CONFORMANCE TEST REPORT
FOR
FCC 47 CFR, Part 15 Subpart C

Report No.: ET93S-06-079-02

Client:	Chung Nam Electronics Co., Ltd.
Product:	CNE 802.11a/g WLAN PCI Card (with MiniPCI module WLG500-3B)
Model:	WLG500-PCI
FCC ID:	Q72WLAG
Manufacturer/supplier:	Chung Nam Electronics Co., Ltd.

Date test item received:	2004/06/09
Date test campaign completed:	2004/06/23
Date of issue:	2004/08/10

The test result only corresponds to the tested sample. It is not permitted to copy this report, in part or in full, without the permission of the test laboratory.

Total number of pages of this test report: 114 pages

Total number of pages of photos: External photos 1 pages

Internal photos 4 pages

Setup photos 2 pages

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TEST REPORT CERTIFICATION

Client	: Chung Nam Electronics Co., Ltd.
Address	: 12/F, Chung Nam Building, No. 1 Lockhart Road, Hong Kong
Manufacturer	: Chung Nam Electronics Co., Ltd.
Address	: 12/F, Chung Nam Building, No. 1 Lockhart Road, Hong Kong
EUT	: CNE 802.11a/g WLAN PCI Card (with MiniPCI module WLG500-3B)
Trade name	: CNE
Model No.	: WLG500-PCI
Power Source	: 5V DC via PC
Regulations applied	: FCC 47 CFR, Part 15 Subpart C (2003)
Test Result	: PASS
Note	: The 2.4GHz and 5.8GHz band are applicable to this report; another bands of operation (5.2GHz) is documented in a separate report.

The testing described in this report has been carried out to the best of our knowledge and ability, and our responsibility is limited to the exercise of reasonable care. This certification is not intended to believe the sellers from their legal and/or contractual obligations.

The compliance test is only certified for the test equipment and the results of the testing report relate only to the item tested. The compliance test of this report was conducted in accordance with the appropriate standards. It's not intention to assure the quality and performance of the product. This report shall not be reproduced except in full, without the approval of ETC. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

Laboratory Introduction: Electronics Testing Center, Taiwan is recognized, filed and mutual recognition arrangement as following:

❶ ISO9001: TüV Product Service

❷ ISO/IEC 17025: BSMI, CNLA, DGT, NVLAP, CCIBLAC, UL, Compliance

❸ Filing: FCC, Industry Canada, VCCI

❹ MRA: Australia, Hong Kong, New Zealand, Singapore, USA, Japan, Korea, China, APLAC through CNLA

NVLAP Lab Code 200133-0

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1 GENERAL INFORMATION

1.1 Product Description

a) Type of EUT : CNE 802.11a/g WLAN PCI Card (with MiniPCI module WLG500-3B)
b) Trade Name : CNE
c) Model No. : WLG500-PCI
d) Power Supply : 5V DC from PC
e) Peak Antenna Gain : 1.5 dBi

1.2 Characteristics of Device

The CNE 802.11a/b/g WLAN NIC is a complete wireless high speed Network Interface Card (NIC). It conforms to the IEEE 802.11a and IEEE 802.11g protocol and operates in both the 2.45GHz and 5GHz ISM frequency bands.

. Fully compliant with the IEEE 802.11a, 802.11b and 802.11g WLAN standards.

.Support for 54,48,36,24,18,12,9 and 6 Mbps OFDM, 11 and 5.5 Mbps CCK and legacy 2 and 1 Mbps data rates.

.Driver Supports Microsoft Windows XP and 2000 (SR1).

1.3 Test Methodology

All testing were performed according to the procedures in ANSI C63.4 and FCC CFR 47 Part 2 and Part 15.

1.4 Test Facility

The semi-anechoic chamber and conducted measurement facility used to collect the radiated and conducted data are located inside the Building at No.8, Lane 29, Wen-ming Road, Lo-shan Tsun, Kweishan Hsiang, Taoyuan, Taiwan, R.O.C.
This site has been accreditation as a FCC filing site.

2 PROVISIONS APPLICABLE

2.1 Definition

Unintentional radiator:
A device that intentionally generates and radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction.

Class A Digital Device:
A digital device which is marketed for use in commercial or business environment; exclusive of a device which is market for use by the general public, or which is intended to be used in the home.

Class B Digital Device :
A digital device which is marketed for use in a residential environment notwithstanding use in a commercial, business of industrial environment. Example of such devices that are marketed for the general public.

Note : A manufacturer may also qualify a device intended to be marketed in a commercial, business, or industrial environment as a Class B digital device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B Digital Device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B Digital Device, Regardless of its intended use.

Intentional radiator:
A device that intentionally generates and emits radio frequency energy by radiation or induction.

2.2 Requirement for Compliance

(1) Conducted Emission Requirement

For unintentional device, according to §15.107(a) Line Conducted Emission Limits is as following:

Frequency MHz	Quasi Peak dBμV	Average dBμV
0.15 - 0.5	66-56*	56-46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

*Decreases with the logarithm of the frequency.

For intentional device, according to §15.207(a) Line Conducted Emission Limits is same as above table.

(2) Radiated Emission Requirement

For unintentional device, according to §15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency MHz	Distance Meters	Radiated dBμV/m	Radiated μV/m
30 - 88	3	40.0	100
88 - 216	3	43.5	150
216 - 960	3	46.0	200
above 960	3	54.0	500

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

(3) Antenna Requirement

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

(4) Bandwidth Requirement

According to 15.247 (a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

(5) Output Power Requirement

For systems using digital modulation , according to 15.247(b), the maximum peak output power of the intentional radiator shall not exceed 1 Watt. If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(6) Spurious Emissions Measurement

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) (see Section 15.205(c)).

(7) Power Density Requirement

According to 15.247 (d) , for digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission..

2.3 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below :

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42-16.423	399.9-410	4.5-5.25
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	2655-2900	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	Above 38.6
13.36-13.41			

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

2.4 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device :

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2.5 User Information

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual.

The Federal Communications Commission Radio Frequency Interference Statement includes the following paragraph.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio / TV technician for help.

3. SYSTEM TEST CONFIGURATION

3.1 Justification

Both radiated and conducted emissions, EUT was configured for testing and embeded in a Desktop PC as a customer would normally use it. Measurement was performed under the condition that a computer program, cTxRx 2.1.0.0, was exercised to simulate data communication of EUT, and the transmission rate can be set by this program.

3.2 Devices for Tested System

Device	Manufacture	Model No.	S/N No.	Cable Description
CNE 802.11a/g WLAN PCI Card (with MiniPCI module WLG500-3B)*	Chung Nam Electronics Co., Ltd.	WLG500-PCI	84500012398	N/A
LCD monitor	HP	D5063	----	1.7m Shielded VGA Cable (with a core) Adaptor: (with a core) 3.6m Unshielded Power Line
Keyboard	IBM	KB-9910	----	2.0m Unshielded Line
Mouse	IBM	M-SAU-IBM6	----	1.8m Unshielded Line
Desktop PC	Compaq	D380mx	----	1.8m Unshielded Power Line
Modem	ACEEX	1414	----	1.7m Shielded Line (RS232) Adaptor: 1.7m Unshielded Power Line
Printer	HP	DeskJet 400	----	1.7m Shielded Line (LPT) Adaptor: 2.4m Unshielded Power Line

Remark "*" means equipment under test.

The software and parameter setting :

Software:	CTxRx 2.1.0.0	
Parameter:	Calibrated Power Level	30 dBm

4 CONDUCTED EMISSION MEASUREMENT

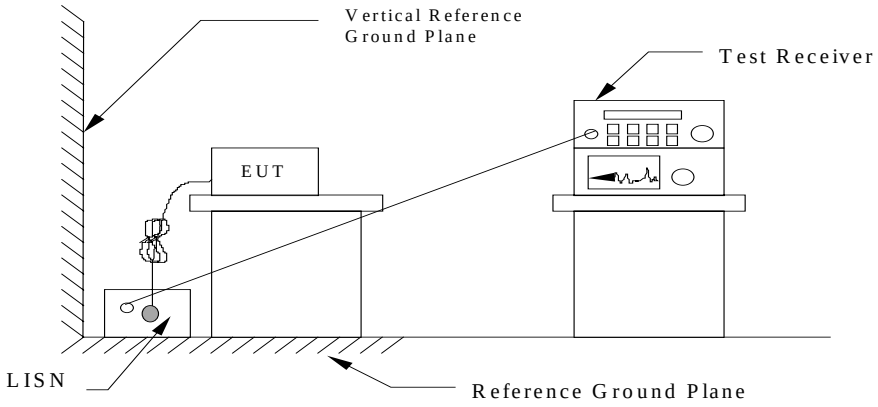
4.1 Standard Applicable

For unintentional and intentional device, Line Conducted Emission Limits are in accordance to § 15.107(a) and §15.207(a) respectively. Both Limits are identical specification.

4.2 Measurement Procedure

1. Setup the configuration per figure 1.
2. A preliminary scan with a spectrum monitor is performed to identify the frequency of emission that has the highest amplitude relative to the limit by operating the EUT in selected modes of operation, typical cable positions, and with a typical system configuration.
3. Record the 6 highest emissions relative to the limit.
4. Measure each frequency obtained from step 3 by a test receiver set on quasi peak detector function, and then record the accuracy frequency and emission level. If all emissions measured in the specified band are attenuated more than 20 dB from the limit, this step would be ignored, and the peak detector function would be used.
5. Confirm the highest three emissions with variation of the EUT cable configuration and record the final data.
6. Repeat all above procedures on measuring each operation mode of EUT.

Figure 1 : Conducted emissions measurement configuration



4.3 Conducted Emission Data

4.3.1 IEEE 802.11a

Operation Mode: CH 06

Test Date: Jun. 18, 2004 Temperature: 24℃ Humidity: 58 %

Freq. (MHz)	**Meter Reading** (dBuV)				**Factor** (dB)	**Result** (dBuV)				**Limit** (dBuV)		**Margins** (dB)
	Q.P Value		AVG. Value			Q.P Value		AVG. Value		Q.P Value	AVG. Value	Q.P. or AVG.
	L1	L2	L1	L2		L1	L2	L1	L2			
0.180	***	45.3	----	----	0.2	***	45.5	----	----	64.5	54.5	-19.0
0.190	40.8	***	----	----	0.2	41.0	***	----	----	64.0	54.0	-23.0
0.283	50.1	***	30.6	----	0.2	50.3	***	30.8	----	60.7	50.7	-10.4
0.290	47.5	***	----	----	0.2	47.7	***	----	----	60.5	50.5	-12.8
0.414	***	42.6	----	----	0.2	***	42.8	----	----	57.6	47.6	-14.8
0.538	***	33.7	----	----	0.2	***	33.9	----	----	56.0	46.0	-22.1
0.653	40.1	***	----	----	0.2	40.3	***	----	----	56.0	46.0	-15.7
0.695	***	36.3	----	----	0.2	***	36.5	----	----	56.0	46.0	-19.5
1.073	***	34.5	----	----	0.2	***	34.7	----	----	56.0	46.0	-21.3
1.816	***	39.2	----	----	0.2	***	39.4	----	----	56.0	46.0	-16.6
1.986	36.2	***	----	----	0.2	36.4	***	----	----	56.0	46.0	-19.6
2.114	35.5	***	----	----	0.2	35.7	***	----	----	56.0	46.0	-20.3

Note:

1. "***" means the value was too low to be measured.
2. If the data table appeared symbol of "----" means the Q.P. value is under the limit of AVG. so, the AVG. value doesn't need to be measured.
3. The estimated measurement uncertainty of the result measurement is ±2.5dB.

Note : Please refer to page 15 to page 16 for chart

Conducted Emission Test

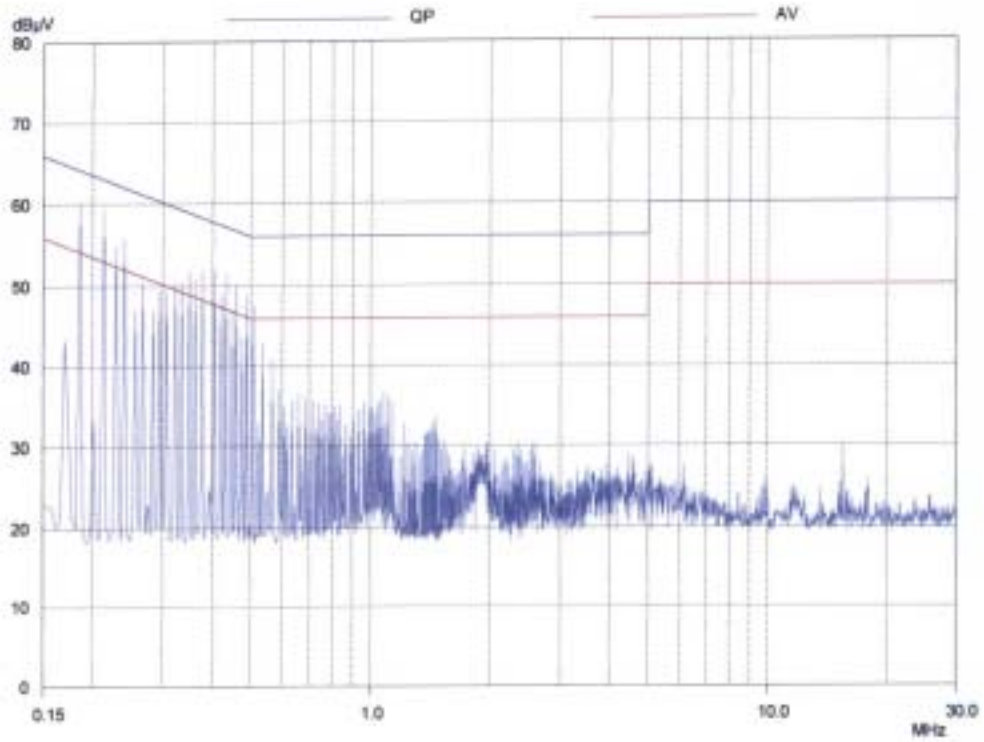
Peak Value

EUT:	Wireless LAN (WLG 500 - 3B)
Manuf:	
Op Cond:	802.11a (5825MHz)
Operator:	Lee-Ying
Test Spec:	
Comment:	L1

Result File: : New Measurement

Final Measurement:

Detector:	X QP
Meas Time:	1sec
Peaks:	8
Acc Margin:	30 dB



Conducted Emission Test

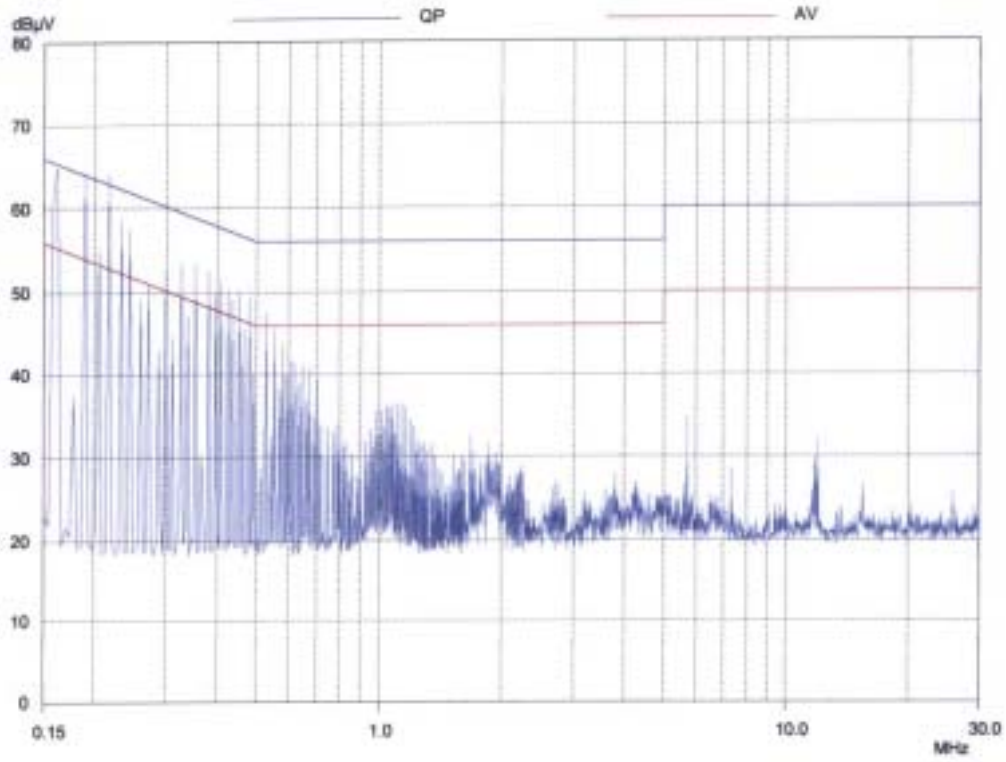
Peak Value

EUT:	Wireless LAN (WLG 500 - 3B)
Manuf:	
Op Cond:	802.11a (5825MHz)
Operator:	Lee-Ying
Test Spec:	
Comment:	L2

Result File: : New Measurement

Final Measurement:

Detector:	X QP
Meas Time:	1sec
Peaks:	8
Acc Margin:	30 dB



4.3.2 IEEE 802.11b

Operation Mode: CH 06

Test Date: Jun. 18, 2004 Temperature: 24℃ Humidity: 58 %

Freq. (MHz)	**Meter Reading** (dBuV)				**Factor** (dB)	**Result** (dBuV)				**Limit** (dBuV)		**Margins** (dB)
	Q.P Value		AVG. Value			Q.P Value		AVG. Value		Q.P Value	AVG. Value	Q.P. or AVG.
	L1	L2	L1	L2		L1	L2	L1	L2			
0.184	***	43.3	----	----	0.2	***	43.5	----	----	64.3	54.3	-20.8
0.240	48.6	***	----	----	0.2	48.8	***	----	----	62.1	52.1	-13.3
0.288	49.8	***	27.7	----	0.2	50.0	***	27.9	----	60.6	50.6	-10.6
0.341	44.4	***	----	----	0.2	44.6	***	----	----	59.2	49.2	-14.6
0.386	***	41.2	----	----	0.2	***	41.4	----	----	58.1	48.1	-16.7
0.638	***	36.9	----	----	0.2	***	37.1	----	----	56.0	46.0	-18.9
0.650	46.2	***	20.5	----	0.2	46.4	***	20.7	----	56.0	46.0	-9.6
0.842	***	35.9	----	----	0.2	***	36.1	----	----	56.0	46.0	-19.9
0.934	40.2	***	----	----	0.2	40.4	***	----	----	56.0	46.0	-15.6
1.097	***	36.7	----	----	0.2	***	36.9	----	----	56.0	46.0	-19.1
1.185	***	33.5	----	----	0.2	***	33.7	----	----	56.0	46.0	-22.3
1.525	37.8	***	----	----	0.2	38.0	***	----	----	56.0	46.0	-18.0

Note:

1. “***” means the value was too low to be measured.
2. If the data table appeared symbol of "----" means the Q.P. value is under the limit for AVG. so, the AVG. value doesn't need to be measured.
3. The estimated measurement uncertainty of the result measurement is ±2.5dB.

Note : Please refer to page 18 to page 19 for chart

Conducted Emission Test

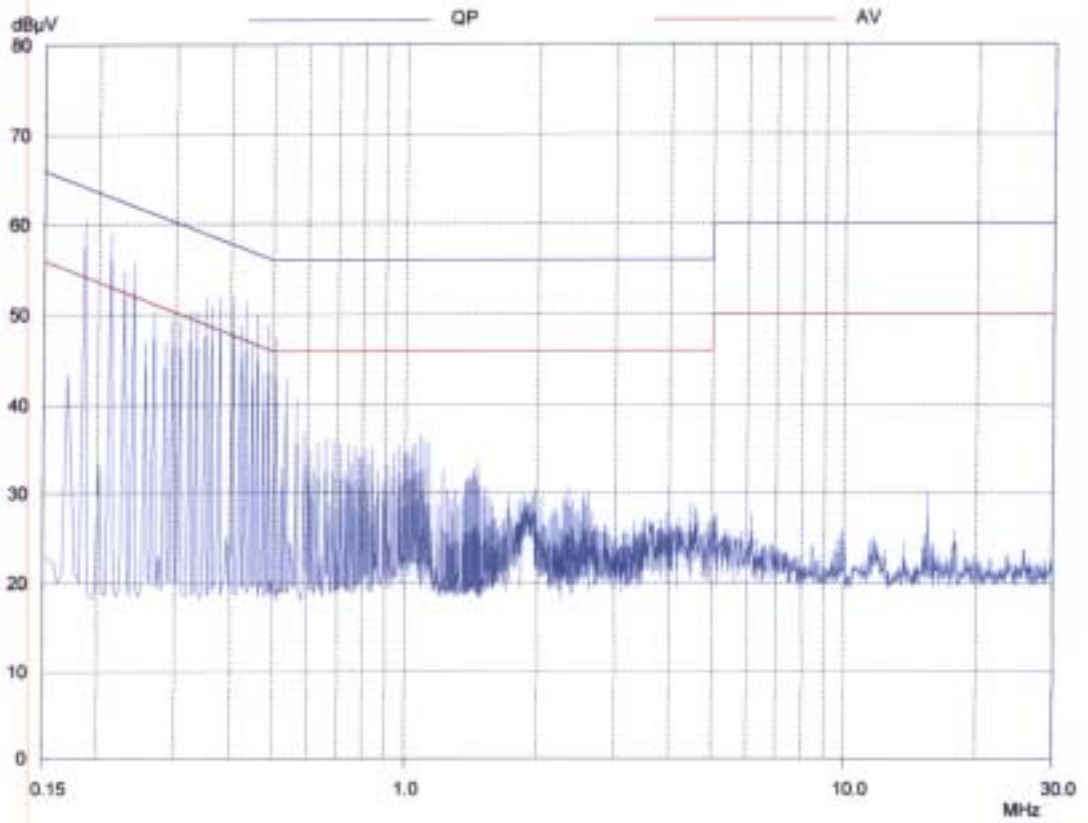
Peak Value

EUT:	Wireless LAN (WLG 500 - 38)
Manuf:	
Op Cond:	802.11b(CH6)
Operator:	Lee-Ying
Test Spec:	
Comment:	L1

Result File: : New Measurement

Final Measurement:

Detector:	X AV
Meas Time:	1sec
Peaks:	8
Acc Margin:	30 dB



Conduction Emission Test

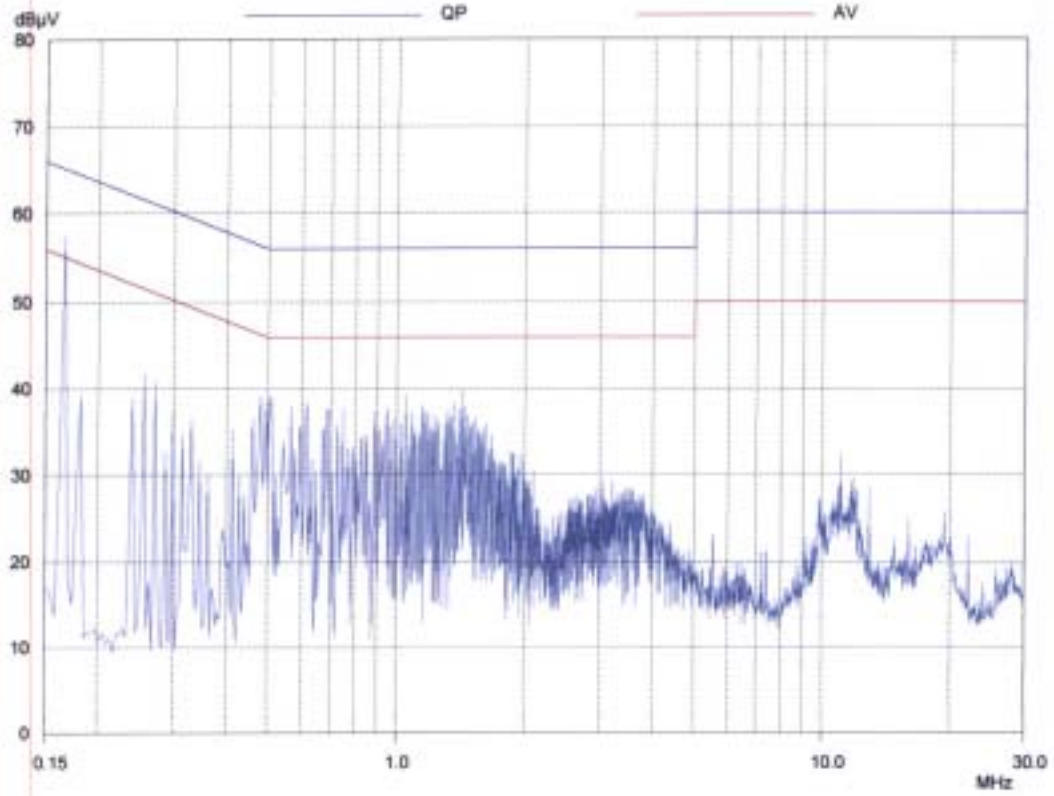
Peak Value

EUT:	Wireless LAN (WLG 500 - 3B)
Manuf:	
Op Cond:	802.11b (CH6)
Operator:	Lee-Ying
Test Spec:	
Comment:	L2

Result File: : New Measurement

Prescan Measurement:

Detector:	X PK
Meas Time:	see scan settings
Peaks:	8
Acc Margin:	10 dB



4.3.3 IEEE 802.11g

Operation Mode: CH 01

Test Date: Jun. 18, 2004 Temperature: 24℃ Humidity: 59 %

Freq. (MHz)	**Meter Reading** (dBuV)				**Factor** (dB)	**Result** (dBuV)				**Limit** (dBuV)		**Margins** (dB)
	Q.P Value		AVG. Value			Q.P Value		AVG. Value		Q.P Value	AVG. Value	Q.P. or AVG.
	L1	L2	L1	L2		L1	L2	L1	L2			
0.180	***	43.6	----	----	0.2	***	43.8	----	----	64.5	54.5	-20.7
0.182	43.1	***	----	----	0.2	43.3	***	----	----	64.4	54.4	-21.1
0.243	48.2	***	----	----	0.2	48.4	***	----	----	62.0	52.0	-13.6
0.290	49.9	***	28.3	----	0.2	50.1	***	28.5	----	60.5	50.5	-10.4
0.365	***	40.8	----	----	0.2	***	41.0	----	----	58.6	48.6	-17.6
0.578	***	38.6	----	----	0.2	***	38.8	----	----	56.0	46.0	-17.2
0.622	47.3	***	25.6	----	0.2	47.5	***	25.8	----	56.0	46.0	-8.5
0.641	***	36.9	----	----	0.2	***	37.1	----	----	56.0	46.0	-18.9
0.684	46.2	***	22.5	----	0.2	46.4	***	22.7	----	56.0	46.0	-9.6
0.811	***	35.3	----	----	0.2	***	35.5	----	----	56.0	46.0	-20.5
1.784	36.7	***	----	----	0.2	36.9	***	----	----	56.0	46.0	-19.1
1.894	***	35.7	----	----	0.2	***	35.9	----	----	56.0	46.0	-20.1

Note:

1. “***” means the value was too low to be measured.
2. If the data table appeared symbol of "----" means the Q.P. value is under the limit for AVG. so, the AVG. value doesn't need to be measured.
3. The estimated measurement uncertainty of the result measurement is ±2.5dB.

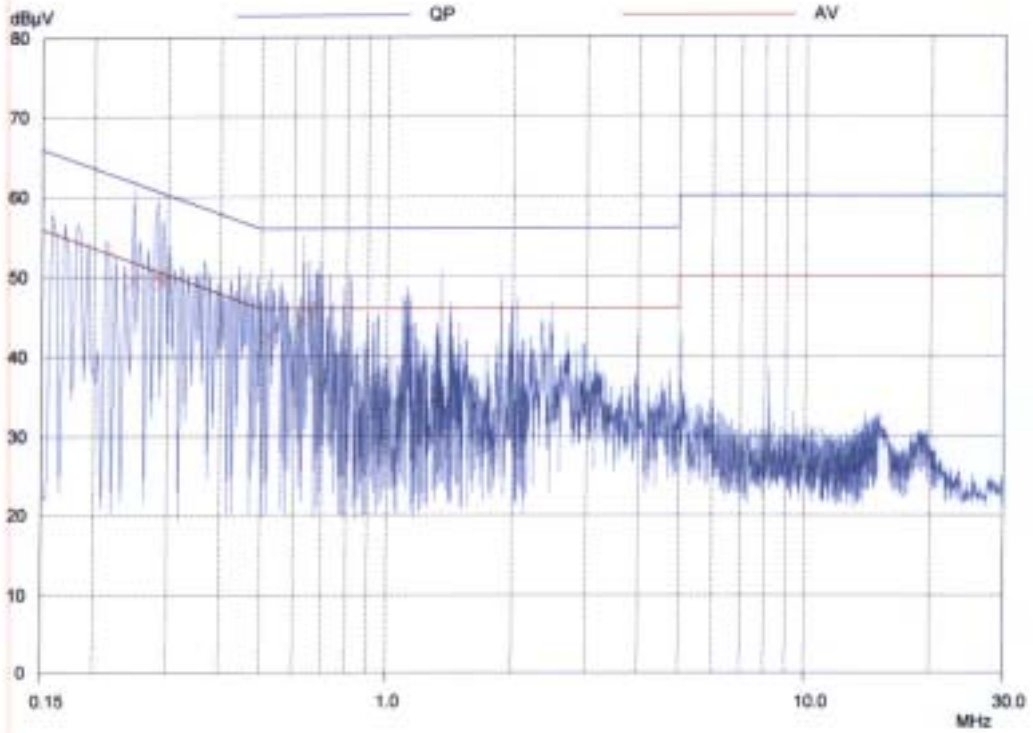
Note : Please refer to page 21 to page 22 for chart

Conducted Emission Test

Peak value

EUT:	Wireless LAN (WLG 500 - 3B)
Manuf:	
Op Cond:	802.11g (CH 1)
Operator:	Lee-Ying
Test Spec:	
Comment:	L1

Final Measurement:	Detector:	X QP
	Meas Time:	1sec
	Peaks:	8
	Acc Margin:	25 dB

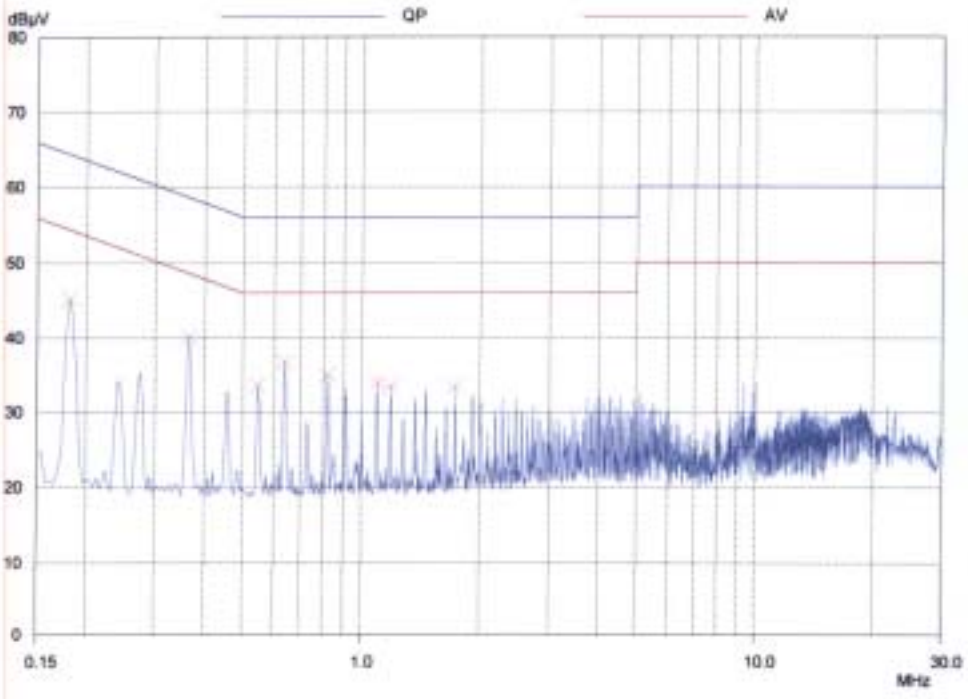


Conducted Emission Test

Peak value

EUT:	Wireless LAN (WLG 500 - 3B)
Manuf:	
Op Cond:	802.11g (CH 1)
Operator:	Lee-Ying
Test Spec:	
Comment:	L2

Prescan Measurement:	Detector:	X PK
	Meas Time:	see scan settings
	Peaks:	8
	Acc Margin:	25 dB



4.4 Result Data Calculation

The result data is calculated by adding the LISN Factor to the measured reading. The basic equation with a sample calculation is as follows:

RESULT = READING + LISN FACTOR (Included Cable Loss)

Assume a receiver reading of 22.5 dB μ V is obtained, and LISN Factor is 0.1 dB, then the total of disturbance voltage is 22.6 dB μ V.

RESULT = 22.5 + 0.1 = 22.6 dB μ V

Level in μ V = Common Antilogarithm[(22.6 dB μ V)/20]

= 13.48 μ V

4.5 Conducted Measurement Equipment

The following test equipment are used during the conducted test.

Equipment	Manufacturer	Model No.	Next Cal. Due
RF Test Receiver	Rohde and Schwarz	ESCS30	09/18/2004
Line Impedance Stabilization network	EMCO	3825	11/01/2004

5 ANTENNA REQUIREMENT

5.1 Standard Applicable

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
And according to §15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

5.2 Antenna Construction and Directional Gain

The antenna cable of EUT is fixed on the PCI card.
Antenna type: Monopole Antenna.
Antenna gain: 1.5 dBi.

6 EMISSION BANDWIDTH MEASUREMENT

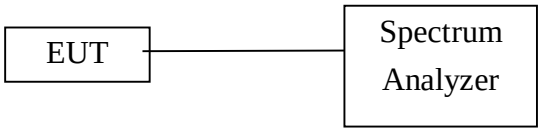
6.1 Standard Applicable

According to 15.247(a)(2), system using digital modulation techniques, the minimum 6dB bandwidth shall be at least 500 kHz.

6.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Figure 2: Emission bandwidth measurement configuration.



