FCC Test Report

for

EP1

Trade Name	**:**	**INFINITER**
Model Number	**:**	**EP1**
FCC ID	**:**	**S751240EP1**
Report Number	**:**	**RF-U070-0803-024**
Date of Receipt	**:**	**March 6, 2008**
Date of Report	**:**	**May 12, 2008**

Prepared for

Quarton inc.

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

Prepared by

Central Research Technology Co.

EMC Test Laboratory

No.11, Lane41, Fushuen St., Jungshan Chiu, Taipei, Taiwan, 104, R.O.C.

NVLAP LAB CODE 200575-0

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Certification of Compliance

Equipment under Test	**: EP1**
Trade Name	**: INFINITER**
Model No.	**: EP1**
FCC ID	**: S751240EP1**
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	**: March 6~7, 2008**
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 (Cathy Chen/ Technical Manager) , **DATE :** March 20, 2008

APPROVED BY : J. Y. Shih (Tsun-Yu Shih/Laboratory Head) , **DATE :** Mar. 20, 2008

Contents

1 General Description

1.1 General Description of EUT

Equipment under Test	:	EP1
Model No.	:	EP1
Power in	:	3.0Vdc
Test Voltage	:	3.0Vdc (CR2303 Battery*1)
Manufacturer	:	Quarton inc.
Channel Numbers	:	79
Frequency Range	:	2402~2480MHz
Frequency Spacing	:	1MHz
Modulation	:	GFSK
Function Description	:	

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 supplied by manufacturer.

1.2 Test Methodology

For this EUT, radiated emission was performed according to the producres illustrated in ANSI C63.4:2003 and other required measurements were illustrated in separate sections of this test report for detail.

1.3 Applied standards

(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
960 – 1610	3	500	54.0
above 1610	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(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).

(7) Restricted Band

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
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

1.4 The Support Units

No.	Unit	Model No./ Serial No.	Trade Name	Power Code	Supported by lab.
NA	*	*	*	*	*

1.5 Layout of Setup

EUT

Connecting Cables :

No.	Cable	Length	Shielded	Core	Shielded Backshell	Supported by lab.	Note
NA	*	*	*	*	*	*	*

Justification :

For both conducted and radiated emission, the system was configured for typical fashion as a customer could normal use it. The peripherals other than EUT was connected in normally 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 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.

Test Mode:

Test Mode	Descrption	Remark
Mode 1	Position X-axis	Toe define the three axes test setup, please refer to the attachedment 1.
Mode 2	Position Y-axis	
Mode 3	Position Z-axis	

After pre-test the peak output power of these modes, we find the worst case is **mode 1**, and perform all test with test mode 1.

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.
☐ TR10	3m semi-anechoic chamber (9m × 6m × 6m)	
☑ TR11	3m semi-anechoic chamber (9m × 6m × 6m)	
☐ TR4	Shielding Room (5m×3m×3m)	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 / 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)	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, TW-1021	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	Germany	TUV	10021687-2007	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_{cispr} in table 1 of CISPR 16-4-2.

Test Item	Measurement Uncertainty	
Carrier Frequencies Separation	For 2.4GHz: 913.7Hz	
Radiated Emission: (30MHz~200MHz)	Horizontal 2.8dB；Vertical 3.5dB	
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 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 Test Instruments

Test Site and Equipment	Manufacturer	Model No./ Serial No.	Last Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	E4407B/MY45106795	March 11, 2007	March 11, 2008
Antenna	EMCO	3117/ 57416	Feb.24, 2008	Feb.24, 2009
Semi-anechoic Chamber	ETS.LINDGREN	TR11/906-A	July 1, 2007	July 1, 2008

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
1MHz	3MHz	Peak	Maxhold	

Climatic Condition

Ambient Temperature：28°C ; Relative Humidity : 64%

2.3 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. Calculated the output power by following equation and compared with the required limit.:

Equation of the E-field strength transferring to the output power:

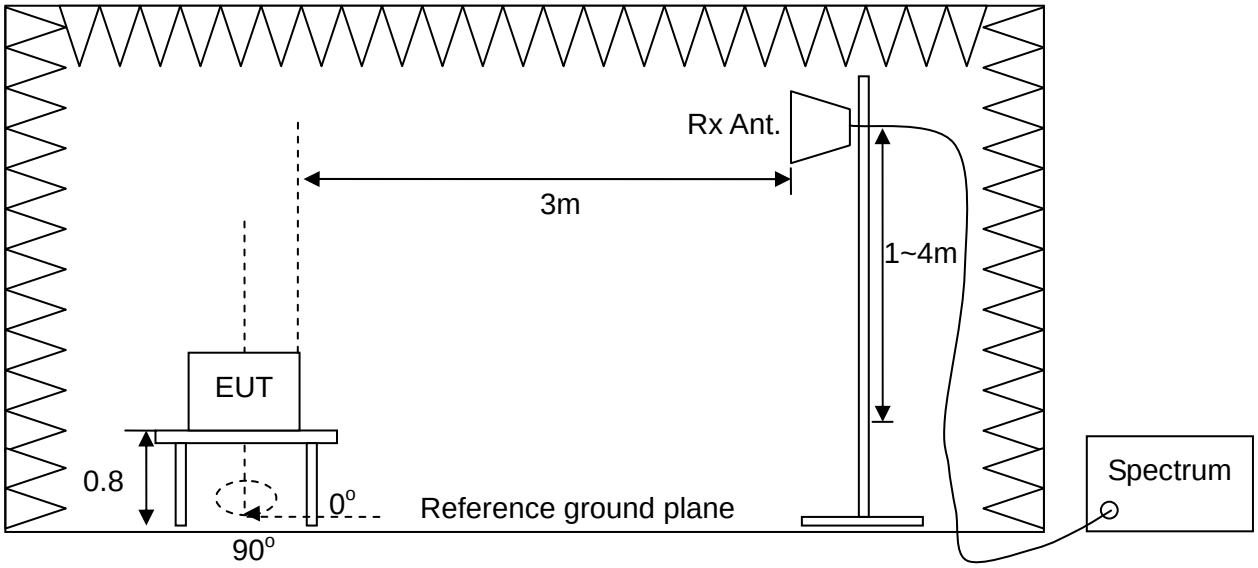
$$P = \frac{(ExD)^2}{30 \times G}$$

where P : output power (W)
E : E-field strength (V/m)
D : measurement distance = 3m
G : Gain of TX antenna = 2.78(dBi)

After calculating

$$P(dBm) = E(dBuV/m) - 90 + 20\log 3 - 10\log 30 - 2.78$$
$$= E(dBuV/m) - 90 + 9.54 - 14.77 - 2.78$$
$$= E(dBuV/m) - 98.01$$

2.4 Test configuration



2.5 Test Data

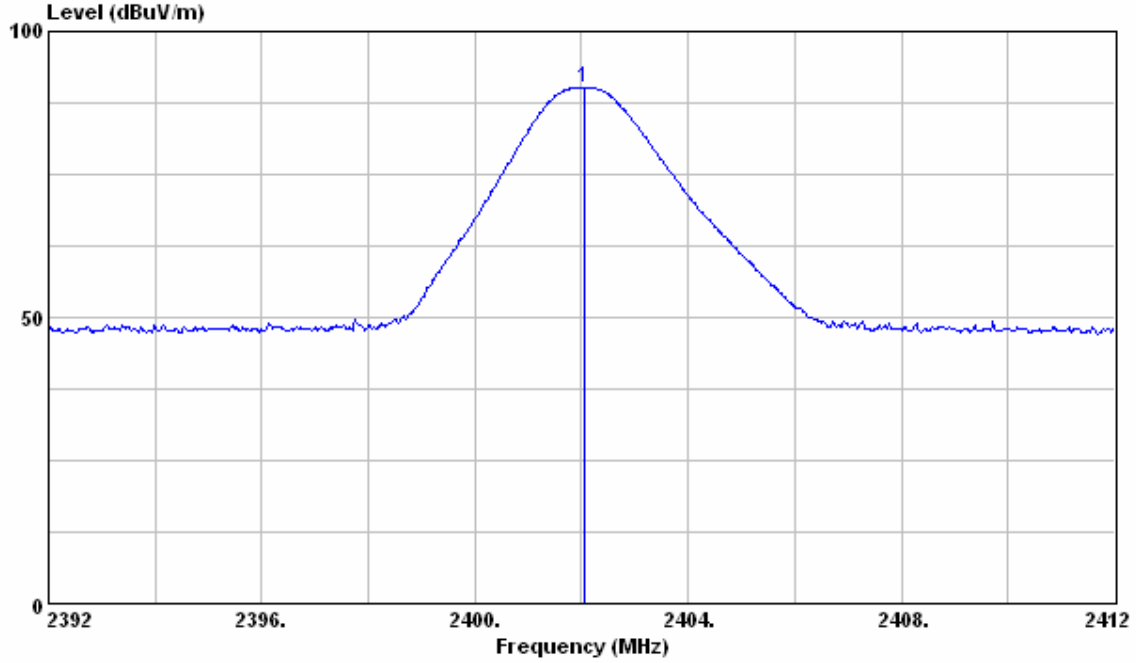
Test Mode : Continuous Transmitting **Tester : Bill**

Operating Frequency (MHz)	Polarization	Reading Data (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Peak Output Power (dBm)	Limit (dBm)	Margin (dB)
2402	V	86.48	3.70	90.18	-7.83	20.9	28.73
2402	H	88.57	3.70	92.27	-5.74	20.9	26.64
2441	V	88.47	3.70	92.17	-5.84	20.9	26.74
2441	H	89.64	3.70	93.34	-4.67	20.9	25.57
2480	V	90.88	3.70	94.58	-3.43	20.9	24.33
2480	H	90.86	3.70	94.56	-3.45	20.9	24.35

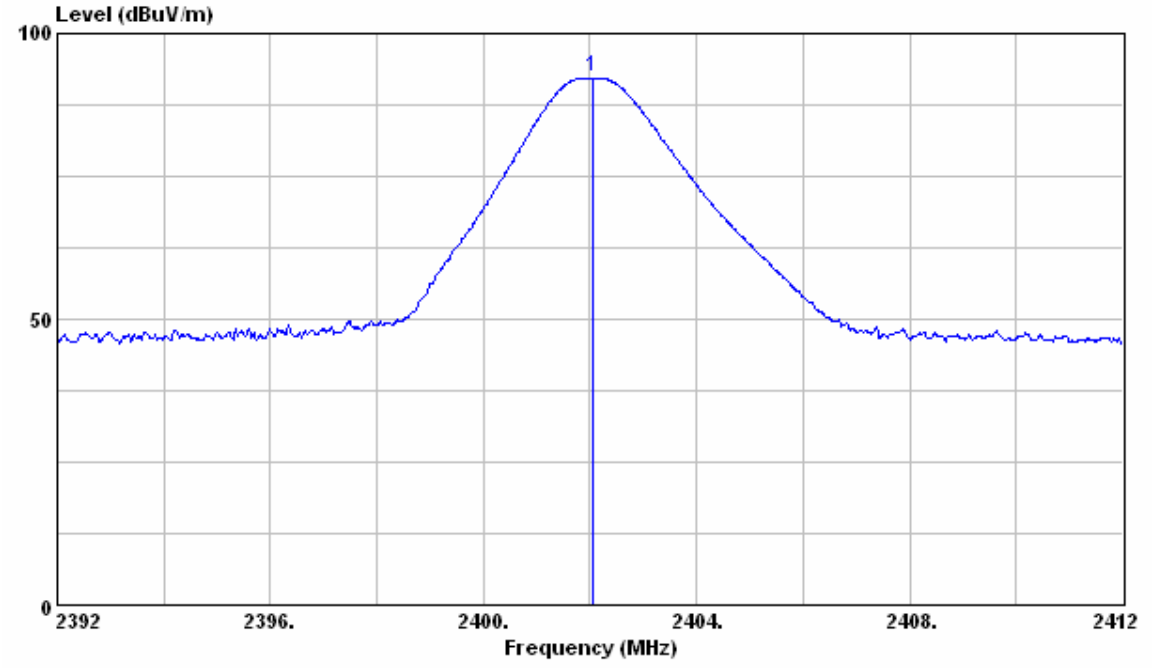
Note:

1. Correction Factor (dB/m) = Antenna Factor + Cable Loss – Gain of Pre-amplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Peak Output Power (dBm) = Emission Level – 98.01
4. Margin (dB) = Limit – Maximum Peak Output Power

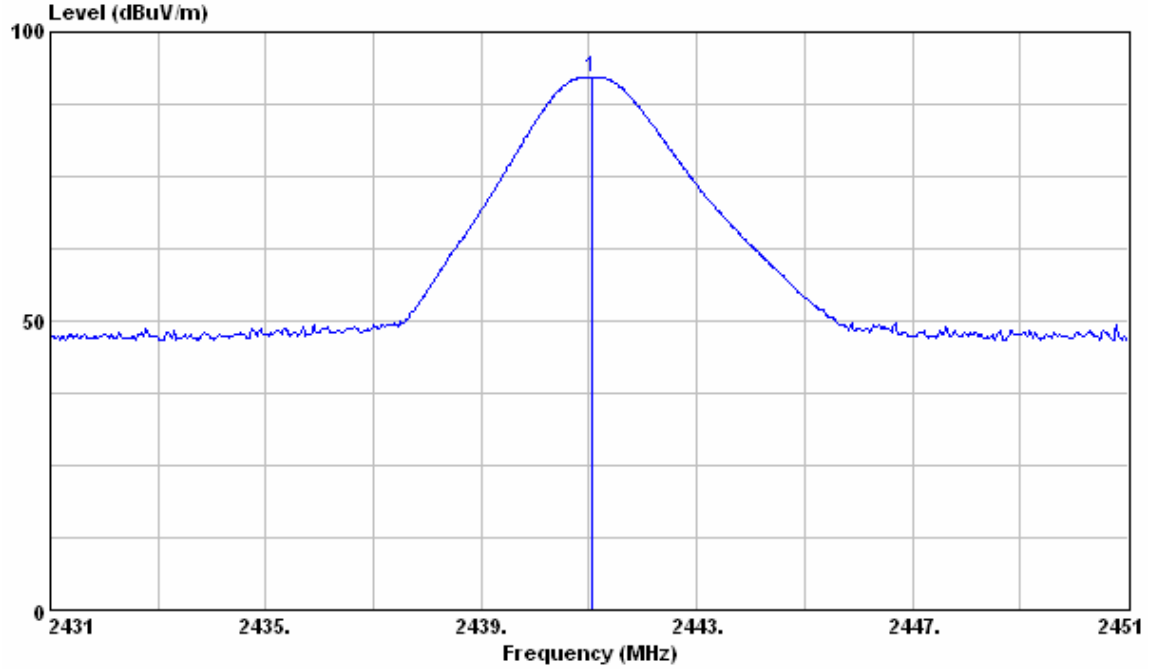
Low Channel (2402MHz), Vertical Polarization



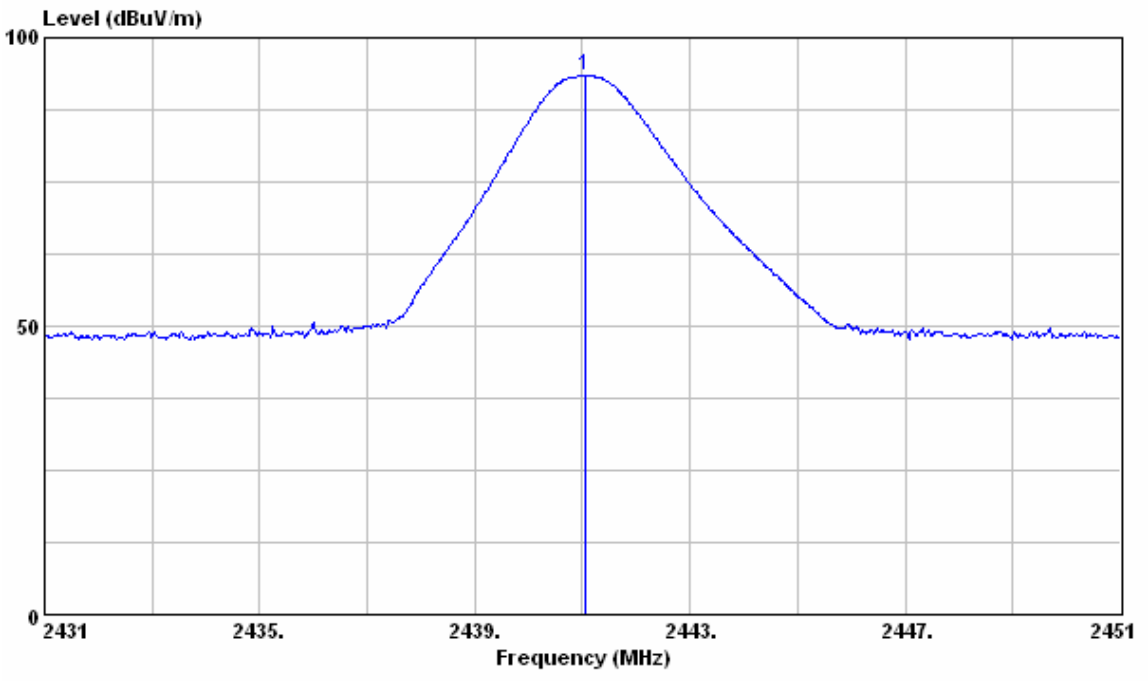
Low Channel (2402MHz), Horizontal Polarization



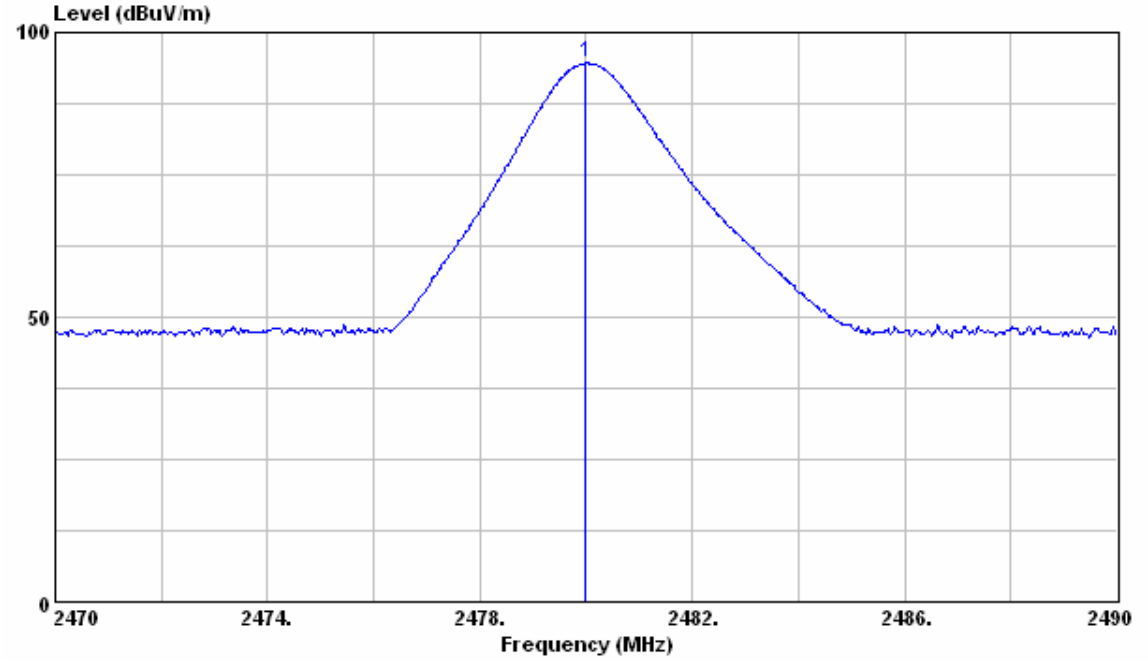
Middle Channel (2441MHz), Vertical Polarization



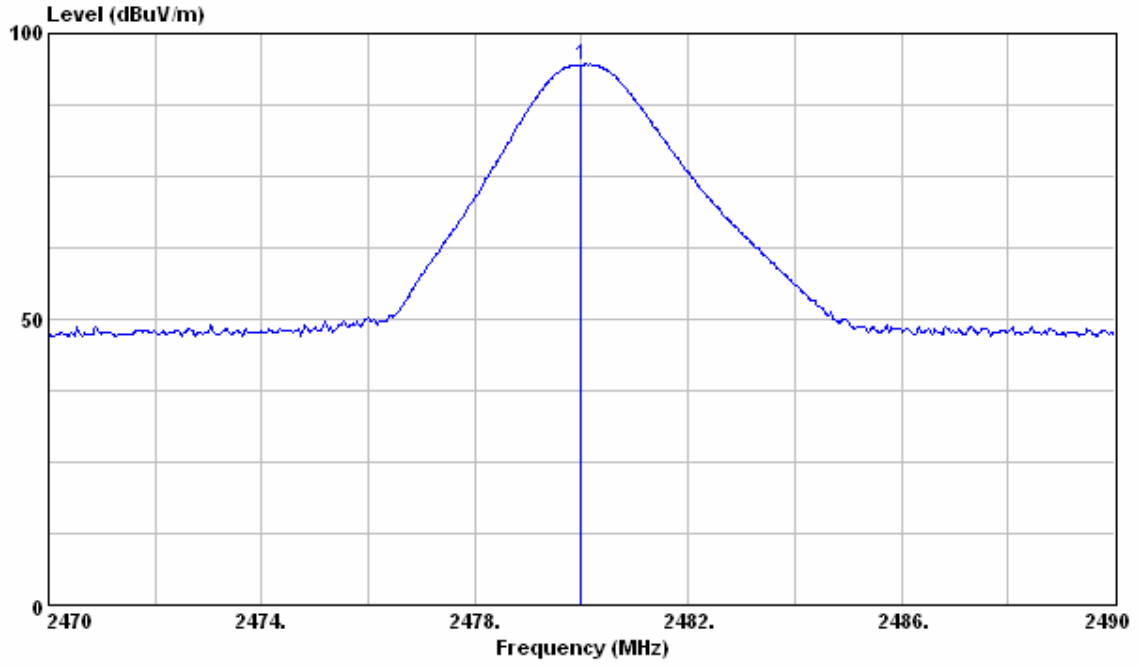
Middle Channel (2441MHz), Horizontal Polarization



High Channel (2480MHz), Vertical Polarization



High Channel (2480MHz), Horizontal Polarization



3 Band Edge

Result: Pass

3.1 Applied standard

According to 15.247(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).

