### APPLICATION FOR CERTIFICATION

On Behalf of

Inventec Besta Co., Ltd

**Electronic Dictionary** 

(Within Wireless LAN Module: WM-G-MR-05)

Model No.: Z1

Brand: NURIAN

FCC ID: U6OKA015Z1

Prepared for: Inventec Besta Co., Ltd

10 FL., No. 36, Lane 513, Rui Guang Road, Nei Hu Dist., Taipei 114, Taiwan, R.O.C.

Prepared by: Audix Technology Corporation

**EMC** Department

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File Number : EM960403 Report Number : EM-F960142

Date of Test : Mar. 21 ~ Apr. 04, 2007

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# TABLE OF CONTENTS

Description	<u>Page</u>
TEST REPORT CERTIFICATION	4
1. GENERAL INFORMATION	5
1.1. Description of Device (EUT)	
1.2. Tested Supporting System Details	
1.3. Description of Test Facility	6
1.4. Measurement Uncertainty	6
2. POWERLINE CONDUCTED EMISSION MEASUR	EMENT7
2.1. Test Equipment	7
2.2. Block Diagram of Test Setup	
2.3. Conducted Emission Limits (§15.207)	
2.4. Operating Condition of EUT	
2.5. Test Procedure	
2.6. Conducted Emission Measurement Results	
3. RADIATED EMISSION MEASUREMENT	
3.1. Test Equipment	
3.2. Block Diagram of Test Setup	
3.3. Radiated Emission Limits (§15.209)	
3.5. Test Procedure	
3.6. Radiated Emission Measurement Results	
4. 6dB BANDWIDTH MEASUREMENT	
4.1. Test Equipment	
4.2. Block Diagram of Test Setup	
4.3. Specification Limits (§15.247(a)(2))	
4.4. Operating Condition of EUT	
4.5. Test Procedure	57
4.6. Test Results	
5. MAXIMUM PEAK OUTPUT POWER MEASUREMENT	62
5.1. Test Equipment	62
5.2. Block Diagram of Test Setup	
5.3. Specification Limits (§15.247(b)(3))	
5.4. Operating Condition of EUT	
5.5. Test Procedure	
5.6. Test Results	
6. EMISSION LIMITATIONS MEASUREMENT	
6.1. Test Equipment	
<ul><li>6.2. Block Diagram of Test Setup</li><li>6.3. Specification Limits (§15.247(c))</li></ul>	
6.4. Operating Condition of EUT	
6.5. Test Procedure	
6.6. Test Results	
7. BAND EDGES MEASUREMENT	
7.1. Test Equipment	
7.2. Block Diagram of Test Setup	

	7.3. S <sub>1</sub>	pecification Limits (§15.247(c))	69
	7.4. O	perating Condition of EUT	69
	7.5. Te	est Procedure	69
		est Results	
8.	POW	ER SPECTRAL DENSITY MEASUREMENT	72
	8.1. Te	est Equipment	72
		lock Diagram of Test Setup	
		pecification Limits (§15.247(d))	
		perating Condition of EUT	
		est Procedure	
		est Results	
9.	DEVI	ATION TO TEST SPECIFICATIONS	70
1(	). F	PHOTOGRAPHS	7′
	10.1.	Photos of Powerline Conducted Emission Measurement	7′
	10.2.	Photos of Radiated Measurement at Semi-Anechoic Chamber	
	10.3.	Photo of 6dB Bandwidth Measurement (Conducted)	80
	10.4.	Photo of Maximum Peak Output Power Measurement (Conducted)	80
	10.5.	Photo of Emission Limitations Measurement (Conducted)	8
	10.6.	Photo of Band Edges Measurement (Conducted)	
	10.7	Photo of Power Spectral Density Measurement (Conducted)	<b>Q</b> ′
	10.7.	Thoto of Fower Spectral Density Weasurement (Conducted)	

Appendix (Radiated Emission Measurement for Frequency Range 2680MHz-18000MHz)

# TEST REPORT CERTIFICATION

Applicant : Inventec Besta Co., Ltd

Manufacturer : Sinobond Electronic Co., Ltd.

EUT Description : Electronic Dictionary

(Within Wireless LAN Module: WM-G-MR-05)

(A) MODEL NO. : Z1 (B) SERIAL NO. : N/A

(C) BRAND : NURIAN

(D) POWER SUPPLY : (1)DC 5V (Via Power Supply)

(2)DC 3.7V (Via Battery)

(E) TEST VOLTAGE : AC 120V, 60Hz (Via Power Supply)

Measurement Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART C, OCTOBER 2006 AND ANSI C63.4/2003

(FCC CFR 47 Part 15C, §15.205, §15.207, §15.209 and §15.247)

The device described above was tested by AUDIX TECHNOLOGY COPORATION to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C limits.

The measurement results are contained in this test report and AUDIX TECHNOLOGY COPORATION is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC official limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY COPORATION.

Date of Test: Mar.  $21 \sim Apr. 04, 2007$ 

(Nita Lee/Assistant Administrator)

(Ben Cheng/Section Manager)

Approved & Authorized Signer: Alon Lie Jul. 26 2007

(Leon Liu/Vice President)

### 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

Description : Electronic Dictionary

(Within Wireless LAN Module: WM-G-MR-05)

Model Number : Z1

FCC ID : U6OKA015Z1

Brand : NURIAN

Applicant : Inventec Besta Co., Ltd

10 FL., No. 36, Lane 513, Rui Guang Road, Nei Hu Dist., Taipei 114, Taiwan, R.O.C.

Manufacturer : Sinobond Electronic Co., Ltd.

Wu Sha Cai Wu 6<sup>th</sup> Industrial Zone, Changan Town, Dongguan City, Guangdong Province,

P.R.C.

Fundamental Range :  $2400MHz \sim 2483.5MHz (802.11b/g)$ 

Channel Number : 11 (802.11b/g)

Radio Technology : WLAN: 802.11b DSSS Modulation

802.11g OFDM Modulation

Data Rate	802.11b	1, 2, 5.5, 11 MB/Sec.
	802.11g	6, 9, 12, 18, 24, 36, 48, 54 MB/Sec.

Antenna Gain : -1.23dBi

Lithium Battery : TIAN YU, M/N KA015

3.7V/1900mAh

Wireless LAN Module : WM-G-MR-05

Power Supply : ENG, M/N: 3A-041WU05A

(2Pin) Input: 100-240V~, 50-60Hz, 0.2A

Output: DC 5V, 1A

Cable: Non-Shielded, Undetachable, 1.8m

Bonded a ferrite core

Date of Receipt of Sample : Mar. 19, 2007

Date of Test : Mar. 21 ~ Apr. 04, 2007

# 1.2. Tested Supporting System Details

#### 1.2.1. POWER SOCKET

Model Number : N/A
Manufacturer : N/A

Power Cord : Non-Shielded, Undetachable, 1.2m

# 1.3.Description of Test Facility

Name of Firm : Audix Technology Corporation

**EMC Department** 

No. 53-11, Tin-Fu Tsun, Lin-Kou, Taipei County, Taiwan, R.O.C.

Test Location & Facility

(C2/Semi-AC)

No. 2 Shielded Room

No. 53-11, Tin-Fu Tsun, Lin-Kou, Taipei County, Taiwan, R.O.C. **Semi-Anechoic Chamber** 

Federal Communication Commission

Registration Number: 90993 Filing on May 16, 2006

No. 53-11, Tin-Fu Tsun, Lin-Kou, Taipei County, Taiwan, R.O.C.

NVLAP Lab. Code : 200077-0

(NVLAP is a NATA accredited body under Mutual Recognition Agreement)

### 1.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Conduction Test	150kHz~30MHz	±1.73dB
	30MHz~300MHz	±2.91dB
Radiation Test (Distance: 3m)	300MHz~1000MHz	±2.94dB
(Distance, 3111)	Above 1GHz	± 5.02dB

Remark: Uncertainty =  $ku_c(y)$ 

Test Item	Uncertainty
6dB Bandwidth	± 1kHz
Maximum peak Output power	± 0.52dBm
Emission Limitations	± 0.13dB
Band Edges	± 0.13dB
Power spectral Density	± 0.33dB

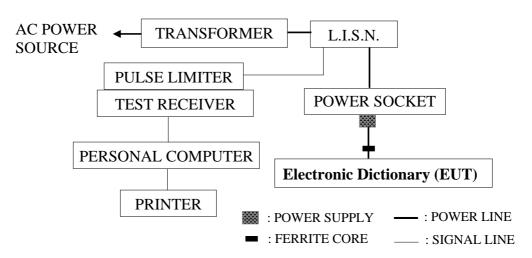
### 2. POWERLINE CONDUCTED EMISSION MEASUREMENT

# 2.1. Test Equipment

The following test equipment were used during the power line conducted measurement: (No. 2 Shielded Room)

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	. Test Receiver Rohde & Schwarz		ESCS 30	100265	Sep. 19, 06'	Sep. 18, 07'
2.	L.I.S.N.	Kyoritsu	KNW-407	8-855-9	Apr. 19, 06'	Apr. 18, 07'
3.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	001	Mar. 10, 07'	Mar. 09, 08'

# 2.2. Block Diagram of Test Setup



# 2.3. Conducted Emission Limits (§15.207)

Frequency	Maximum RF Line Voltage			
	Quasi-Peak Level	Average Level		
150kHz ~ 500kHz	66 ~ 56 dBμV	56 ~ 46 dBμV		
500kHz ~ 5MHz	56 dBμV	46 dBμV		
5MHz ~ 30MHz	60 dBµV	50 dBµV		

Remark1.: If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.

2.: The lower limit applies at the band edges.

### 2.4. Operating Condition of EUT

- 2.4.1. Setup the EUT and simulator as shown on 2.2.
- 2.4.2. Turn on the power of all equipment.
- 2.4.3. Run the test program "MyLab Tool", 802.11b data rate set at 1MB/sec. and 802.11g data rate set at 6MB/sec. during the testing.

#### 2.5.Test Procedure

The EUT was put on table which was above the ground by 80cm and its power cord was connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provided a 50 ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.) Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions simulators of the interface cables should be manipulated according to FCC ANSI C63.4-2003 during conducted measurement.

The bandwidth of the R&S Test Receiver ESCS30 was set at 9kHz.

The frequency range from 150kHz to 30MHz was checked.

All the final readings from Test Receiver were measured with the Quasi-Peak detector and Average detector. (Remark: If the Average limit is met when using a Quasi-Peak detector, the Average detector is unnecessary)

#### 2.6. Conducted Emission Measurement Results

#### PASSED.

All emissions not reported below are too low against the prescribed limits.

EUT with following test modes was measured during the conducted emission measurement and selected the **worst test mode** (**Mode 2**) to read Q.P. value, all the test results are listed in next pages.

EUT: Electronic Dictionary M/N: Z1

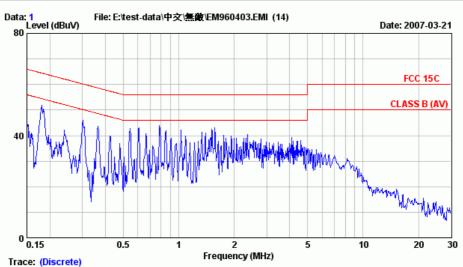
Test Date: Mar. 21, 2007 Temperature: 17 Humidity: 63%

The details of test modes and reference test data are as follows:

No.	Frequency	Test Mode	Reference Test Data No.		
		Test Mode	Neutral	Line	
1.	TX 2437MHz	WLAN (802.11b)	# 1	# 2	
2.	TX 2437MHz	WLAN (802.11g)	#8	# 7	

worst test mode)





Site : No.2 Shielded room

Data : KNW-407 : NEUTRAL Phase

: FCC 15B-B Limit

Condition

: 17\*C,63% / ESCS 30 Env. / Ins. Engineer: Ada Huang

EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2437 (802.11b)



AUDIX TECHNOLOGY Corp. EMC Laboratory No 53-11, Tin-fu Tsun, Lin-kou Hsiang, Taipei County, Taiwan R.O.C. Post Code:24443 Tel:02-26092133 Fax:02-26099303 Email:ttemc@ttemc.com.tw

Data: 2 Level (dBuV) File: E:\test-data\中文\無敵\EM960403.EMI (14) Date: 2007-03-21 FCC 15C CLASS B (AV) 0.5 2 5 10 20 30 Frequency (MHz) Trace: (Discrete) : No.2 Shielded room Data

Site Condition : KNW-407 : LINE Phase

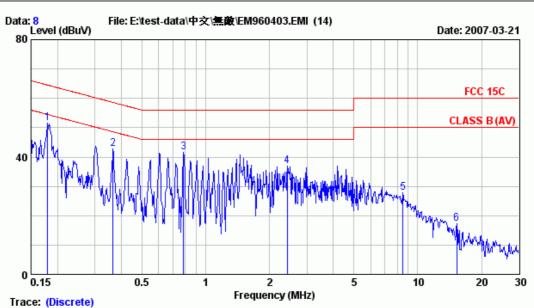
: FCC 15B-B Limit

Env. / Ins. : 17\*C,63% / ESCS 30 Engineer: Ada Huang

EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2437 (802.11b)





Site : No.2 Shielded room Data

Condition : KNW-407 Phase : NEUTRAL

Limit : FCC 15B-B

Env. / Ins. : 17\*C,63% / ESCS 30 Engineer: Ada Huang

EUT : Electronic Dictionary M/N:Z1

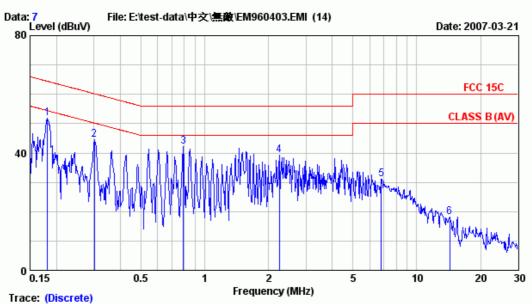
Power Rating : 120Vac/60Hz Test Mode : TX2437 (802.11g)

		Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBµV)		Limits	Margin (dB)	Remark	
-										
	1	0.180	0.24	0.25	51.03	51.52	64.50	12.99	QР	
	2	0.365	0.11	0.31	42.41	42.84	58.61	15.77	QР	
	3	0.788	0.10	0.38	41.02	41.50	56.00	14.50	QР	
	4	2.422	0.10	0.40	36.50	37.00	56.00	19.00	QР	
	5	8.501	0.10	0.65	27.05	27.80	60.00	32.20	QР	
	6	15.307	0.21	0.70	16.45	17.36	60.00	42.64	QР	

Remarks: 1.Emission Level= LISN Factor + Cable Loss + Reading.

2.If the average limit is met when using a quasi-peak detector ,the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.





