

FCC Test Report

For

Wireless Speaker

Trade Name : Dell
Model No. : WL6000
FCC ID : TQYRSMS5501WA00
IC ID : 6233A-R5501WA0
Report No. : RF-A25-0606-050
Date of Receipt : August 2, 2006
Date of Report : August 7, 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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Certification of Compliance

Equipment under Test : Wireless Speaker
Trade Name : Dell
Model No. : WL6000
FCC ID : TQYRSMS5501WA00
IC ID : 6233A-R5501WA0
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 E
RSS-210 Issue 6
Date of Testing : August 3~4, 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 EMC 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 : Aug. 7, 2006
(Cathy Chen/ Technical Manager)
APPROVED BY : J. Y. Shih , DATE : Aug. 7, 2006
(Tsun-Yu Shih/Laboratory Head)

Contents

1. General Description	5
1.1 General Description of EUT	5
1.2 Characteristic of EUT	5
1.3 Test Methodology	5
1.4 Requirement for Compliance	6
1.5 Layout of the Setup	8
1.6 Test Facility	9
1.7 Measurement Uncertainty	10
2. Maximum Peak Output Power and Power Density Measurement.....	11
2.1 Applied standard	11
2.2 Measurement Procedure.....	11
2.3 Test Configuration	11
2.4 Test Instruments	12
4.1 Test Results	13
3. Peak Excursion Measurement	19
3.1 Applied standard	19
3.2 Measurement Procedure.....	19
3.3 Test Configuration.....	19
3.4 Test Instruments	20
3.5 Test Results	21
4. Radiated Emission Measurement	23
4.1 Applied Standard	23
4.2 Measurement Procedure.....	24
4.3 Test Configuration	25
4.4 Test Instruments	26
4.5 Test Results	28

5.	Conducted Emission Measurement	63
5.1	Applied standard	63
5.2	Measurement Procedure.....	63
5.3	Test configuration	64
5.4	Test Instruments	65
5.5	Test Data	66
6.	Antenna Requirement.....	68
6.1	Applied standard	68
6.2	Antenna Information	68
6.3	Result	68

Attachment 1 – Photographs of the Test Configurations

Attachment 2 – External Photographs of EUT

Attachment 3 – Internal Photographs of EUT

1. General Description

1.1 General Description of EUT

Equipment under Test : Wireless Speaker
Model No. : WL6000
FCC ID : TQYRSMS5501WA00
IC ID : 6233A-R5501WA0
Test Voltage : AC 120V/60Hz

1.2 Characteristic of EUT

Frequency Range : 5150~5250MHz
Channel Numbers : 4
Channel Frequency : 5180, 5200, 5220, 5240
Function Modulation: DSSS

The EUT is used to transmit command only. Please refer to the user's manual for the details.

1.3 Test Methodology

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

1.4 Requirement for Compliance

(1) Maximum Peak Output Power and Power Density

According to 15.407(a)(1), for the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10\log B$, where B is the 26 dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1 MHz band.

(2) Peak Excursion

According to 15.407(a)(6), the ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

(3) Radiation emission

According to 15.407(b)(1), for transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

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

Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

(4) Restricted Band

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

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

² Above 38.6

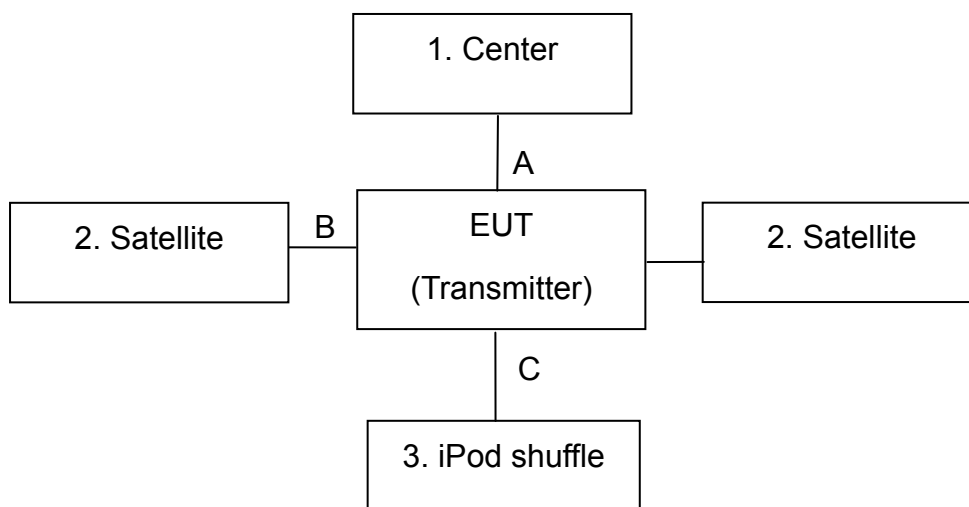
(5) Conduction Emission Requirement

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.

1.5 Layout of the Setup



The Support Units :

No.	Unit	Model No./ Serial No.	Trade Name	Power Code	Supported by lab.
1	Center Speaker	WL6000	Dell	N/A	
2	Satellite Speaker	WL6000	Dell	N/A	
3	iPod shuffle	M9724PA/A/ 5D518SA6RS9	Apple	N/A	✓

Connecting Cables :

No.	Cable	Length	Shielded	Core	Shielded Backshell	Supported by lab.	Note
A	D-9 Comment Cable	1.7m	✓				
B	Audio Cable	3m	✓				
C	Audio Cable	1.5m	✓				

Justification:

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

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

1.6 Test Facility

Test Room	Type of Test Room	Descriptions
<input checked="" type="checkbox"/> 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.
<input checked="" type="checkbox"/> TR4	Shielding Room (5m×3m×3m)	For the RF conducted emission measurement.
<input checked="" type="checkbox"/> 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)	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
Output Power	4.44dB
Radiated Emission: (below 1GHz)	Horizontal 3.74dB ; Vertical 3.85dB
Radiated Emission: (above 1GHz)	Horizontal 4.44dB ; Vertical 4.41dB

2. Maximum Peak Output Power and Power Density Measurement

Test Result: PASS

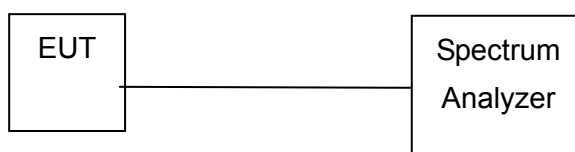
2.1 Applied standard

According to 15.407(a)(1), for the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10\log B$, where B is the 26 dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1 MHz band.

2.2 Measurement Procedure

1. 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.
2. The software provided by client enabled the EUT to transmit data at lowest, middle and highest channel frequencies individually.
3. Measurement the maximum peak output and power density and compare with the required limit.

2.3 Test Configuration



2.4 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
300kHz	1MHz	Peak	Maxhold	26dB Bandwidth
1MHz	3MHz	Peak	Maxhold	Maximum output power
1MHz	3MHz	Peak	Maxhold	Power density

Climatic Condition

Ambient Temperature : 25°C ; Relative Humidity : 66%

4.1 Test Results

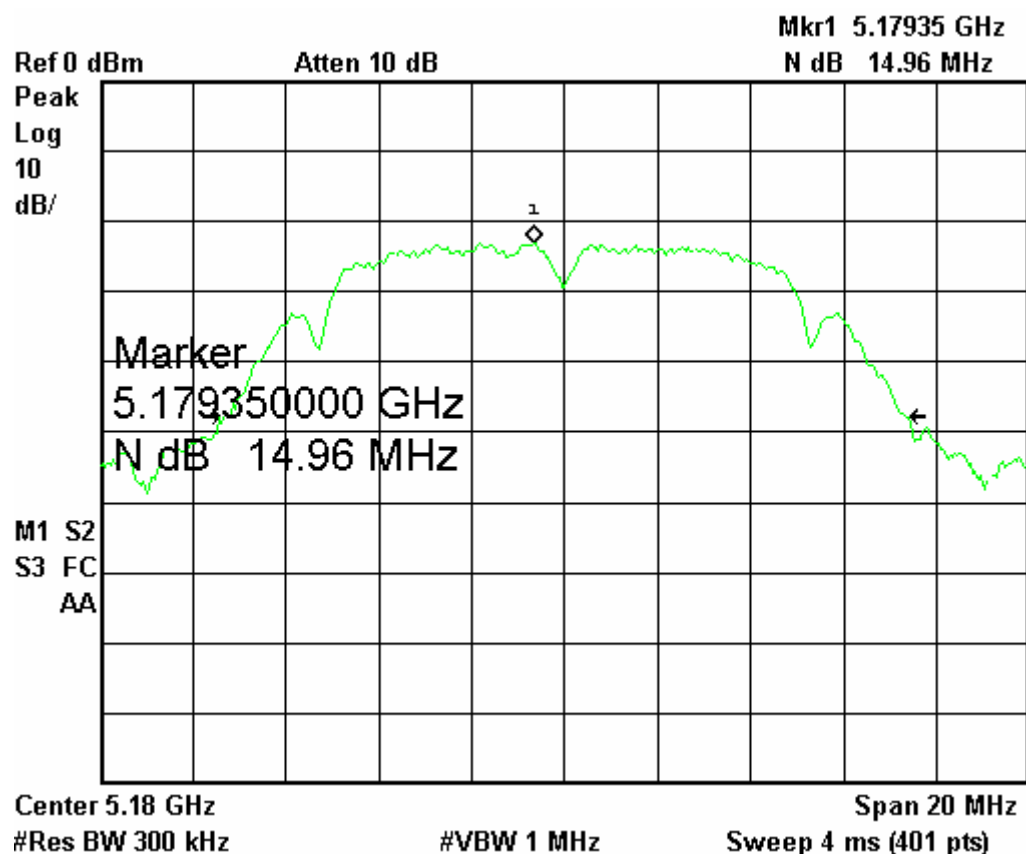
26dB Bandwidth

Test Mode : Continuous Transmitting

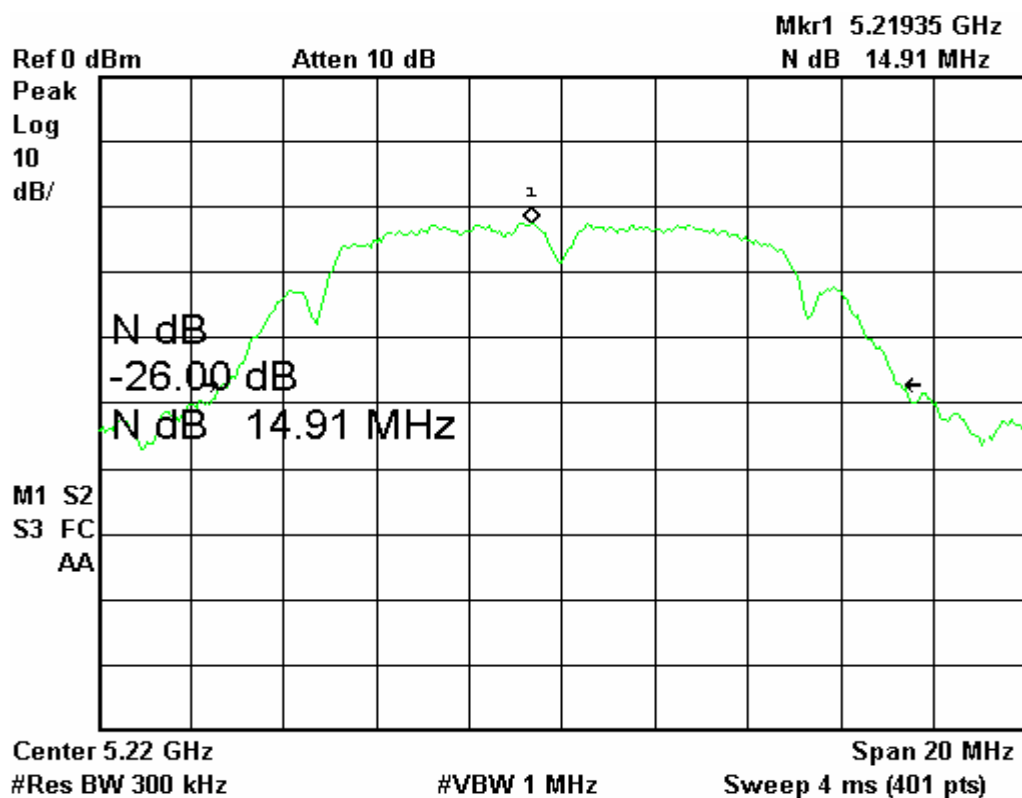
Tester : Cathy

Operating Frequency (MHz)	26 dB Bandwidth (MHz)	4dBm+10log(26 dB Bandwidth) (dBm)
5180	14.96	15.75
5220	14.91	15.73
5240	14.86	15.72

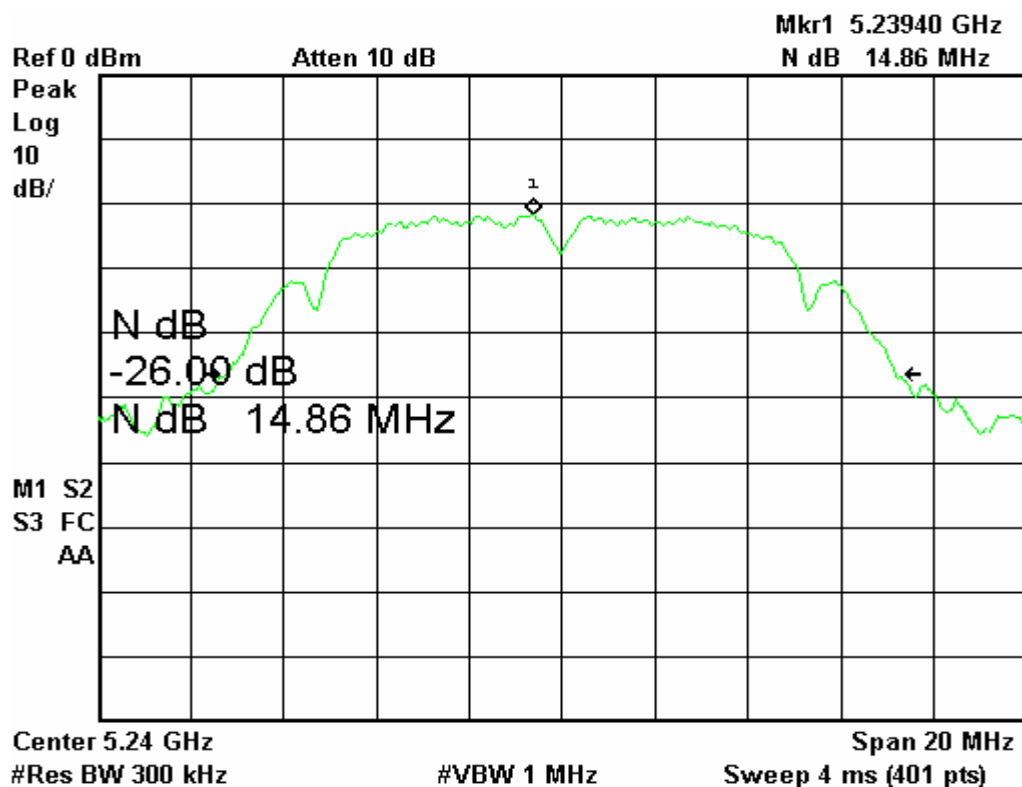
5180MHz



5220MHz



5240MHz



Maximum output power

Test Mode : Continuous Transmitting

Tester : Cathy

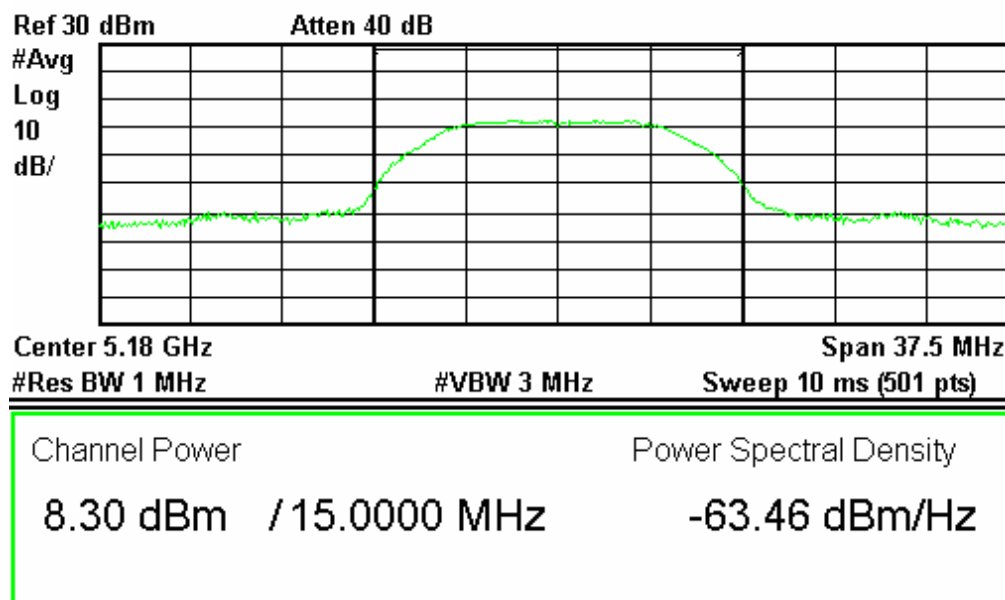
Operating Frequency (MHz)	Reading Data (dBm)	Correction Factor (dB)	Emission (dBm)	Limit (dBm)	Margin (dB)
5180	8.30	0.66	8.96	15.72	6.76
5220	8.72	0.60	9.32	15.72	6.40
5240	9.67	0.65	10.32	15.72	5.40

Note:

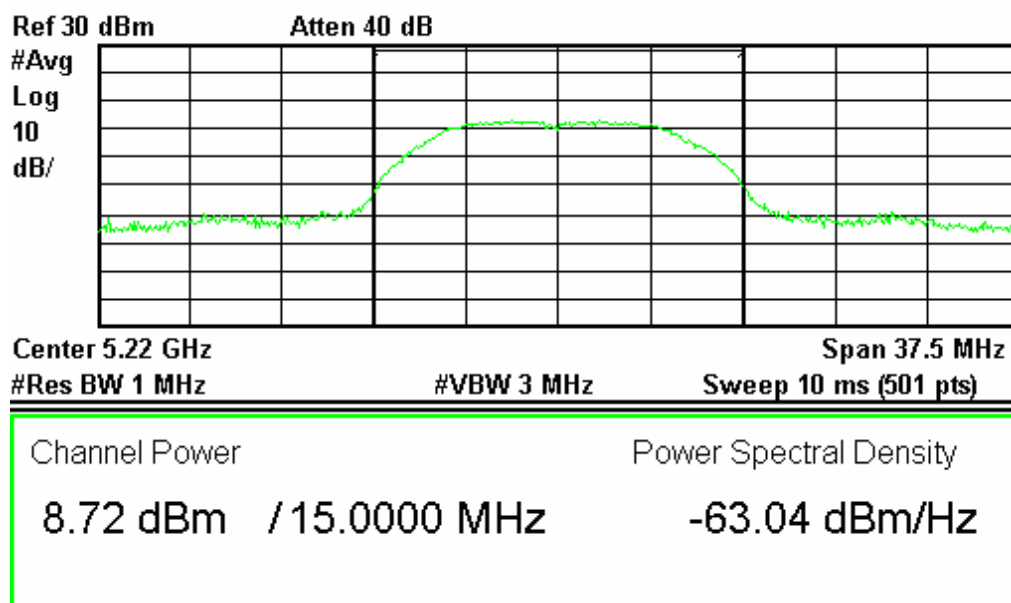
1. Correction Factor (dB) = Cable Loss
2. Emission (dBm) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission

According to 15.407(a)(1), maximum output power limit is 15.72dBm.

