



FCC TEST REPORT

CATEGORY : Portable End Product
PRODUCT NAME : THE WRIST TRANSMITTER
FCC ID. : **GX9WTGS**
FILING TYPE : Certification
MODEL NAME : WT-GS

APPLICANT : **CLIMAX TECHNOLOGY CO., LTD.**
4F, No. 3, Alley 2, Lane 342, Fu-The 1 Road, His-Chih City
Taipei Hsien, Taiwan.

MANUFACTURER : Same as Applicant

ISSUED BY : **SPORTON INTERNATIONAL INC.**
6F, No. 106, Sec. 1, Hsin Tai Wu Rd., His Chih, Taipei Hsien,
Taiwan, R.O.C.

Statements:

The test result in this report refers exclusively to the presented test model / sample.

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Certificate or Test Report could not be used by the applicant to claim the product endorsement by CNLA, NVLAP or any agency of U.S. government.

The test equipment used to perform the test are calibrated and traceable to NML/ROC or NIST/USA.

Dr. Alan Lane
Vice General Manager



Lab Code: 200079-0



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History of this test report

- No additional attachment.
- Additional attachment were issued as following record:

Attachment No.	Issue Date	Description



1. General Description of Equipment under Test

1.1 Applicant

CLIMAX TECHNOLOGY CO., LTD.

4F, NO. 3, ALLEY 2, LANE 342, FU-THE 1 ROAD, HIS-CHIH CITY, TAIPEI HSIEN, TAIWAN

1.2 Manufacturer

Same as 1.1

1.3 Basic Description of Equipment under Test

This product is a wireless transmitter. The technical data has been listed on section " Features of Equipment under Test ". This product is used to be worn on the wrist for emergency call and alarm.

1.4 Features of Equipment under Test

ITEMS	DESCRIPTION
Type of Modulation	FSK
Number of Channels	1
Operating Frequency	922.4 MHz
Function Type	Transmitter
Power Rating (DC/AC, Voltage)	3 VDC from battery
Duty Cycle	N.A.
Humidity Range	60% ~ 95%
Temperature Range (Operating)	0 ~ 40°C

2. Test Configuration of the Equipment under Test

2.1 Description of the Test

- a. The EUT has been programmed to continuously transmit or receive during testing. The used peripherals as well as the configuration fulfill the requirements of ANSI C63.4:2001.
- b. The following 3 modes was tested:
 - Mode 1: X axis
 - Mode 2: Y axis
 - Mode 3: Z axis
- c. The configuration is operated in a manner which tends to maximize its emission characteristics in a typical application.
- d. 3 meters measurement distance in semi-anechoic chamber was used in this test.

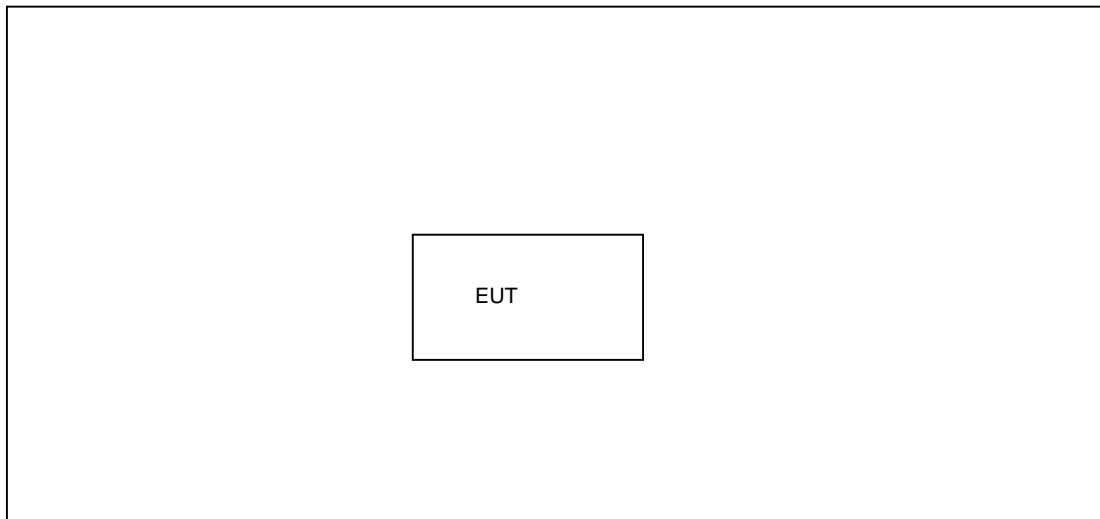
2.1 Frequency Range Investigated

Radiated emission test : from 30 MHz to 10th harmonic of the highest operating frequency or 40GHz whichever is lower.

