “*“: The emission is too low to be measured.

1GHz~4GHz



4GHz~25GHz



Test Model : **Mode 1, Hopping**

Test Distance : 3m **Tester** : Bill

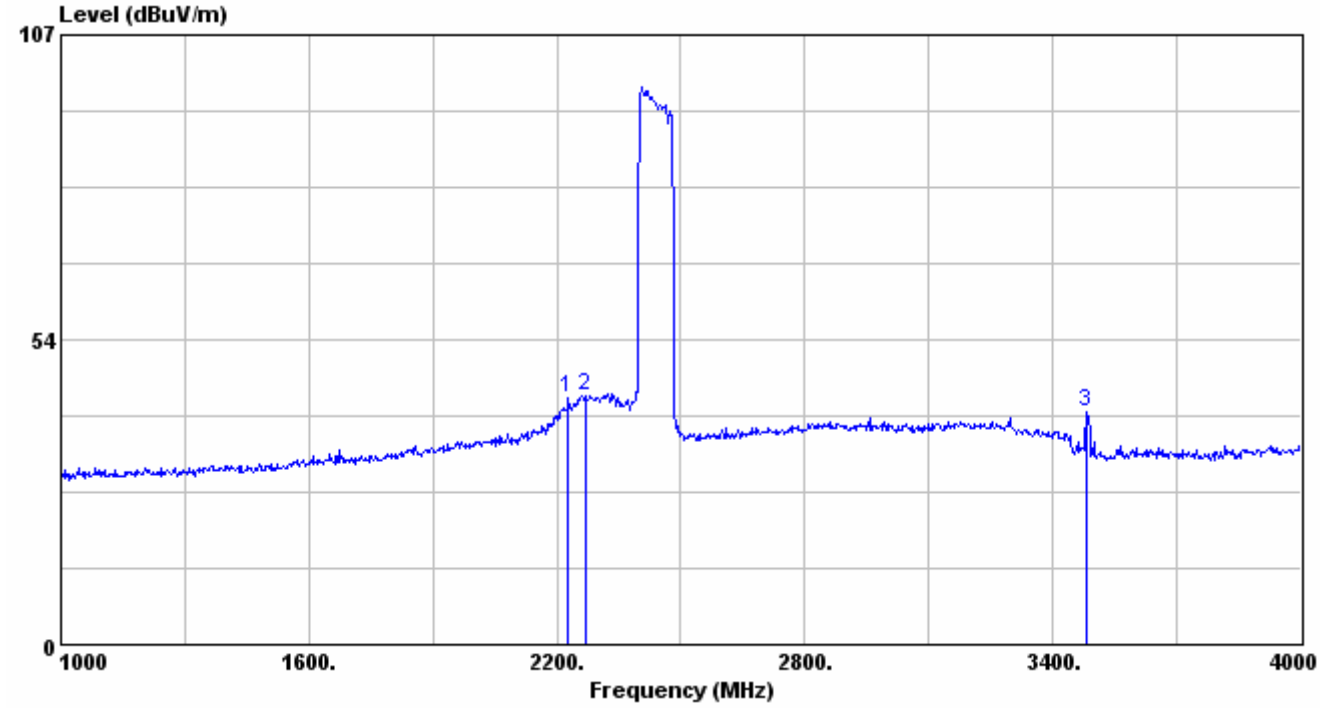
Antenna Polarization : Horizontal **Frequency Range** :1GHz~25GHz

	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
1	2227	44.49	*	-1.18	43.31	*	74	54	30.69	*
2	2269	44.81	*	-1.07	43.74	*	74	54	30.26	*
3	3481	40.35	*	0.50	40.85	*	74	54	33.15	*

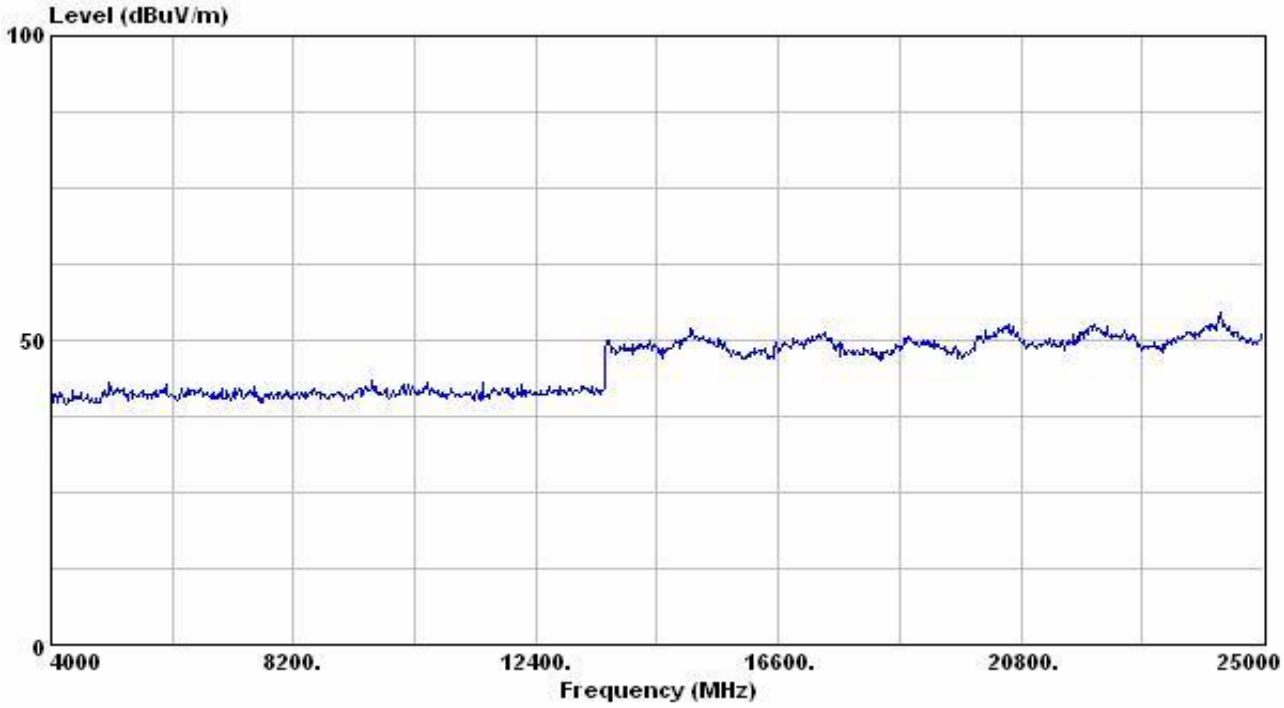
Note:

1. Emission Level (dBuV/m) = Reading Data + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “*“: The emission is too low to be measured.

1GHz~4GHz



4GHz~25GHz



Test Model : **Channel 0(2402MHz), Mode 1, Continuously Receiving**

Test Distance : 3m **Tester** : Bill

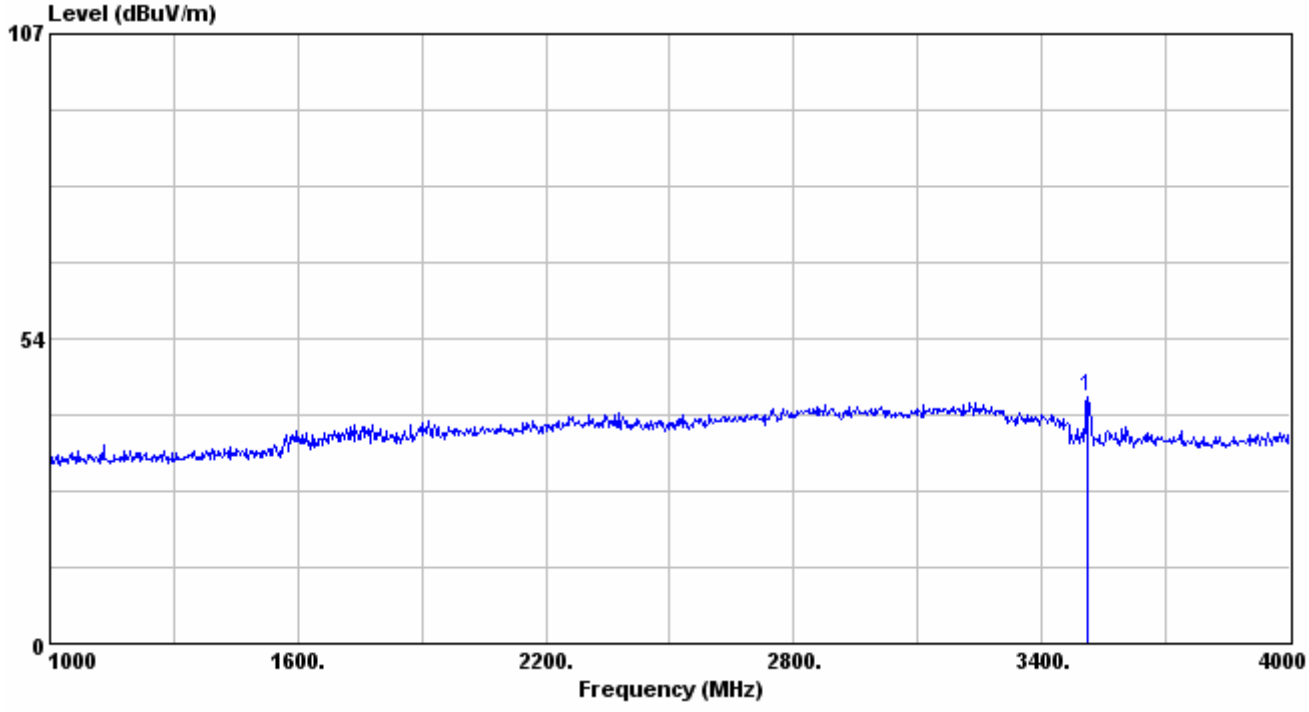
Antenna Polarization : Vertical **Frequency Range** :1GHz~25GHz