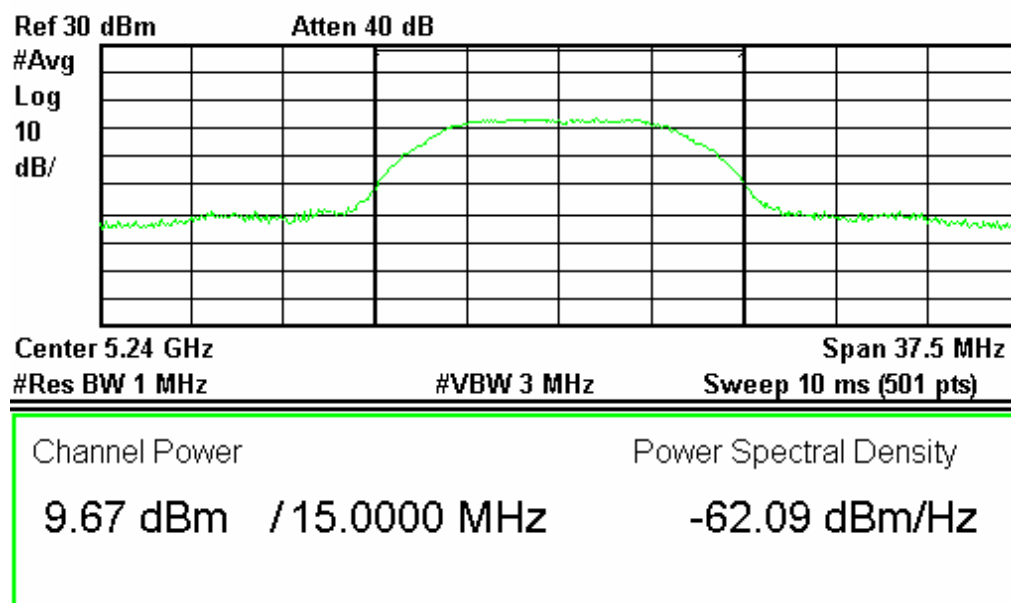
5180MHz



5220MHz



5240MHz



Power Density

Test Mode : Continuous Transmitting

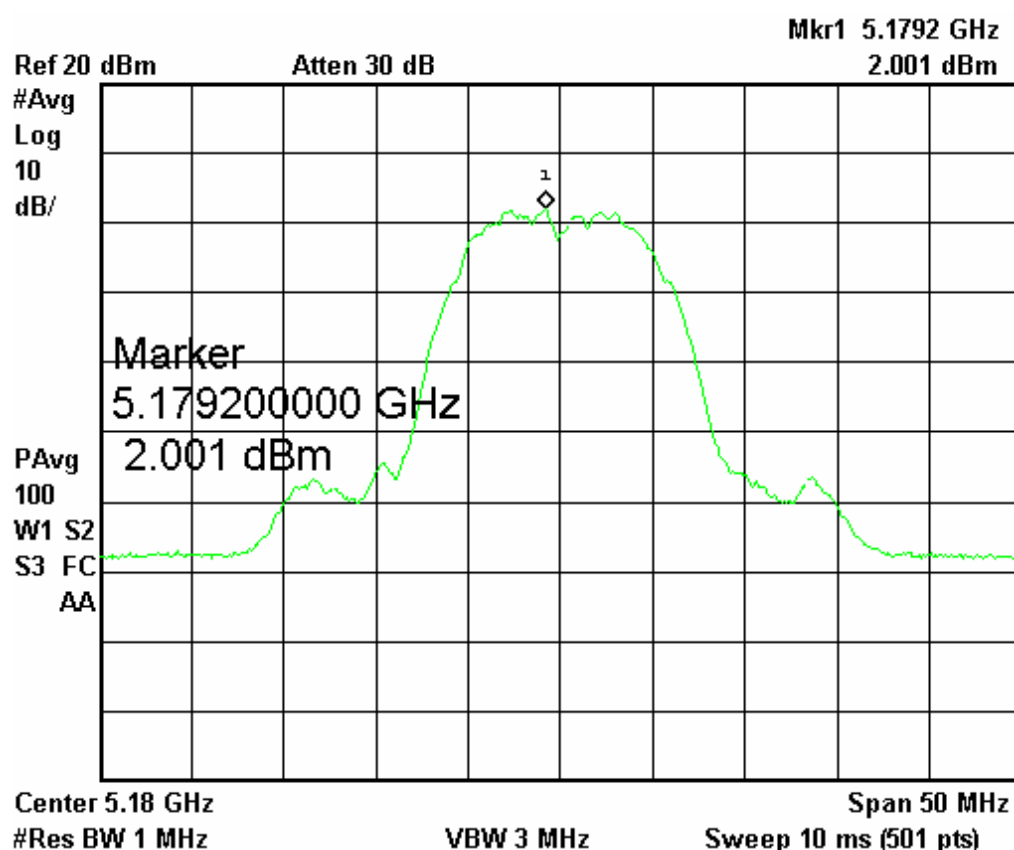
Tester : Cathy

Operating Frequency (MHz)	Reading Data (dBm)	Correction Factor (dB)	Emission (dBm)	Limit (dBm)	Margin (dB)
5180	2.001	0.66	2.661	4	1.339
5220	1.637	0.60	2.237	4	1.763
5240	1.740	0.65	2.390	4	1.610

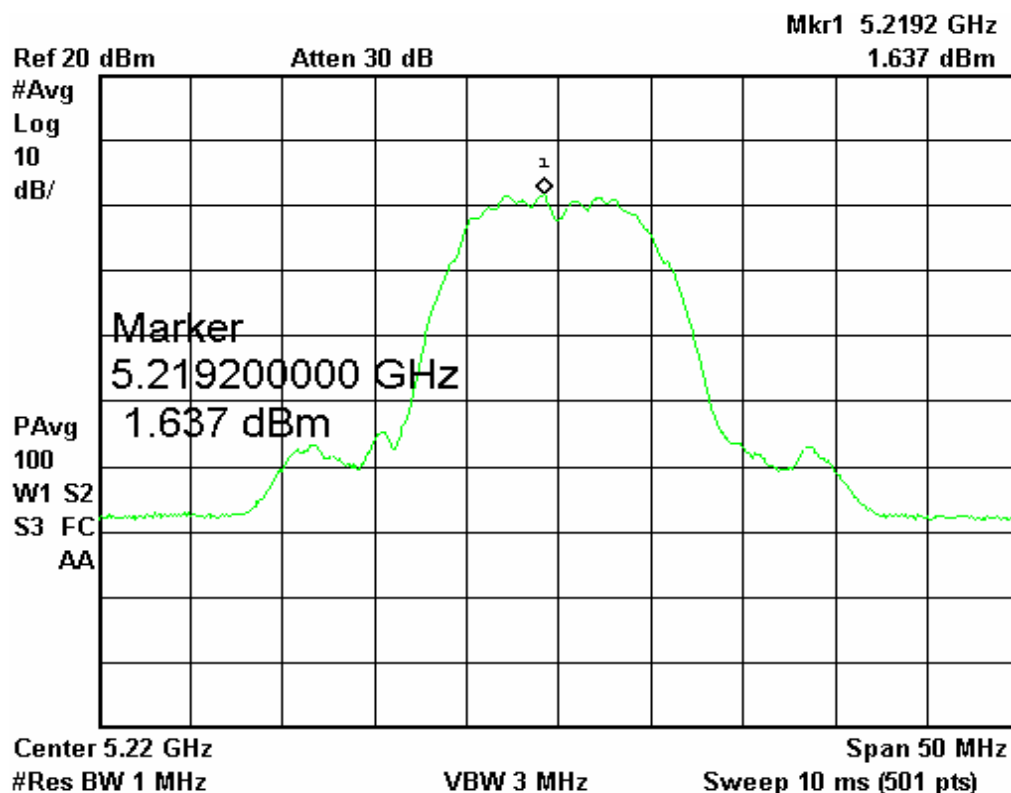
Note:

1. Correction Factor (dB) = Cable Loss
2. Emission (dBm) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission

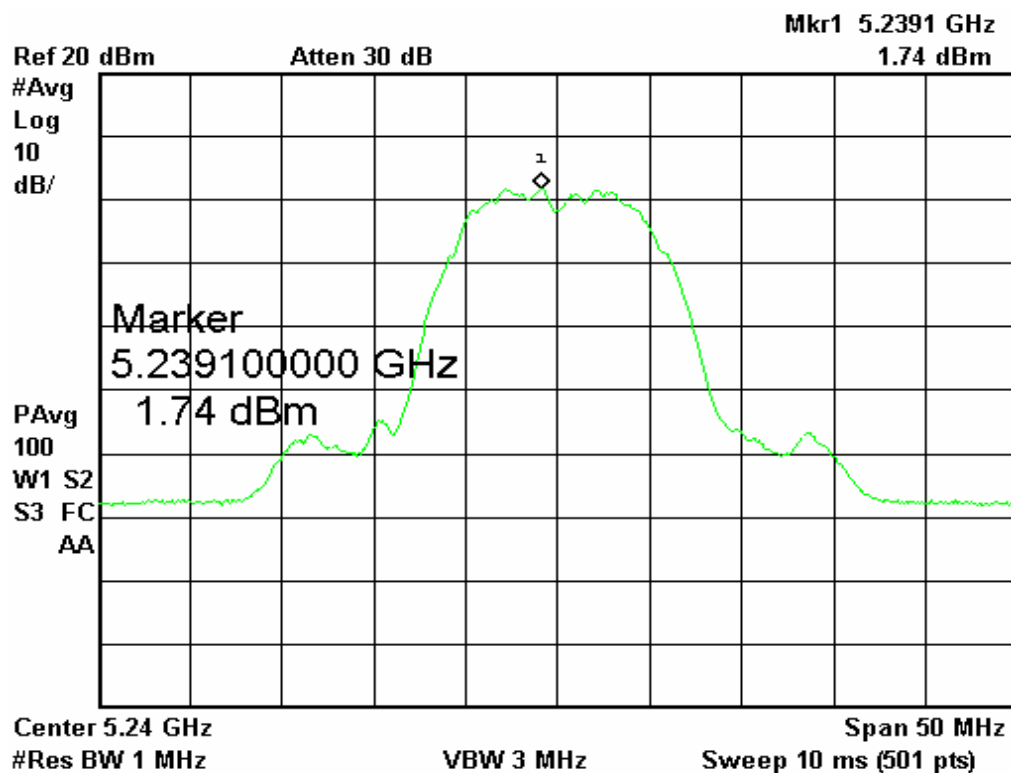
5180MHz



5220MHz



5240MHz



3. Peak Excursion Measurement

Test Result: PASS

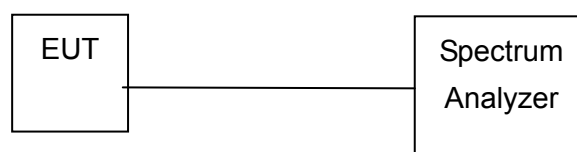
3.1 Applied standard

According to 15.407(a)(6), The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

3.2 Measurement Procedure

1. 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.
2. The software provided by client enabled the EUT to transmit data at lowest, middle and highest channel frequencies individually.
3. Measurement the peak excursion and compare with the required limit.

3.3 Test Configuration



3.4 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
1MHz	3MHz	Peak	Maxhold	Trace A – Green Line
1MHz	30kHz	Sample	Maxhold	Trace B – Blue Line

Climatic Condition

Ambient Temperature : 25°C ; Relative Humidity : 66%

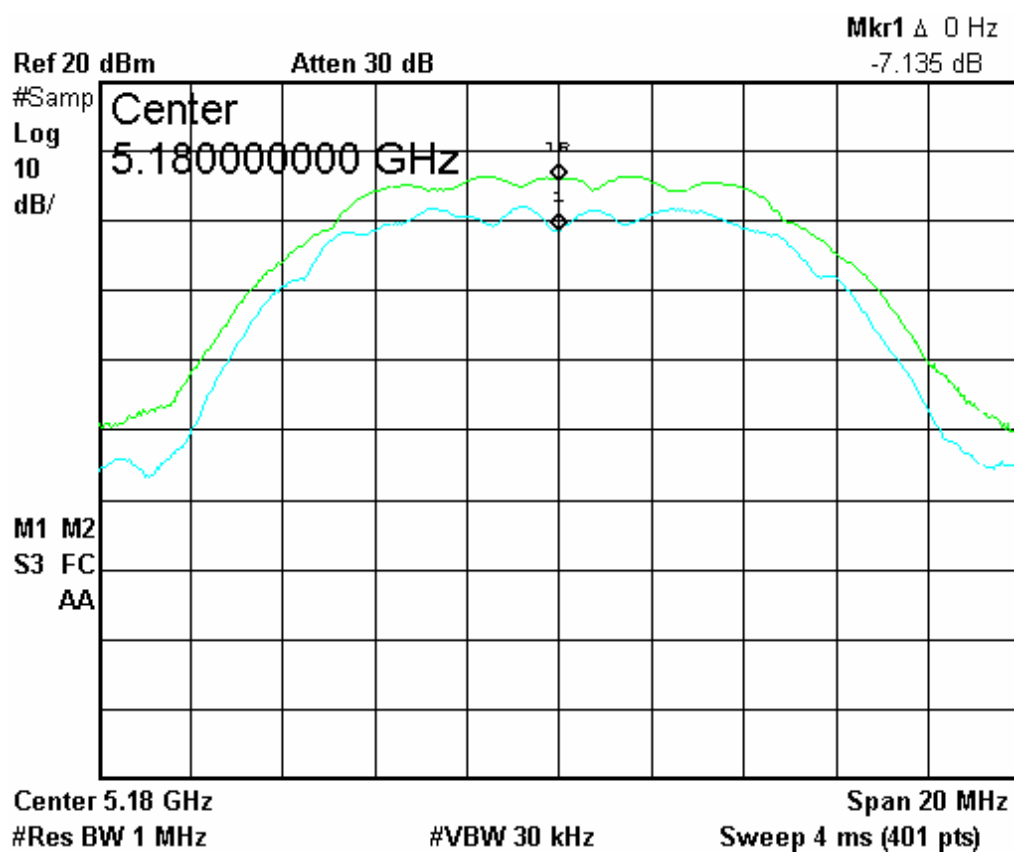
3.5 Test Results

Test Mode : Continuous Transmitting

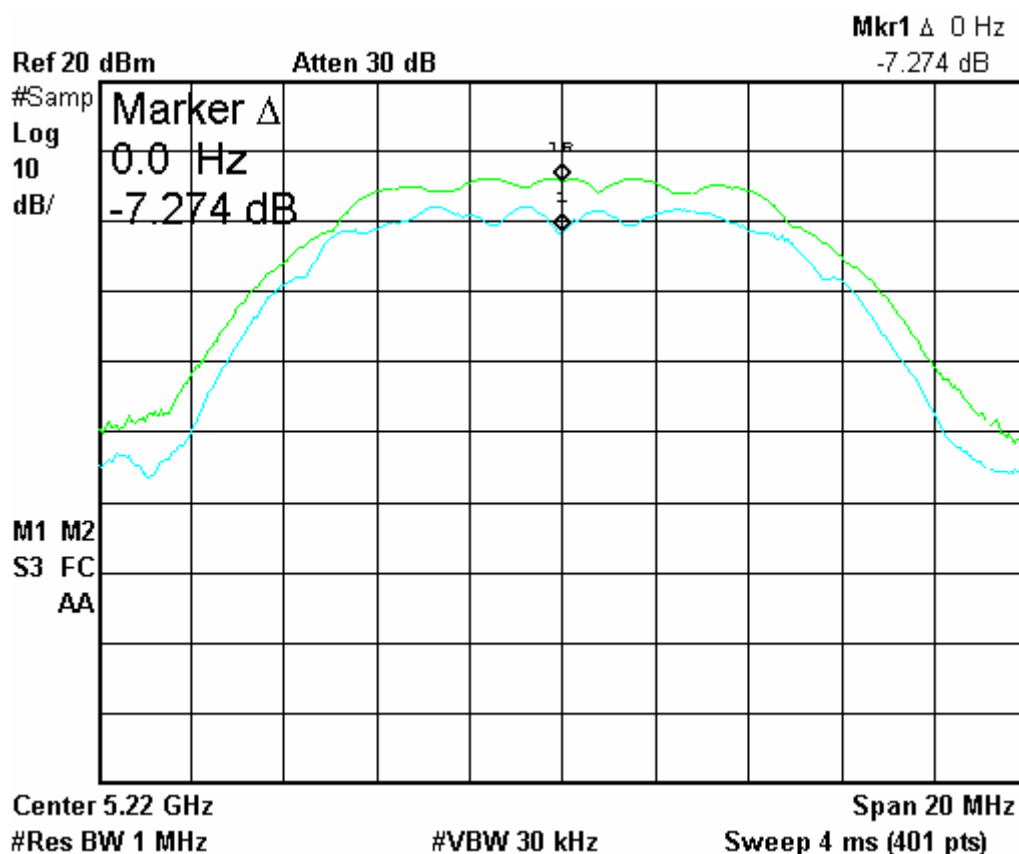
Tester : Cathy

Operating Frequency (MHz)	Delta (dB)	Limit (dB)	Margin (dB)
5180	7.135	13	5.865
5220	7.274	13	5.726
5240	7.551	13	5.449

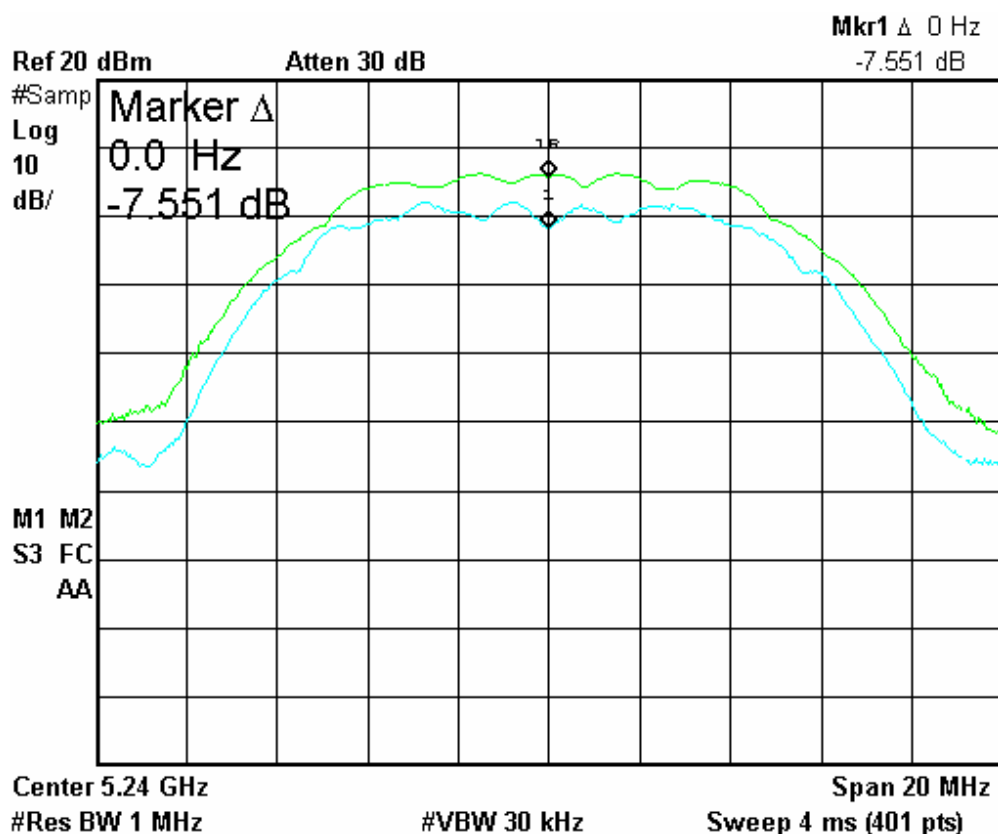
5150MHz



5220MHz



5240MHz



4. Radiated Emission Measurement

Result: PASS

4.1 Applied Standard

Out of the restricted band:

According to 15.407(b)(1), for transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm /MHz.

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength at 3 m:

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m} = 68.3 \text{ dBuV/m, where P is the EIRP (Watts)}$$

Within the restricted band:

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

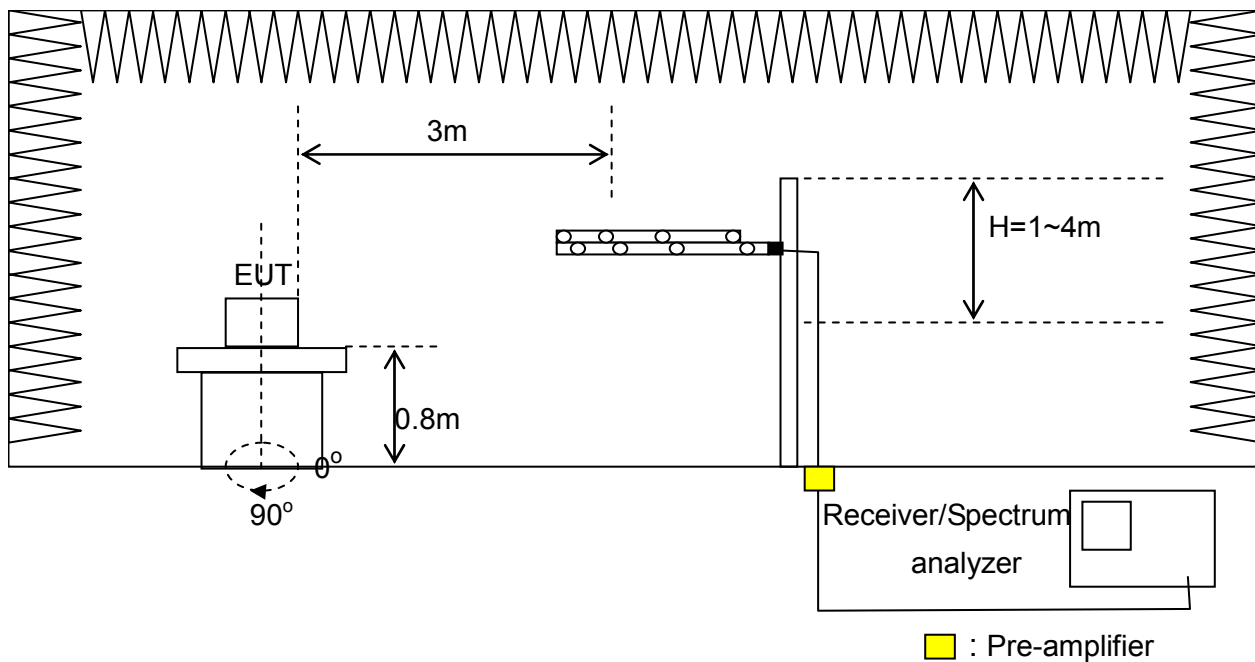
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

4.2 Measurement Procedure

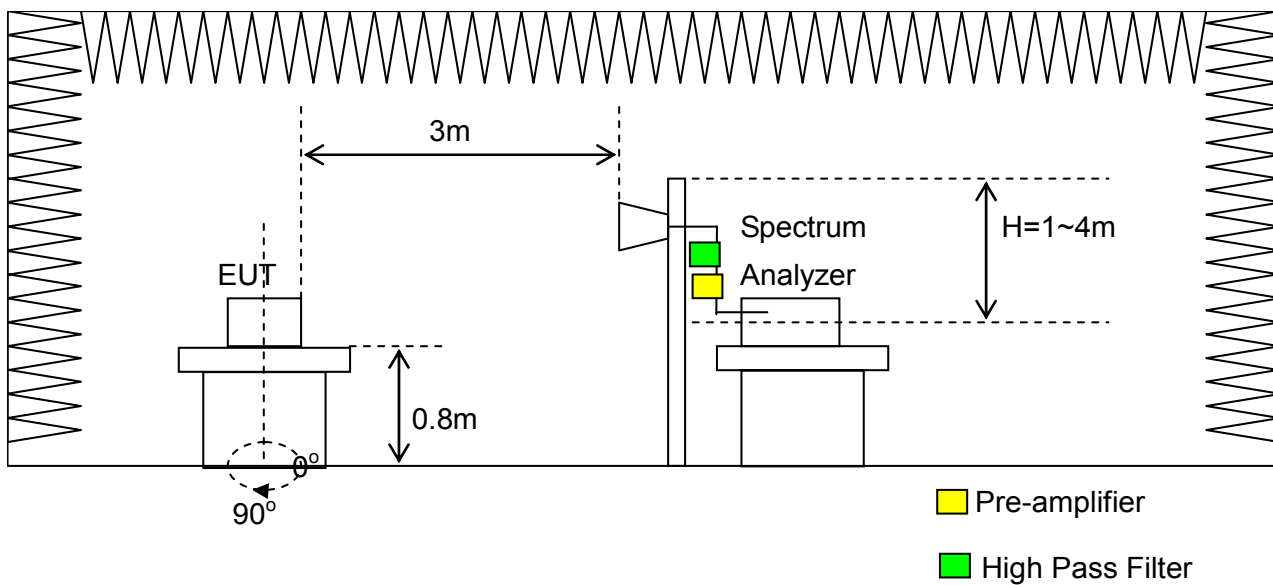
- a. The EUT was set up per the test configuration figured in the next section of this chapter to simulate the typical usage per the user's manual.
- b. The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.
- c. If 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.