Site : No.2 Shielded room Data : 7
Condition : KNW-407 Phase : LINE

Limit : FCC 15B-B

Env. / Ins. : 17\*C,63% / ESCS 30 Engineer: Ada Huang

EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2437 (802.11g)

	Freq.	LISN Factor (dB)	Cable Loss (dB)	Reading (dBµV)		Limits	Margin dB)	Remark	
 					(шору) 		·		
1	0.182	0.23	0.25	51.49	51.98	64.42	12.44	QР	
2	0.302	0.14	0.30	44.03	44.47	60.19	15.72	QP	
3	0.792	0.10	0.38	41.77	42.25	56.00	13.75	QР	
4	2.249	0.10	0.40	38.82	39.32	56.00	16.68	QР	
5	6.805	0.16	0.57	30.35	31.08	60.00	28.92	QР	
6	14.288	0.20	0.70	17.24	18.14	60.00	41.86	QР	

 $\begin{tabular}{ll} \textbf{Remarks: 1.Emission Level= LISN Factor + Cable Loss + Reading.} \end{tabular}$ 

2.If the average limit is met when using a quasi-peak detector ,the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

# 3. RADIATED EMISSION MEASUREMENT

# 3.1. Test Equipment

The following test equipment was used during the radiated emission measurement:

### 3.1.1. For Frequency Range 30MHz-1000MHz (Semi-Anechoic Chamber)

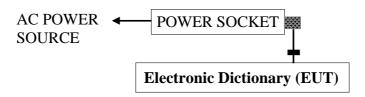
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer HP		8593EM	3826A00248	Aug. 23, 06'	Aug. 22, 07'
2.	. Test Receiver R & S		ESCS30	100339	Mar. 22, 07'	Mar. 21, 08'
3.	Pre-Amplifier	HP	8447D	2944A06669	Jul. 26, 06'	Jul. 25, 07'
4.	. Biconical Antenna CHASE		VBA6106A	1264	Apr. 19, 06'	Apr. 18, 07'
5.	Log Periodic	Schwarzbeck	UHALP91	0139	Apr. 19, 06'	Apr. 18, 07'
	Antenna		08-A			

### 3.1.2. For Frequency Above 1GHz (Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	HP	8593EM	3826A00248	Aug. 23, 06'	Aug. 22, 07'
2.	. Pre-Amplifier HP		8449B	3008A01284	Jun. 30, 06'	Jun. 29, 07'
3.	2.4G Notch Filter	EWT	EWT-14-0	G2	Dec. 08, 06'	Dec. 07, 07'
			070			
4.	Horn Antenna	EMCO	3115	9112-3775	Jun. 01, 06'	May 31, 07'
5.	Horn Antenna	EMCO	3116	2653	Oct. 04, 04'	Oct. 03, 07'

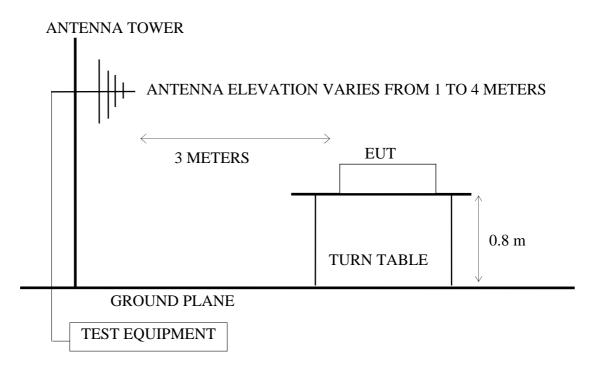
# 3.2. Block Diagram of Test Setup

#### 3.2.1. Block Diagram of connection between EUT and simulators

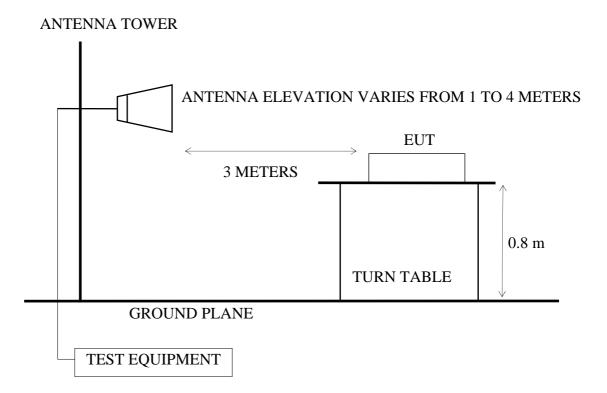


■ : FERRITE CORE■ : POWER SUPPLY■ : POWER LINE■ : SIGNAL LINE

### 3.2.2. Semi-Anechoic Chamber (3m) Setup Diagram for 30-1000MHz



### 3.2.3. Semi-Anechoic Chamber (3m) Setup Diagram for above 1GHz



### 3.3. Radiated Emission Limits (§15.209)

FREQUENCY	DISTANCE	FIELD STREN	GTHS LIMITS
MHz	Meters	μV/m	dBµV/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0
Above 1000	3	74.0 dBµV	V/m (Peak)
		54.0 dBµV/1	m (Average)

Remark: (1) Emission level ( $dB\mu V/m$ ) = 20 log Emission level ( $\mu V/m$ )

- (2) The tighter limit applies at the edge between two frequency bands.
- (3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
- (4) The limits in this table are based on CFR 47 Part 15.205(a)(b) and Part 15.209 (a).
- (5) The over 1GHz limit, FCC limit is used based on CFR 47 Part 15.35 (b) and Part 15.205(b) & Part 15.209(e) and Part 15.207(c).

# 3.4. Operating Condition of EUT

- 3.4.1. Setup the EUT and simulator as shown on 3.2.
- 3.4.2. Turn on the power of all equipment.
- 3.4.3. Run the test program "MyLab Tool", 802.11b data rate set at 1MB/sec. and 802.11g data rate set at 6MB/sec. during the testing.

#### 3.5. Test Procedure

The EUT and its simulators were placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set to 3 meters away from the receiving antenna which was mounted on an antenna tower. The antenna was moved up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna such as calibrated biconical and log-periodical antenna or horn antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to FCC ANSI C63.4-2003 regulation.

The bandwidth of the R&S Test Receiver ESCS30 was set at 120kHz. (For 30MHz to 1000MHz)

The resolution bandwidth and video bandwidth of test spectrum analyzer is 1MHz for peak detection (PK) at frequency above 1GHz.

The resolution bandwidth of test spectrum analyzer is 1MHz and the video bandwidth is 10Hz for average detection (AV) at frequency above 1GHz.

The frequency range from 30MHz to 25GHz (Up to 10<sup>th</sup> harmonics from fundamental frequency) was checked.

### 3.6. Radiated Emission Measurement Results

**PASSED.** All the emissions not reported below are too low against the official limits.

EUT: Electronic Dictionary M/N: Z1

Test Date: Apr. 04, 2007 Temperature: 19 Humidity: 49 %

### For Frequency Range 30MHz~1000MHz:

EUT with following test modes was performed during this section testing and all the test results are listed in section 3.6.1.

No		Test Mode and l	Ema ayyan ayy	Reference T	est Data No.
No.		Test Mode and	Horizontal	Vertical	
1.			2412MHz (CH1)	# 9	# 10
2.	WLAN	Transmitting	2437MHz (CH6)	# 9	# 10
3.	(802.11b)		2462MHz (CH11)	# 10	# 9
4.		Receiver	2437MHz (CH6)	# 10	# 9
5.			2412MHz (CH1)	# 10	# 9
6.	WLAN	Transmitting	2437MHz (CH6)	# 9	# 10
7.	(802.11g)		2462MHz (CH11)	# 10	# 9
8.		Receiver	2437MHz (CH6)	# 9	# 10

<sup>\*</sup> Above all final readings were measured with Quasi-Peak detector.

### For Frequency above 1GHz:

Test Date: Apr. 04, 2007 Temperature: 19 Humidity: 49 %

EUT with following test modes was performed during this section testing and all the test results are listed in section 3.6.2.

No.	Test Mode and Frequency									
1.			2412MHz (CH1)							
2.	WLAN	Transmitting	2437MHz (CH6)							
3.	(802.11b)		2462MHz (CH11)							
4.		Receiver	2437MHz (CH6)							
5.			2412MHz (CH1)							
6.	WLAN	Transmitting	2437MHz (CH6)							
7.	(802.11g)		2462MHz (CH11)							
8.		Receiver	2437MHz (CH6)							

<sup>\*</sup> Above all final readings were measured with Peak detector and Average detector.

### **For Restricted Bands:**

Test Date: Apr. 04, 2007 Temperature: 19 Humidity: 49 %

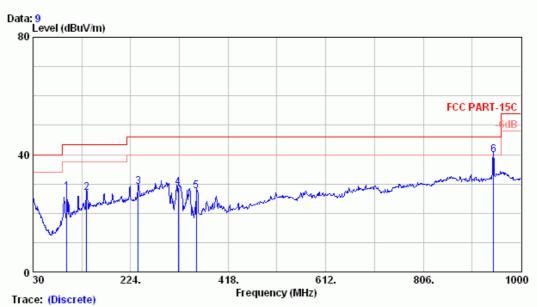
The EUT was tested in restricted bands and all the test results are listed in section 3.6.3. (The restricted bands defined in RSS-210, Table 1)

No.	,	Test Mode and F	Reference Test Data No.		
NO.		rest whode and r	Horizontal	Vertical	
1.	WLAN	Transmitting	2412MHz (CH1)	# 9, # 18	# 10 # 17
2.	(802.11b)	Transmitting	2462MHz (CH11)	# 16, # 19	# 15 # 20
3.	WLAN	Transmitting	2412MHz (CH1)	# 16, # 22	# 15, # 23
4.	(802.11g)	Transmitting	2462MHz (CH11)	# 10, # 21	# 9 # 20

### 3.6.1. Frequency Range 30MHz-1000MHz Measurement Result



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Site no. : A/C Chamber Data no. : 9

Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL

Limit : FCC PART-15C

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2412(802.11b)

		Ant.	Cable		Emissio	n		
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)	
1	96.930	16.75	2.05	8.49	27.29	43.50	16.21	
2	136.700	19.97	2.40	4.61	26.98	43.50	16.52	
3	239.520	23.03	3.40	2.71	29.14	46.00	16.86	
4	319.060	14.93	4.10	9.72	28.75	46.00	17.25	
5	354.950	15.69	4.37	7.38	27.44	46.00	18.56	
6	945.680	25.68	7.50	6.56	39.74	46.00	6.26	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 10

Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : VERTICAL

Limit : FCC PART-15C

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

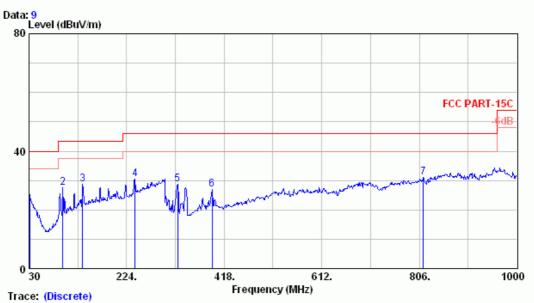
EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2412(802.11b)

		Ant.	Cable		Emissio	n		
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)	
1	33.880	23.12	1.10	2.73	26.95	40.00	13.05	
2	171.620	21.04	2.80	5.38	29.22	43.50	14.28	
3	189.080	21.46	2.90	5.12	29.48	43.50	14.02	
4	330.700	15.32	4.20	10.87	30.39	46.00	15.61	
5	537.310	19.41	7.10	1.61	28.12	46.00	17.88	
6	676.990	22.90	6.40	2.63	31.93	46.00	14.07	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 9

Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL

Limit : FCC PART-15C

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

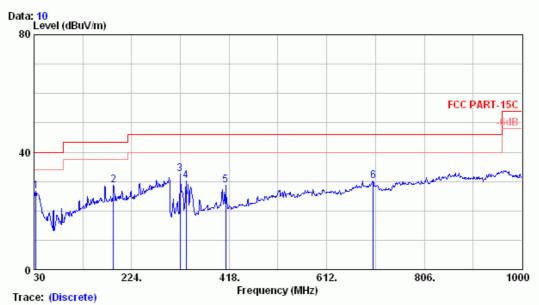
EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2437(802.11b)

			Ant.	Cable		Emissio	n		
		Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
		(MHz)	(dB/m)	(dB)	(dBµV)	(dBμV/m)	(dBμV/m)	(dB)	
-									
	1	30.970	24.81	1.10	-0.85	25.06	40.00	14.94	
	2	96.930	16.75	2.05	8.89	27.69	43.50	15.81	
	3	136.700	19.97	2.40	6.24	28.61	43.50	14.89	
	4	240.490	23.10	3.40	3.99	30.49	46.00	15.51	
	5	325.850	15.15	4.20	9.25	28.60	46.00	17.40	
	6	393.750	17.56	4.70	4.74	27.00	46.00	19.00	
	7	813.760	23.98	7.00	0.20	31.18	46.00	14.82	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 10
Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : VERTICAL

Limit : FCC PART-15C

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

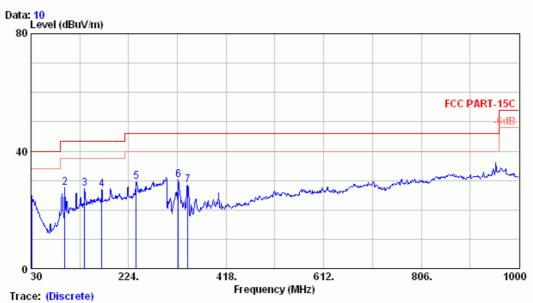
EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2437(802.11b)

		Ant.	Cable		Emissio	n		
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBµV)	(dBµV/m)	(dBμV/m)	(dB)	
1	33.880	23.12	1.10	2.55	26.77	40.00	13.23	
2	188.110	21.43	2.90	4.45	28.78	43.50	14.72	
3	320.030	14.99	4.20	13.46	32.64	46.00	13.36	
4	332.640	15.21	4.20	10.75	30.16	46.00	15.84	
5	411.210	17.15	4.90	6.54	28.59	46.00	17.41	
6	704.150	23.56	6.60	0.07	30.23	46.00	15.77	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 10

Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL

Limit : FCC PART-15C

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

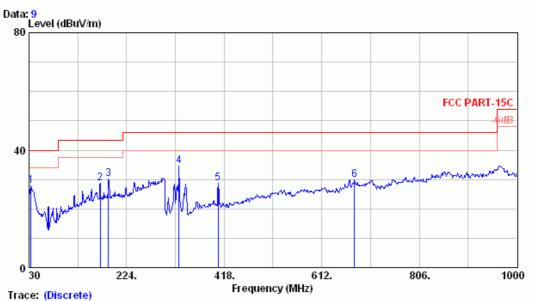
EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2462(802.11b)