6.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Hewlett-Packard	8564EC	09/16/2005

6.4 Measurement Data

6.4.1 IEEE 802.11a

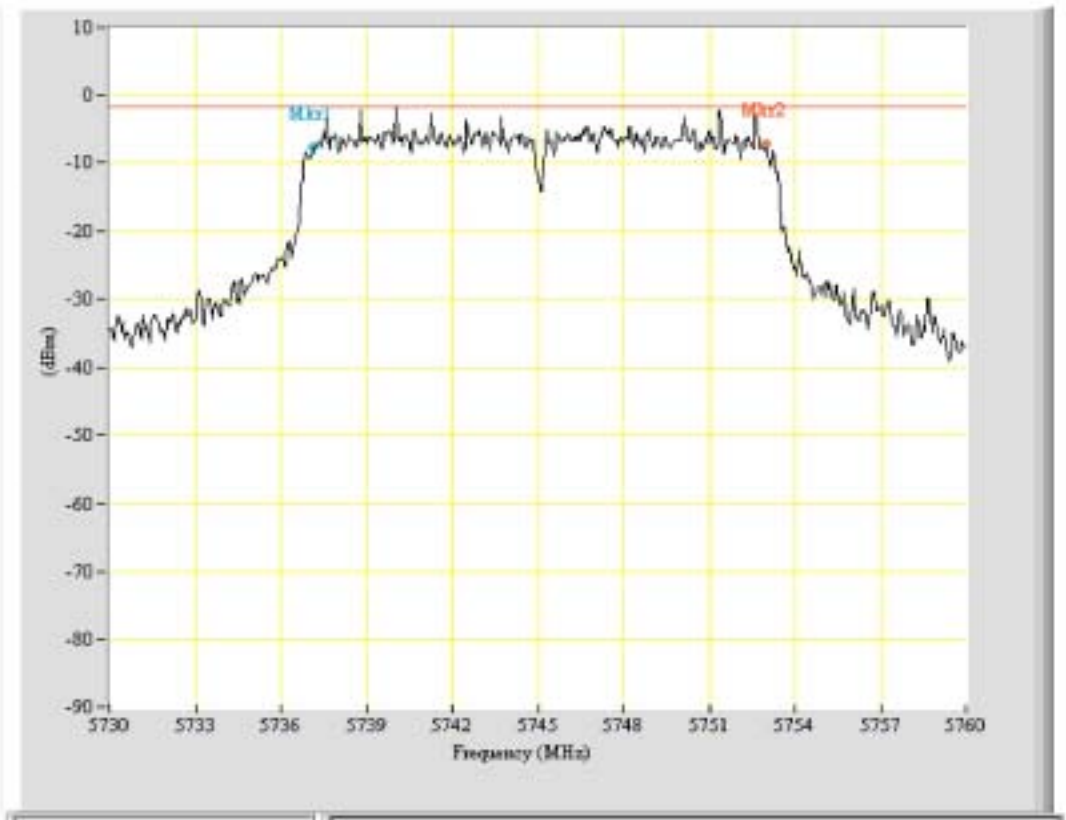
Test Date: Jun. 23, 2004 Temperature: 24 ℃ Humidity: 56 %

Channel	Frequency (MHz)	Data Transfer Rate (Mbps)	6dB Bandwidth (MHz)	FCC Limit (kHz)	Chart
149	5745	6	15.85	500	Page 27
		9	16.45	500	-
		12	16.00	500	-
		18	16.00	500	-
		24	16.50	500	-
		36	16.50	500	-
		48	16.55	500	-
		54	16.55	500	-
157	5785	6	16.20	500	-
		9	16.10	500	Page 28
		12	16.65	500	-
		18	16.50	500	-
		24	16.50	500	-
		36	16.60	500	-
		48	16.55	500	-
		54	16.65	500	-
165	5805	6	16.30	500	-
		9	16.20	500	-
		12	16.45	500	-
		18	15.90	500	Page 29
		24	16.71	500	-
		36	16.50	500	-
		48	16.55	500	-
		54	16.65	500	-

Note:

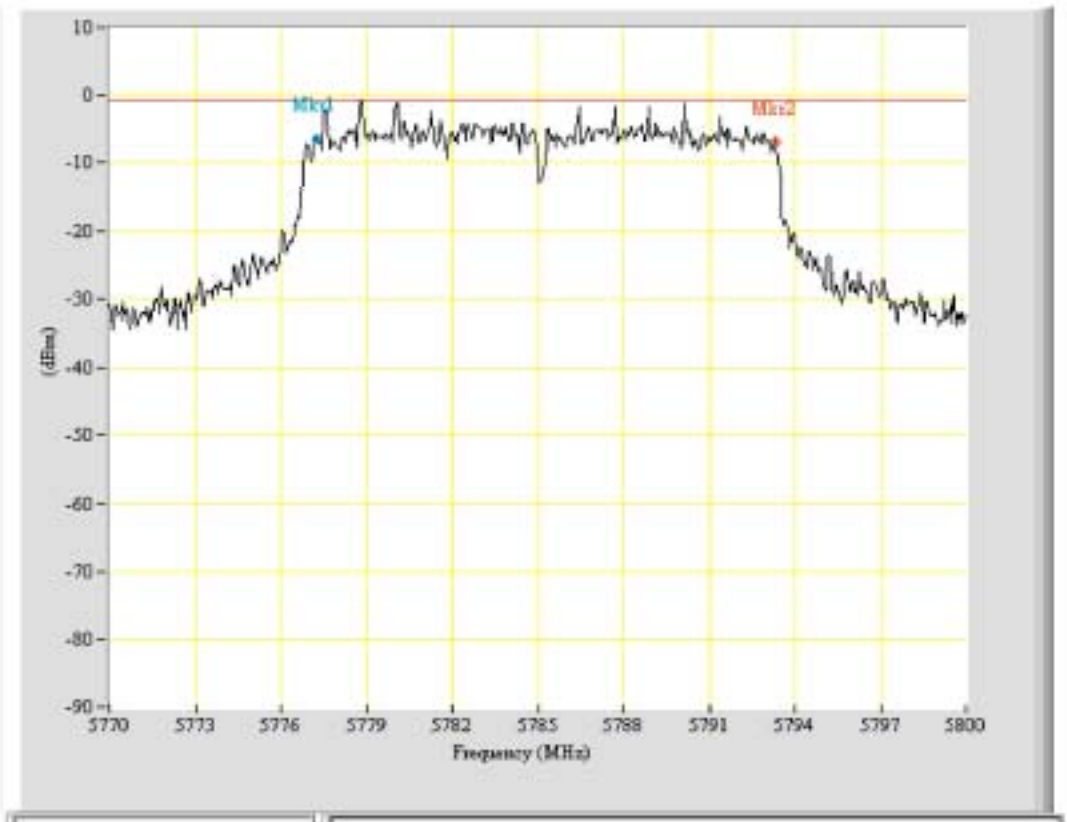
1. Please refer to page 27 to page 29 for chart

2. The estimated measurement uncertainty of the result measurement is 8.25×10^{-7} ($1GHz \leqq f \leqq 18GHz$)



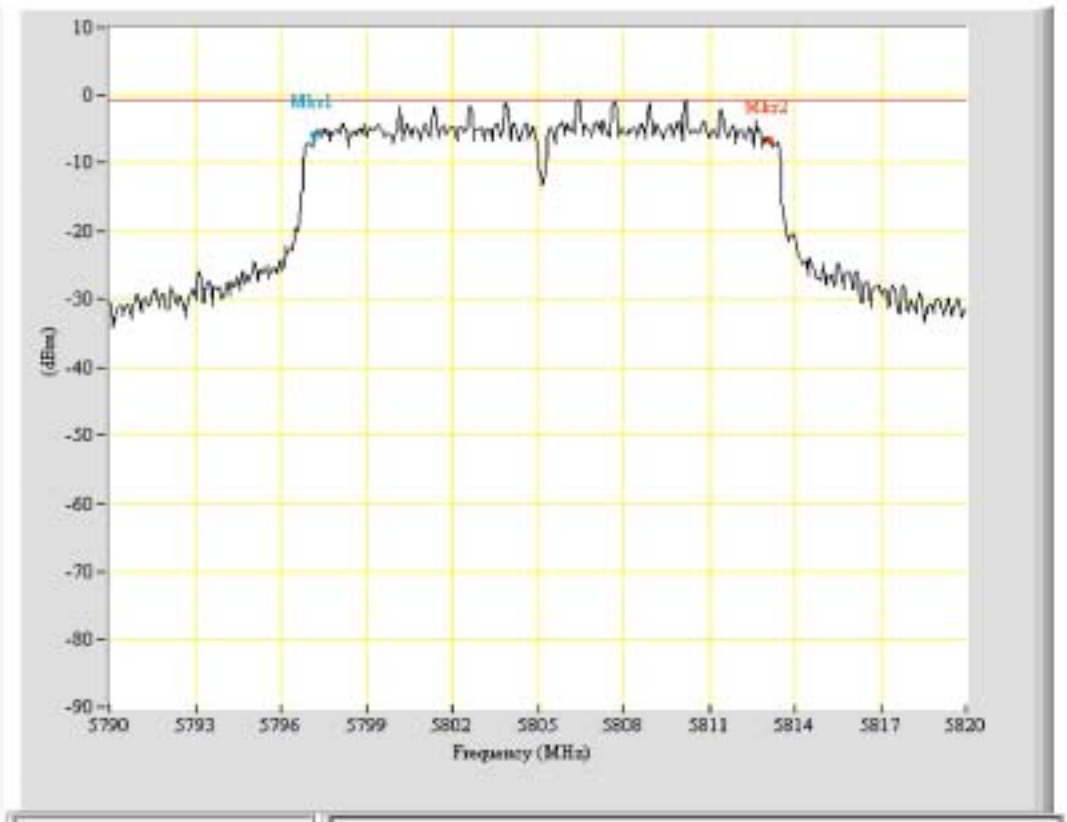
*Center 5745.0000MHz	Display Line -1.660dBm
*SPAN 30.0000MHz	Δ Marker -15.8500MHz 0.330dB
*RBW 100.00kHz	Mkr1 5737.150MHz -7.660dBm
*VBW 100.00kHz	Mkr2 5753.000MHz -7.330dBm
*SWP 50.00msec	
*ATTEN 20.00dB	
*RL 10.00dBm	

EUT: WLG500-3B
Purpose: 6dB_BW
Condition: 802.11a_5745MHz_6Mbps
Note:



*Center 5785.0000MHz	Display Line -0.830dBm
*SPAN 30.0000MHz	Δ Marker -16.1000MHz -0.500dB
*RBW 100.00kHz	Mkr1 5777.250MHz -6.500dBm
*VBW 100.00kHz	Mkr2 5793.350MHz -7.000dBm
*SWP 50.00msec	
*ATTEN 20.00dB	
*RL 10.00dBm	

EUT: WLG500-3B
Purpose: 6dB_BW
Condition: 802.11a_5785MHz_9Mbps
Note:



*Center 5805.0000MHz	Display Line -0.660dBm
*SPAN 30.0000MHz	Δ Marker -15.9000MHz -0.830dB
*RBW 100.00kHz	Mkr1 5797.200MHz -6.000dBm
*VBW 100.00kHz	Mkr2 5813.100MHz -6.830dBm
*SWP 50.00msec	
*ATTEN 20.00dB	
*RL 10.00dBm	

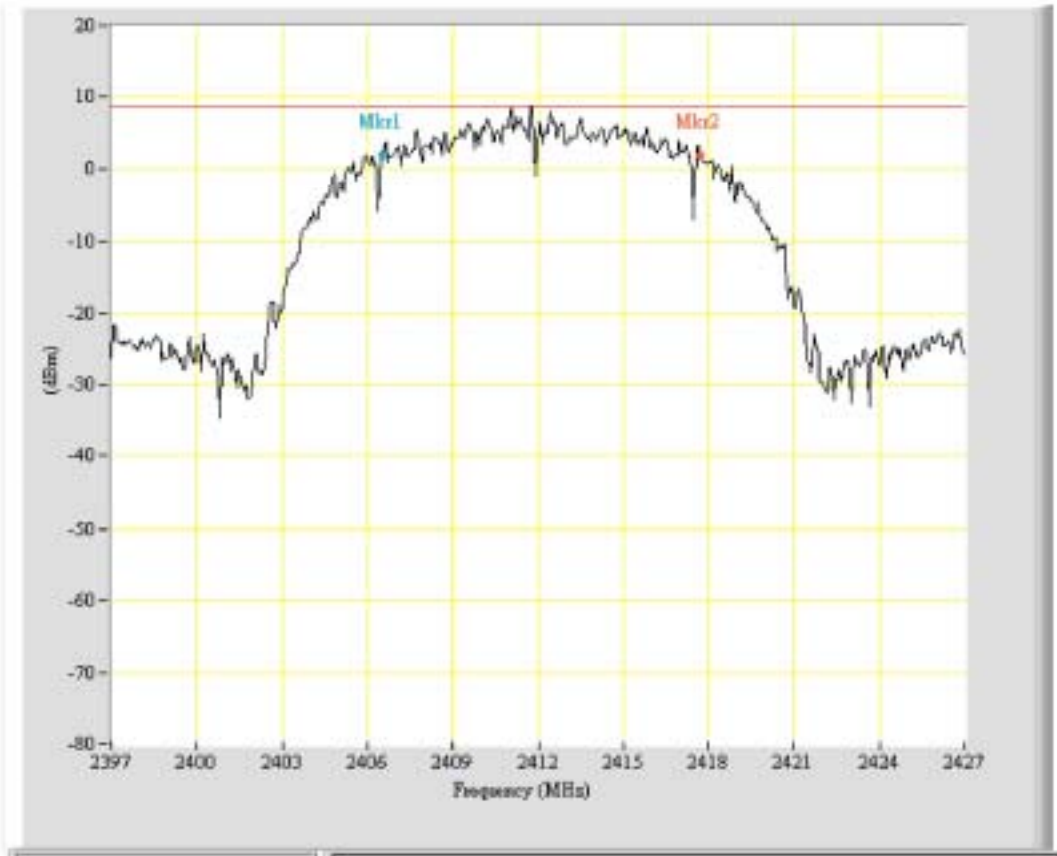
EUT: WLG500-3B
Purpose: 6dB_BW
Condition: 802.11a_5805MHz_18Mbps
Note:

6.4.2 IEEE 802.11b

Test Date: Jun. 18, 2004 Temperature: 24 ℃ Humidity: 58 %

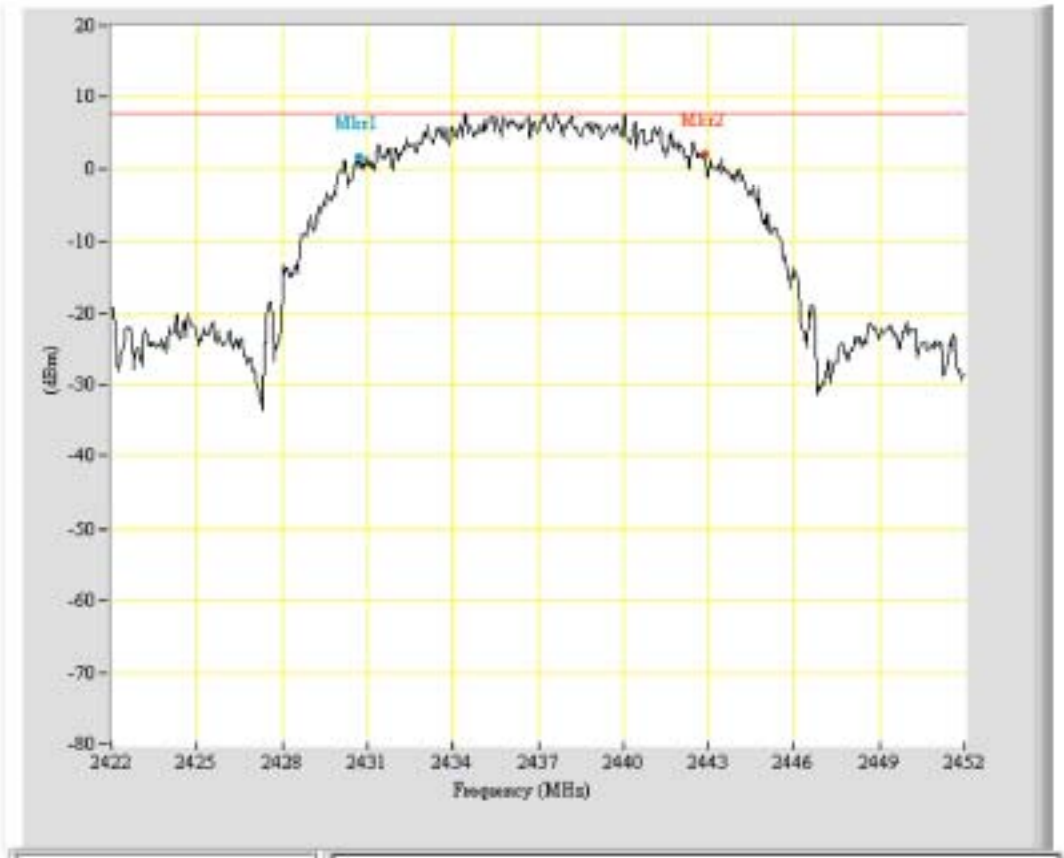
Channel	Frequency (MHz)	Data Transfer Rate (Mbps)	6dB Bandwidth (MHz)	FCC Limit (kHz)	Chart
1	2412	1	13.10	500	-
		2	12.40	500	-
		5.5	12.80	500	-
		11	11.15	500	Page 31
6	2437	1	12.70	500	-
		2	12.40	500	-
		5.5	12.15	500	Page 32
		11	12.25	500	-
11	2462	1	12.20	500	-
		2	12.45	500	-
		5.5	12.35	500	-
		11	11.65	500	Page 33

Note:
1.Please refer to page 31 to page 33 for chart
2. The estimated measurement uncertainty of the result measurement is 8.25×10^{-7} (1GHz≦f≦ 18GHz)



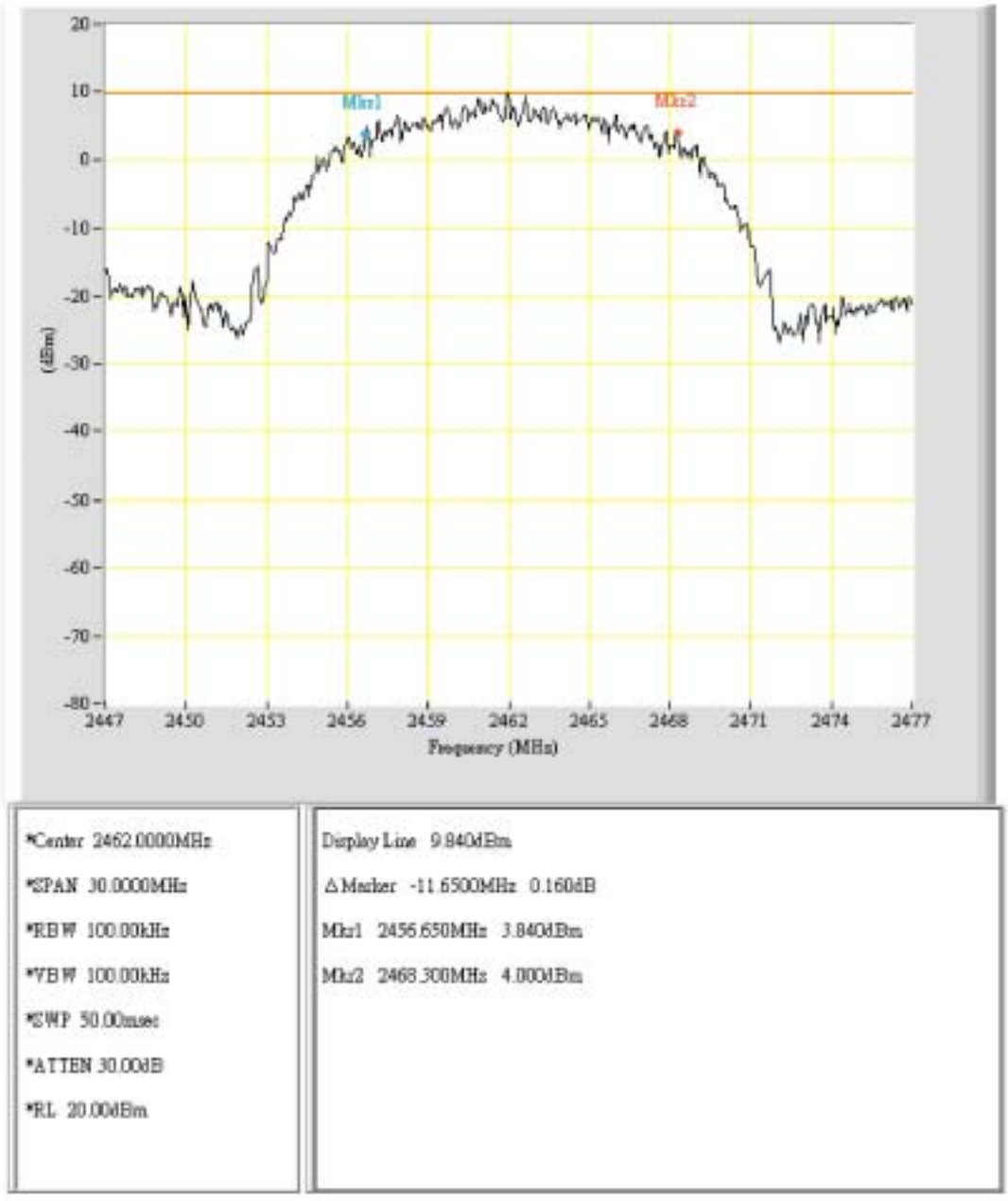
*Center 2412.0000MHz	Display Line 8.670dBm
*SPAN 30.0000MHz	ΔMarker -11.1500MHz 0.000dB
*RBW 100.00kHz	Mkr1 2406.550MHz 1.840dBm
*VBW 100.00kHz	Mkr2 2417.700MHz 1.840dBm
*SWP 50.00msec	
*ATTEN 30.00dB	
*RL 20.00dBm	

EUT: WLG500
Purpose: 6dB_BW
Condition: 11b_CH1_11Mbps
Note:



*Center 2437.0000MHz	Display Line 7.940dBm
*SPAN 30.0000MHz	Δ Marker -12.1500MHz 0.330dB
*RBW 100.00kHz	Mkr1 2430.700MHz 1.670dBm
*VBW 100.00kHz	Mkr2 2442.850MHz 2.000dBm
*SWP 50.00msec	
*ATTEN 30.00dB	
*RL 20.00dBm	

EUT: WLG500
Purpose: 6dB_BW
Condition: 11b_CH6_5_5Mbps
Note:



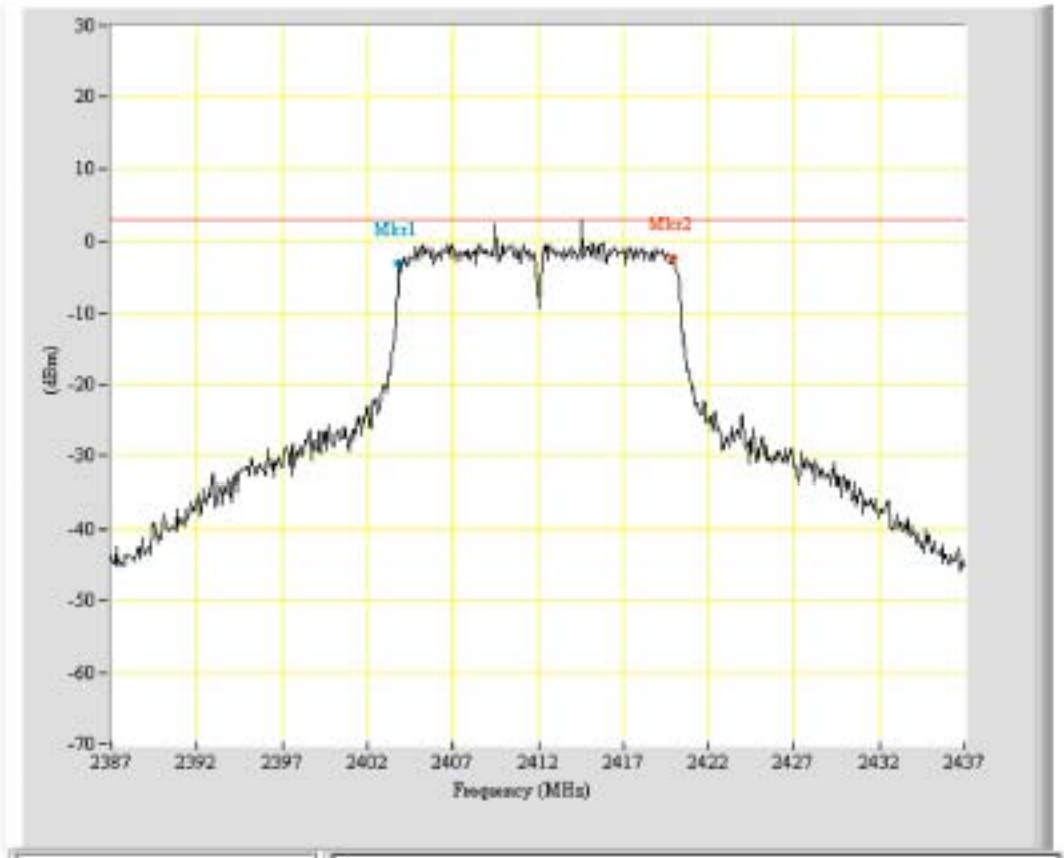
EUT: WLG500
Purpose: 6dB_BW
Condition: 11b_CH11_11Mbps
Note:

6.4.2 IEEE 802.11g

Test Date: Jun. 24, 2004 Temperature: 23 ℃ Humidity: 59 %

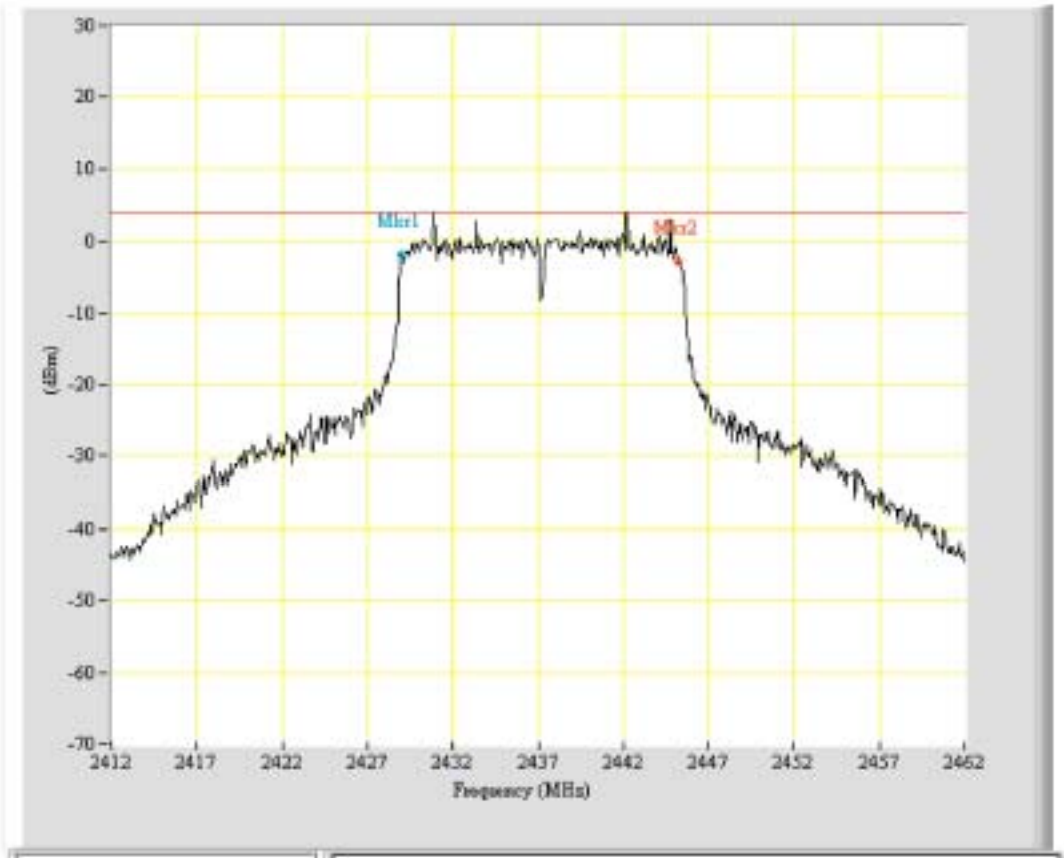
Channel	Frequency (MHz)	Data Transfer Rate (Mbps)	6dB Bandwidth (MHz)	FCC Limit (kHz)	Chart
1	2412	6	16.25	500	-
		9	16.25	500	-
		12	16.08	500	Page 35
		18	16.25	500	-
		24	16.42	500	-
		36	16.33	500	-
		48	16.42	500	-
		54	16.42	500	-
6	2437	6	16.42	500	-
		9	16.25	500	-
		12	16.17	500	Page 36
		18	16.58	500	-
		24	16.50	500	-
		36	16.42	500	-
		48	16.25	500	-
		54	16.67	500	-
11	2462	6	16.50	500	-
		9	16.50	500	-
		12	16.67	500	-
		18	16.33	500	Page 37
		24	16.50	500	-
		36	16.50	500	-
		48	16.67	500	-
		54	16.58	500	-

Note:
1.Please refer to page 35to page 37 for chart
2. The estimated measurement uncertainty of the result measurement is 8.25×10^{-7} (1GHz≦f≦ 18GHz)



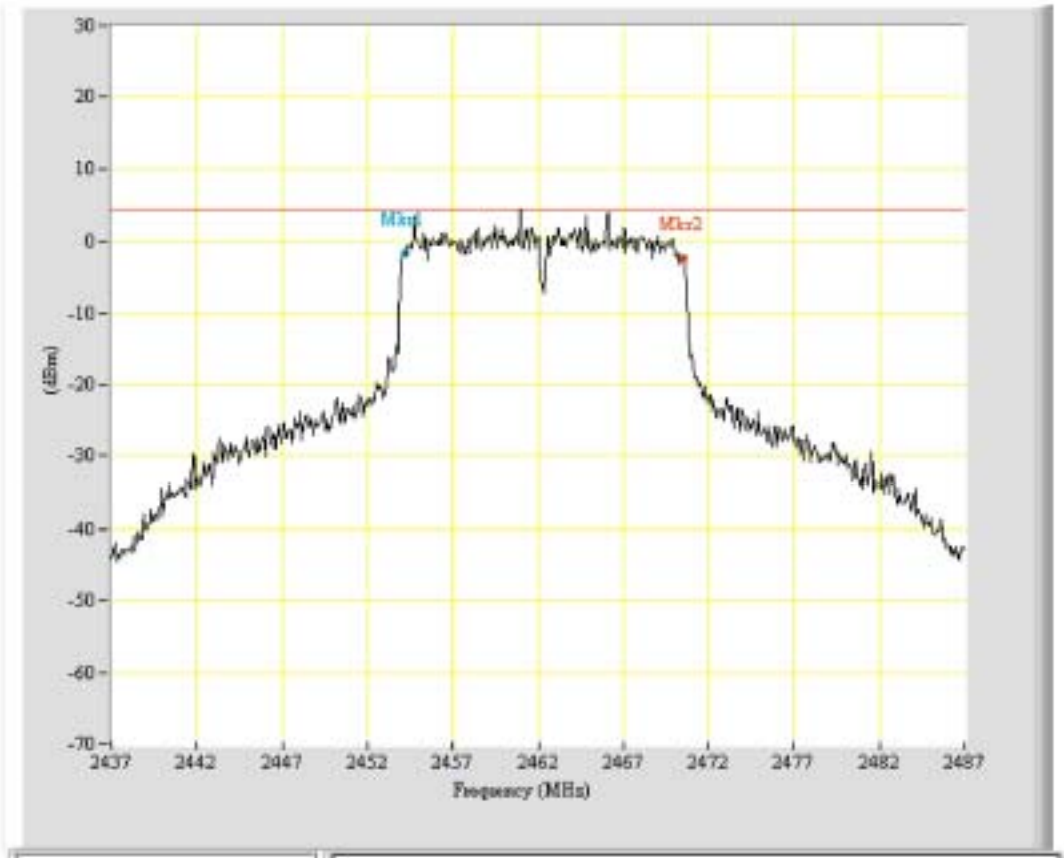
*Center 2412.0000MHz	Display Line 3.000dBm
*SPAN 50.0000MHz	Δ Marker -16.0833MHz 0.670dB
*RBW 100.00kHz	Mkr1 2403.833MHz -3.000dBm
*VBW 100.00kHz	Mkr2 2419.917MHz -2.330dBm
*SWP 50.00msec	
*ATTEN 40.00dB	
*RL 30.00dBm	

EUT: WLG500
Purpose: 6dB_BW
Condition: CH01_12Mbps
Note:



*Center 2437.0000MHz	Display Line 4.170dBm
*SPAN 50.0000MHz	ΔMarker -16.1667MHz -1.000dB
*RBW 100.00kHz	Mkr1 2429.000MHz -1.830dBm
*VBW 100.00kHz	Mkr2 2445.167MHz -2.830dBm
*SWP 50.00msec	
*ATTEN 40.00dB	
*RL 30.00dBm	

EUT: WLG500
Purpose: 6dB_BW
Condition: CH06_12Mbps
Note:



*Center 2462.0000MHz	Display Line 4.500dBm
*SPAN 50.0000MHz	ΔMarker -16.3333MHz -0.830dB
*RBW 100.00kHz	Mkr1 2454.167MHz -1.500dBm
*VBW 100.00kHz	Mkr2 2470.500MHz -2.330dBm
*SWP 50.00msec	
*ATTEN 40.00dB	
*RL 30.00dBm	

EUT: WLG500
Purpose: 6dB_BW
Condition: CH11_18Mbps
Note:

7 OUTPUT POWER MEASUREMENT

7.1 Standard Applicable

For direct sequence system, according to 15.247(b), the maximum peak output power of the transmitter shall not exceed 1 Watt. If transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

7.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 2. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 2 MHz and VBW to 3 MHz.
4. Measure the highest amplitude appearing on spectral display and record the level to calculate result data.
5. Repeat above procedures until all frequencies measured were complete.

7.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Hewlett-Packard	8564EC	09/16/2005

7.4 Measurement Data

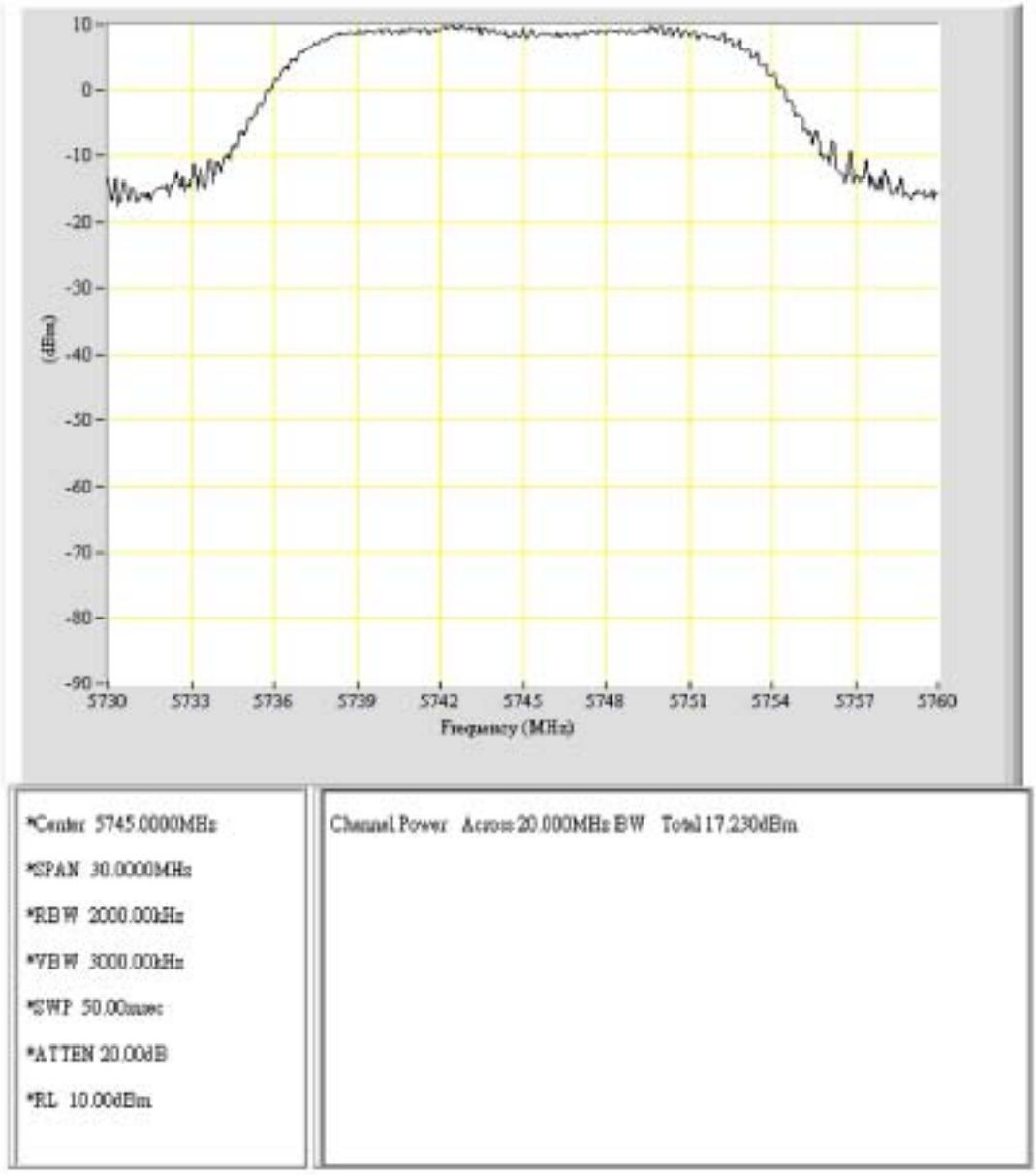
7.4.1 IEEE IEEE 802.11a

Test Date: Jun. 23, 2004 Temperature: 24 ℃ Humidity: 56 %

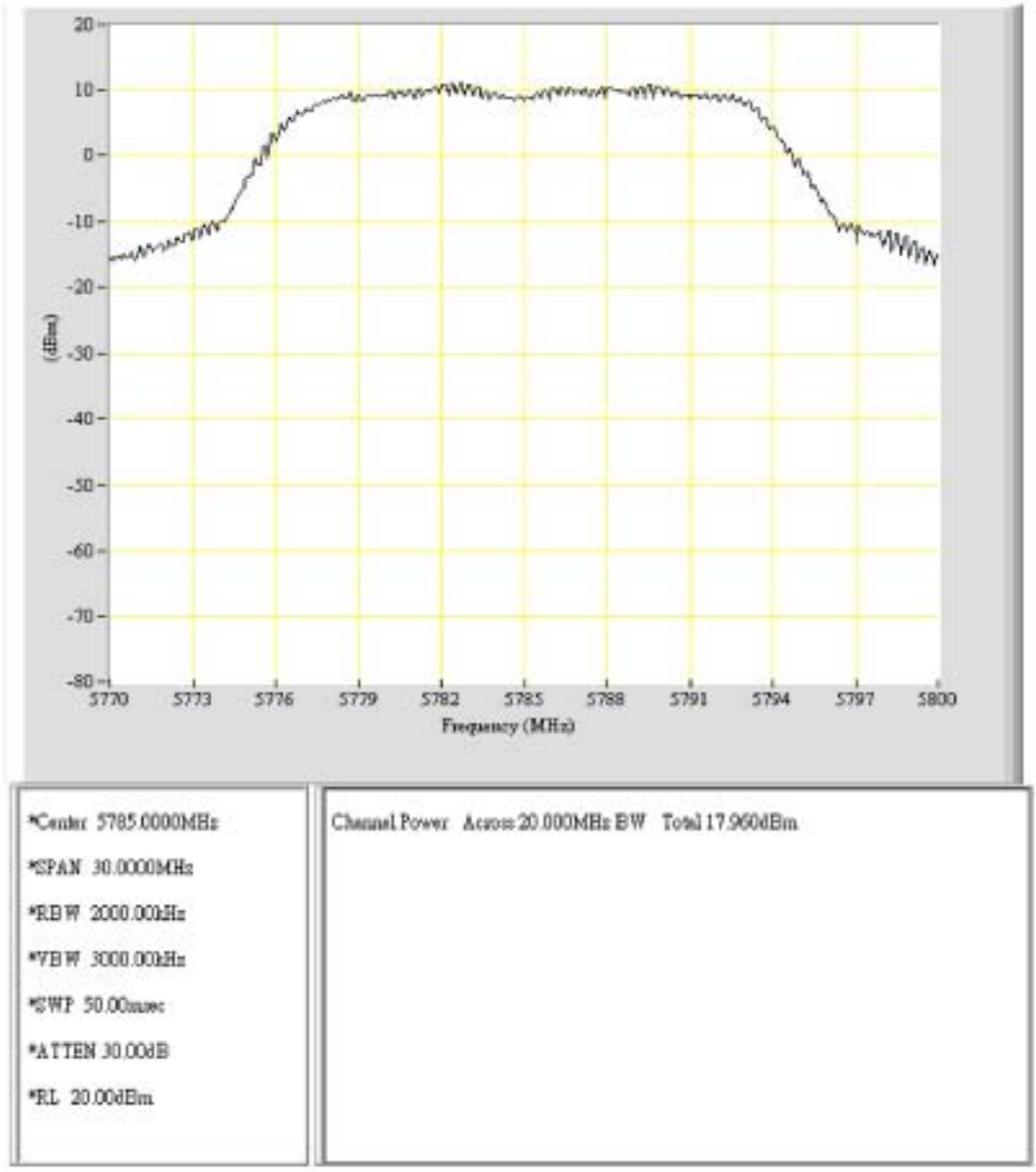
Channel	Frequency (MHz)	Data Transfer Rate (Mbps)	Reading (dBm)	Cable Loss (dB)	Maximum Peak Output Power (dBm)	Maximum Peak Output Power (mW)	FCC Limit (mW)	Chart
149	5745	6	17.15	1.5	18.65	73.283	1000	-
		9	17.22	1.5	18.72	74.473	1000	-
		12	17.22	1.5	18.72	74.473	1000	-
		18	17.23	1.5	18.73	74.645	1000	Page 40
		24	16.02	1.5	17.52	56.494	1000	-
		36	16.02	1.5	17.52	56.494	1000	-
		48	13.88	1.5	15.38	34.514	1000	-
		54	14.42	1.5	15.59	39.084	1000	-
157	5785	6	17.72	1.4	19.12	81.658	1000	-
		9	17.96	1.4	19.36	86.298	1000	Page 41
		12	17.83	1.4	19.23	83.753	1000	-
		18	17.84	1.4	19.24	83.946	1000	-
		24	16.54	1.4	17.94	62.230	1000	-
		36	16.44	1.4	17.84	60.817	1000	-
		48	14.22	1.4	15.62	36.475	1000	-
		54	14.77	1.4	16.17	41.400	1000	-
165	5805	6	17.49	1.4	18.89	77.446	1000	-
		9	17.73	1.4	19.13	81.845	1000	Page 42
		12	17.57	1.4	18.97	78.886	1000	-
		18	27.59	1.4	18.99	79.250	1000	-
		24	16.40	1.4	17.80	60.256	1000	-
		36	16.18	1.4	17.58	57.279	1000	-
		48	14.20	1.4	15.60	36.308	1000	-
		54	14.61	1.4	16.01	39.903	1000	-