4.3 Test Configuration

30MHz ~ 1GHz



Above 1GHz



4.4 Test Instruments

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

Relative Humidity : 68%

4.5 Test Results

Band Edge Measurement

Test Mode : Continuously Transmitting

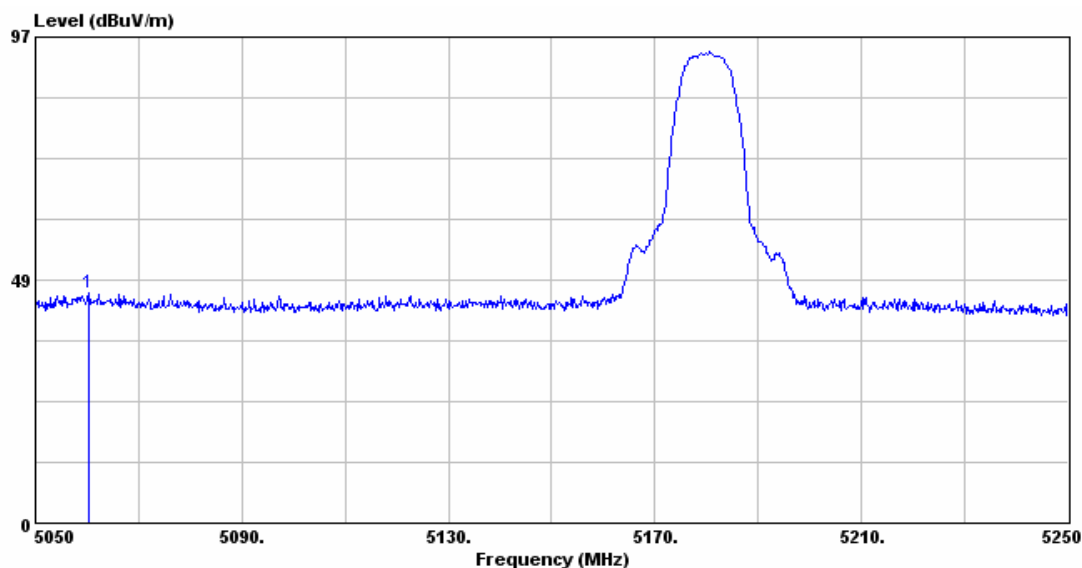
Tester : Bill

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.
5180	V	5060	39.78	27.12	6.04	45.82	33.16	74.00	54.00	28.18	20.84
5180	H	5059	41.65	29.86	6.04	47.69	35.9	74.00	54.00	26.31	18.10
5240	V	5250	53.54	48.40	5.87	59.41	54.27	88.30	68.30	28.89	14.03
5240	H	5250	60.35	55.03	5.87	66.22	60.90	88.30	68.30	22.08	7.40

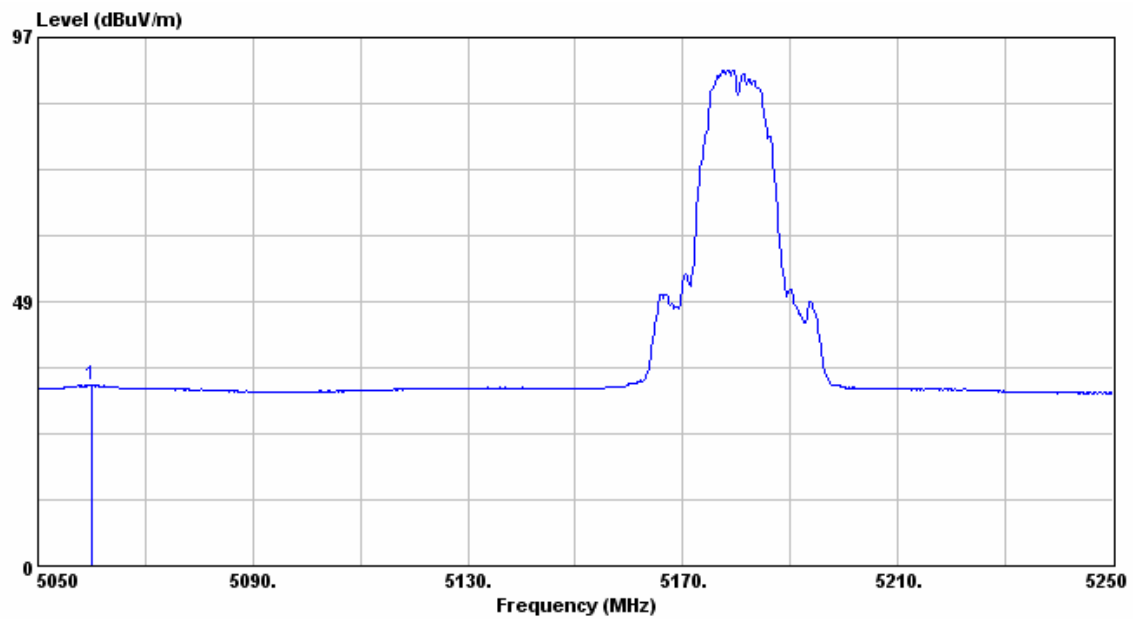
Note:

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.

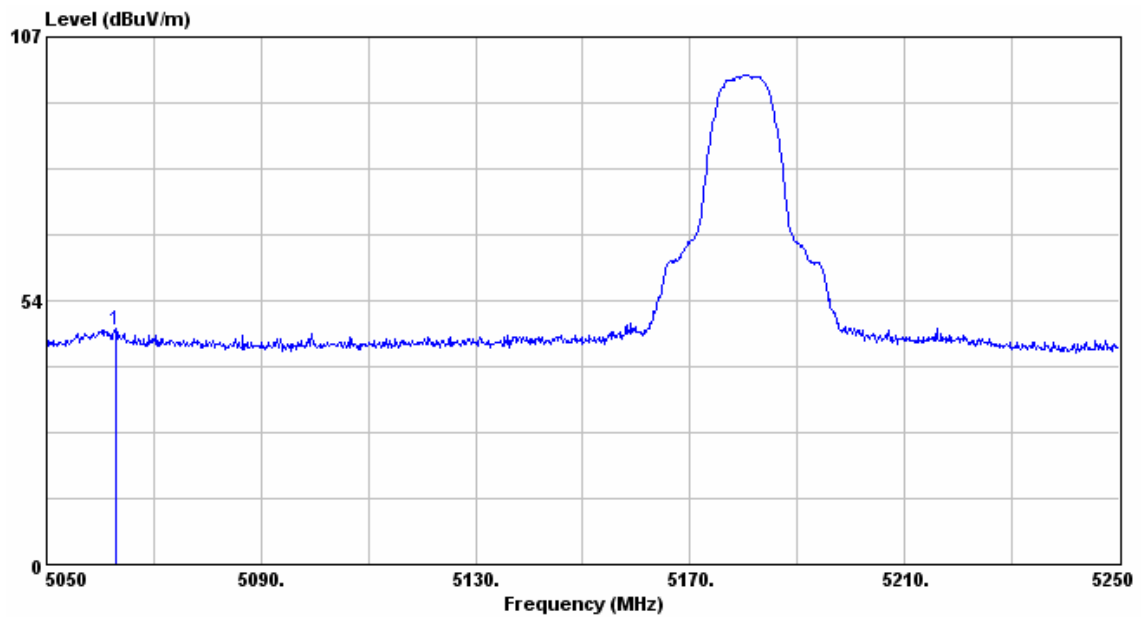
Low Channel (5180MHz), V Polarization, Peak



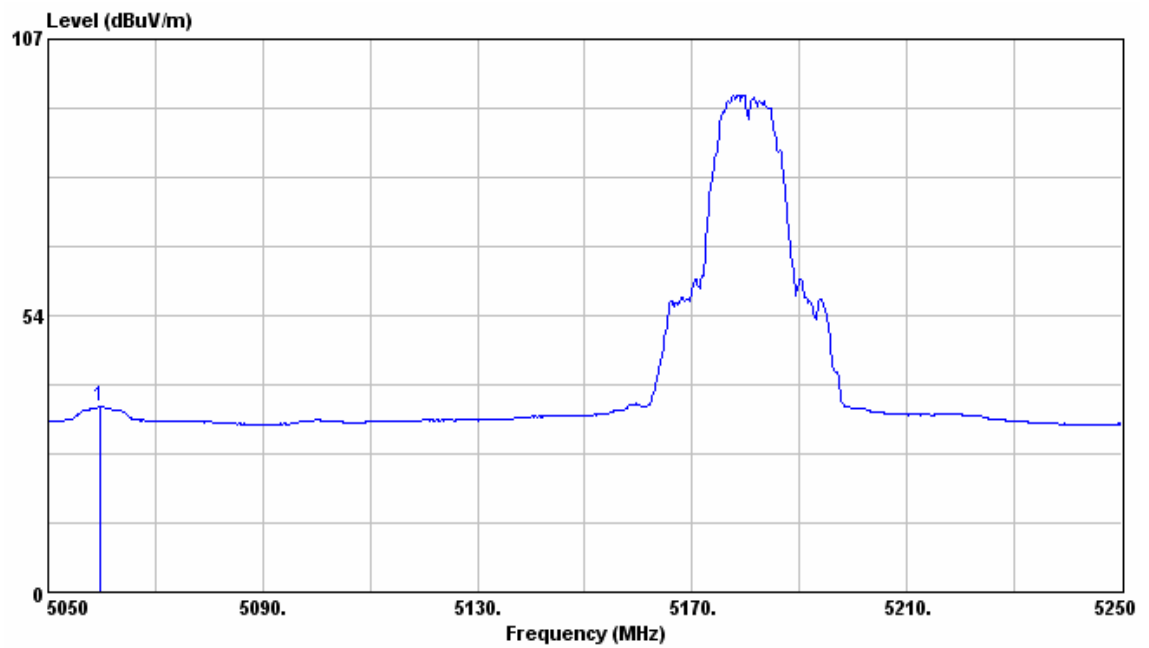
Low Channel (5180MHz), V Polarization, Average



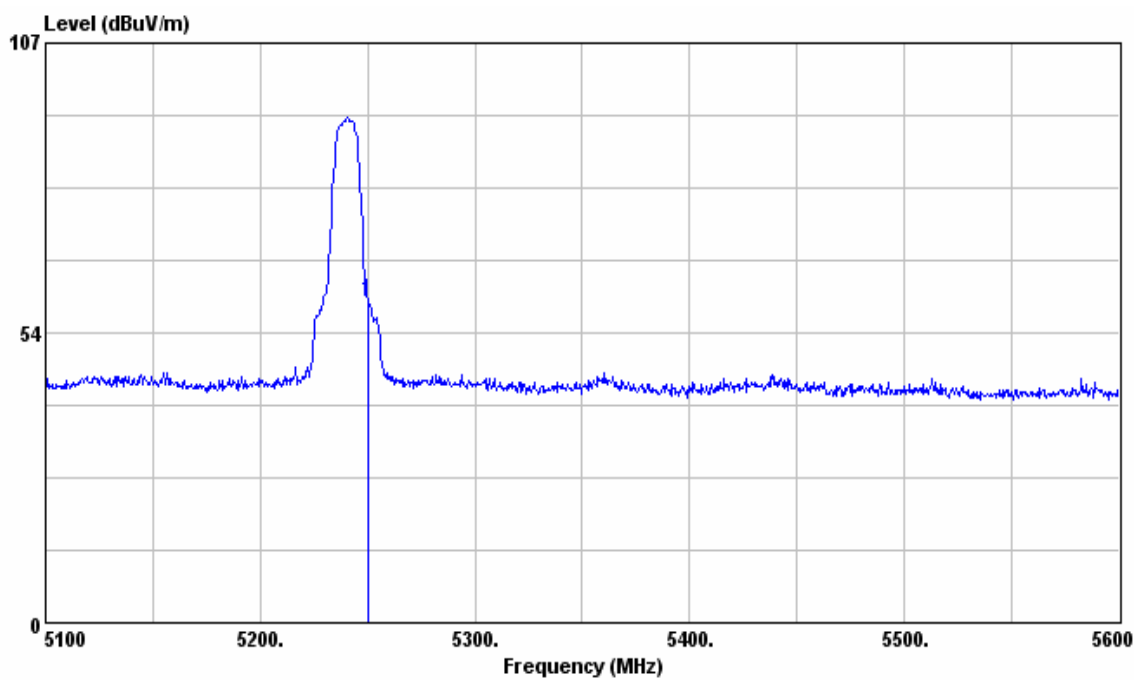
Low Channel (5180MHz), H Polarization, Peak



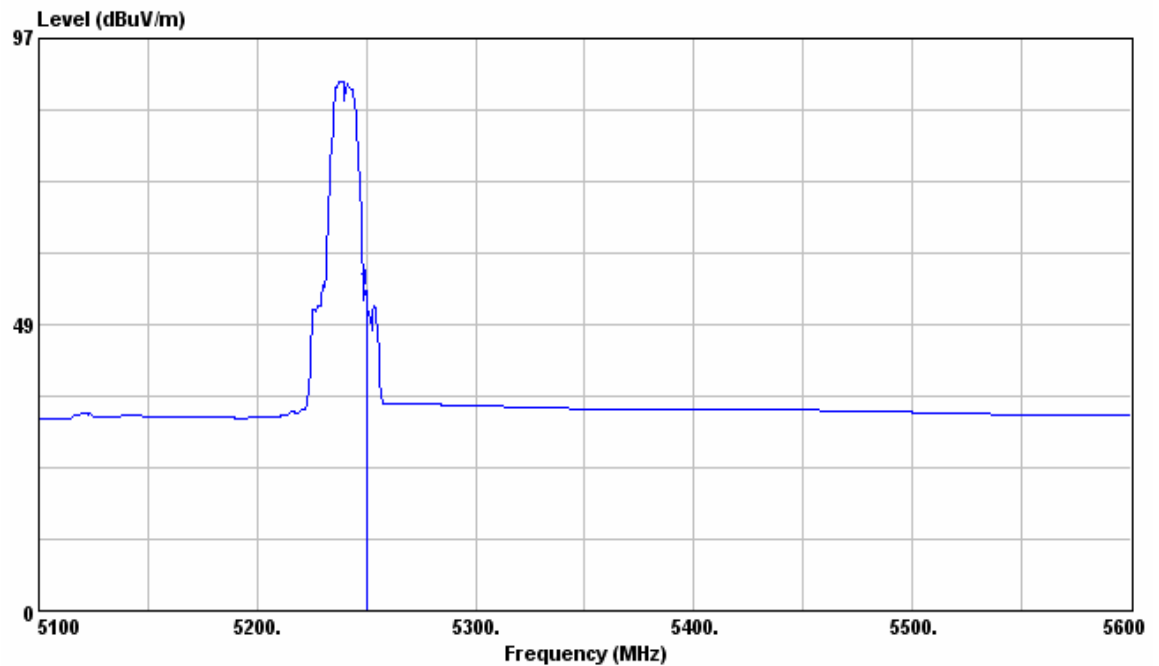
Low Channel (5180MHz), H Polarization, Average



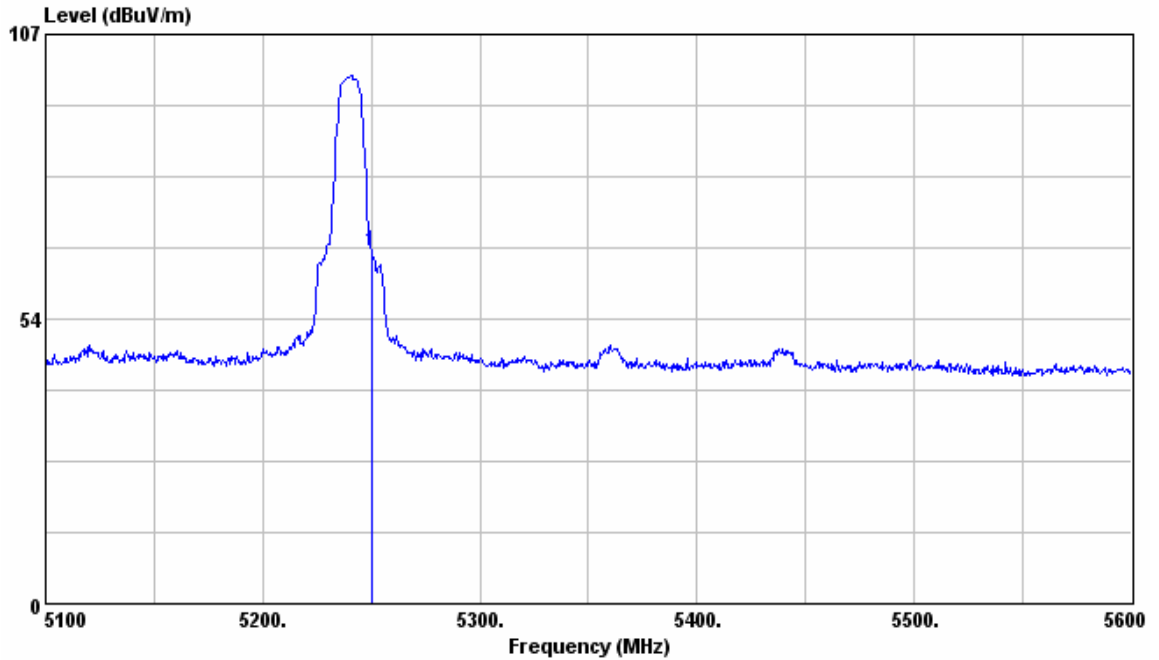
High Channel (5240MHz), V Polarization, Peak



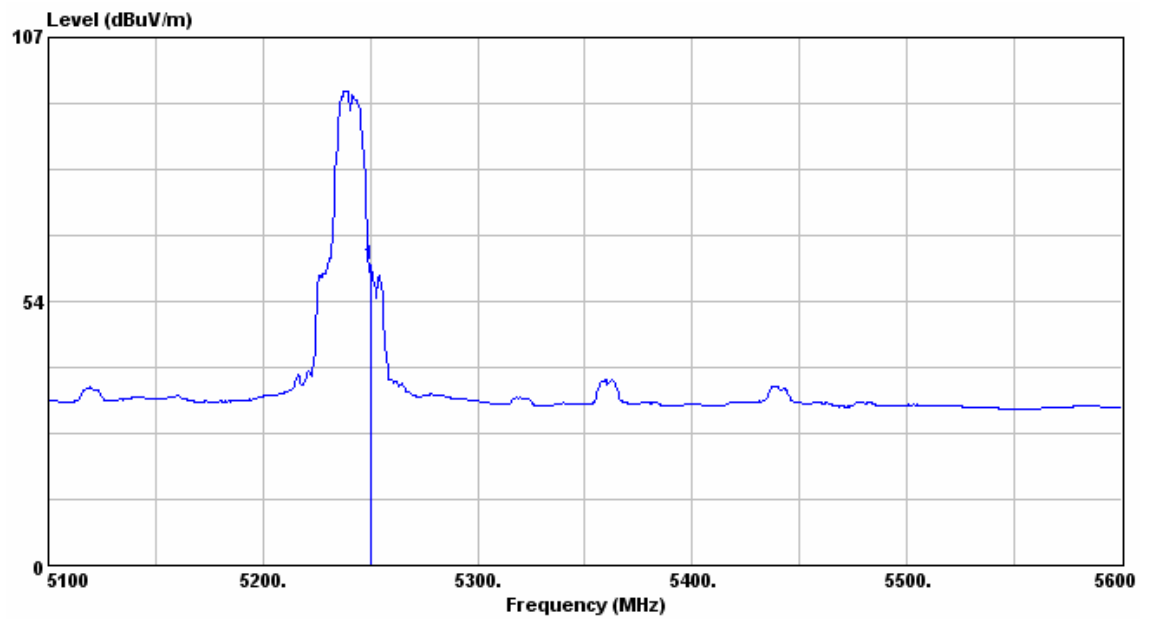
High Channel (5240MHz), V Polarization, Average