			Ant.	Cable		Emissio	n			
		Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark	
		(MHz)	(dB/m)	(dB)	(dBµV)	(dBμV/m)	(dBμV/m)	(dB)		
_										-
	1	30.970	24.81	1.10	-1.06	24.85	40.00	15.15		
	2	96.930	16.75	2.05	8.63	27.43	43.50	16.07		
	3	136.700	19.97	2.40	4.90	27.27	43.50	16.23		
	4	170.650	21.03	2.80	3.24	27.06	43.50	16.44		
	5	239.520	23.03	3.40	3.15	29.58	46.00	16.42		
	6	322.940	15.08	4.15	11.07	30.30	46.00	15.70		
	7	341.370	15.06	4.30	9.14	28.50	46.00	17.50		

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 9

Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : VERTICAL

Limit : FCC PART-15C

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

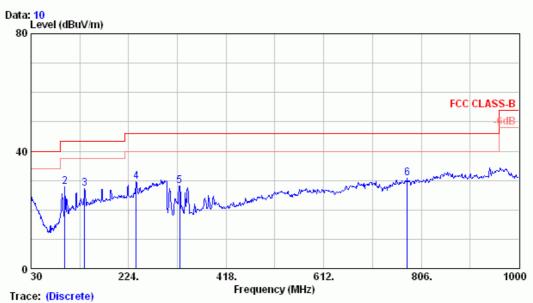
EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2462(802.11b)

		Ant.	Cable		Emissio	n		
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBµV)	(dBμV/m)	(dBμV/m)	(dB)	
1	33.880	23.12	1.10	3.58	27.80	40.00	12.20	
2	171.620	21.04	2.80	4.95	28.79	43.50	14.71	
3	188.110	21.43	2.90	5.83	30.16	43.50	13.34	
4	327.790	15.28	4.10	15.21	34.59	46.00	11.41	
5	406.360	17.35	4.90	6.58	28.83	46.00	17.17	
6	676.990	22.90	6.40	0.60	29.90	46.00	16.10	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 10

Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL

Limit : FCC CLASS-B

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

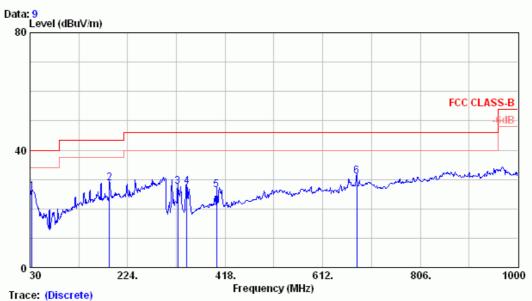
EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : RX2437(802.11b)

		Ant.	Cable		Emissio	n		
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBµV)	(dBμV/m)	(dBμV/m)	(dB)	
1	30.000	24.86	1.10	-1.62	24.34	40.00	15.66	
2	96.930	16.75	2.05	9.08	27.88	43.50	15.62	
3	136.700	19.97	2.40	4.99	27.36	43.50	16.14	
4	239.520	23.03	3.40	3.22	29.65	46.00	16.35	
5	325.850	15.15	4.20	8.74	28.09	46.00	17.91	
6	777.870	24.18	6.80	-0.14	30.85	46.00	15.15	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 9

Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : VERTICAL

Limit : FCC CLASS-B

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

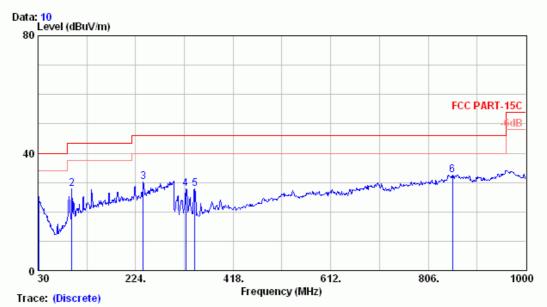
EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : RX2437(802.11b)

		Ant.	Cable		Emissio	n		
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)	
1	33.880	23.12	1.10	1.64	25.86	40.00	14.14	
2	188.110	21.43	2.90	4.44	28.77	43.50	14.73	
3	323.910	15.10	4.14	8.42	27.66	46.00	18.34	
4	341.370	15.06	4.30	8.12	27.48	46.00	18.52	
5	400.540	17.66	4.80	3.94	26.40	46.00	19.60	
6	679.900	22.97	6.40	1.67	31.03	46.00	14.97	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 10

Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL

Limit : FCC PART-15C

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

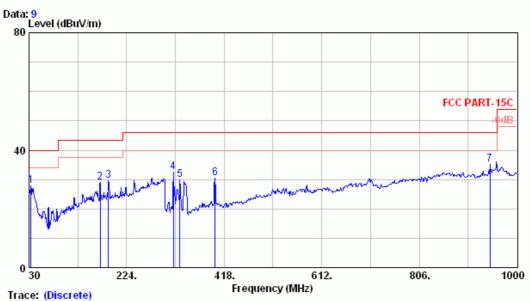
EUT : Electronic Dictionary M/N:Z1

Power Rating: 120Vac/60Hz Test Mode: TX2412(802.11g)

		Ant.	Cable		Emissio	n		
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBµV)	(dBμV/m)	(dBμV/m)	(dB)	
1	30.970	24.81	1.10	-0.83	25.08	40.00	14.92	
2	96.930	16.75	2.05	8.92	27.72	43.50	15.78	
3	239.520	23.03	3.40	3.69	30.12	46.00	15.88	
4	323.910	15.10	4.14	8.58	27.82	46.00	18.18	
5	341.370	15.06	4.30	8.49	27.85	46.00	18.15	
6	854.500	25.81	7.10	-0.32	32.59	46.00	13.41	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 9

Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : VERTICAL

Limit : FCC PART-15C

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

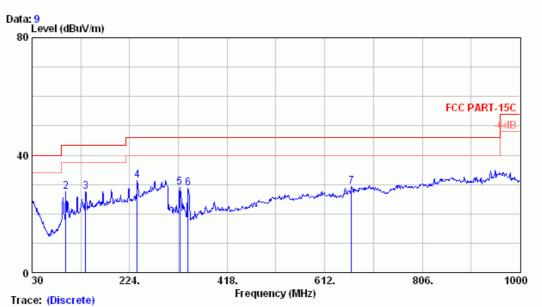
EUT : Electronic Dictionary M/N:Z1

Power Rating: 120Vac/60Hz Test Mode: TX2412(802.11g)

			Ant.	Cable		Emissio	n			
		Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark	
		$(\mathtt{MHz})$	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)		
-										-
	1	33.880	23.12	1.10	3.58	27.80	40.00	12.20		
	2	171.620	21.04	2.80	5.08	28.92	43.50	14.58		
	3	188.110	21.43	2.90	5.25	29.58	43.50	13.92		
	4	317.120	14.80	4.10	13.52	32.42	46.00	13.58		
	5	329.730	15.36	4.14	10.33	29.83	46.00	16.17		
	6	399.570	17.69	4.80	8.01	30.49	46.00	15.51		
	7	946.650	25.76	7.50	1.89	35.15	46.00	10.85		

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 9

Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL

Limit : FCC PART-15C

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

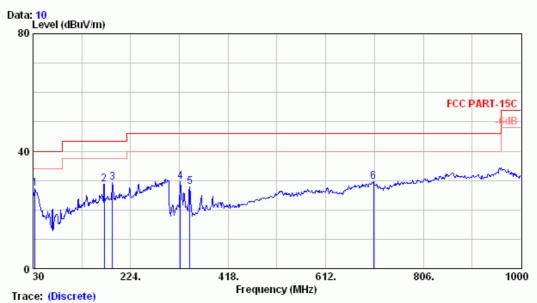
EUT : Electronic Dictionary M/N:Z1

Power Rating: 120Vac/60Hz Test Mode: TX2437(802.11g)

			Ant.	Cable		Emissio	n		
		Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
		(MHz)	(dB/m)	(dB)	(dBµV)	(dBμV/m)	$(dB\mu V/m)$	(dB)	
_			24 07	1 10	1 40	04 47	40.00	15 50	
	Τ	30.000	24.86	1.10	-1.49	24.47	40.00	15.53	
	2	96.930	16.75	2.05	8.80	27.60	43.50	15.90	
	3	136.700	19.97	2.40	5.30	27.67	43.50	15.83	
	4	239.520	23.03	3.40	4.96	31.39	46.00	14.61	
	5	323.910	15.10	4.14	9.65	28.89	46.00	17.11	
	6	340.400	15.08	4.30	9.27	28.65	46.00	17.35	
	7	665.350	22.65	6.40	0.38	29.43	46.00	16.57	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 10
Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : VERTICAL

Limit : FCC PART-15C

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

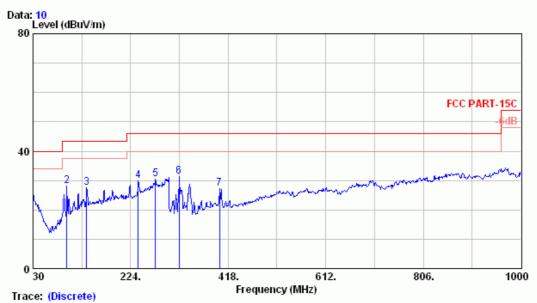
EUT : Electronic Dictionary M/N:Z1

Power Rating: 120Vac/60Hz Test Mode: TX2437(802.11g)

		Ant.	Cable		Emissio	n		
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)	
1	33.880	23.12	1.10	2.89	27.11	40.00	12.89	
2	171.620	21.04	2.80	4.88	28.72	43.50	14.78	
3	188.110	21.43	2.90	5.03	29.36	43.50	14.14	
4	322.940	15.08	4.15	10.47	29.70	46.00	16.30	
5	341.370	15.06	4.30	8.60	27.96	46.00	18.04	
6	707.060	23.55	6.60	-0.67	29.48	46.00	16.52	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 10

Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL

Limit : FCC PART-15C

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

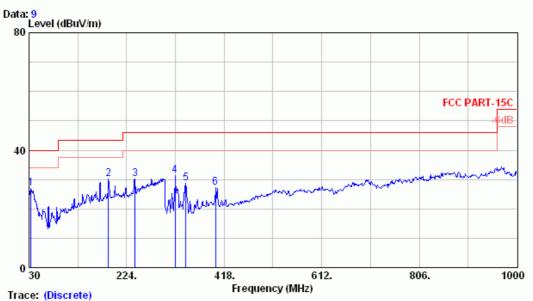
EUT : Electronic Dictionary M/N:Z1

Power Rating: 120Vac/60Hz Test Mode: TX2462(802.11g)

			Ant.	Cable		Emissio	n			
		Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark	
		(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)		
-										
	1	30.000	24.86	1.10	-0.78	25.18	40.00	14.82		
	2	96.930	16.75	2.05	9.20	28.00	43.50	15.50		
	3	136.700	19.97	2.40	5.09	27.46	43.50	16.04		
	4	239.520	23.03	3.40	3.46	29.89	46.00	16.11		
	5	273.470	25.14	3.70	1.55	30.39	46.00	15.61		
	6	320.030	14.99	4.20	12.11	31.29	46.00	14.71		
	7	400.540	17.66	4.80	4.66	27.12	46.00	18.88		

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 9

Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : VERTICAL

Limit : FCC PART-15C

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

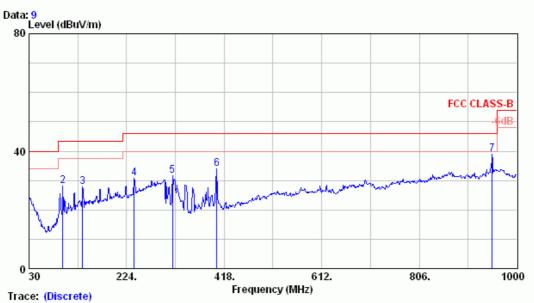
EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2462(802.11g)

		Ant.	Cable		Emissio	n		
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBµV)	(dBμV/m)	(dBμV/m)	(dB)	
1	33.880	23.12	1.10	2.66	26.88	40.00	13.12	
2	188.110	21.43	2.90	5.85	30.18	43.50	13.32	
3	240.490	23.10	3.40	3.72	30.22	46.00	15.78	
4	320.030	14.99	4.20	12.11	31.29	46.00	14.71	
5	341.370	15.06	4.30	9.40	28.76	46.00	17.24	
6	400.540	17.66	4.80	4.66	27.12	46.00	18.88	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 9

Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL

Limit : FCC CLASS-B

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

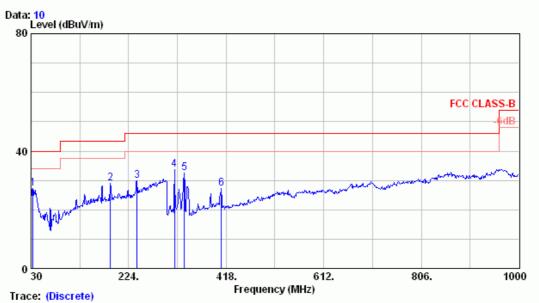
EUT : Electronic Dictionary M/N:Z1

Power Rating: 120Vac/60Hz Test Mode: RX2437(802.11g)

		Ant.	Cable		Emissio	n		
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBµV)	(dBμV/m)	(dBμV/m)	(dB)	
 		24 07	1 10	1 //	24 20	40.00	15 70	
Τ.	30.000	24.86	1.10	-1.66	24.30	40.00	15.70	
2	96.930	16.75	2.05	9.31	28.11	43.50	15.39	
3	136.700	19.97	2.40	5.55	27.92	43.50	15.58	
4	239.520	23.03	3.40	4.45	30.88	46.00	15.12	
5	315.180	14.71	4.01	13.00	31.72	46.00	14.28	
6	403.450	17.54	4.90	11.53	33.96	46.00	12.04	
7	950.530	25.93	7.55	5.42	38.91	46.00	7.09	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.





Site no. : A/C Chamber Data no. : 10
Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : VERTICAL

Limit : FCC CLASS-B

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

EUT : Electronic Dictionary M/N:Z1

Power Rating: 120Vac/60Hz Test Mode: RX2437(802.11g)

		Ant.	Cable		Emissio	n		
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBµV)	(dBμV/m)	(dBμV/m)	(dB)	
1	33.880	23.12	1.10	3.08	27.30	40.00	12.70	
2	188.110	21.43	2.90	4.70	29.03	43.50	14.47	
3	240.490	23.10	3.40	3.51	30.01	46.00	15.99	
4	315.180	14.71	4.01	14.99	33.71	46.00	12.29	
5	334.580	15.09	4.20	13.31	32.60	46.00	13.40	
6	408.300	17.28	4.90	5.10	27.27	46.00	18.73	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

### 3.6.2. Frequency Range Above 1GHz Measurement Results

3.6.2.1. WLAN (802.11b)

Date of Test:	Apr. 04, 2007	Temperature:	19
		_	

EUT: Electronic Dictionary Humidity: 49%

Test Mode: Transmitting Mode, Frequency: 2412MHz (CH1)

Test Voltage: AC 120V, 60Hz

Horizontal							
Freq. (MHz)	Ant. Factor (dB/m)		Reading (dBµV)			Margin (dB)	Remark
1700.560	26.46	6.83	8.28	41.57	74.00	32.43	Peak
2061.760	27.93	5.94	7.52	41.40	74.00	32.60	Peak
1700.560	26.46	6.83	0.28	33.57	54.00	20.43	Average
2061.760	27.93	5.94	-0.48	33.40	54.00	20.60	Average

Vertical							
Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)			Margin	Remark
1720.720	26.55	6.96	7.11	40.62	74.00	33.38	Peak
2065.120	27.94	5.94	7.01	40.90	74.00	33.10	Peak
1720.720	26.55	6.96	-0.89	32.62	54.00	21.38	Average
2065.120	27.94	5.94	-0.99	32.90	54.00	21.10	Average

<sup>2.</sup> Measurement was up to 25GHz, but the emissions level were too low against the official limit and not report.