	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
1	3511	42.89	*	0.44	43.33	*	74	54	30.67	*
2	4804	*	*	*	*	*	74	54	*	*
3	7206	*	*	*	*	*	74	54	*	*
4	9608	*	*	*	*	*	74	54	*	*
5	12010	*	*	*	*	*	74	54	*	*
6	14412	*	*	*	*	*	74	54	*	*
7	16814	*	*	*	*	*	74	54	*	*
8	19216	*	*	*	*	*	74	54	*	*
9	21618	*	*	*	*	*	74	54	*	*
10	24020	*	*	*	*	*	74	54	*	*
11	25000	*	*	*	*	*	74	54	*	*

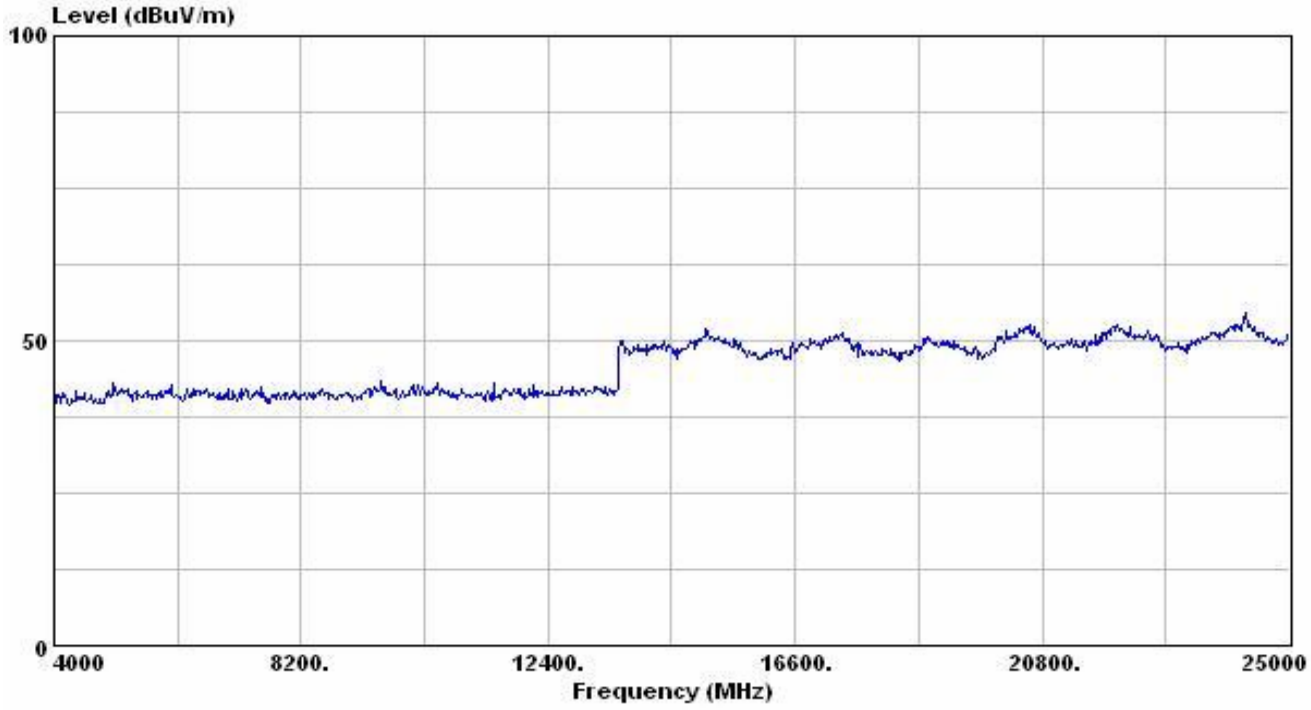
Note:

1. Emission Level (dBuV/m) = Reading Data + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “*“: The emission is too low to be measured.

1GHz~4GHz



4GHz~25GHz



Test Model : **Channel 0(2402MHz), Mode 1, Continuously Receiving**

Test Distance : 3m **Tester** : Bill

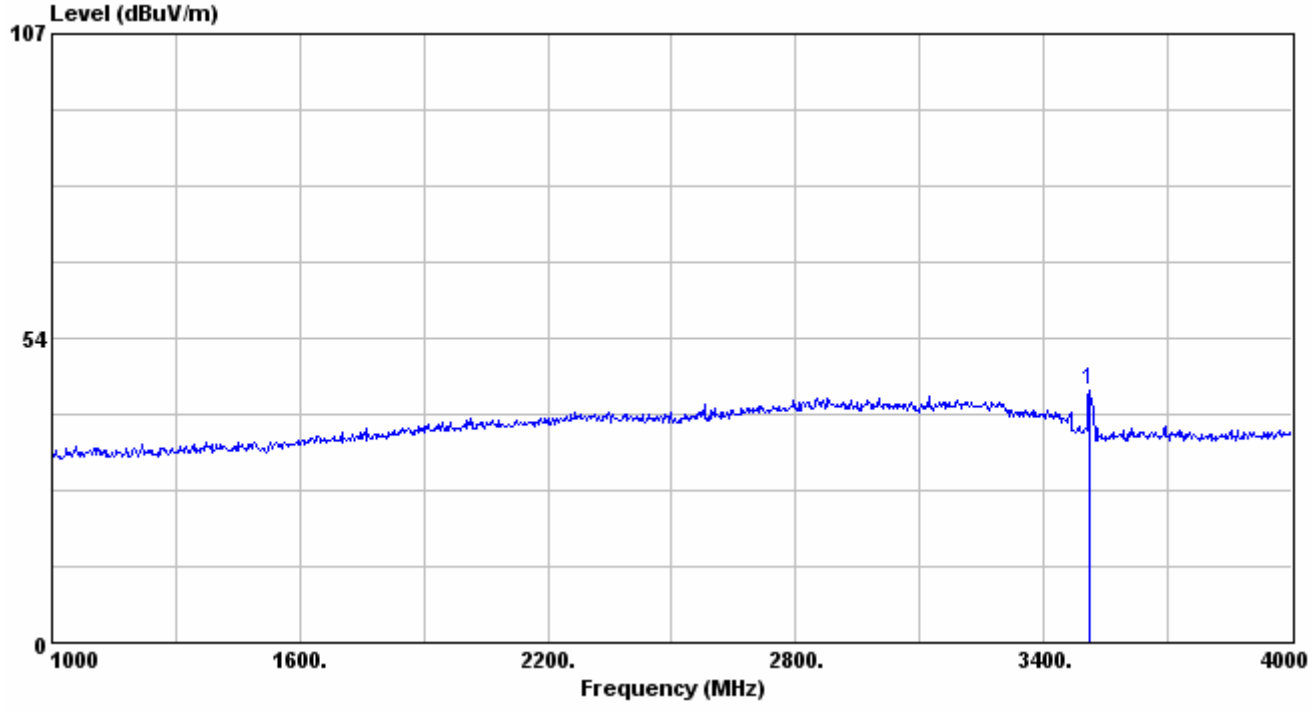
Antenna Polarization : Horizontal **Frequency Range :**1GHz~25GHz

	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
1	3511	43.84	*	0.44	44.28	*	74	54	29.72	*
2	4804	*	*	*	*	*	74	54	*	*
3	7206	*	*	*	*	*	74	54	*	*
4	9608	*	*	*	*	*	74	54	*	*
5	12010	*	*	*	*	*	74	54	*	*
6	14412	*	*	*	*	*	74	54	*	*
7	16814	*	*	*	*	*	74	54	*	*
8	19216	*	*	*	*	*	74	54	*	*
9	21618	*	*	*	*	*	74	54	*	*
10	24020	*	*	*	*	*	74	54	*	*
11	25000	*	*	*	*	*	74	54	*	*