High Channel (5240MHz), H Polarization, Peak



High Channel (5240MHz), H Polarization, Average



Radiation Emission Measurement

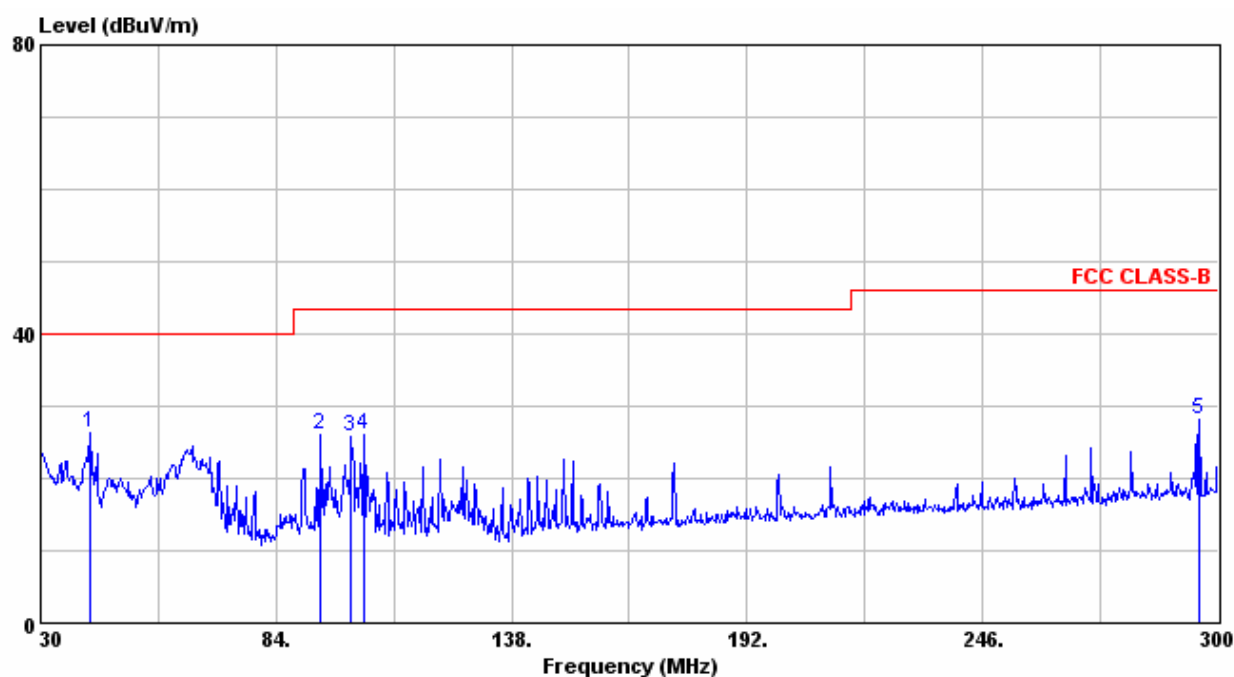
Below 1GHz

Test Mode : 5180MHz, Continuous Transmitting

Tester : Bill

Polarization : Vertical

Frequency Range : 30MHz~300MHz



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dB/m	dBuV	dBuV/m	dB	cm	deg		
1	41.340	26.34	-18.40	44.74	40.00	-13.66	---	---	VERTICAL	
2	94.260	25.96	-21.18	47.14	43.50	-17.54	---	---	VERTICAL	
3	101.280	25.73	-20.86	46.59	43.50	-17.77	---	---	VERTICAL	
4	103.980	26.03	-21.16	47.19	43.50	-17.47	---	---	VERTICAL	
5	295.680	28.11	-14.98	43.09	46.00	-17.89	---	---	VERTICAL	

Note :

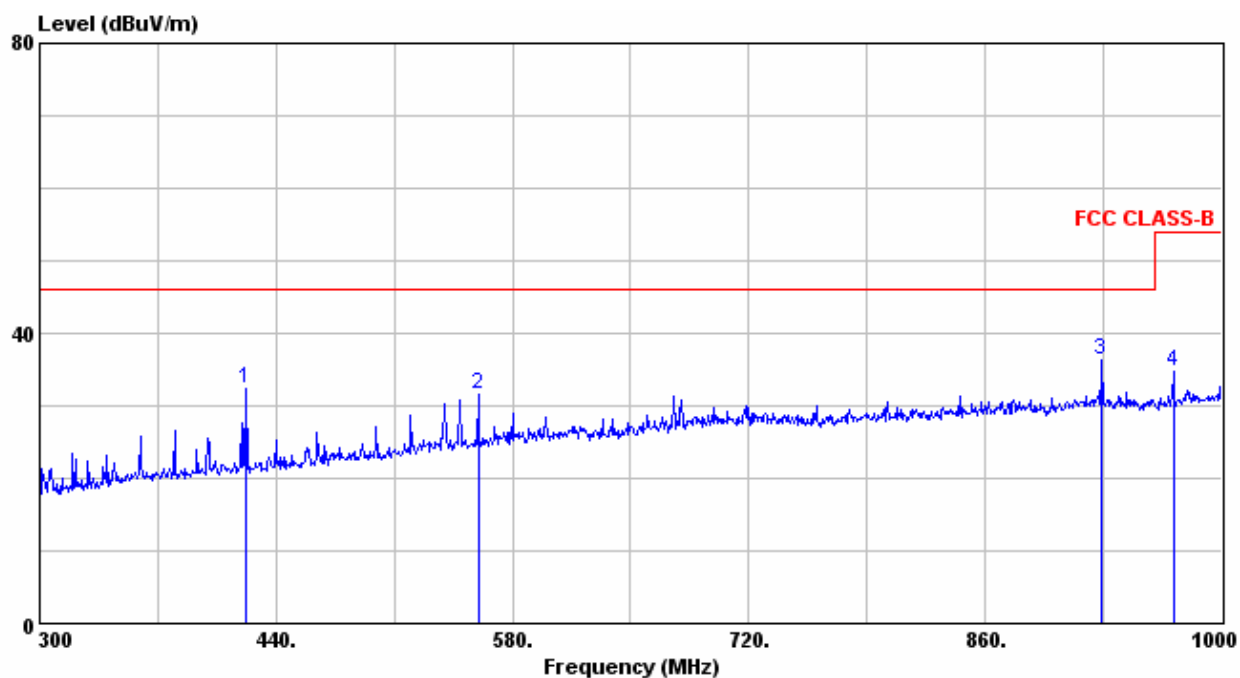
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level

Test Mode : 5180MHz, Continuous Transmitting

Tester : Bill

Polarization : Vertical

Frequency Range :300MHz~1GHz



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dB/m	dBuV	dBuV/m	dB	cm	deg		
1	422.500	32.43	-10.98	43.41	46.00	-13.57	---	---	VERTICAL	
2	559.700	31.52	-7.68	39.20	46.00	-14.48	---	---	VERTICAL	
3	929.300	36.21	-2.04	38.25	46.00	-9.79	---	---	VERTICAL	
4	971.300	34.77	-1.94	36.71	54.00	-19.23	---	---	VERTICAL	

Note :

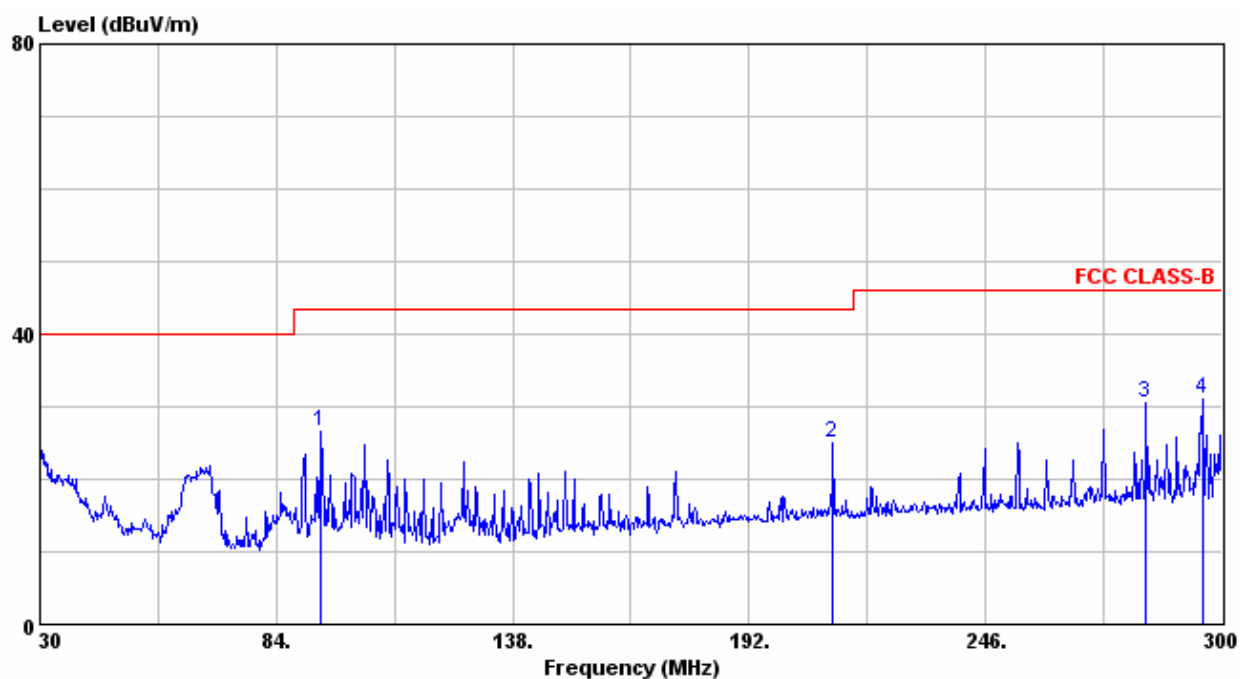
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level

Test Mode : 5180MHz, Continuous Transmitting

Tester : Bill

Polarization : Horizontal

Frequency Range : 30MHz~300MHz



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dB/m	dBuV	dBuV/m	dB	cm	deg		
1	94.260	26.54	-21.18	47.72	43.50	-16.96	---	---	HORIZONTAL	
2	211.170	25.08	-17.64	42.72	43.50	-18.42	---	---	HORIZONTAL	
3	282.720	30.55	-15.23	45.78	46.00	-15.45	---	---	HORIZONTAL	
4	295.680	31.15	-14.98	46.13	46.00	-14.85	---	---	HORIZONTAL	

Note :

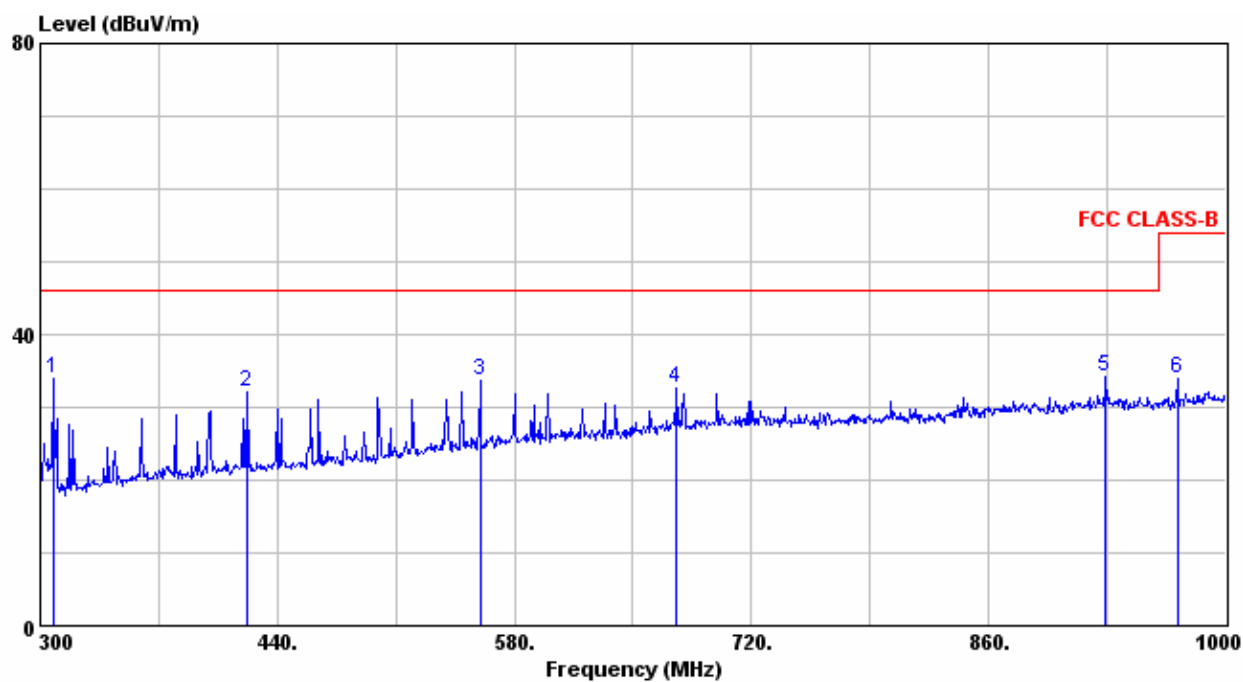
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level

Test Mode : 5180MHz, Continuous Transmitting

Tester : Bill

Polarization : Horizontal

Frequency Range :300MHz~1GHz



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dB/m	dBuV	dBuV/m	dB	cm	deg		
1 !	307.700	33.98	-14.49	48.47	46.00	-12.02	---	---	HORIZONTAL	
2	421.800	32.15	-11.00	43.15	46.00	-13.85	---	---	HORIZONTAL	
3 !	559.700	33.56	-7.68	41.24	46.00	-12.44	---	---	HORIZONTAL	
4	675.900	32.64	-5.45	38.09	46.00	-13.36	---	---	HORIZONTAL	
5 !	929.300	34.22	-2.04	36.26	46.00	-11.78	---	---	HORIZONTAL	
6	971.300	34.03	-1.94	35.97	54.00	-19.97	---	---	HORIZONTAL	

Note :

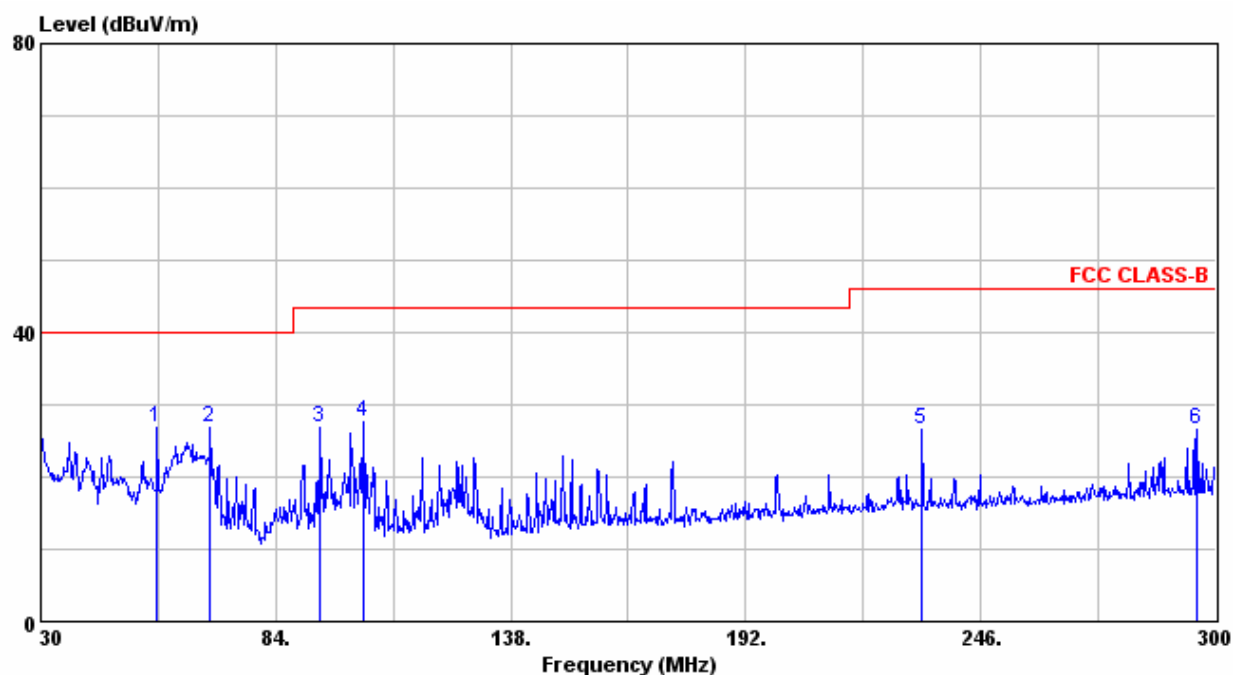
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBUV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level

Test Mode : 5220MHz, Continuous Transmitting

Tester : Bill

Polarization : Vertical

Frequency Range : 30MHz~300MHz



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dB/m	dBuV	dBuV/m	dB	cm	deg		
1	56.730	26.88	-21.74	48.62	40.00	-13.12	---	---	VERTICAL	
2	68.880	26.91	-22.66	49.57	40.00	-13.09	---	---	VERTICAL	
3	94.260	26.73	-21.18	47.91	43.50	-16.77	---	---	VERTICAL	
4	103.980	27.74	-21.16	48.90	43.50	-15.76	---	---	VERTICAL	
5	232.500	26.67	-16.82	43.49	46.00	-19.33	---	---	VERTICAL	
6	295.680	26.60	-14.98	41.58	46.00	-19.40	---	---	VERTICAL	

Note :

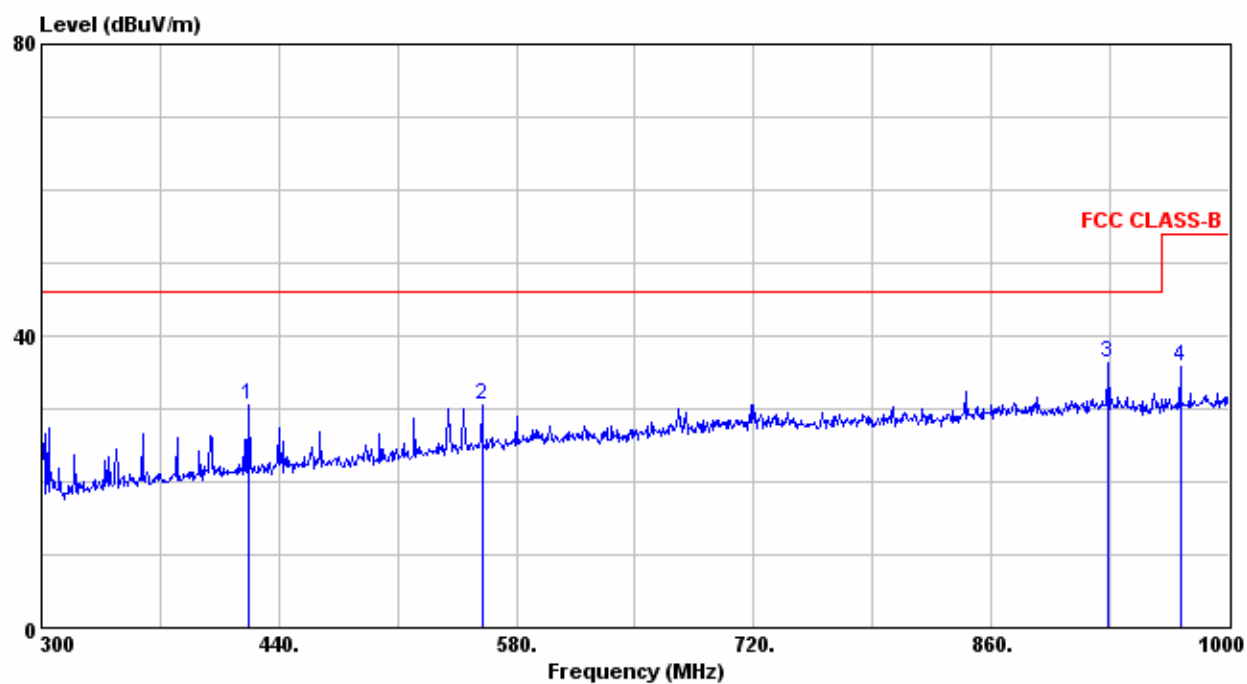
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level

Test Mode : 5220MHz, Continuous Transmitting

Tester : Bill

Polarization : Vertical

Frequency Range : 300MHz~1GHz



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dB/m	dBuV	dBuV/m	dB	cm	deg		
1	422.500	30.55	-10.98	41.53	46.00	-15.45	---	---	VERTICAL	
2	559.700	30.63	-7.68	38.31	46.00	-15.37	---	---	VERTICAL	
3	929.300	36.43	-2.04	38.47	46.00	-9.57	---	---	VERTICAL	
4	971.300	35.74	-1.94	37.68	54.00	-18.26	---	---	VERTICAL	

Note :

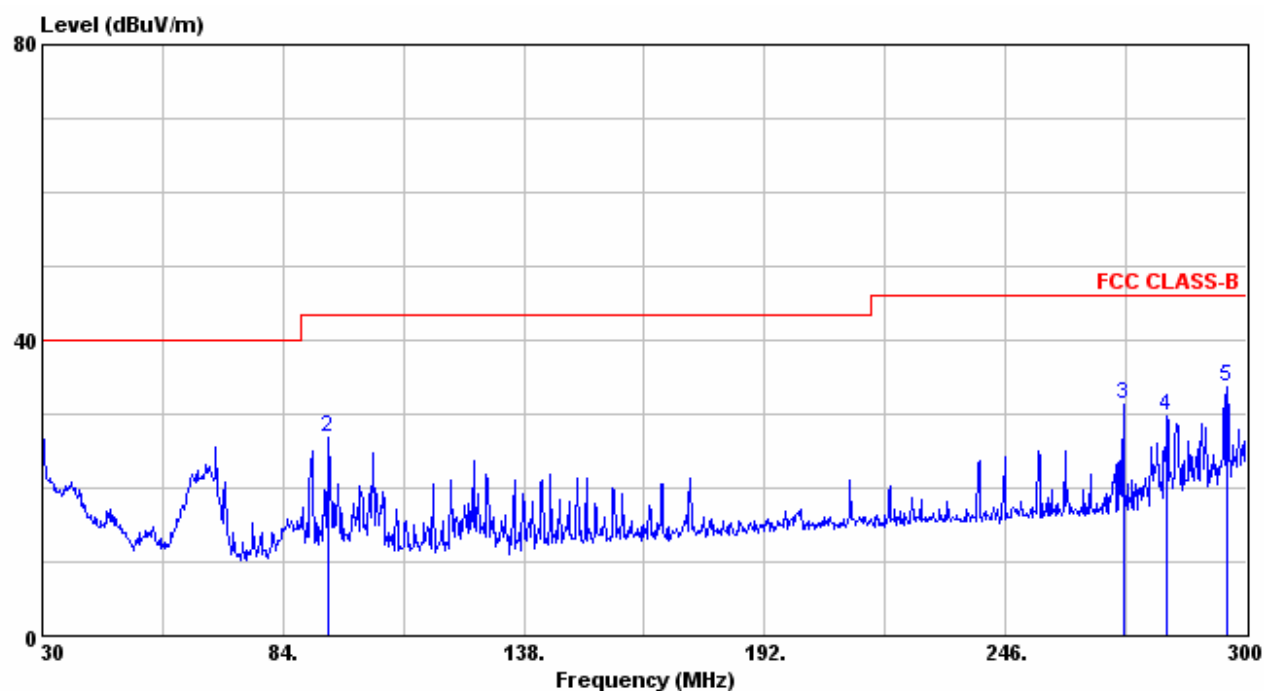
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level