3.2 Test Instruments

Test Site and Equipment	Manufacturer	Model No./ Serial No.	Last Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	E4407B/MY45106795	March 11, 2007	March 11, 2008
Antenna	EMCO	3117/ 57416	Feb.24, 2008	Feb.24, 2009
Pre-amplifier	MITEQ	AFS6-02001800-35-10P-6/ 866643	Dec. 18, 2007	Dec. 18, 2008
Semi-anechoic Chamber	ETS.LINDGREN	TR11/906-A	July 1, 2007	July 1, 2008

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	100kHz Bandedge
1MHz	3MHz	Peak	Maxhold	Resistricted band Measurement Peak
1MHz	10Hz	Peak	Maxhold	Resistricted band Measurement Average

Climatic Condition

Ambient Temperature：28°C ; Relative Humidity : 64%

3.3 Measurement Procedure

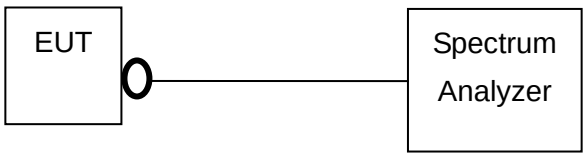
a. The EUT was set up per the test configuration figured in the next section of this chapter to simulate the typical usage per the user's manual.

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

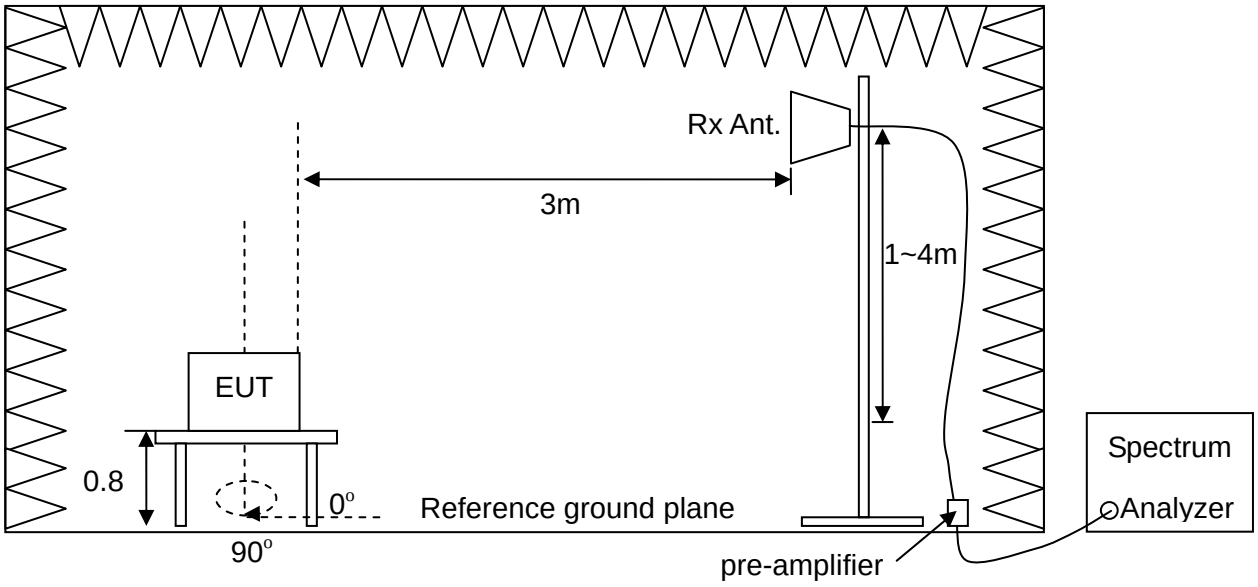
c. Measure the band edge and compare with the required limit.

3.4 Test configuration

Conducted Measurement (if any)



Radiated Measurement



3.5 Test Data

Bandedge Measurement

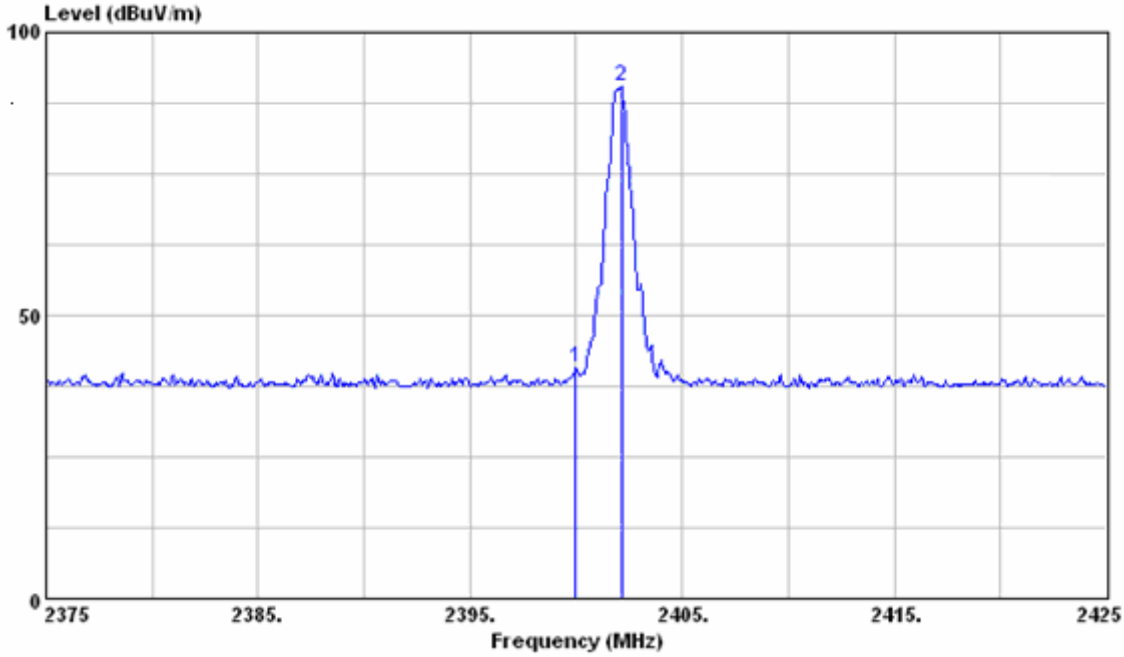
Test Mode : Continuous Transmitting **Tester :** Bill

Operating Frequency (MHz)	Antenna Polarization	Frequency (MHz)	Main Strength Level (dBuV/m)	Bandedge Level (dBuV/m)	Attenuation (dB)	Limit (dB)	Margin (dB)
2402	V	2400.00	90.36	40.72	49.64	20	29.64
2402	H	2400.00	90.26	42.41	47.85	20	27.85
2480	V	2487.15	89.61	39.58	50.03	20	30.03
2480	H	2484.30	93.04	41.01	52.03	20	32.03

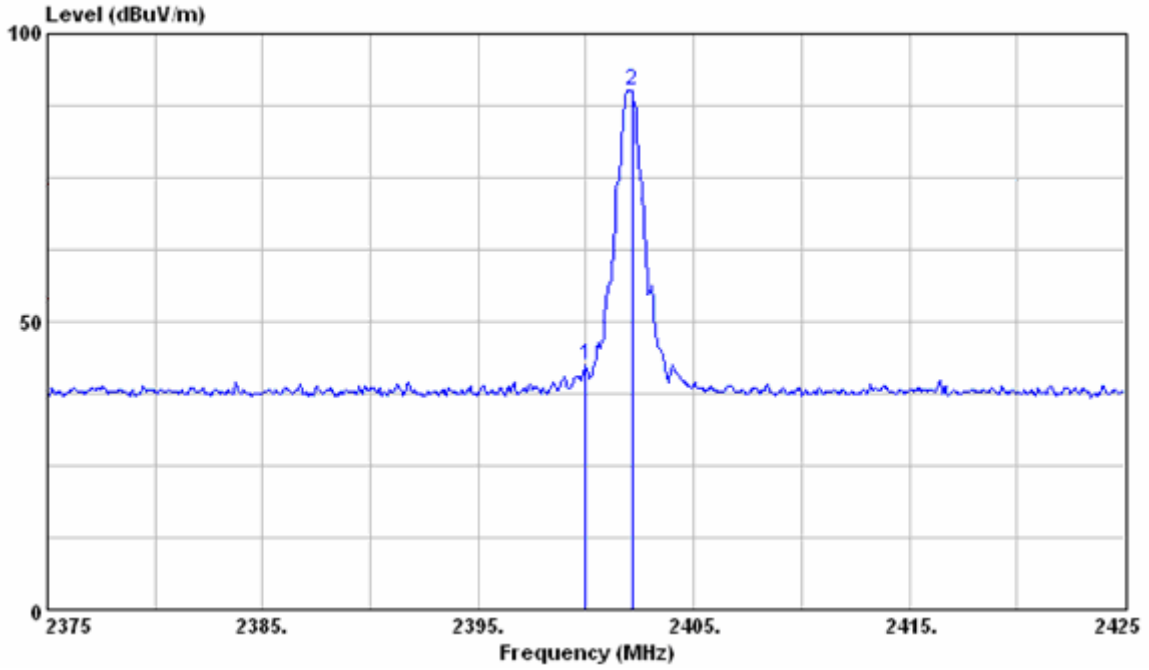
Note:

1. Attenuation (dB) = Main Strength Levell – Bandedge Level
2. Margin (dB) = Attenuation – Limit

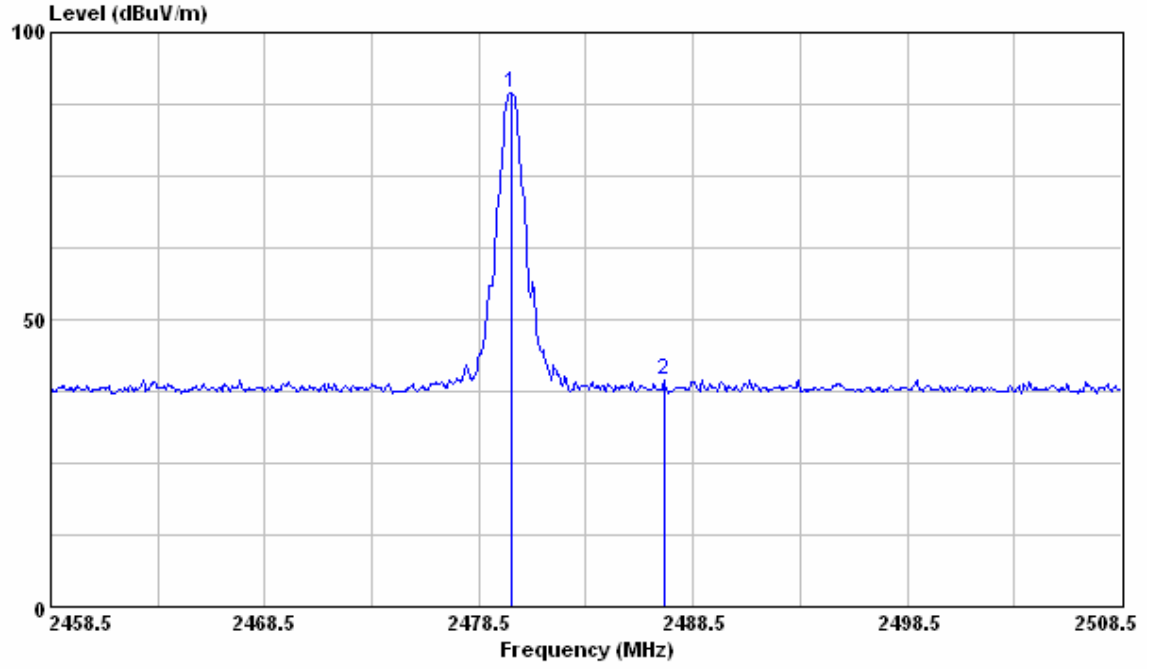
Low Channel (2402MHz) V Polarization



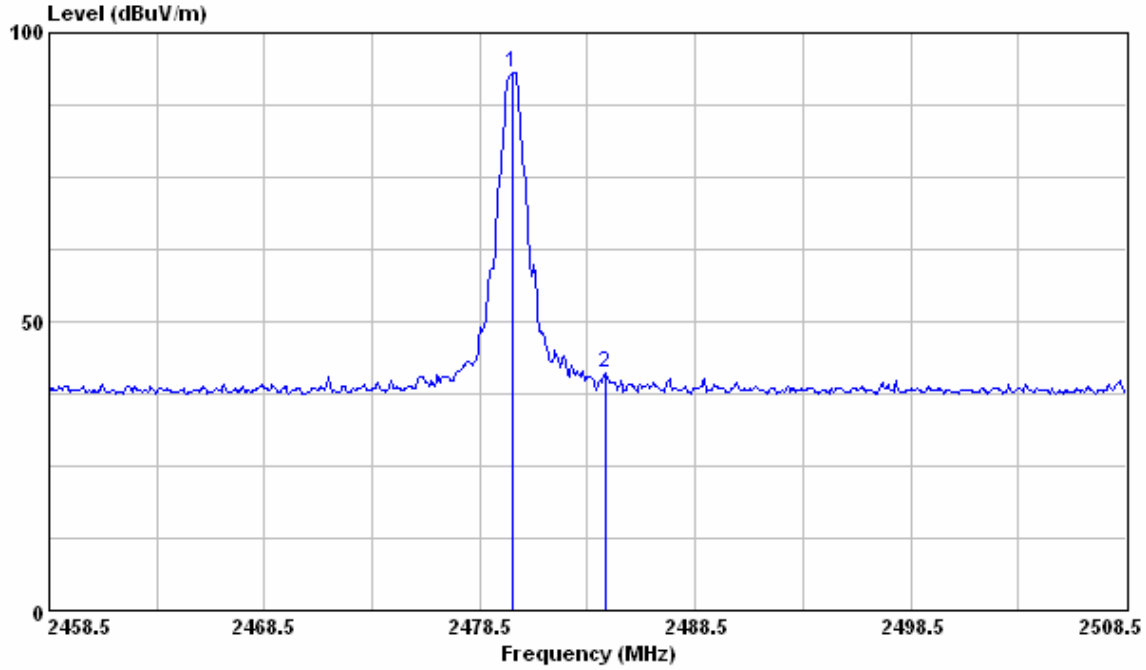
Low Channel (2402MHz) H Polarization



High Channel (2480MHz) V Polarization



High Channel (2480MHz) H Polarization



Resistricted band Measurement

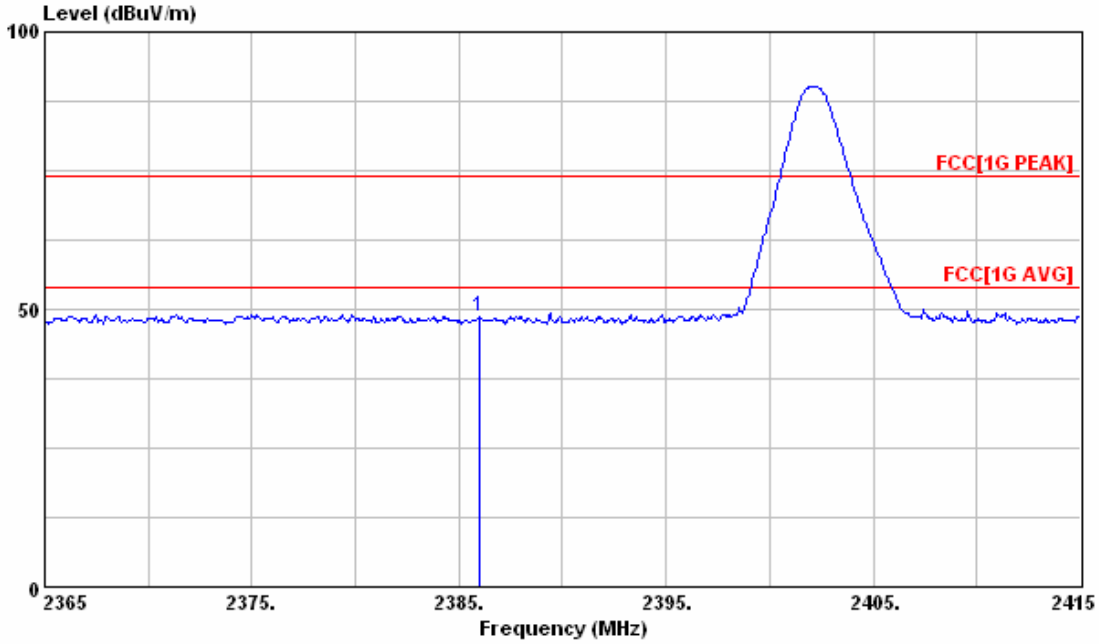
Test Mode : Continuous Transmitting **Tester : Bill**

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	2386.00	44.98	33.45	3.66	48.64	37.11	74.00	54.00	25.36	16.89
2402	H	2386.00	45.08	33.56	3.65	48.73	37.21	74.00	54.00	25.27	16.79
2480	V	2497.45	45.30	33.64	3.70	49.00	37.34	74.00	54.00	25.00	16.66
2480	H	2496.20	44.76	33.69	3.70	48.46	37.39	74.00	54.00	25.54	16.61

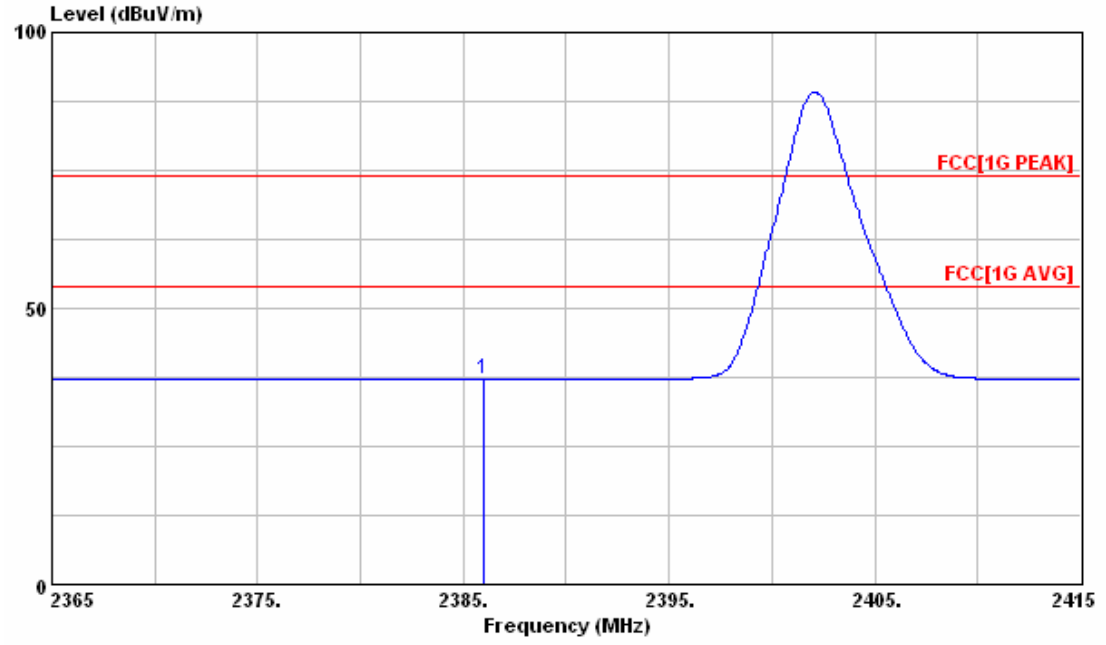
Note:

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.