2.2 Description of Test Supporting Units

The EUT was tested alone. No supporting device is needed for testing.

2.3 Connection Diagram of Test System





2.4 Test Software

No test software is required for this testing.



3. Test Location and Standards

3.1 Test Location

Test Location : Sporton Hwa Ya Testing Building

Address : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
Tel: +886 3 327 3456 Fax: +886 3 318 0055

Test Site No. : 03CH03-HY

3.2 Test Conditions

Normal Voltage : 3VDC
Extreme Voltages : 2.55VDC and 3.45VDC
Normal Temperature : 20 °C
Extreme Temperature : 0 °C and 40 °C

3.3 Standards for Methods of Measurement

Here is the list of the standards followed in this test report.

ANSI C63.4-2001

47 CFR Part 15 Subpart C (Section 15.249)



4. List of Measurements

4.1 Summary of the Test Results

Applied Standard: 47 CFR Part 15 and Part 2			
Paragraph	FCC Rule	Description of Test	Result
5.1	15.249(a)	Carrier field strength	Pass
5.2	15.107/15.207	AC Power Line Conducted Emission	NA
5.3	15.249(a)/ 15.249(d)	Spurious Radiated Emission	Pass
5.4	15.249(b)	Frequency Tolerance	Pass
5.5	15.235(c)(3)	Antenna Requirement	Pass



5. Test Result

5.1 Carrier Field Strength

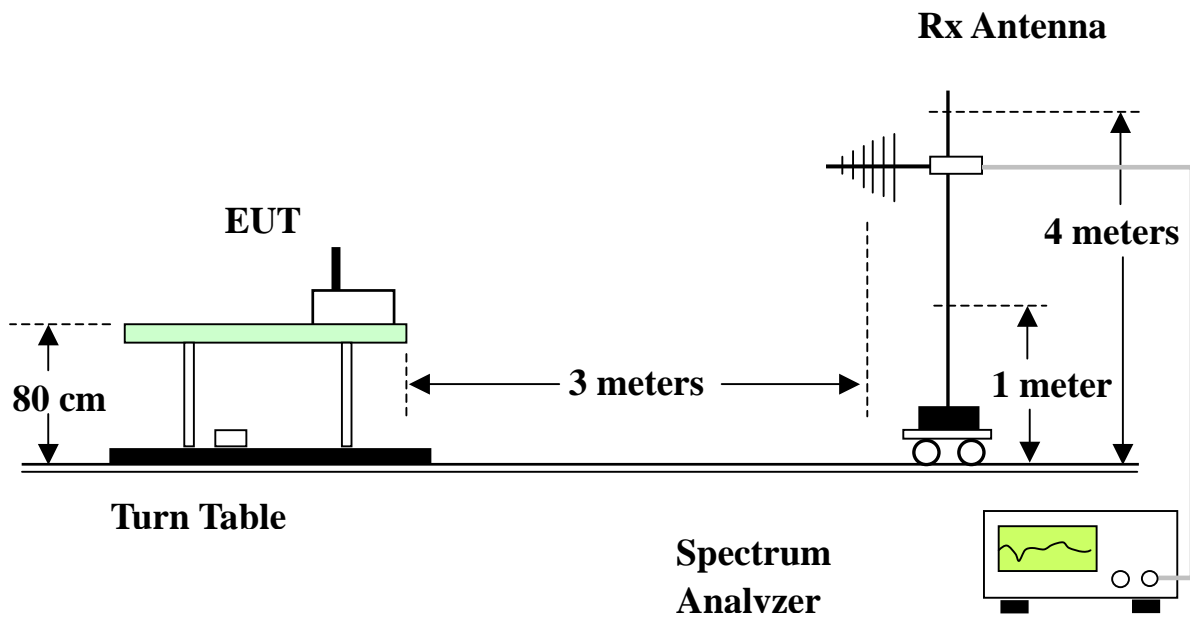
5.1.1 Measuring Instruments

Item 1~9 of the table on section 7.