Test Mode : 5220MHz, Continuous Transmitting

Tester : Bill

Polarization : Horizontal

Frequency Range : 30MHz~300MHz



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dB/m	dBuV	dBuV/m	dB	cm	deg		
1 !	30.000	29.16	-12.07	41.23	40.00	-10.84	---	---	HORIZONTAL	
2	94.260	26.79	-21.18	47.97	43.50	-16.71	---	---	HORIZONTAL	
3	272.460	31.22	-15.52	46.74	46.00	-14.78	---	---	HORIZONTAL	
4	282.180	29.72	-15.24	44.96	46.00	-16.28	---	---	HORIZONTAL	
5 !	295.680	33.71	-14.98	48.69	46.00	-12.29	---	---	HORIZONTAL	

Note :

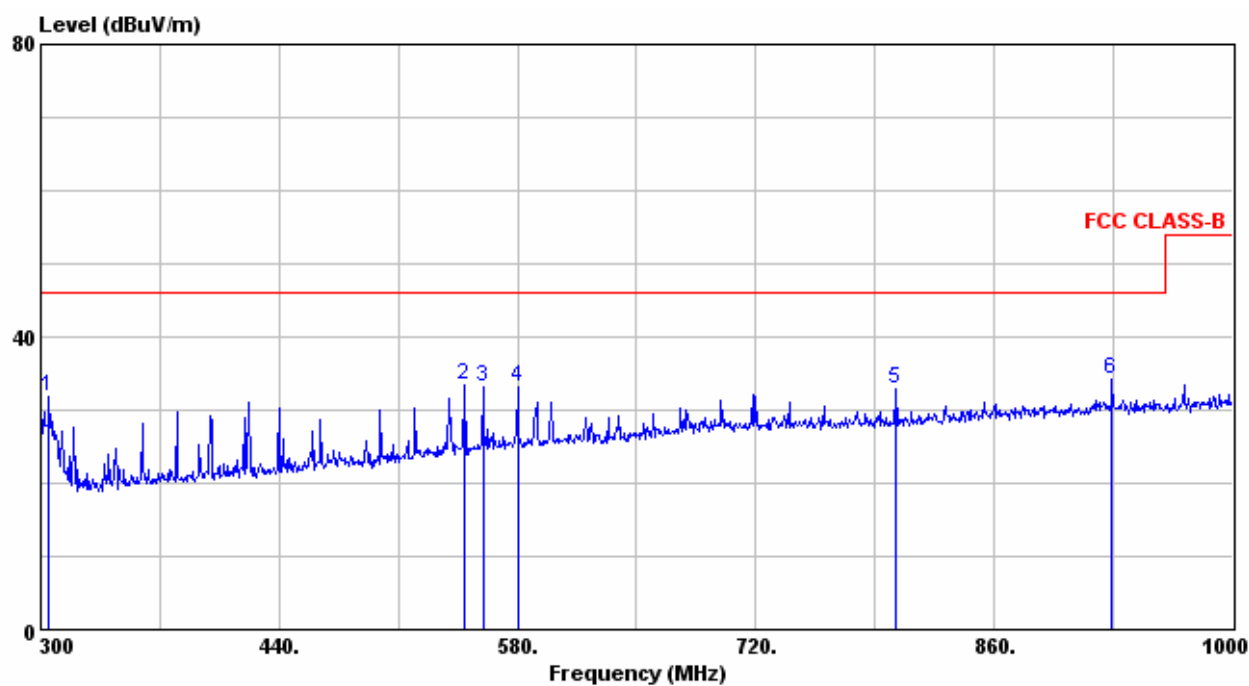
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level

Test Mode : 5220MHz, Continuous Transmitting

Tester : Bill

Polarization : Horizontal

Frequency Range : 300MHz~1GHz



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dB/m	dBuV	dBuV/m	dB	cm	deg		
1	304.900	31.77	-14.64	46.41	46.00	-14.23	---	---	HORIZONTAL	
2 !	549.200	33.54	-7.80	41.34	46.00	-12.46	---	---	HORIZONTAL	
3 !	559.700	33.06	-7.68	40.74	46.00	-12.94	---	---	HORIZONTAL	
4 !	580.000	33.09	-7.04	40.13	46.00	-12.91	---	---	HORIZONTAL	
5	802.600	32.82	-3.99	36.81	46.00	-13.18	---	---	HORIZONTAL	
6 !	929.300	34.22	-2.04	36.26	46.00	-11.78	---	---	HORIZONTAL	

Note :

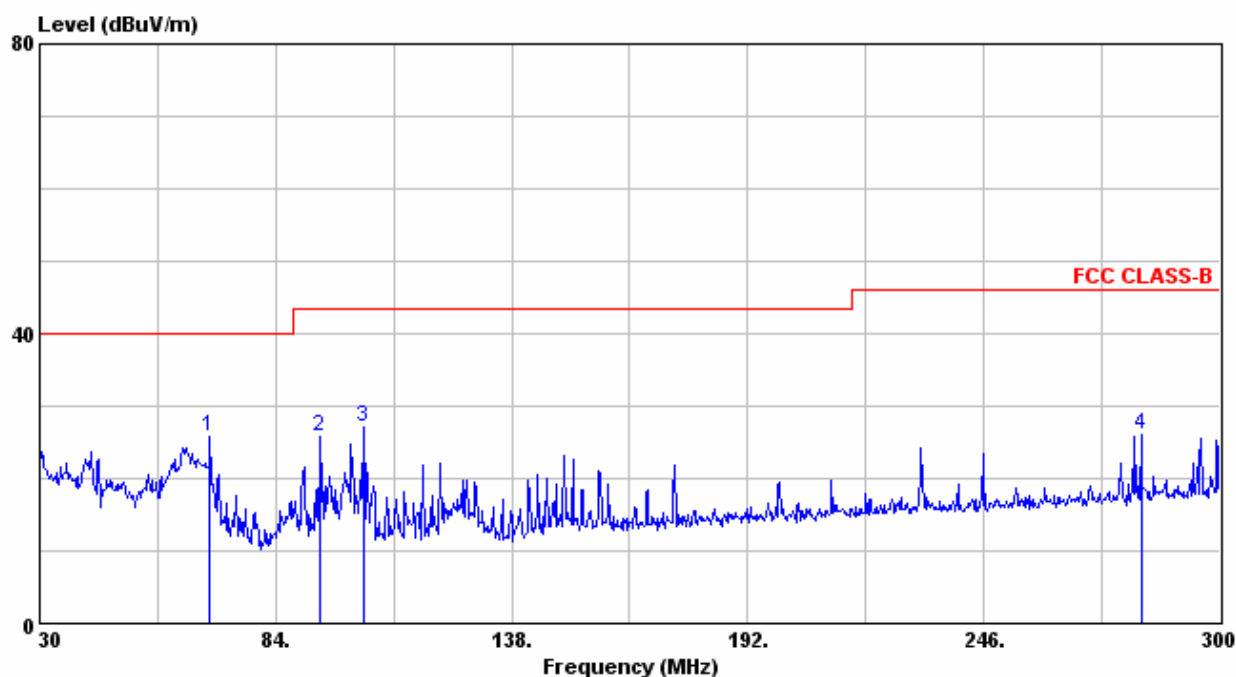
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level

Test Mode : 5240MHz, Continuous Transmitting

Tester : Bill

Polarization : Vertical

Frequency Range : 30MHz~300MHz



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dB/m	dBuV	dBuV/m	dB	cm	deg		
1	68.880	25.76	-22.66	48.42	40.00	-14.24	---	---	VERTICAL	
2	94.260	25.74	-21.18	46.92	43.50	-17.76	---	---	VERTICAL	
3	103.980	26.99	-21.16	48.15	43.50	-16.51	---	---	VERTICAL	
4	281.910	26.16	-15.24	41.40	46.00	-19.84	---	---	VERTICAL	

Note :

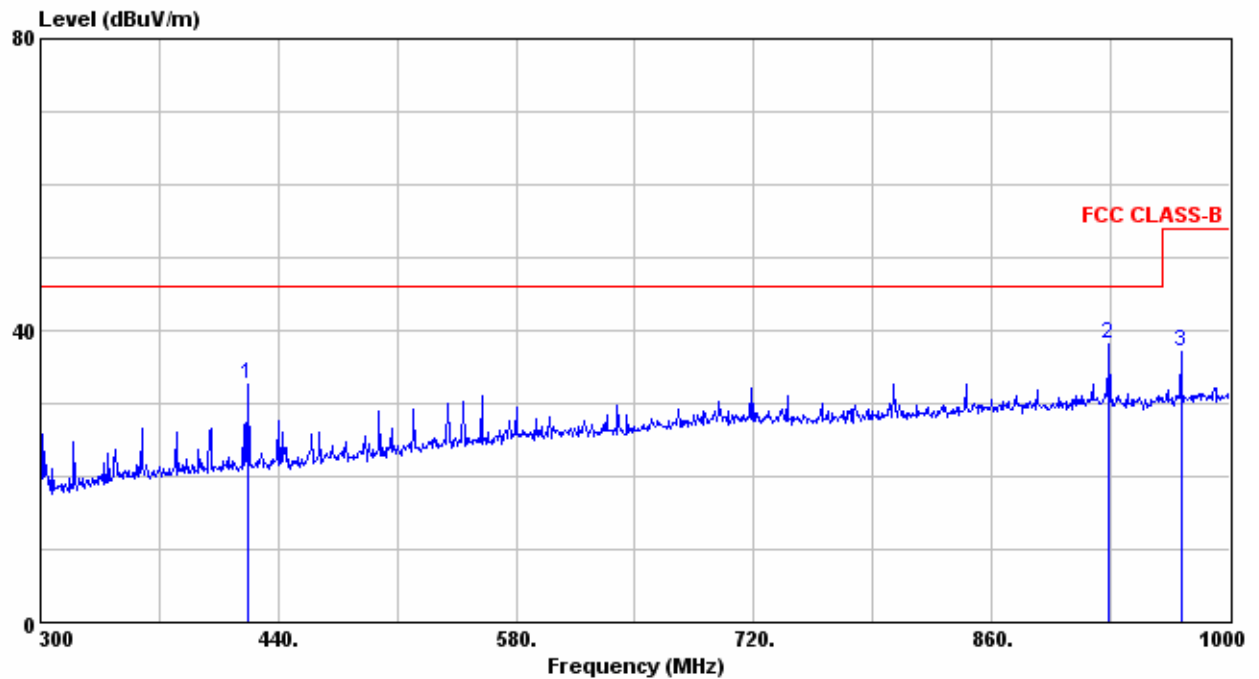
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level

Test Mode : 5240MHz, Continuous Transmitting

T Tester : Bill

Polarization : Vertical

Frequency Range : 300MHz~1GHz



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dB/m	dBuV	dBuV/m	dB	cm	deg		
1	421.800	32.73	-11.00	43.73	46.00	-13.27	---	---	VERTICAL	
2 !	929.300	38.08	-2.04	40.12	46.00	-7.92	---	---	VERTICAL	
3	971.300	37.11	-1.94	39.05	54.00	-16.89	---	---	VERTICAL	

Note :

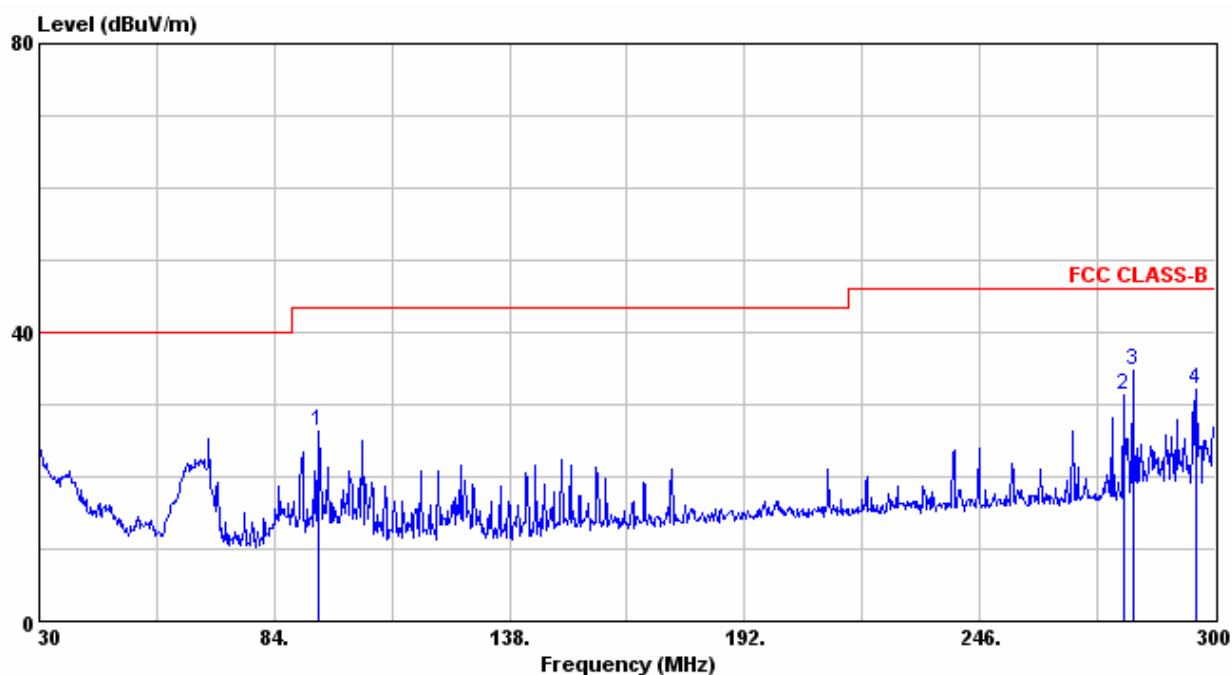
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level

Test Mode : 5240MHz, Continuous Transmitting

Tester : Bill

Polarization : Horizontal

Frequency Range : 30MHz~300MHz



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dB/m	dBuV	dBuV/m	dB	cm	deg		
1	94.260	26.23	-21.18	47.41	43.50	-17.27	---	---	HORIZONTAL	
2	278.940	31.28	-15.31	46.59	46.00	-14.72	---	---	HORIZONTAL	
3 !	281.100	34.64	-15.26	49.90	46.00	-11.36	---	---	HORIZONTAL	
4	295.680	32.03	-14.98	47.01	46.00	-13.97	---	---	HORIZONTAL	

Note :

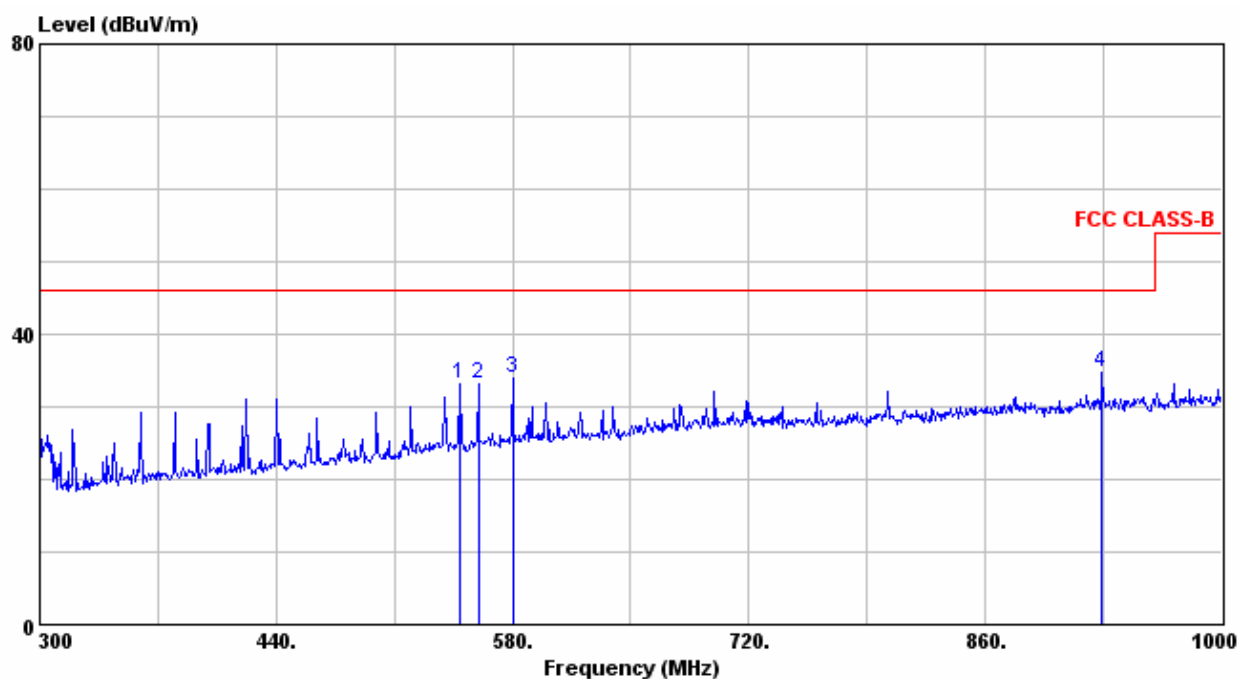
1. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier
2. Emission Level (dBuV/m) = Reading Data + Correction Factor
3. Margin (dB) = Limit – Emission Level

Test Mode : 5240MHz, Continuous Transmitting

Tester : Bill

Polarization : Horizontal

Frequency Range : 300MHz~1GHz



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Table Pos	Pol/Phase	Remark
	MHz	dBuV/m	dB/m	dBuV	dBuV/m	dB	cm	deg		
1 !	549.200	33.21	-7.80	41.01	46.00	-12.79	---	---	HORIZONTAL	
2 !	559.700	33.17	-7.68	40.85	46.00	-12.83	---	---	HORIZONTAL	
3 !	580.000	33.94	-7.04	40.98	46.00	-12.06	---	---	HORIZONTAL	
4 !	929.300	34.73	-2.04	36.77	46.00	-11.27	---	---	HORIZONTAL	

Note :

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

Above 1GHz

Test Mode : 5180MHz, Continuous Transmitting

Test Distance : 3m

Tester : Bill

Polarization : Vertical

Frequency Range : 1GHz~40GHz

Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	PK	AV		PK	AV	PK	AV	PK	AV
1012	47.31	-	-7.65	39.66	-	74.00	54.00	34.34	-
1054	46.49	-	-7.46	39.03	-	74.00	54.00	34.97	-
1099	51.97	-	-7.12	44.85	-	74.00	54.00	29.15	-
1183	52.36	-	-6.9	45.46	-	74.00	54.00	28.54	-
1267	53.61	-	-6.76	46.85	-	74.00	54.00	27.15	-
1351	51.69	-	-6.23	45.46	-	74.00	54.00	28.54	-
1435	47.05	-	-5.99	41.06	-	74.00	54.00	32.94	-
1519	45.37	-	-5.71	39.66	-	74.00	54.00	34.34	-
10359	46.04	39.57	11.89	57.93	51.46	74.00	54.00	16.07	2.54

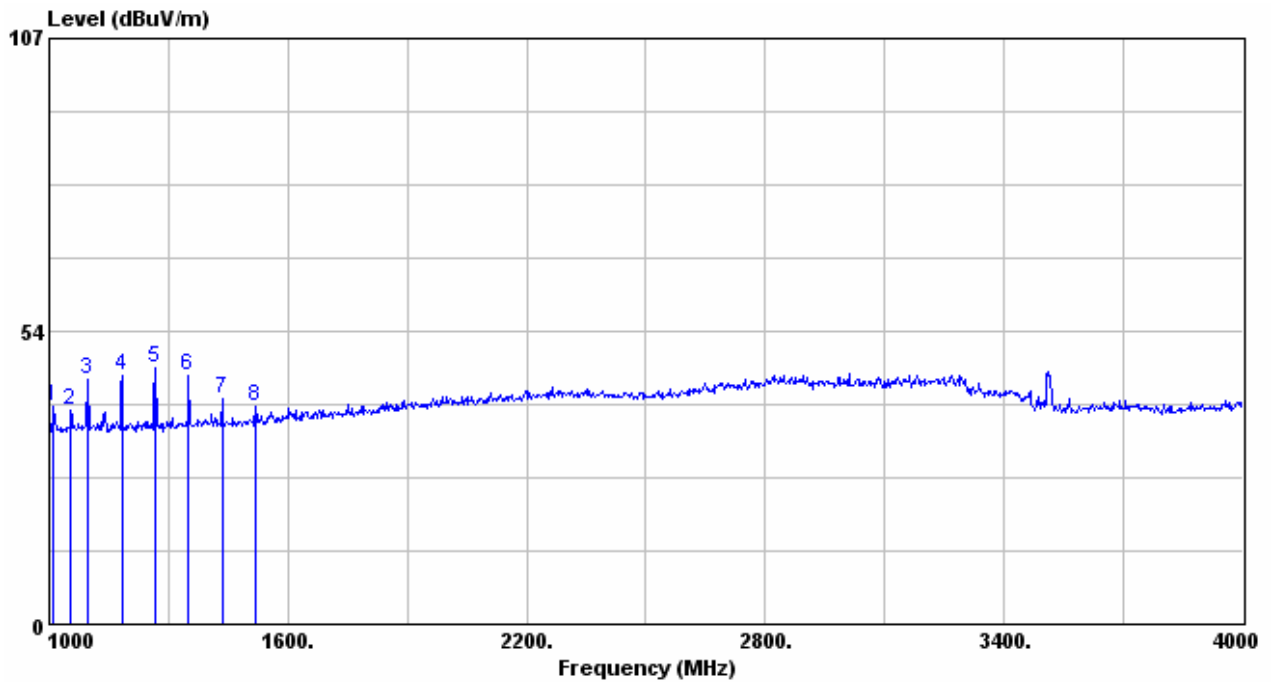
Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier + Loss of high pass filter.
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.