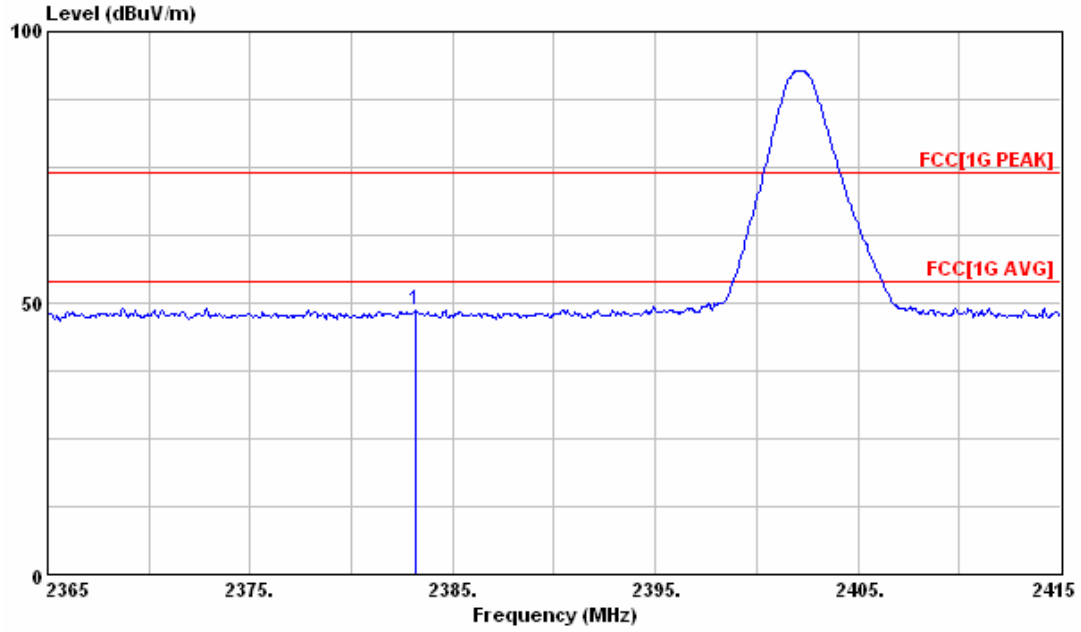
Low Channel (2402MHz), V Polarization – PK.



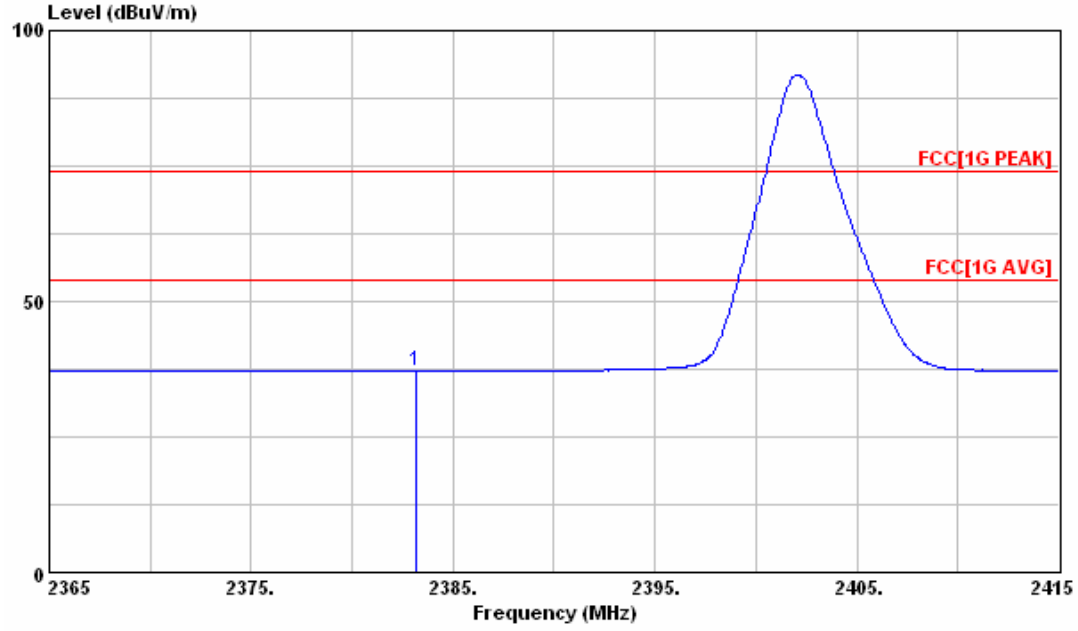
Low Channel (2402MHz), V Polarization – AV.



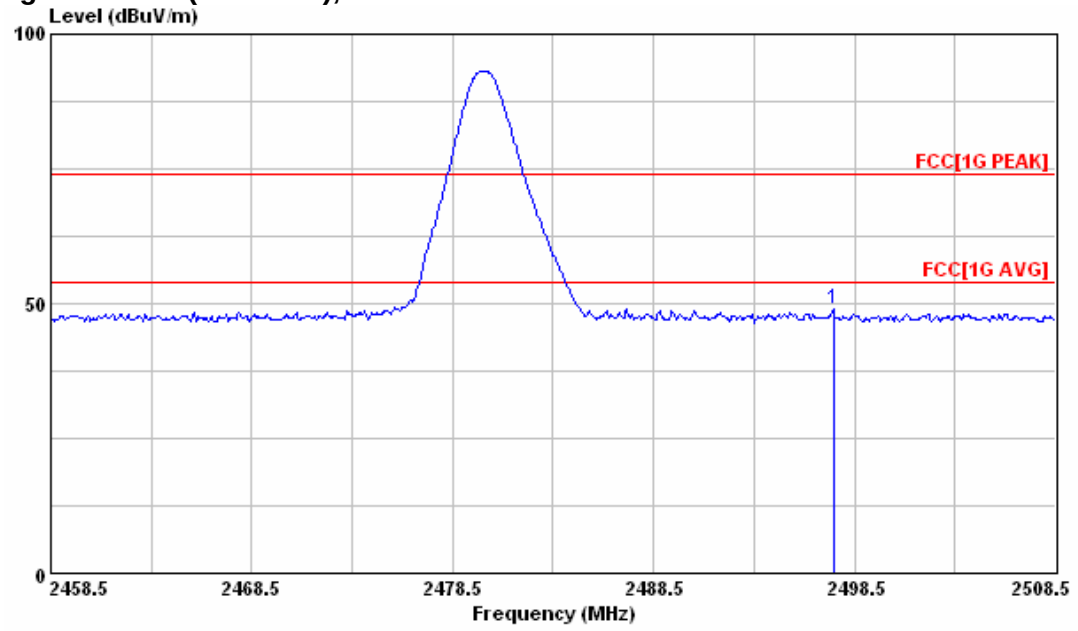
Low Channel (2402MHz), H Polarization – PK.



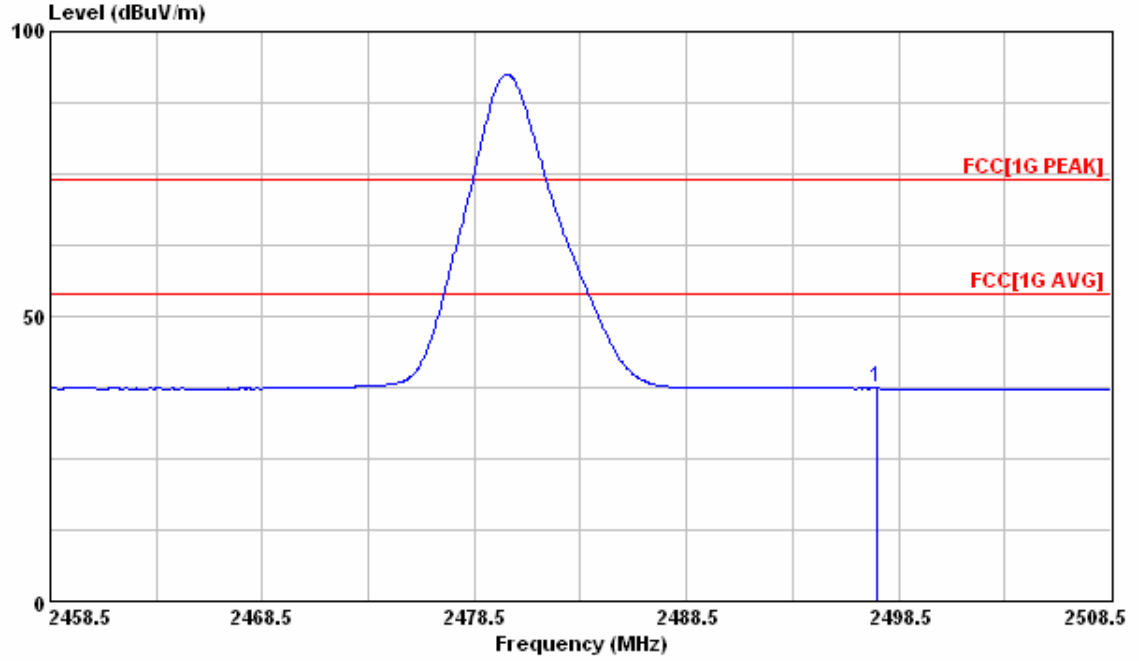
Low Channel (2402MHz), H Polarization – AV.



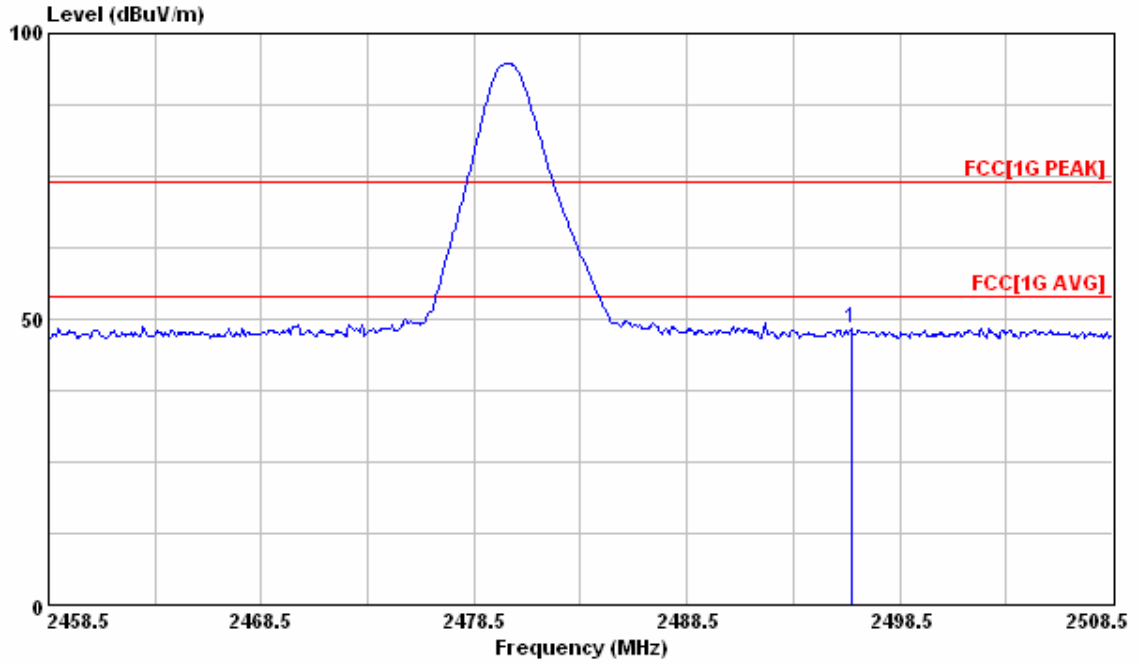
High Channel (2480MHz), V Polarization – PK.



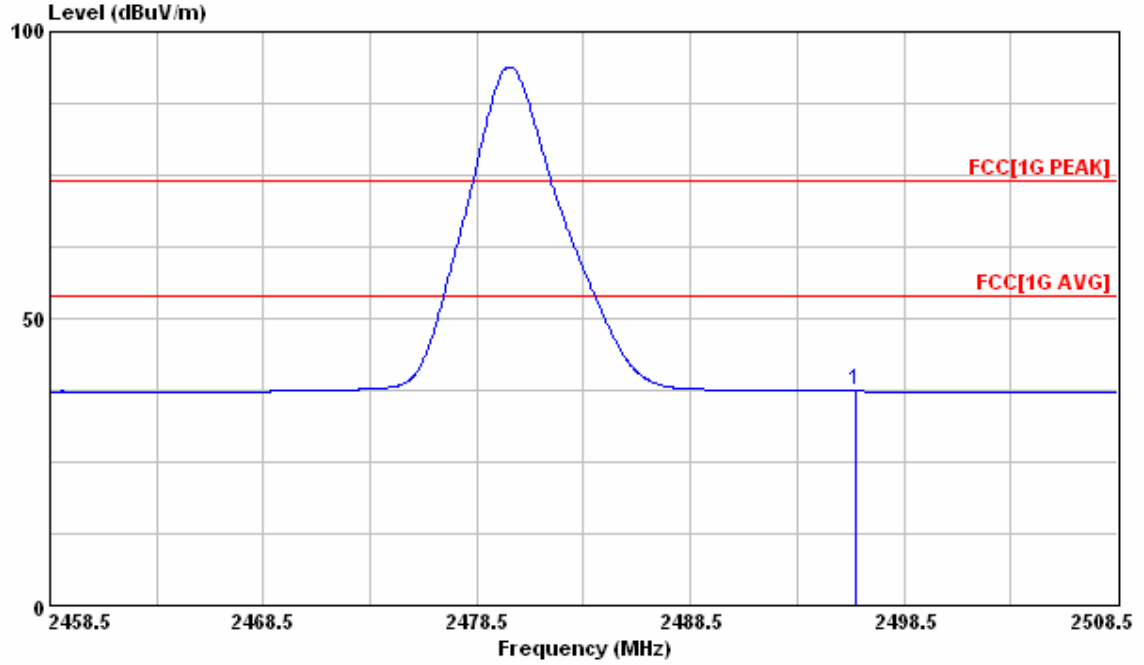
High Channel (2480MHz), V Polarization – AV.



High Channel (2480MHz), H Polarization – PK.



High Channel (2480MHz), H Polarization – AV.



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 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	E4405B/ MY45106706	March 11,2007	March 11,2008

Note:

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

Instrument Setting

RBW	VBW	Detector	Trace	Comment
100kHz	300kHz	Peak	Maxhold	20dB Bandwidth
100kHz	300kHz	Peak	Maxhold	Carrier Spacing

Climatic Condition

Ambient Temperature：28°C ; Relative Humidity : 64%

4.3 Measurement Procedure

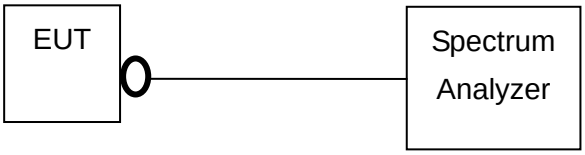
a. The EUT was set up per the test configuration figured in the next section of this chapter to simulate the typical usage per the user's manual.

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.

4.4 Test configuration



4.5 Test Data

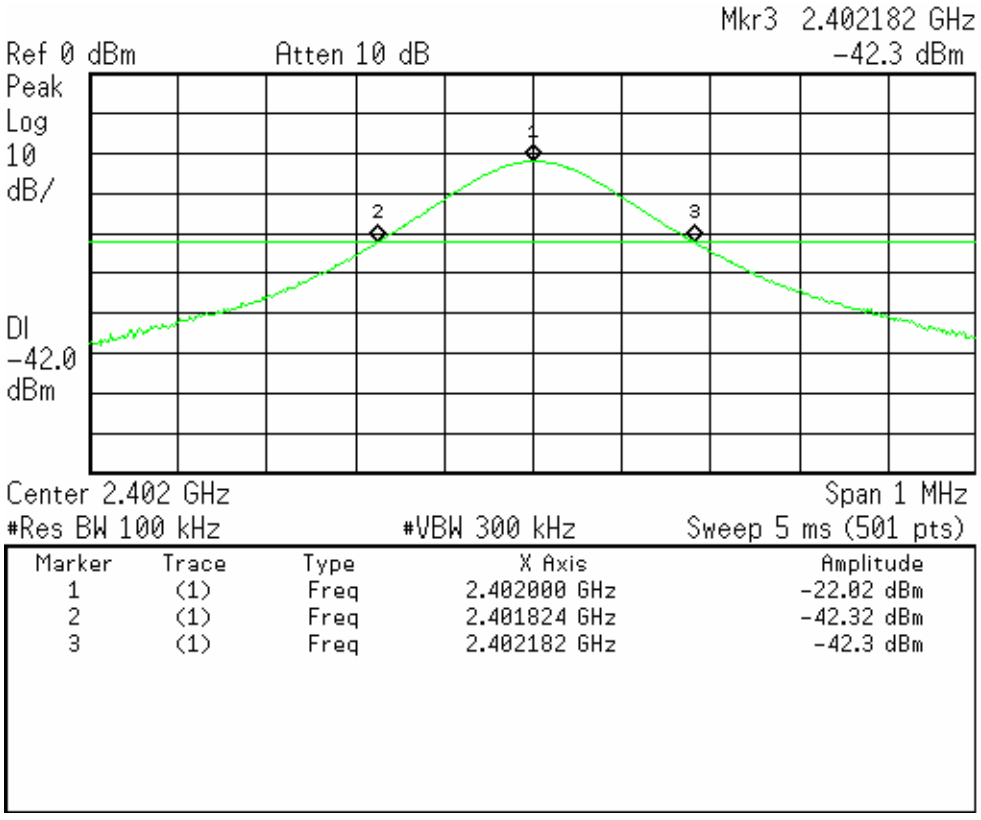
20dB bandwidth

Test Mode : Continuous Transmitting **Tester :** Bill

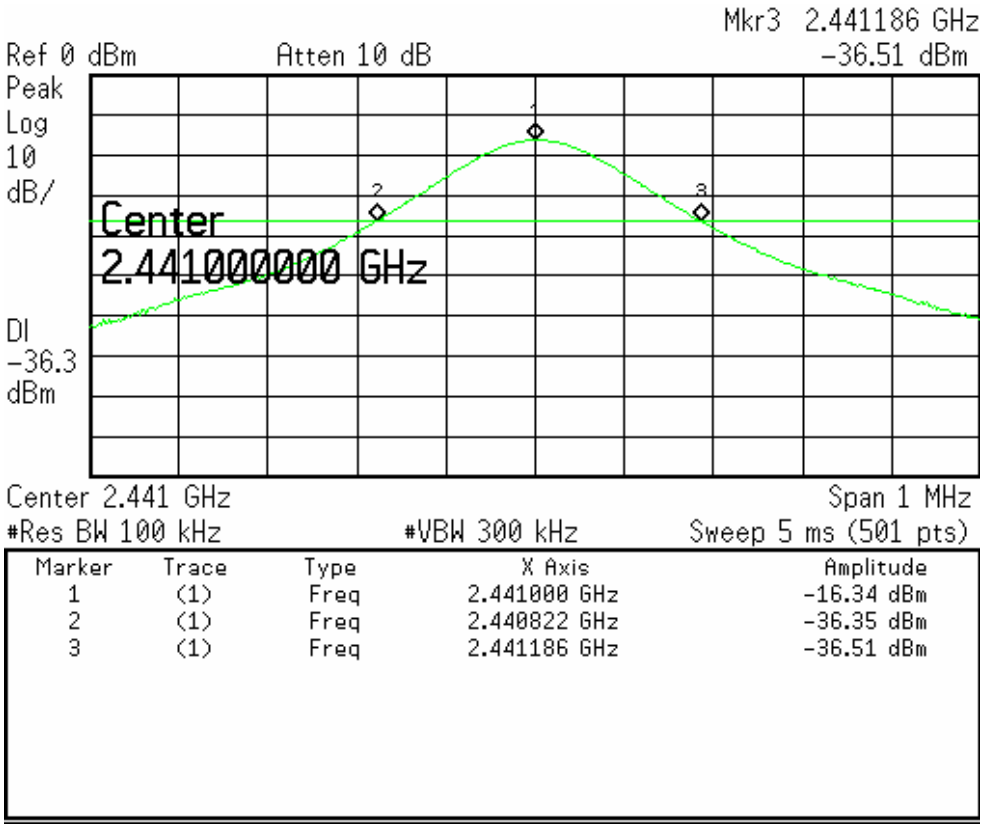
Operating Frequency (MHz)	20dB Bandwidth (kHz)
2402	358
2441	364
2480	348

Measured 20dB bandwidth is 364 KHz. According to 15.247(a)(1), hopping channel carrier frequencies spacing should be greater than 364kHz.