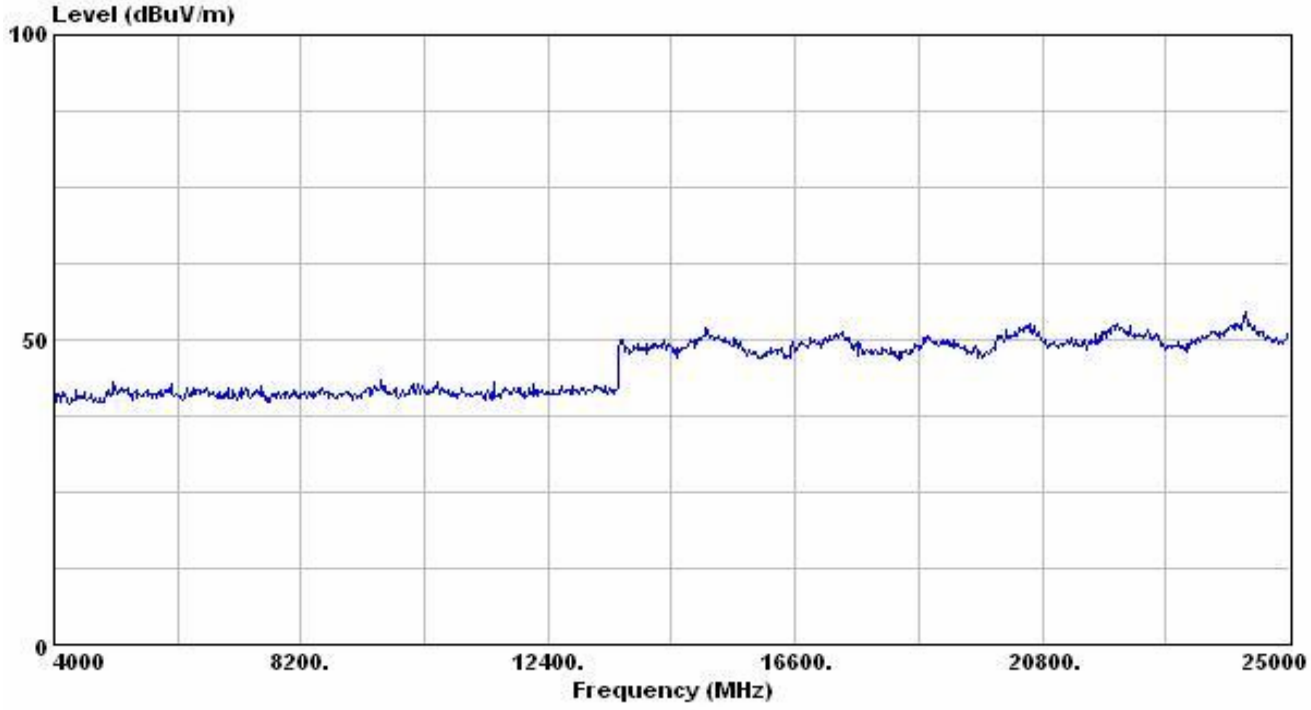
Note:

1. Emission Level (dBuV/m) = Reading Data + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “*“: The emission is too low to be measured.

1GHz~4GHz



4GHz~25GHz



Test Model : **Channel 39(2441MHz), Mode 1, Continuously Receiving**

Test Distance : 3m **Tester** : Bill

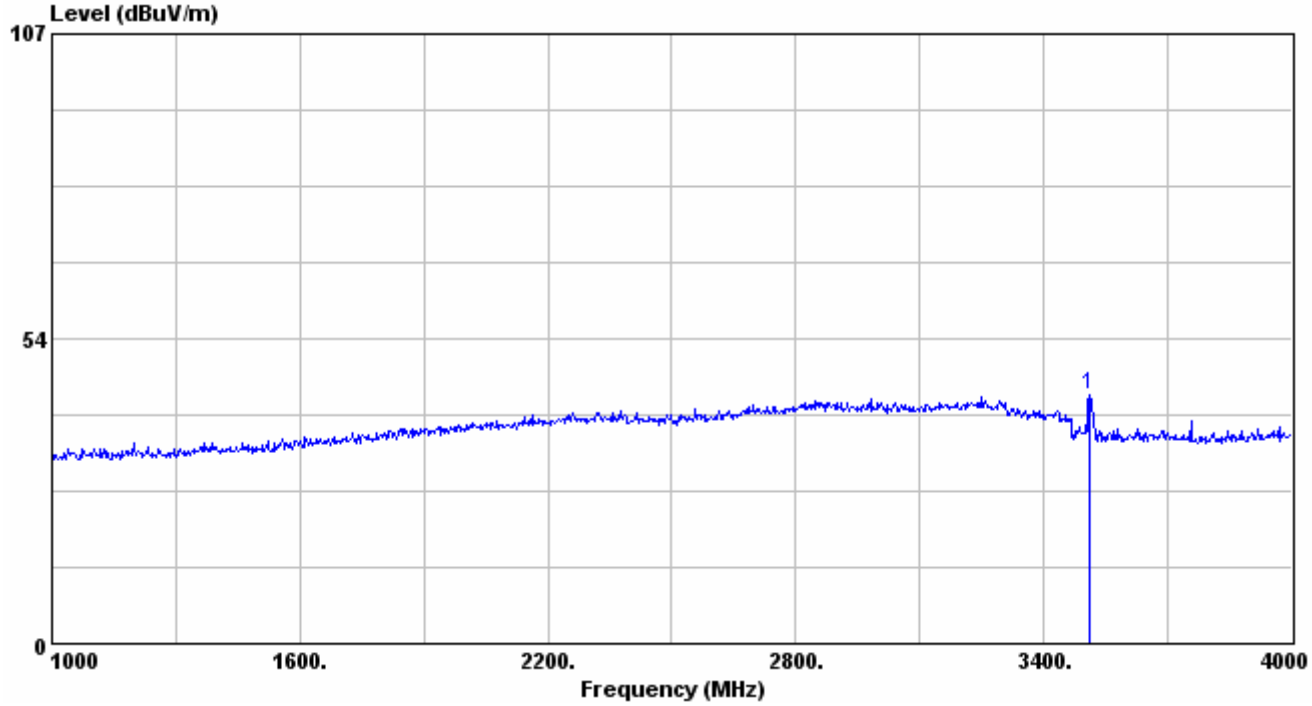
Antenna Polarization : Vertical **Frequency Range** :1GHz~25GHz

	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
1	3511	43.38	*	0.44	43.82	*	74	54	30.18	*
2	4882	*	*	*	*	*	74	54	*	*
3	7323	*	*	*	*	*	74	54	*	*
4	9764	*	*	*	*	*	74	54	*	*
5	12205	*	*	*	*	*	74	54	*	*
6	14646	*	*	*	*	*	74	54	*	*
7	17087	*	*	*	*	*	74	54	*	*
8	19528	*	*	*	*	*	74	54	*	*
9	21969	*	*	*	*	*	74	54	*	*
10	24410	*	*	*	*	*	74	54	*	*
11	25000	*	*	*	*	*	74	54	*	*

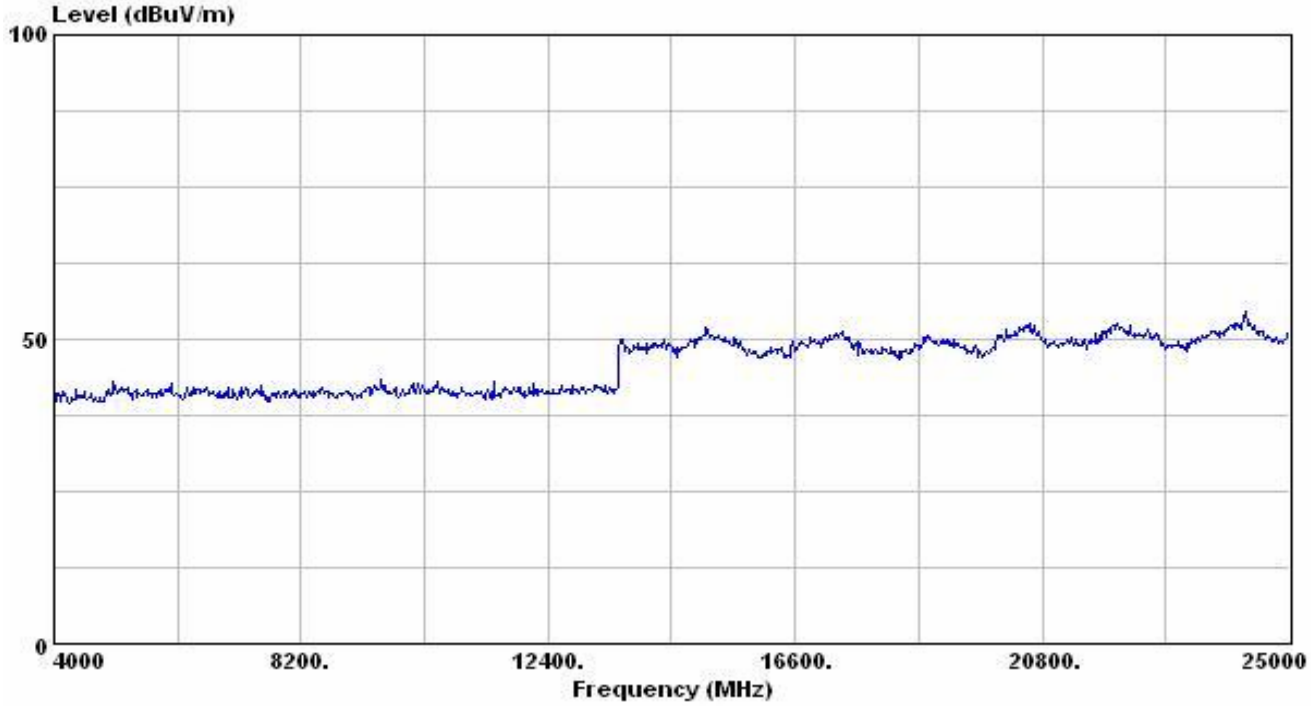
Note:

1. Emission Level (dBuV/m) = Reading Data + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “*“: The emission is too low to be measured.