Date of Test:	Apr. 04, 2007	Temperature:	19

EUT: Electronic Dictionary Humidity: 49%

Test Mode: Transmitting Mode, Frequency: 2437MHz (CH6) Test Voltage: AC 120V, 60Hz

Horizontal
------------

Freq. (MHz)	Ant. Factor (dB/m)		Reading (dBμV)			Margin (dB)	Remark
1414.960	25.37	5.18	7.90	38.46	74.00	35.54	Peak
1947.520	27.58	6.11	7.97	41.66	74.00	32.34	Peak
1414.960	25.37	5.18	-0.10	30.46	54.00	23.54	Average
1947.520	27.58	6.11	-0.03	33.66	54.00	20.34	Average

### Vertical

Freq.	Ant. Factor (dB/m)		Reading (dBµV)			Margin (dB)	Remark
1099.120 1897.120	25.25 27.37	4.39 6.38	9.85 7.77	39.49 41.52	74.00 74.00	34.51 32.48	Peak Peak
1099.120 1897.120	25.25 27.37	4.39 6.38	1.85 -0.23	31.49 33.52	54.00 54.00		 Average Average

<sup>2.</sup> Measurement was up to 25GHz, but the emissions level were too low against the official limit and not report.

Date of Test: Apr. 04, 2007 Temperature: 19

EUT: Electronic Dictionary Humidity: 49%

Test Mode: Transmitting Mode, Frequency: 2462MHz (CH11) Test Voltage: AC 120V, 60Hz

#### Horizontal

Freq. (MHz)	Ant. Factor (dB/m)		Reading (dBμV)		Dimits (dBµV/m) (	Margin	Remark
1687.120 2065.120	26.38 27.94	6.76 5.94	7.89 7.88	41.03 41.77	74.00 74.00	32.97 32.23	Peak Peak
	26.38 27.94	6.76 5.94	-0.11 -0.12	33.03 33.77	54.00 54.00		Average Average

### Vertical

Freq. (MHz)	Ant. Factor (dB/m)		Reading (dBµV)			Margin (dB)	Remark
1641.760	26.17	6.41	7.89	40.47	74.00	33.53	Peak
1981.120	27.73	5.98	7.17	40.87	74.00	33.13	Peak
1641.760	26.17	6.41	-0.11	32.47	54.00	21.53	Average
1981.120	27.73	5.98	-0.83	32.87	54.00	21.13	Average

<sup>2.</sup> Measurement was up to 25GHz, but the emissions level were too low against the official limit and not report.

Date of Test:	Apr. 04, 2007	Temperature:	19

EUT: Electronic Dictionary Humidity: 49%

Test Mode: Receiving Mode, Frequency: Test Voltage: AC 120V, 60Hz 2437MHz (CH6)

#### Horizontal

	Freq.	Ant. Factor (dB/m)		Reading (dBμV)	Emission Level (dBµV/m) (	Limits	Margin (dB)	Remark
	1818.160	27.01	6.80	7.61	41.42	74.00	32.58	Peak
	2145.760	28.11	6.04	7.52	41.67	74.00	32.33	Peak
•	1818.160	27.01	6.80	-0.39	33.42	54.00	20.58	Average
	2145.760	28.11	6.04	-0.48	33.67	54.00	20.33	Average

### Vertical

Freq. (MHz)	Ant. Factor (dB/m)		Reading (dBµV)			Margin (dB)	Remark
1893.760	27.34	6.42	8.14	41.90	74.00	32.10	Peak
2145.760	28.11	6.04	9.31	43.46	74.00	30.54	Peak
1893.760	27.34	6.42	0.14	33.90	54.00		Average
2145.760	28.11	6.04	1.31	35.46	54.00		Average

<sup>2.</sup> Measurement was up to 25GHz, but the emissions level were too low against the official limit and not report.

## 3.6.2.2. WLAN (802.11g)

EUT:	Electronic Dictionary	Humidity:	49%

Test Mode: Transmitting Mode, Frequency: 2412MHz (CH1) Test Voltage: AC 120V, 60Hz

Horizontal							
	Ant.	Cable		Emissio	n		
Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
(MHz)	(dB/m)	(dB)	(dBµV)	(dBμV/m)	(dBμV/m)	(dB)	
1250.320	25.31	4.68	8.34	38.33	74.00	35.67	Peak
2224.720	28.28	6.14	7.83	42.25	74.00	31.75	Peak
1250.320	25.31	4.68	2.34	32.33	54.00	21.67	Average
2224.720	28.28	6.14	0.83	35.25	54.00		Average
							_

Vertical							
Freq.	Ant. Factor	Cable Loss	Reading	Emissio Level		Margin	Remark
(MHz)	(dB/m)				(dBμV/m) (	_	
1082.320 2165.920	25.24 28.15	4.35 6.07	8.81 8.08	38.40 42.30	74.00 74.00	35.60 31.70	Peak Peak
1082.320 2165.920	25.24 28.15	4.35 6.07	1.81 1.08	31.40 35.30	54.00 54.00	22.60 18.70	Average Average

<sup>2.</sup> Measurement was up to 25GHz, but the emissions level were too low against the official limit and not report.

Date of Test:	Apr. 04, 2007	Temperature:	19	
FIIT ·	Flectronic Dictionary	Humidity !	100%	

Test Mode: Transmitting Mode, Frequency: 2437MHz (CH6) Test Voltage: AC 120V, 60Hz

#### Horizontal

Freq. (MHz)	Ant. Factor (dB/m)		Reading (dBμV)			Margin (dB)	Remark
1359.520	25.35	5.03	7.77	38.15	74.00	35.85	Peak
1888.720	27.32	6.45	7.47	41.24	74.00	32.76	Peak
1359.520	25.35	5.03	0.77	31.15	54.00		Average
1888.720	27.32	6.45	0.47	34.24	54.00		Average

## Vertical

Freq.	Ant. Factor (dB/m)		Reading (dBµV)			Margin (dB)	Remark
1712.320	26.50	6.92	7.62	41.05	74.00	32.95	Peak
2221.360	28.27	6.13	7.59	41.99	74.00	32.01	Peak
1712.320	26.50	6.92	0.62	34.05	54.00		Average
2221.360	28.27	6.13	0.59	34.99	54.00		Average

<sup>2.</sup> Measurement was up to 25GHz, but the emissions level were too low against the official limit and not report.

Date of Test: Apr. 04, 2007 Temperature: 19

EUT: Electronic Dictionary Humidity: 49%

Test Mode: Transmitting Mode, Frequency: 2462MHz (CH11) Test Voltage: AC 120V, 60Hz

#### **Horizontal**

Freq.	Ant. Factor (dB/m)		Reading (dBµV)		n Limits (dBμV/m)		Remark
1641.760	26.17	6.41	8.18	40.76	74.00	33.24	Peak
2229.760	28.28	6.14	8.12	42.55	74.00	31.45	Peak
1641.760	26.17	6.41	1.18	33.76	54.00	20.24	Average
2229.760	28.28	6.14	1.12	35.55	54.00	18.45	Average

#### Vertical

Freq. (MHz)	Ant. Factor (dB/m)		Reading (dBµV)	Emissic Level (dBµV/m)		Margin (dB)	Remark
1418.320 2023.120	25.37 27.85	5.20 5.89	8.30 7.93	38.87 41.67	74.00 74.00	35.13 32.33	Peak Peak
1418.320 2023.120	25.37 27.85	5.20 5.89	1.30 0.93	31.87 34.67	54.00 54.00		 Average Average

<sup>2.</sup> Measurement was up to 25GHz, but the emissions level were too low against the official limit and not report.

Date of Test: Apr. 04, 2007 Temperature: 19

EUT: Electronic Dictionary Humidity: 49%

Test Mode: Receiving Mode, Frequency: Test Voltage: AC 120V, 60Hz 2437MHz (CH6)

#### Horizontal

Freq. (MHz)	Ant. Factor (dB/m)		Reading (dBµV)			Margin (dB)	Remark
1112.560 1888.720	25.25 27.32	4.42 6.45	8.06 8.43	37.73 42.20	74.00 74.00	36.27 31.80	Peak Peak
1112.560 1888.720	25.25 27.32	4.42 6.45	1.06	30.73 35.20	54.00 54.00	23.27 18.80	Average Average

#### Vertical

Freq. (MHz)	Ant. Factor (dB/m)		Reading (dBμV)			Margin	Remark
1065.520 2216.320	25.23 28.25	4.32 6.13	7.82 8.26	37.37 42.65	74.00 74.00	36.63 31.35	Peak Peak
1065.520 2216.320	25.23 28.25	4.32 6.13	0.82 1.26	30.37 35.65	54.00 54.00		 Average Average

<sup>2.</sup> Measurement was up to 25GHz, but the emissions level were too low against the official limit and not report.

#### 3.6.3. Restricted Bands Measurement Results

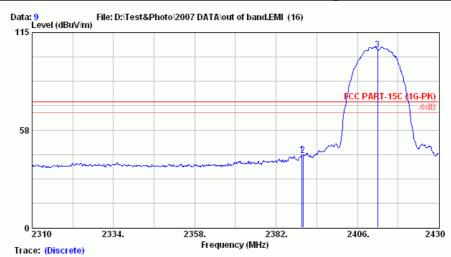
3.6.3.1. WLAN (802.11b)

Date of Test:		Apı	. 04, 2007		Temperatu	re:	19
EUT:		Electro	nic Diction	nary	Humidi	ty:	49%
Test Mode:	Tran	_	g Mode, Fro MHz (CH1	1	Test Voltaș	ge: AC	C 120V, 60Hz
Horizontal							
Freq. (MHz)	Ant. Factor (dB/m)	Loss	_		on Limits (dBµV/m) (	_	n Remark
2389.680	28.59	6.34	8.05	42.99	74.00	31.01	. Peak
2384.520	28.59	6.33	2.13	37.06	54.00	16.94	Average

- Remark: 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
  - 2. Low frequency section (spurious in the restricted band 2310-2390MHz).
  - 3. '\*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



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Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 9
Ant. pol. : HORIZONTAL

Limit : FCC PART-15C (1G-PK) Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

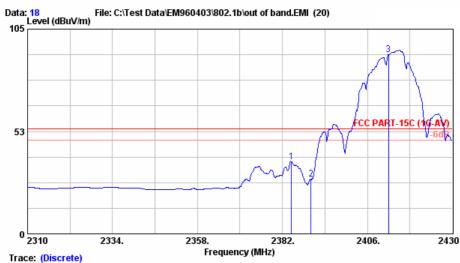
EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz

: TX2412(out of band) Test Mode



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Data no. : 18

Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL

Limit : FCC PART-15C (1G-AV)
Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz

Test Mode : TX2412(out of band) Date of Test: Apr. 04, 2007 Temperature: 19

EUT: Electronic Dictionary Humidity: 49%

Test Mode: Transmitting Mode, Frequency: 2412MHz (CH1) Test Voltage: AC 120V, 60Hz

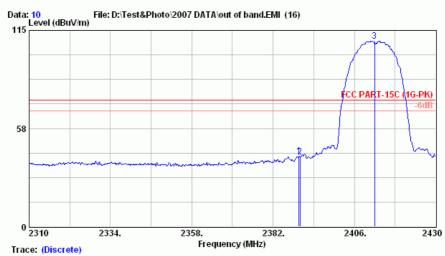
#### Vertical

Freq. (MHz)		Loss	_		n Limits (dBµV/m)	_	Remark
2389.680	28.59	6.34	6.39	41.33	74.00	32.67	Peak
2374.440	28.57	6.32	12.90	47.79	54.00	6.21	Average

- 2. Low frequency section (spurious in the restricted band 2310-2390MHz).
- 3. '\*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



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Site no. : A/C Chamber Data no. : 10

Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL

Limit : FCC PART-15C (1G-PK)

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

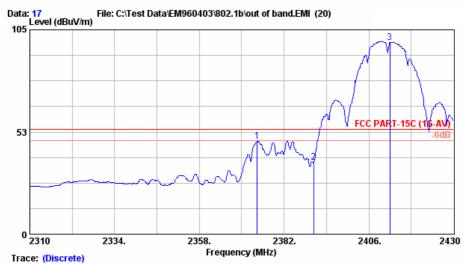
EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz

Test Mode : TX2412 (out of band)



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 Site no.
 : A/C Chamber
 Data no.
 : 17

 Dis. / Ant.
 : 3m 3115
 Ant. pol.
 : VERTICAL

Limit : FCC PART-15C (1G-AV)
Env. / Ins. : 8593EM 21\*C/52%

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz

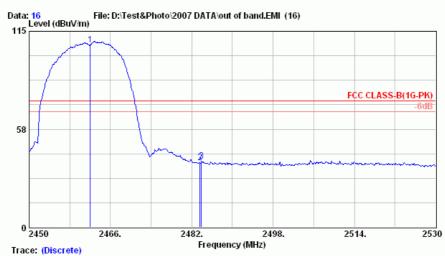
Test Mode : TX2412(out of band)

Date of Test: Apr. 04, 2007 Temperature: 19 EUT: Electronic Dictionary Humidity: 49% Test Mode: Transmitting Mode, Frequency: Test Voltage: AC 120V, 60Hz 2462MHz (CH11) Horizontal Cable Emission Freq. Factor Loss Reading Level Limits Margin Remark (dB/m) (dB) $(dB\mu V)$   $(dB\mu V/m)$   $(dB\mu V/m)$  (dB)2483.920 28.77 6.45 3.66 38.88 74.00 35.12 Peak 2488.240 28.77 6.45 46.74 41.85 54.00 12.15 Average

- Remark: 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
  - 2. Low frequency section (spurious in the restricted band 2483.5-2500MHz).
  - 3. '\*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



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Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 16 Ant. pol. : HORIZONTAL

Limit : FCC CLASS-B(1G-PK)
Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

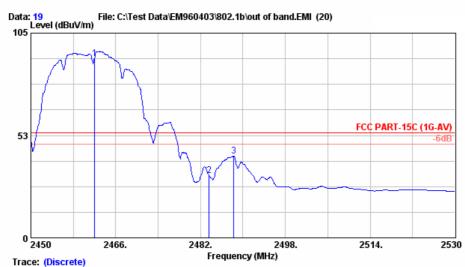
: Electronic Dictionary M/N:Z1 EUT

Power Rating : 120Vac/60Hz

Test Mode : TX2462 (out of band)