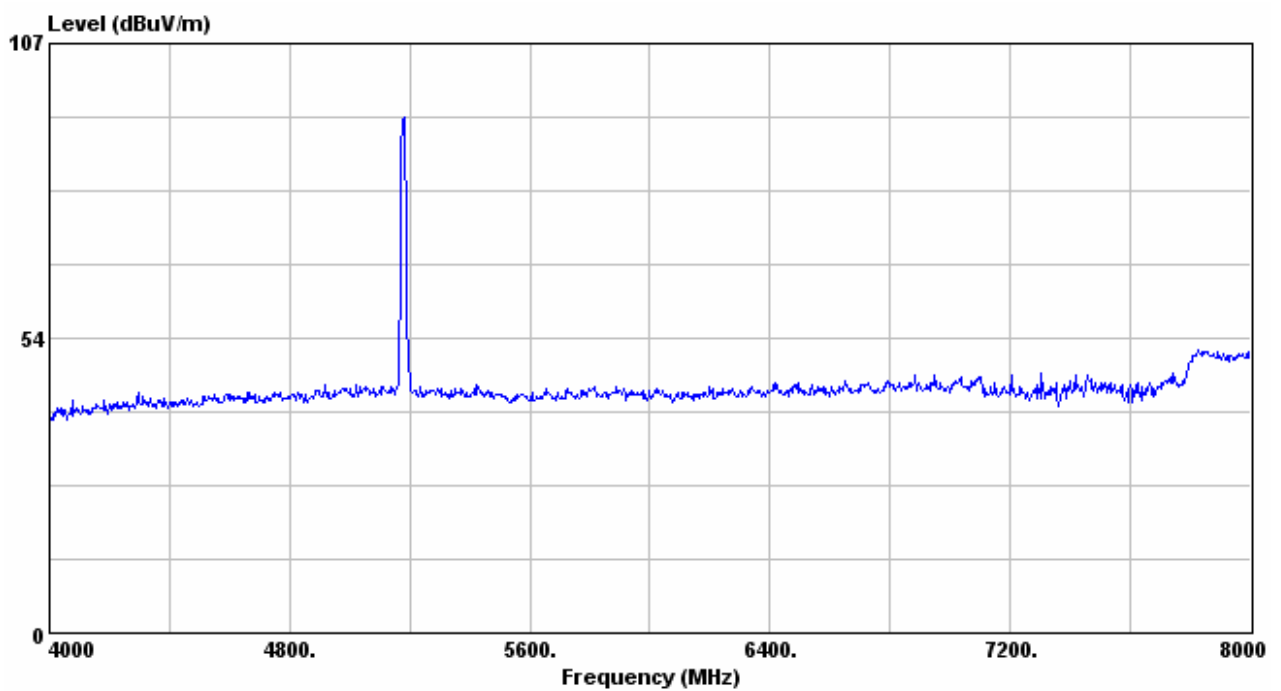
The restricted band limit is 54dBuV/m, the out of restricted band limit is 68.3dBuV/m. All test data can meet these both limits.

No signal can be detected from 12GHz to 40GHz, so the graphs are omitted above 12GHz.

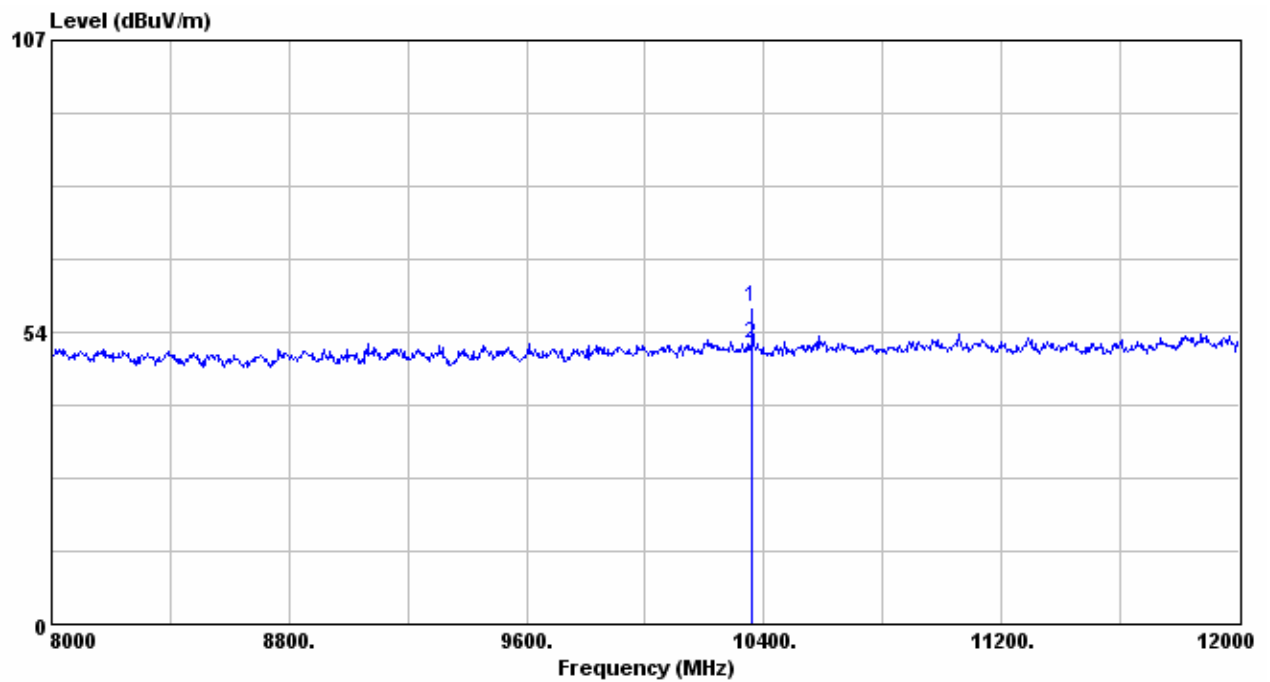
1GHz~4GHz



4GHz~8GHz



8GHz~12GHz



Test Mode : 5180MHz, Continuous Transmitting**Test Distance : 3m****Tester : Bill****Polarization : Horizontal****Frequency Range : 1GHz~40GHz**

Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	PK	AV		PK	AV	PK	AV	PK	AV
1099	49.67	-	-7.12	42.55	-	74	54	31.45	-
1183	50.77	-	-6.90	43.87	-	74	54	30.13	-
1267	53.96	-	-6.76	47.2	-	74	54	26.8	-
1351	50.51	-	-6.23	44.28	-	74	54	29.72	-
1435	48.02	-	-5.99	42.03	-	74	54	31.97	-
1519	45.85	-	-5.71	40.14	-	74	54	33.86	-
1603	45.92	-	-4.94	40.98	-	74	54	33.02	-
10360	45.90	40.26	11.89	57.79	52.15	74.00	54.00	16.21	1.85

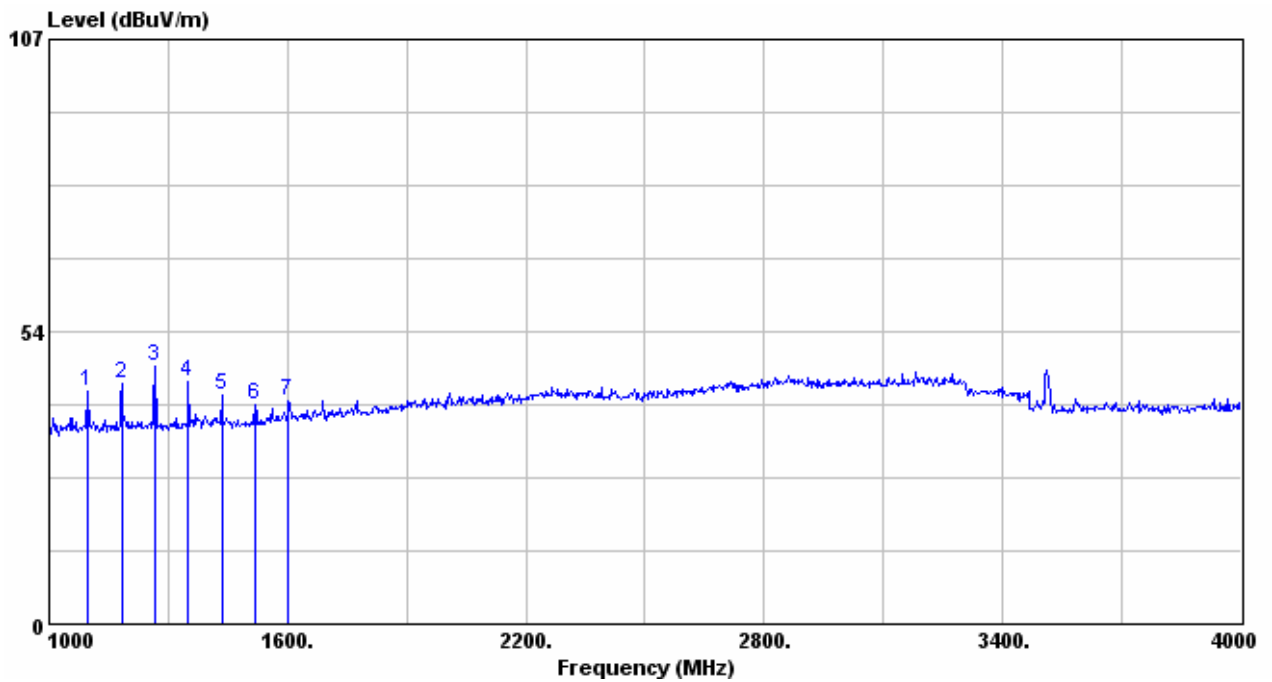
Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier+ Loss of high pass filter..
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.

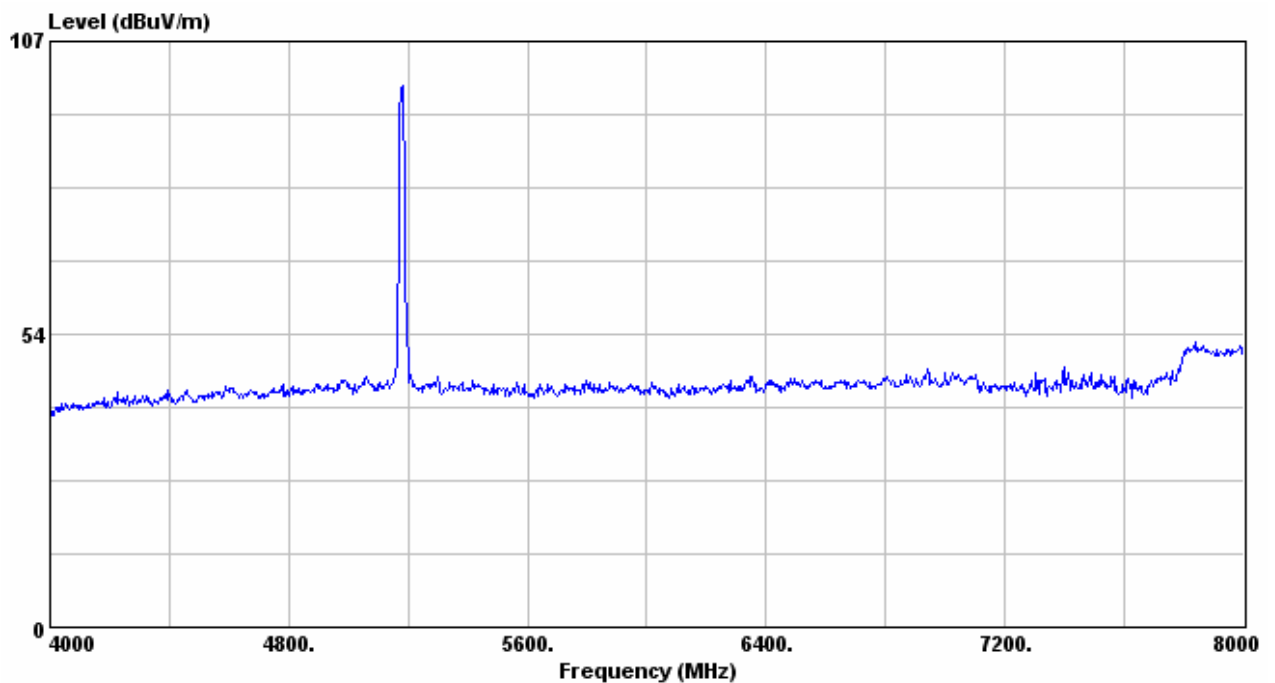
The restricted band limit is 54dBuV/m, the out of restricted band limit is 68.3dBuV/m. All test data can meet these both limits.

No signal can be detected from 12GHz to 40GHz, so the graphs are omitted above 12GHz.

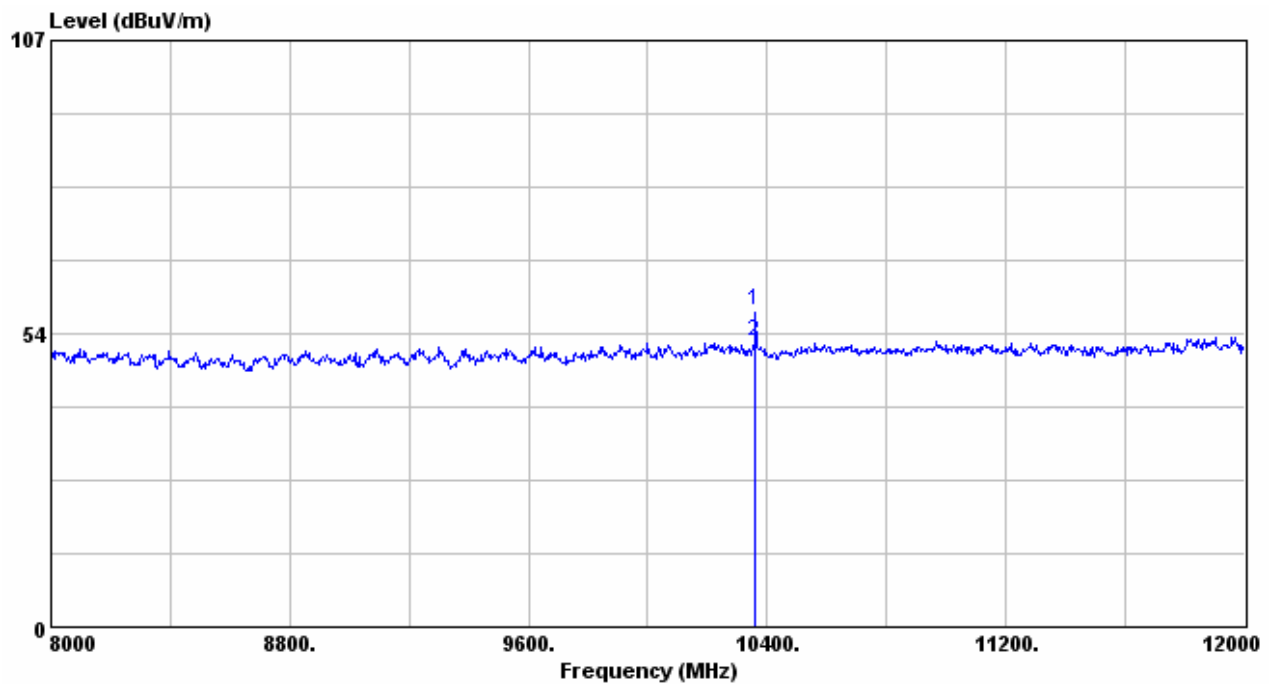
1GHz~4GHz



4GHz~8GHz



8GHz~12GHz



Test Mode : 5220MHz, Continuous Transmitting**Test Distance : 3m****Tester : Bill****Polarization : Vertical****Frequency Range : 1GHz~40GHz**

Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	PK	AV		PK	AV	PK	AV	PK	AV
1099	45.31	-	-7.12	38.19	-	74.00	54.00	35.81	-
1183	45.69	-	-6.90	38.79	-	74.00	54.00	35.21	-
1267	46.89	-	-6.76	40.13	-	74.00	54.00	33.87	-
1351	45.23	-	-6.23	39.00	-	74.00	54.00	35.00	-
1435	41.11	-	-5.99	35.12	-	74.00	54.00	38.88	-
10439	46.48	41.29	11.95	58.43	52.84	74.00	54.00	15.57	1.16

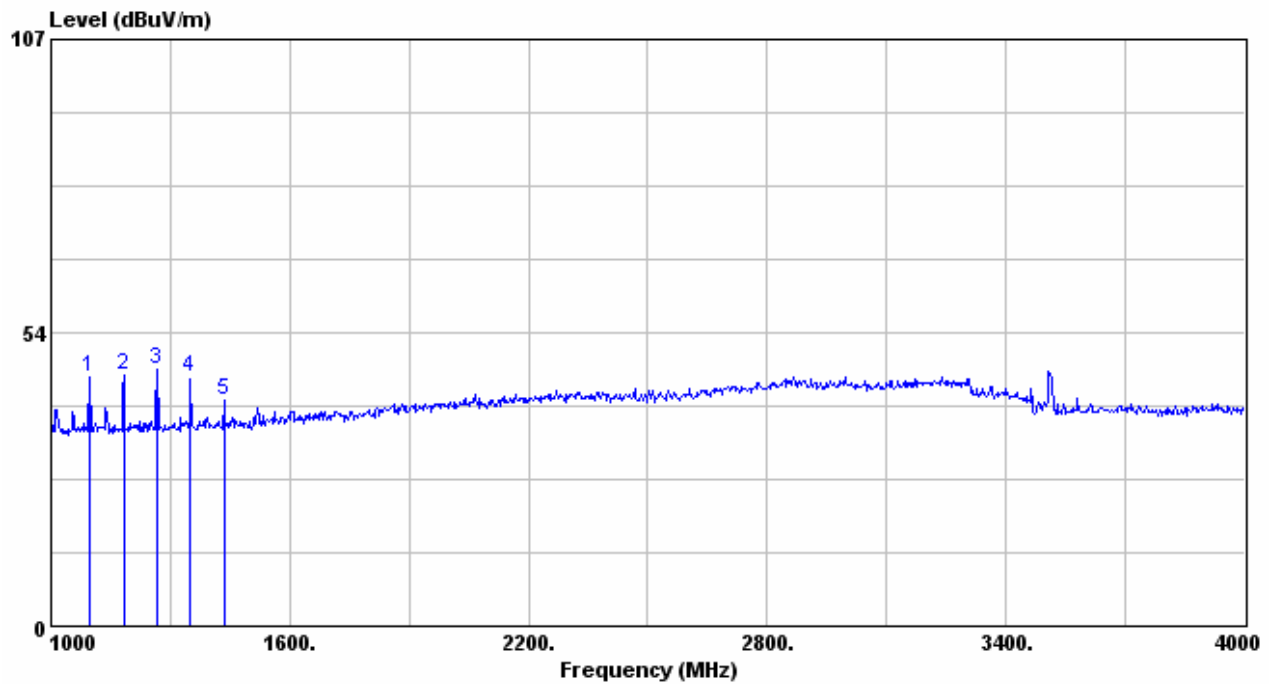
Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier+ Loss of high pass filter..
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.

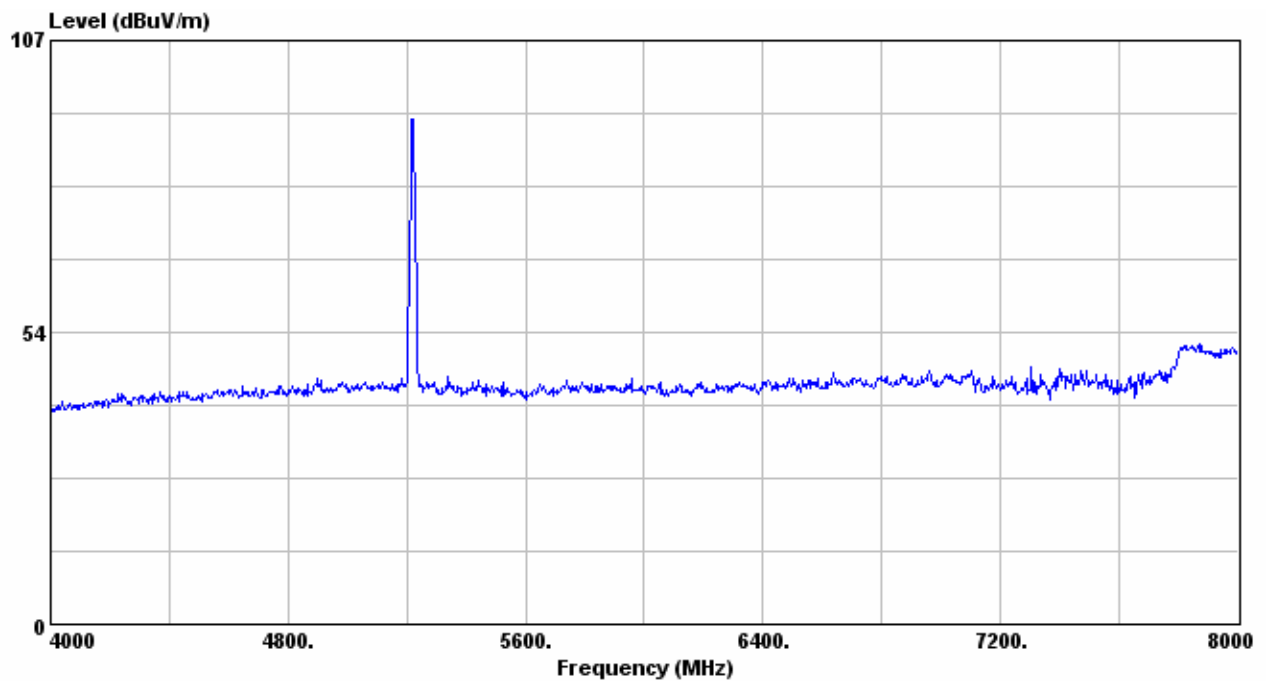
The restricted band limit is 54dBuV/m, the out of restricted band limit is 68.3dBuV/m. All test data can meet these both limits.