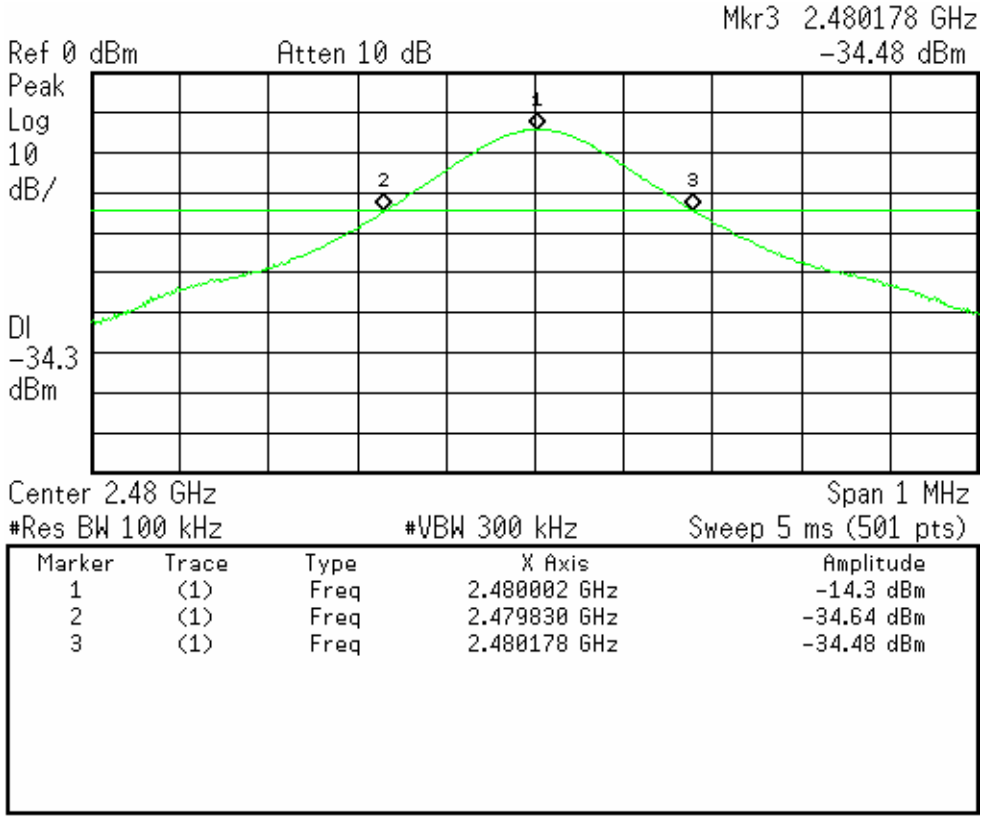
Low Channel (2402MHz)



Middle Channel (2441MHz)



High Channel (2480MHz)

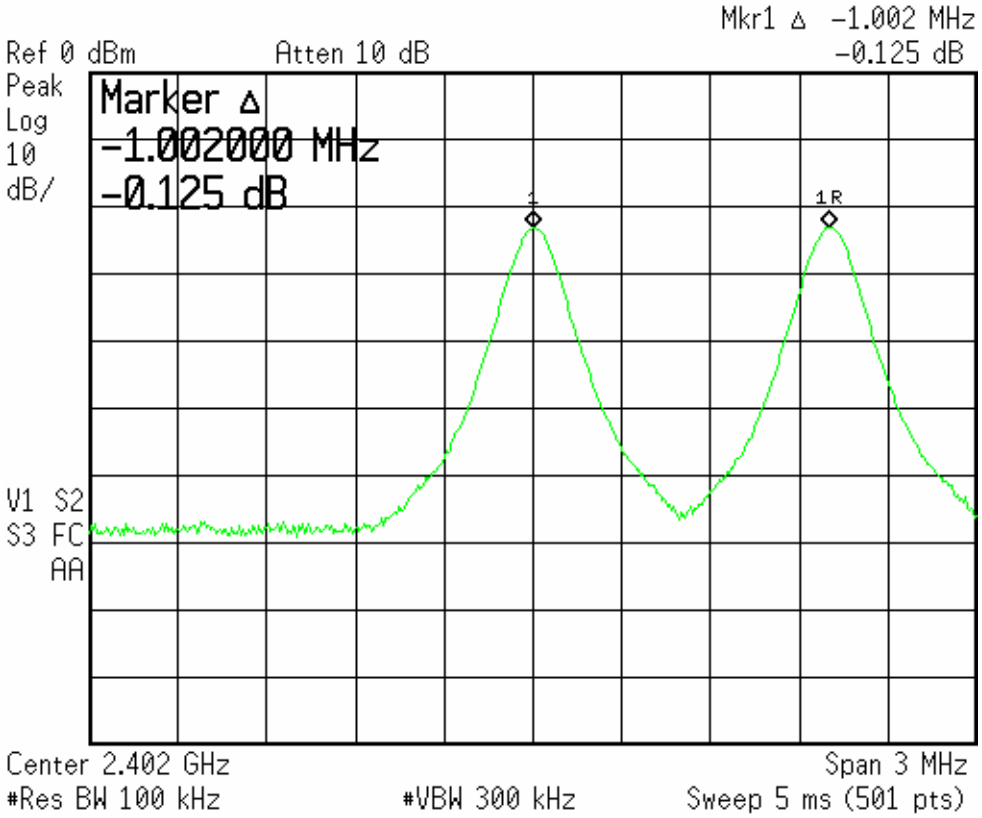


Hopping Channel Carrier Frequencies spacing

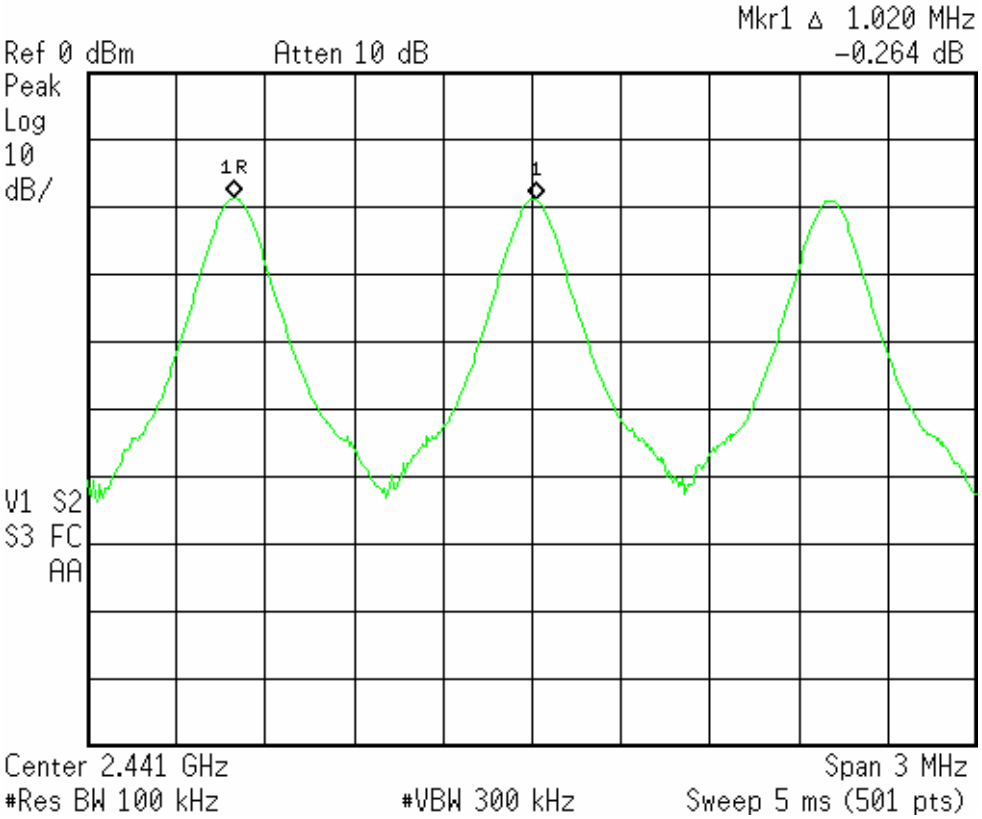
Test Mode : Continuous Transmitting **Tester :** Bill

Operating Frequency (MHz)	Carrier Spacing (kHz)	Limit (kHz)	Margin (kHz)
2402	1002	364	638
2441	1020	364	656
2480	1002	364	638

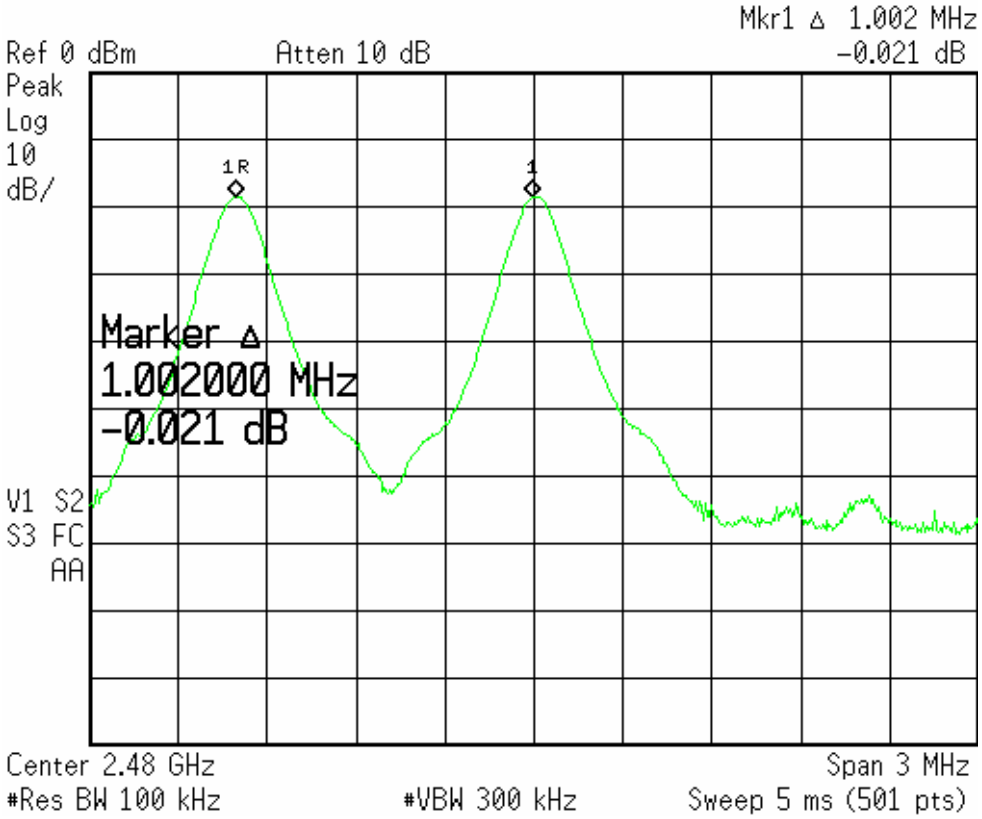
Low Channel (2402MHz)



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 Test Instruments

See section 4.2.

Instrument Setting

RBW	VBW	Detector	Trace	Comment
100kHz	300kHz	Peak	Maxhold	

Climatic Condition

Ambient Temperature：28°C ; Relative Humidity : 64%

5.3 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.

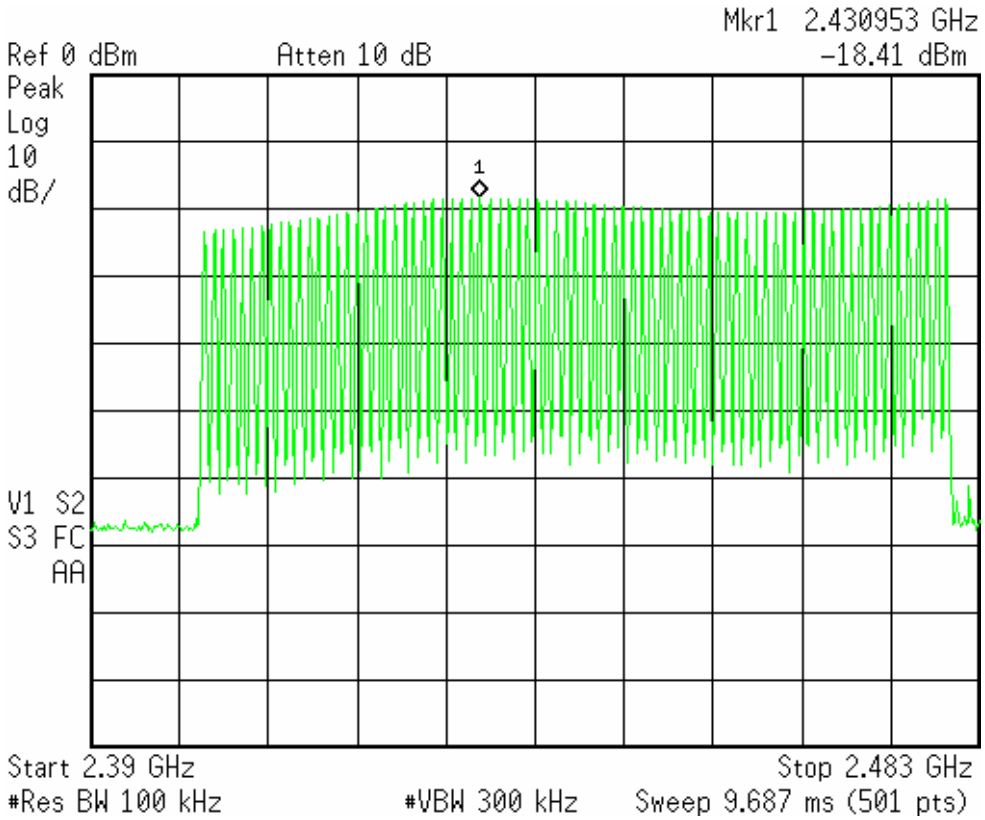
c. Measure number of hopping channels and compare with the required limit.

5.4 Test configuration

See section 4.4.

5.5 Test Data

Test Mode : Continuous Transmitting **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 Test Instruments

Test Site and Equipment	Manufacturer	Model No./ Serial No.	Last Calibration Date	Calibration Due Date
Semi-anechoic Chamber	ETS.LINDGREN	TR11/ 906-A	July 1, 2007	July 1, 2008
Test Receiver	R&S	ESI 26/ 837491/015	April 11, 2007	April 11, 2008
Spectrum Analyzer*	R&S	E4407B/ MY45106795	March 11, 2007	March 11, 2008
Antenna	R&S	3142C/ 52088	July 26, 2007	July 26, 2008
Antenna*	R&S	3117/ 57416	Feb. 24, 2008	Feb. 24, 2009
Antenna*	EMCO	3116/ 58959	Feb. 13, 2008	Feb. 13, 2009
Pre-amplifier	Mini-circuit	ZKL-2/004	Aug. 13, 2007	Aug. 13, 2008
Pre-amplifier*	MITEQ	AFS6-02001800-35-10P-6/866643	Dec. 18, 2007	Dec. 18, 2008
High-Pass Filter*	MCI	H04G13G1/2467-01	NCR	NCR

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：28°C ; Relative Humidity : 64%

6.3 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.

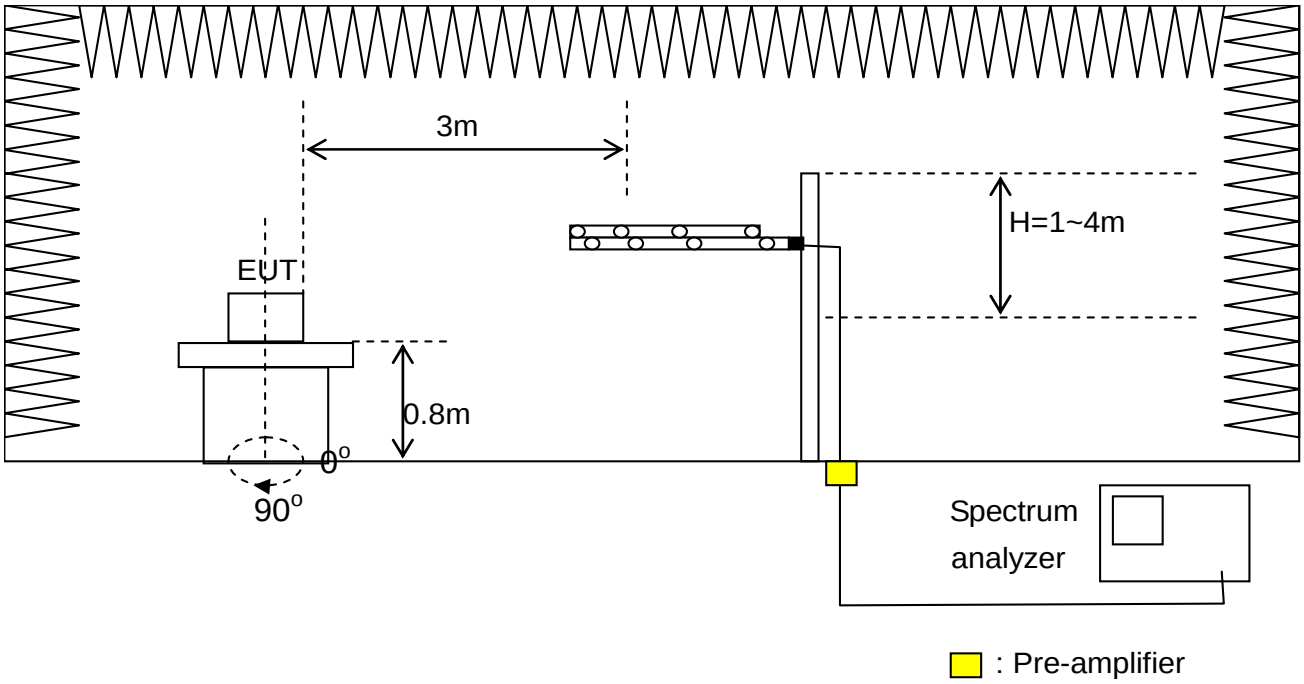
k. Change the receiving antenna to another polarization to measure radiated emission by following step e. to j. again.

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.

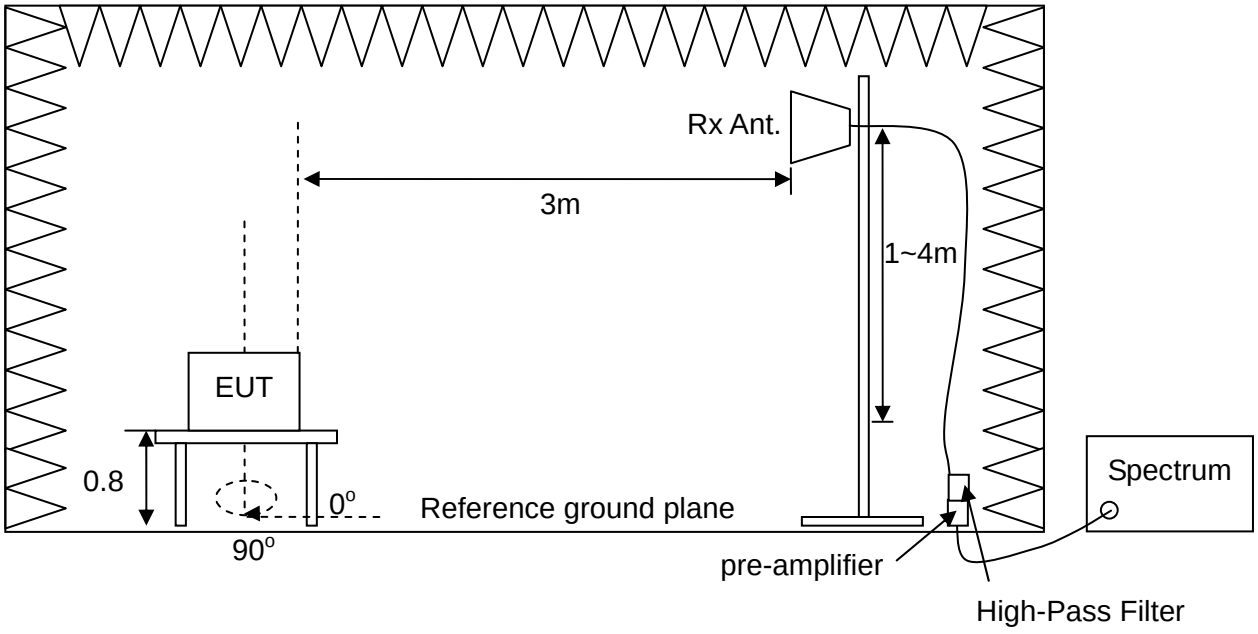
m. If the peak emission level above 1000MHz measured from step f. is 20dB lower than the limit specified, then the emission values presented will be the peak value only. Otherwise, accurate A.V. value will be measured and presented.