Note:

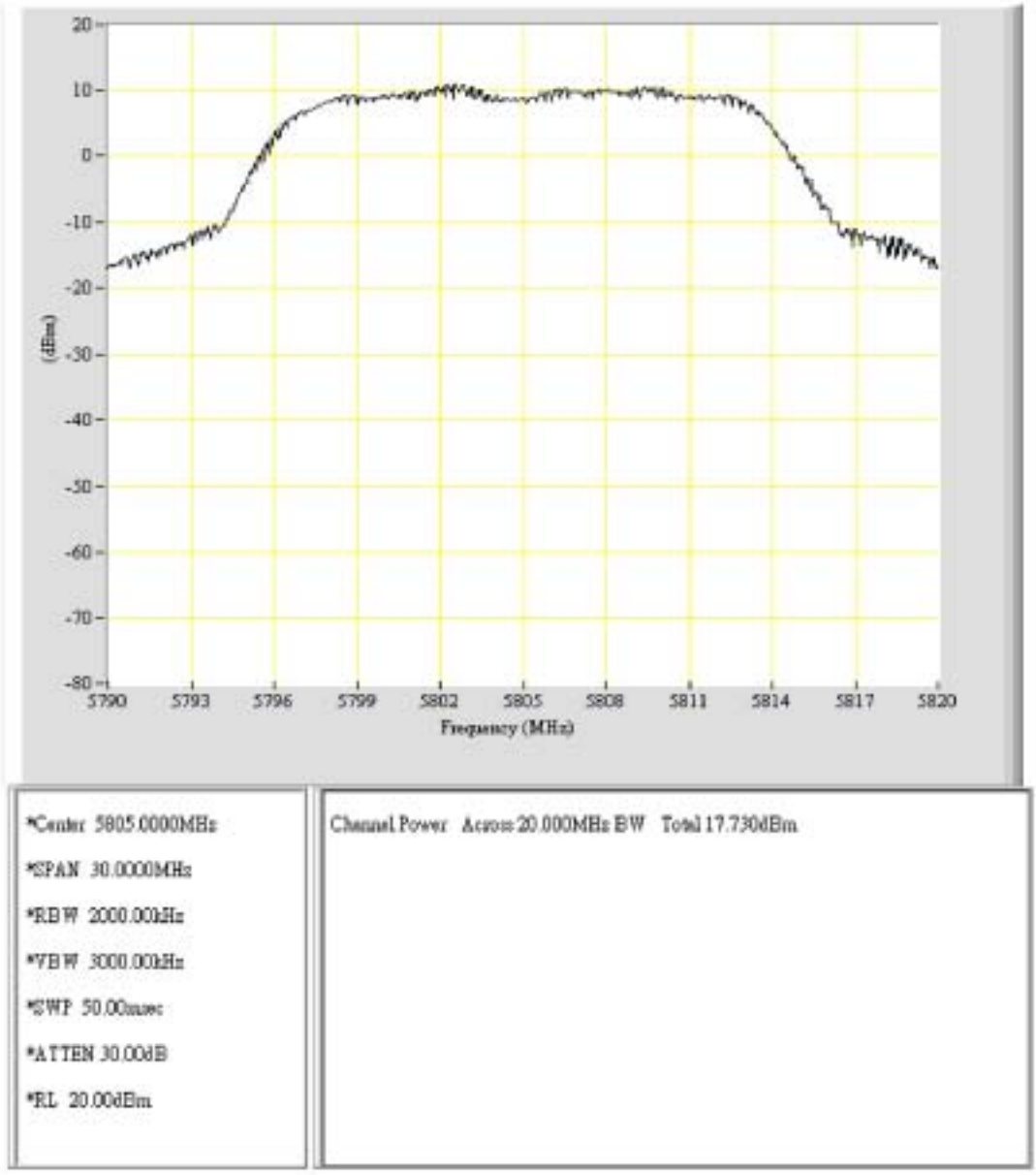
1. Please refer to page 40 to page 42 for chart
2. The estimated measurement uncertainty of the result measurement is ±1.5dB(1GHz≦f≦ 18GHz)



EUT: WLG500-3B
Purpose: Output_Pwr
Condition: 802.11a_5745MHz_18Mbps
Note:



EUT: WLG500-3B
Purpose: Output_Pwr
Condition: 802.11a_5785MHz_9Mbps
Note:



EUT: WLG500-3B
Purpose: Output_Pwr
Condition: 802.11a_5805MHz_9Mbps
Note:

7.4.2 IEEE IEEE 802.11b

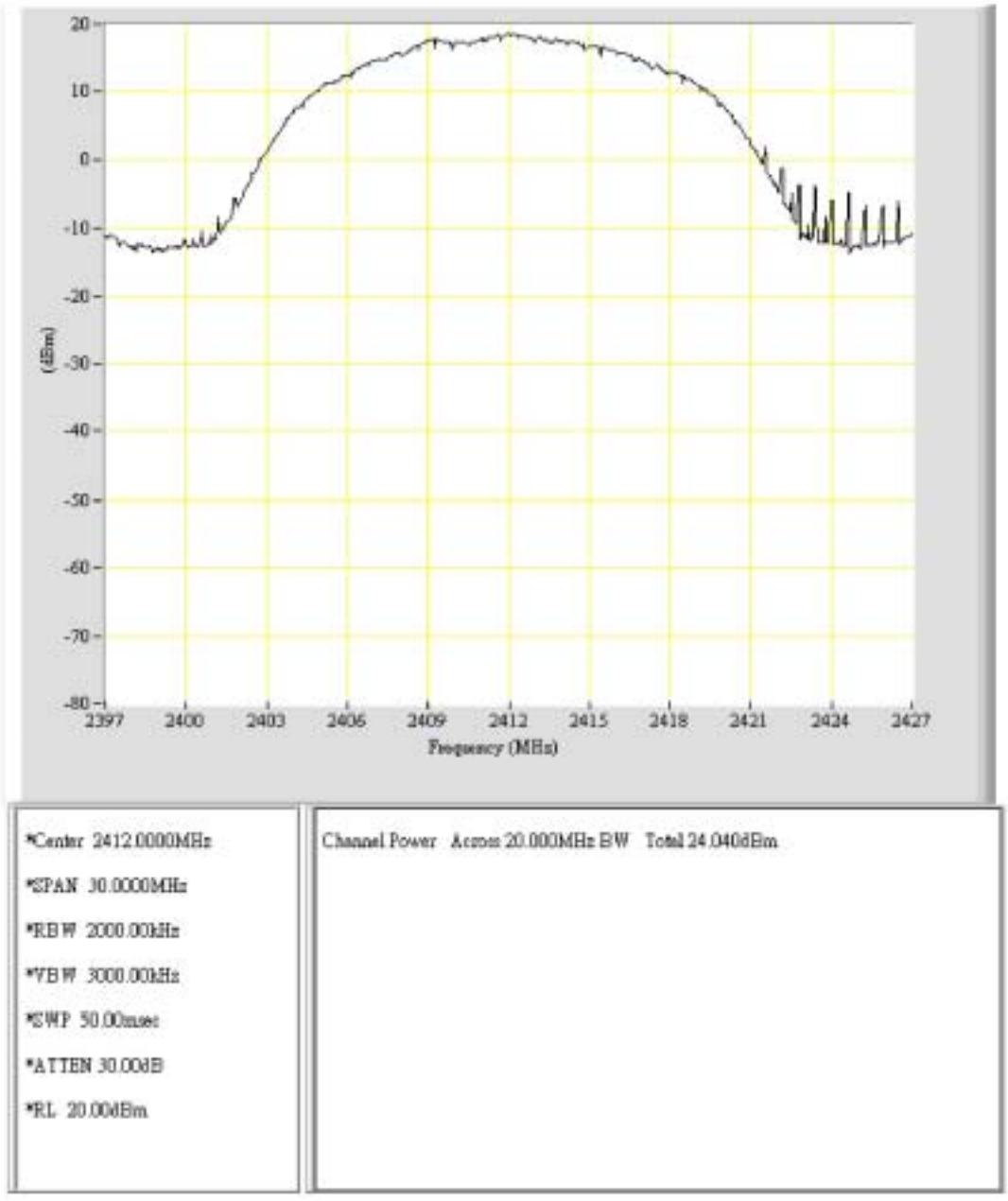
Test Date: Jun. 23, 2004 Temperature: 24 ℃ Humidity: 56 %

Channel	Frequency (MHz)	Data Transfer Rate (Mbps)	Reading (dBm)	Cable Loss (dB)	Maximum Peak Output Power (dBm)	Maximum Peak Output Power (mW)	FCC Limit (mW)	Chart
1	2412	1	21.97	2.3	24.27	267.301	1000	-
		2	22.15	2.3	24.45	278.612	1000	-
		5.5	22.15	2.3	24.45	278.612	1000	-
		11	24.04	2.3	26.34	430.527	1000	Page 44
6	2437	1	22.27	2.3	24.57	286.418	1000	-
		2	22.43	2.3	24.73	297.167	1000	-
		5.5	23.08	2.3	25.38	345.144	1000	-
		11	24.33	2.3	26.63	460.257	1000	Page 45
11	2462	1	22.82	2.4	25.22	332.660	1000	-
		2	22.98	2.4	25.38	345.144	1000	-
		5.5	23.58	2.4	25.98	396.278	1000	-
		11	24.91	2.4	27.31	538.270	1000	Page 46

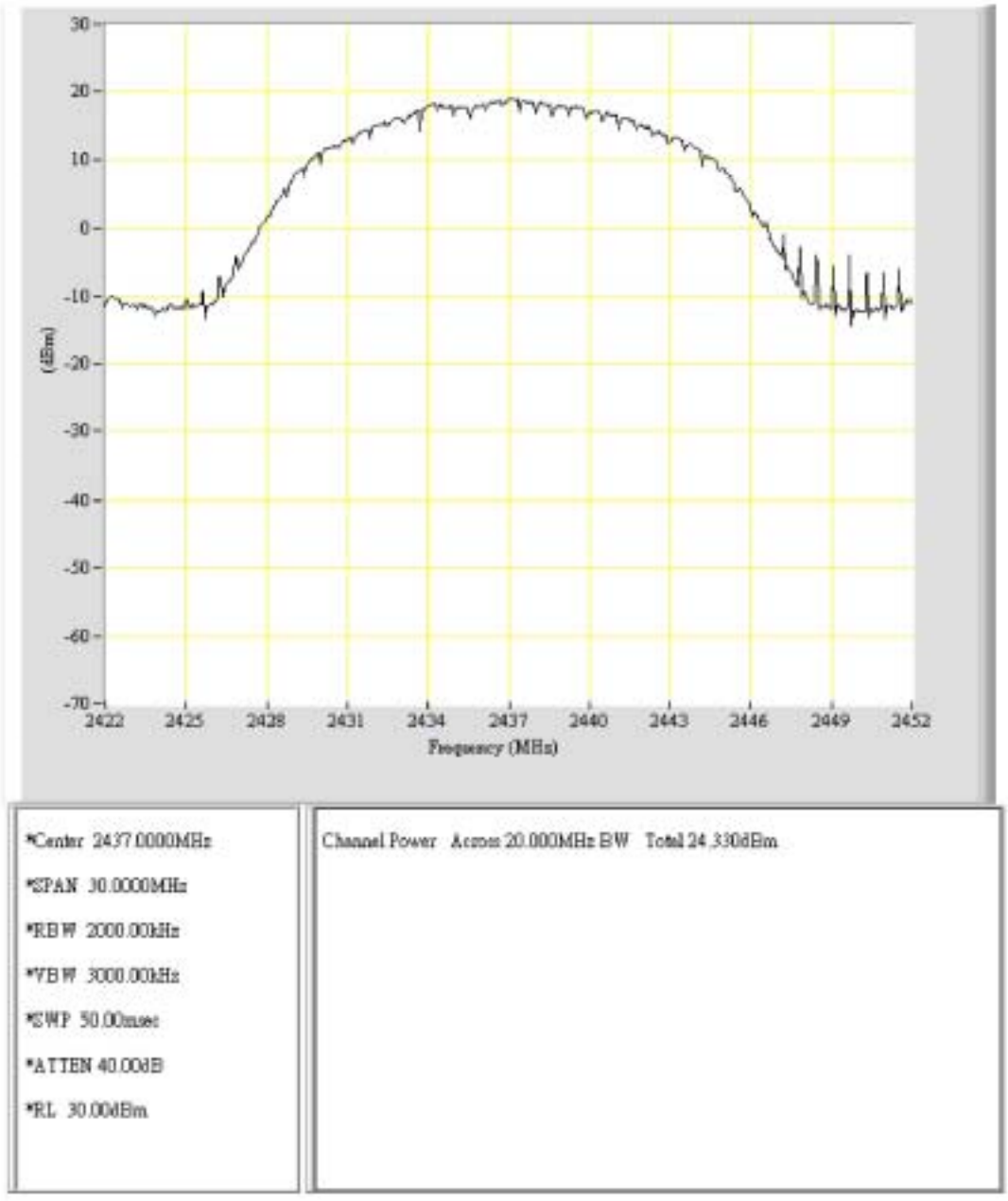
Note:

1.Please refer to page 44 to page 46 for chart

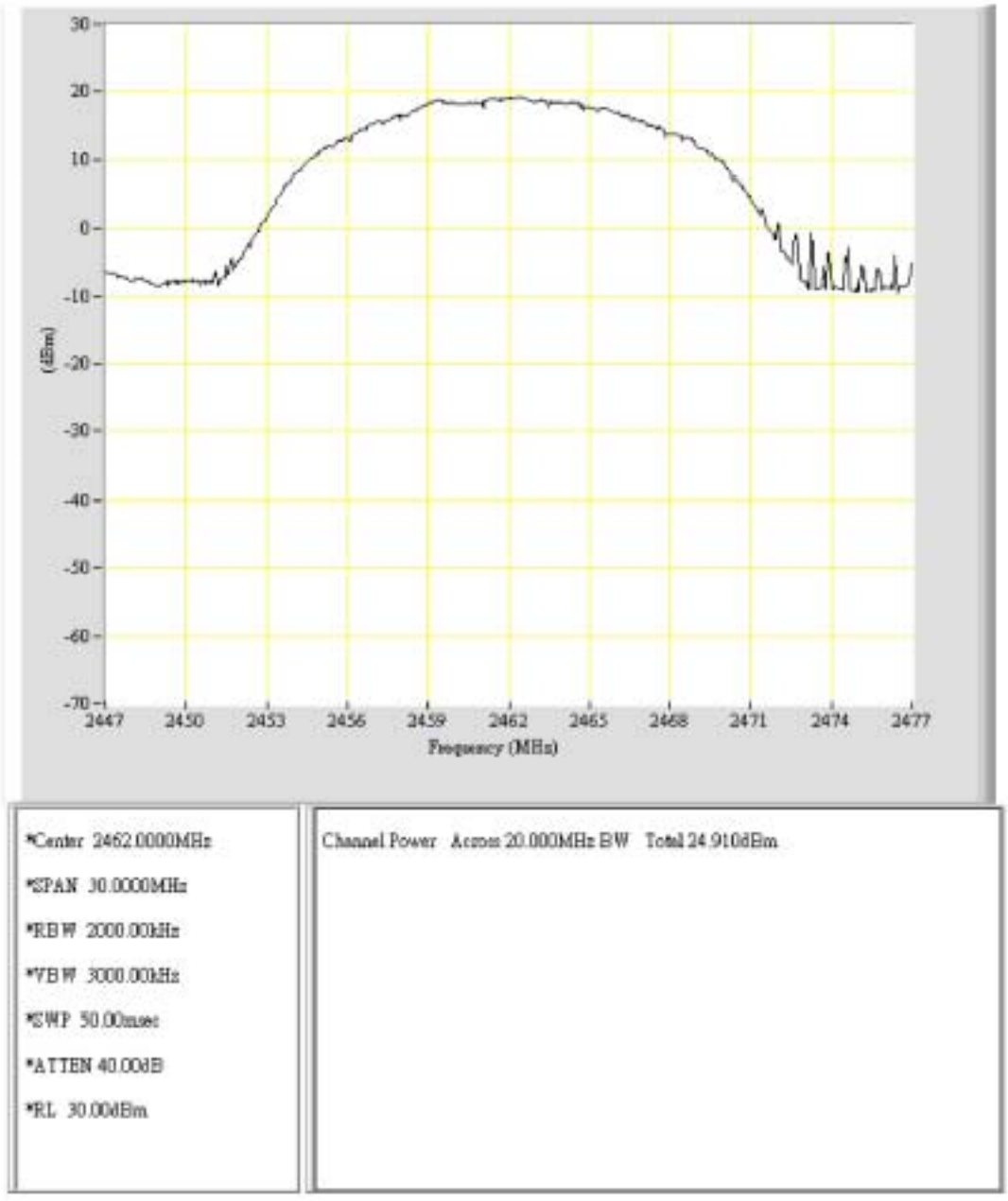
2. The estimated measurement uncertainty of the result measurement is ±1.5dB(1GHz≦f≦ 18GHz)



EUT: WLG500
Purpose: Output_Pwr
Condition: 11b_CH1_11Mbps
Note:



EUT: WLG500
Purpose: Output_Pwr
Condition: 11b_CH6_11Mbps
Note:



EUT: WLG500
Purpose: Output_Pwr
Condition: 11b_CH11_11Mbps
Note:

7.4.3 IEEE IEEE 802.11g

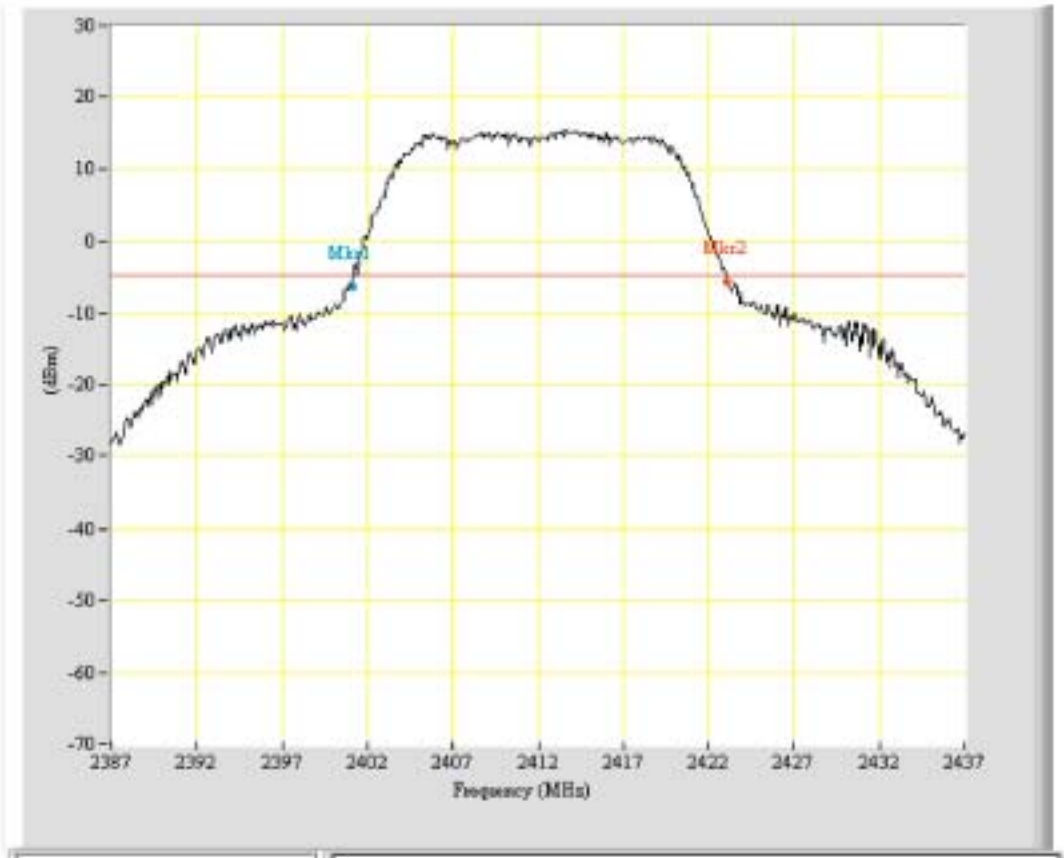
Test Date: Jun. 23, 2004 Temperature: 24 ℃ Humidity: 56 %

Channel	Frequency (MHz)	Data Transfer Rate (Mbps)	Reading (dBm)	Cable Loss (dB)	Maximum Peak Output Power (dBm)	Maximum Peak Output Power (mW)	FCC Limit (mW)	Chart
1	2412	6	22.12	2.3	24.42	276.694	1000	-
		9	22.44	2.3	24.74	297.852	1000	-
		12	22.43	2.3	24.73	297.167	1000	-
		18	22.40	2.3	24.70	295.121	1000	-
		24	22.61	2.3	24.91	309.742	1000	-
		36	22.73	2.3	25.03	318.420	1000	Page 48
		48	20.38	2.3	22.68	185.353	1000	-
		54	20.90	2.3	23.20	208.930	1000	-
6	2437	6	23.29	2.3	25.59	362.243	1000	-
		9	23.44	2.3	25.74	374.973	1000	-
		12	23.48	2.3	25.78	378.443	1000	Page 49
		18	23.40	2.3	25.70	371.535	1000	-
		24	23.27	2.3	25.57	360.579	1000	-
		36	23.22	2.3	25.52	356.451	1000	-
		48	20.70	2.3	23.00	199.526	1000	-
		54	21.01	2.3	23.31	214.289	1000	-
11	2462	6	24.08	2.3	26.48	444.631	1000	Page 50
		9	24.08	2.3	26.48	444.631	1000	-
		12	24.08	2.3	26.48	444.631	1000	-
		18	24.05	2.3	26.45	441.570	1000	-
		24	23.93	2.3	26.33	429.536	1000	-
		36	23.82	2.3	26.23	419.759	1000	-
		48	21.18	2.3	23.58	228.034	1000	-
		54	24.00	2.3	26.40	435.516	1000	-

Note:

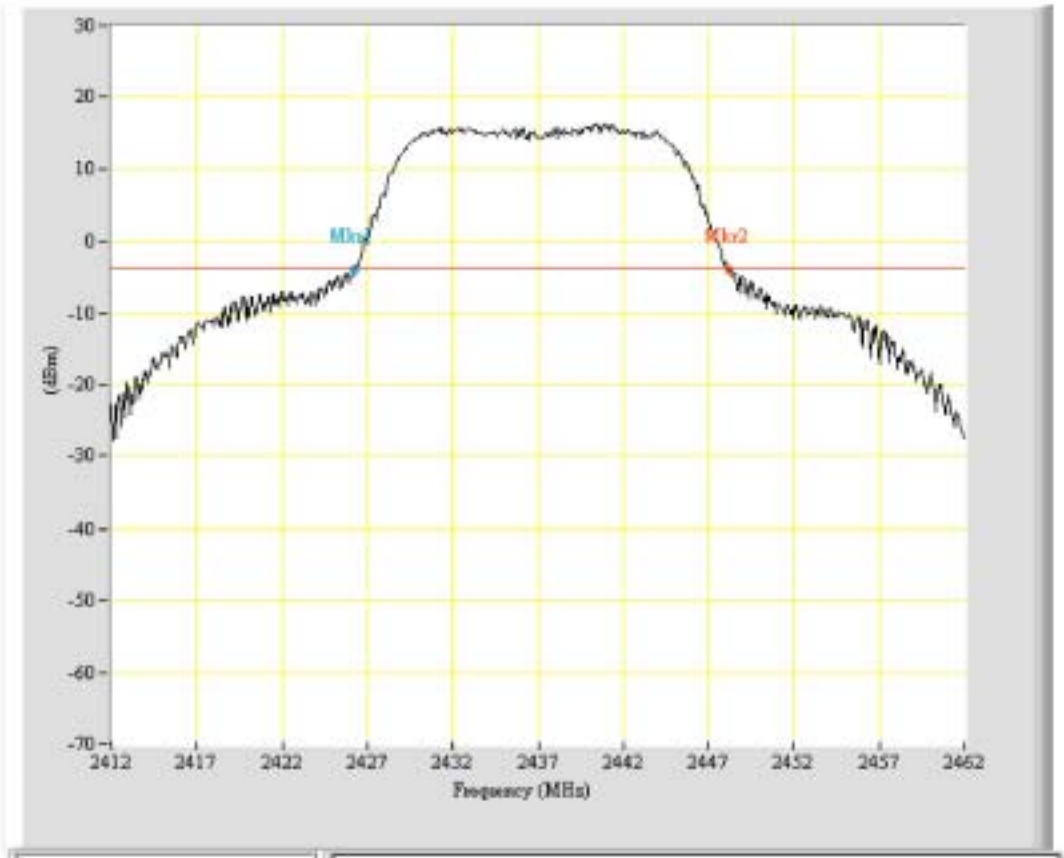
1.Please refer to page 48 to page 50 for chart

2. The estimated measurement uncertainty of the result measurement is ±1.5dB(1GHz≦f≦ 18GHz)



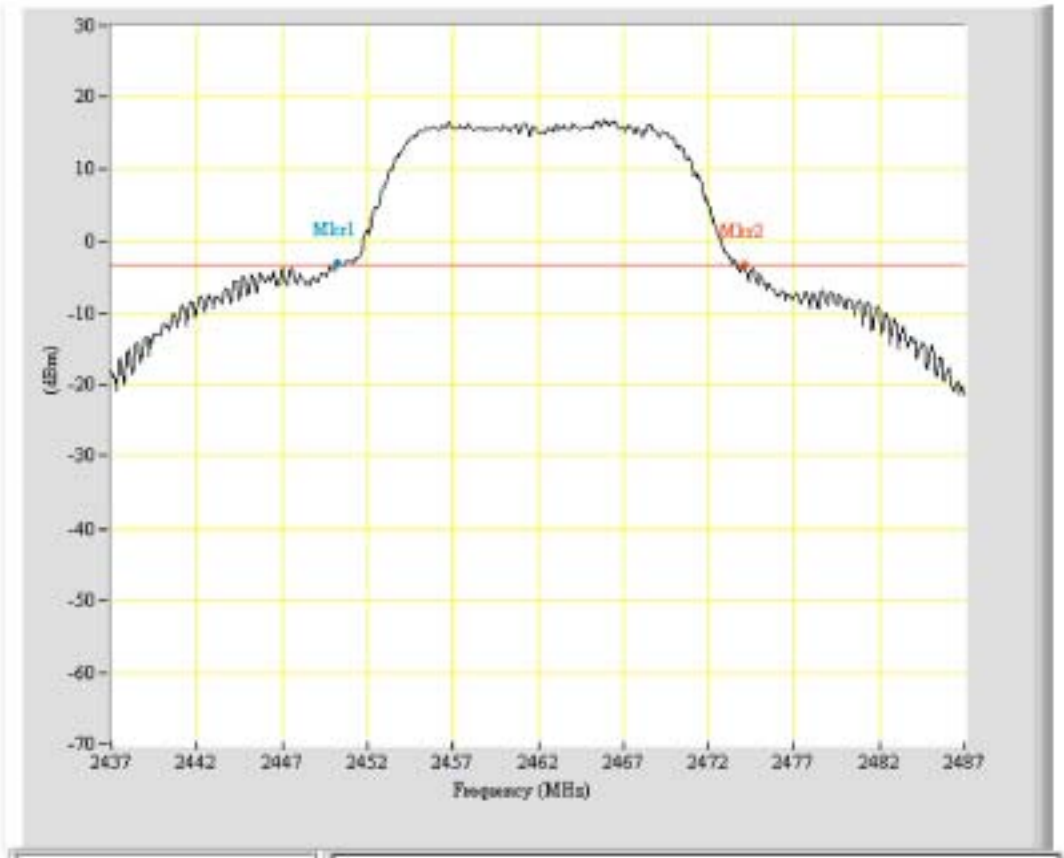
*Center 2412.0000MHz	Display Line -4.660dBm
*SPAN 50.0000MHz	Channel Power Across 22.000MHz BW Total 22.730dBm
*RBW 2000.00kHz	Δ Marker -22.0000MHz 0.670dB
*VBW 3000.00kHz	Mkr1 2401.083MHz -6.330dBm
*SWP 50.00msec	Mkr2 2423.083MHz -5.660dBm
*ATTEN 40.00dB	
*RL 30.00dBm	

EUT: WLG500
Purpose: Output_Pwr
Condition: CH01_36Mbps
Note:



*Center 2437.0000MHz	Display Line -3.660dBm
*SPAN 50.0000MHz	Channel Power Across 21.917MHz BW Total 23.480dBm
*RBW 2000.00kHz	ΔMarker -21.9167MHz 0.000dB
*VBW 3000.00kHz	Mkr1 2426.250MHz -4.000dBm
*SWP 50.00msec	Mkr2 2448.167MHz -4.000dBm
*ATTEN 40.00dB	
*RL 30.00dBm	

EUT: WLG500
Purpose: Output_Pwr
Condition: CH06_12Mbps
Note:



*Center 2462.0000MHz	Display Line -3.160dBm
*SPAN 50.0000MHz	Channel Power Across 23.833MHz BW Total 24.080dBm
*RBW 2000.00kHz	Δ Marker -23.8333MHz -0.330dB
*VBW 3000.00kHz	Mkr1 2450.250MHz -3.000dBm
*SWP 50.00msec	Mkr2 2474.083MHz -3.330dBm
*ATTEN 40.00dB	
*RL 30.00dBm	

EUT: WLG500
Purpose: Output_Pwr
Condition: CH11_6Mbps
Note:

8 POWER DENSITY MEASUREMENT

8.1 Standard Applicable

According to 15.247(d), for direct sequence systems, the transmitted power density averaged over any 1 second interval shall not be greater than 8 dBm in any 3 kHz bandwidth within these bands.

8.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 2. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set EUT to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of spectrum analyzer on highest level appearing on spectral display within a 300 kHz frequency span.
4. Set the spectrum analyzer on a 3 kHz resolution bandwidth and 10 kHz video bandwidth as well as max. hold function, then record the measurement result.
5. Repeat above procedures until all measured frequencies were complete.