1GHz~4GHz



4GHz~25GHz



Test Model : **Channel 39(2441MHz), Mode 1, Continuously Receiving**

Test Distance : 3m **Tester** : Bill

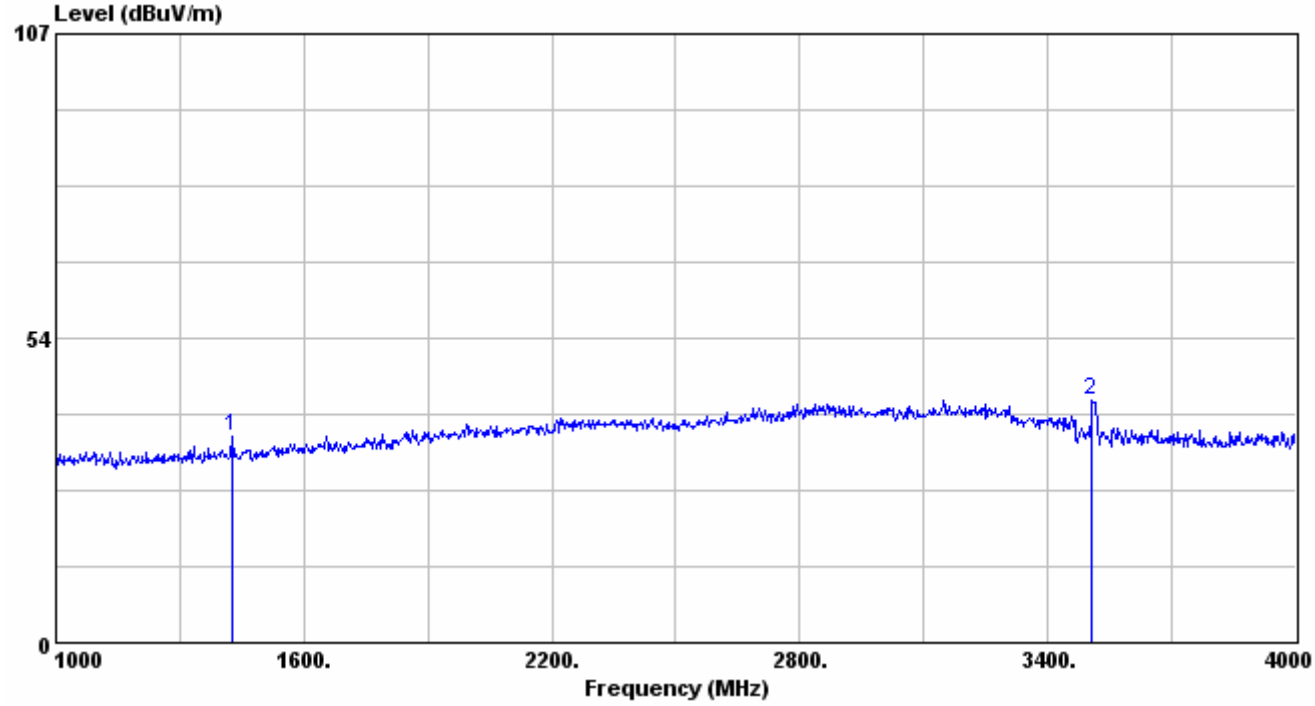
Antenna Polarization : Horizontal **Frequency Range** :1GHz~25GHz

	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
1	1426	42.14	*	-6.03	36.11	*	74	54	37.89	*
2	3508	42.12	*	0.43	42.55	*	74	54	31.45	*
3	4882	*	*	*	*	*	74	54	*	*
4	7323	*	*	*	*	*	74	54	*	*
5	9764	*	*	*	*	*	74	54	*	*
6	12205	*	*	*	*	*	74	54	*	*
7	14646	*	*	*	*	*	74	54	*	*
8	17087	*	*	*	*	*	74	54	*	*
9	19528	*	*	*	*	*	74	54	*	*
10	21969	*	*	*	*	*	74	54	*	*
11	24410	*	*	*	*	*	74	54	*	*
12	25000	*	*	*	*	*	74	54	*	*

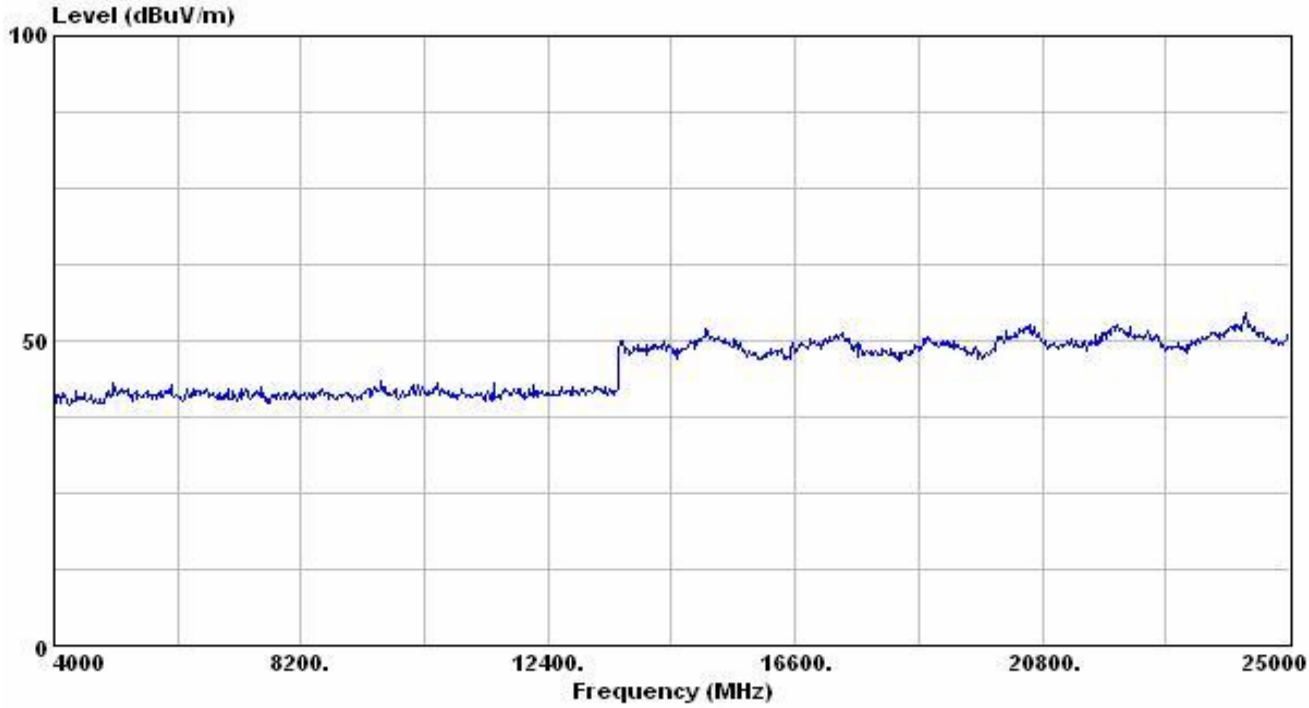
Note:

1. Emission Level (dBuV/m) = Reading Data + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “*“: The emission is too low to be measured.

1GHz~4GHz



4GHz~25GHz



Test Model : **Channel 78(2480MHz), Mode 1, Continuously Receiving**

Test Distance : 3m **Tester** : Bill

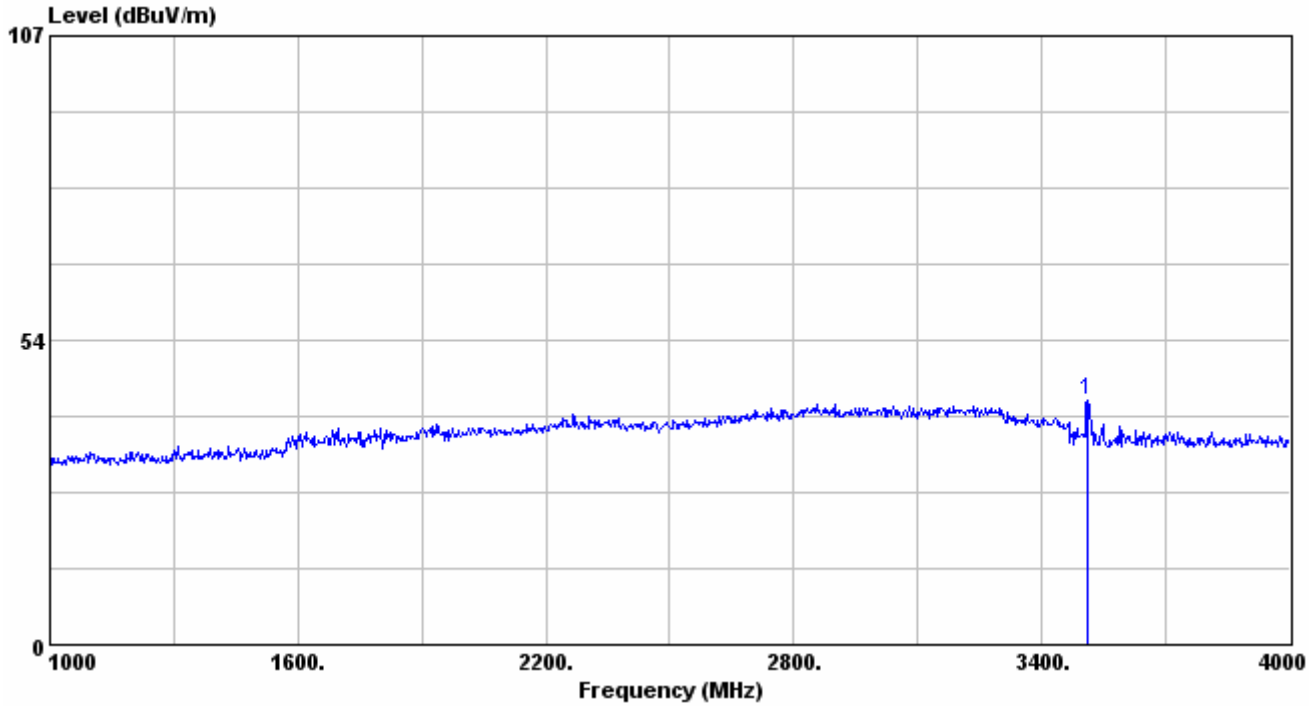
Antenna Polarization : Vertical **Frequency Range :**1GHz~25GHz