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Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 19

Ant. pol. : HORIZONTAL

Limit : FCC PART-15C (1G-AV) Env. / Ins. : 8593EM 21\*C/52%

Engineer : Jarwei Wang

EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz

Test Mode : TX2462(out of band) Date of Test: Apr. 04, 2007 Temperature: 19

EUT: Electronic Dictionary Humidity: 49%

Test Mode: Transmitting Mode, Frequency: 2462MHz (CH11) Test Voltage: AC 120V, 60Hz

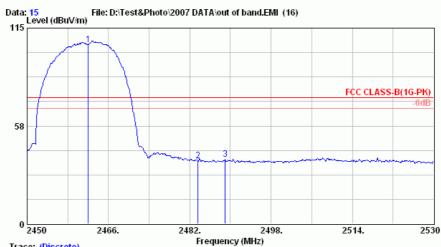
#### Vertical

	-		Loss	_		n Limits (dBµV/m)	_	Remark
:	2488.960	28.77	6.45	2.80	38.03	74.00	35.97	Peak
-	2487.120	28.77	6.45	49.50	44.61	54.00	9.39	Average

- 2. Low frequency section (spurious in the restricted band 2483.5-2500MHz).
- 3. '\*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



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Trace: (Discrete)

Data no. : 15 Ant. pol. : VERTICAL Site no. : A/C Chamber Dis. / Ant. : 3m 3115

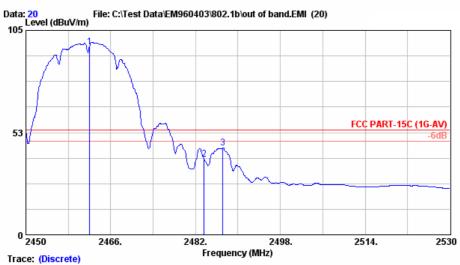
Limit : FCC CLASS-B(1G-PK)
Env. / Ins. : 8593EM 21\*C/52% Er
EUT : Electronic Dictionary M/N:21 Engineer : Jarwei Wang

Power Rating : 120Vac/60Hz

Test Mode : TX2462 (out of band)



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Site no. : A/C Chamber

Dis. / Ant. : 3m 3115

Limit : FCC PART-15C (1G-AV)

Env. / Ins. : 8593EM 21\*C/52% Data no. : 20 Ant. pol. : VERTICAL

Engineer : Jarwei Wang

EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz

Test Mode : TX2462(out of band)

#### 3.6.3.2. WLAN (802.11g)

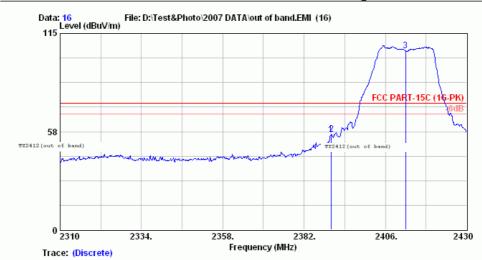
Date of Test:	Apr. 04, 2007	Temperature:	19
EUT:	Electronic Dictionary	Humidity:	49%
Test Mode:	Transmitting Mode, Frequency: 2412MHz (CH1)	Test Voltage:	AC 120V, 60Hz
Horizontal			

-		Loss	_		n Limits (dBµV/m)	_	Remark
2389.920	28.59	6.34	20.60	55.53	74.00	18.47	Peak
2378.040	28.58	6.32	-10.57	24.33	54.00	29.67	Average

- 2. Low frequency section (spurious in the restricted band 2310-2390MHz).
- 3. '\*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



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Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 16 Ant. pol. : HORIZONTAL

Limit : FCC PART-15C (1G-PK) Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

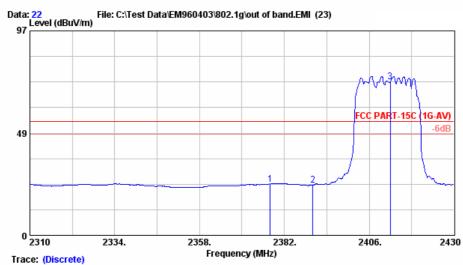
: Electronic Dictionary M/N:Z1 EUT

Power Rating : 120Vac/60Hz

Test Mode : TX2462 (out of band)



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Data no. : 22

Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL

Limit : FCC PART-15C (1G-AV)
Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1 EUT

Power Rating : 120Vac/60Hz

Test Mode : TX2412(out of band) Date of Test: Apr. 04, 2007 Temperature: 19

EUT: Electronic Dictionary Humidity: 49%

Test Mode: Transmitting Mode, Frequency: 2412MHz (CH1) Test Voltage: AC 120V, 60Hz

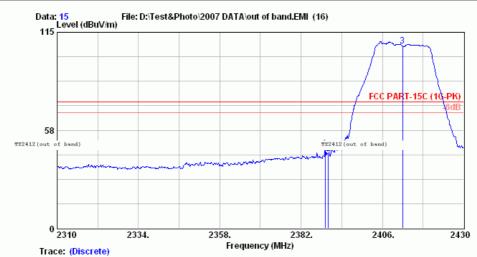
Vertical

-		Loss	_		n Limits (dBµV/m)	_	Remark
2389.080	28.59	6.34	11.90	46.83	74.00	27.17	Peak
2379.000	28.58	6.32	-9.64	25.26	54.00	28.74	Average

- 2. Low frequency section (spurious in the restricted band 2310-2390MHz).
- 3. '\*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



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Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 15 Ant. pol. : VERTICAL

Limit : FCC PART-15C (1G-PK) Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

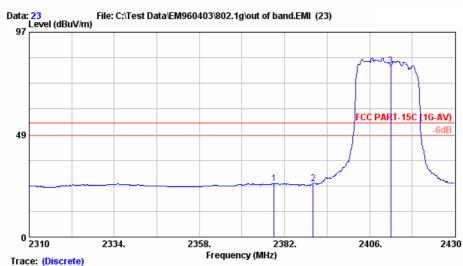
: Electronic Dictionary M/N:Z1 EUT

Power Rating : 120Vac/60Hz

Test Mode : TX2462 (out of band)



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Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 23 Ant. pol. : VERTICAL

Limit : FCC PART-15C (1G-AV)
Env. / Ins. : 8593EM 21\*C/52%

Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz : TX2412(out of band) Test Mode

37.54 Peak

29.14 Average

Date of Test: Apr. 04, 2007 Temperature: 19 EUT: Electronic Dictionary Humidity: 49% Test Mode: Transmitting Mode, Frequency: Test Voltage: AC 120V, 60Hz 2462MHz (CH11) Horizontal Cable Emission Freq. Factor Loss Reading Level Limits Margin Remark (dB/m) (dB)  $(dB\mu V)$   $(dB\mu V/m)$   $(dB\mu V/m)$  (dB)6.45 1.23 2483.600 28.77 36.46 74.00

Remark: 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.

.\_\_\_\_\_

24.86

54.00

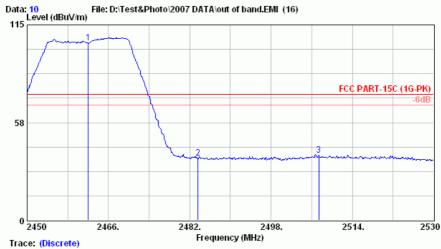
6.45 - 10.37

2487.840 28.77

- 2. Low frequency section (spurious in the restricted band 2483.5-2500MHz).
- 3. '\*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



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Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 10 Ant. pol. : HORIZONTAL

Limit : FCC PART-15C (1G-PK) Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

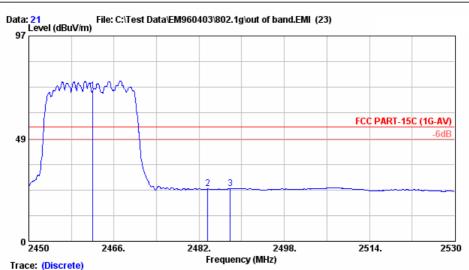
: Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz

: TX2462(out of band) Test Mode



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Site no. : A/C Chamber Data no. : 21

Ant. pol. : HORIZONTAL Dis. / Ant. : 3m 3115 Limit : FCC PART-15C (1G-AV) Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz

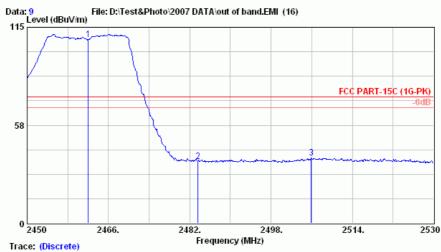
Test Mode : TX2462(out of band) Date of Test: Apr. 04, 2007 Temperature: 19 Humidity: 49% **Electronic Dictionary** EUT: Transmitting Mode, Frequency: Test Mode: Test Voltage: AC 120V, 60Hz 2462MHz (CH11) Vertical

-		Loss	_		n Limits (dBµV/m)	_	Remark
2483.600	28.77	6.45	1.14	36.37	74.00	37.63	Peak
2483.600	28.77	6.45	-9.47	25.75	54.00	28.25	Average

- 2. Low frequency section (spurious in the restricted band 2483.5-2500MHz).
- 3. '\*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.



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Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 9 Ant. pol. : VERTICAL

Limit : FCC PART-15C (1G-PK)
Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

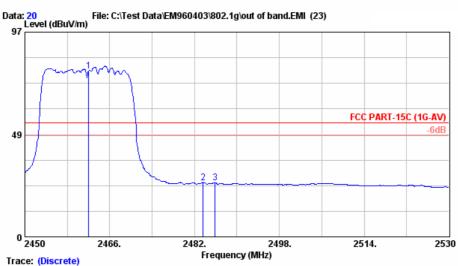
: Electronic Dictionary M/N:Z1 EUT

Power Rating : 120Vac/60Hz

Test Mode : TX2462 (out of band)



AUDIX TECHNOLOGY Corp. EMC Laboratory No.53-11, Tin-fu Tsun, Lin-kou Hsiang, Taipei County, Taiwan R.O.C. Post Code:24443 Tel:02-26092133 Fax:02-26099303 Email:ttemc@ttemc.com.tw



Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 20 Ant. pol. : VERTICAL

Limit : FCC PART-15C (1G-AV) Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

EUT : Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2462(out of band)

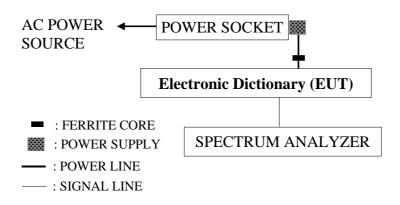
## 4. 6dB BANDWIDTH MEASUREMENT

# 4.1.Test Equipment

The following test equipment was used during the 6dB bandwidth measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Monitor	Agilent	E4446A	US44300366	Aug. 11, 06'	Aug. 10. 07'

## 4.2.Block Diagram of Test Setup



# 4.3. Specification Limits (§15.247(a)(2))

The minimum 6dB bandwidth shall be at least 500kHz.

# 4.4. Operating Condition of EUT

- 4.4.1. Setup the EUT and simulator as shown on 4.2.
- 4.4.2. Turn on the power of all equipment.
- 4.4.3. Run the test program "MyLab Tool", 802.11b data rate set at 1MB/sec. and 802.11g data rate set at 6MB/sec. during the testing.

#### 4.5.Test Procedure

The RF output of EUT was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

#### 4.6.Test Results

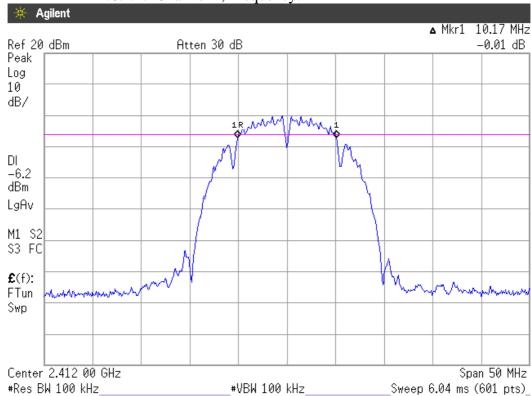
**PASSED.** All the test results are listed in next pages.

Test Date: Apr. 04, 2007 Temperature: 19 Humidity: 49 %

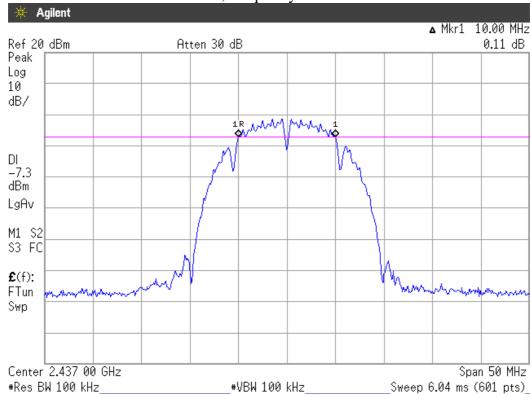
No.	Test Mode	Channel	Frequency	6dB Bandwidth
1.	77.77 A N 7	1	2412MHz	10.17MHz
2.	WLAN (802.11b)	6	2437MHz	10.00MHz
3.	(002.110)	11	2462MHz	10.17MHz
4.	77.77 A N 7	1	2412MHz	16.67MHz
5.	WLAN (802.11g)	6	2437MHz	16.67MHz
6.	(002.115)	11	2462MHz	16.67MHz