8.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Hewlett-Packard	8564EC	09/16/2005

8.4 Measurement Data

8.4.1 IEEE 802.11a

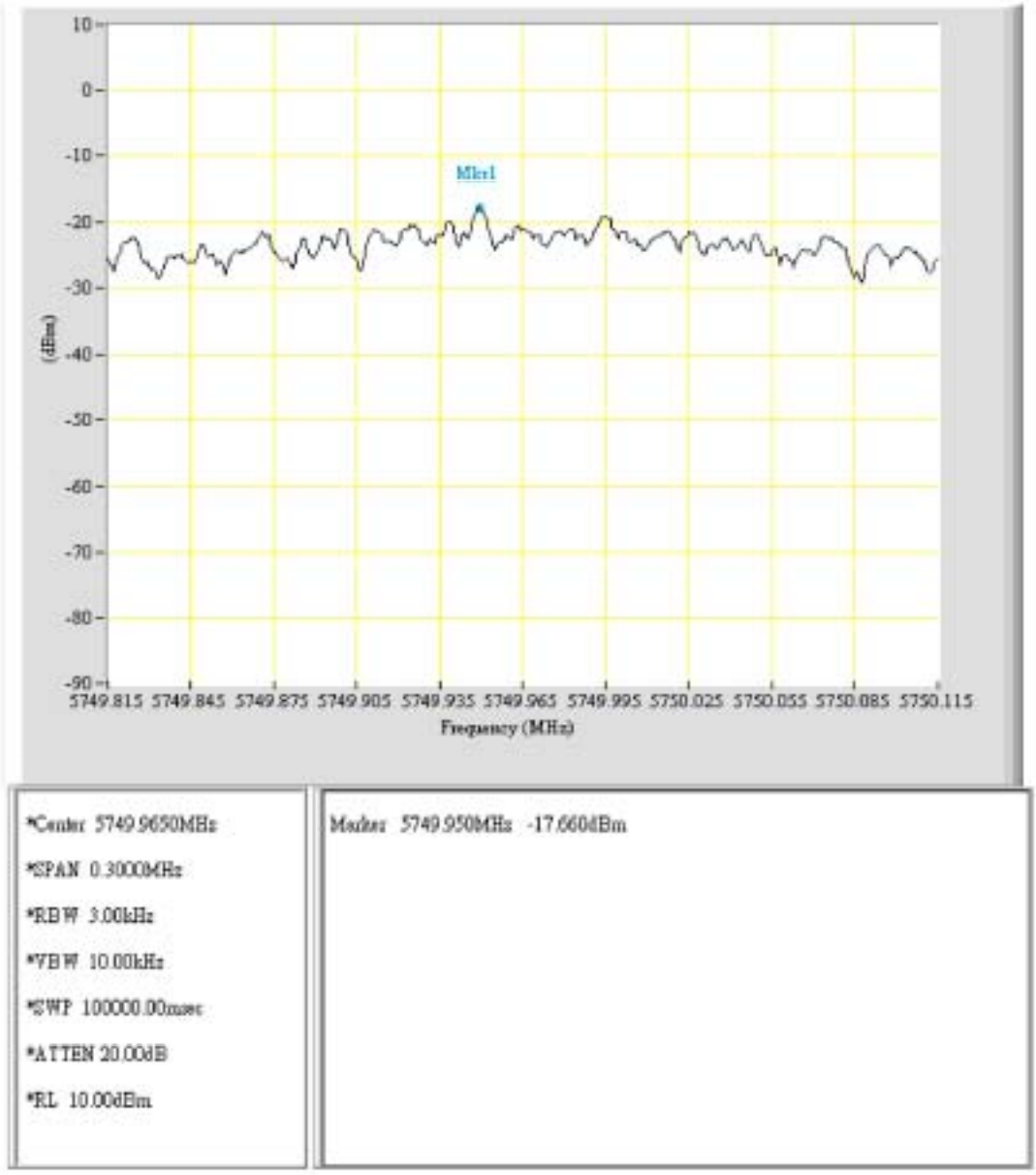
Test Date: Jun. 23, 2004 Temperature: 24 ℃ Humidity: 56 %

Channel	Frequency (MHz)	Data Transfer Rate (Mbps)	Reading (dBm)	Cable Loss (dB)	Peak Power Spectral Density (dBm)	FCC Limit (dBm)	Chart
149	5745	6	-17.66	1.5	-16.16	8	Page 53
		9	-18.16	1.5	-16.66	8	-
		12	-18.50	1.5	-17.00	8	-
		18	-18.33	1.5	-16.83	8	-
		24	-19.33	1.5	-17.83	8	-
		36	-20.00	1.5	-18.50	8	-
		48	-22.33	1.5	-20.83	8	-
		54	-21.33	1.5	-19.83	8	-
157	5785	6	-17.66	1.4	-16.26	8	Page 54
		9	-19.16	1.4	-17.76	8	-
		12	-19.00	1.4	-17.60	8	-
		18	-18.83	1.4	-17.43	8	-
		24	-19.16	1.4	-17.76	8	-
		36	-20.16	1.4	-18.76	8	-
		48	-22.00	1.4	-20.60	8	-
		54	-22.50	1.4	-21.10	8	-
165	5805	6	-18.33	1.4	-16.93	8	Page 55
		9	-19.33	1.4	-17.93	8	-
		12	-18.50	1.4	-17.10	8	-
		18	-18.66	1.4	-17.26	8	-
		24	-19.00	1.4	-17.60	8	-
		36	-20.00	1.4	-18.60	8	-
		48	-22.00	1.4	-20.60	8	-
		54	-20.66	1.4	-19.26	8	-

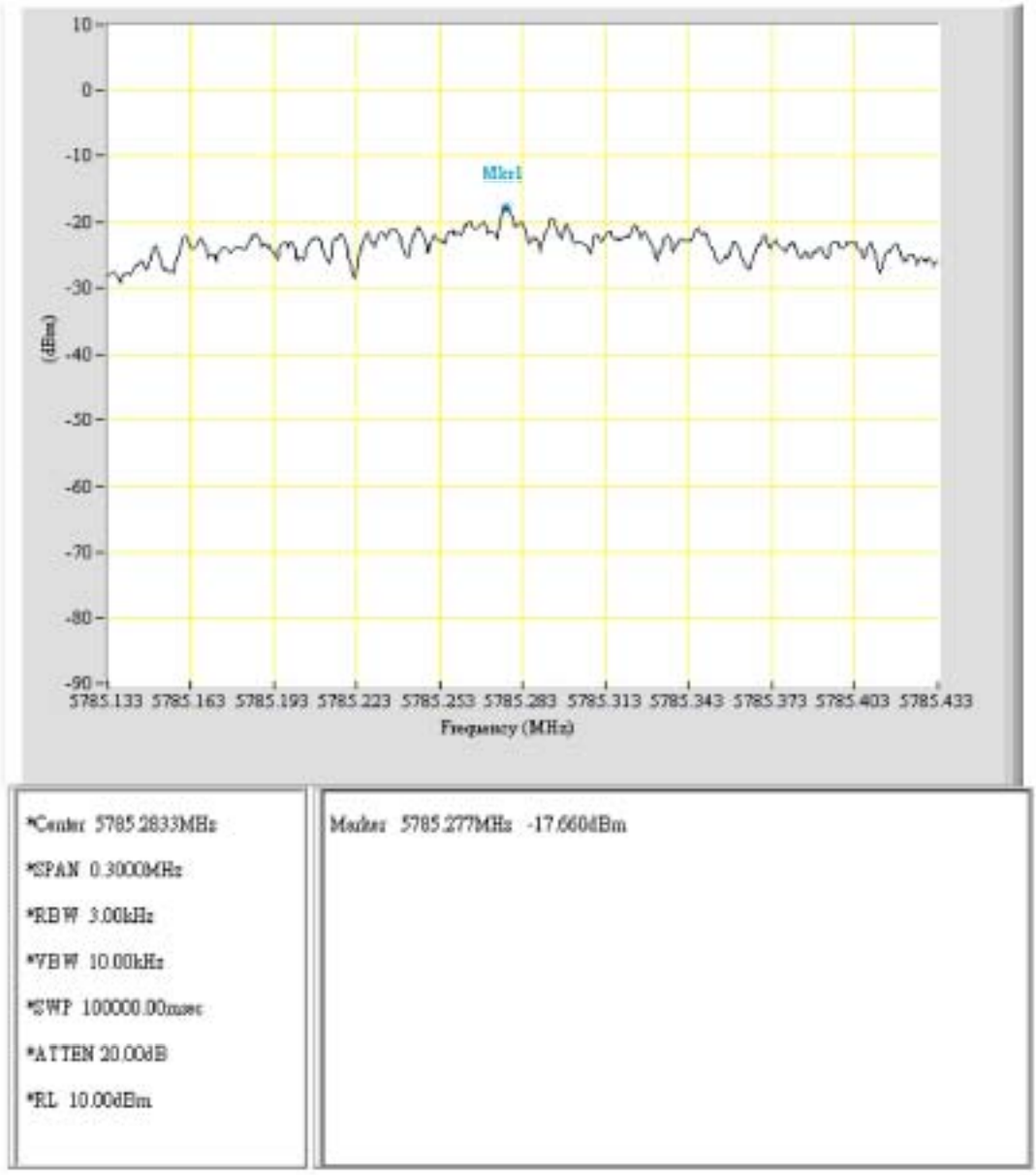
Note:

1. Please refer to page 53 to page 55 for chart

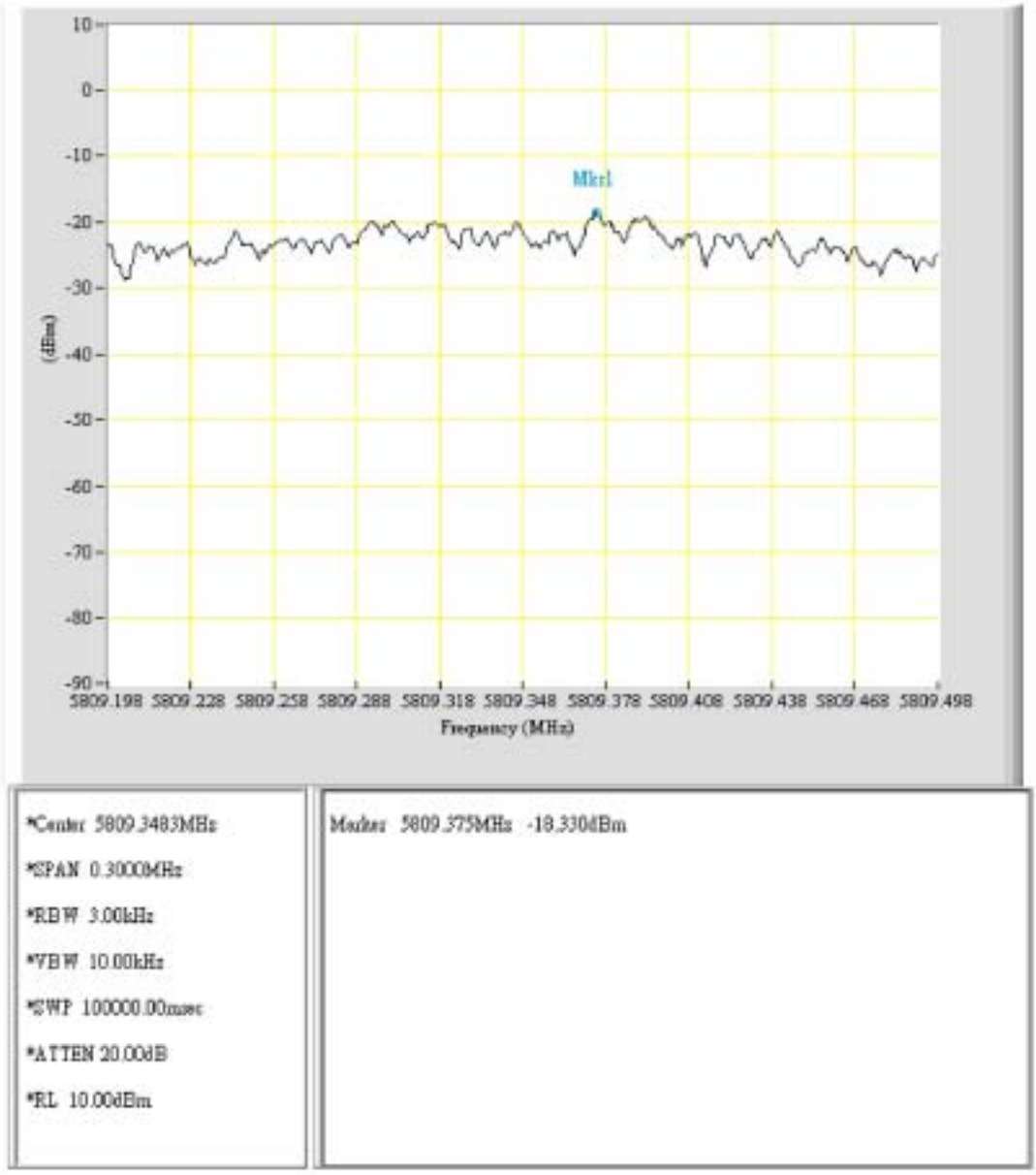
2. The estimated measurement uncertainty of the result measurement is ±1.5dB(1GHz≦f≦ 18GHz)



EUT: WLG500-3B
Purpose: PwrDensity
Condition: 802.11a_5745MHz_6Mbps
Note:



EUT: WLG500-3B
Purpose: PwrDensity
Condition: 802.11a_5785MHz_6Mbps
Note:



EUT: WLG500-3B
Purpose: PwrDensity
Condition: 802.11a_5805MHz_6Mbps
Note:

8.4.2 IEEE 802.11b

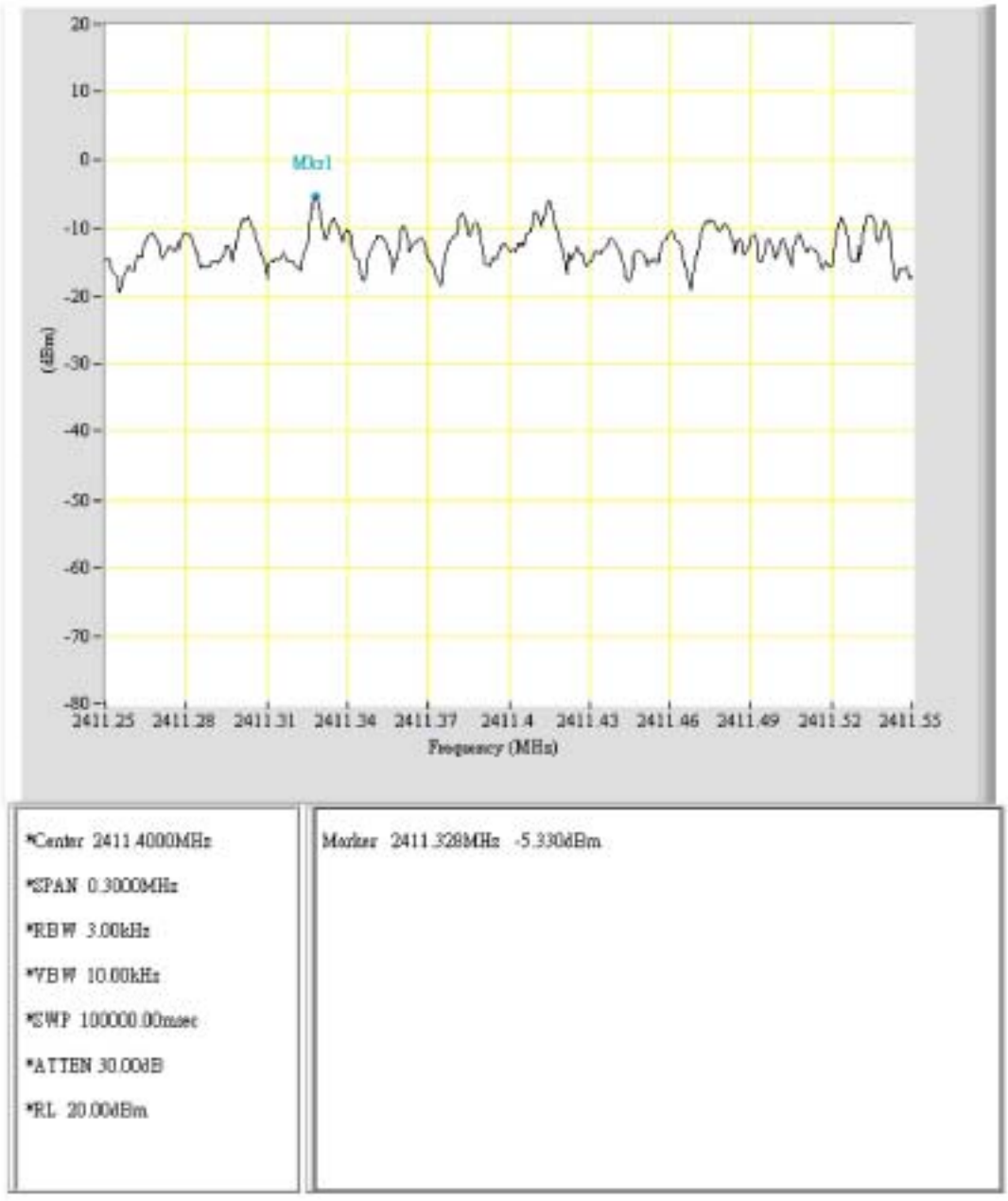
Test Date: Jun. 23, 2004 Temperature: 24 ℃ Humidity: 56 %

Channel	Frequency (MHz)	Data Transfer Rate (Mbps)	Reading (dBm)	Cable Loss (dB)	Peak Power Spectral Density (dBm)	FCC Limit (dBm)	Chart
1	2412	1	-8.83	2.3	-6.53	8	-
		2	-6.66	2.3	-4.36	8	-
		5.5	-6.00	2.3	-3.70	8	-
		11	-5.33	2.3	-3.03	8	Page 57
6	2437	1	-8.00	2.3	-5.70	8	-
		2	-6.00	2.3	-3.70	8	-
		5.5	6.16	2.3	-3.86	8	-
		11	-4.66	2.3	-2.36	8	Page 58
11	2462	1	-7.83	2.3	-5.43	8	-
		2	-6.16	2.3	-3.76	8	Page 59
		5.5	-7.50	2.3	-5.10	8	-
		11	-6.83	2.3	-4.43	8	-

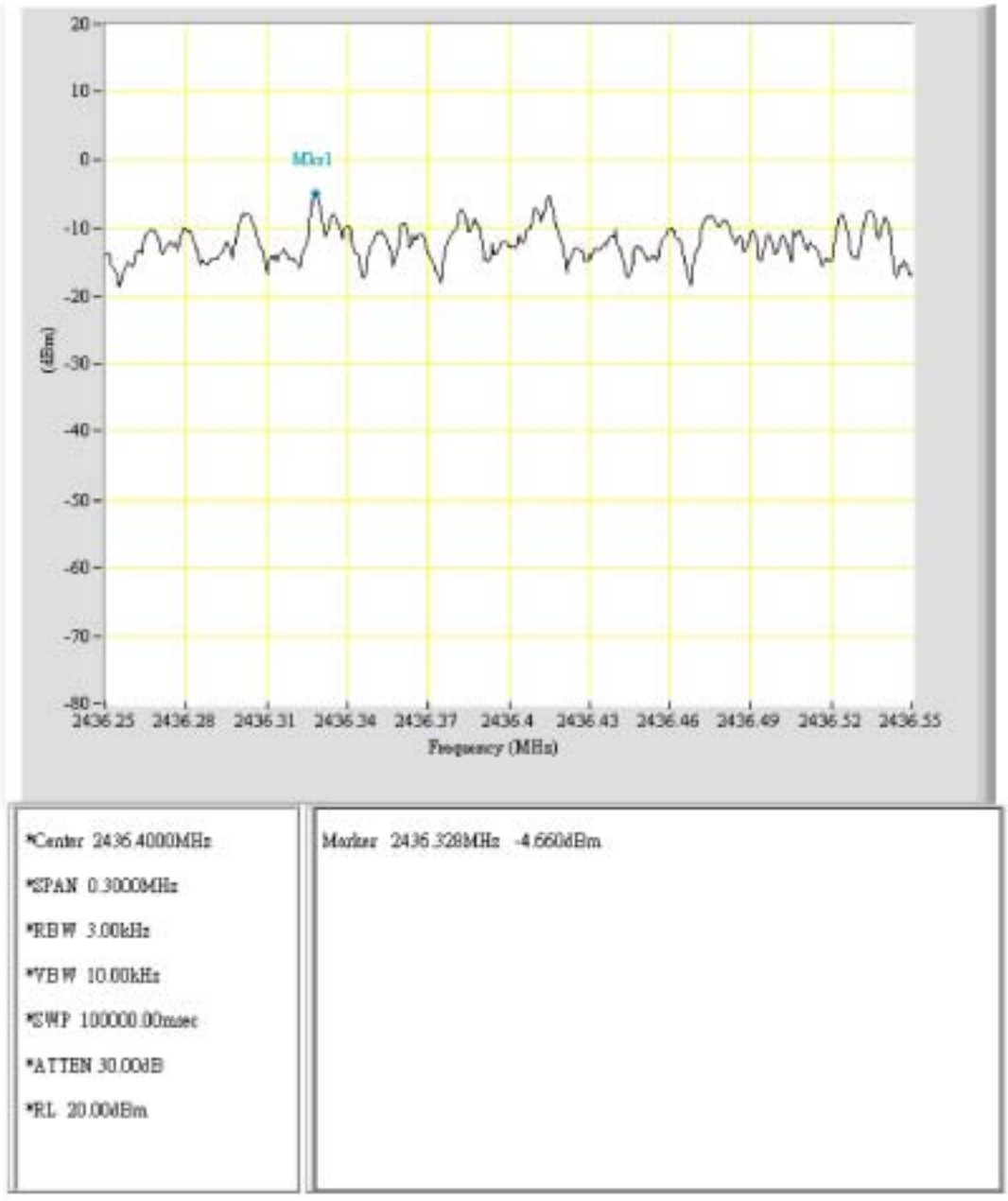
Note:

1. Please refer to page 57 to page 59 for chart

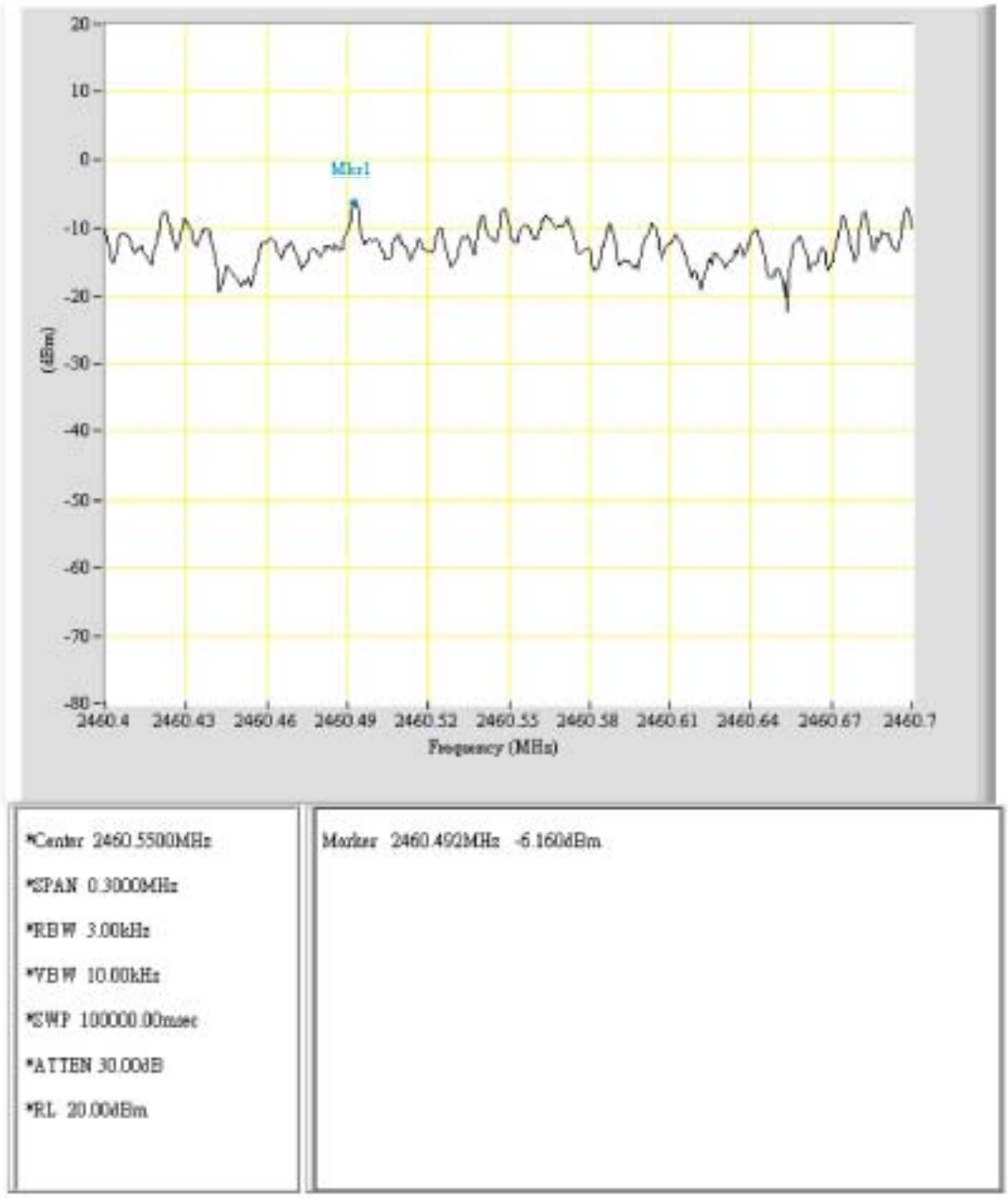
2. The estimated measurement uncertainty of the result measurement is ±1.5dB(1GHz≦f≦ 18GHz)



EUT: WLG500
Purpose: PwrDensity
Condition: 11b_CH1_11Mbps
Note:



EUT: WLG500
Purpose: PwrDensity
Condition: 11b_CH6_11Mbps
Note:



EUT: WLG500
Purpose: PwrDensity
Condition: 11b_CH11_2Mbps
Note:

8.4.3 IEEE IEEE 802.11g

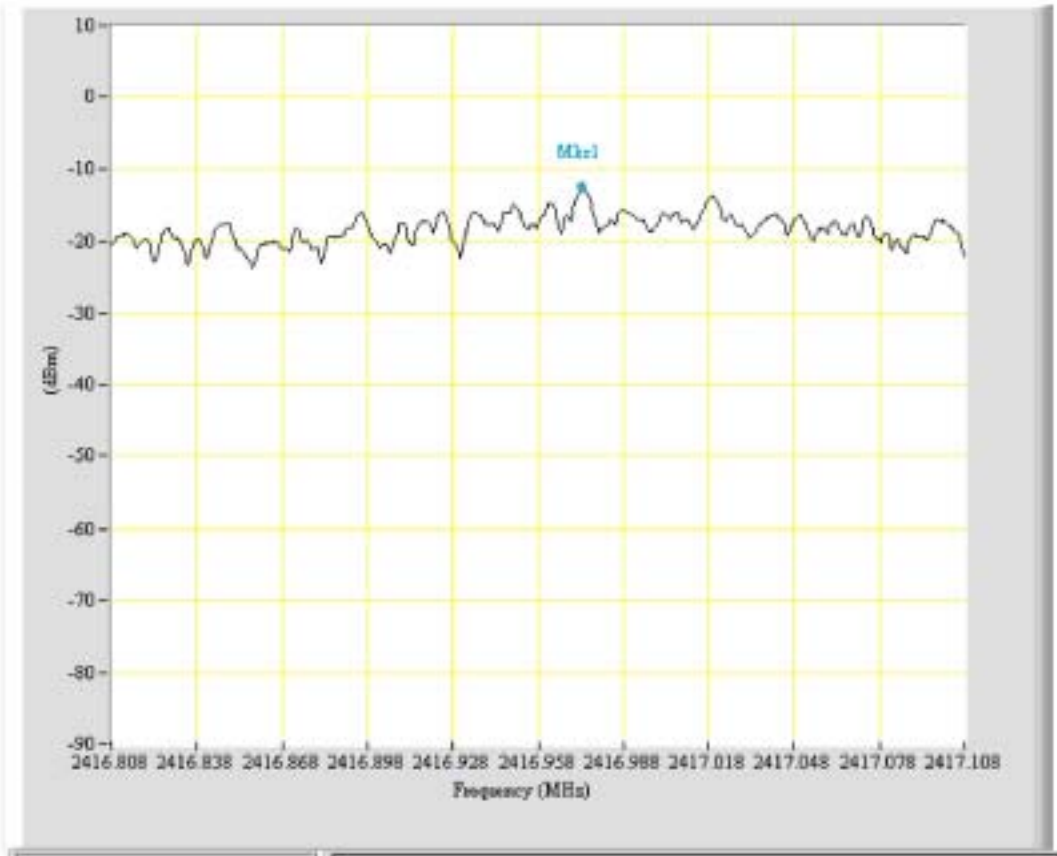
Test Date: Jun. 23, 2004 Temperature: 24 ℃ Humidity: 56 %

Channel	Frequency (MHz)	Data Transfer Rate (Mbps)	Reading (dBm)	Cable Loss (dB)	Peak Power Spectral Density (dBm)	FCC Limit (dBm)	Chart
1	2412	6	-12.50	2.3	-10.20	8	Page 61
		9	-19.00	2.3	-16.70	8	-
		12	-18.66	2.3	-16.36	8	-
		18	-18.33	2.3	-16.03	8	-
		24	-17.66	2.3	-15.36	8	-
		36	-18.16	2.3	-15.86	8	-
		48	-18.50	2.3	-16.20	8	-
		54	-17.16	2.3	-14.86	8	-
6	2437	6	-12.33	2.3	-10.03	8	-
		9	-14.83	2.3	-12.53	8	-
		12	-14.83	2.3	-12.53	8	-
		18	-11.83	2.3	-9.53	8	Page 62
		24	-12.33	2.3	-10.03	8	-
		36	-13.50	2.3	-11.20	8	-
		48	-14.66	2.3	-12.36	8	-
		54	-15.50	2.3	-13.20	8	-
11	2462	6	-11.16	2.4	-8.76	8	Page 63
		9	-11.83	2.4	-9.43	8	-
		12	-12.00	2.4	-9.60	8	-
		18	-11.83	2.4	-9.43	8	-
		24	-11.66	2.4	-9.26	8	-
		36	-12.00	2.4	-9.60	8	-
		48	-15.16	2.4	-12.76	8	-
		54	-14.00	2.4	-11.60	8	-

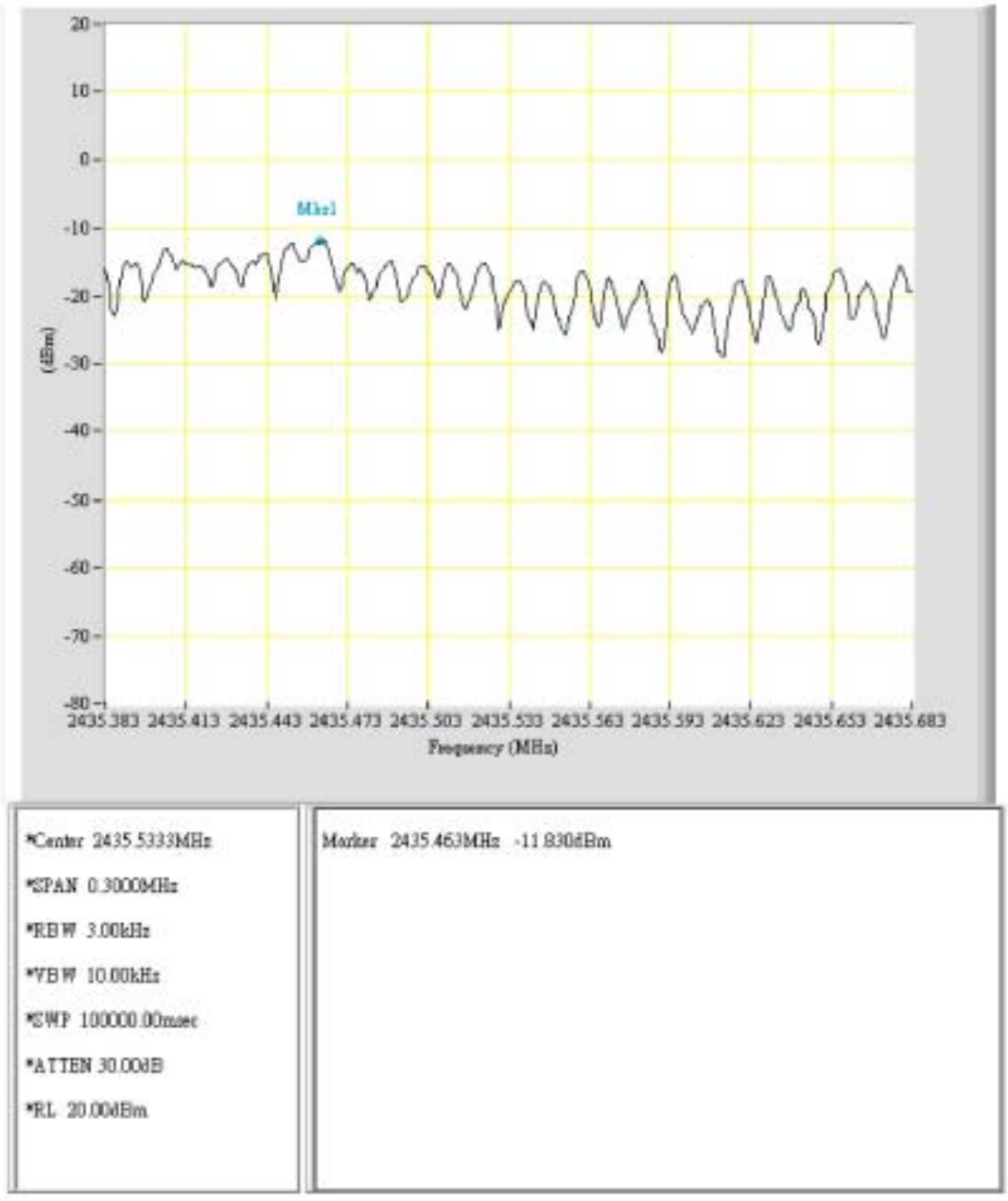
Note:

1. Please refer to page 61 to page 63 for chart

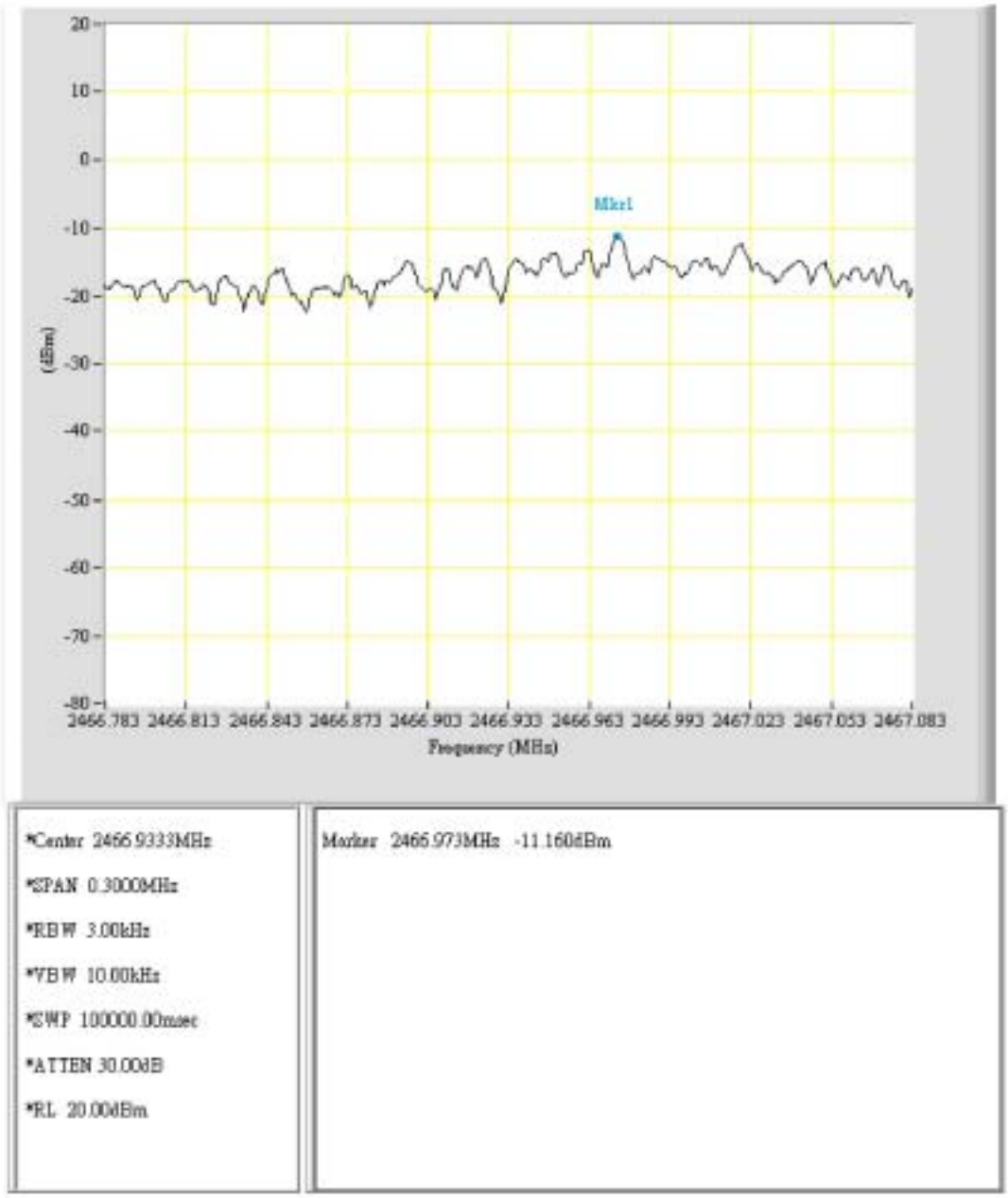
2. The estimated measurement uncertainty of the result measurement is ±1.5dB(1GHz≦f≦ 18GHz)



EUT: WLG500
Purpose: PwrDensity
Condition: CH1_6Mbps
Note:



EUT: WLG500
Purpose: PwrDensity
Condition: CH6_18Mbps
Note:



EUT: WLG500
Purpose: PwrDensity
Condition: CH11_6Mbps
Note:

9 SPURIOUS EMISSION - RF CONDUCTED MEASUREMENT

9.1 Standard Applicable

According to 12.247 (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) (see Section 15.205(c)).