No signal can be detected from 12GHz to 40GHz, so the graphs are omitted above 12GHz.

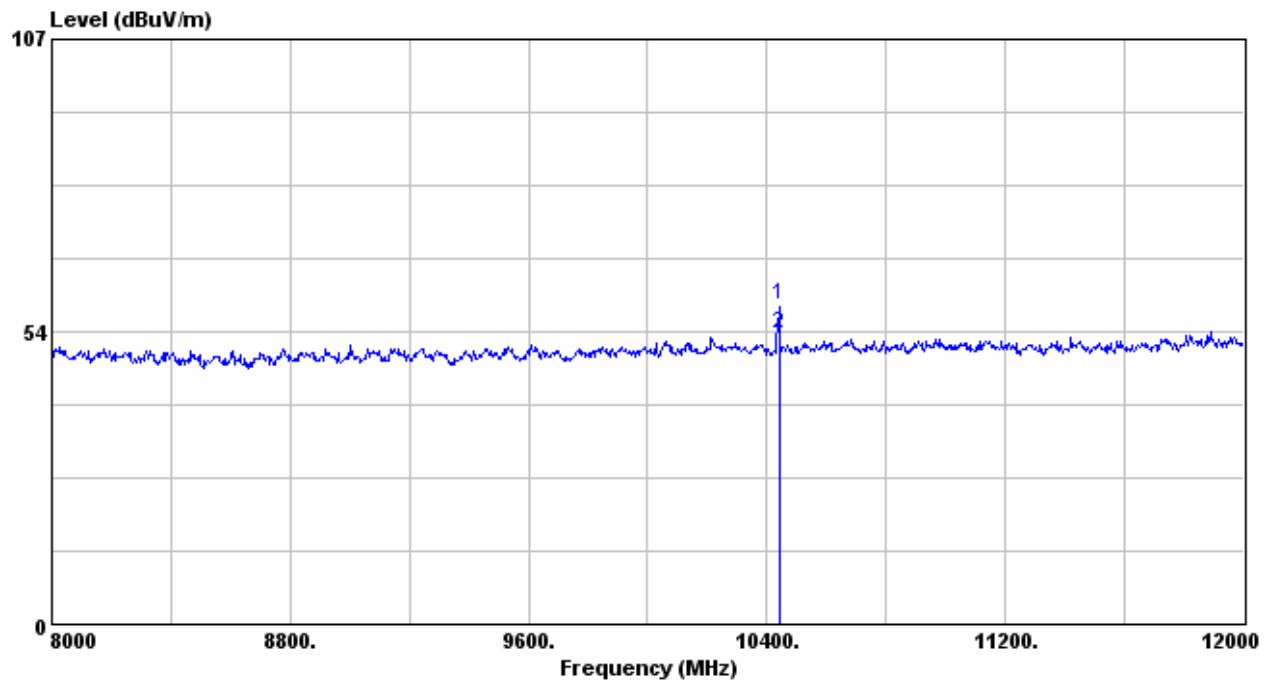
1GHz~4GHz



4GHz~8GHz



8GHz~12GHz



Test Mode : 5220MHz, Continuous Transmitting**Test Distance : 3m****Tester : Bill****Polarization : Horizontal****Frequency Range : 1GHz~40GHz**

Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	PK	AV		PK	AV	PK	AV	PK	AV
1096	49.25	-	-7.15	42.10	-	74.00	54.00	31.90	-
1183	50.98	-	-6.90	44.08	-	74.00	54.00	29.92	-
1267	54.04	-	-6.76	47.28	-	74.00	54.00	26.72	-
1351	50.47	-	-6.23	44.24	-	74.00	54.00	29.76	-
1435	47.78	-	-5.99	41.79	-	74.00	54.00	32.21	-
1519	45.98	-	-5.71	40.27	-	74.00	54.00	33.73	-
1603	46.14	-	-4.94	41.2	-	74.00	54.00	32.80	-
10440	44.66	38.65	11.95	56.61	50.60	74.00	54.00	17.39	3.40

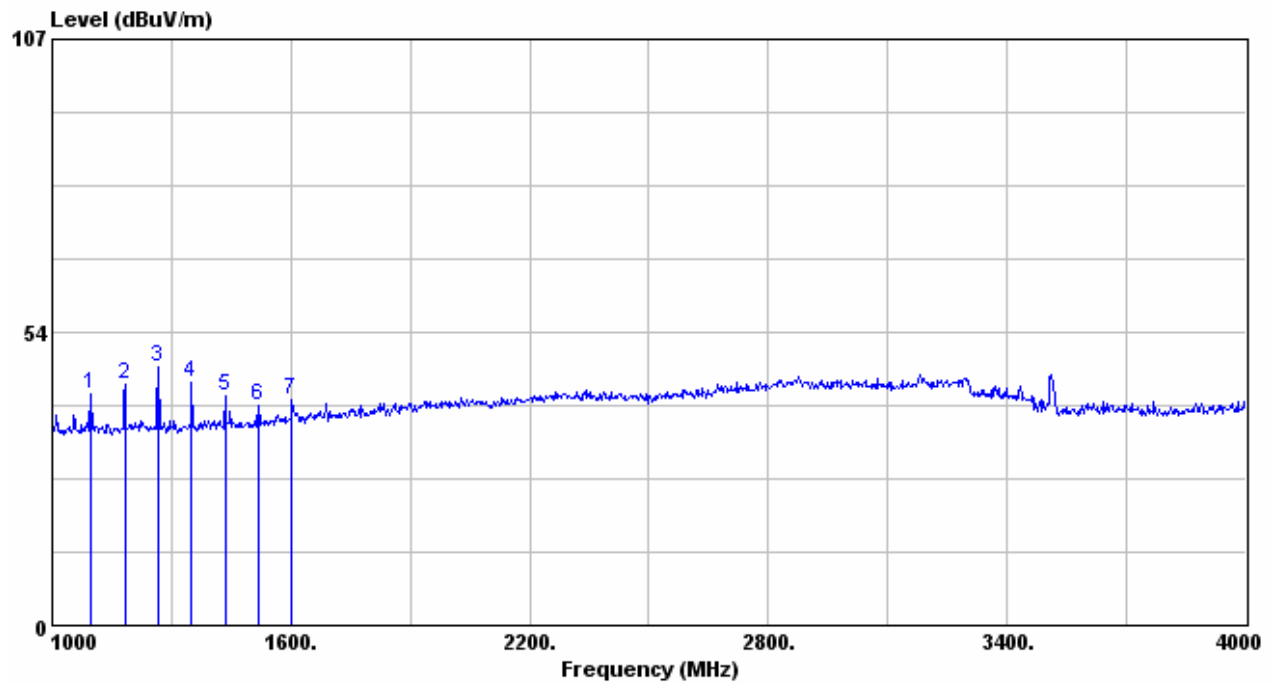
Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier+ Loss of high pass filter..
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.

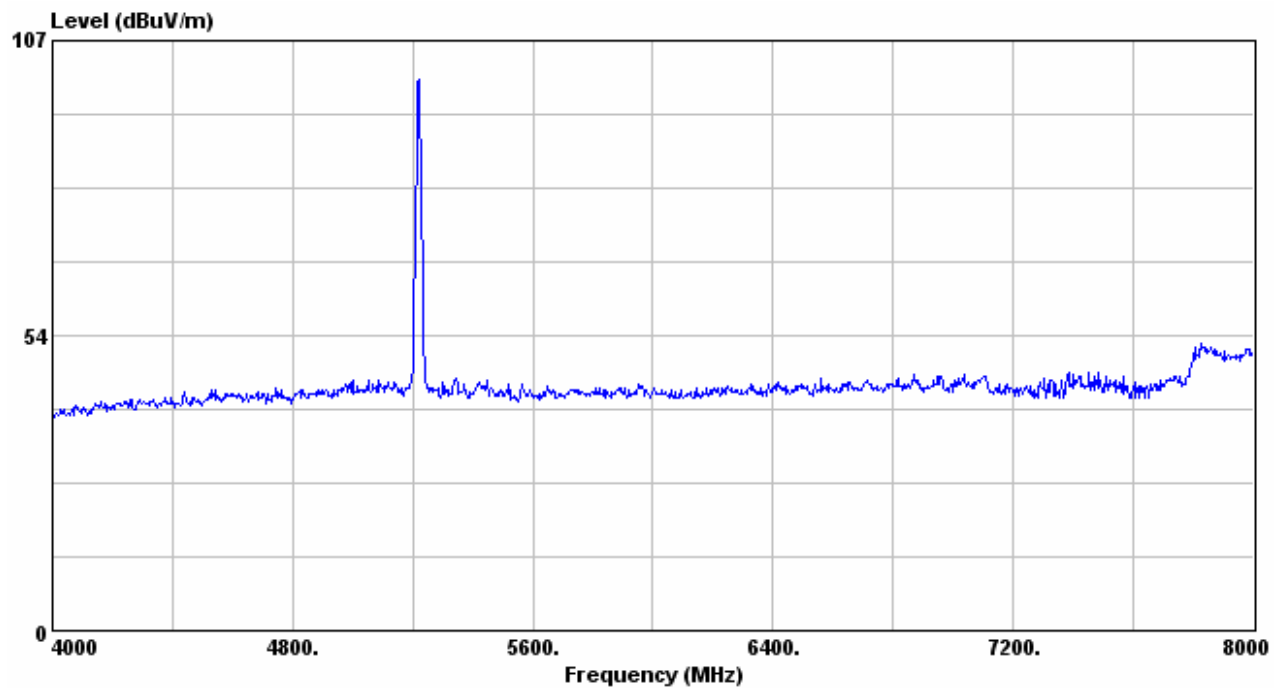
The restricted band limit is 54dBuV/m, the out of restricted band limit is 68.3dBuV/m. All test data can meet these both limits.

No signal can be detected from 12GHz to 40GHz, so the graphs are omitted above 12GHz.

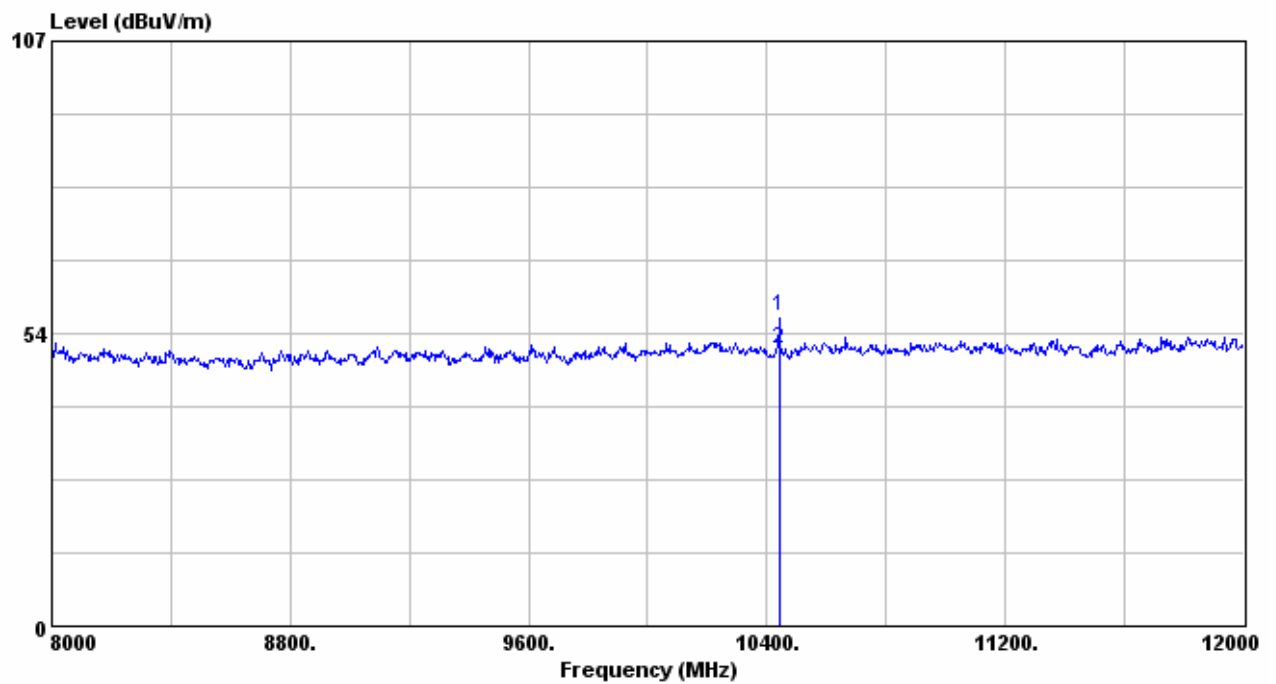
1GHz~4GHz



4GHz~8GHz



8GHz~12GHz



Test Mode : 5240MHz, Continuous Transmitting**Test Distance : 3m****Tester : Bill****Polarization : Vertical****Frequency Range : 1GHz~40GHz**

Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	PK	AV		PK	AV	PK	AV	PK	AV
1099	52.01	-	-7.12	44.89	-	74.00	54.00	29.11	-
1183	52.11	-	-6.90	45.21	-	74.00	54.00	28.79	-
1267	53.65	-	-6.76	46.89	-	74.00	54.00	27.11	-
1351	50.84	-	-6.23	44.61	-	74.00	54.00	29.39	-
1435	47.37	-	-5.99	41.38	-	74.00	54.00	32.62	-
10479	45.97	40.44	11.88	57.85	52.32	74.00	54.00	16.15	1.68

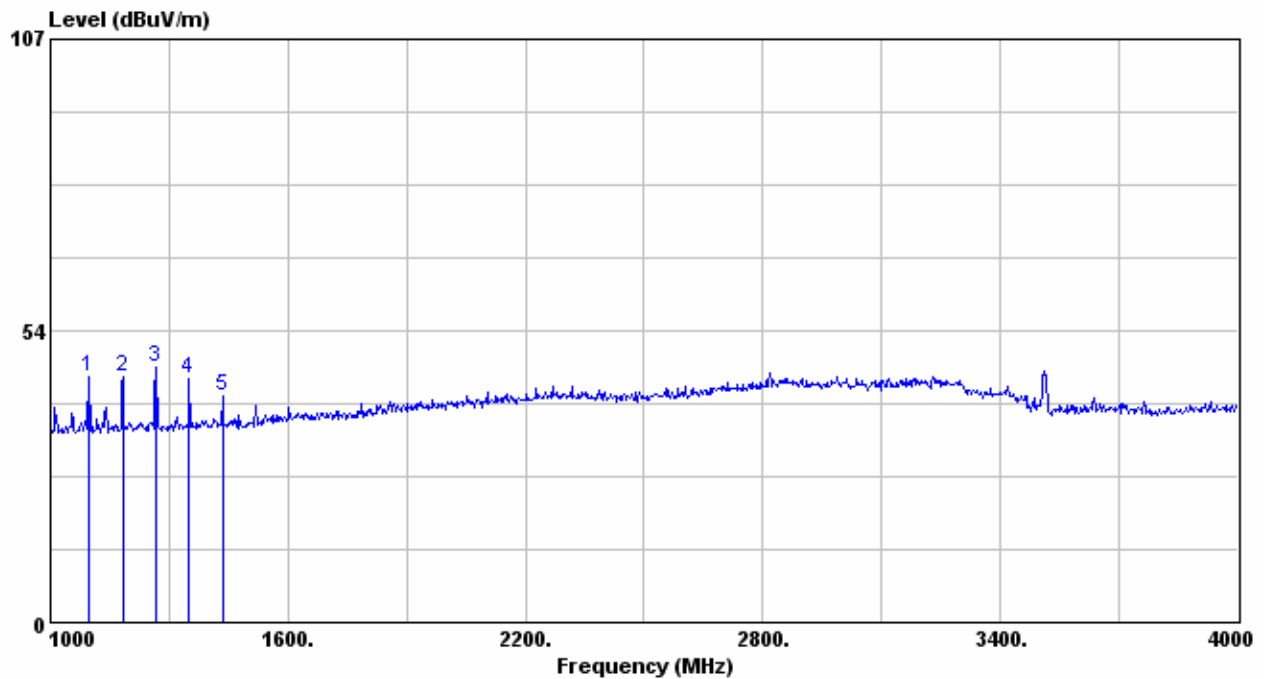
Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier+ Loss of high pass filter..
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.

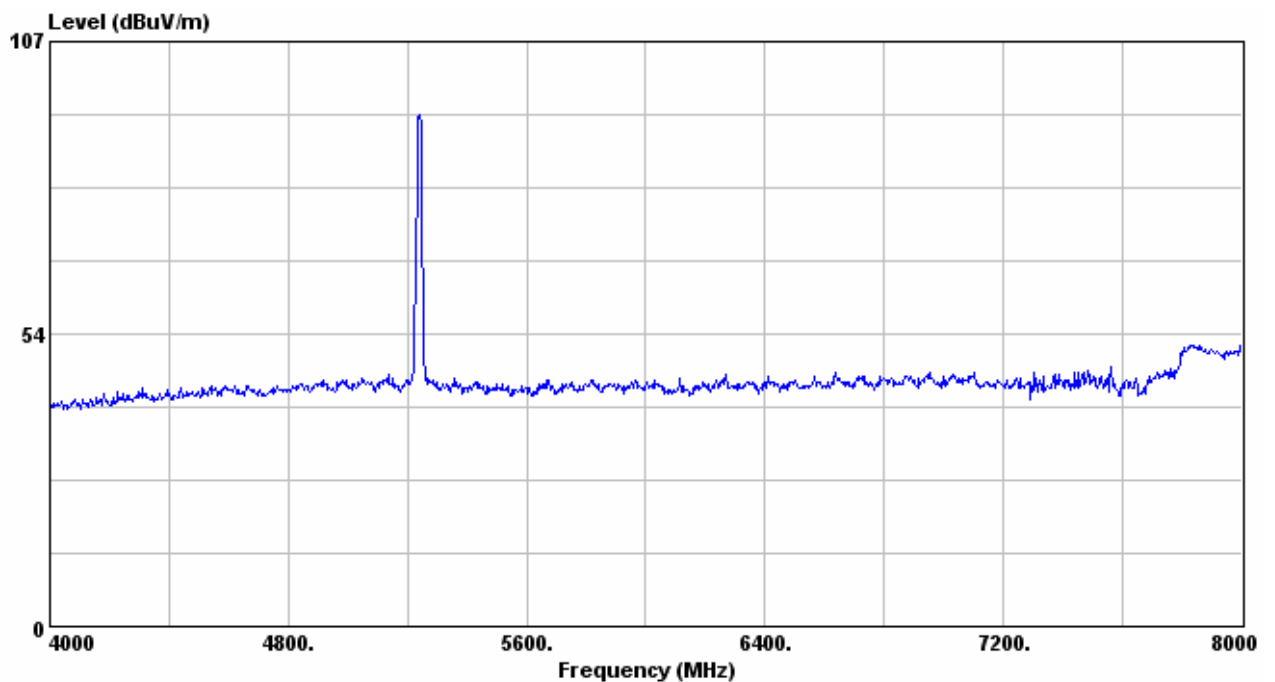
The restricted band limit is 54dBuV/m, the out of restricted band limit is 68.3dBuV/m. All test data can meet these both limits.

No signal can be detected from 12GHz to 40GHz, so the graphs are omitted above 12GHz.