6.4 Test configuration

Below 1GHz



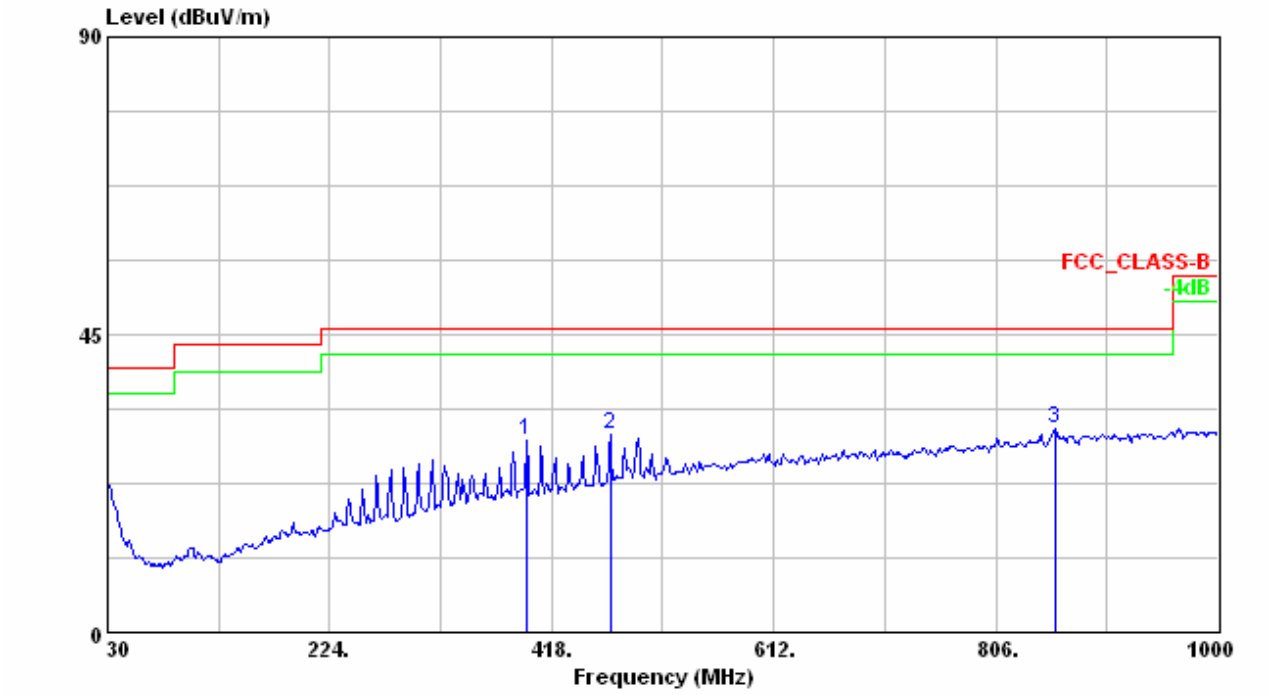
Above 1GHz



6.5 Test Data

Radiated Emission Measurement below 1000MHz

Test Mode	**:**	**Channel 0(2402MHz), Continuous Transmitting**			
Test Distance	**:**	3m	**Tester**	**:**	Bill
Polarization	**:**	Vertical	**Frequency Range**	**:**	30MHz~1000MHz

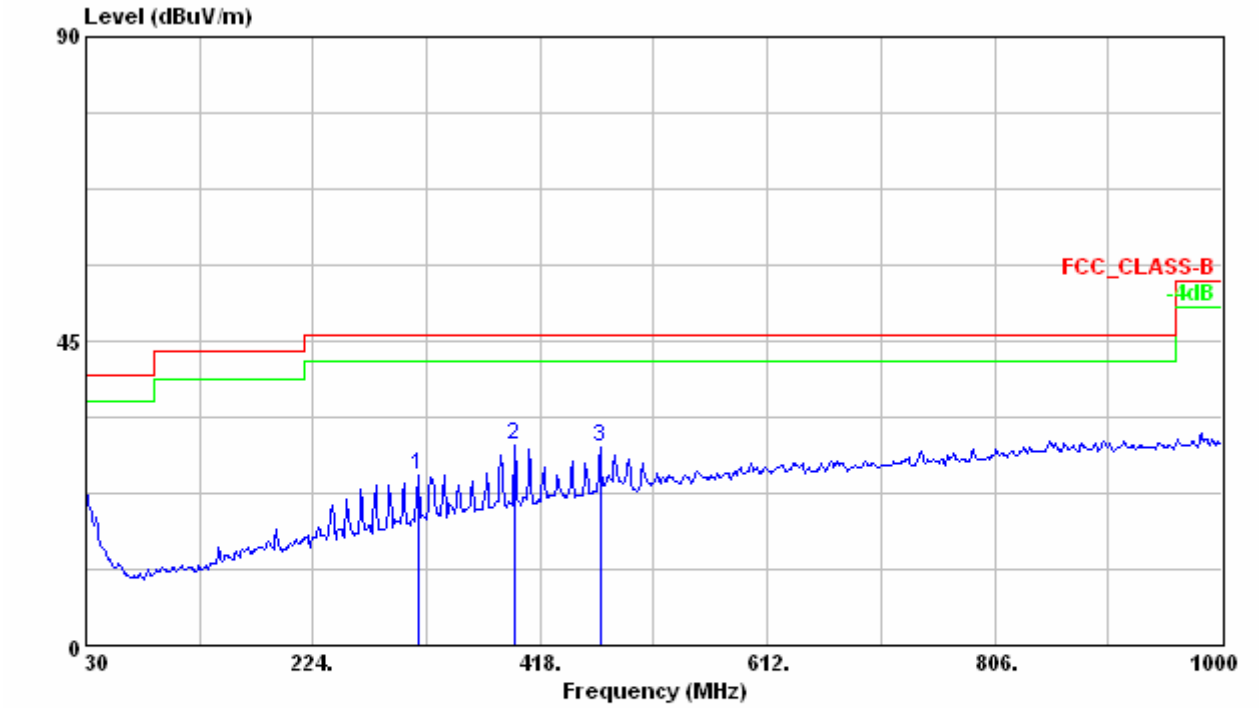


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	396.660	29.14	38.53	-9.39	46.00	-16.86	---	---	VERTICAL	Peak
2	469.410	29.86	37.63	-7.77	46.00	-16.14	---	---	VERTICAL	Peak
3 @	858.380	30.69	32.02	-1.33	46.00	-15.31	---	---	VERTICAL	Peak

Note:

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

Test Mode	**: Channel 0(2402MHz), Continuous Transmitting**				
Test Distance	**:** 3m	**Tester**	**:** Bill		
Polarization	**:** Vertical	**Frequency Range**	**:** 30MHz~1000MHz		

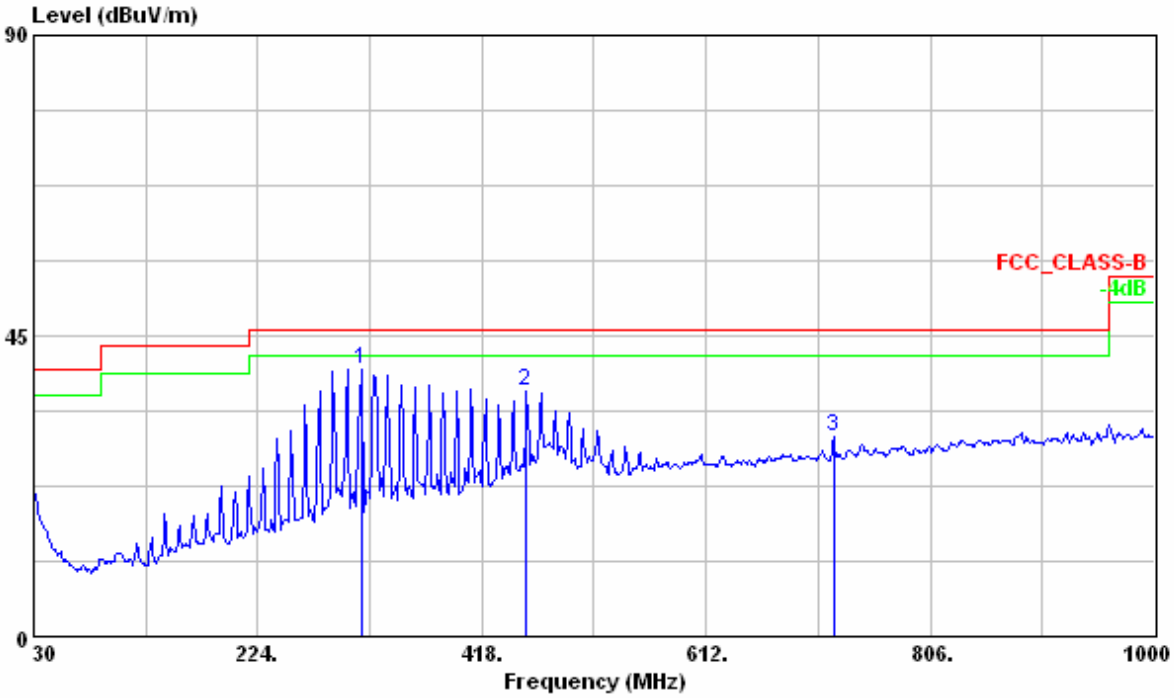


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	313.240	25.16	36.87	-11.71	46.00	-20.84	---	---	VERTICAL	Peak
2	396.660	29.48	38.87	-9.39	46.00	-16.52	---	---	VERTICAL	Peak
3	469.410	29.39	37.16	-7.77	46.00	-16.61	---	---	VERTICAL	Peak

Note:

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

Test Mode	**: Channel 39(2441MHz), Continuous Transmitting**				
Test Distance	**:** 3m	**Tester**	**:** Bill		
Polarization	**:** Horizontal	**Frequency Range**	**:** 30MHz~1000MHz		

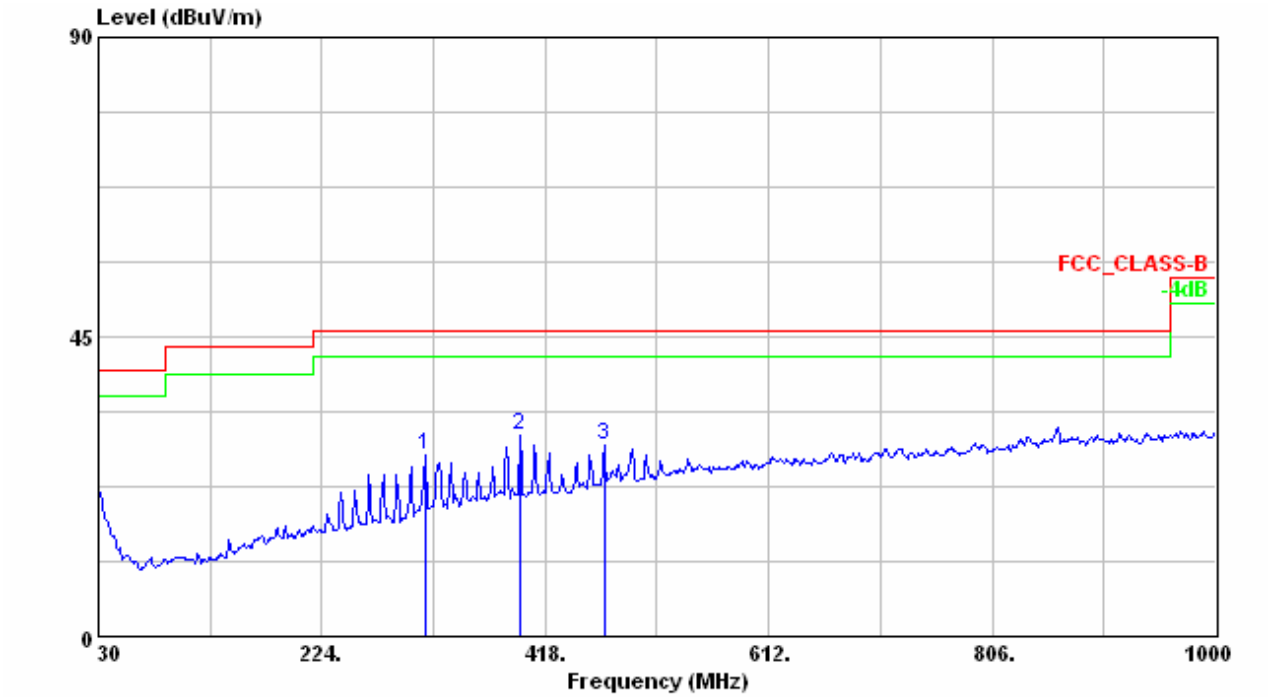


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1 @	313.240	40.06	51.77	-11.71	46.00	-5.94	---	---	HORIZONTAL	Peak
2	456.800	36.61	44.71	-8.10	46.00	-9.39	---	---	HORIZONTAL	Peak
3	722.580	29.81	32.87	-3.06	46.00	-16.19	---	---	HORIZONTAL	Peak

Note:

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

Test Mode	**: Channel 39(2441MHz), Continuous Transmitting**				
Test Distance	**:** 3m	**Tester**	**:** Bill		
Polarization	**:** Vertical	**Frequency Range**	**:** 30MHz~1000MHz		

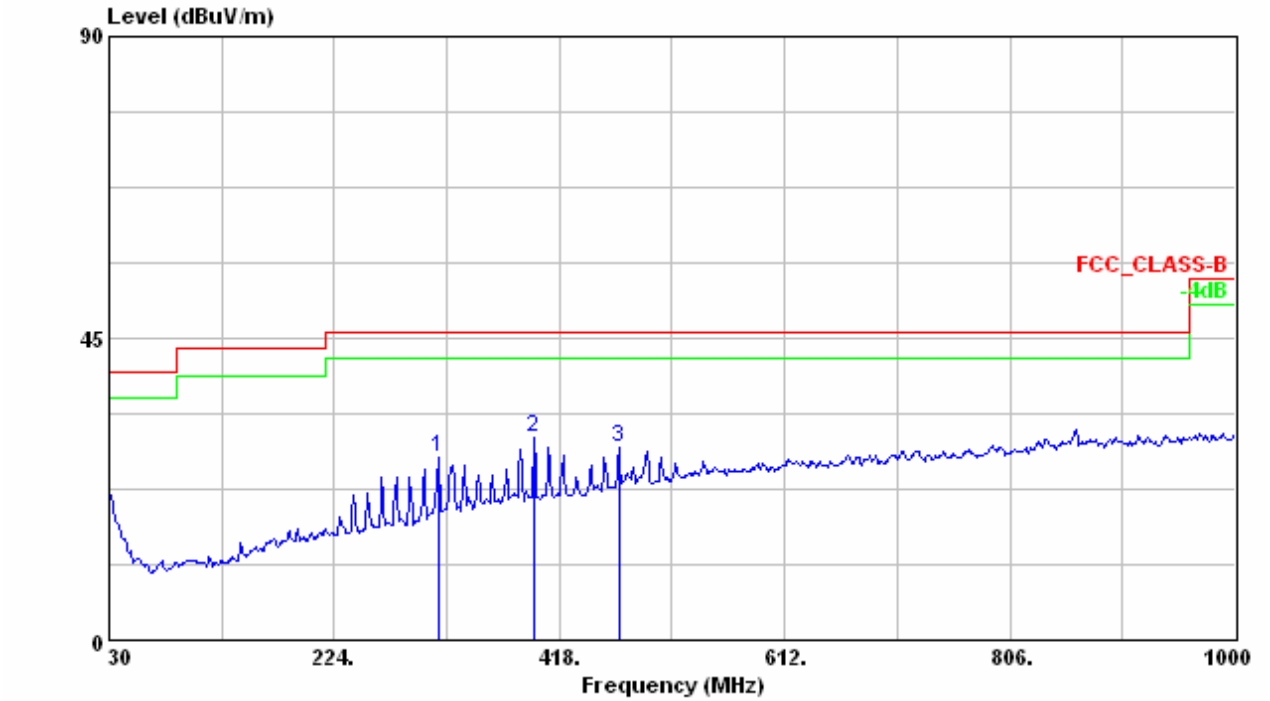


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	313.240	27.23	38.94	-11.71	46.00	-18.77	---	---	VERTICAL	Peak
2	396.660	30.10	39.49	-9.39	46.00	-15.90	---	---	VERTICAL	Peak
3	469.410	28.65	36.42	-7.77	46.00	-17.35	---	---	VERTICAL	Peak

Note:

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

Test Model	**: Channel 78(2480MHz), Continuous Transmitting**		
Test Distance	**:** 3m	**Tester**	**:** Bill
Polarization	**:** Vertical	**Frequency Range**	**:** 30MHz~1000MHz

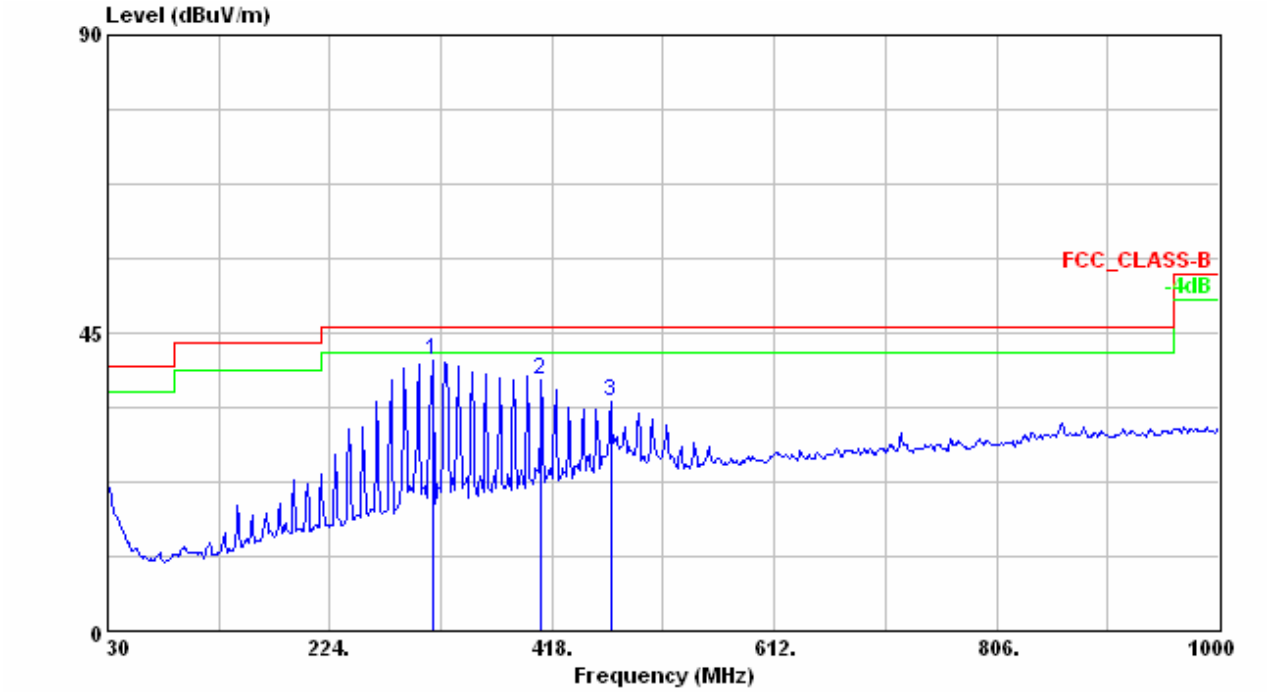


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	313.240	27.23	38.94	-11.71	46.00	-18.77	---	---	VERTICAL	Peak
2	396.660	30.10	39.49	-9.39	46.00	-15.90	---	---	VERTICAL	Peak
3	469.410	28.65	36.42	-7.77	46.00	-17.35	---	---	VERTICAL	Peak

Note:

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

est Model	**: Channel 78(2480MHz), Continuous Transmitting**		
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 @	313.240	40.95	52.66	-11.71	46.00	-5.05	---	---	HORIZONTAL	Peak
2	408.300	37.97	47.10	-9.13	46.00	-8.03	---	---	HORIZONTAL	Peak
3	469.410	34.60	42.37	-7.77	46.00	-11.40	---	---	HORIZONTAL	Peak

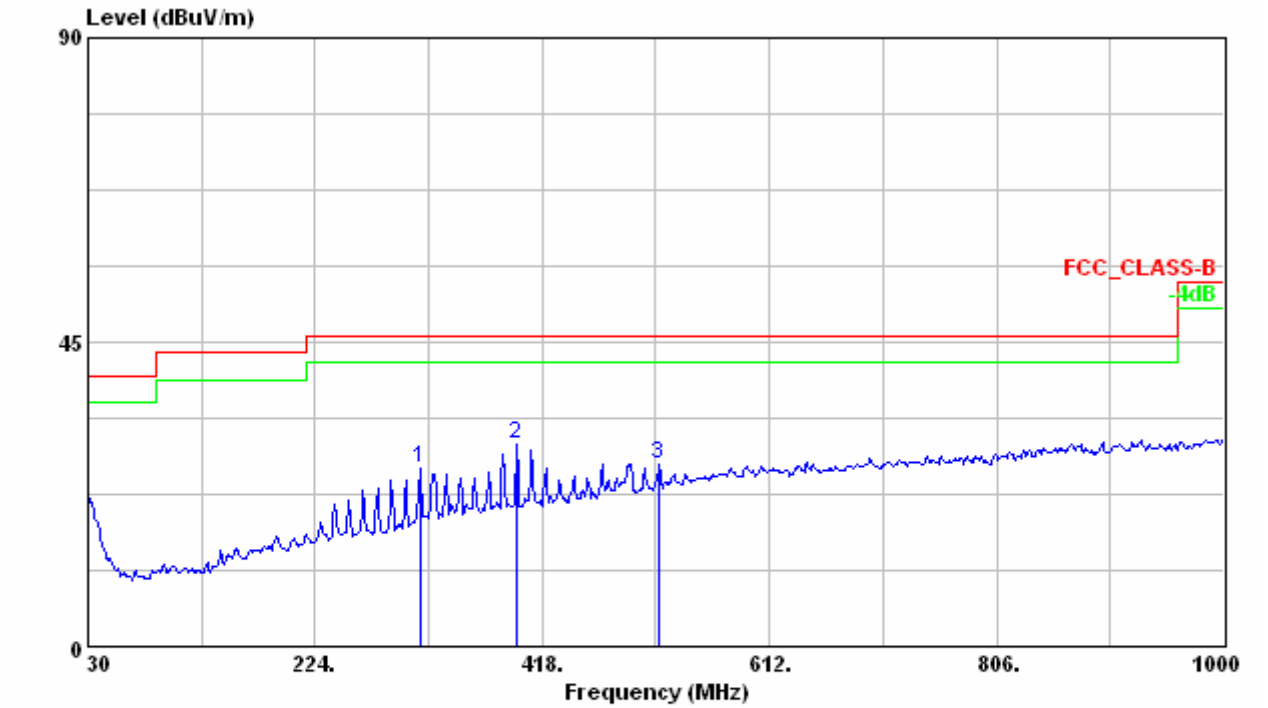
Note:

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

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

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

Antenna Polarization: Vertical **Frequency Range :** 30MHz~1000MHz

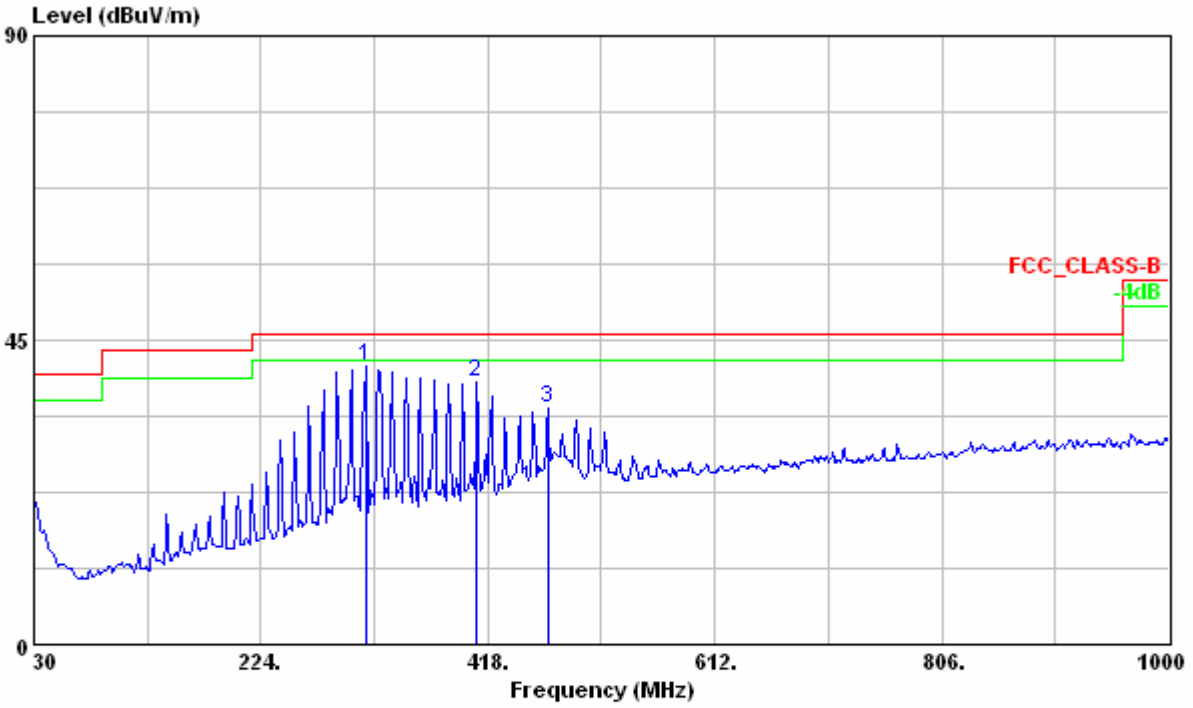


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	313.240	26.35	38.06	-11.71	46.00	-19.65	---	---	VERTICAL	Peak
2	396.660	29.98	39.37	-9.39	46.00	-16.02	---	---	VERTICAL	Peak
3	517.910	27.06	33.58	-6.52	46.00	-18.94	---	---	VERTICAL	Peak

Note:

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

Test Mode	**: Channel 0(2402MHz), Continuous Receiving**				
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 @	313.240	41.09	52.80	-11.71	46.00	-4.91	---	---	HORIZONTAL	Peak
2	408.300	38.73	47.86	-9.13	46.00	-7.27	---	---	HORIZONTAL	Peak
3	469.410	34.81	42.58	-7.77	46.00	-11.19	---	---	HORIZONTAL	Peak

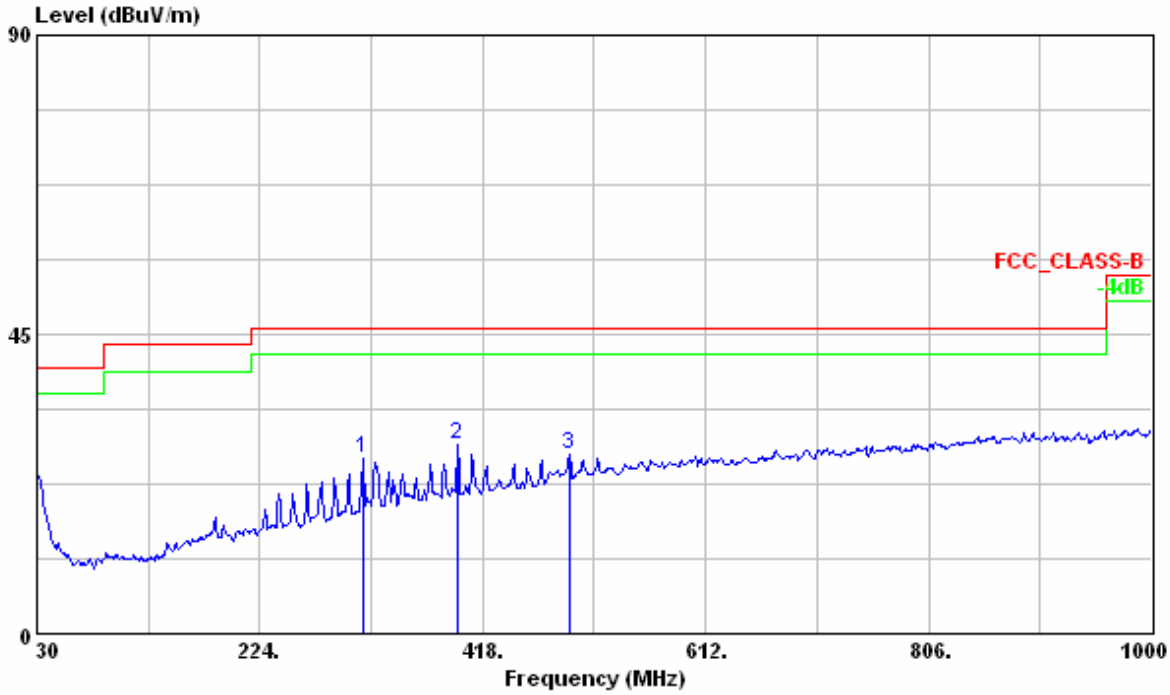
Note:

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

Test Model **: Channel 39(2441MHz), Continuous Receiving**

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

Antenna 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	313.240	26.44	38.15	-11.71	46.00	-19.56	---	---	VERTICAL	Peak
2	396.660	28.31	37.70	-9.39	46.00	-17.69	---	---	VERTICAL	Peak
3	493.660	27.08	34.21	-7.13	46.00	-18.92	---	---	VERTICAL	Peak

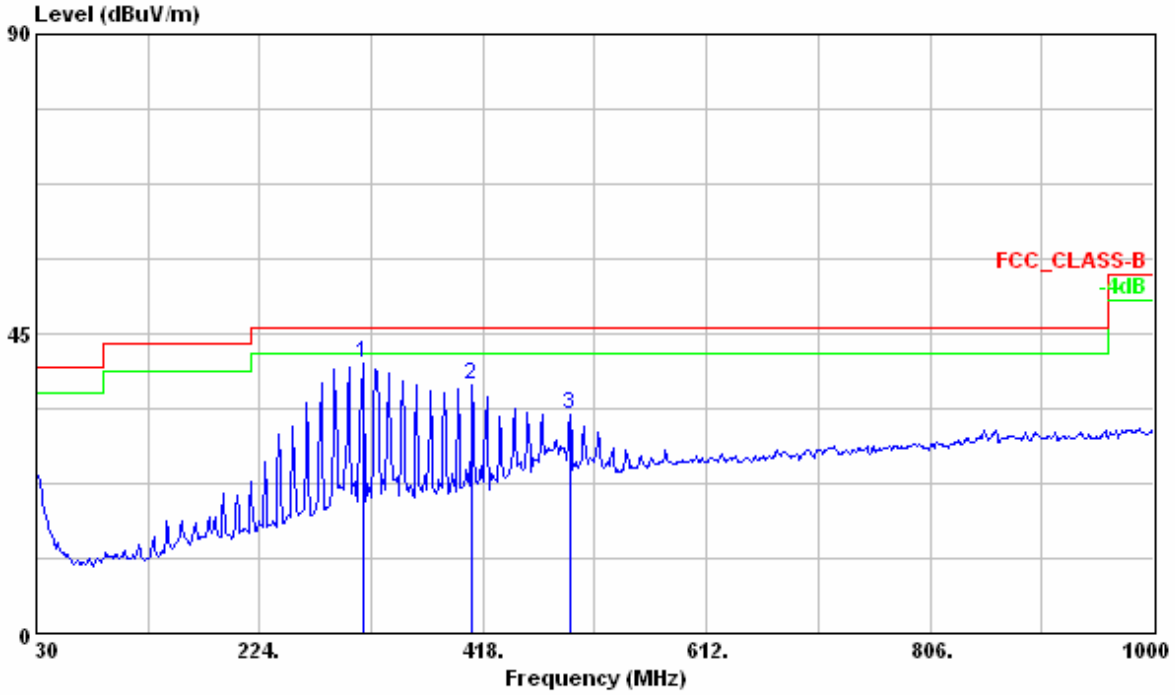
Note:

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

Test Model **: Channel 39(2441MHz), Continuous Receiving**

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

Antenna 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 @	313.240	40.44	52.15	-11.71	46.00	-5.56	---	---	HORIZONTAL	Peak
2	408.300	37.19	46.32	-9.13	46.00	-8.81	---	---	HORIZONTAL	Peak
3	493.660	32.98	40.11	-7.13	46.00	-13.02	---	---	HORIZONTAL	Peak

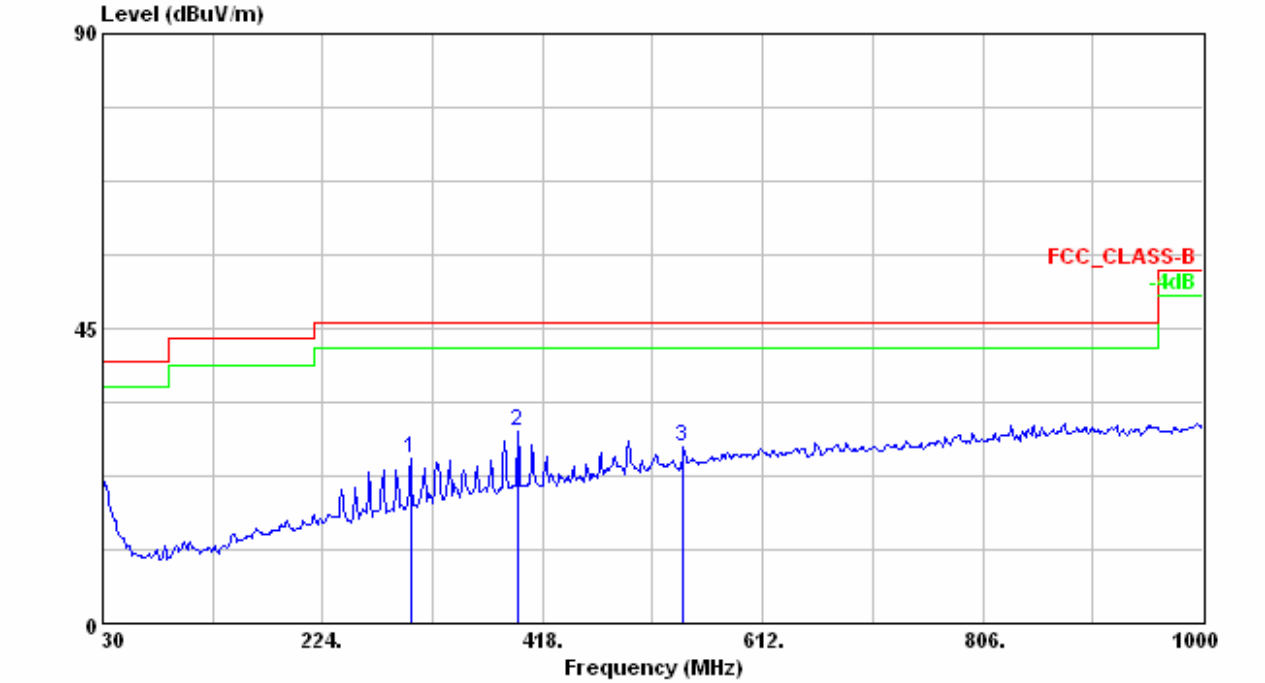
Note:

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

Test Model **: Channel 78(2480MHz), Continuous Receiving**

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

Antenna 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	301.600	25.04	37.17	-12.13	46.00	-20.96	---	---	VERTICAL	Peak
2	396.660	29.28	38.67	-9.39	46.00	-16.72	---	---	VERTICAL	Peak
3	542.160	26.82	32.74	-5.92	46.00	-19.18	---	---	VERTICAL	Peak

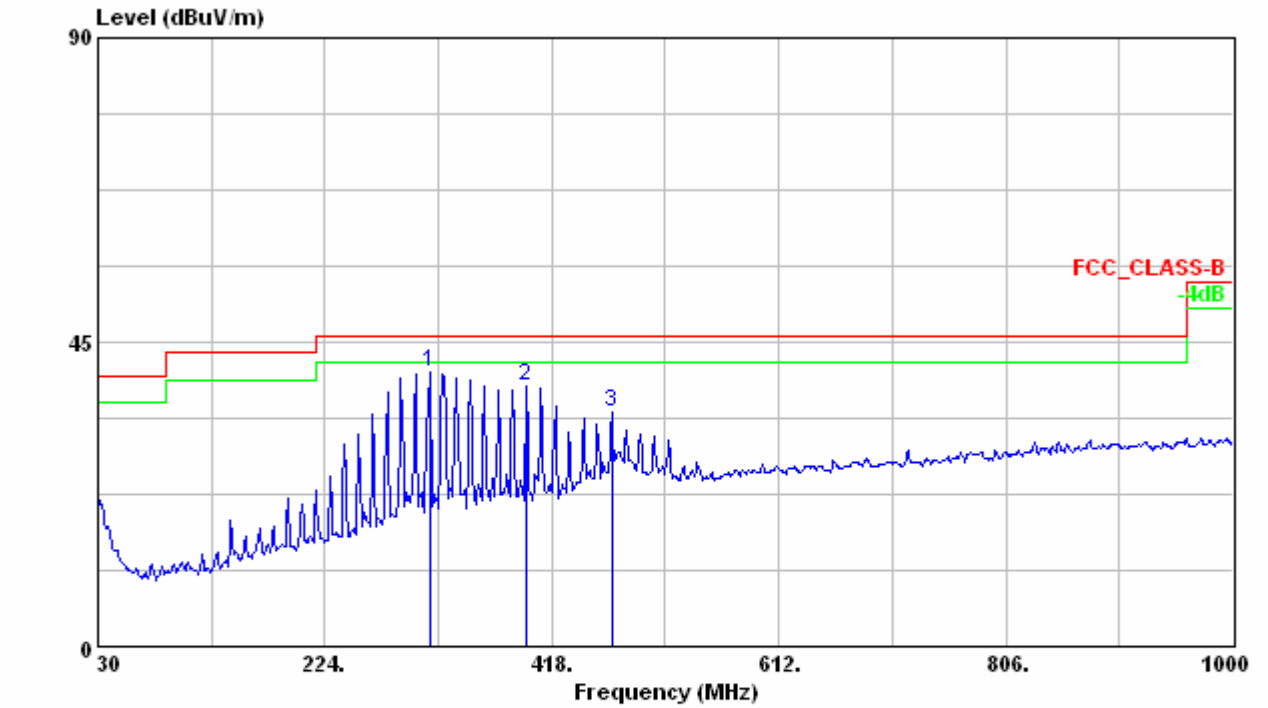
Note:

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

Test Model **: Channel 78(2480MHz), Continuous Receiving**

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

Antenna Polarization: Horizontal **Frequency Range :** 30MHz~1000MHz



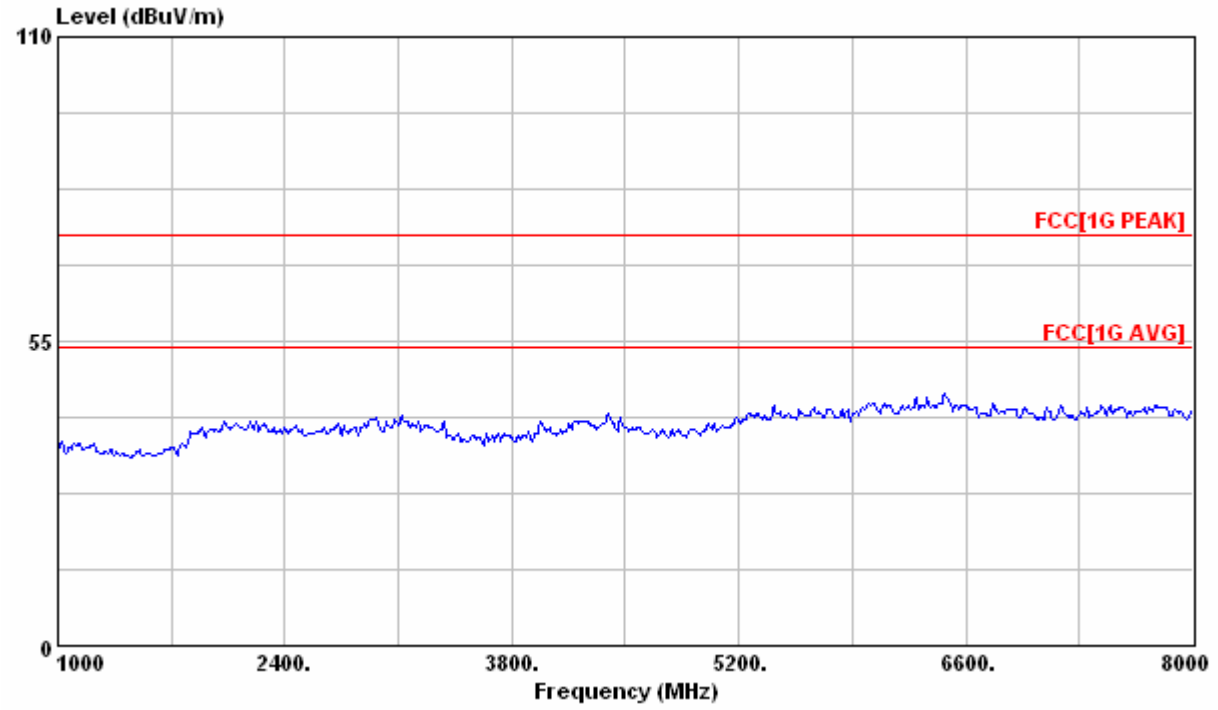
	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1 @	313.240	40.54	52.25	-11.71	46.00	-5.46	---	---	HORIZONTAL	Peak
2	396.660	38.59	47.98	-9.39	46.00	-7.41	---	---	HORIZONTAL	Peak
3	469.410	34.60	42.37	-7.77	46.00	-11.40	---	---	HORIZONTAL	Peak

Note:

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

Radiated Emission Measurement above 1000MHz

Test Model	**: Channel 0(2402MHz), Continuous Transmitting**		
Test Distance	**:** 3m	**Tester**	**:** Bill
Antenna Polarization	**:** Vertical	**Frequency Range :**	1GHz~25GHz

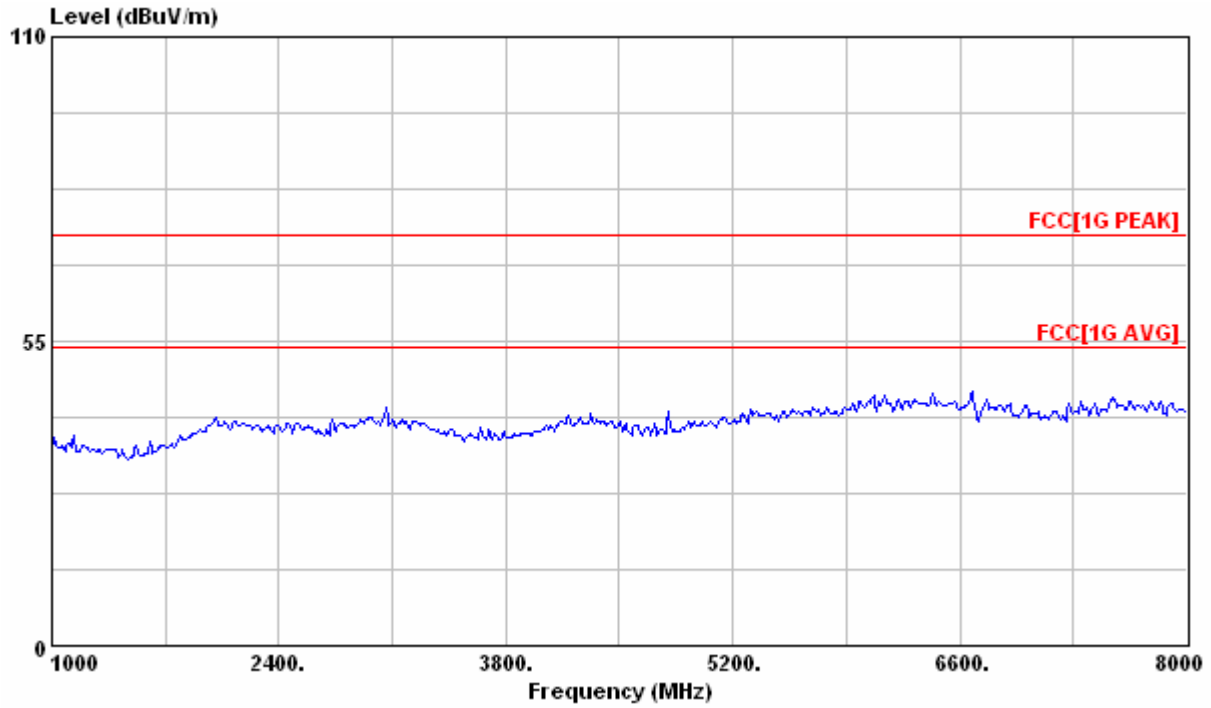


Note:

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

No signal can be detected from 8GHz to 25GHz, so the graphs are omitted above 8GHz.