5.1.2 Test Procedures

- a) Configure the EUT according to ANSI C63.4.
- b) The EUT was placed on the top of the turn table 0.8 meter above ground.
- c) The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turn table.
- d) Power on the EUT and all the supporting units.
- e) The turn table was rotated by 360 degrees to determine the position of the highest radiation.
- f) The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
- g) For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turn table was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- h) Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- i) For emission above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
- j) If the emission level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz and average method for above the 1GHz. the reported.
- k) For testing above 1GHz, the emission level of the EUT in peak mode was 20dB higher than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

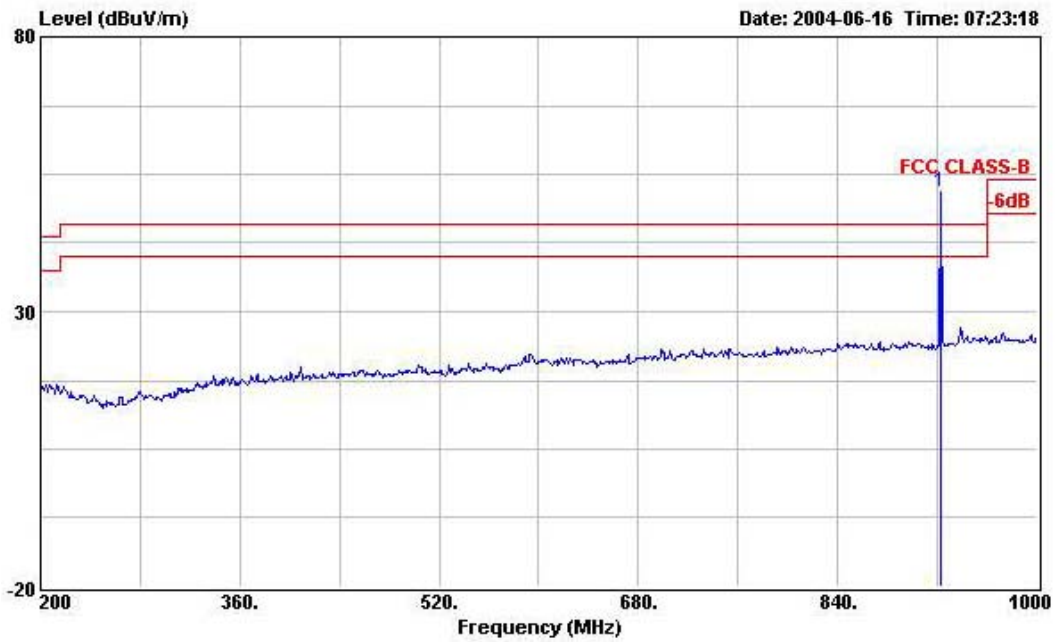
5.1.3 Test Setup Layout





5.1.4 Test Result

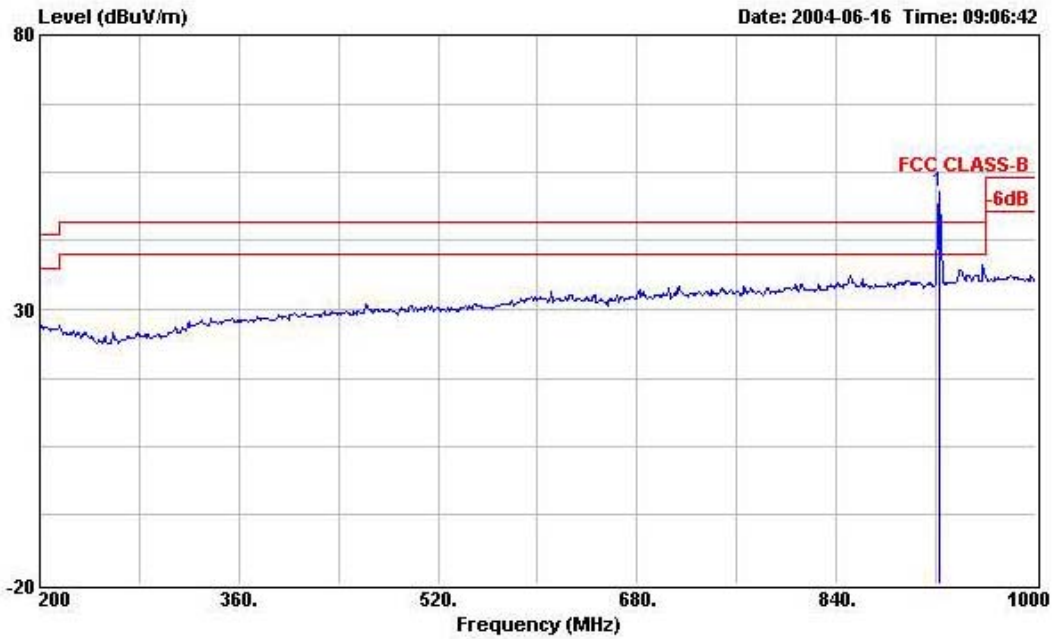
Test Channel	Mode 1	Temperature	26.6 deg. C	Tested By	Steve Chen
Frequency	922.400MHz	Humidity	66%		



Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Detect Mode
922.400	51.76	-42.24	94	53.21	21.42	5.41	28.28	AV



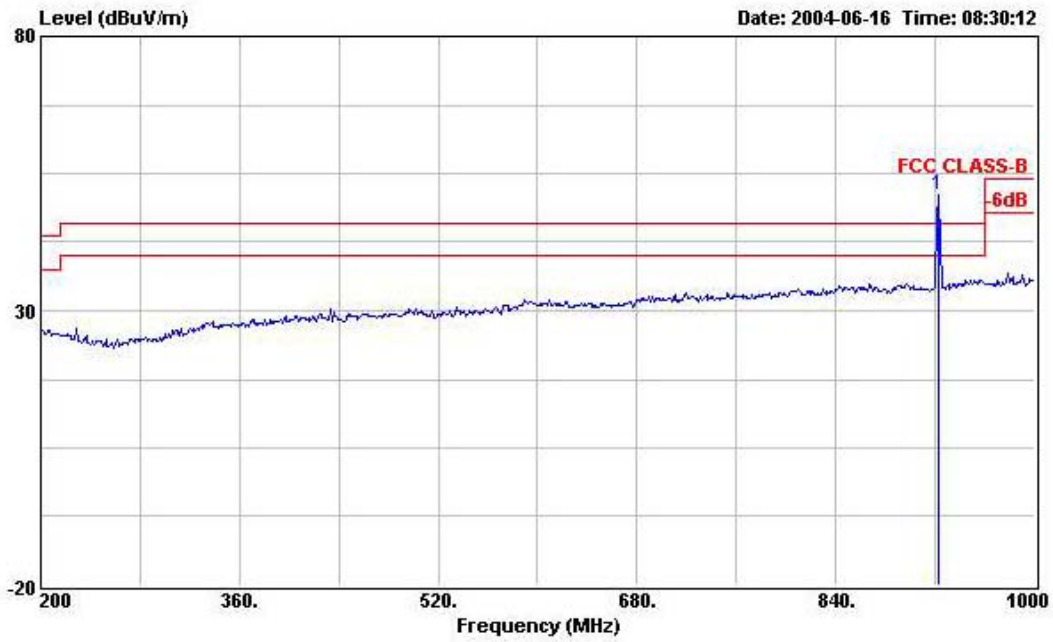
Test Channel	Mode 2	Temperature	26.6 deg. C	Tested By	Steve Chen
Frequency	922.400MHz	Humidity	66%		



Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Detect Mode
922.400	51.31	-42.69	94	52.76	21.42	5.41	28.28	AV



Test Channel	Mode 3	Temperature	26.6 deg. C	Tested By	Steve Chen
Frequency	922.400MHz	Humidity	66%		



Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Detect Mode
922.400	51.02	-42.98	94	52.47	21.42	5.41	28.28	AV



5.2 AC Power Line Conducted Emission

There is no need to do this testing since this EUT is battery powered.