	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
1	3511	42.43	*	0.44	42.87	*	74	54	31.13	*
2	4960	*	*	*	*	*	74	54	*	*
3	7440	*	*	*	*	*	74	54	*	*
4	9920	*	*	*	*	*	74	54	*	*
5	12400	*	*	*	*	*	74	54	*	*
6	14880	*	*	*	*	*	74	54	*	*
7	17360	*	*	*	*	*	74	54	*	*
8	19840	*	*	*	*	*	74	54	*	*
9	22320	*	*	*	*	*	74	54	*	*
10	24800	*	*	*	*	*	74	54	*	*
11	25000	*	*	*	*	*	74	54	*	*

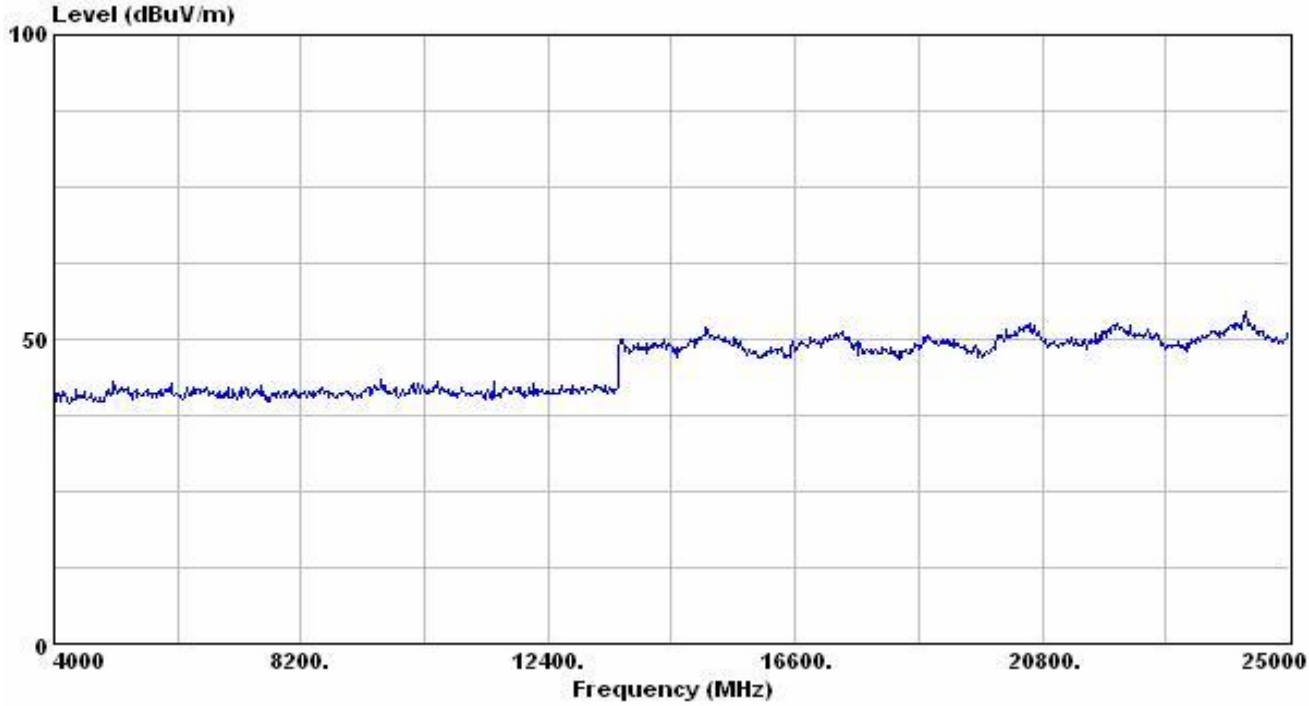
Note:

1. Emission Level (dBuV/m) = Reading Data + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “*“: The emission is too low to be measured.

1GHz~4GHz



4GHz~25GHz



Test Model : **Channel 78(2480MHz), Mode 1, Continuously Receiving**

Test Distance : 3m **Tester** : Bill

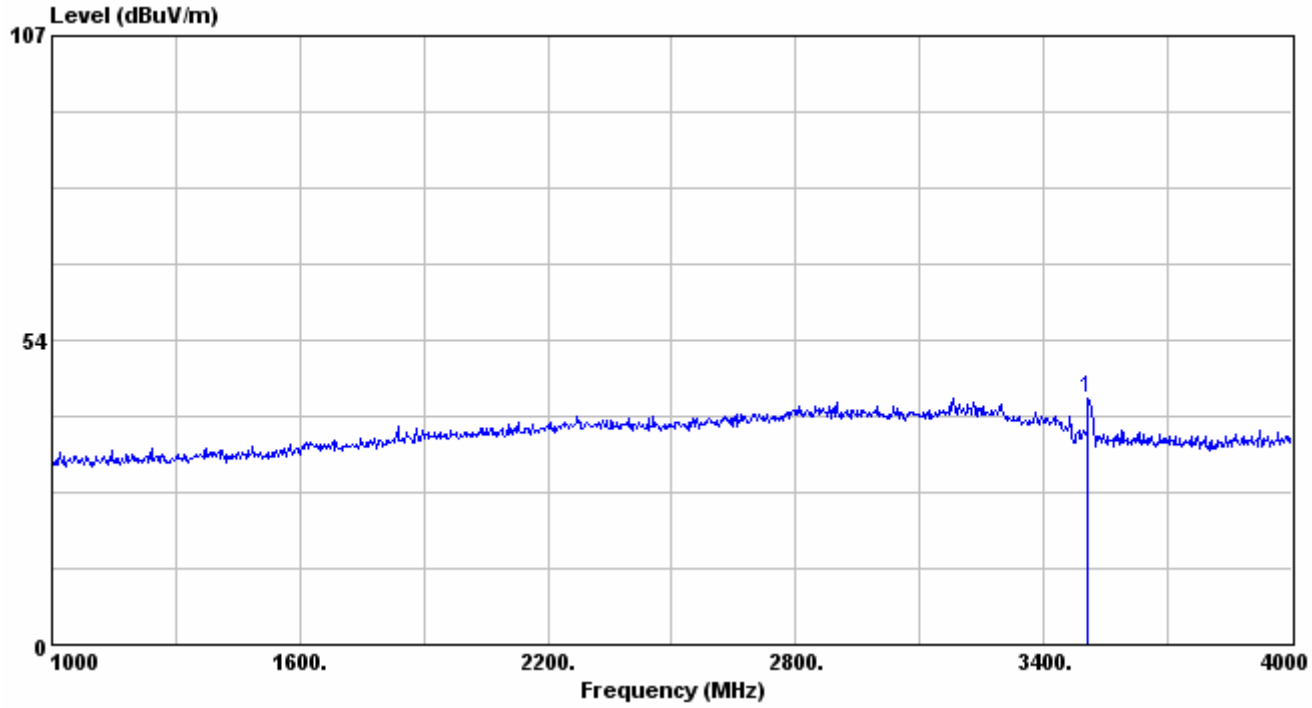
Antenna Polarization : Horizontal **Frequency Range** :1GHz~25GHz

	Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		PK.	AV.		PK.	AV.	PK.	AV.	PK.	AV.
1	3508	42.80	*	0.43	43.23	*	74	54	30.77	*
2	4960	*	*	*	*	*	74	54	*	*
3	7440	*	*	*	*	*	74	54	*	*
4	9920	*	*	*	*	*	74	54	*	*
5	12400	*	*	*	*	*	74	54	*	*
6	14880	*	*	*	*	*	74	54	*	*
7	17360	*	*	*	*	*	74	54	*	*
8	19840	*	*	*	*	*	74	54	*	*
9	22320	*	*	*	*	*	74	54	*	*
10	24800	*	*	*	*	*	74	54	*	*
11	25000	*	*	*	*	*	74	54	*	*