9.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 2. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

9.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Hewlett-Packard	8564EC	09/16/2005

9.4 Measurement Data

Test Date: Jun. 23, 2004 Temperature: 24 ℃ Humidity: 56 %

(1) IEEE 802.11a

Channel	Frequency(MHz)	Chart
149	5745	Page 66, Page 68
157	5785	Page 69
165	5805	Page 67, Page 70

(2) IEEE 802.11b

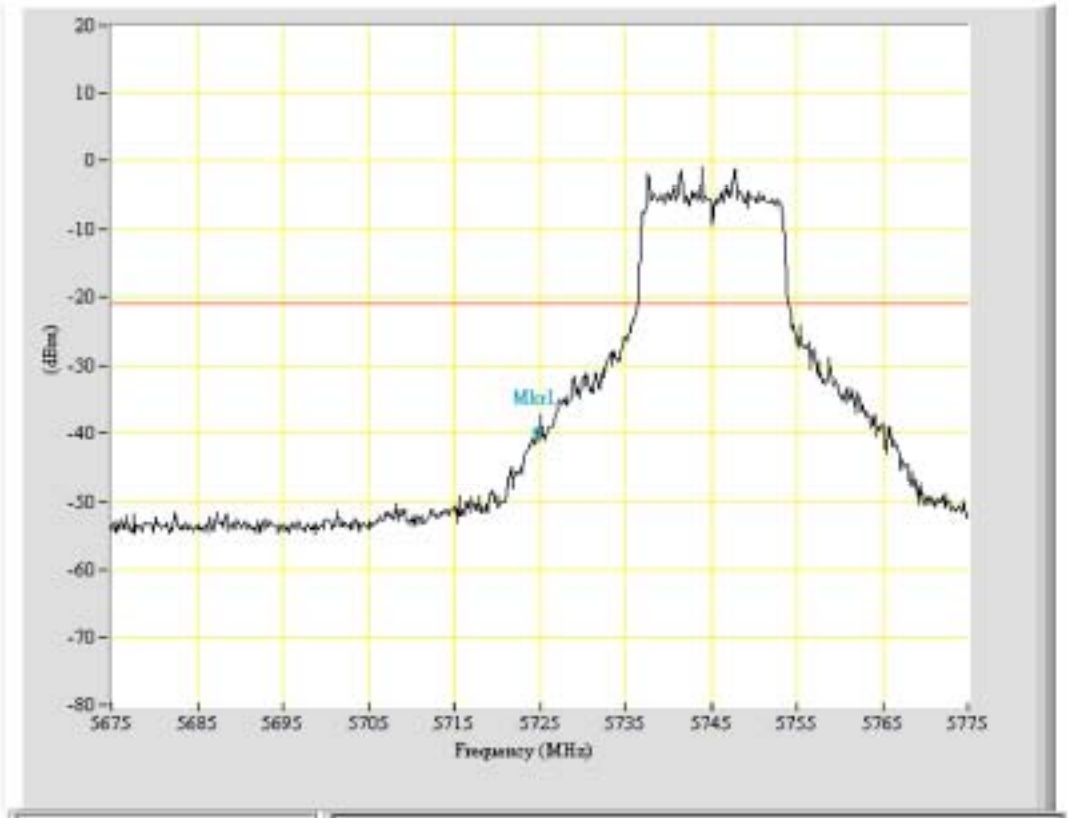
Channel	Frequency(MHz)	Chart
1	2412	Page 71, Page 73
6	2437	Page 74
11	2462	Page 72, Page 75

(3) IEEE 802.11g

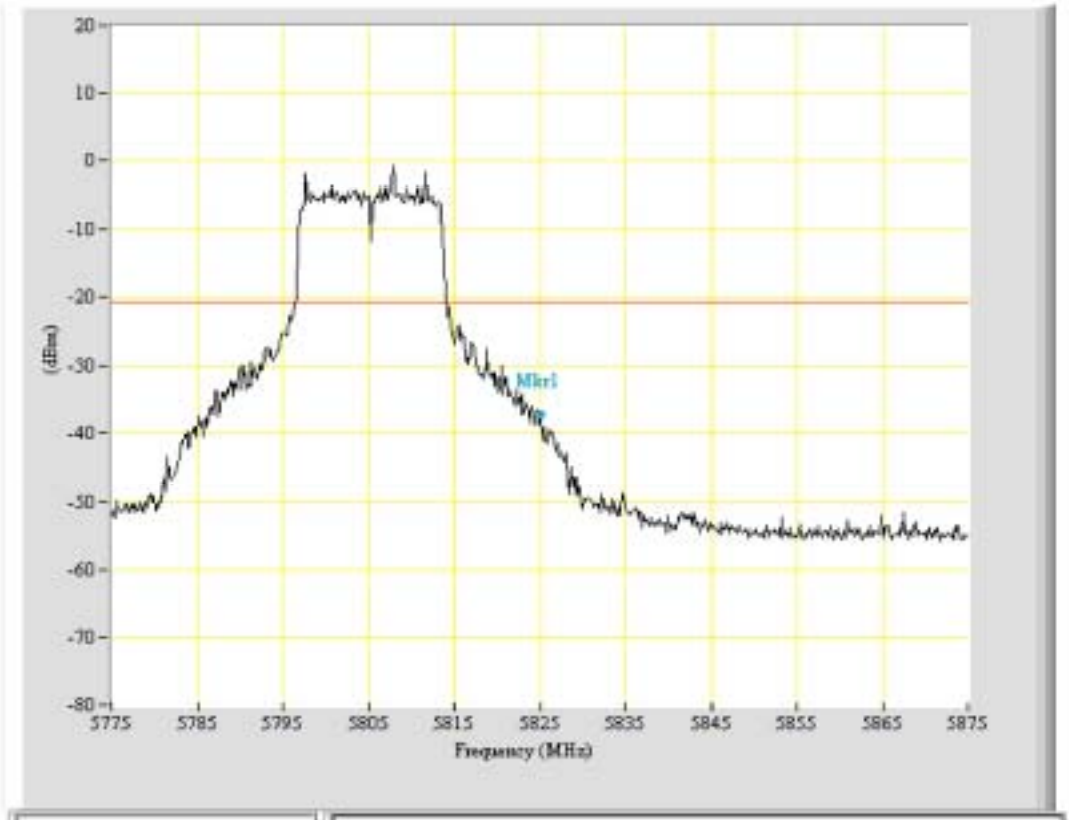
Channel	Frequency(MHz)	Chart
1	2412	Page 76, Page 78
6	2437	Page 79
11	2462	Page 77, Page 80

All out-of –band conducted emissions were more than 20dB below the carrier.

Note: Please refer to page 66 to page 80 for chart

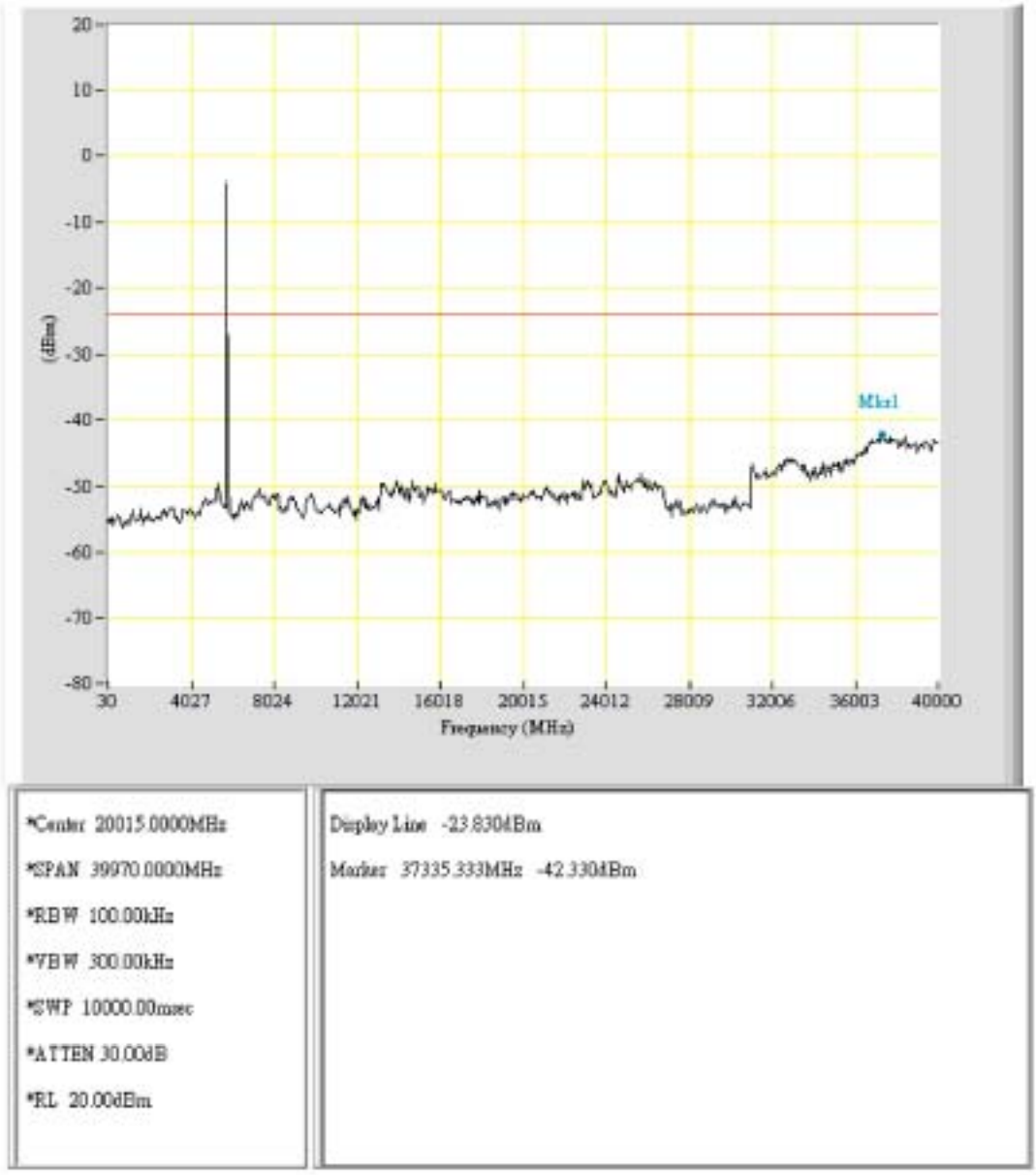


EUT: WLG500-3B
Purpose: Band_Edge
Condition: 802.11a_5745MHz
Note:

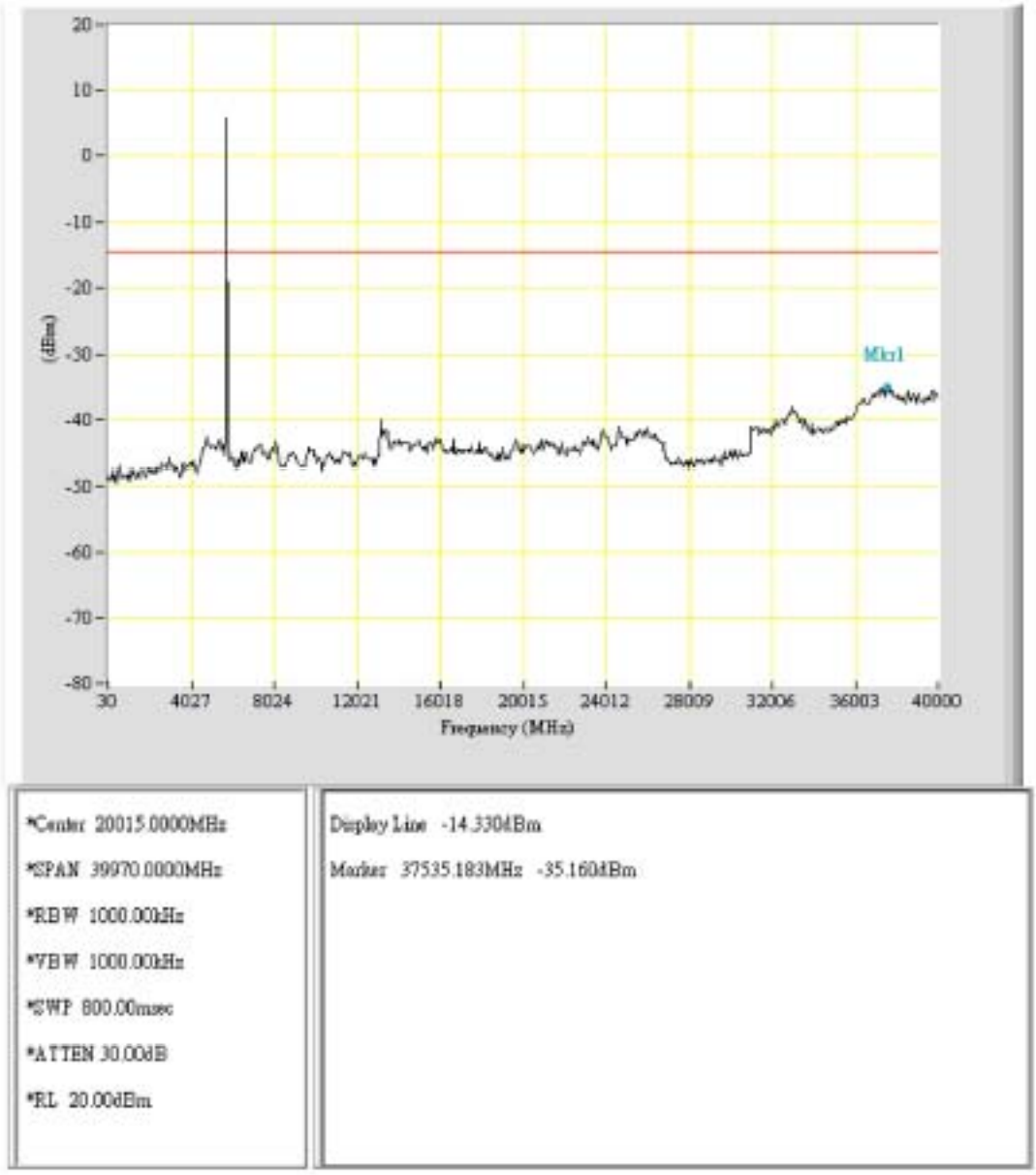


*Center 5825.0000MHz	Display Line -20.660dBm
*SPAN 100.0000MHz	Marker 5825.167MHz -37.330dBm
*RBW 100.00kHz	
*VBW 300.00kHz	
*SWP 50.00msec	
*ATTEN 30.00dB	
*RL 20.00dBm	

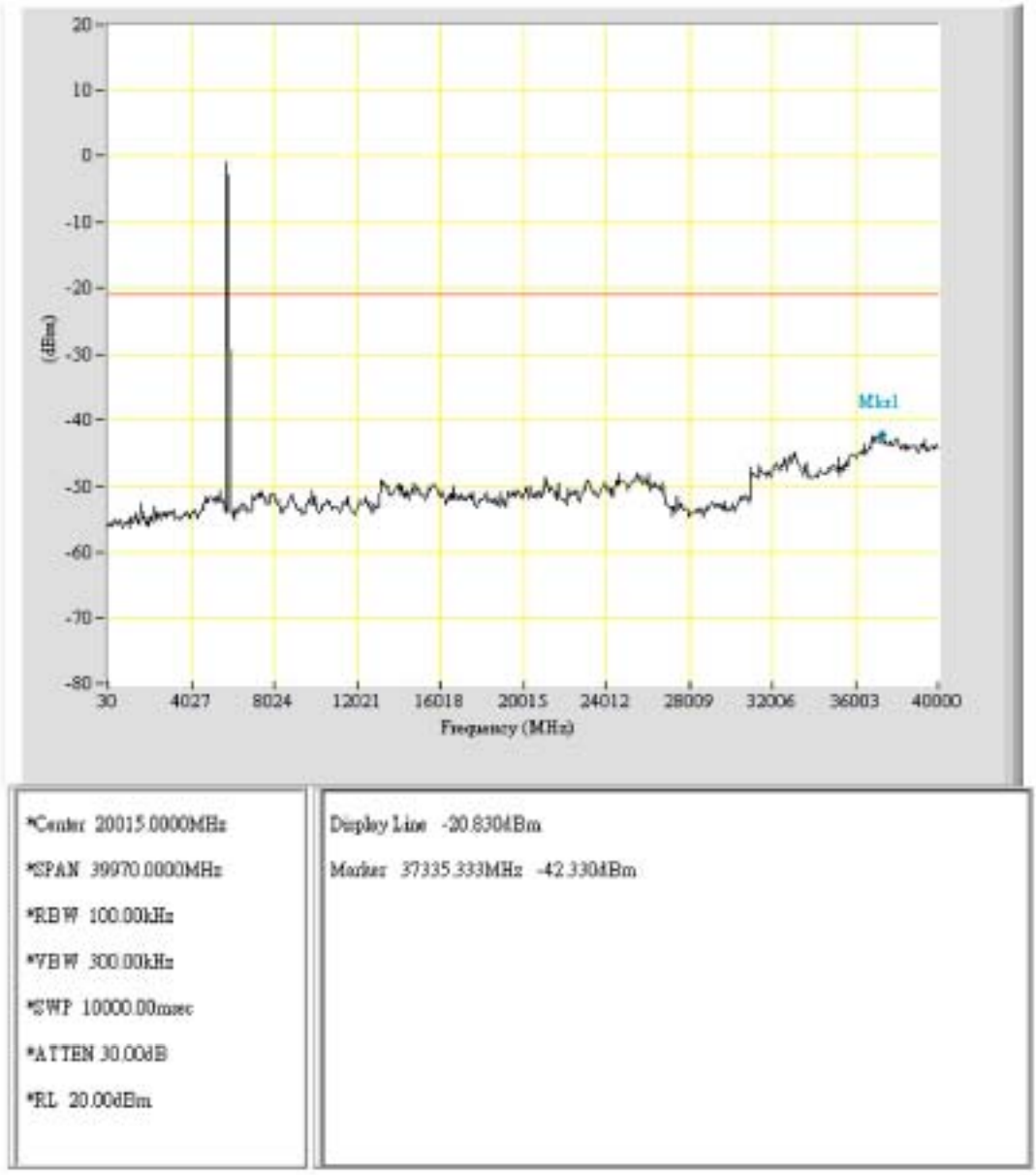
EUT: WLG500-3B
Purpose: Band_Edge
Condition: 802.11a_5805MHz
Note:



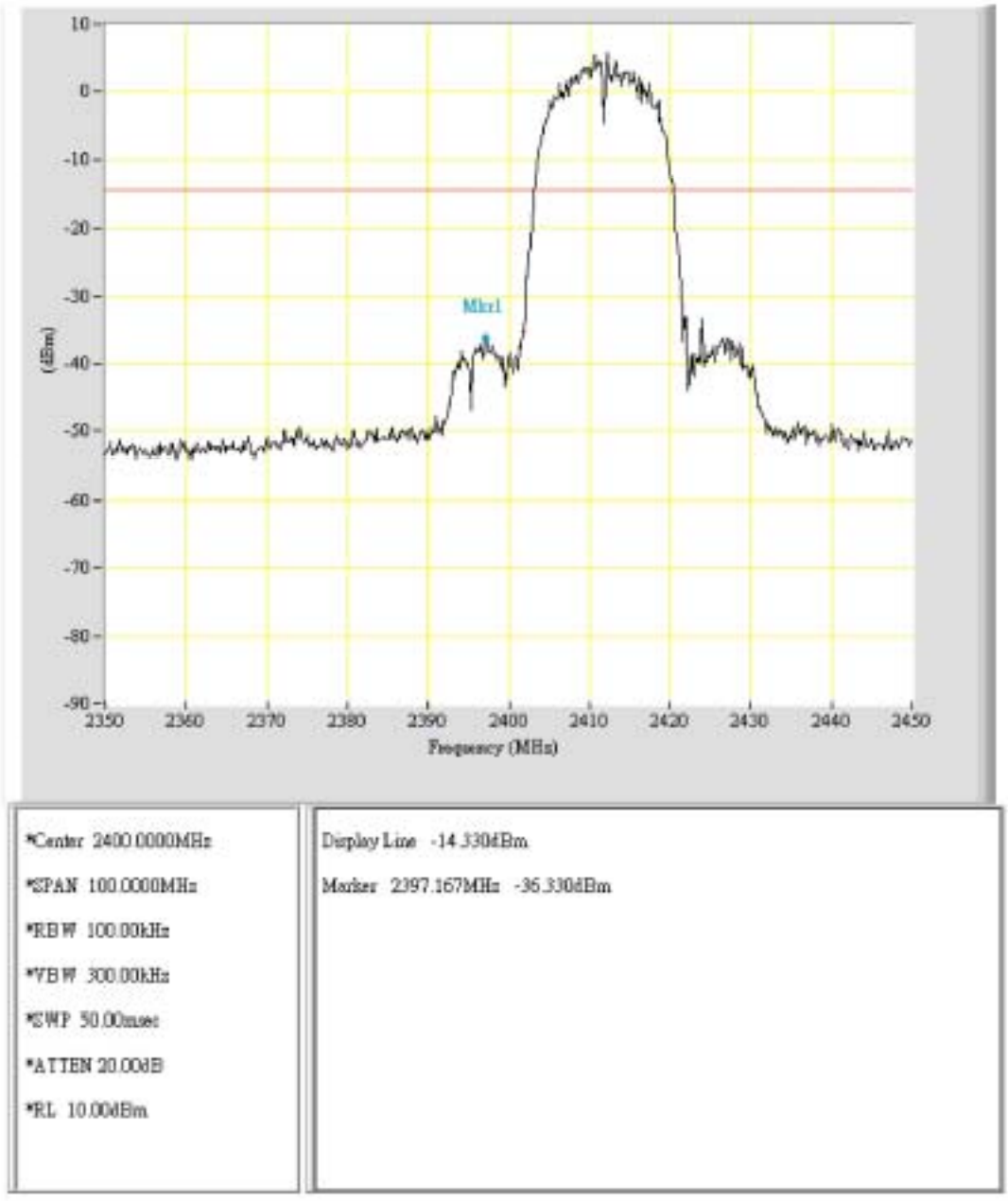
EUT: WLG500-3B
Purpose: Band_Edge_All
Condition: 802.11a_5745MHz
Note:



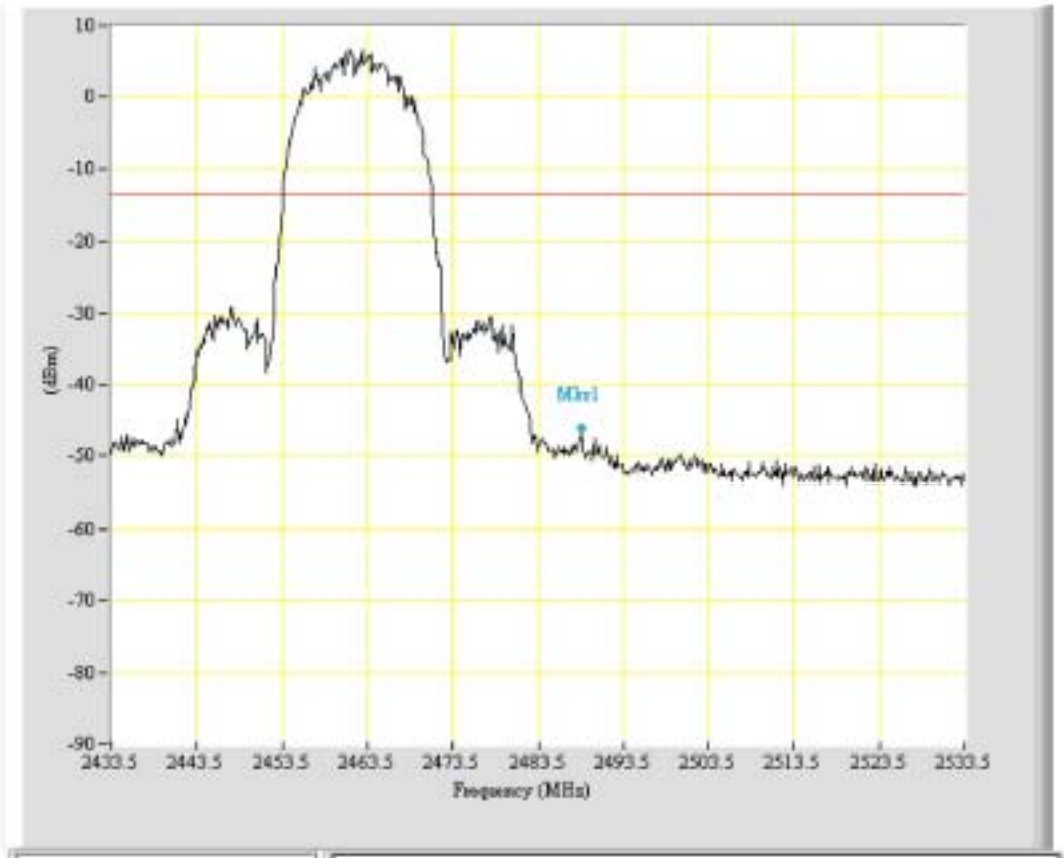
EUT: WLG500-3B
Purpose: Band_Edge_All
Condition: 802.11a_5785MHz
Note:



EUT: WLG500-3B
Purpose: Band_Edge_All
Condition: 802.11a_5805MHz
Note:

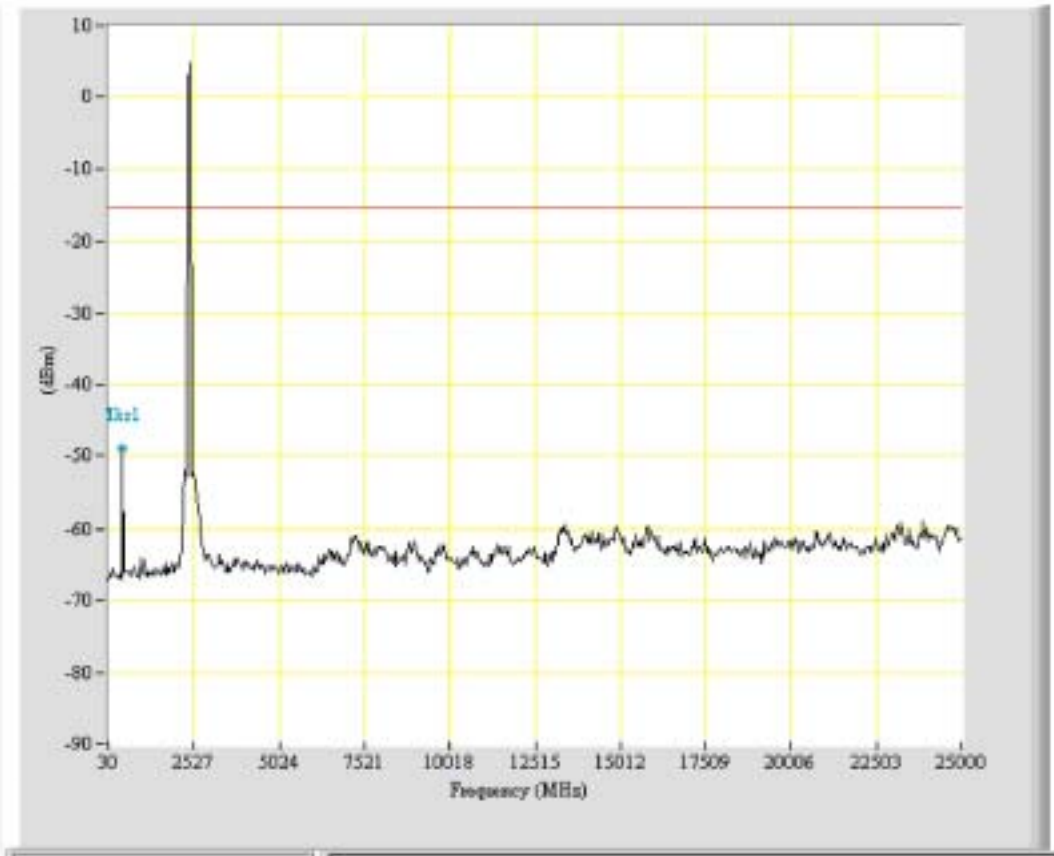


EUT: WLG500
Purpose: Band_Edge
Condition: 11b_CH1
Note:



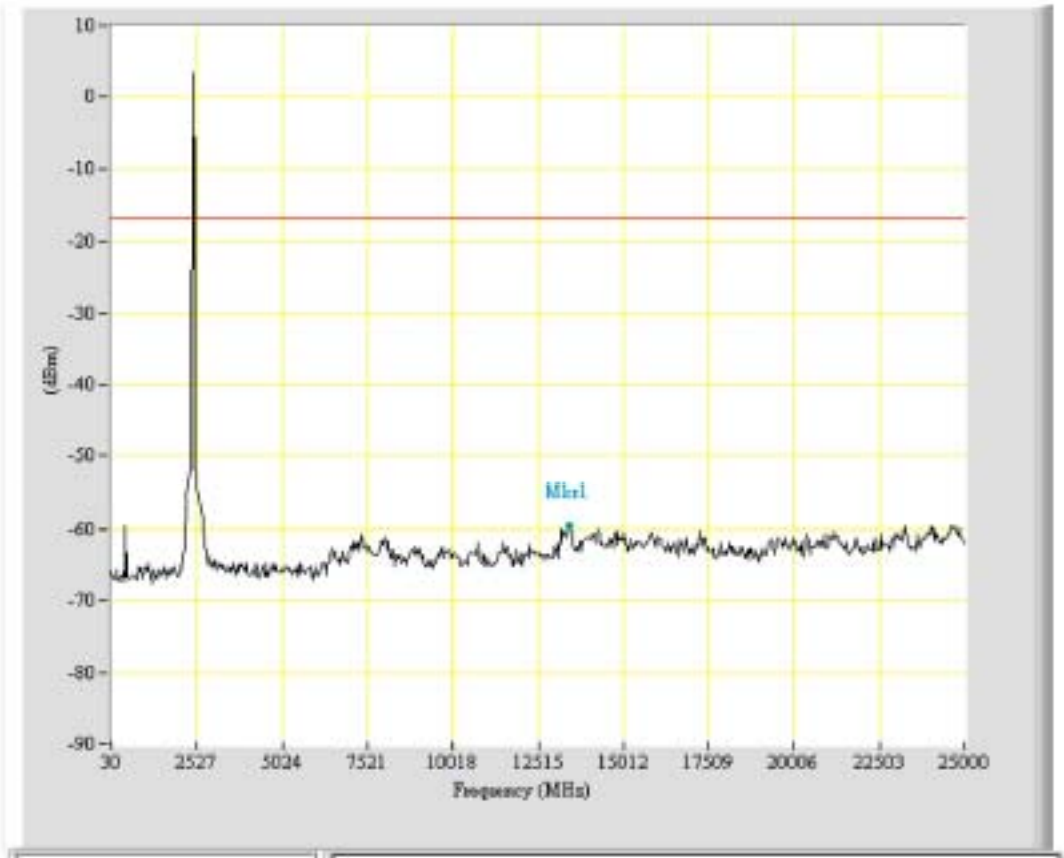
*Center 2483.5000MHz	Display Line -13.330dBm
*SPAN 100.0000MHz	Marker 2488.667MHz -46.160dBm
*RBW 100.00kHz	
*VBW 300.00kHz	
*SWP 50.00msec	
*ATTEN 20.00dB	
*RL 10.00dBm	

EUT: WLG500
Purpose: Band_Edge
Condition: 11b_CH11
Note:



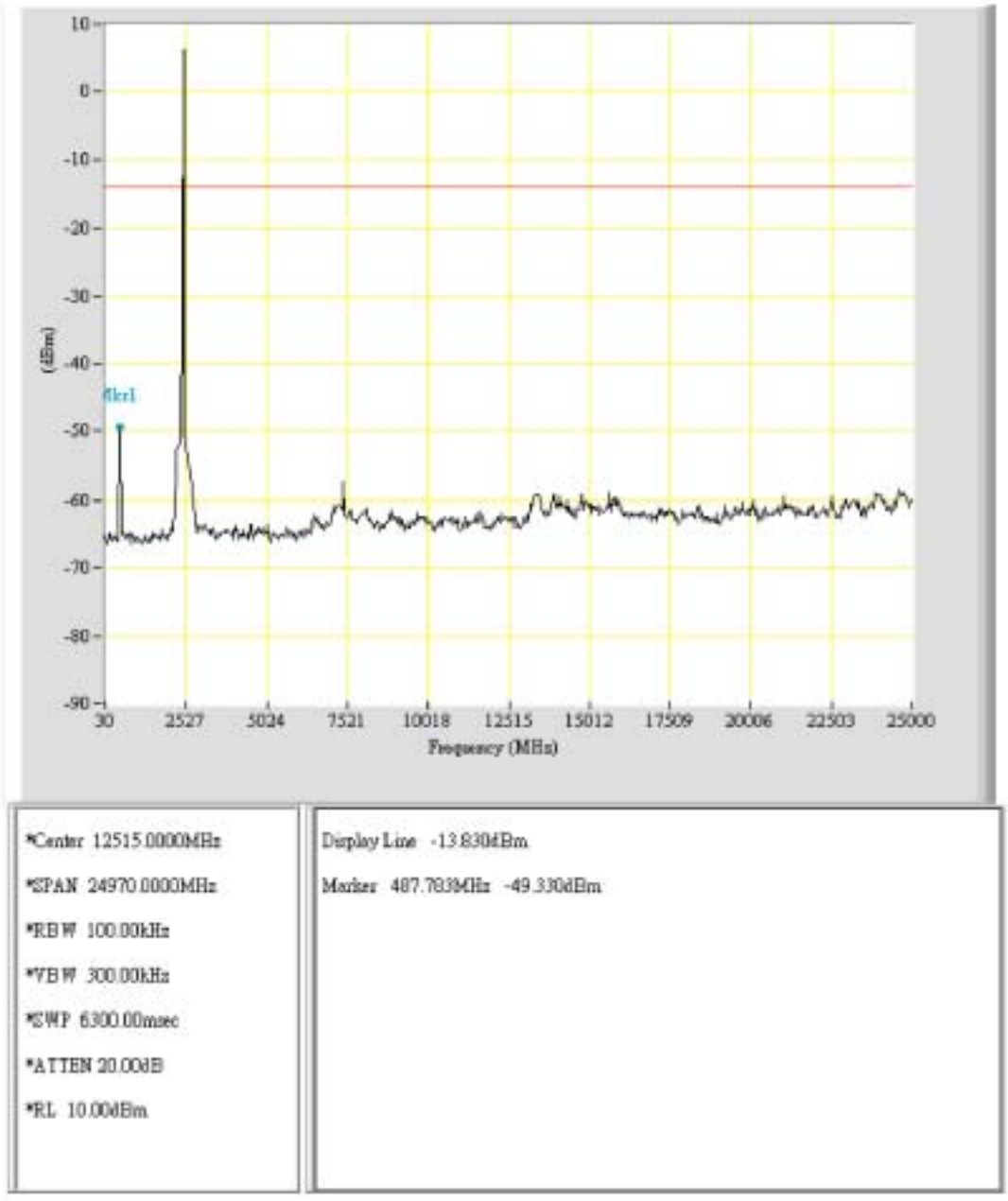
*Center 12515.0000MHz	Display Line -15.160dBm
*SPAN 24970.0000MHz	Marker 446.167MHz -49.000dBm
*RBW 100.00kHz	
*VBW 300.00kHz	
*SWP 6300.00msec	
*ATTEN 20.00dB	
*RL 10.00dBm	

EUT: WLG500
Purpose: Band_Edge_All
Condition: 11b_CH1
Note:

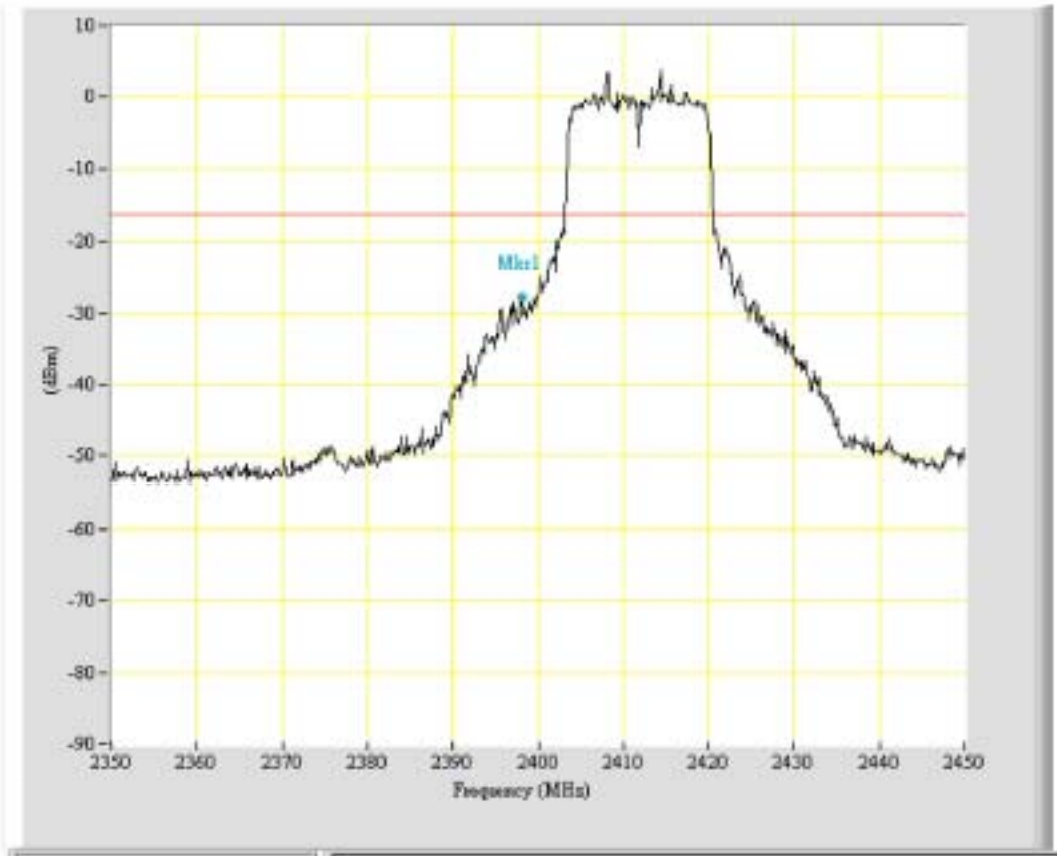


*Center 12515.0000MHz	Display Line -16.660dBm
*SPAN 24970.0000MHz	Marker 13430.567MHz -59.660dBm
*RBW 100.00kHz	
*VBW 300.00kHz	
*SWP 6300.00msec	
*ATTEN 20.00dB	
*RL 10.00dBm	

EUT: WLG500
Purpose: Band_Edge_All
Condition: 11b_CH6
Note:

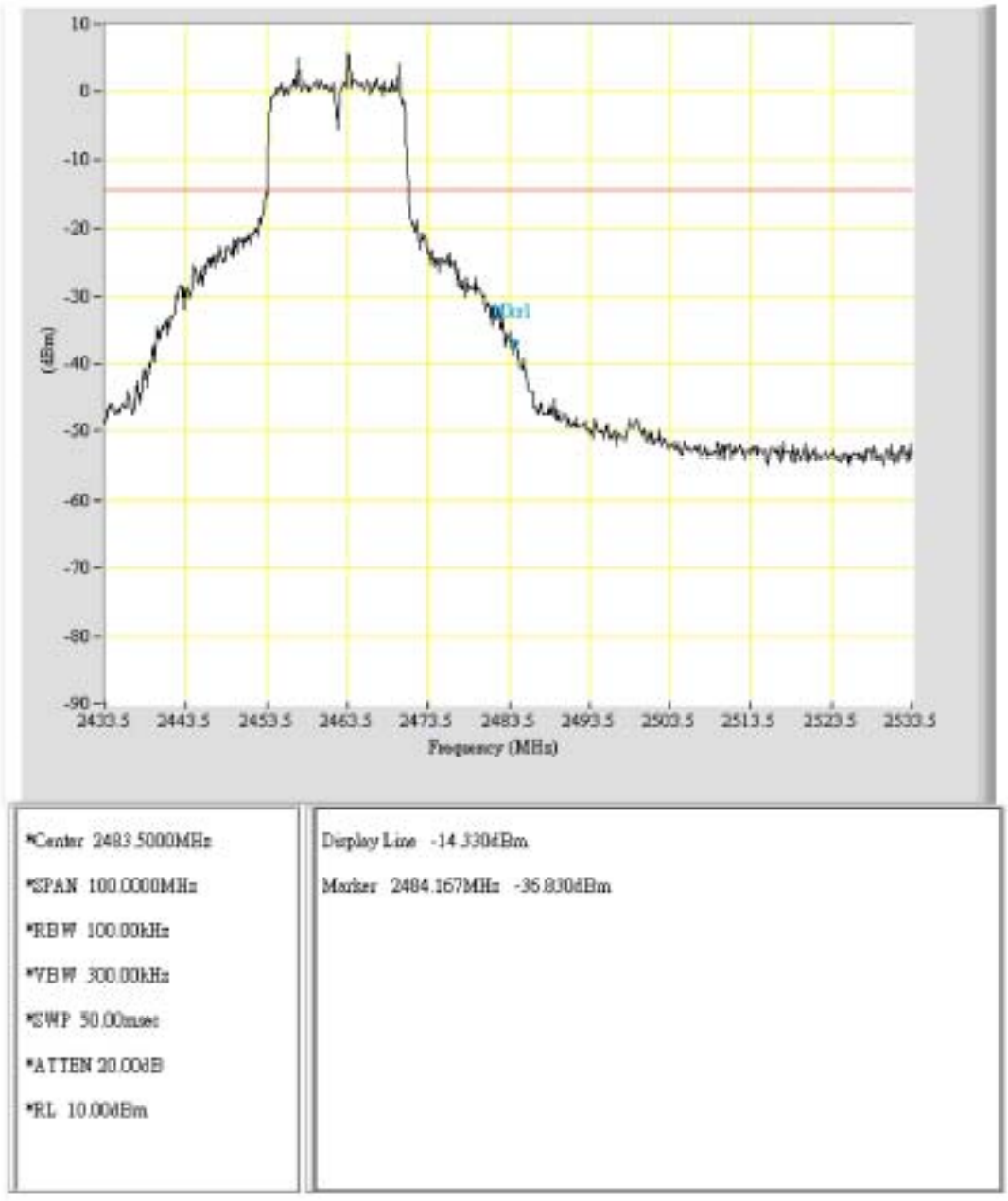


EUT: WLG500
Purpose: Band_Edge_All
Condition: 11b_CH11
Note:

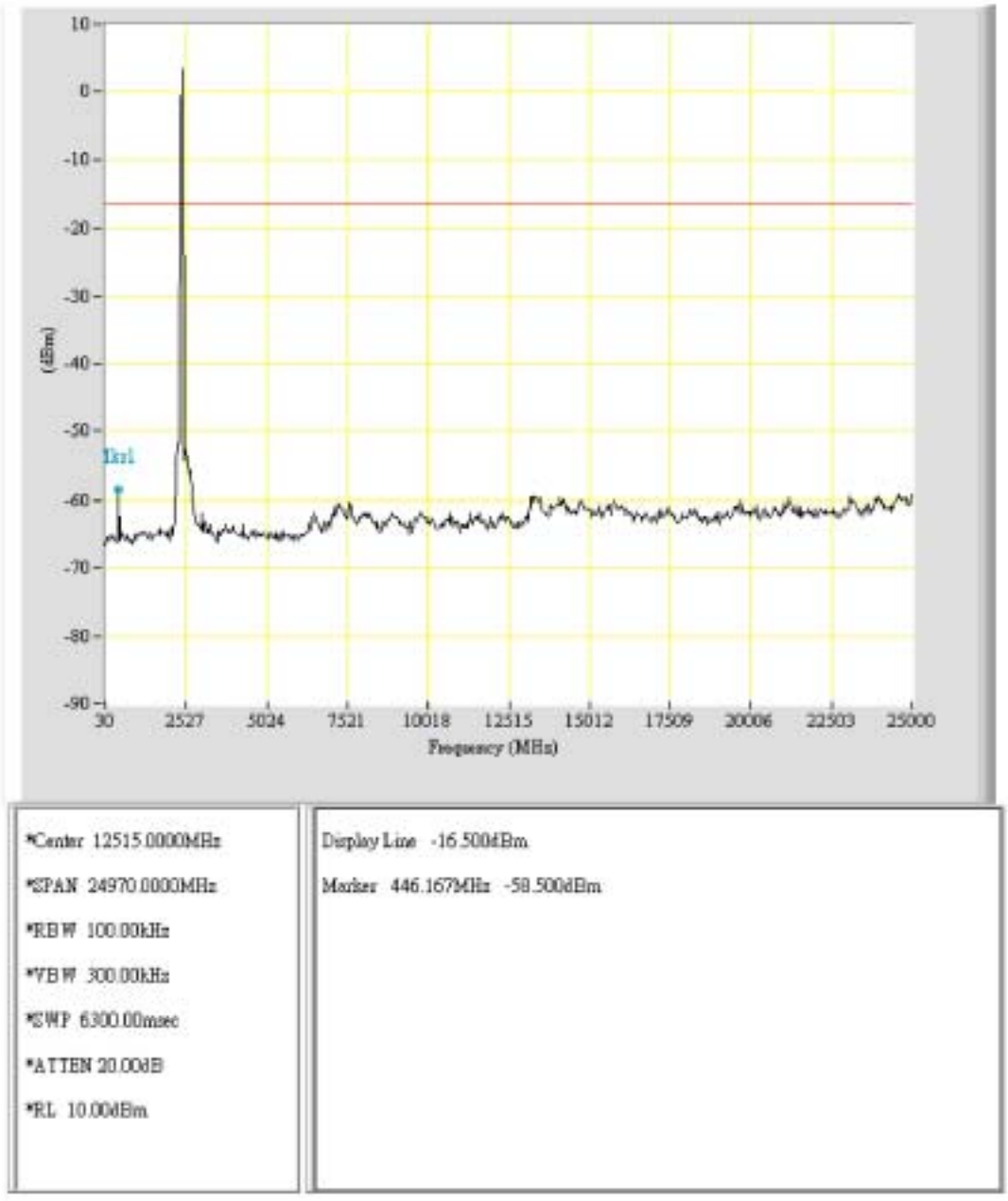


*Center 2400.0000MHz	Display Line -16.160dBm
*SPAN 100.0000MHz	Marker 2398.167MHz -27.830dBm
*RBW 100.00kHz	
*VBW 300.00kHz	
*SWP 50.00msec	
*ATTEN 20.00dB	
*RL 10.00dBm	

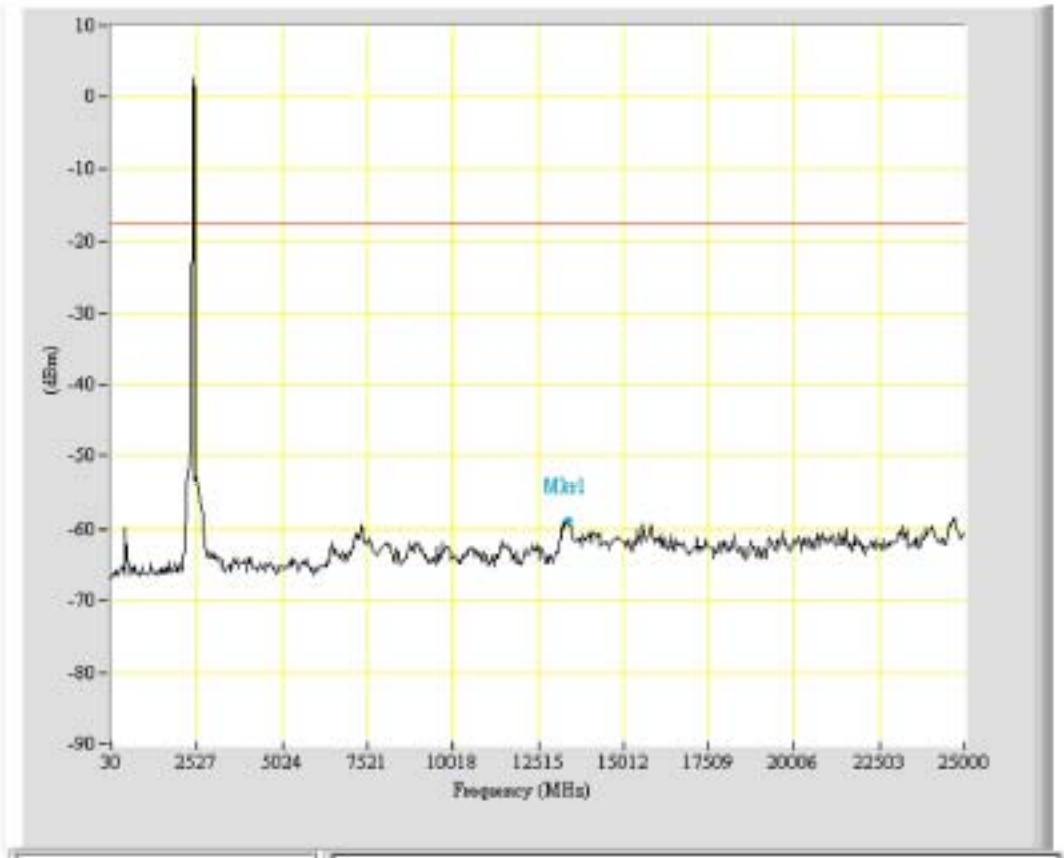
EUT: WLG500
Purpose: Band_Edge
Condition: CH1
Note:



EUT: WLG500
Purpose: Band_Edge
Condition: CH11
Note:

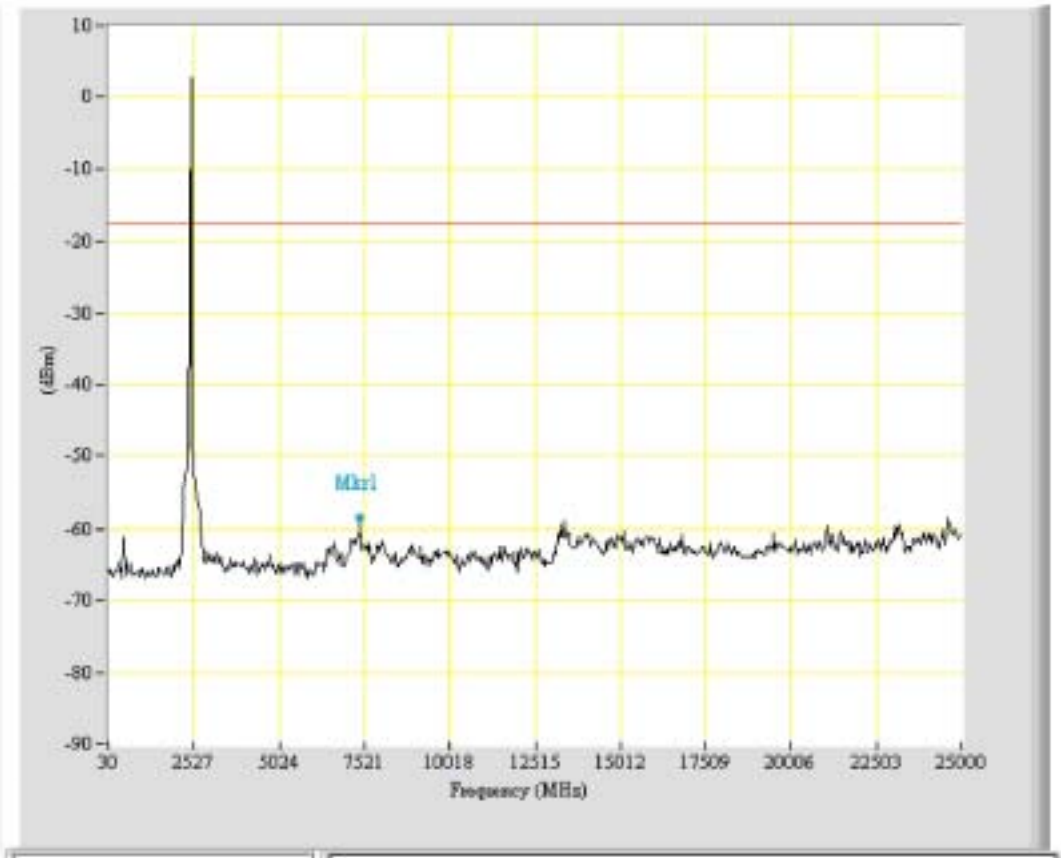


EUT: WLG500
Purpose: Band_Edge_All
Condition: CH1
Note:



*Center 12515.0000MHz	Display Line -17.330dBm
*SPAN 24970.0000MHz	Marker 13389.950MHz -58.830dBm
*RBW 100.00kHz	
*VBW 300.00kHz	
*SWP 6300.00msec	
*ATTEN 20.00dB	
*RL 10.00dBm	

EUT: WLG500
Purpose: Band_Edge_All
Condition: CH6
Note:



*Center 12515.0000MHz	Display Line -17.330dBm
*SPAN 24970.0000MHz	Marker 7396.150MHz -58.330dBm
*RBW 100.00kHz	
*VBW 300.00kHz	
*SWP 6300.00msec	
*ATTEN 20.00dB	
*RL 10.00dBm	

EUT: WLG500
Purpose: Band_Edge_All
Condition: CH11
Note:

10 RADIATED EMISSION MEASUREMENT

10.1 Standard Applicable

For unintentional radiator, the radiated emission shall comply with §15.109(a).

For intentional radiators, according to §15.247 (a), operation under this provision is limited to frequency hopping and direct sequence spread spectrum, and the out band emission shall be comply with §15.247 (c)

10.2 Measurement Procedure

1. Setup the configuration per figure 3 and 4 for frequencies measured below and above 1 GHz respectively.
2. For emission frequencies measured below 1 GHz, it is performed in a semi-anechoic chamber to determine the accurate frequencies of higher emissions. For emission frequencies measured above 1 GHz, a pre-scan be performed with a 1 meter measuring distance before final test.
3. For emission frequencies measured below and above 1 GHz, set the spectrum analyzer on a 120 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.
4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0° to 360° with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.

   Note : A filter was used to avoid pre-amplifier saturated when measure TX operation mode.
5. Repeat step 4 until all frequencies need to be measured were complete.
6. Repeat step 5 with search antenna in vertical polarized orientations.
7. Check the all frequencies of highest emission with varying the datarate, placement of antenna and cables associated with EUT to obtain the worse case and record the result.

Figure 3 : Frequencies measured below 1 GHz configuration

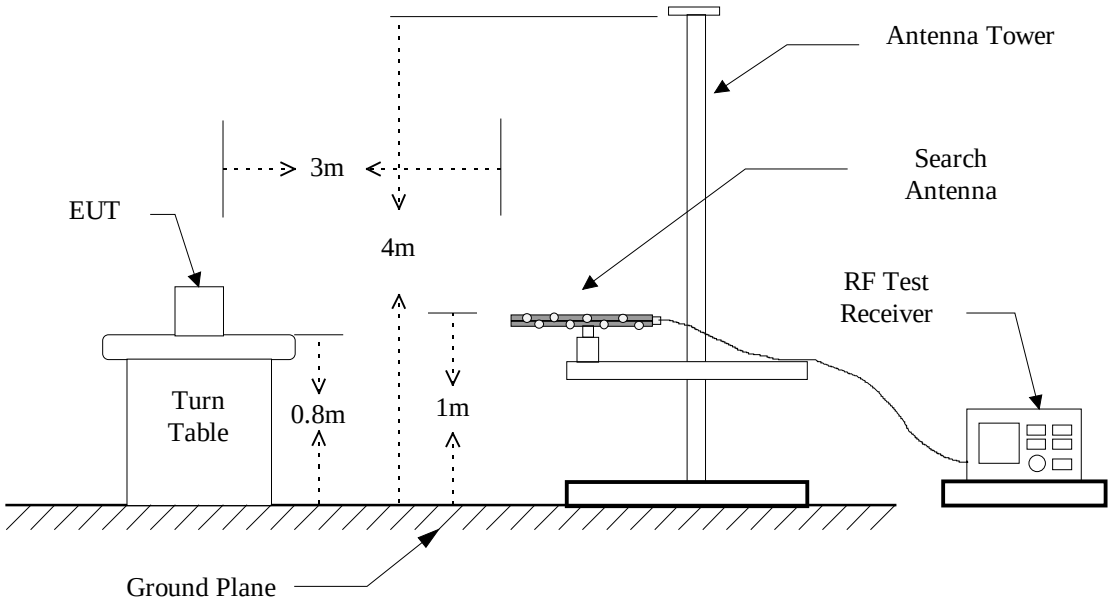
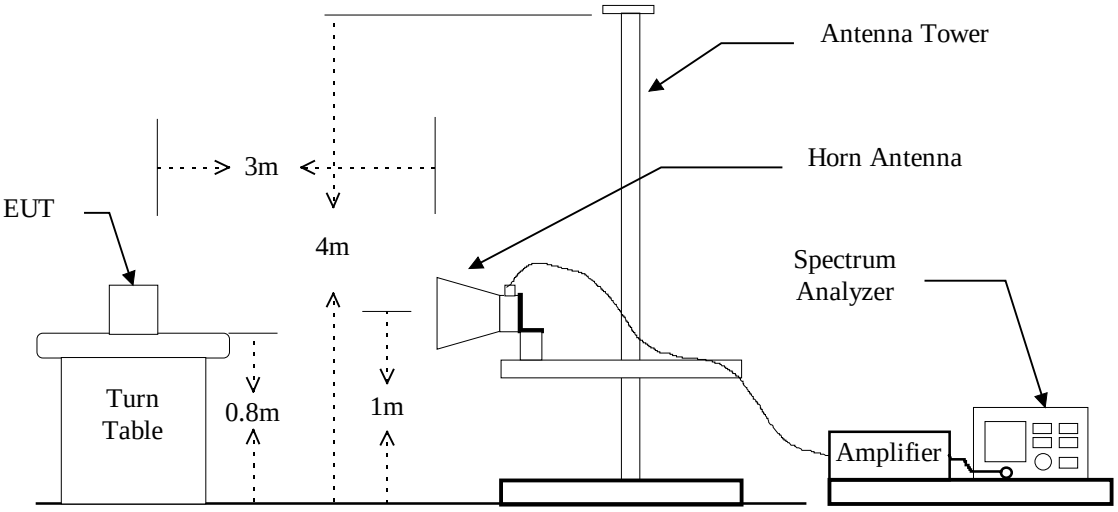


Figure 4 : Frequencies measured above 1 GHz configuration



10.3 Measuring Instrument

The following instrument are used for radiated emissions measurement :

Equipment	Manufacturer	Model No.	Next Cal. Due
EMI Test Receiver	Hewlett-Packard	8546A	01/31/2005
BiconiLog Antenna	Schwarzbeck	9160	10/18/2004
Horn Antenna	EMCO	3115	05/09/2005
Horn Antenna	EMCO	3116	06/28/2005
Preamplifier	Hewlett-Packard	8449B	09/17/2005
Spectrum Analyzer	Hewlett-Packard	8564EC	09/16/2005

Measuring instrument setup in measured frequency band when specified detector function is used :

Frequency Band (MHz)	Instrument	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	300 kHz
	Spectrum Analyzer	Peak	120 kHz	300 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz
	Spectrum Analyzer	Average	1 MHz	10 Hz

10.4 Radiated Emission Data

10.4.1 Harmonic

10.4.1.1 IEEE 802.11a
Operation Mode: Receiving /Transmitting
Test Date: Jun. 23, 2004 Temperature: 26 ℃ Humidity: 73 %

a) Channel 149
Fundamental Frequency: 5745 MHz

Frequency	Reading (dBuV)				Factor	Result @3m		Limit @3m		Margin (dB)	Table	Ant.
	H		V		(dB)	(dBuV/m)		(dBuV/m)			Deg.	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
11470.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
17205.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
22940.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
28675.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
34410.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---

b) Channel 157
Fundamental Frequency: 5785 MHz

Frequency	Reading (dBuV)				Factor	Result @3m		Limit @3m		Margin (dB)	Table	Ant.
	H		V		(dB)	(dBuV/m)		(dBuV/m)			Deg.	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
11550.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
17325.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
23100.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
28875.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
34650.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---

c) Channel 165
Fundamental Frequency: 5805 MHz

Frequency	Reading (dBuV)				Factor	Result @3m		Limit @3m		Margin (dB)	Table	Ant.
	H		V		(dB)	(dBuV/m)		(dBuV/m)			Deg.	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
11610.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
17415.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
23220.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
29025.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
34830.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark "---" means that the emissions level is too low to be measured.
3. Item "Margin" referred to Average limit while there is only peak result.

10.4.1.2 IEEE 802.11b
Operation Mode: Receiving /Transmitting
Test Date: Jun. 23, 2004 Temperature: 26 ℃ Humidity: 73 %

a) Channel 1
Fundamental Frequency: 2412 MHz

Frequency	Reading (dBuV)				Factor	Result @3m		Limit @3m		Margin	Table	Ant.
	H		V		(dB)	(dBuV/m)		(dBuV/m)		(dB)	Deg.	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
4824.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
7236.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
12060.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
14472.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
19296.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---

b) Channel 6
Fundamental Frequency: 2437 MHz

Frequency	Reading (dBuV)				Factor	Result @3m		Limit @3m		Margin	Table	Ant.
	H		V		(dB)	(dBuV/m)		(dBuV/m)		(dB)	Deg.	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
4874.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
7311.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
12185.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
19496.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---

c) Channel 11
Fundamental Frequency: 2462 MHz

Frequency	Reading (dBuV)				Factor	Result @3m		Limit @3m		Margin	Table	Ant.
	H		V		(dB)	(dBuV/m)		(dBuV/m)		(dB)	Deg.	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
4924.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
7386.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
19696.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
22158.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
19296.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---

Note :
1. Item of margin shown in above table refer to average limit.
2. Remark "---" means that the emissions level is too low to be measured.
3. Item "Margin" referred to Average limit while there is only peak result.

10.4.1.3 IEEE 802.11g
Operation Mode: Receiving /Transmitting
Test Date: Jun. 23, 2004 Temperature: 26 ℃ Humidity: 73 %

a) Channel 1
Fundamental Frequency: 2412 MHz

Frequency	Reading (dBuV)				Factor	Result @3m		Limit @3m		Margin	Table	Ant.
	H		V		(dB)	(dBuV/m)		(dBuV/m)		(dB)	Deg.	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
4824.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
7236.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
12060.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
14472.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
19296.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---

b) Channel 6
Fundamental Frequency: 2437 MHz

Frequency	Reading (dBuV)				Factor	Result @3m		Limit @3m		Margin	Table	Ant.
	H		V		(dB)	(dBuV/m)		(dBuV/m)		(dB)	Deg.	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
4874.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
7311.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
12185.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
19496.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---

c) Channel 11
Fundamental Frequency: 2462 MHz

Frequency	Reading (dBuV)				Factor	Result @3m		Limit @3m		Margin	Table	Ant.
	H		V		(dB)	(dBuV/m)		(dBuV/m)		(dB)	Deg.	High
(MHz)	Peak	Ave	Peak	Ave	Corr.	Peak	Ave	Peak	Ave.		(Deg.)	(m)
4924.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
7386.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
19696.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---
22158.000	---	---	---	---	---	---	---	74.0	54.0	---	---	---

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark "---" means that the emissions level is too low to be measured.
3. Item "Margin" referred to Average limit while there is only peak result.

10.4.2 Spurious Emission

10.4.2.1 IEEE 802.11a

Test Date: Jun. 23, 2004 Temperature: 26 ℃ Humidity: 73 %

a) Emission frequencies below 1 GHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
133.790	V	17.7	14.6	32.3	43.5	-11.2
143.490	H	16.9	15.1	32.0	43.5	-11.5
164.830	V	18.0	14.9	32.9	43.5	-10.6
225.940	V	27.9	13.7	41.6	46.0	-4.4
324.880	H	24.8	17.5	42.3	46.0	-3.7
327.790	V	24.8	17.5	42.3	46.0	-3.7
366.590	H	23.7	18.8	42.5	46.0	-3.5
366.590	V	21.3	18.8	40.1	46.0	-5.9
444.190	V	17.7	20.7	38.4	46.0	-7.6
446.130	H	19.5	20.7	40.2	46.0	-5.8
487.840	H	19.1	21.1	40.2	46.0	-5.8
609.090	H	15.2	23.8	39.0	46.0	-7.0

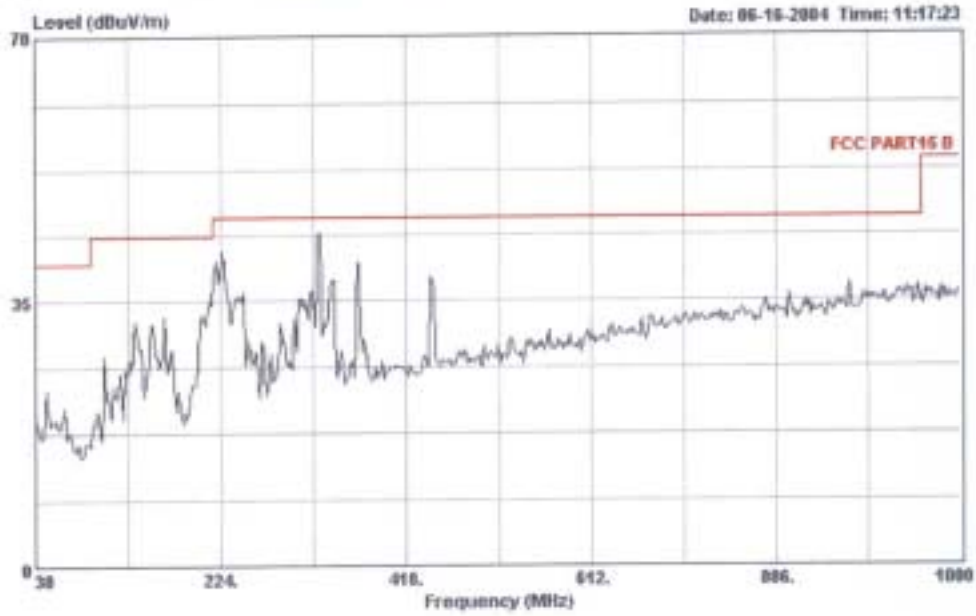
b) Emission frequencies above 1 GHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
Radiated emission frequencies above 1 GHz to 25 GHz were too low to be measured.						

Note : Please refer to page 88 to page 97 for chart

ETC TEST LABORTARY

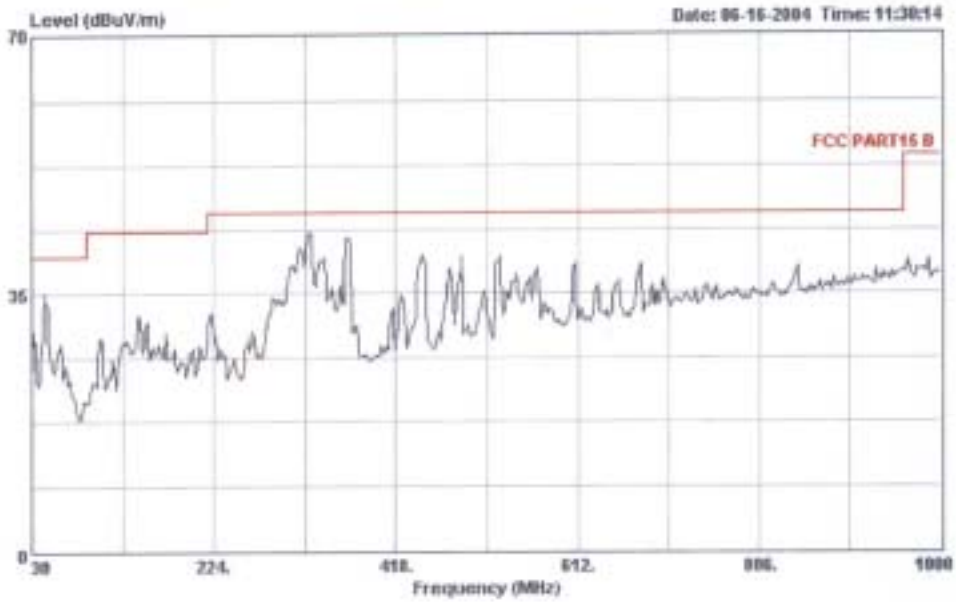
Data#: 62 File#: C:\GEORGE\2004.emi



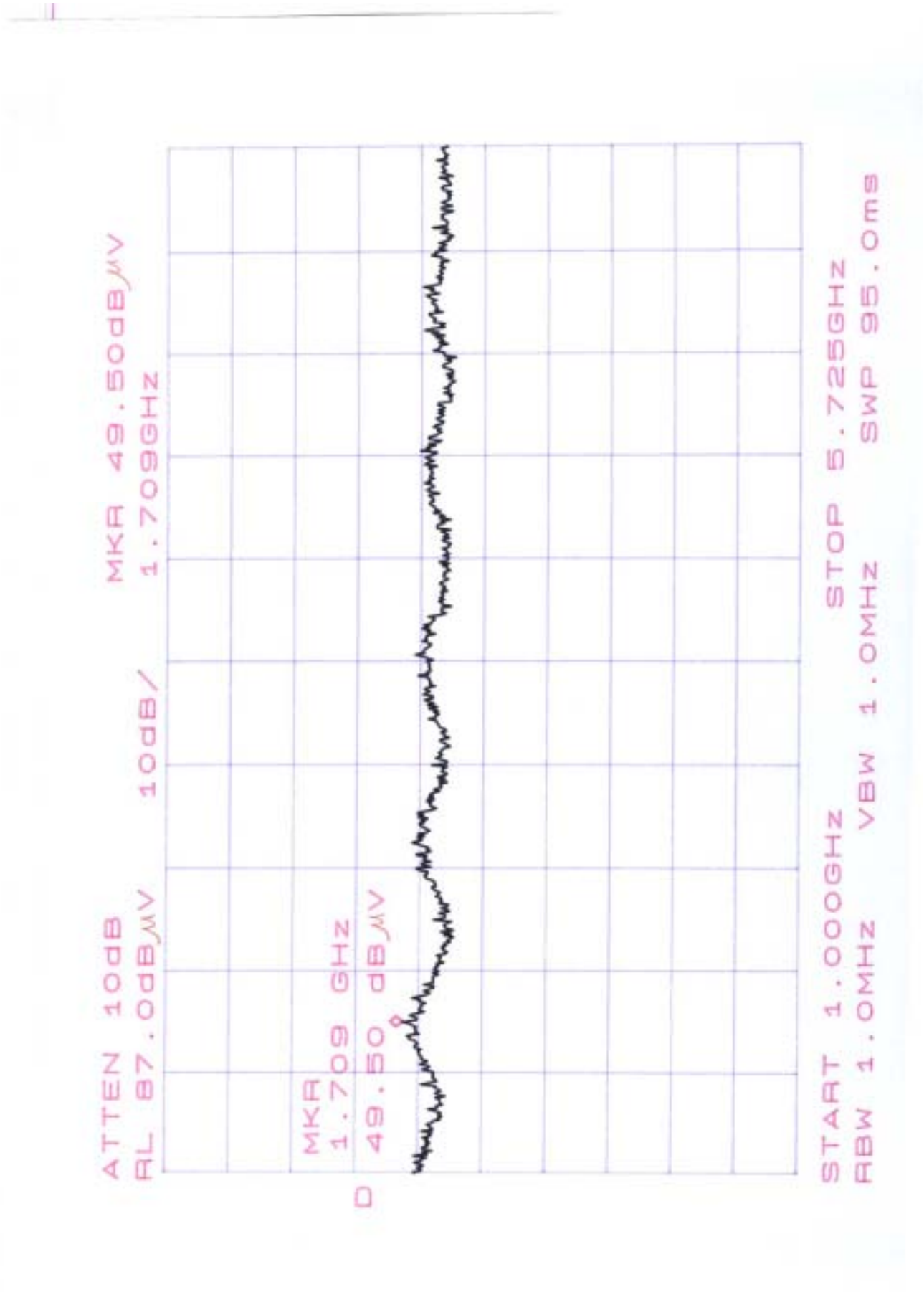
Site : MOO SITE
Condition : FCC PART15 B 3m HORIZONTAL
EUT : WLG 500 - 3B
MODEL : 802.11a (5025MHz)
Memo :