#### 4.6.1. Test Mode: WLAN (802.11b)

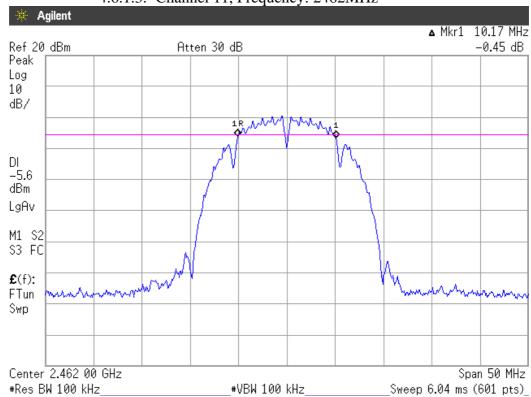
4.6.1.1. Channel 1, Frequency: 2412MHz





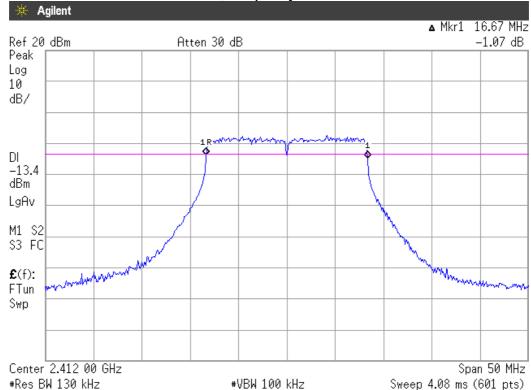


# 4.6.1.3. Channel 11, Frequency: 2462MHz

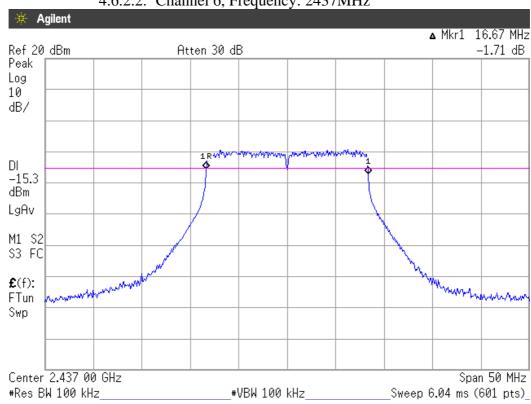


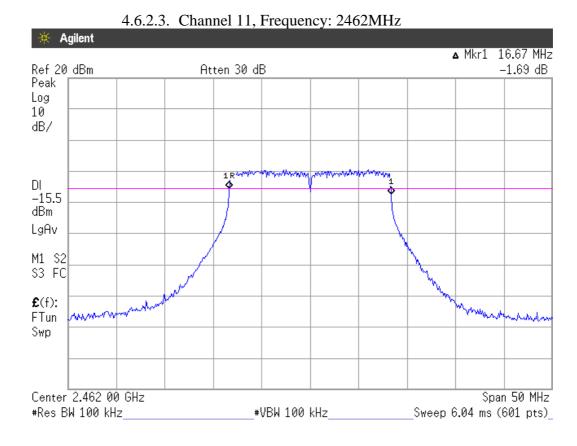
## 4.6.2. Test Mode: WLAN (802.11g)





4.6.2.2. Channel 6, Frequency: 2437MHz





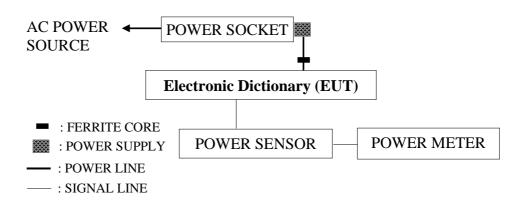
## 5. MAXIMUM PEAK OUTPUT POWER MEASUREMENT

## 5.1.Test Equipment

The following test equipment was used during the maximum peak output power measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Power Meter	Antrisu	ML2487A	6K00005406	Jan. 10, 07'	Jan. 09, 08'
2.	Power Sensor	Antrisu	MA2491A	030873	Jan. 10, 07'	Jan. 09, 08'

## 5.2.Block Diagram of Test Setup



## 5.3. Specification Limits (§15.247(b)(3))

The Limits of maximum Peak Output Power for digital modulation in 2400-2483.5MHz is: 1Watt. (30dBm)

## 5.4. Operating Condition of EUT

- 5.4.1. Setup the EUT and simulator as shown on 5.2.
- 5.4.2. Turn on the power of all equipment.
- 5.4.3. Run the test program "MyLab Tool", 802.11b data rate set at 1MB/sec. and 802.11g data rate set at 6MB/sec. during the testing.

#### 5.5.Test Procedure

The RF output of EUT was connected to the power meter and sensor with 20MHz bandwidth that was designed to detect peak value automatically.

# 5.6.Test Results

**PASSED.** All the test results are listed in following page.

Test Date: Apr. 04, 2007 Temperature: 19 Humidity: 49 %

No.	Test Mode	Channel	Frequency	Peak Output Power	Output Power (RMS)	Limit
1.		1	2412MHz	14.25dBm	10.33dBm	30dBm
2.	WLAN (802.11b)	6	2437MHz	14.01dBm	9.84dBm	30dBm
3.	(802.11b)	11	2462MHz	14.58dBm	10.39dBm	30dBm
4.	WH AN	1	2412MHz	16.25dBm	12.04dBm	30dBm
5.	WLAN (802.11g)	6	2437MHz	16.82dBm	12.63dBm	30dBm
6.	(002.11g)	11	2462MHz	16.89dBm	12.66dBm	30dBm

## 6. EMISSION LIMITATIONS MEASUREMENT

## 6.1.Test Equipment

The following test equipment was used during the emission limitations test:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Monitor	Agilent	E4446A	US44300366	Aug. 11, 06'	Aug. 10. 07'

# 6.2.Block Diagram of Test Setup

The same as section.4.2

## 6.3. Specification Limits (§15.247(c))

In any 100kHz 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 20dB below that in the 100kHz 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 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)).( This test result attaching to §3.6.3)

# 6.4. Operating Condition of EUT

- 6.4.1. Setup the EUT and simulator as shown on 6.2.
- 6.4.2. Turn on the power of all equipment.
- 6.4.3. Run the test program "MyLab Tool", 802.11b data rate set at 1MB/sec. and 802.11g data rate set at 6MB/sec. during the testing.

#### 6.5. Test Procedure

The RF output of EUT was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with 100kHz RBW and 100kHz VBW.

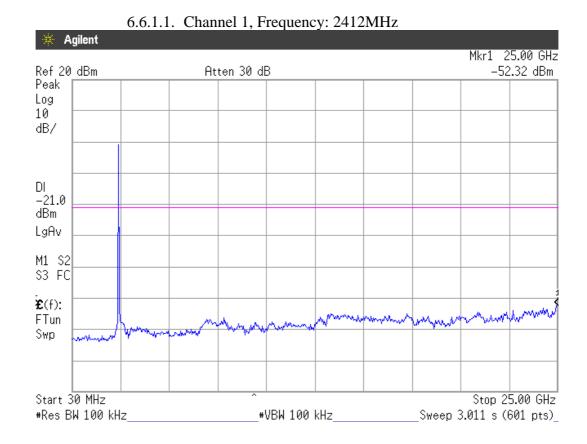
#### 6.6. Test Results

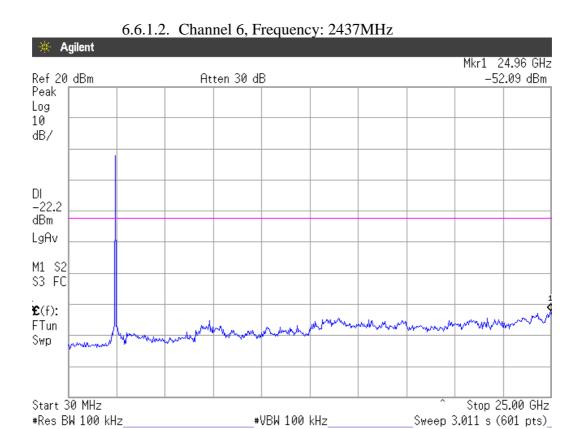
**PASSED.** The testing data was attached in the next pages.

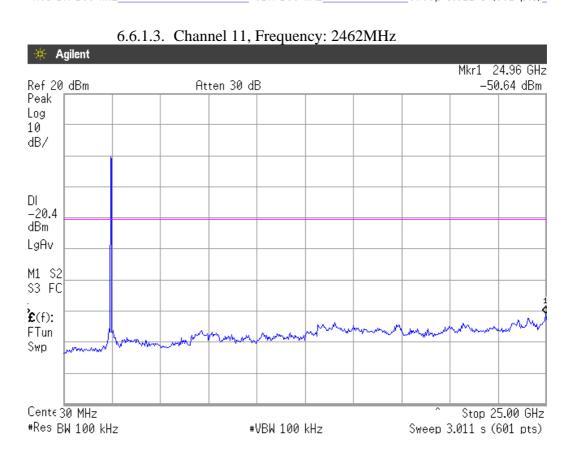
Test Date: Apr. 04, 2007 Temperature: 19 Humidity: 49 %

- 6.6.1. Test Mode: WLAN (802.11b)
  - 1. 2412MHz: During 30MHz~25GHz bandwidth. the max value is -52.32dBm of 25GHz that is lower than 20dB of primary channel.
  - 2. 2437MHz: During 30MHz~25GHz bandwidth. the max value is -52.09dBm of 24.96GHz that is lower than 20dB of primary channel.
  - 3. 2462MHz: During 30MHz~25GHz bandwidth. the max value is -50.64dBm of 24.96GHz that is lower than 20dB of primary channel.

Note: The peak above the limit line is the carrier frequency.



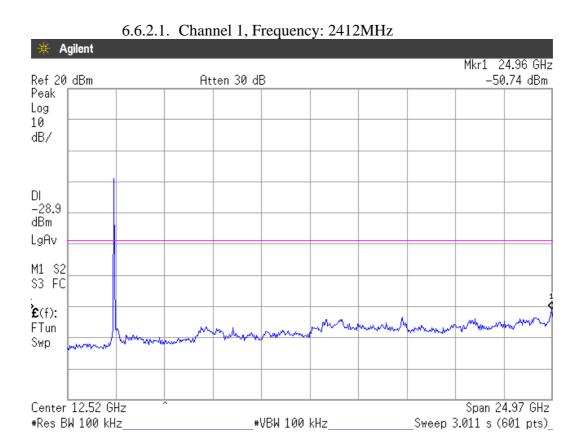




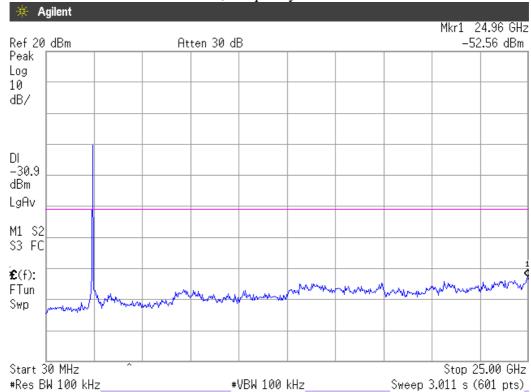
#### 6.6.2. Test Mode: WLAN (802.11g)

- 1. 2412MHz: During 30MHz~25GHz bandwidth. the max value is -50.74dBm of 24.96GHz that is lower than 20dB of primary channel.
- 2. 2437MHz: During 30MHz~25GHz bandwidth. the max value is -52.56dBm of 24.96GHz that is lower than 20dB of primary channel.
- 3. 2462MHz: During 30MHz~25GHz bandwidth. the max value is -51.65dBm of 24.96GHz that is lower than 20dB of primary channel.

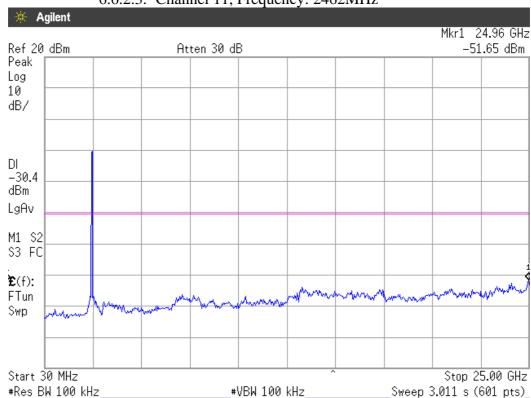
Note: The peak above the limit line is the carrier frequency.







# 6.6.2.3. Channel 11, Frequency: 2462MHz



## 7. BAND EDGES MEASUREMENT

# 7.1.Test Equipment

The following test equipment was used during the band edges measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Monitor	Agilent	E4446A	US44300366	Aug. 11, 06'	Aug. 10. 07'

# 7.2.Block Diagram of Test Setup

The same as section.4.2.

## 7.3. Specification Limits (§15.247(c))

The highest level should be at least 20 dB below that in the 100kHz bandwidth.

## 7.4. Operating Condition of EUT

- 7.4.1. Setup the EUT and simulator as shown on 7.2.
- 7.4.2. Turn on the power of all equipment.
- 7.4.3. Run the test program "MyLab Tool", 802.11b data rate set at 1MB/sec. and 802.11g data rate set at 6MB/sec. during the testing.

#### 7.5. Test Procedure

The RF output of EUT was connected to the spectrum analyzer. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100kHz bandwidth from band edge.

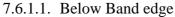
#### 7.6. Test Results

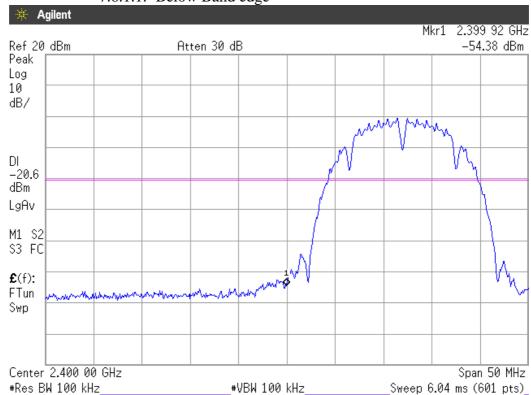
**PASSED.** All the test results are listed in next page.

Test Date: Apr. 04, 2007 Temperature: 19 Humidity: 49 %

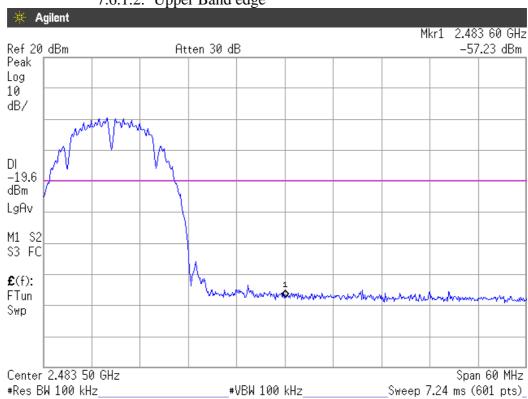
#### 7.6.1. Test Mode: WLAN (802.11b)

- 1. Upper Band edge: The highest emission level is -54.38dBm on 2.39992GHz<sub>o</sub>
- 2. Below Band edge: The highest emission level is -57.23dBm on 2.48360GHz<sub>o</sub>

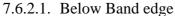


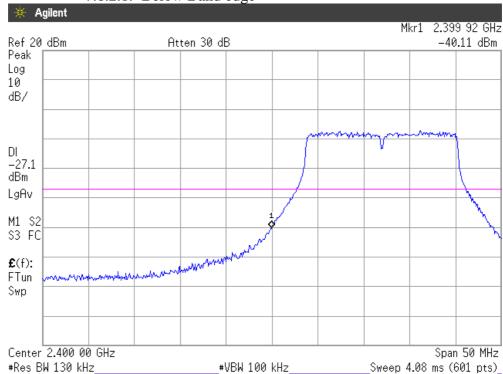


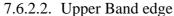
# 7.6.1.2. Upper Band edge

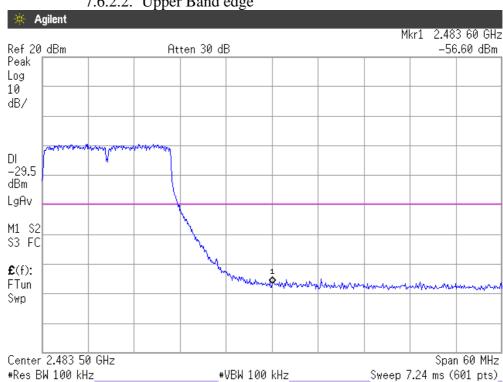


- 7.6.2. Test Mode: WLAN (802.11g)
  - 1. Upper Band edge: The highest emission level is -40.11dBm on 2.39992GHz<sub>o</sub>
  - 2. Below Band edge: The highest emission level is -56.60 dBm on 2.48360GHz<sub>o</sub>









# 8. POWER SPECTRAL DENSITY MEASUREMENT

# 8.1.Test Equipment

The following test equipment was used during the power spectral density measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Monitor	Agilent	E4446A	US44300366	Aug. 11, 06'	Aug. 10. 07'

## 8.2.Block Diagram of Test Setup

The same as section.4.2.