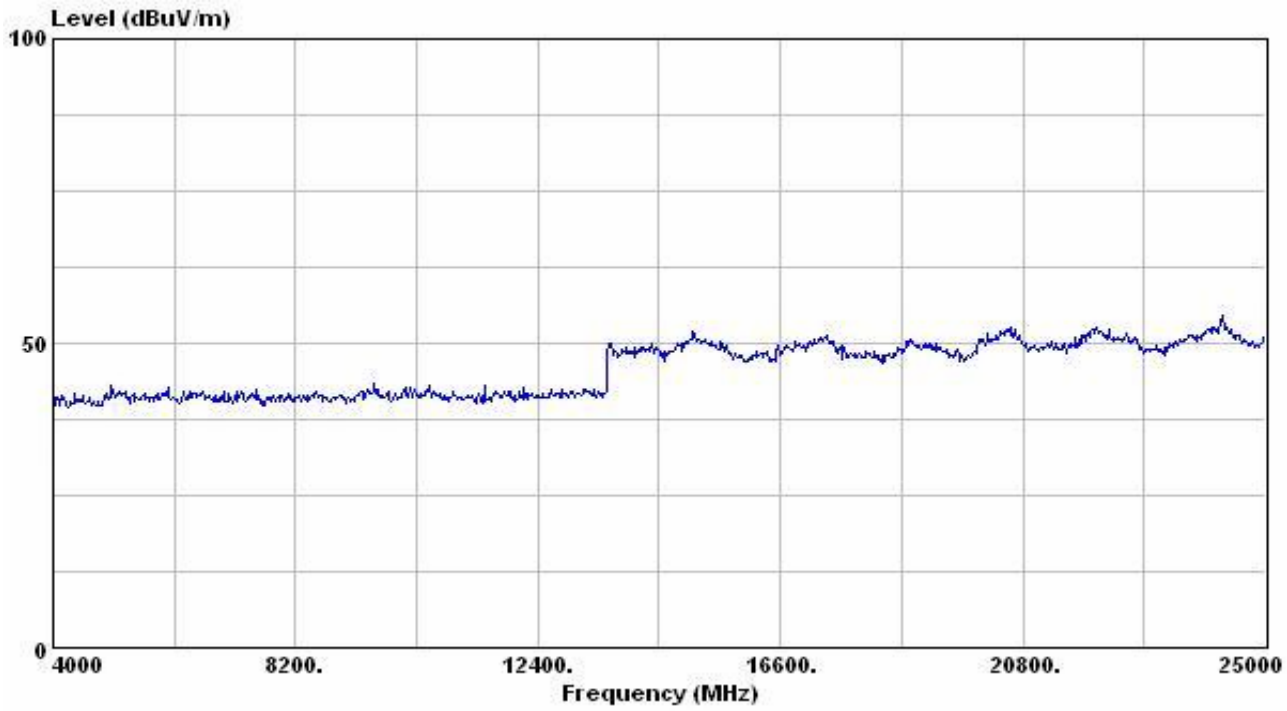
Note:

1. Emission Level (dBuV/m) = Reading Data + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Pre-amplifier.
3. Margin (dB) = Limit–Emission Level.
4. PK. and AV. are abbreviation of peak and average respectively.
5. “*“: The emission is too low to be measured.

1GHz~4GHz



4GHz~25GHz



7 Dwell Time

Result: Pass

7.1 Applied standard

According to 15.247(a)(1)(iii), frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

7.2 Measurement Procedure

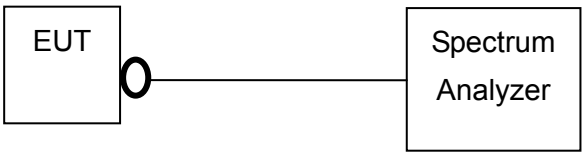
a. The EUT was set up per the test configuration figured in the next section of this chapter to simulate the typical usage per the user's manual.

b. A software provided by client enabled the EUT to transmit data with the same packet type and measure the single packet duration time.

c. Change the transmitting packet type amd repeat the step b

d. Calculate the dwell time and compare with the required limit.

7.3 Test configuration



7.4 Test Instruments

Test Site and Equipment	Manufacturer	Model No./ Serial No.	Last Calibration Date	Calibration Due Date
Shielded Room	ETS.LINDGREN	TR4/ 15353-F	NCR	NCR
Spectrum Analyzer	Agilent	E4407B/ MY45106795	March 3,2006	March 3,2007

Note:

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

Instrument Setting

RBW	VBW	Span	Detector	Comment
1MHz	3MHz	0Hz	Peak	

Climatic Condition

Ambient Temperature：25°C ; Relative Humidity : 74%

7.5 Test Data

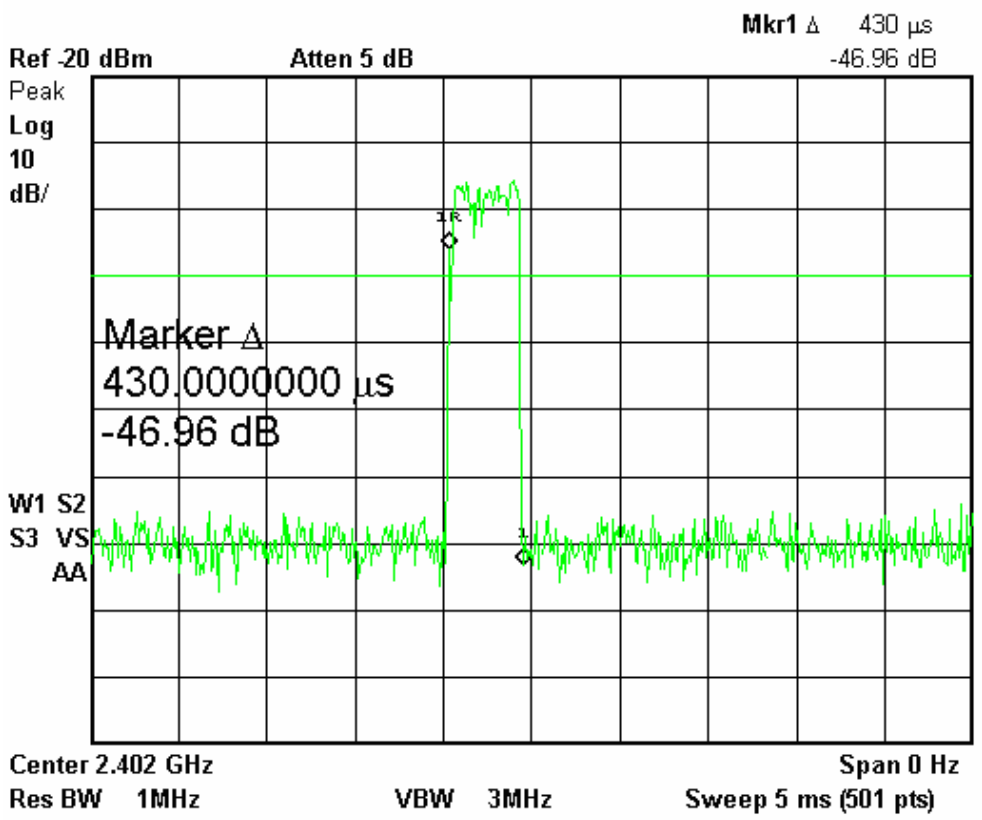
Test Mode : Mode 1, Continuously Transmitting **Tester :** Bill

Operating Frequency (MHz)	Data Type	Single Packet Duration Time (ms)	Hopping Repetition Rate (1/s)	Dwell Time (ms)	Limit (ms)	Margin (ms)
2402	DH1	0.43	10.13	137.65	400	262.35
2402	DH3	1.68	5.06	268.63	400	131.37
2402	DH5	3.00	3.38	320.43	400	79.57

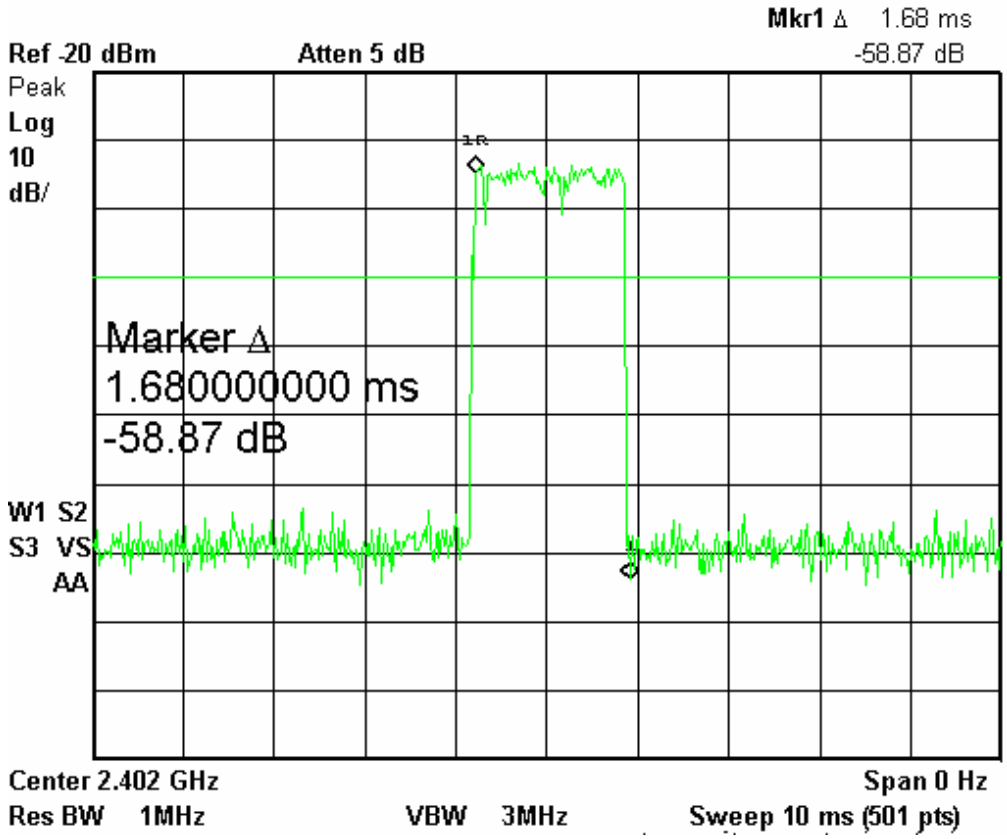
Note:

1. Hopping Cycle(second) = 79 X 0.4 = 31.6
2. Hopping Repetition Rate(1/s) :DH1=1600/79/2=10.13 ; DH3=1600/79/4=5.06
   DH5=1600/79/6=3.38
3. Dwell Time (ms) = Single Packet Duration Time X Hopping repetition Rate X Hopping Cycle
4. Margin (ms) = Limit – Dwell Time