Test Model	**: Channel 0(2402MHz), Continuous Transmitting**		
Test Distance	**:** 3m	**Tester**	**:** Bill
Antenna Polarization	**:** Horizontal	**Frequency Range :**	1GHz~25GHz

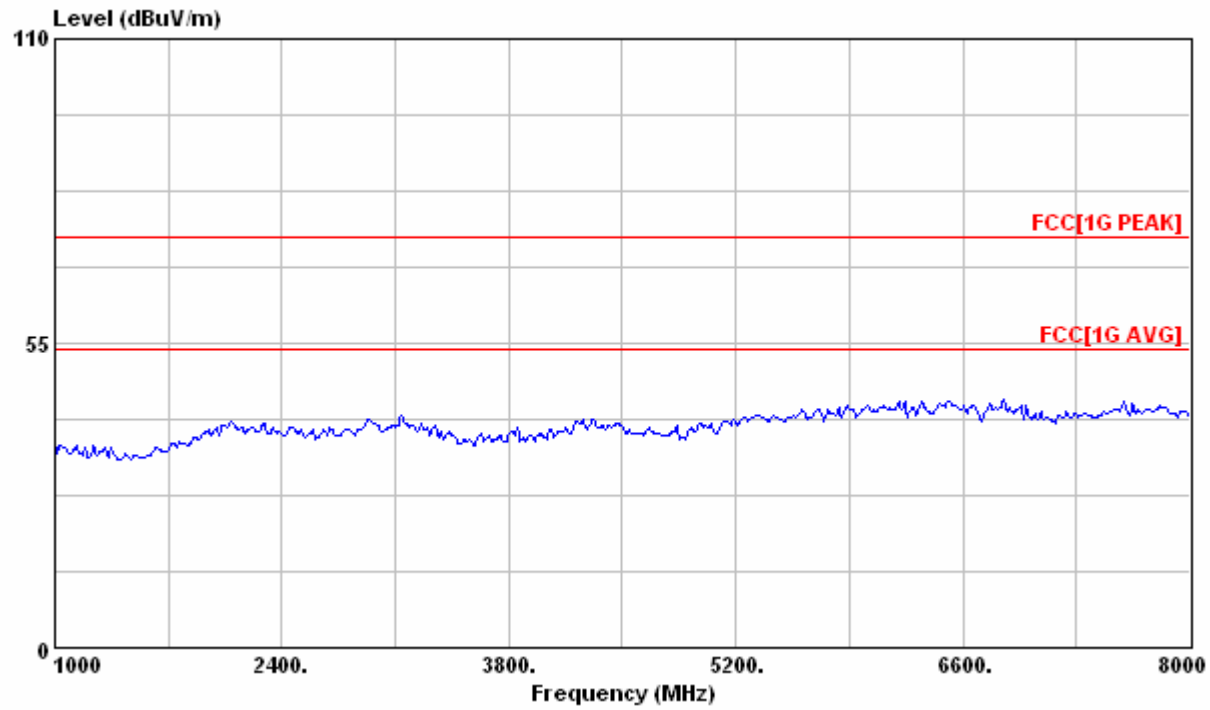


Note:

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

No signal can be detected from 8GHz to 25GHz, so the graphs are omitted above 8GHz.

Test Model	**: Channel 39(2441MHz), Continuous Transmitting**		
Test Distance	**:** 3m	**Tester**	**:** Bill
Antenna Polarization	**:** Vertical	**Frequency Range :**	1GHz~25GHz

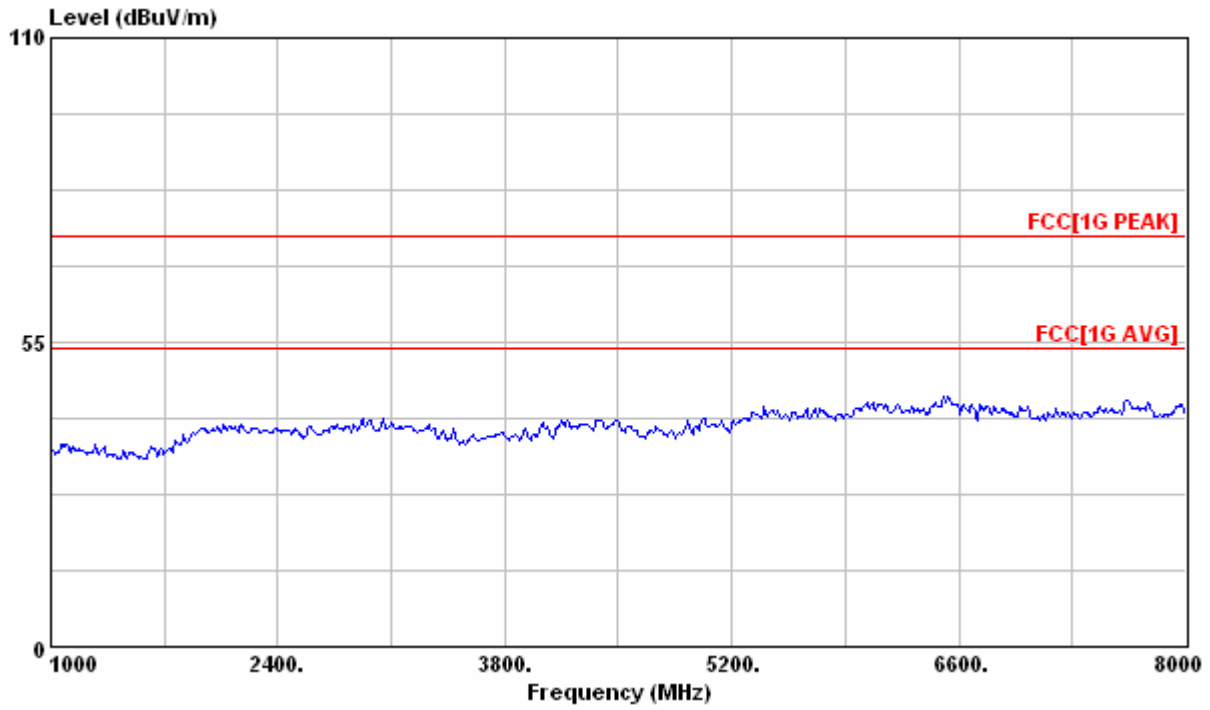


Note:

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

No signal can be detected from 8GHz to 25GHz, so the graphs are omitted above 8GHz.

Test Model	**: Channel 39(2441MHz), Continuous Transmitting**		
Test Distance	**:** 3m	**Tester**	**:** Bill
Antenna Polarization	**:** Horizontal	**Frequency Range :**	1GHz~25GHz

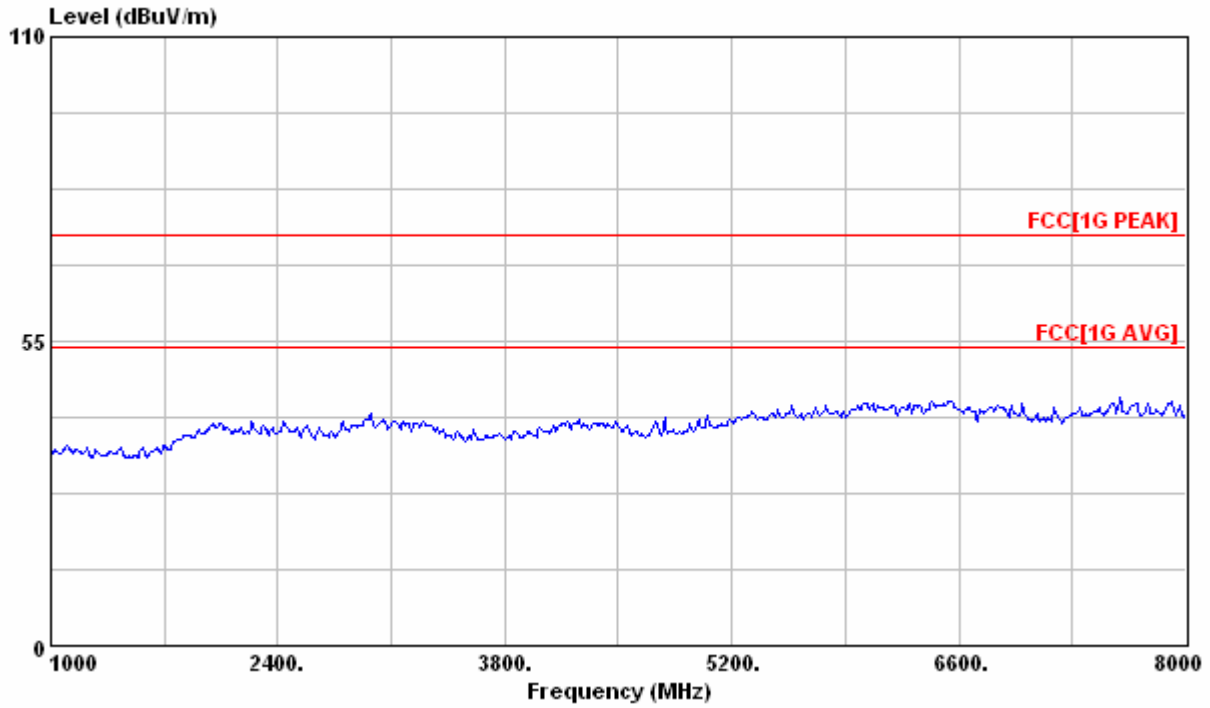


Note:

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

No signal can be detected from 8GHz to 25GHz, so the graphs are omitted above 8GHz.

Test Model	**: Channel 78(2480MHz), Continuous Transmitting**		
Test Distance	**:** 3m	**Tester**	**:** Bill
Antenna Polarization	**:** Vertical	**Frequency Range :**	1GHz~25GHz

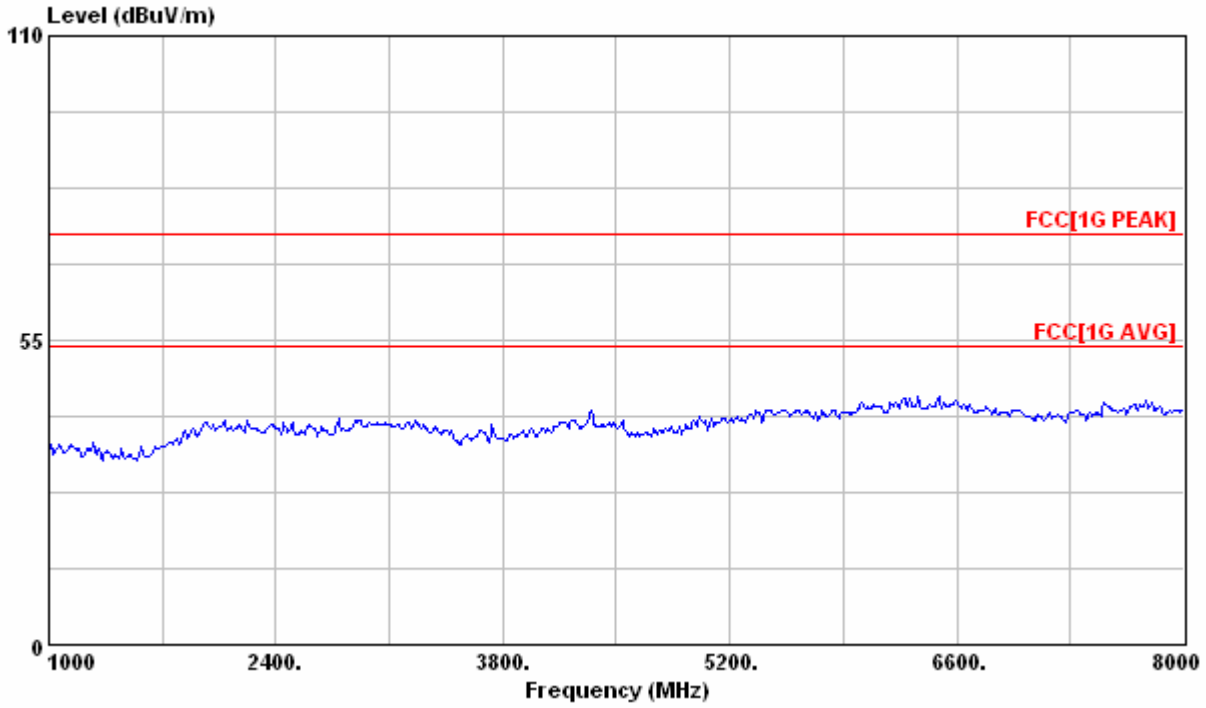


Note:

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

No signal can be detected from 8GHz to 25GHz, so the graphs are omitted above 8GHz.

Test Model	**: Channel 78(2480MHz), Continuous Transmitting**		
Test Distance	**:** 3m	**Tester**	**:** Bill
Antenna Polarization	**:** Horizontal	**Frequency Range :**	1GHz~25GHz

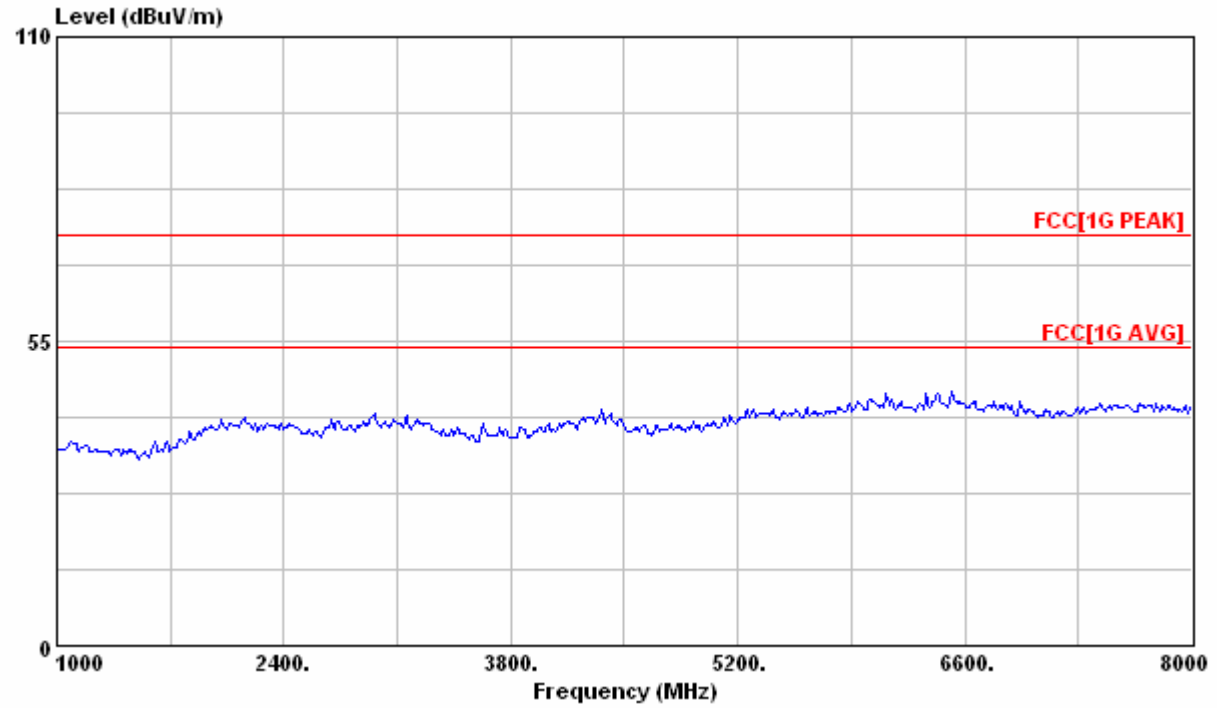


Note:

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

No signal can be detected from 8GHz to 25GHz, so the graphs are omitted above 8GHz.

Test Model	**: Channel 0(2402MHz), Continuous Receiving**		
Test Distance	**:** 3m	**Tester**	**:** Bill
Antenna Polarization	**:** Vertical	**Frequency Range :**	1GHz~25GHz

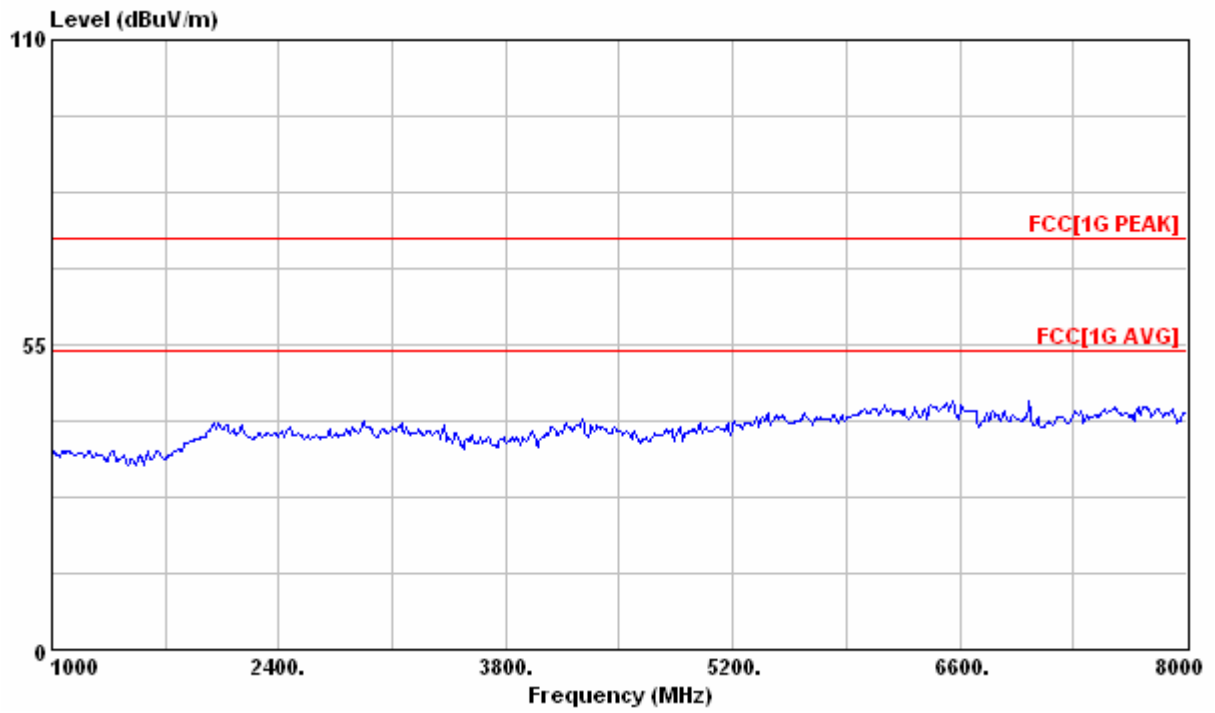


Note:

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

No signal can be detected from 8GHz to 25GHz, so the graphs are omitted above 8GHz.

Test Model	**: Channel 0(2402MHz), Continuous Receiving**		
Test Distance	**:** 3m	**Tester**	**:** Bill
Antenna Polarization	**:** Horizontal	**Frequency Range :**	1GHz~25GHz

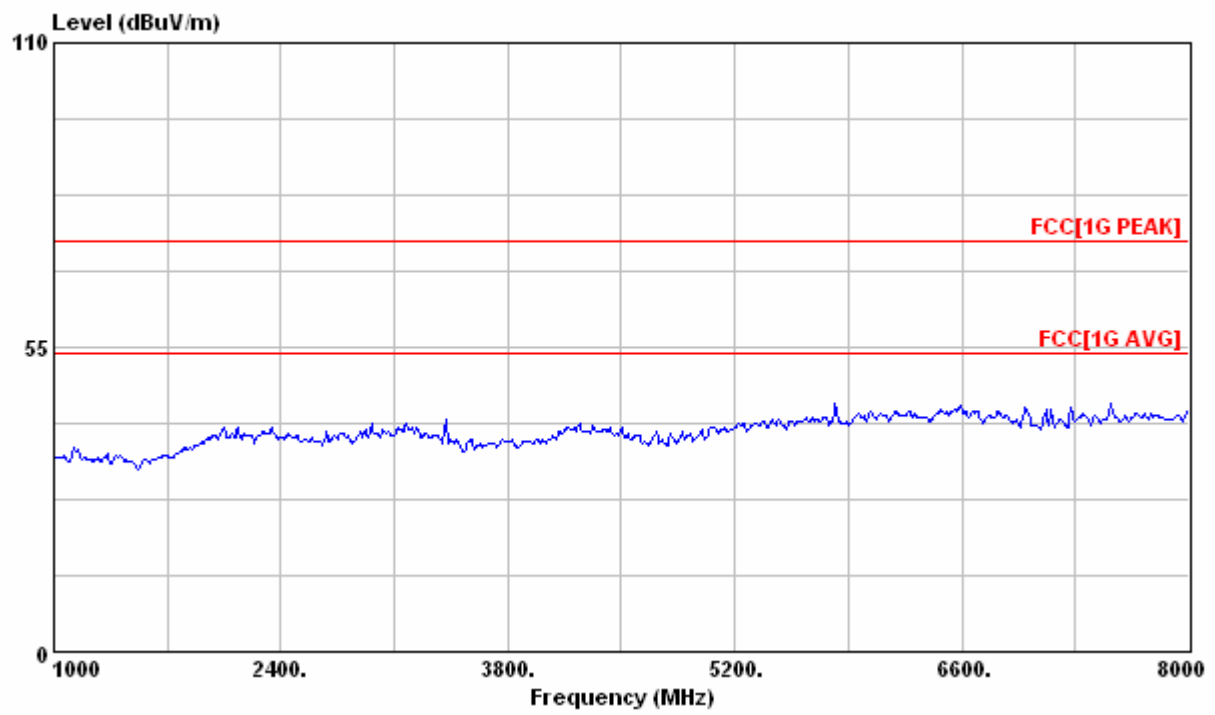


Note:

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

No signal can be detected from 8GHz to 25GHz, so the graphs are omitted above 8GHz.