5.3 Test of Radiated Emission

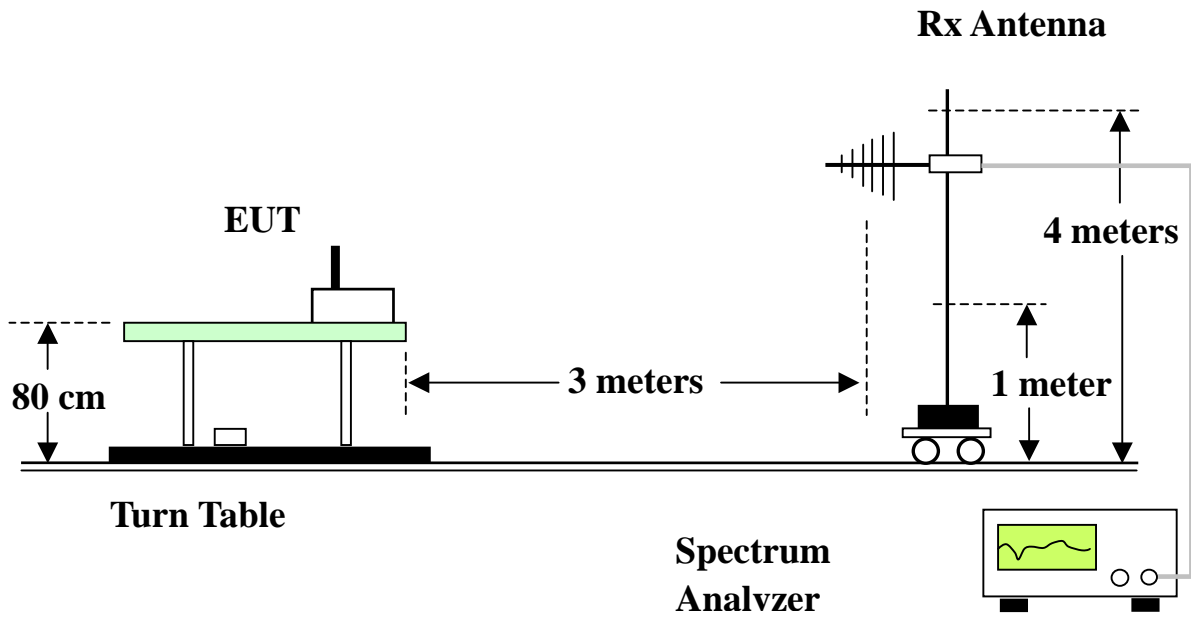
5.3.1 Measuring Instruments

Item 1~9 of the table on section 7.

5.5.2 Test Procedures

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- b) The EUT was placed on the top of the turn table 0.8 meter above ground.
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- d) Power on the EUT and all the supporting units.
- e) The turn table was rotated by 360 degrees to determine the position of the highest radiation.
- f) The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
- g) For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turn table was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- h) Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- i) For emission above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
- j) If the emission level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz and average method for above the 1GHz. the reported.
- k) For testing above 1GHz, the emission level of the EUT in peak mode was 20dB higher than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

5.4.3. Test Setup Layout





5.5.4 Test Results and Limit

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

Test Mode	RF LINK	Temperature	27 deg. C	Tested By	Steve Chen
Freq. Range	30MHz~1GHz	Humidity	63%		

(A) Polarization: Horizontal

Spurious emission emitted by the EUT is too low to be measured.