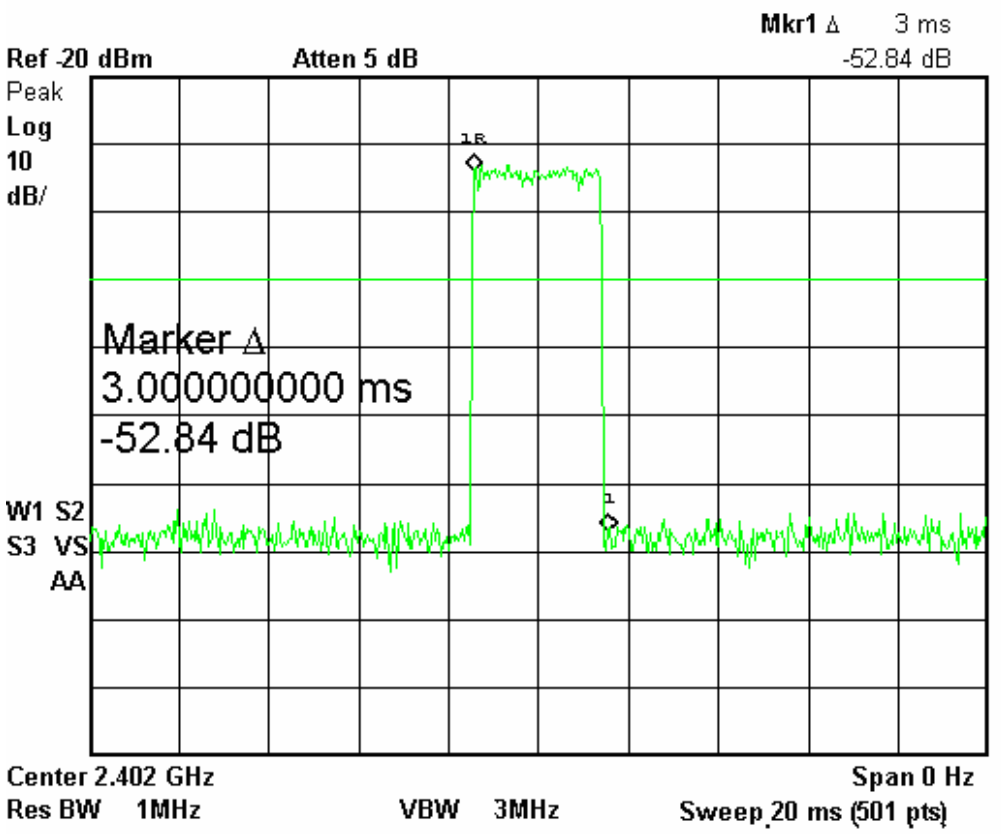
DH1


Mkr1 Δ 430 µs
Ref -20 dBm
Atten 5 dB
-46.96 dB
Peak
Log
10
dB/
Marker Δ
430.0000000 µs
-46.96 dB
W1 S2
S3 VS
AA
Center 2.402 GHz
Span 0 Hz
Res BW 1MHz
VBW 3MHz
Sweep 5 ms (501 pts)

DH3


Mkr1 Δ 1.68 ms
Ref -20 dBm
Atten 5 dB
-58.87 dB
Peak
Log
10
dB/
Marker Δ
1.680000000 ms
-58.87 dB
W1 S2
S3 VS
AA
Center 2.402 GHz
Span 0 Hz
Res BW 1MHz
VBW 3MHz
Sweep 10 ms (501 pts)

DH5


Mkr1 Δ 3 ms
Ref -20 dBm
Atten 5 dB
-52.84 dB
Peak
Log
10
dB/
Marker Δ
3.000000000 ms
-52.84 dB
W1 S2
S3 VS
AA
Center 2.402 GHz
Span 0 Hz
Res BW 1MHz
VBW 3MHz
Sweep 20 ms (501 pts)

8 Conducted Emission Measurement

Result: Pass

8.1 Applied standard

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.

8.2 Measurement Procedure

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. 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 and 0.4 meters from the conducting wall of the shielded room. Also 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.

c. Connect the EUT's power source to the appropriate power mains through the LISN.

d. All the other peripherals are connected to the 2nd LISN, if any.

e. The LISN was placed 0.8 meters from the EUT and at least 0.8 meters from other units and other metal planes.

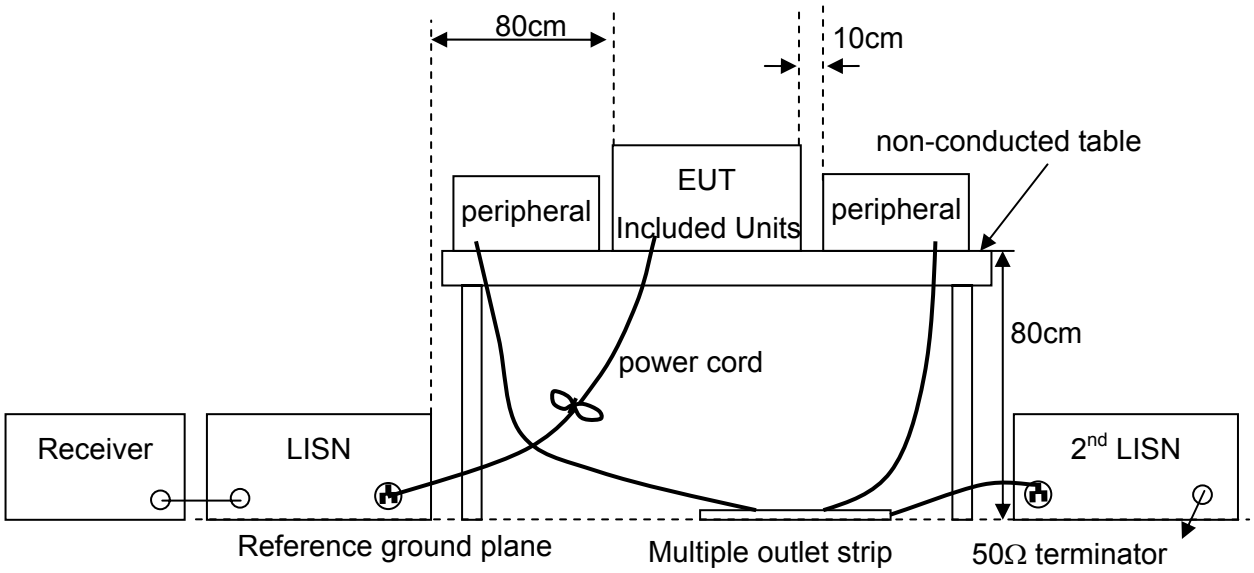
f. Measure the conducted emissions on each power line (Neutral Line and Line 1 – Hot side) of the EUT's power source by using the test receiver connected to the coupling RF output port of LISN.

g. Rapidly scan the signal from 150kHz to 30MHz by using the receiver through the Maximum-Peak detector to determine those frequencies associated with higher emission levels for each measured line.

h. Then measure the maximum level of conducted disturbance for each frequency found from step g. by using the receiver through the Quasi-Peak and Average detectors per CISPR 16-1.

i. Record the level for each frequency and compare with the required limit.

8.3 Test configuration



8.4 Test Instruments

Test Site and Equipment	Manufacturer	Model No./Serial No.	Last Calibration Date	Calibration Due Date
Test Receiver	R&S	ESCS 30/ **836858/021**	Jan. 11, 2006	Jan. 11, 2007
LISN	R&S	ESH2-Z5/ **836613/001**	Jan. 5, 2006	Jan. 5, 2007
2nd LISN	R&S	ENV4200/ **833209/010**	Jan. 5, 2006	Jan. 5, 2007
50Ω terminator	N/A	N/A/ **001**	Sept. 7, 2005	Sept. 7, 2006
Shielded room	ETS.LINDGREN	TR5/ **15353-F**	NCR	NCR

Note:

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

Instrument Setting

IF BW	Measurement Time	Detector	Trace	Comment
9kHz	1 second	Quasi-Peak / Average	Maxhold	

Climatic Condition

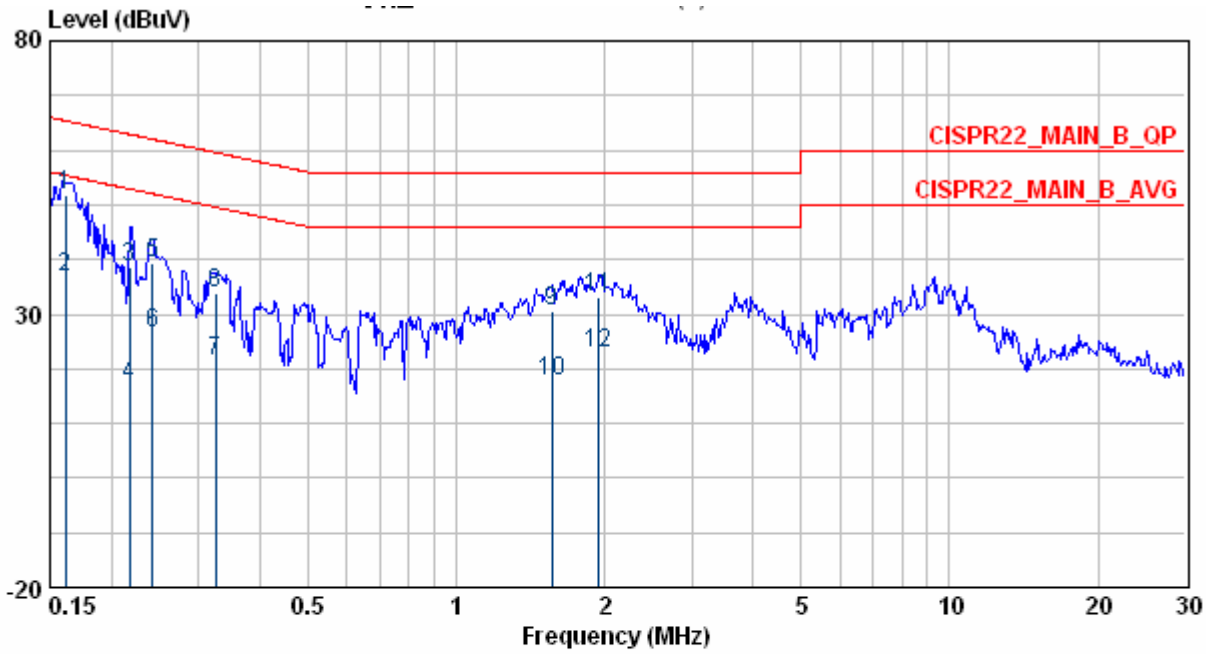
Ambient Temperature：25°C ; Relative Humidity : 74%