Test Model	**: Channel 39(2441MHz), Continuous Receiving**		
Test Distance	**:** 3m	**Tester**	**:** Bill
Antenna Polarization	**:** Vertical	**Frequency Range :**	1GHz~25GHz

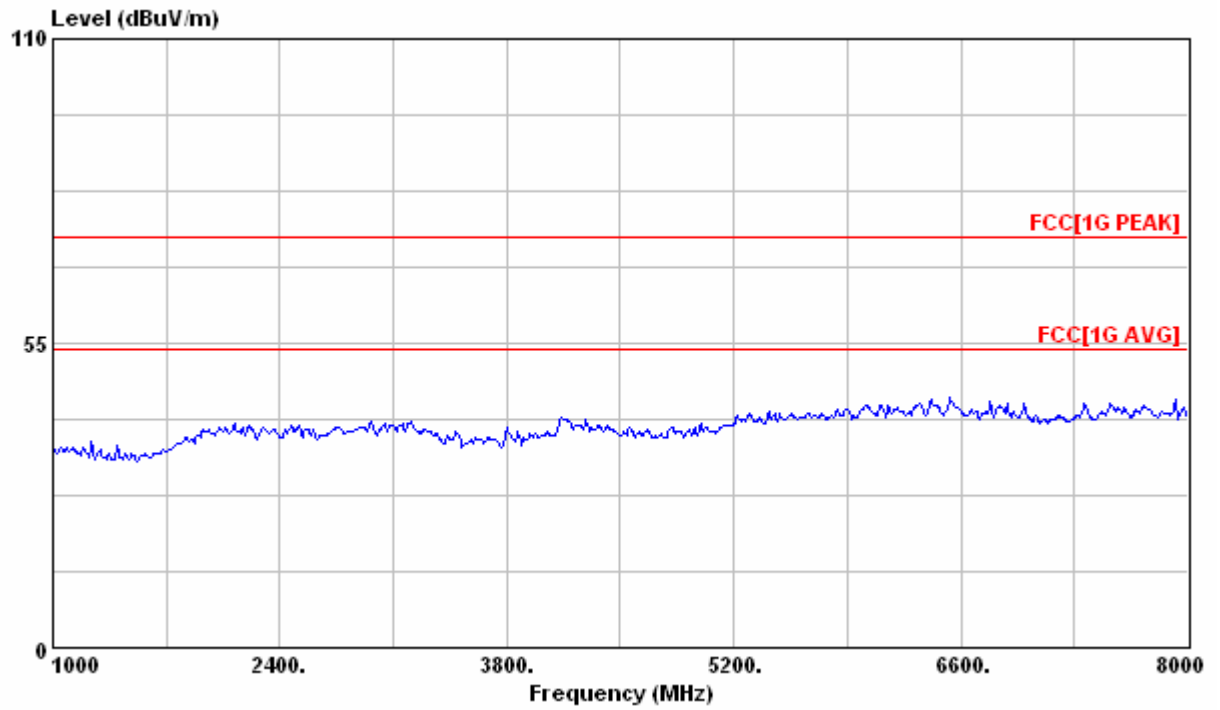


Note:

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

No signal can be detected from 8GHz to 25GHz, so the graphs are omitted above 8GHz.

Test Model	**: Channel 39(2441MHz), Continuous Receiving**		
Test Distance	**:** 3m	**Tester**	**:** Bill
Antenna Polarization	**:** Horizontal	**Frequency Range :**	1GHz~25GHz

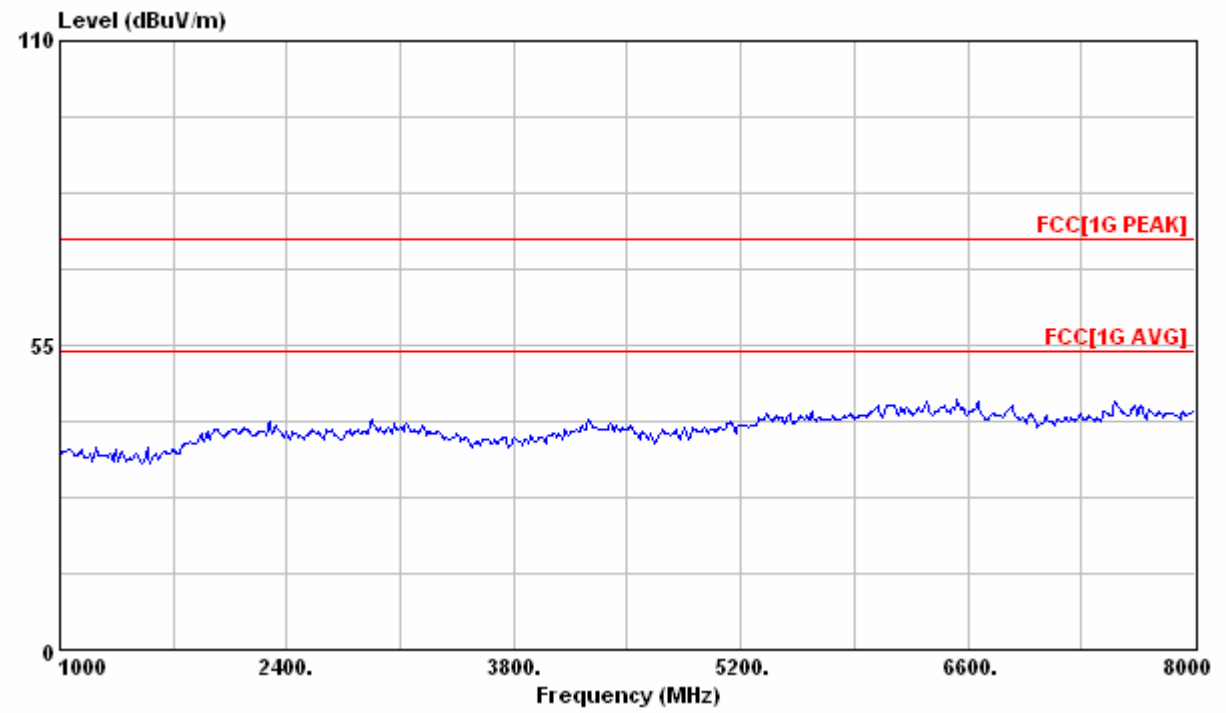


Note:

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

No signal can be detected from 8GHz to 25GHz, so the graphs are omitted above 8GHz.

Test Model	**: Channel 78(2480MHz), Continuous Receiving**		
Test Distance	**:** 3m	**Tester**	**:** Bill
Antenna Polarization	**:** Vertical	**Frequency Range :**	1GHz~25GHz

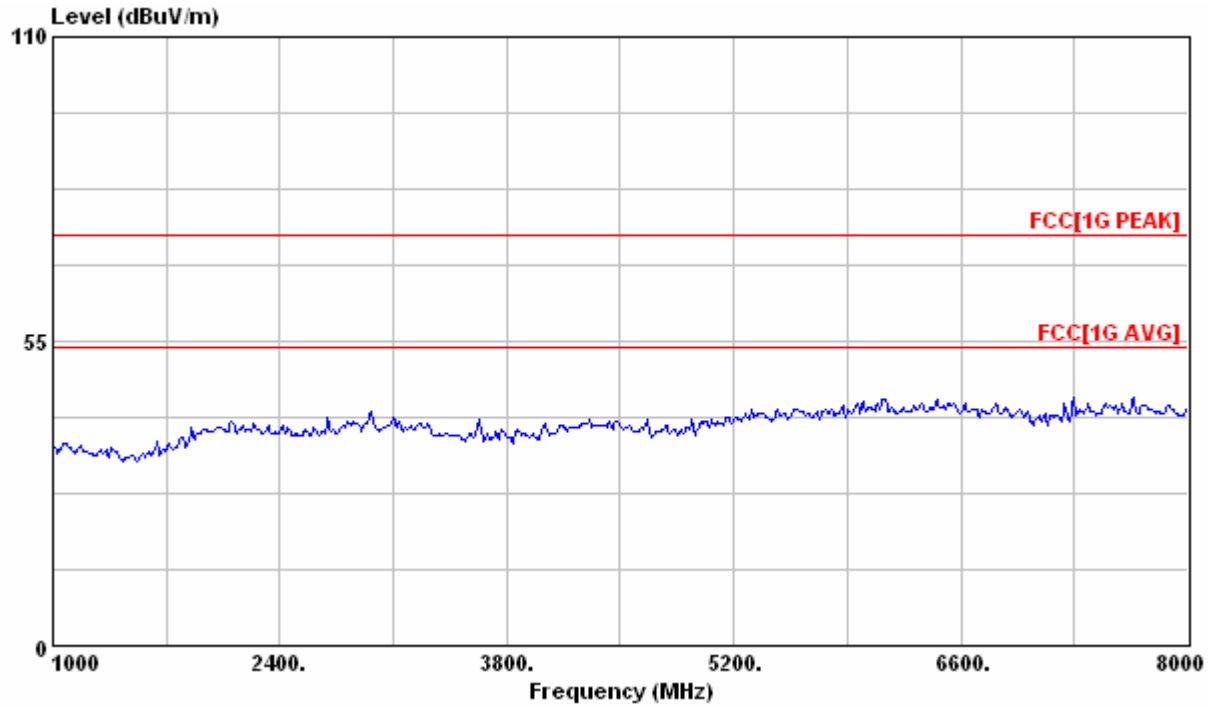


Note:

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

No signal can be detected from 8GHz to 25GHz, so the graphs are omitted above 8GHz.

Test Model	**: Channel 78(2480MHz), Continuous Receiving**		
Test Distance	**:** 3m	**Tester**	**:** Bill
Antenna Polarization	**:** Horizontal	**Frequency Range :**	1GHz~25GHz



Note:

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

No signal can be detected from 8GHz to 25GHz, so the graphs are omitted above 8GHz.

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 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	E4405B/ MY45106706	March 11,2007	March 11,2008

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：28°C ; Relative Humidity : 64%

7.3 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 and repeat the step b

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

7.4 Test configuration

7.5 Test Data

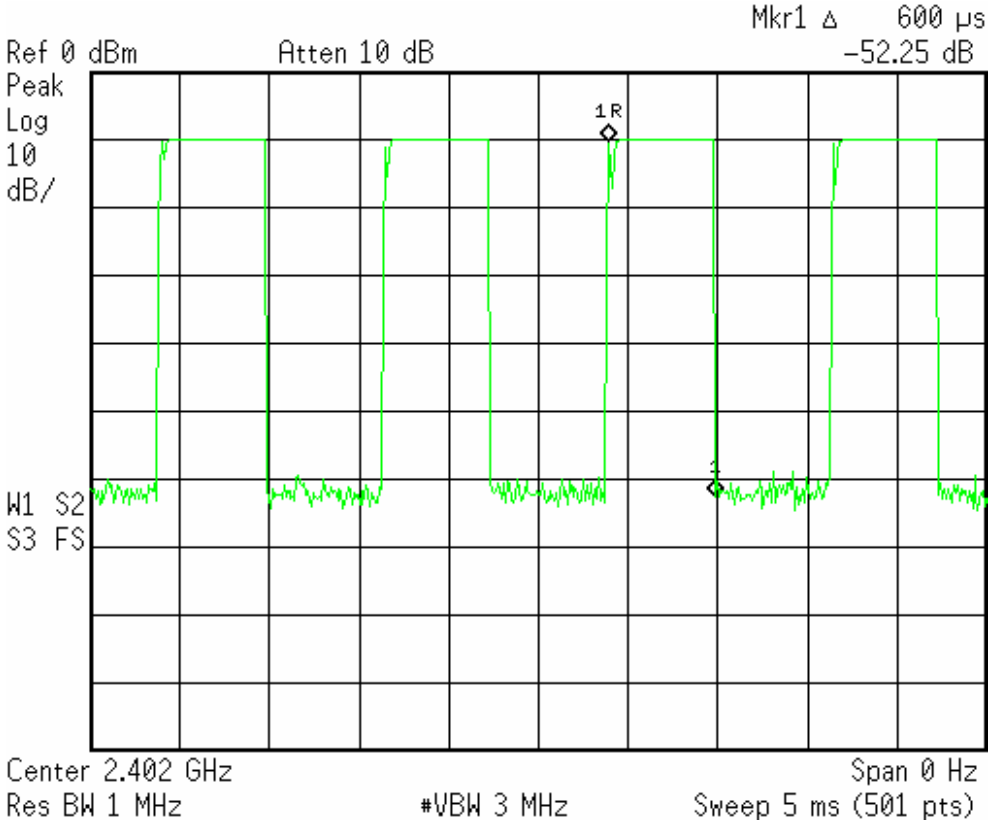
Test Mode : Continuous Transmitting **Tester :** Bill

Operating Frequency (MHz)	Data Type	Single Packet Duration Time (ms)	Hopping Repetition Rate (1/s)	Dwell Time (ms)	Limit (ms)	Margin (ms)
2402	DH1	0.60	10.13	139.89	400	260.11
2402	DH3	1.86	5.06	272.30	400	127.70
2402	DH5	3.12	3.38	321.06	400	78.94

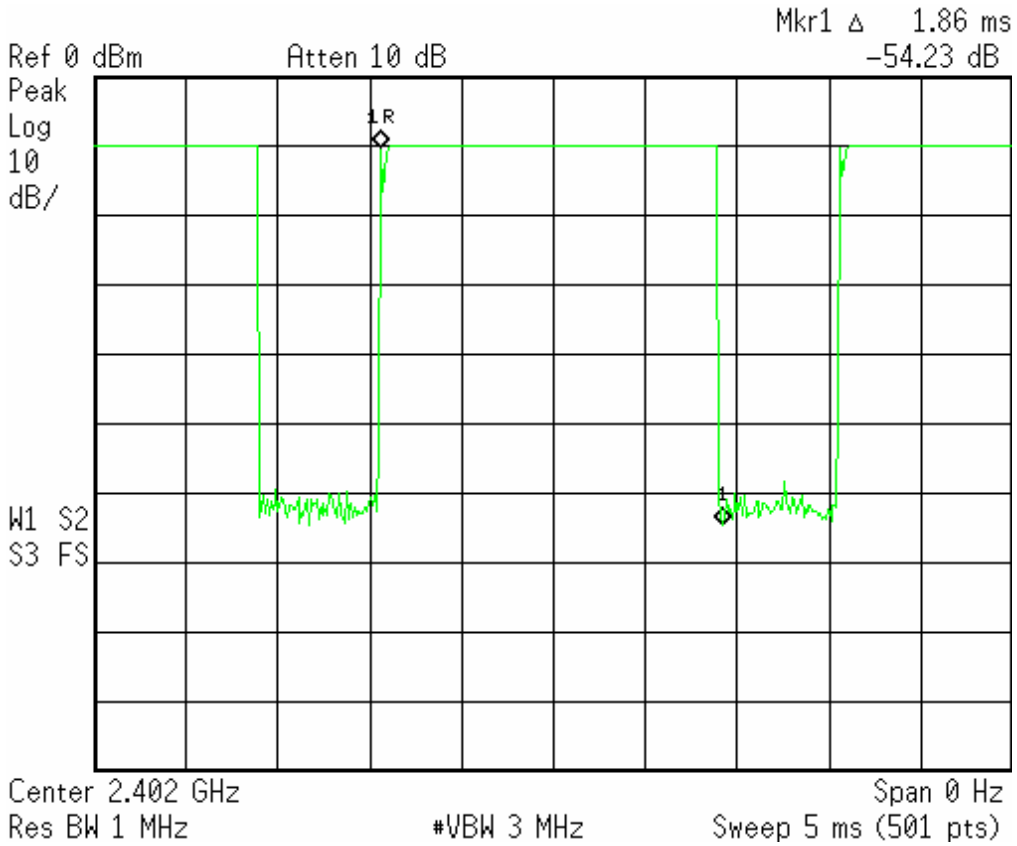
Note:

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

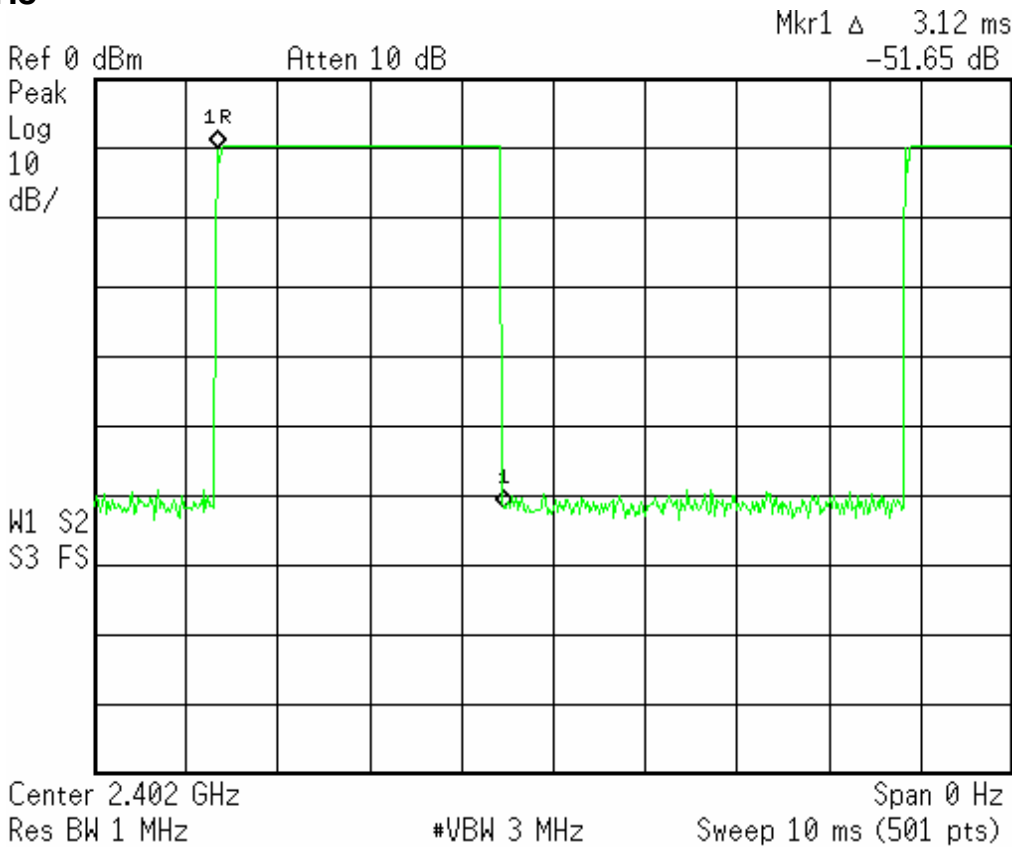
DH1


Mkr1 Δ 600 µs
Ref 0 dBm
Atten 10 dB
-52.25 dB
Peak
Log
10
dB/
1R
W1 S2
S3 FS
Center 2.402 GHz
Span 0 Hz
Res BW 1 MHz
#VBW 3 MHz
Sweep 5 ms (501 pts)

DH3


Mkr1 Δ 1.86 ms
Ref 0 dBm
Atten 10 dB
-54.23 dB
Peak
Log
10
dB/
1R
W1 S2
S3 FS
Center 2.402 GHz
Span 0 Hz
Res BW 1 MHz
#VBW 3 MHz
Sweep 5 ms (501 pts)

DH5


Mkr1 Δ 3.12 ms
Ref 0 dBm
Atten 10 dB
-51.65 dB
Peak
Log
10
dB/
1R
1
W1 S2
S3 FS
Center 2.402 GHz
Span 0 Hz
Res BW 1 MHz
#VBW 3 MHz
Sweep 10 ms (501 pts)

8 Antenna Requirement

8.1 Applied standard

According to 15.247(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

8.2 Antenna Information

This antenna's relative information as follow:

Brand	Model	Frequency Range (MHz)	Gain (dBi)	Comment
YoFree	YFBT01	2400 ~ 2483.5	2.7	

Antenna Position:

8.3 Result

Gain of the antenn is less than 6dBi.