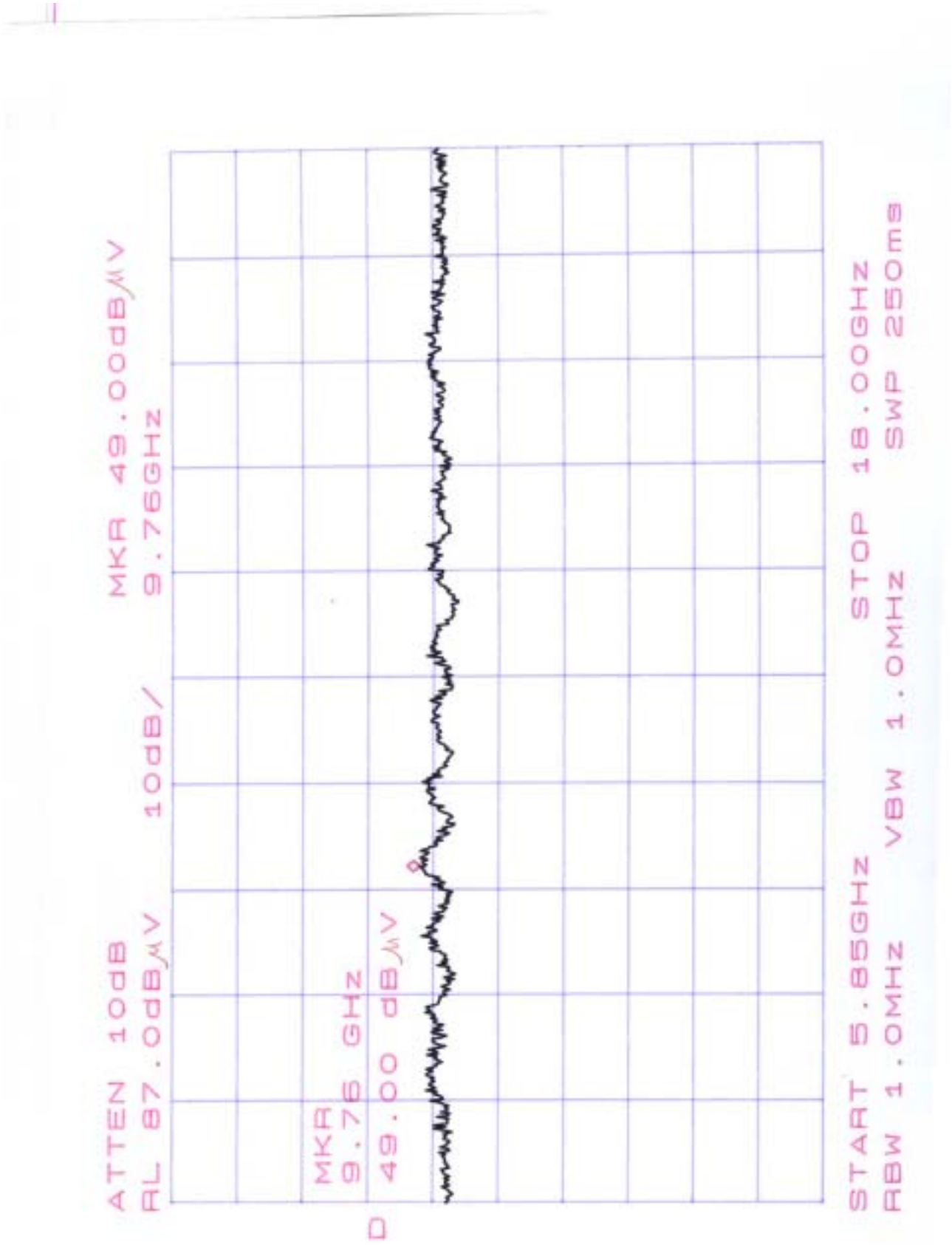
ETC TEST LABORTARY

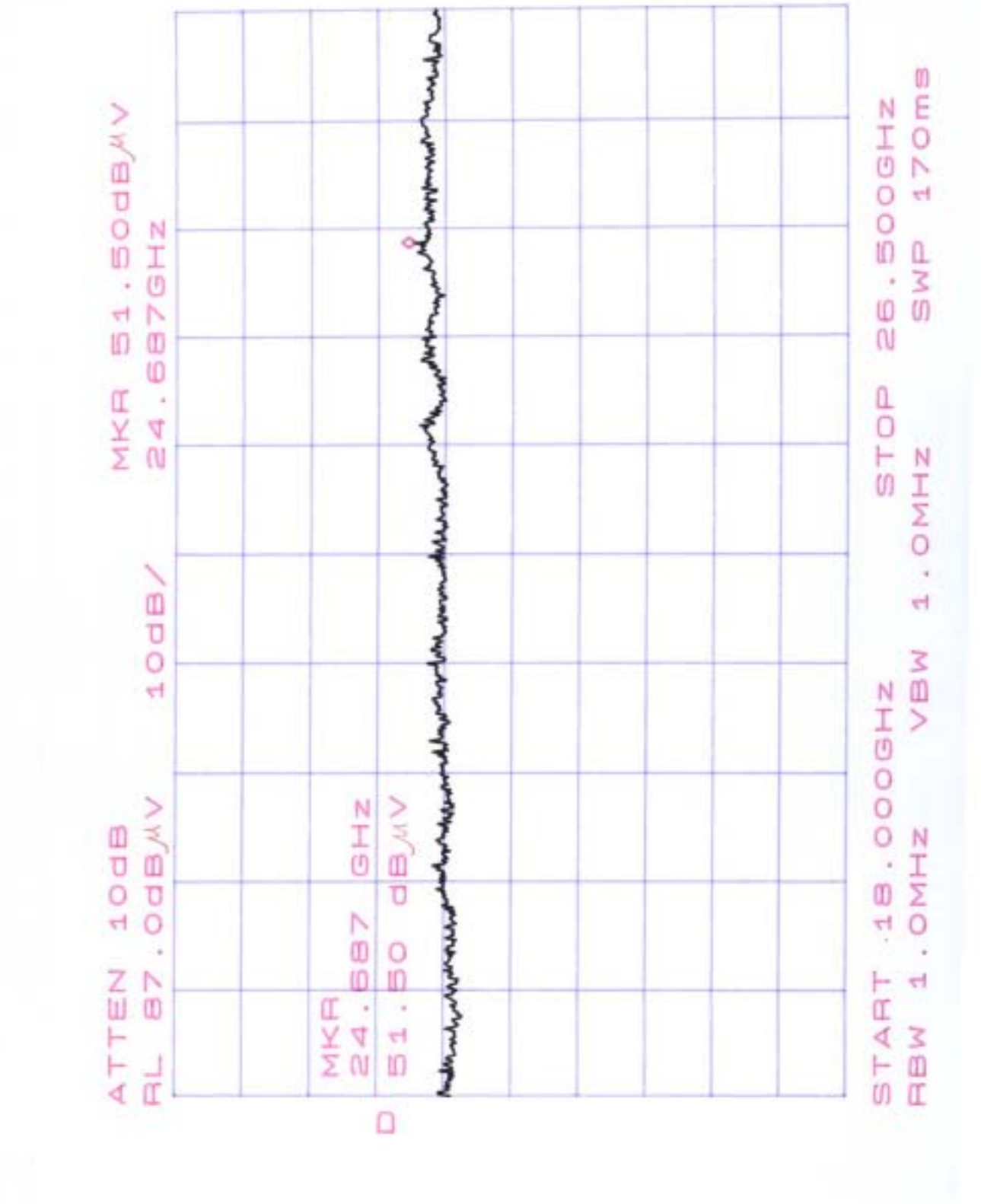
Data#: 84 File#: C:\GEORGE\2004.emi

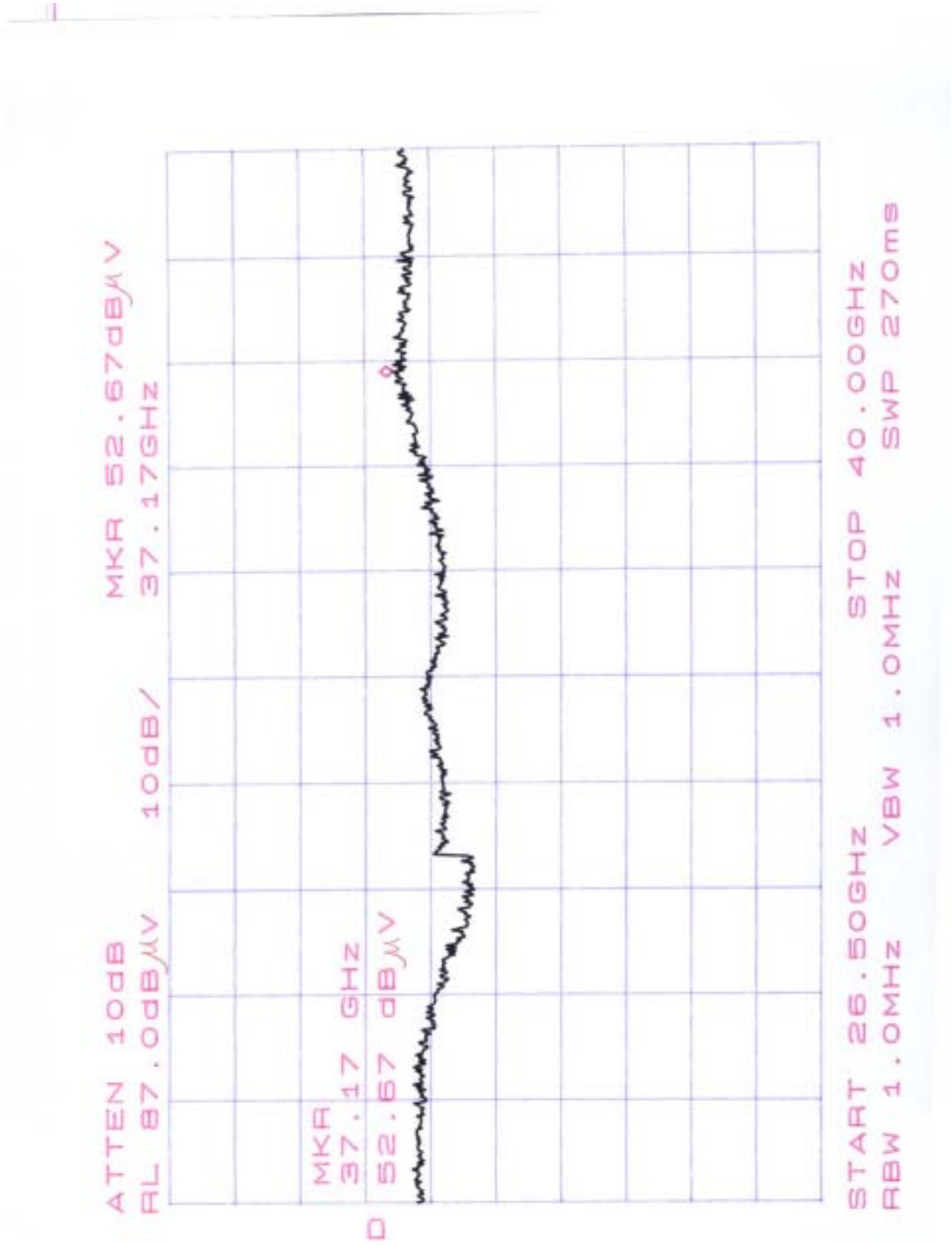


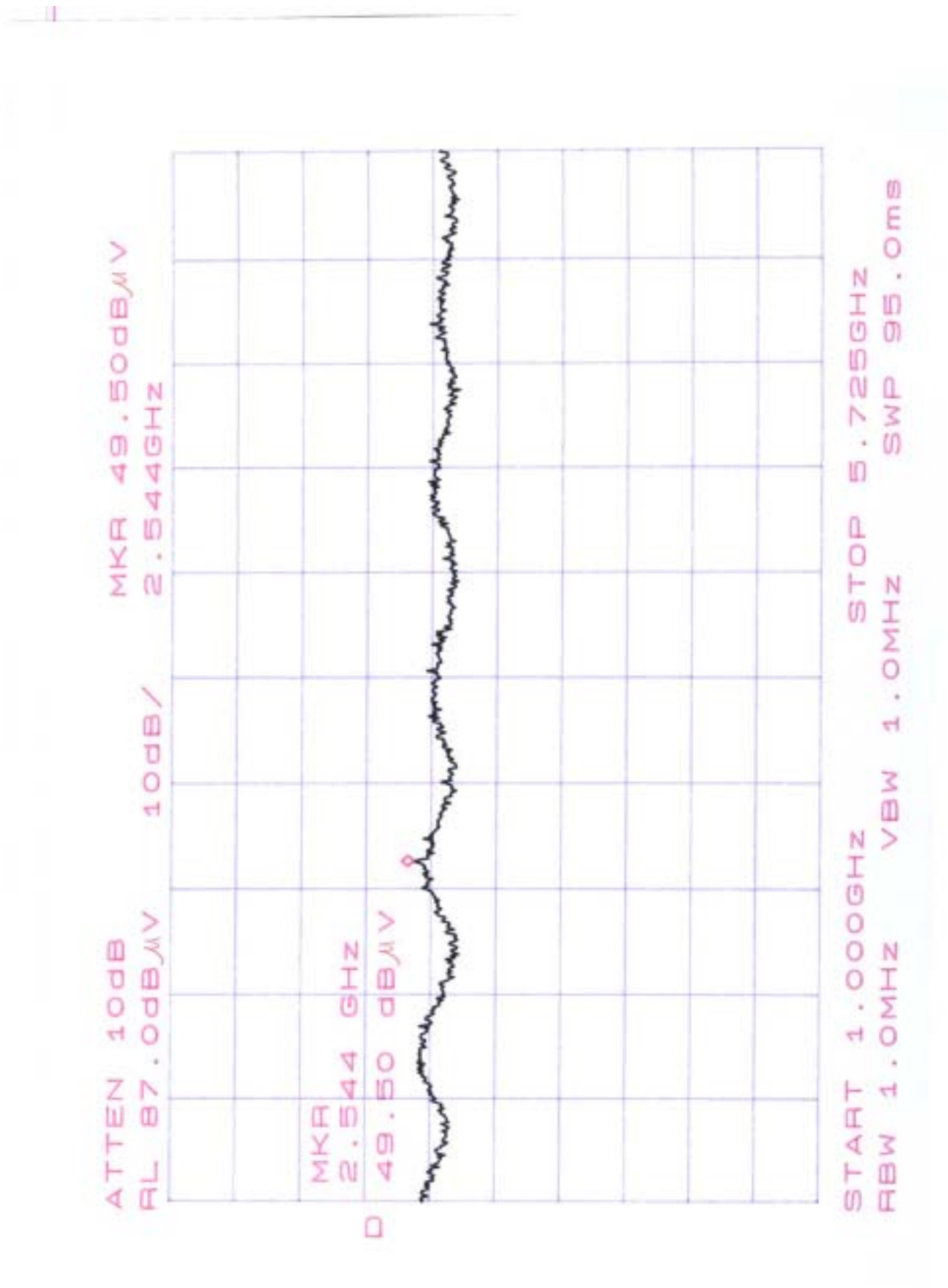
Site : 800 SITE
Condition : FCC PART15 B 3m VERTICAL
EUT : WLG 500 - 3B
MODEL : 802.11a (5825MHz)
Memo :

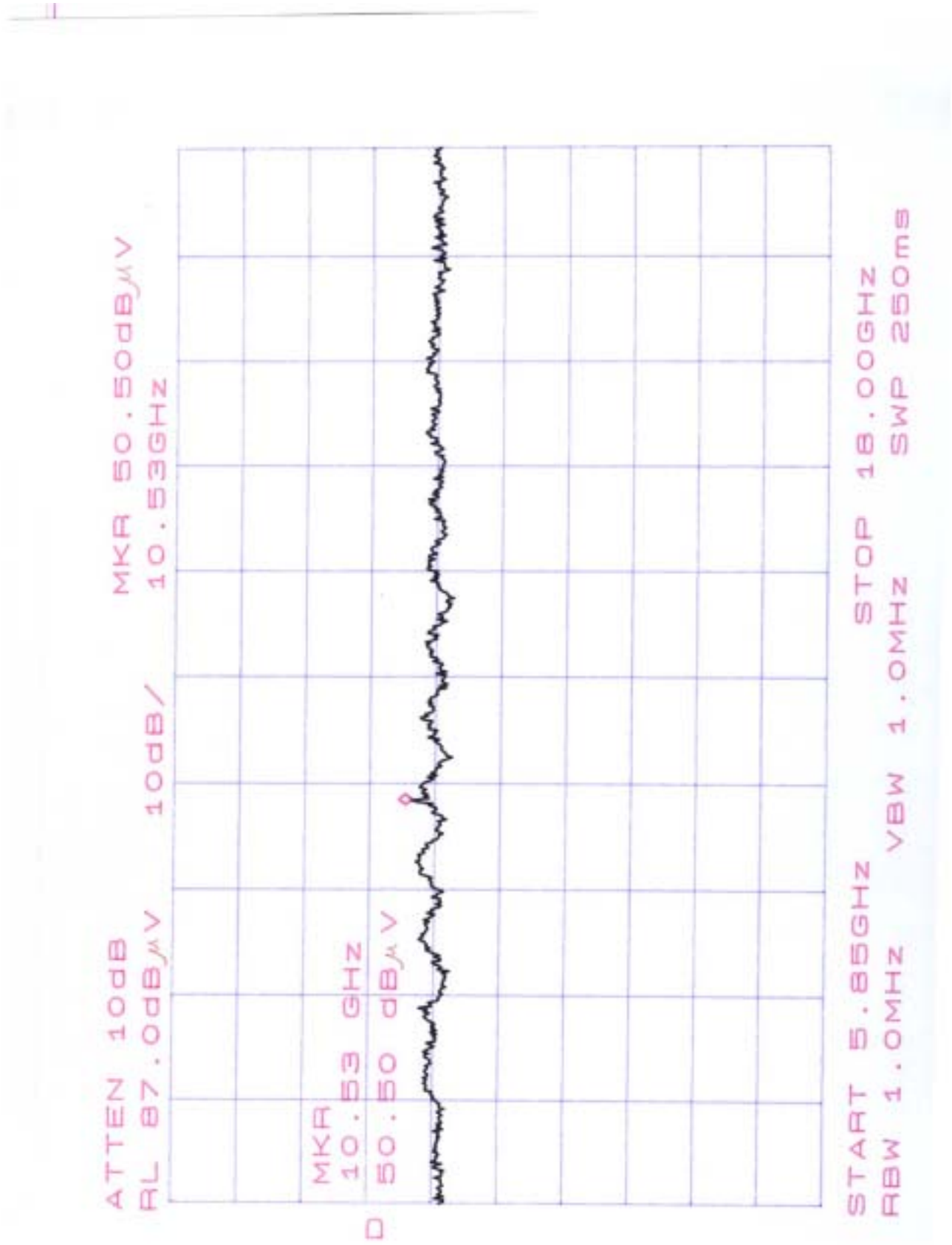

ATTEN 10dB
RL 87.0dBµV
10dB/
MKR 49.50dBµV
1.709GHz
MKR
1.709 GHz
49.50 dBµV
D
START 1.000GHz
RBW 1.0MHz
VBW 1.0MHz
STOP 5.725GHz
SWP 95.0ms

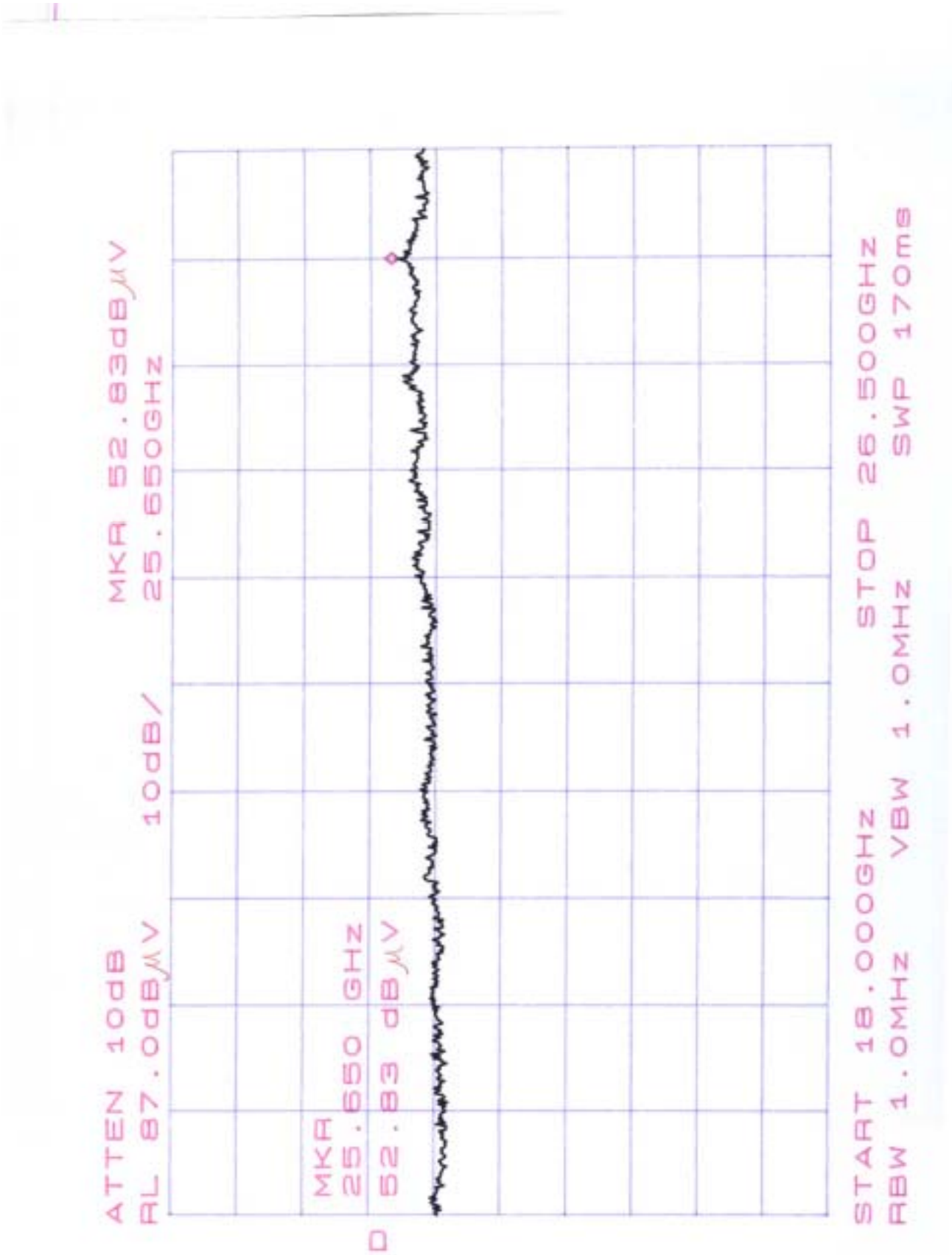

ATTEN 10dB
RL 87.0dBµV
10dB/
MKR 49.00dBµV
9.76GHz
MKR
9.76 GHz
49.00 dBµV
START 5.85GHz
RBW 1.0MHz
VBW 1.0MHz
STOP 18.00GHz
SWP 250ms
D

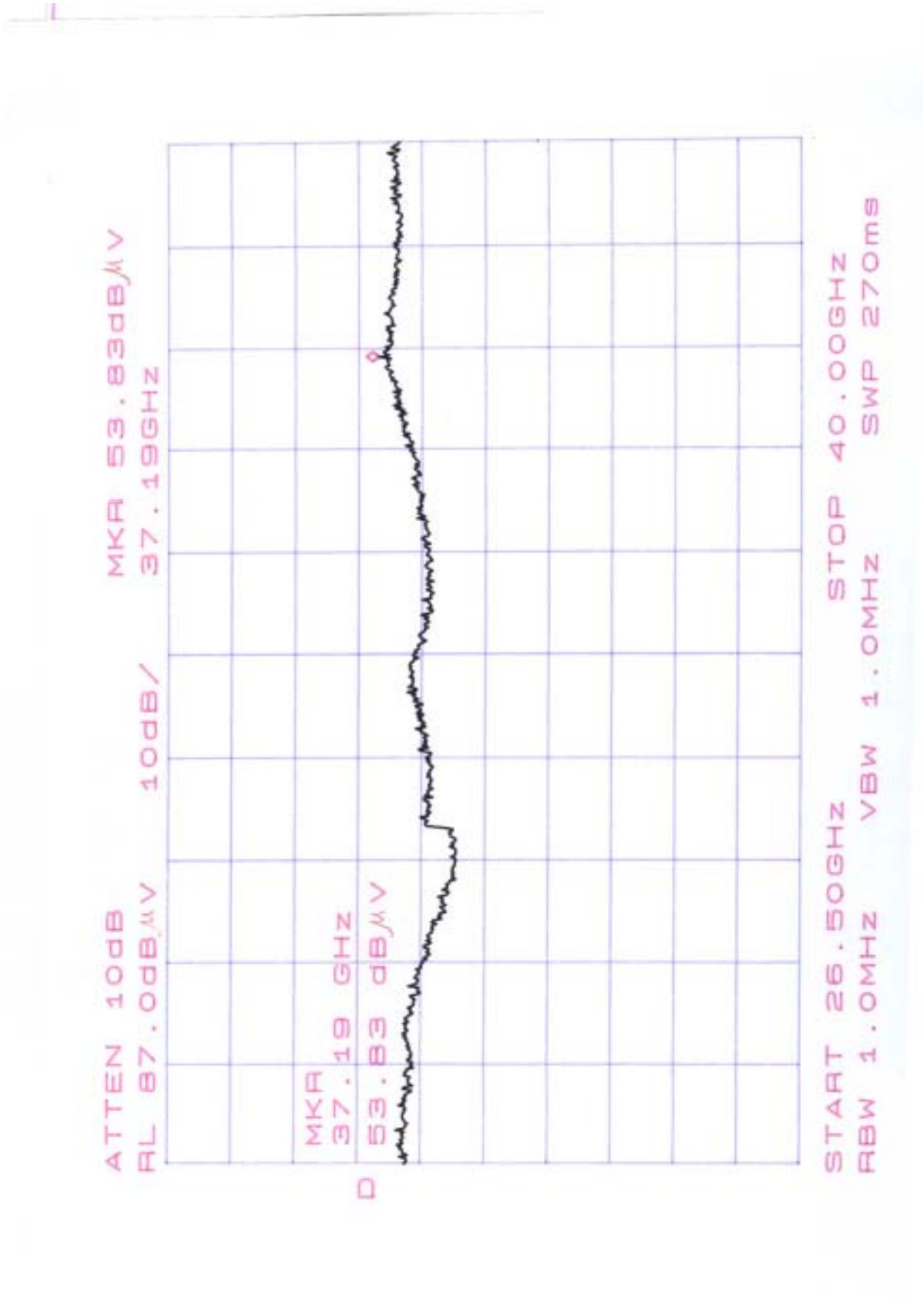

ATTEN 10dB
RL 87.0dBµV
10dB/
MKR 51.50dBµV
24.687GHz
MKR
24.687 GHz
51.50 dBµV
D
START 18.000GHz
RBW 1.0MHz
VBW 1.0MHz
STOP 26.500GHz
SWP 170ms


ATTEN 10dB
RL 87.0dBµV
10dB/
MKR 52.67dBµV
37.17GHz
MKR
37.17 GHz
52.67 dBµV
D
START 26.50GHz
RBW 1.0MHz
VBW 1.0MHz
STOP 40.00GHz
SWP 270ms


ATTEN 10dB
RL 87.0dBµV
10dB/
MKR 49.50dBµV
2.544GHz
MKR
2.544 GHz
49.50 dBµV
START 1.000GHz
RBW 1.0MHz
VBW 1.0MHz
STOP 5.725GHz
SWP 95.0ms


ATTEN 10dB
RL 87.0dBµV
10dB/
MKR 50.50dBµV
10.53GHz
MKR
10.53 GHz
50.50 dBµV
D
START 5.85GHz
RBW 1.0MHz
VBW 1.0MHz
STOP 18.00GHz
SWP 250ms


ATTEN 10dB
RL 87.0dBµV
10dB/
MKR 52.83dBµV
25.650GHz
MKR
25.650 GHz
52.83 dBµV
START 18.000GHz
RBW 1.0MHz
VBW 1.0MHz
STOP 26.500GHz
SWP 170ms


MKR 53.83dBµV
37.19GHz
ATTEN 10dB
RL 87.0dBµV
10dB/
MKR
37.19 GHz
53.83 dBµV
D
START 26.50GHz
RBW 1.0MHz
STOP 40.00GHz
VBW 1.0MHz
SWP 270ms

10.4.2.2 IEEE 802.11b

Test Date: Jun. 23, 2004 Temperature: 26 ℃ Humidity: 73 %

a) Emission frequencies below 1 GHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
43.580	V	21.3	13.2	34.5	40.0	-5.5
153.190	H	17.4	15.1	32.5	43.5	-11.0
216.240	H	28.6	13.7	42.3	46.0	-3.7
322.940	H	16.3	17.5	33.8	46.0	-12.2
324.880	V	25.3	17.5	42.8	46.0	-3.2
368.530	H	17.4	18.8	36.2	46.0	-9.8
368.530	V	23.0	18.8	41.8	46.0	-4.2
449.040	V	19.0	20.7	39.7	46.0	-6.3
528.580	H	15.6	22.3	37.9	46.0	-8.1
528.580	V	17.6	22.3	39.9	46.0	-6.1
609.090	V	15.1	23.8	38.9	46.0	-7.1
678.930	H	13.2	25.7	38.9	46.0	-7.1

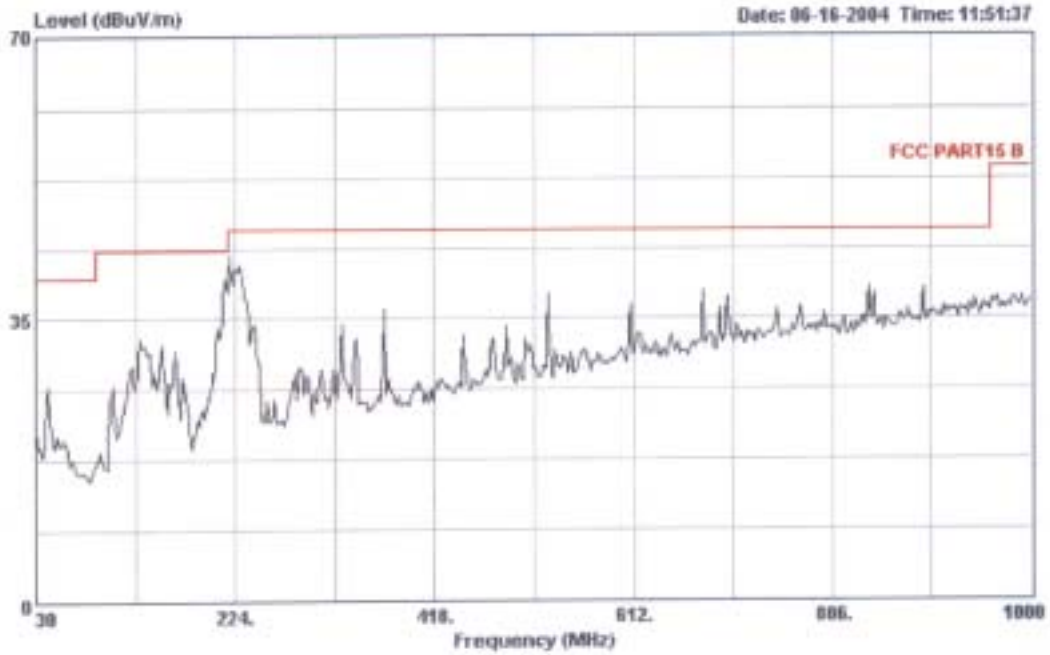
b) Emission frequencies above 1 GHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
Radiated emission frequencies above 1 GHz to 25 GHz were too low to be measured.						

Note : Please refer to page 99 to page 103 for chart

ETC TEST LABORTARY

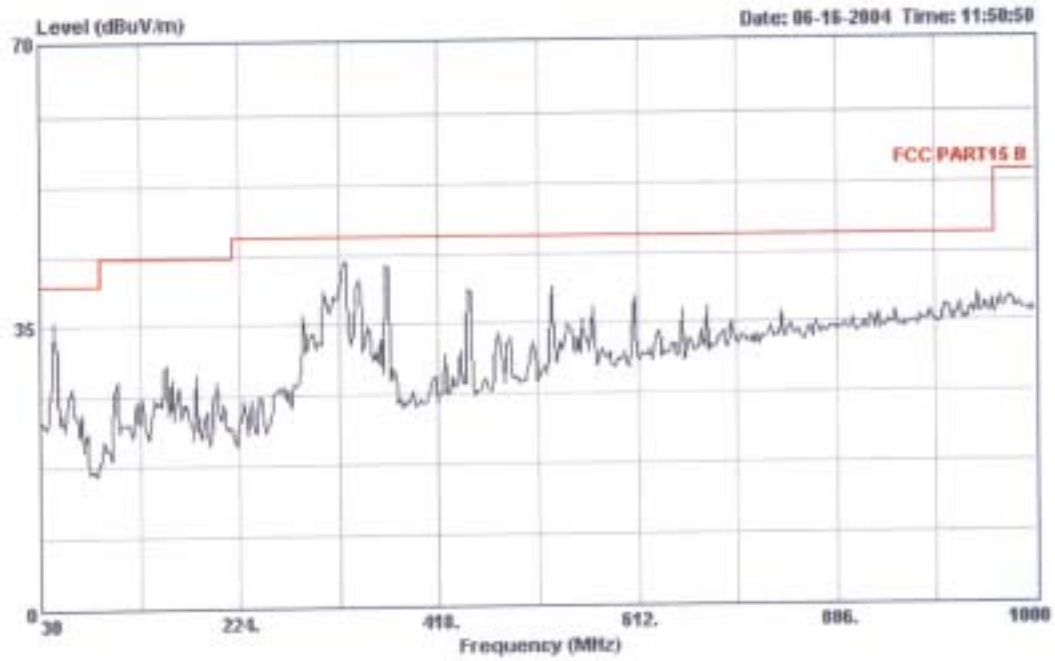
Data#: 92 File#: C:\GEORGE\2004.emi



Site : HOO SITE
Condition : FCC PART15 B 3m HORIZONTAL
EUT : WLG 500 - 3B
MODEL : 802.11b (CH11)
Memo :

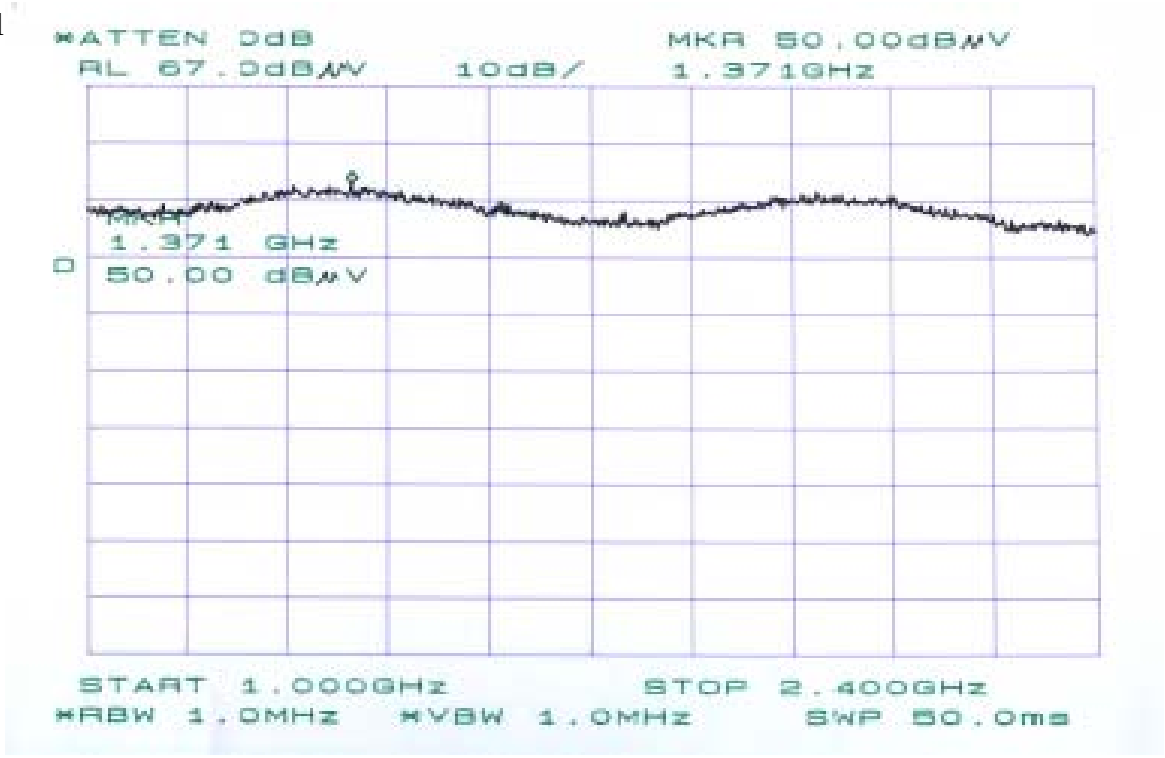
ETC TEST LABORTARY

Data#: 90 File#: C:\GEORGE\2004.emi

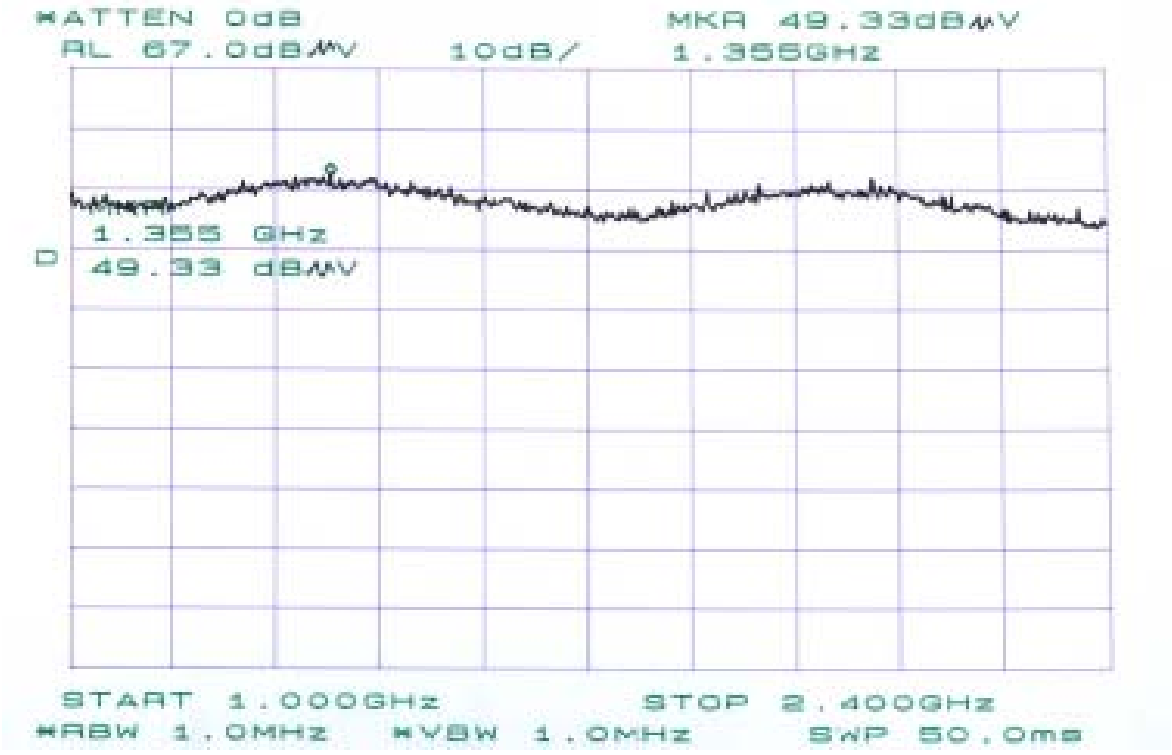


Site : M00 SITE
Condition : FCC PART15 B 3m VERTICAL
EUT : WLG 500 - 3B
MODEL : 802.11b (CH11)
Memo :