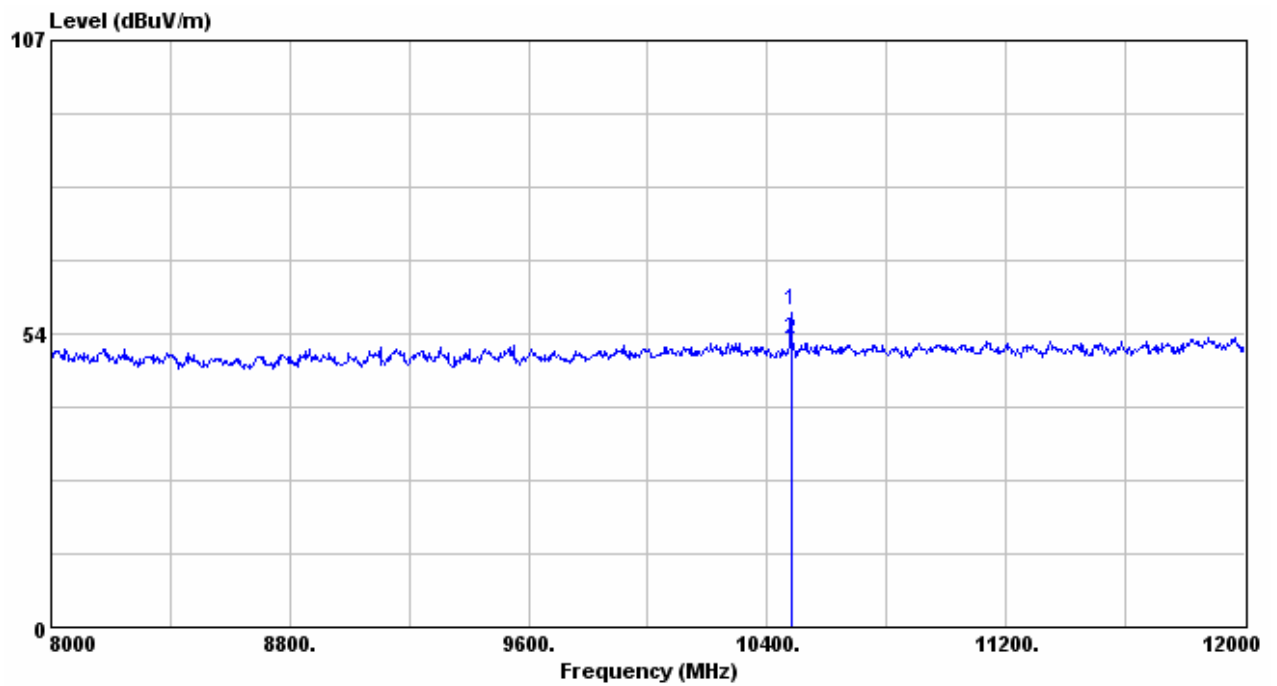
1GHz~4GHz



4GHz~8GHz



8GHz~12GHz



Test Mode : 5240MHz, Continuous Transmitting**Test Distance : 3m****Tester : Bill****Polarization : Horizontal****Frequency Range : 1GHz~40GHz**

Frequency (MHz)	Reading Data (dBuV)		Correction Factor (dB/m)	Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	PK	AV		PK	AV	PK	AV	PK	AV
1099	50.07	-	-7.12	42.95	-	74.00	54.00	31.05	-
1183	50.91	-	-6.90	44.01	-	74.00	54.00	29.99	-
1267	53.85	-	-6.76	47.09	-	74.00	54.00	26.91	-
1351	50.20	-	-6.23	43.97	-	74.00	54.00	30.03	-
1435	48.22	-	-5.99	42.23	-	74.00	54.00	31.77	-
1519	46.23	-	-5.71	40.52	-	74.00	54.00	33.48	-
10480	45.33	39.49	11.88	57.21	51.36	74.00	54.00	16.79	2.64

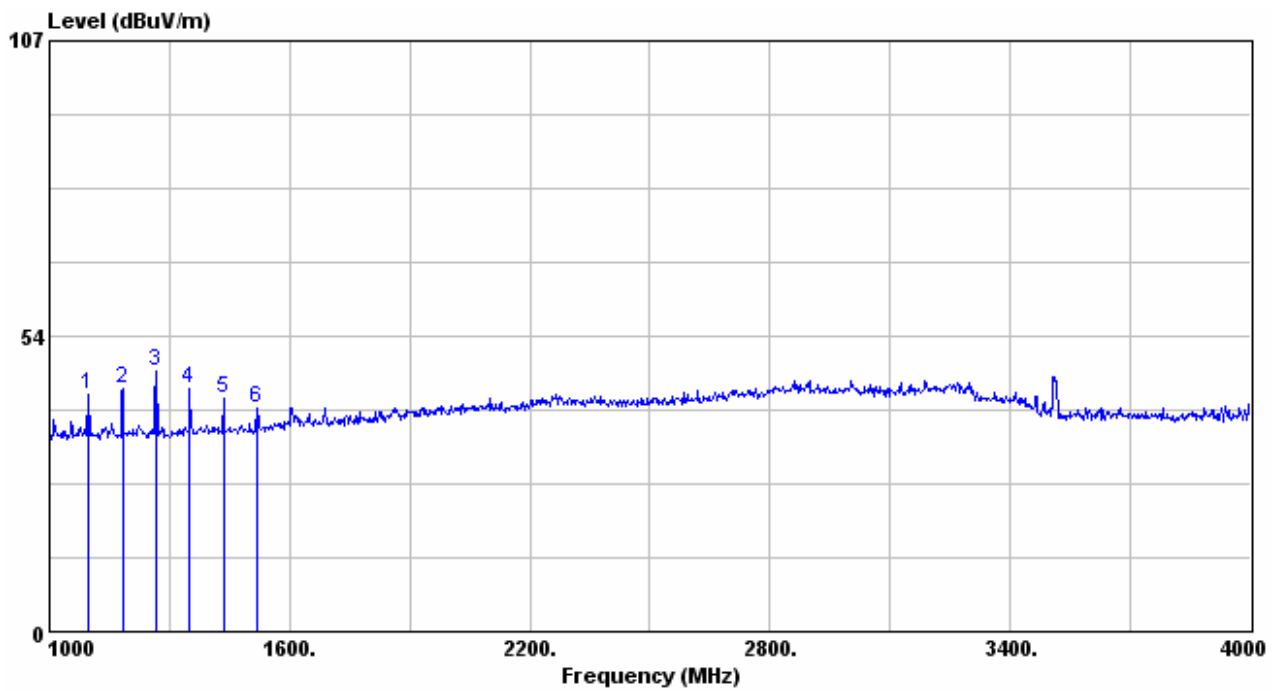
Note:

1. Emission Level (dBuV/m) = Reading Value + Correction Factor.
2. Correction Factor (dB/m) = Cable Loss + Antenna Factor – Gain of Preamplifier+ Loss of high pass filter..
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.

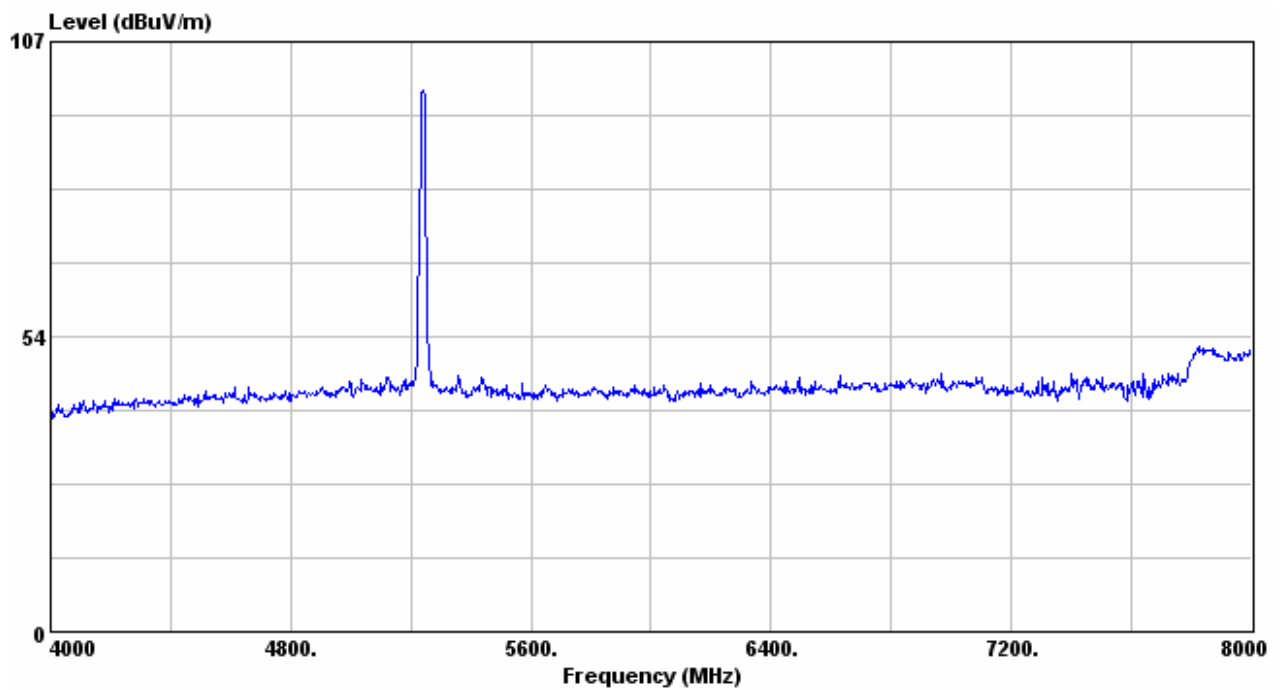
The restricted band limit is 54dBuV/m, the out of restricted band limit is 68.3dBuV/m. All test data can meet these both limits.

No signal can be detected from 12GHz to 40GHz, so the graphs are omitted above 12GHz.

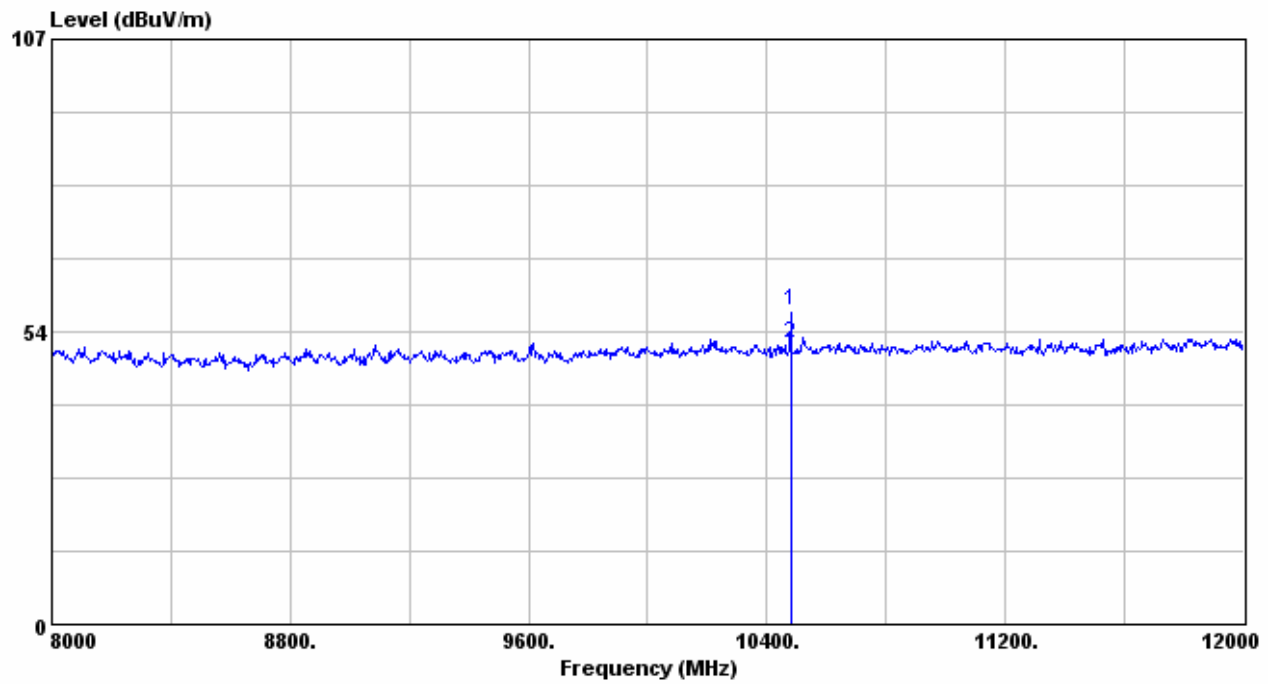
1GHz~4GHz



4GHz~8GHz



8GHz~12GHz



5. Conducted Emission Measurement

Result: Pass

5.1 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

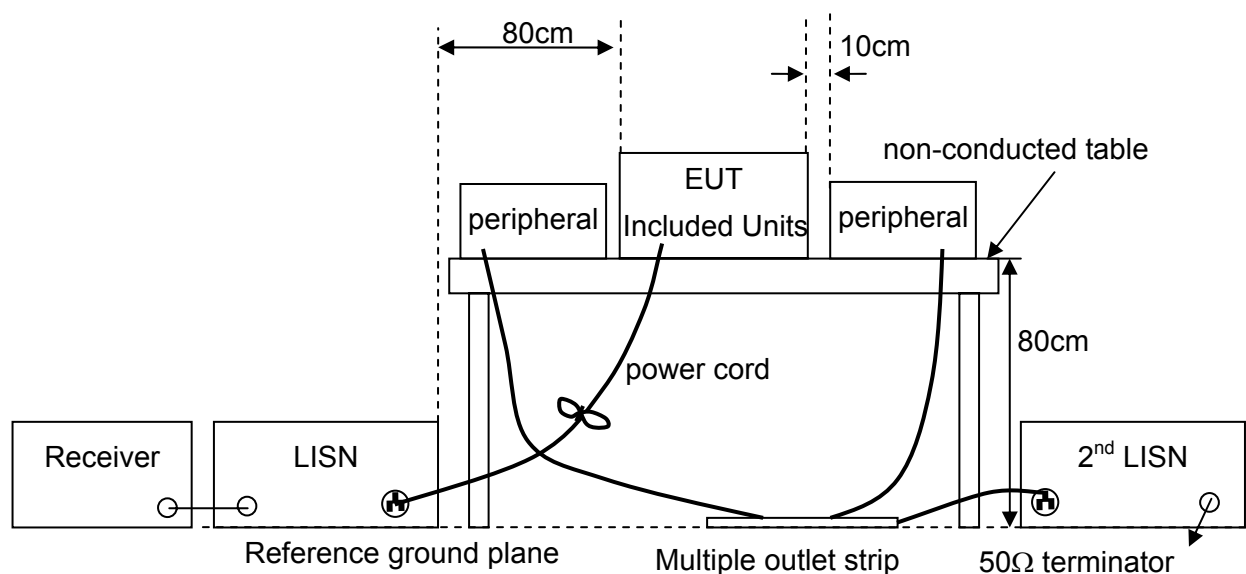
* Decreases with the logarithm of the frequency.

5.2 Measurement Procedure

- 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.
- 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.
- Connect the EUT's power source to the appropriate power mains through the LISN.
- All the other peripherals are connected to the 2nd LISN, if any.
- The LISN was placed 0.8 meters from the EUT and at least 0.8 meters from other units and other metal planes.
- 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.
- 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.

5.3 Test configuration



5.4 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, 2007
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 : 27°C ; Relative Humidity : 68%

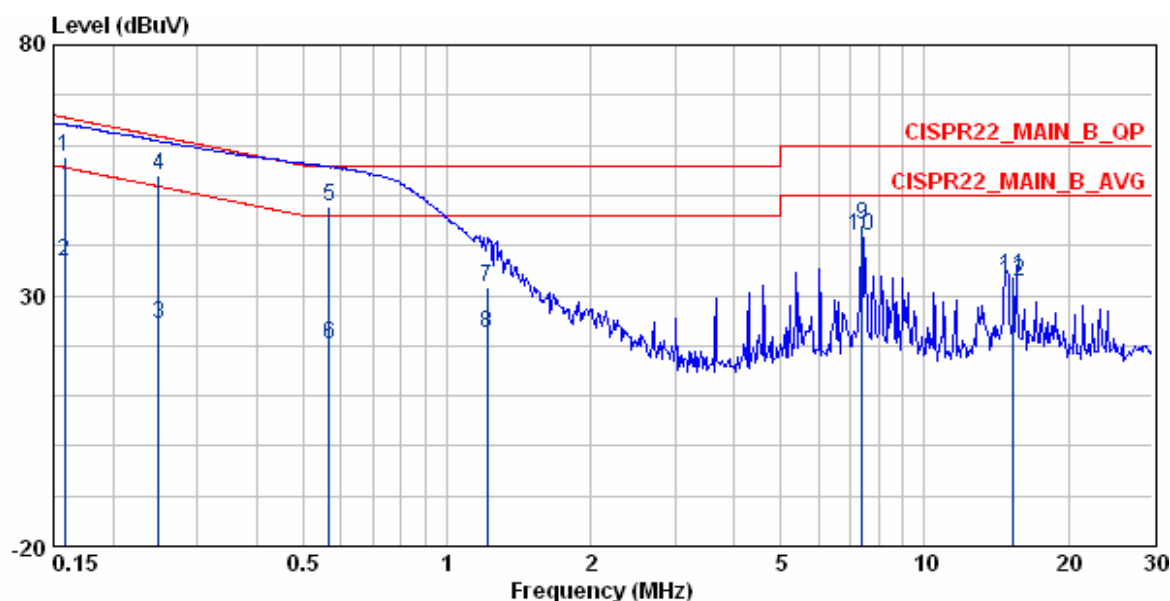
5.5 Test Data

Test Mode : Continuous Transmitting, 5180MHz

Frequency Range : 150kHz~30MHz

Phase : Line

Tester : Bill



	Freq	Level	Factor	Read	Limit	Over	Ant		
	MHz	dBuV	dB	Level	Line	Limit	Pos	Pol/Phase	Remark
				dBuV	dBuV	dB	cm		
1	0.16	57.50	0.16	57.34	65.55	-8.05	---	LINE	QP
2	0.16	36.77	0.16	36.61	55.55	-18.78	---	LINE	AVERAGE
3	0.25	24.23	0.16	24.07	51.78	-27.54	---	LINE	AVERAGE
4	0.25	53.97	0.16	53.81	61.78	-7.80	---	LINE	QP
5	0.57	47.59	0.20	47.39	56.00	-8.41	---	LINE	QP
6	0.57	20.20	0.20	20.00	46.00	-25.80	---	LINE	AVERAGE
7	1.22	31.78	0.30	31.48	56.00	-24.22	---	LINE	QP
8	1.22	22.37	0.30	22.07	46.00	-23.63	---	LINE	AVERAGE
9	7.40	43.96	0.70	43.26	60.00	-16.04	---	LINE	QP
10	7.40	41.90	0.70	41.20	50.00	-8.10	---	LINE	AVERAGE
11	15.37	33.85	0.92	32.93	60.00	-26.15	---	LINE	QP
12	15.37	32.62	0.92	31.70	50.00	-17.38	---	LINE	AVERAGE

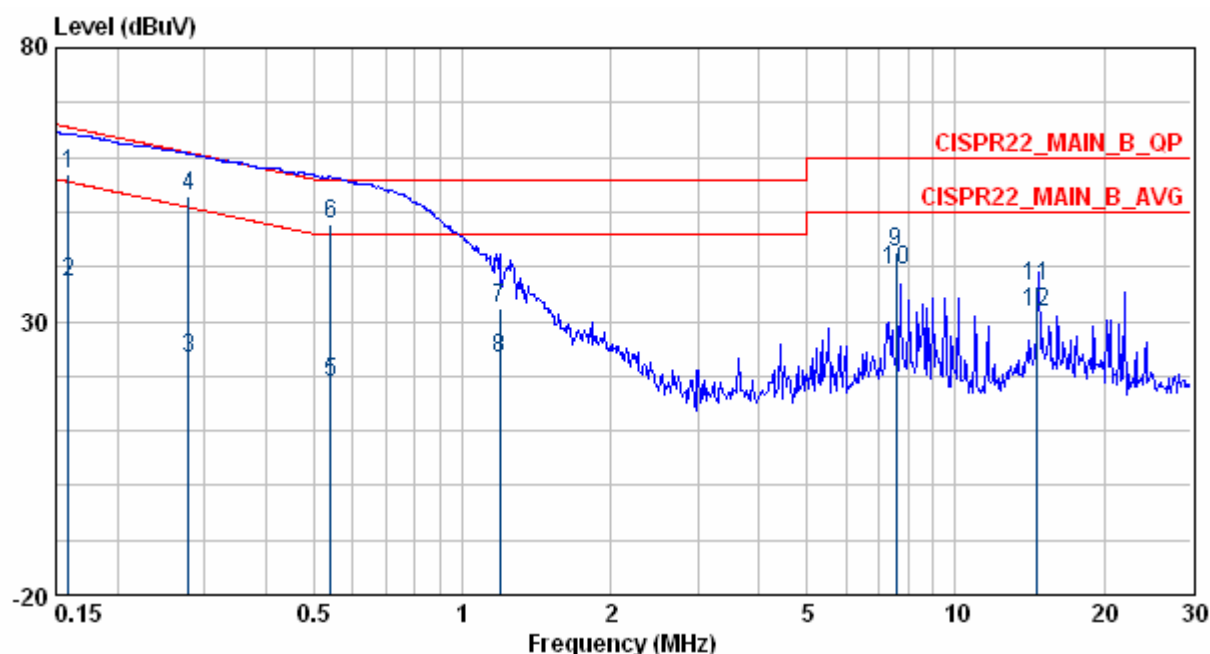
Note:

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 : Continuously Transmitting, 5180MHz

Frequency Range : 150kHz~30MHz Phase : Neutral

Tester : Bill



	Freq	Level	Factor	Read Level	Limit Line	Over Limit	Ant Pos	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	cm		
1	0.16	56.99	0.16	56.83	65.53	-8.54	---	NEUTRAL	QP
2	0.16	37.20	0.16	37.04	55.53	-18.33	---	NEUTRAL	AVERAGE
3	0.28	23.20	0.20	23.00	50.85	-27.65	---	NEUTRAL	AVERAGE
4	0.28	52.85	0.20	52.65	60.85	-8.00	---	NEUTRAL	QP
5	0.54	18.69	0.27	18.42	46.00	-27.31	---	NEUTRAL	AVERAGE
6	0.54	47.78	0.27	47.51	56.00	-8.22	---	NEUTRAL	QP
7	1.19	32.20	0.30	31.90	56.00	-23.80	---	NEUTRAL	QP
8	1.19	23.21	0.30	22.91	46.00	-22.79	---	NEUTRAL	AVERAGE
9	7.58	42.66	0.65	42.01	60.00	-17.34	---	NEUTRAL	QP
10	7.58	39.30	0.65	38.65	50.00	-10.70	---	NEUTRAL	AVERAGE
11	14.66	36.45	0.71	35.74	60.00	-23.55	---	NEUTRAL	QP
12	14.66	31.71	0.71	31.00	50.00	-18.29	---	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.

6. Antenna Requirement

6.1 Applied standard

According to 15.407(a)(1), If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

6.2 Antenna Information

This antenna's relative information as follow:

Brand	Model	Frequency Range (MHz)	Gain (dBi)	Comment
GEMTEK	WSPS-109A	5180~5240	-1.9	

Antenna Position:



6.3 Result

Gain of the antenna is less than 6dBi.