# 8.3. Specification Limits (§15.247(d))

The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band.

## 8.4. Operating Condition of EUT

- 8.4.1. Setup the EUT and simulator as shown on 8.2.
- 8.4.2.Turn on the power of all equipment.
- 8.4.3. Run the test program "MyLab Tool", 802.11b data rate set at 1MB/sec. and 802.11g data rate set at 6MB/sec. during the testing.

#### 8.5. Test Procedure

The RF output of EUT was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, span 300kHz set sweep time = span/3kHz.

#### 8.6. Test Results

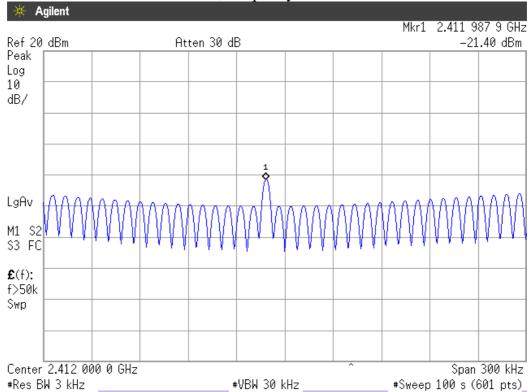
**PASSED.** All the test results are attached in next pages.

Test Date: Apr. 04, 2007 Temperature: 19 Humidity: 49 %

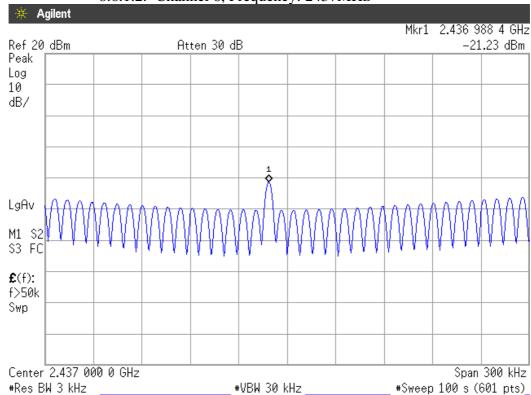
No.	Test Mode	Channel	Frequency	<b>Power Spectral Density</b>	Limit
1.	WLAN (802.11b)	1	2412MHz	-21.40dBm	8dBm
2.		6	2437MHz	-21.23dBm	8dBm
3.		11	2462MHz	-21.25dBm	8dBm
4.	WLAN (802.11g)	1	2412MHz	-19.90dBm	8dBm
5.		6	2437MHz	-19.60dBm	8dBm
6.		11	2462MHz	-19.10dBm	8dBm

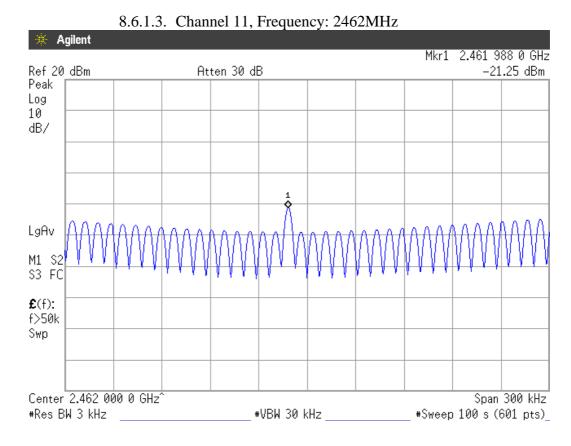
#### 8.6.1. Test Mode: WLAN (802.11b)



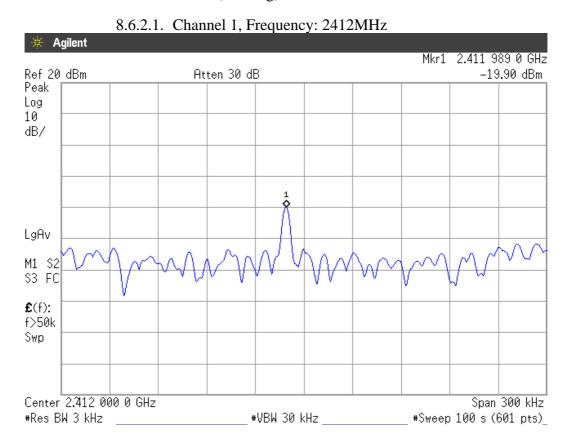


#### 8.6.1.2. Channel 6, Frequency: 2437MHz

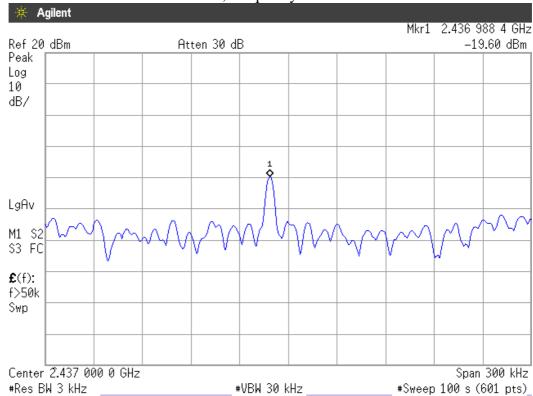




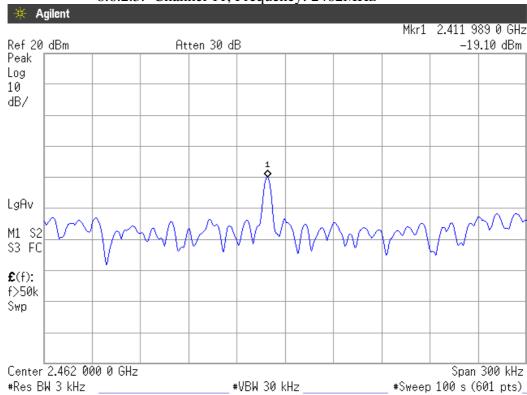
#### 8.6.2. Test Mode: WLAN (802.11g)







#### 8.6.2.3. Channel 11, Frequency: 2462MHz



## 9. DEVIATION TO TEST SPECIFICATIONS

[NONE]

#### 10.PHOTOGRAPHS

#### 10.1.Photos of Powerline Conducted Emission Measurement



FRONT VIEW OF CONDUCTED MEASUREMENT



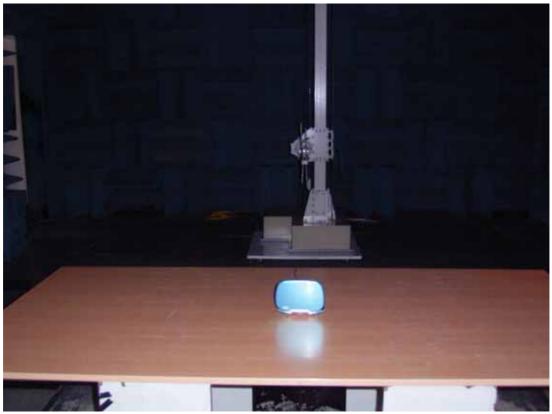
BACK VIEW OF CONDUCTED MEASUREMENT

## 10.2.Photos of Radiated Measurement at Semi-Anechoic Chamber

10.2.1. Frequency Range 30MHz-1GHz



FRONT VIEW OF RADIATED MEASUREMENT



BACK VIEW OF RADIATED MEASUREMENT

10.2.2. Frequency Range Above 1GHz



FRONT VIEW OF RADIATED MEASUREMENT

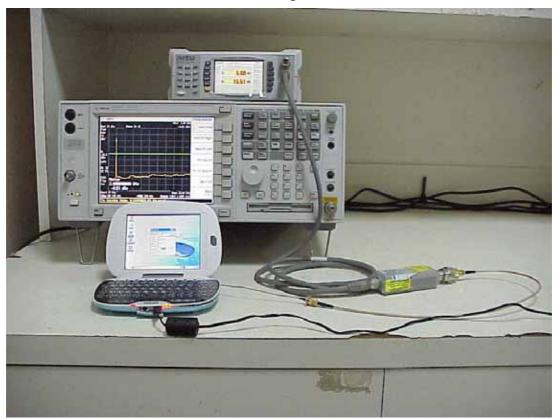


BACK VIEW OF RADIATED MEASUREMENT

### 10.3.Photo of 6dB Bandwidth Measurement (Conducted)



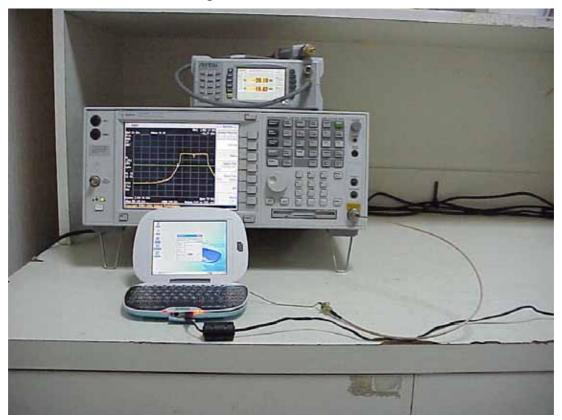
### 10.4.Photo of Maximum Peak Output Power Measurement (Conducted)



### 10.5.Photo of Emission Limitations Measurement (Conducted)



### 10.6.Photo of Band Edges Measurement (Conducted)



## 10.7.Photo of Power Spectral Density Measurement (Conducted)

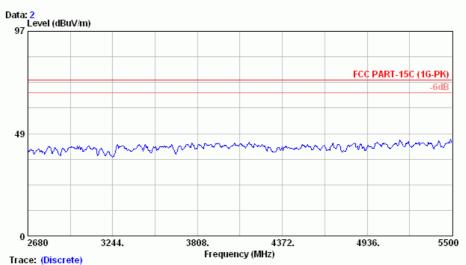


## **APPENDIX**

# (Radiated Emission Measurement for Frequency Range 2680MHz-18000MHz)

No.	Test Mode and Frequency			Reference Test Data No.	
				Horizontal	Vertical
1.			2412MHz (CH1)	# 2, #3	# 1, #4
2.	WLAN	Transmitting	2437MHz (CH6)	# 1, #4	# 2, #3
3.	(802.11b)		2462MHz (CH11)	# 2, #3	# 1, #4
4.		Receiver	2437MHz (CH6)	# 1, #4	# 2, #3
5.			2412MHz (CH1)	# 1, #4	# 2, #3
6.	WLAN	Transmitting	2437MHz (CH6)	# 2, #3	# 1, #4
7.	(802.11g)		2462MHz (CH11)	# 1, #4	# 2, #3
8.		Receiver	2437MHz (CH6)	# 2, #4	# 1, #3





Site no. : A/C Chamber
Dis. / Ant. : 3m 3115
Limit : FCC PART-15C (1G-PK)

Data no. : 2 Ant. pol. : HORIZONTAL

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

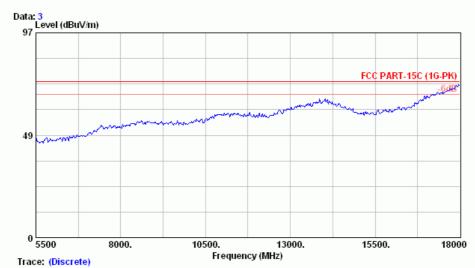
: Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2412(802.11b)



AUDIX Corp. EMC Laboratory No.53-11, Tin-fu Tsun, Lin-kou Hsiang, Taipei County, Taiwan R.O.C. Post Code:24443 Tel:+886-2-26092133 Fax:+886-2-26099303

Email:ttemc@ttemc.com.tw

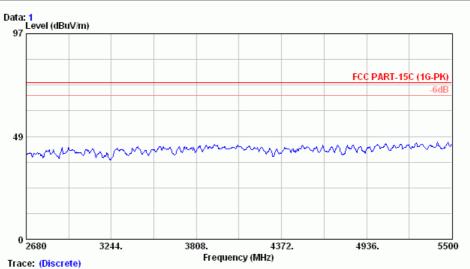


Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 3 Ant. pol. : HORIZONTAL Limit : FCC PART-15C (1G-PK) Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2412(802.11b)





Site no. : A/C Chamber Data no. : 1

Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL

: FCC PART-15C (1G-PK) Limit

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

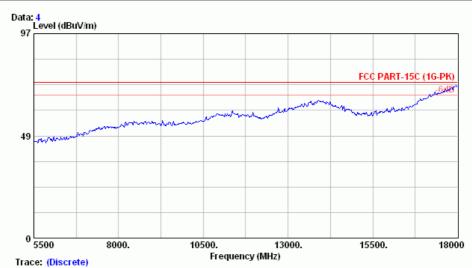
: Electronic Dictionary M/N:Z1

Power Rating: 120Vac/60Hz : TX2412(802.11b) Test Mode



AUDIX Corp. EMC Laboratory No.53-11, Tin-fu Tsun, Lin-kou Hsiang, Taipei County, Taiwan R.O.C. Post Code: 24443 Tel:+886-2-26092133 Fax:+886-2-26099303

Email:ttemc@ttemc.com.tw



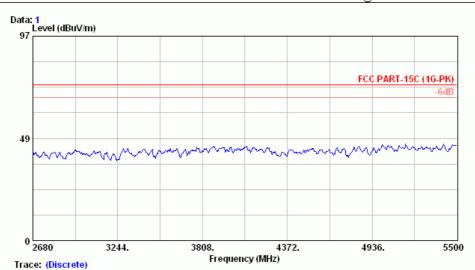
Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 4 Ant. pol. : VERTICAL

: FCC PART-15C (1G-PK) Limit Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N: Z1

Power Rating : 120Vac/60Hz Test Mode : TX2412(802.11b)





Site no. : A/C Chamber
Dis. / Ant. : 3m 3115
Limit : FCC PART-15C (1G-PK)

Data no. : 1 Ant. pol. : HORIZONTAL

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

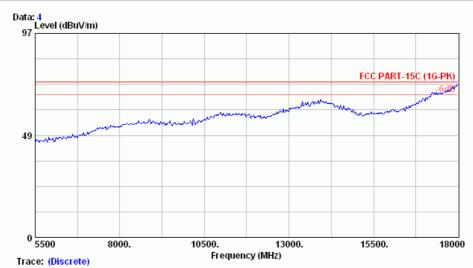
: Electronic Dictionary M/N:Z1 EUT

Power Rating : 120Vac/60Hz Test Mode : TX2437(802.11b)