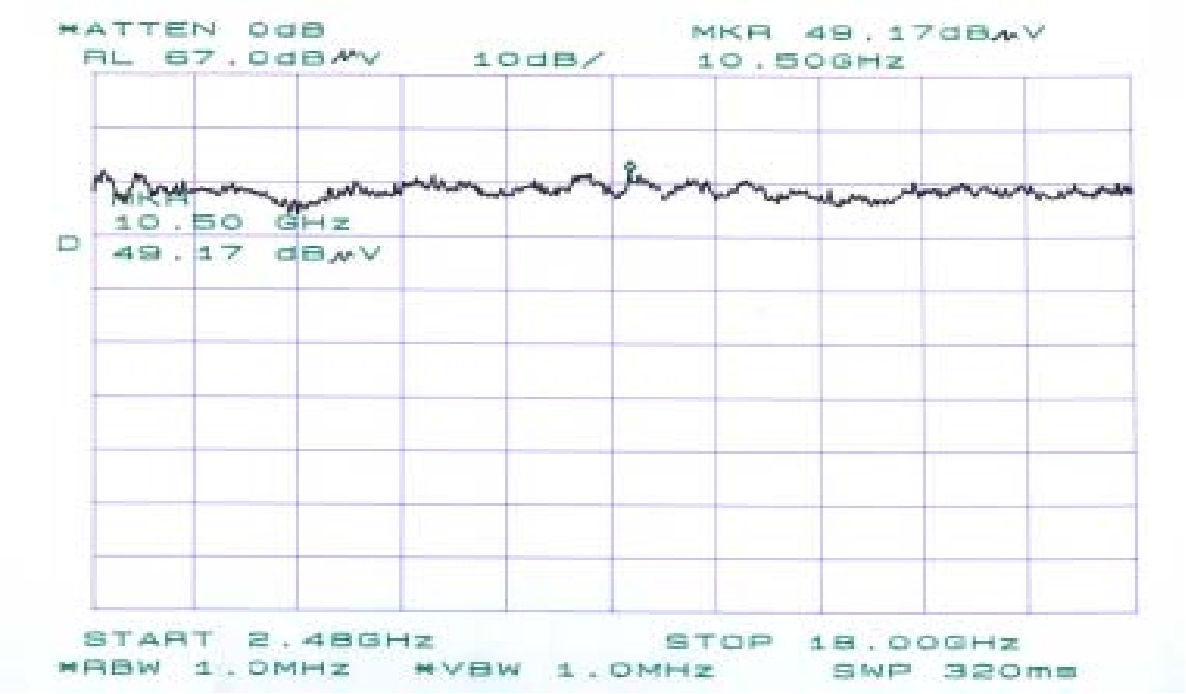
Horizontal



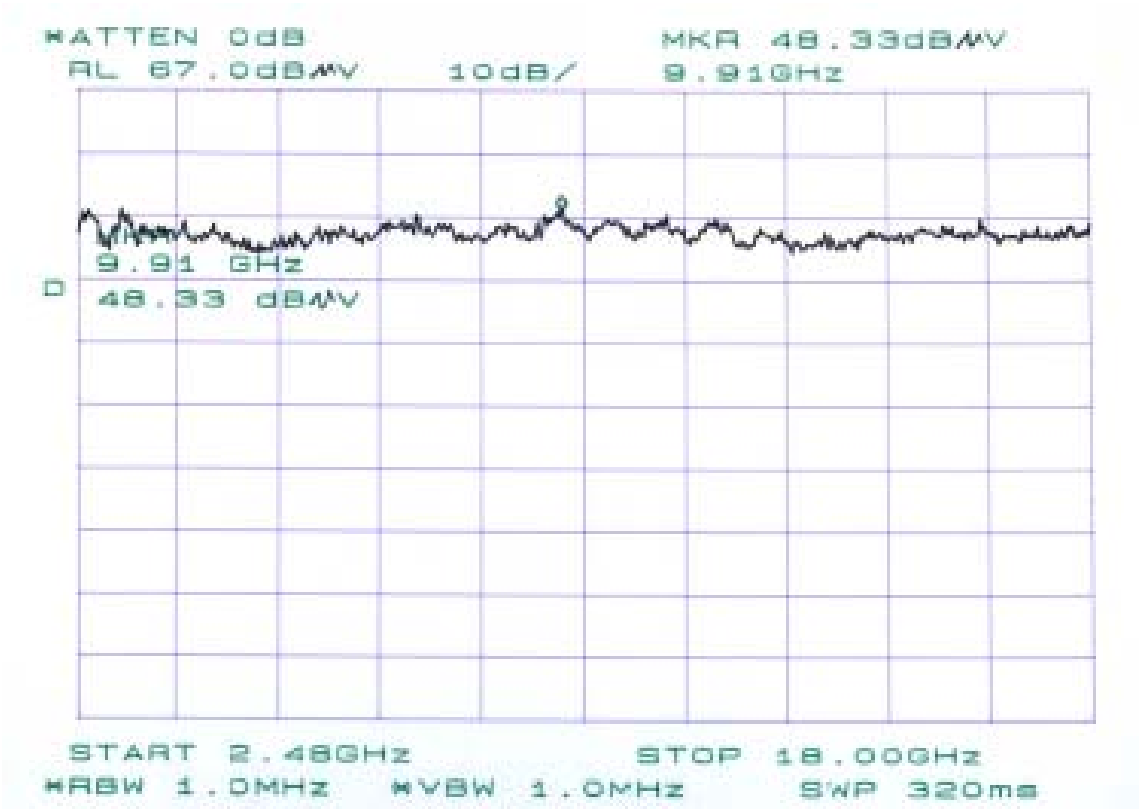
Vertical



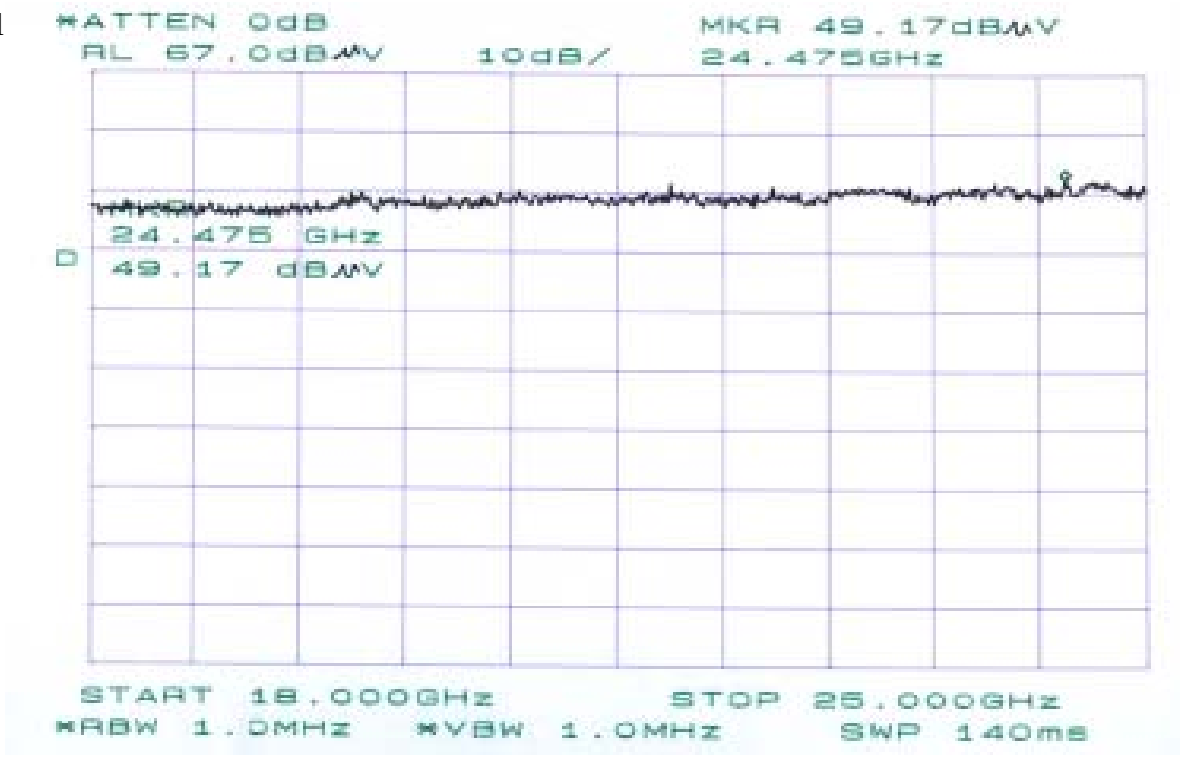
Horizontal



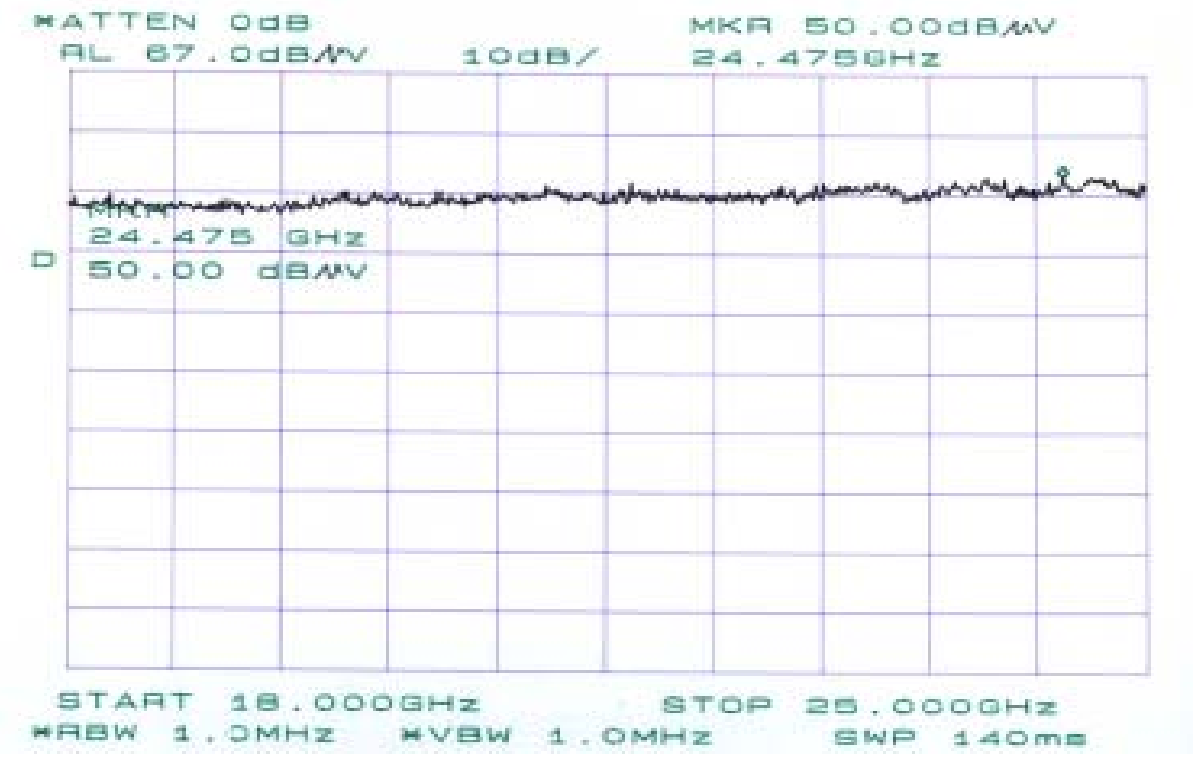
Vertical



Horizontal



Vertical



10.4.2.3 IEEE 802.11g

Test Date: Jun. 23, 2004 Temperature: 26 ℃ Humidity: 73 %

a) Emission frequencies below 1 GHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
153.190	V	21.0	15.1	36.1	43.5	-7.4
216.240	H	27.4	13.7	41.1	46.0	-4.9
221.090	H	27.3	13.7	41.0	46.0	-5.0
327.790	H	24.5	17.5	42.0	46.0	-4.0
327.790	V	25.5	17.5	43.0	46.0	-3.0
368.530	H	21.6	18.8	40.4	46.0	-5.6
368.530	V	26.4	18.8	45.2	46.0	-0.8
446.130	H	19.5	20.7	40.2	46.0	-5.8
446.130	V	22.9	20.7	43.6	46.0	-2.4
526.640	V	20.9	22.3	43.2	46.0	-2.8
678.930	V	13.1	25.7	38.8	46.0	-7.2
950.530	H	7.8	29.9	37.7	46.0	-8.3

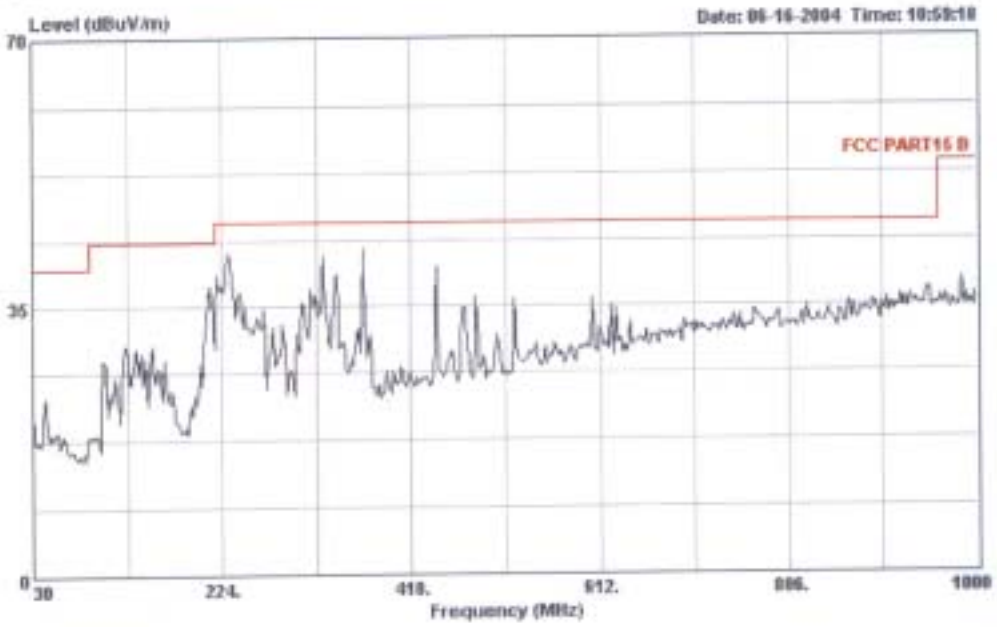
b) Emission frequencies above 1 GHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
Radiated emission frequencies above 1 GHz to 25 GHz were too low to be measured.						

Note : Please refer to page 105 to page 109 for chart

ETC TEST LABORTARY

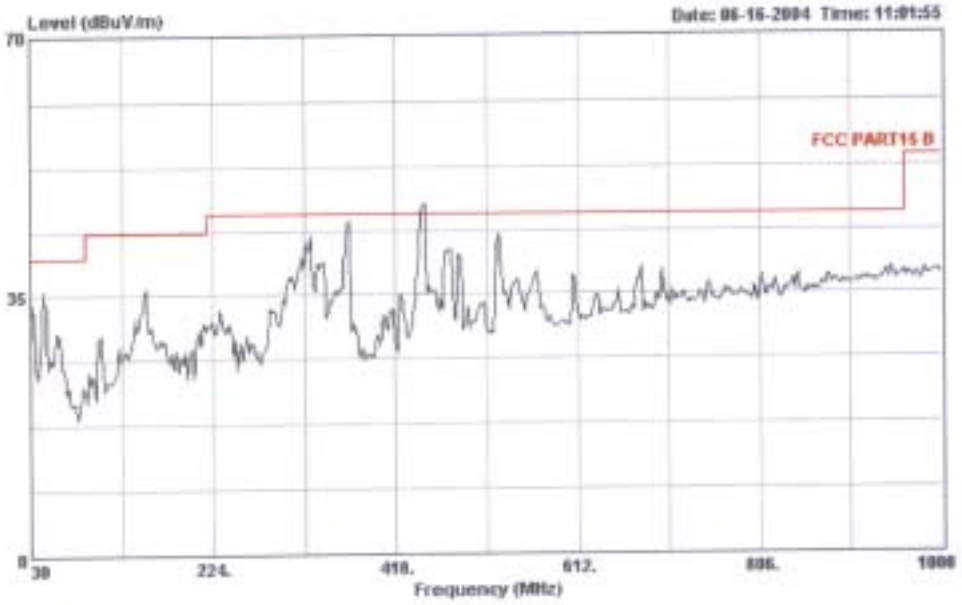
Data#: 50 File#: C:\GEORGE\2004.eal



Site : 800 SITE
Condition : FCC PART15 B 3m HORIZONTAL
EUT : WLG 500 - 3B
MODEL : 802.11g (CH1)
Memo :

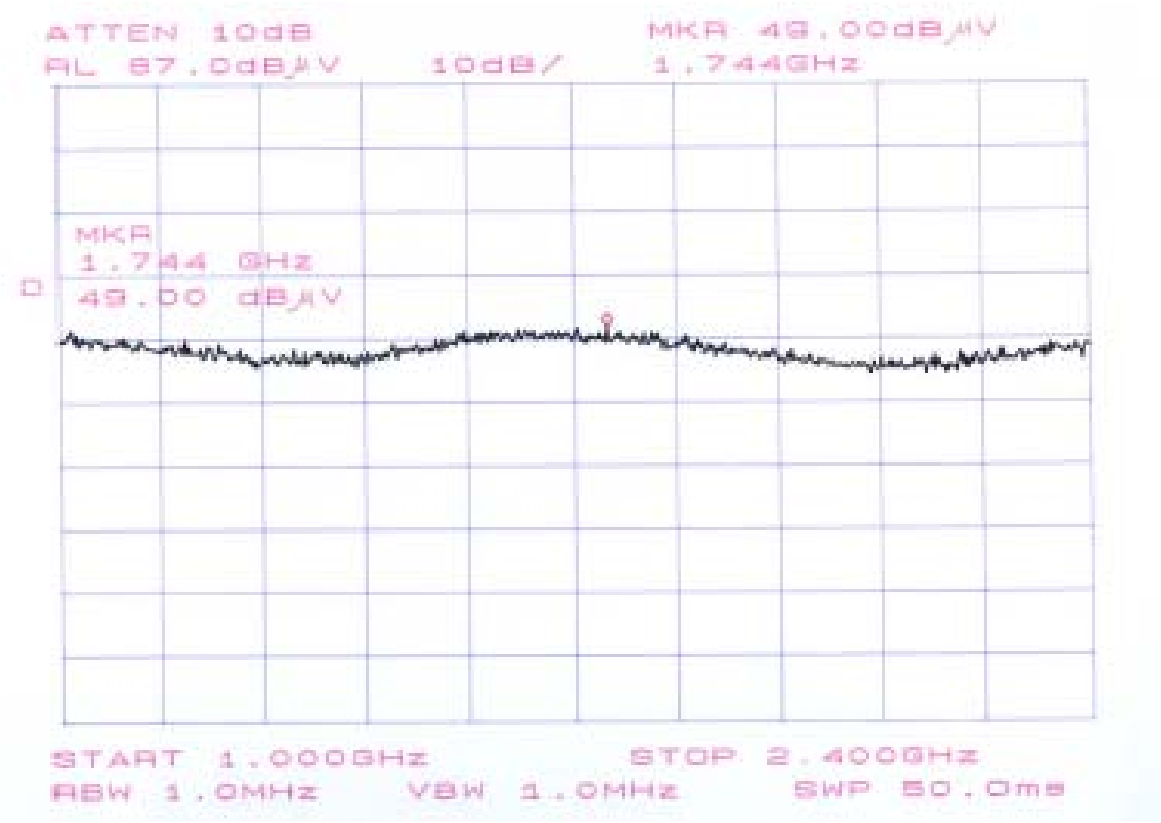
ETC TEST LABORTARY

Data#: 52 File#: C:\GEORGE\2004.emi

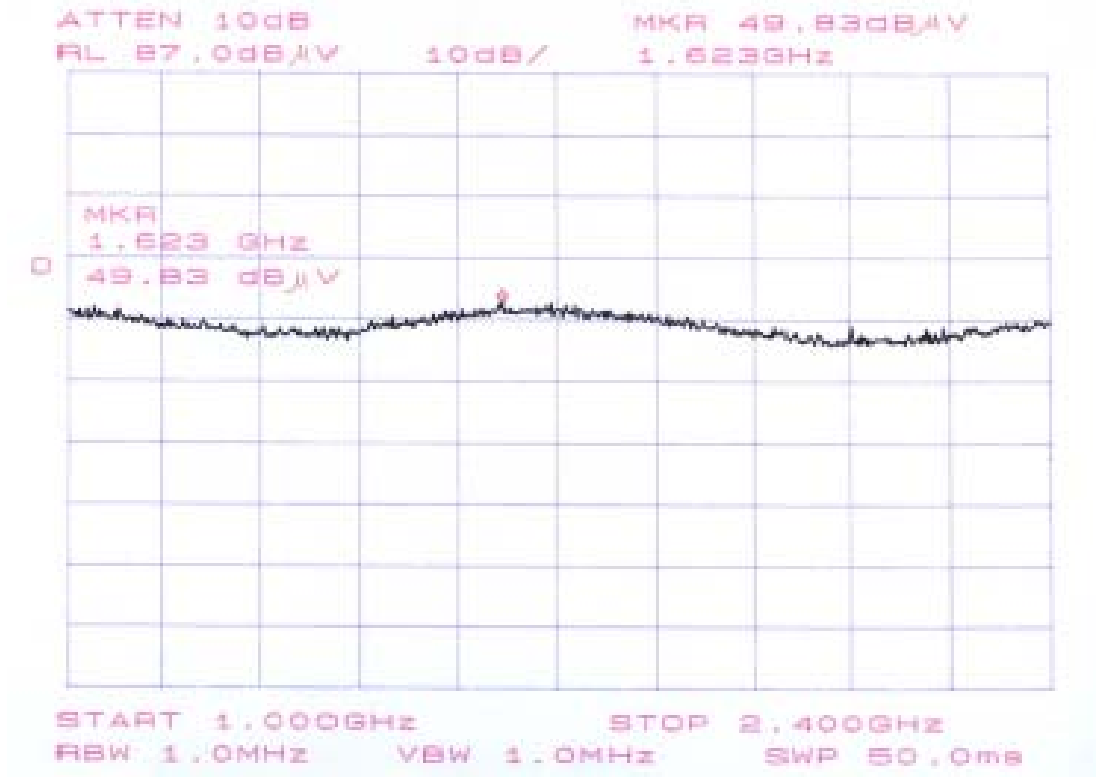


Site : NOO SITE
Condition : FCC PART15 B 3m VERTICAL
EUT : WLG 500 - 3B
MODEL : 802.11g (CH1)
Mean :

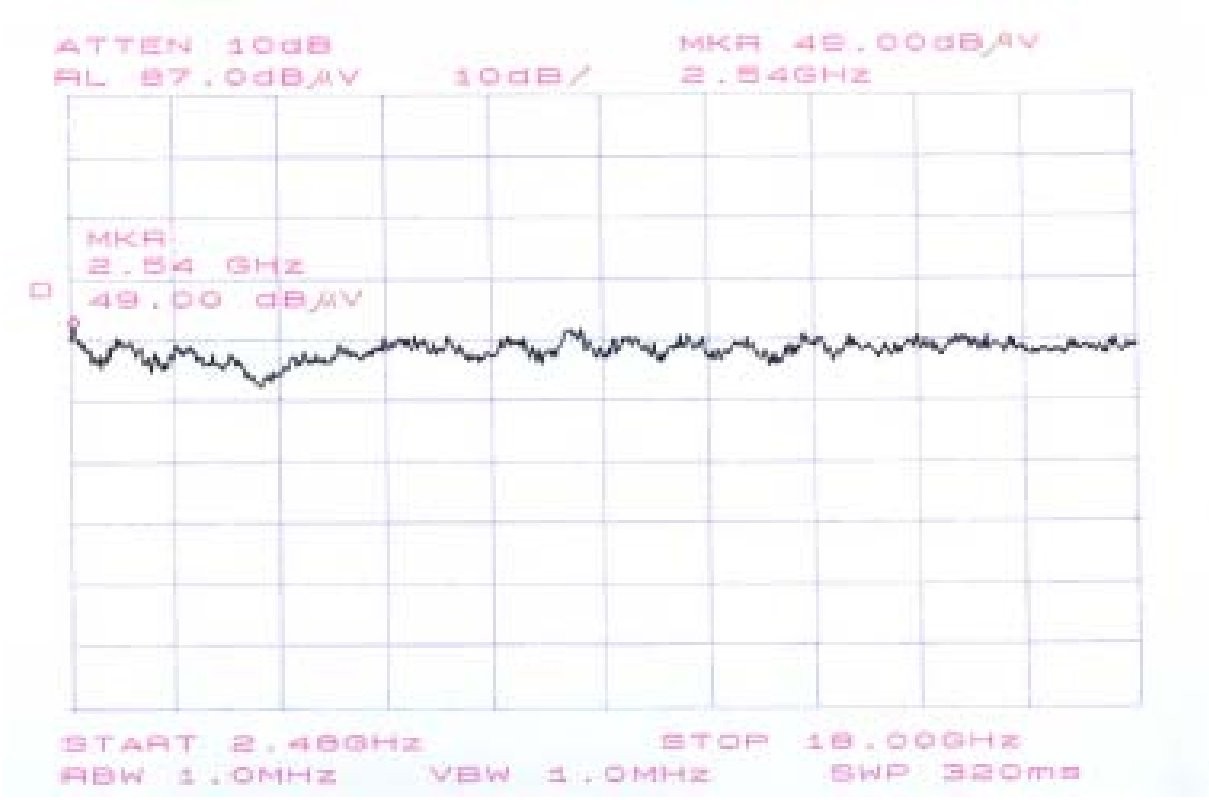
Horizontal



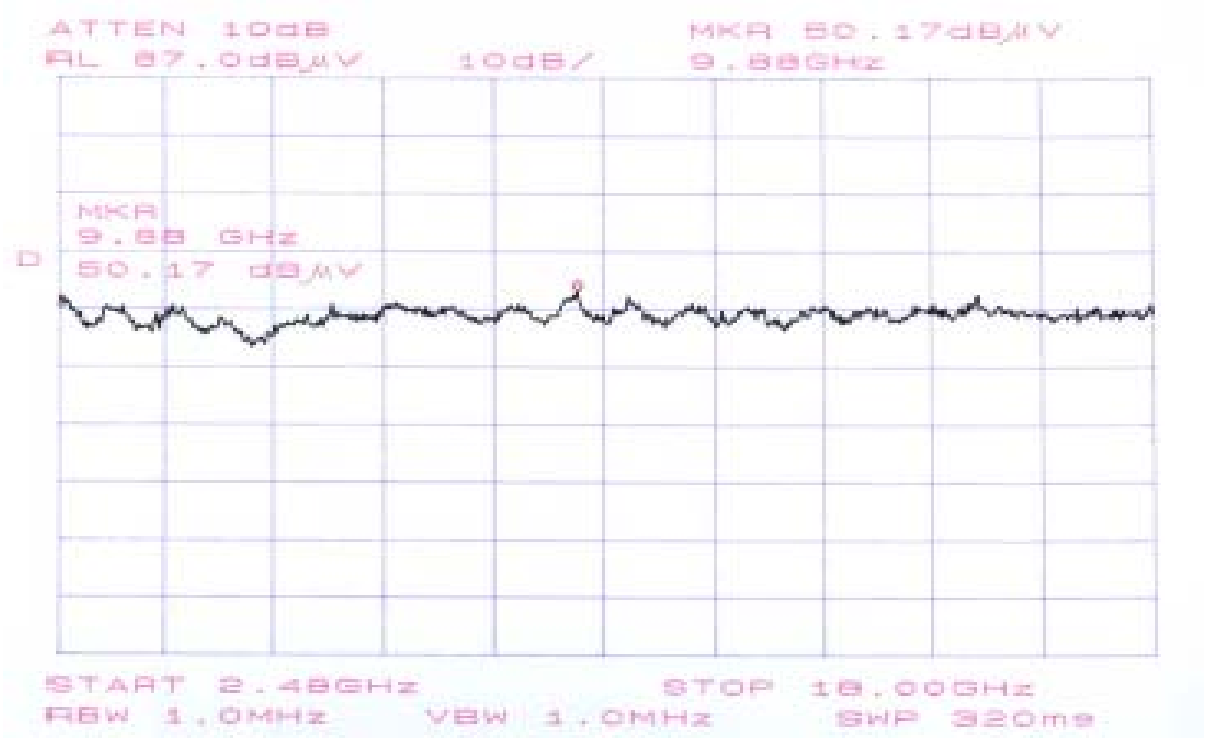
Vertical



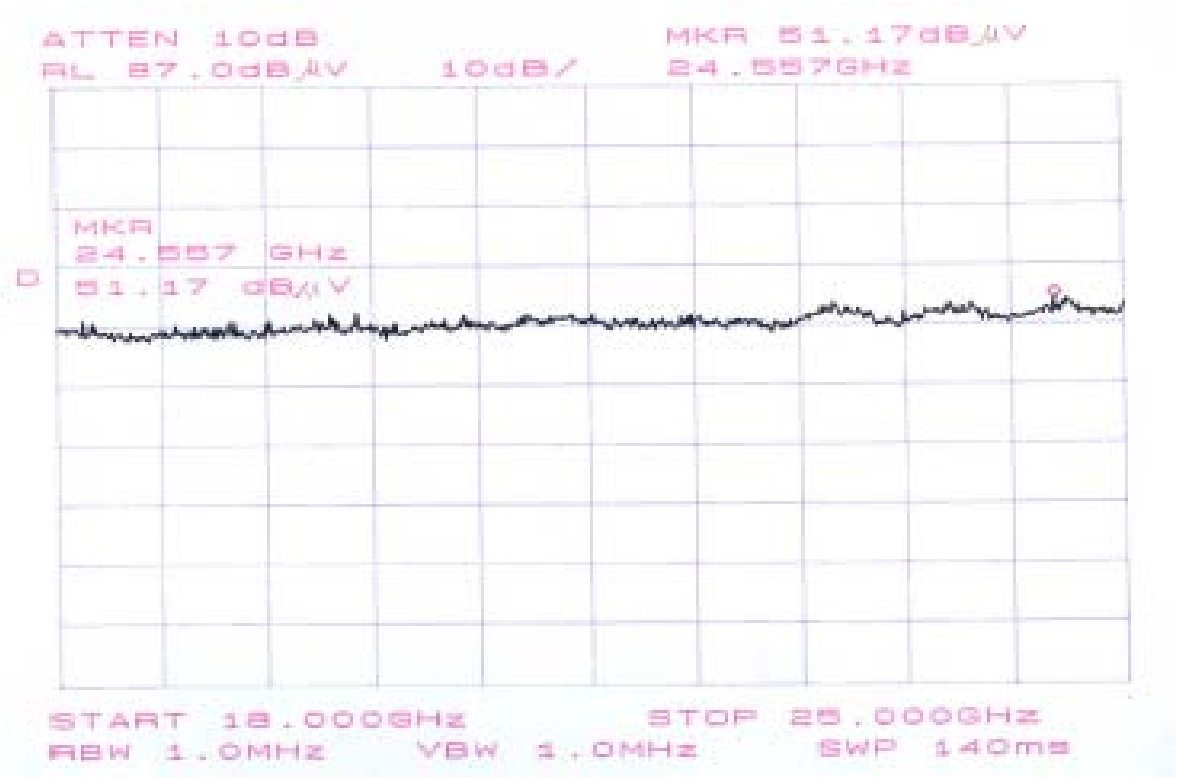
Horizontal



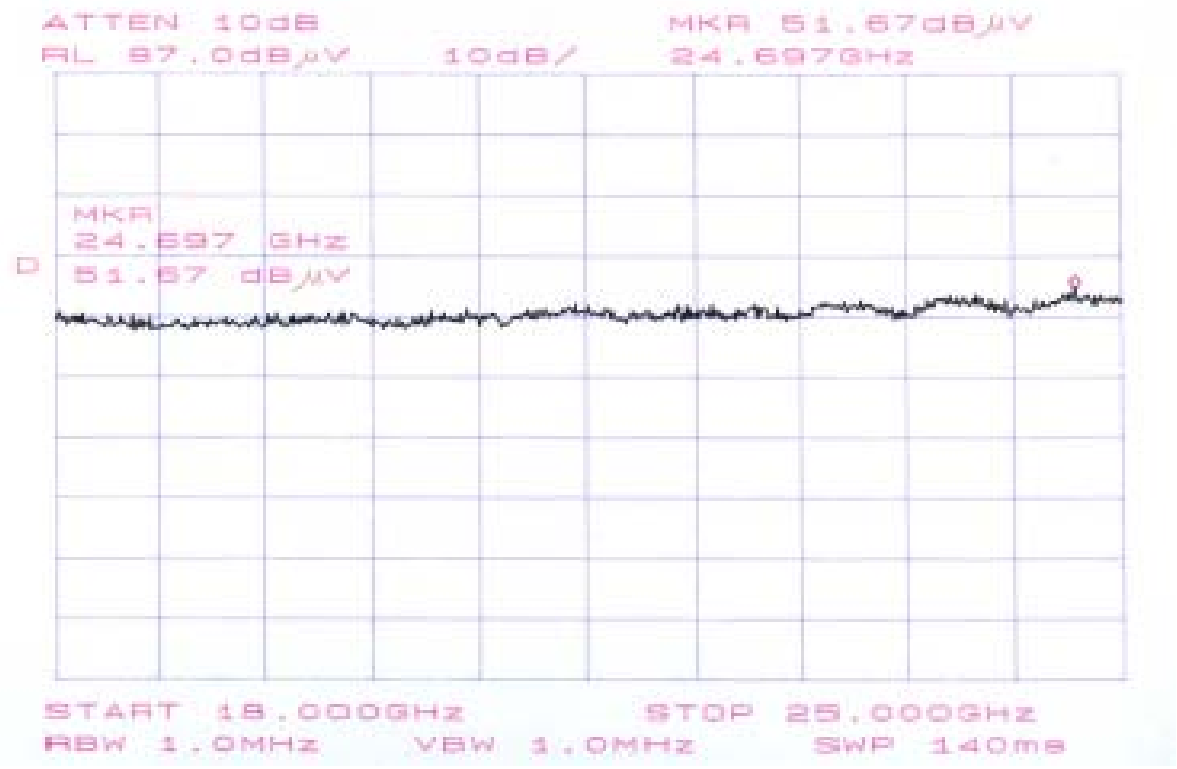
Vertical



Horizontal



Vertical



10.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor, High Pass Filter Loss(if used) and Cable Loss, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

where

Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Amplifier Gain

11 RADIATED MEASUREMENT AT BANDEDGE WITH FUNDAMENTAL FREQUENCIES

11.1 Standard Applicable

According to 15.247(c), radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

11.2 Measurement Procedure

1. Setup the configuration per figure 2 for 2.39GHz and 2.4835GHz measured.
2. Set the spectrum analyzer on 1MHz resolution bandwidth for each frequency measured.
3. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0º to 360º with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.
4. Repeat step 3 until all frequencies need to be measured were complete.
5. Repeat step 4 with search antenna in vertical polarized orientations.
6. Measurement applied to channel 1、6、11, recorded the result.

11.3 Measuring Instrument

The following instrument are used for radiated emissions measurement:

Equipment	Manufacturer	Model No.	Next Cal. Due
EMI Test Receiver	Hewlett-Packard	8546A	01/31/2005
Horn Antenna	EMCO	3115	05/09/2005
BiconiLog Antenna	Schwarzbeck	9160	10/18/2004
Horn Antenna	EMCO	3116	06/28/2005
Preamplifier	Hewlett-Packard	8449B	09/17/2005
Spectrum Analyzer	Hewlett-Packard	8564EC	09/16/2005

Measuring instrument setup in measured frequency band when specified detector function is used:

Frequency Band (MHz)	Instrument	Function	Resolution bandwidth	Video Bandwidth
2390 & 2483.5	Spectrum Analyzer	Peak	1 MHz	1 MHz
	Spectrum Analyzer	Average	1 MHz	10 Hz

11.4 Radiated Emission Data

(1) IEEE 802.11b

Test Date: Jun. 18, 2004 Temperature: 24 ℃ Humidity: 59 %

a) Channel 1

Operation Mode: Receiving /Transmitting

Fundamental Frequency: 2412 MHz

Frequency	Reading (dBuV)				Factor	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin	Table Deg.	Ant. High
	H		V		(dB)	Peak	Ave	Peak	Ave.	(dB)	(Deg.)	
(MHz)	Peak	Ave	Peak	Ave	Corr.							(m)
2390.000	---	---	---	---	28.3	---	---	74.0	54.0	---	---	---
2483.500	---	---	---	---	28.3	---	---	74.0	54.0	---	---	---

b) Channel 6

Operation Mode: Receiving / Transmitting

Fundamental Frequency: 2437 MHz

Frequency	Reading (dBuV)				Factor	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin	Table Deg.	Ant. High
	H		V		(dB)	Peak	Ave	Peak	Ave.	(dB)	(Deg.)	
(MHz)	Peak	Ave	Peak	Ave	Corr.							(m)
2390.000	---	---	---	---	28.3	---	---	74.0	54.0	---	---	---
2483.500	---	---	---	---	28.3	---	---	74.0	54.0	---	---	---

c) Channel 11

Operation Mode: Receiving / Transmitting

Fundamental Frequency: 2462 MHz

Frequency	Reading (dBuV)				Factor	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin	Table Deg.	Ant. High
	H		V		(dB)	Peak	Ave	Peak	Ave.	(dB)	(Deg.)	
(MHz)	Peak	Ave	Peak	Ave	Corr.							(m)
2390.000	---	---	---	---	28.3	---	---	74.0	54.0	---	---	---
2483.500	---	---	---	---	28.3	---	---	74.0	54.0	---	---	---

(2) IEEE 802.11g

Test Date: Jun. 18, 2004 Temperature: 24 ℃ Humidity: 59 %

a) Channel 1

Operation Mode: Receiving /Transmitting

Fundamental Frequency: 2412 MHz

Frequency (MHz)	Reading (dBuV) H Peak	H Ave	V Peak	V Ave	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Deg. (Deg.)	Ant. High (m)
2375.730	---	---	---	---	28.3	---	---	74.0	54.0	---	---	---
2485.950	---	---	---	---	28.3	---	---	74.0	54.0	---	---	---

b) Channel 6

Operation Mode: Receiving / Transmitting

Fundamental Frequency: 2437 MHz

Frequency (MHz)	Reading (dBuV) H Peak	H Ave	V Peak	V Ave	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Deg. (Deg.)	Ant. High (m)
2389.300	---	---	---	---	28.3	---	---	74.0	54.0	---	---	---
2489.140	---	---	---	---	28.3	---	---	74.0	54.0	---	---	---

c) Channel 11

Operation Mode: Receiving / Transmitting

Fundamental Frequency: 2462 MHz

Frequency (MHz)	Reading (dBuV) H Peak	H Ave	V Peak	V Ave	Factor (dB) Corr.	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) Ave	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.	Margin (dB)	Table Deg. (Deg.)	Ant. High (m)
2389.500	---	---	---	---	28.3	---	---	74.0	54.0	---	---	---
2488.200	---	---	---	---	28.3	---	---	74.0	54.0	---	---	---