8.5 Test Data

Test Mode : **Mode 2**

Frequency Range : 150kHz~30MHz **Phase** : Line

Tester : CDC



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	cm		
1 @	0.16	51.63	0.16	51.47	65.38	-13.75	---	LINE	QP
2	0.16	36.89	0.16	36.73	55.38	-18.49	---	LINE	AVERAGE
3	0.22	38.71	0.17	38.54	62.92	-24.21	---	LINE	QP
4	0.22	17.08	0.17	16.91	52.92	-35.84	---	LINE	AVERAGE
5	0.24	39.26	0.16	39.10	62.04	-22.78	---	LINE	QP
6	0.24	26.42	0.16	26.26	52.04	-25.62	---	LINE	AVERAGE
7	0.33	21.56	0.16	21.40	49.57	-28.01	---	LINE	AVERAGE
8	0.33	34.01	0.16	33.85	59.57	-25.56	---	LINE	QP
9	1.56	30.39	0.31	30.08	56.00	-25.61	---	LINE	QP
10	1.56	17.64	0.31	17.33	46.00	-28.36	---	LINE	AVERAGE
11	1.95	33.01	0.33	32.68	56.00	-22.99	---	LINE	QP
12	1.95	23.03	0.33	22.70	46.00	-22.97	---	LINE	AVERAGE

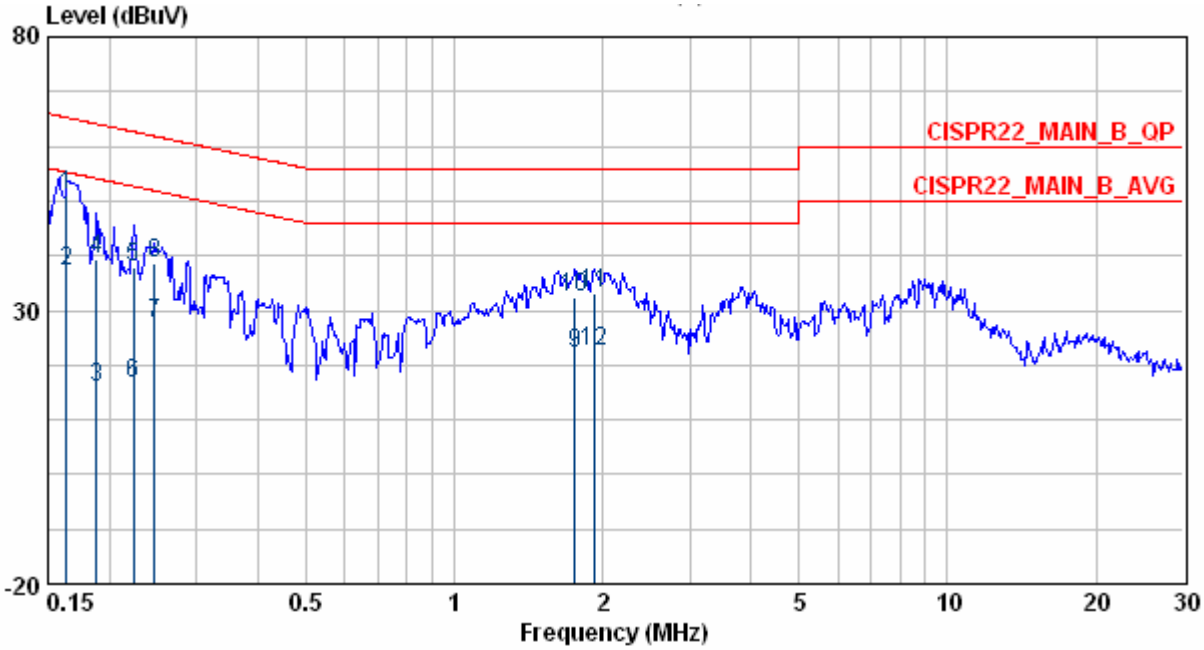
Note:

1. Emission Level = Reading Data + correction factor.
2. Correction factor = cable loss + insertion loss of LISN.
3. Over Limit = Limit–Emission level.
4. Q.P. and AV. are abbreviation of quasi-peak and average respectively.
5. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the EUT shall be deemed to meet both limits.

Test Mode : **Mode 2**

Frequency Range : 150kHz~30MHz **Phase** : Neutral

Tester : CDC



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	cm		
1 @	0.16	51.12	0.16	50.96	65.30	-14.17	---	NEUTRAL	QP
2	0.16	37.00	0.16	36.84	55.30	-18.29	---	NEUTRAL	AVERAGE
3	0.19	15.94	0.16	15.78	54.11	-38.16	---	NEUTRAL	AVERAGE
4	0.19	39.50	0.16	39.34	64.11	-24.60	---	NEUTRAL	QP
5	0.22	37.96	0.18	37.78	62.70	-24.74	---	NEUTRAL	QP
6	0.22	16.46	0.18	16.28	52.70	-36.24	---	NEUTRAL	AVERAGE
7	0.25	27.67	0.19	27.48	51.86	-24.20	---	NEUTRAL	AVERAGE
8	0.25	38.79	0.19	38.60	61.86	-23.08	---	NEUTRAL	QP
9	1.75	21.94	0.32	21.62	46.00	-24.06	---	NEUTRAL	AVERAGE
10	1.75	32.53	0.32	32.21	56.00	-23.47	---	NEUTRAL	QP
11	1.92	33.25	0.33	32.92	56.00	-22.75	---	NEUTRAL	QP
12	1.92	22.59	0.33	22.26	46.00	-23.41	---	NEUTRAL	AVERAGE

Note:

1. Emission Level = Reading Data + correction factor.
2. Correction factor = cable loss + insertion loss of LISN.
3. Over Limit = Limit–Emission level.
4. P.K., Q.P. and AV. are abbreviation of peak, quasi-peak and average respectively.
5. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the EUT shall be deemed to meet both limits.

9 Antenna Requirement

9.1 Applied standard

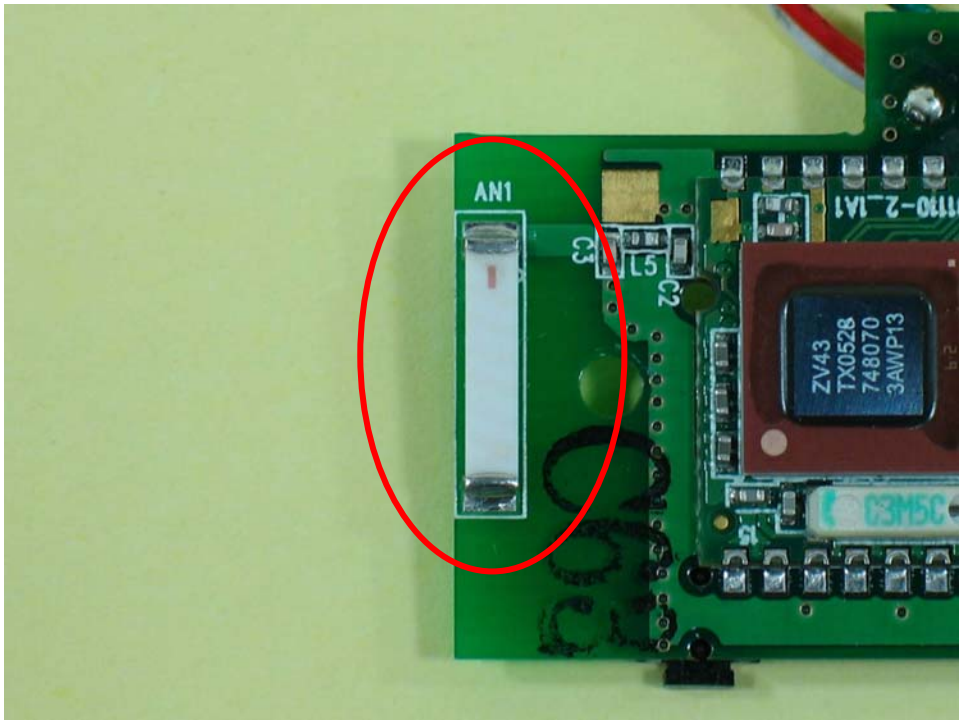
According to 15.247(b)(4), The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

9.2 Antenna Information

This antenna's relative information as follow:

Brand	Model	Frequency Range (MHz)	Gain (dBi)	Comment
GainForce	AT9520-B2R4HAA_	2400 ~ 2500	3.0	

Antenna Position:



9.3 Result

Gain of the antenn is less than 6dBi.