AUDIX Corp. EMC Laboratory No.53-11, Tin-fu Tsun, Lin-kou Hsiang, Taipei County, Taiwan R.O.C. Post Code:24443 Tel:+886-2-26092133 Fax:+886-2-26099303

Email:ttemc@ttemc.com.tw



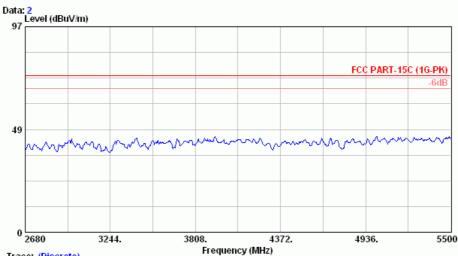
Site no. : A/C Chamber Dis. / Ant. : 3m 3115

Data no. : 4 Ant. pol. : HORIZONTAL Limit : FCC PART-15C (1G-PK) Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1 EUT

Power Rating : 120Vac/60Hz Test Mode : TX2437(802.11b)





Trace: (Discrete)

Site no. : A/C Chamber Data no. : 2

Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL

Limit : FCC PART-15C (1G-PK)

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

EUT : Electronic Dictionary M/N:Z1

Power Rating: 120Vac/60Hz Test Mode: TX2437(802.11b)



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Email:ttemc@ttemc.com.tw



Site no. : A/C Chamber Data no. : 3

Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL

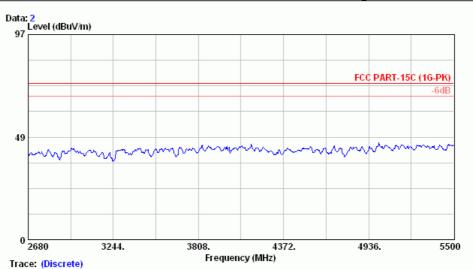
Limit : FCC PART-15C (1G-PK)

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

EUT : Electronic Dictionary M/N:21

Power Rating : 120Vac/60Hz Test Mode : TX2437(802.11b)





Site no. : A/C Chamber
Dis. / Ant. : 3m 3115
Limit : FCC PART-15C (1G-PK) Data no. : 2

Ant. pol. : HORIZONTAL

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2462(802.11b)



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Email:ttemc@ttemc.com.tw



Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 3 Ant. pol. : HORIZONTAL

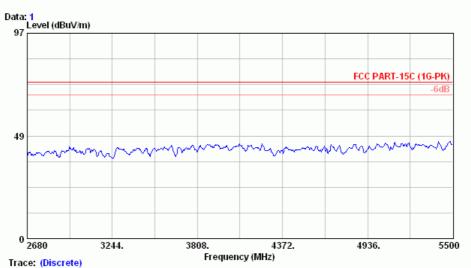
: FCC PART-15C (1G-PK) Limit

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2462(802.11b)





Site no. : A/C Chamber
Dis. / Ant. : 3m 3115
Limit : FCC PART-15C (1G-PK) Data no. : 1

Ant. pol. : VERTICAL

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2462(802.11b)



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Data: 4 \_\_ Level (dBuV/m) FCC PART-15C (1G-PK) 10500. 13000. 18000 Frequency (MHz) Trace: (Discrete)

Site no. : A/C Chamber Data no. : 4

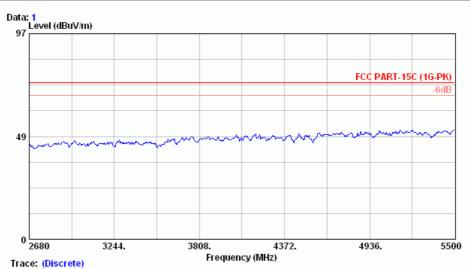
Dis. / Ant. : 3m 3115 Ant. pol. : VERTICAL

Limit : FCC PART-15C (1G-PK) Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1

Power Rating: 120Vac/60Hz Test Mode : TX2462(802.11b)





Site no. : A/C Chamber Data no. : 1

Dis. / Ant. : 3m 3115 Ant. pol. : HORIZONTAL

: FCC PART-15C (1G-PK) Limit

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

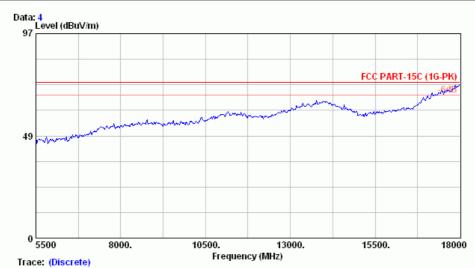
: Electronic Dictionary M/N:Z1

Power Rating: 120Vac/60Hz : RX2437(802.11b) Test Mode



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Email:ttemc@ttemc.com.tw

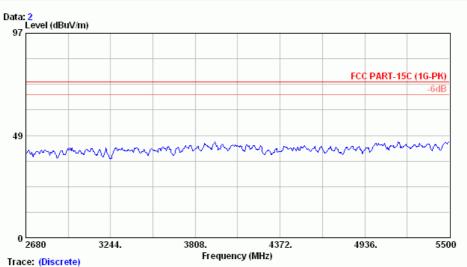


Site no. : A/C Chamber
Dis. / Ant. : 3m 3115
Limit : FCC PART-15C (1G-PK) Data no. : 4 Ant. pol. : HORIZONTAL Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N: Z1

Power Rating : 120Vac/60Hz Test Mode : RX2437(802.11b)





Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 2 Ant. pol. : VERTICAL

: FCC PART-15C (1G-PK) Limit

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

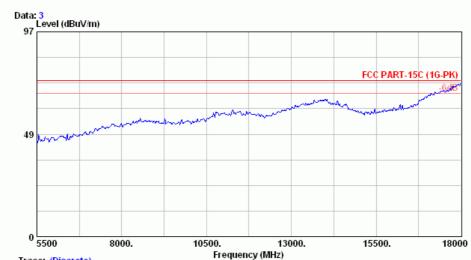
: Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : RX2437(802.11b)



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Trace: (Discrete)

Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 3 Ant. pol. : VERTICAL

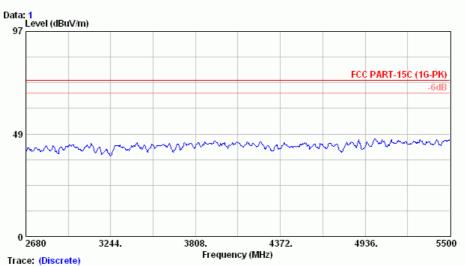
Limit : FCC PART-15C (1G-PK)

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1 EUT

Power Rating : 120Vac/60Hz Test Mode : RX2437(802.11b)





Site no. : A/C Chamber
Dis. / Ant. : 3m 3115
Limit : FCC PART-15C (1G-PK) Data no. : 1

Ant. pol. : HORIZONTAL

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

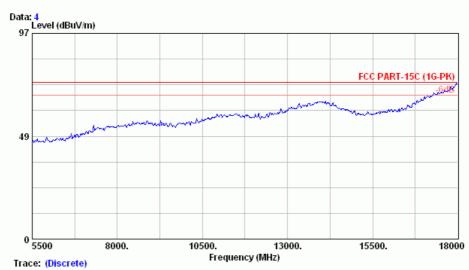
: Electronic Dictionary M/N:21

Power Rating : 120Vac/60Hz Test Mode : TX2412(802.11q)



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Email:ttemc@ttemc.com.tw



Site no. : A/C Chamber Data no. : 4

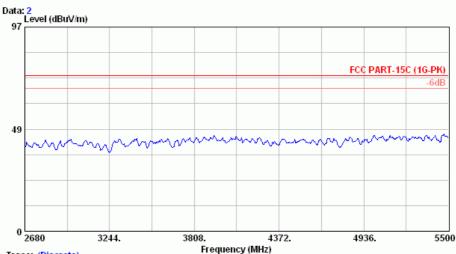
Dis. / Ant. : 3m 3115 Limit : FCC PART-15C (1G-PK) Ant. pol. : HORIZONTAL

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1

Power Rating: 120Vac/60Hz Test Mode : TX2412(802.11g)





Trace: (Discrete)

Site no. : A/C Chamber Dis. / Ant. : 3m 3115

Data no. : 2 Ant. pol. : VERTICAL

Limit : FCC PART-15C (1G-PK)

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1 EUT

Power Rating : 120Vac/60Hz Test Mode : TX2412(802.11g)



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Email:ttemc@ttemc.com.tw



Trace: (Discrete)

Site no. : A/C Chamber Dis. / Ant. : 3m 3115

Data no. : 3 Ant. pol. : VERTICAL

Limit : FCC PART-15C (1G-PK)

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1 EUT

Power Rating : 120Vac/60Hz Test Mode : TX2412(802.11g)





Trace: (Discrete)

Data no. : 2

Site no. : A/C Chamber
Dis. / Ant. : 3m 3115
Limit : FCC PART-15C (1G-PK) Ant. pol. : HORIZONTAL

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

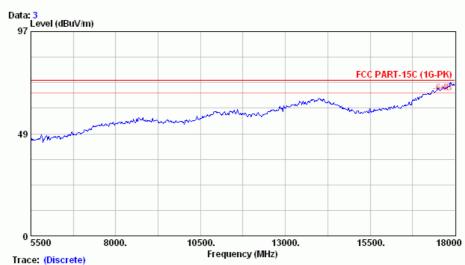
: Electronic Dictionary M/N:Z1

Power Rating: 120Vac/60Hz Test Mode : TX2437(802.11g)



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Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 3
Ant. pol. : HORIZONTAL

Limit : FCC PART-15C (1G-PK)
Env. / Ins. : 8593EM 21\*C/52% En
EUT : Electronic Dictionary M/N:21 Engineer : Jarwei Wang

Power Rating : 120Vac/60Hz Test Mode : TX2437(802.11g)





Trace: (Discrete)

Site no. : A/C Chamber Dis. / Ant. : 3m 3115

Data no. : 1 Ant. pol. : VERTICAL

: FCC PART-15C (1G-PK) Limit

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

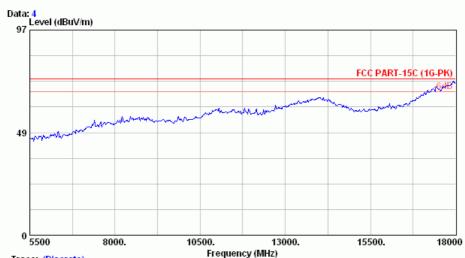
: Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2437(802.11g)



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Trace: (Discrete)

Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 4 Ant. pol. : VERTICAL

Limit : FCC PART-15C (1G-PK)

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2437(802.11g)





Trace: (Discrete)

Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 1 Ant. pol. : HORIZONTAL

Limit : FCC PART-15C (1G-PK)

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

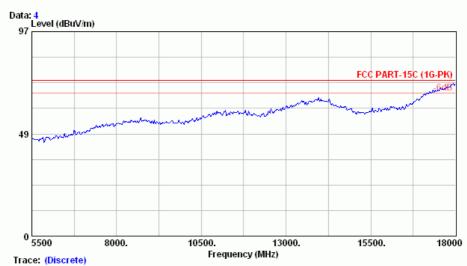
: Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2462(802.11g)



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Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 4 Ant. pol. : HORIZONTAL

Limit : FCC PART-15C (1G-PK)

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : TX2462(802.11g)





Trace: (Discrete)

Site no. : A/C Chamber Dis. / Ant. : 3m 3115

Data no. : 2 Ant. pol. : VERTICAL

Limit : FCC PART-15C (1G-PK)

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1 EUT

Power Rating : 120Vac/60Hz Test Mode : TX2462(802.11g)



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Trace: (Discrete)

Site no. : A/C Chamber Dis. / Ant. : 3m 3115

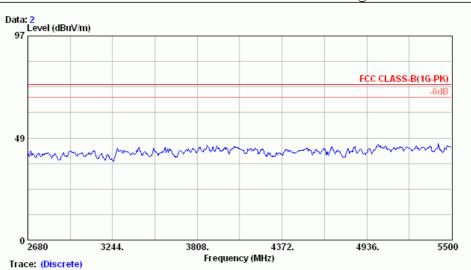
Data no. : 3 Ant. pol. : VERTICAL

Limit : FCC PART-15C (1G-PK) Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1 EUT

Power Rating : 120Vac/60Hz Test Mode : TX2462(802.11g)





Site no. : A/C Chamber Dis. / Ant. : 3m 3115

Data no. : 2 Ant. pol. : HORIZONTAL

Limit : FCC CLASS-B(1G-PK)

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

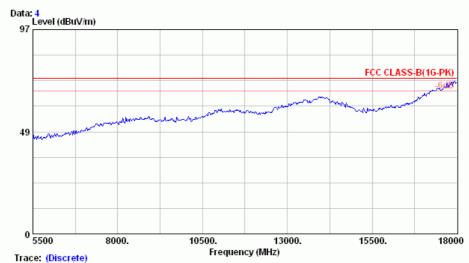
: Electronic Dictionary M/N:Z1 EUT

Power Rating : 120Vac/60Hz Test Mode : RX2437(802.11g)



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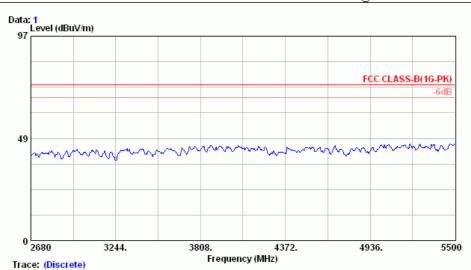


Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 4 Ant. pol. : HORIZONTAL Limit : FCC CLASS-B(1G-PK) Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N: Z1

Power Rating : 120Vac/60Hz Test Mode : RX2437(802.11g)





Site no. : A/C Chamber Dis. / Ant. : 3m 3115

Data no. : 1 Ant. pol. : VERTICAL

Limit : FCC CLASS-B(1G-PK)

Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

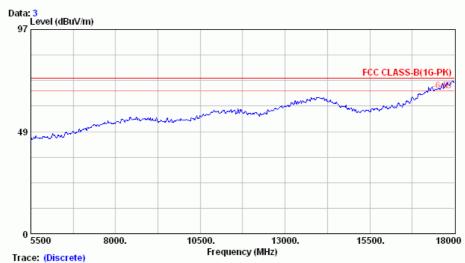
: Electronic Dictionary M/N:Z1

Power Rating : 120Vac/60Hz Test Mode : RX2437(802.11g)



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Site no. : A/C Chamber Dis. / Ant. : 3m 3115 Data no. : 3 Ant. pol. : VERTICAL

: FCC CLASS-B(1G-PK) Limit Env. / Ins. : 8593EM 21\*C/52% Engineer : Jarwei Wang

: Electronic Dictionary M/N:Z1 EUT

Power Rating : 120Vac/60Hz Test Mode : RX2437(802.11g)