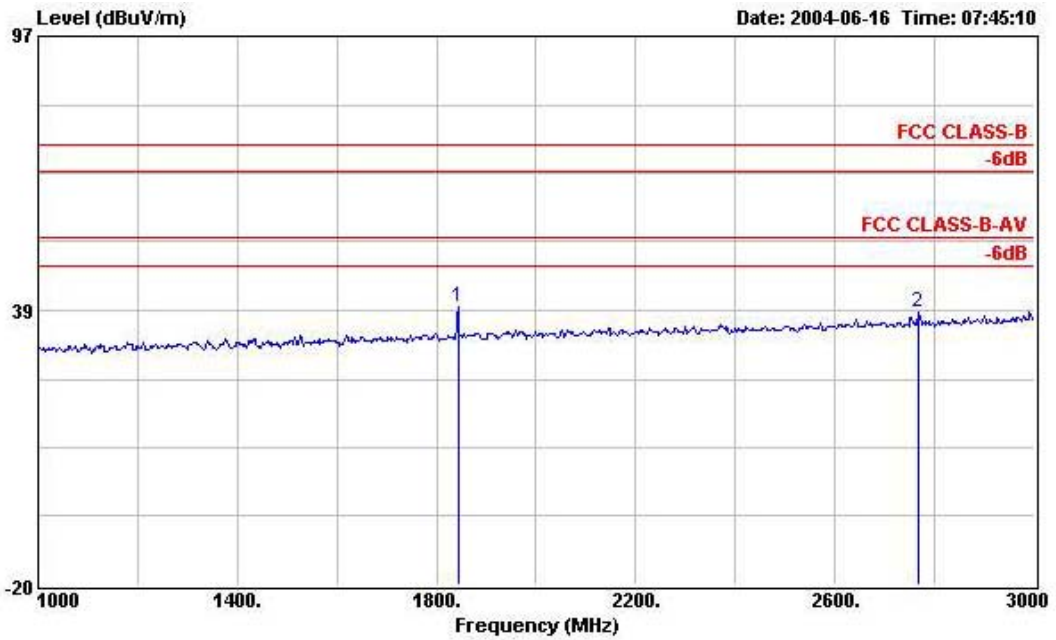
(B) Polarization: Vertical

Spurious emission emitted by the EUT is too low to be measured.

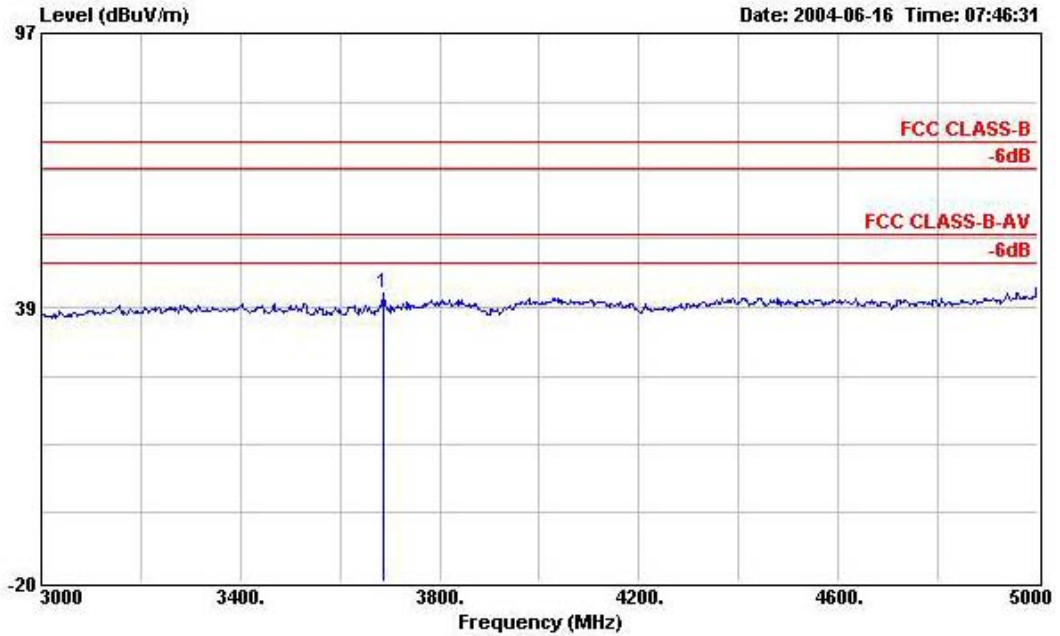


Test Mode	Mode 1	Temperature	26.6 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~10GHz	Humidity	66%		

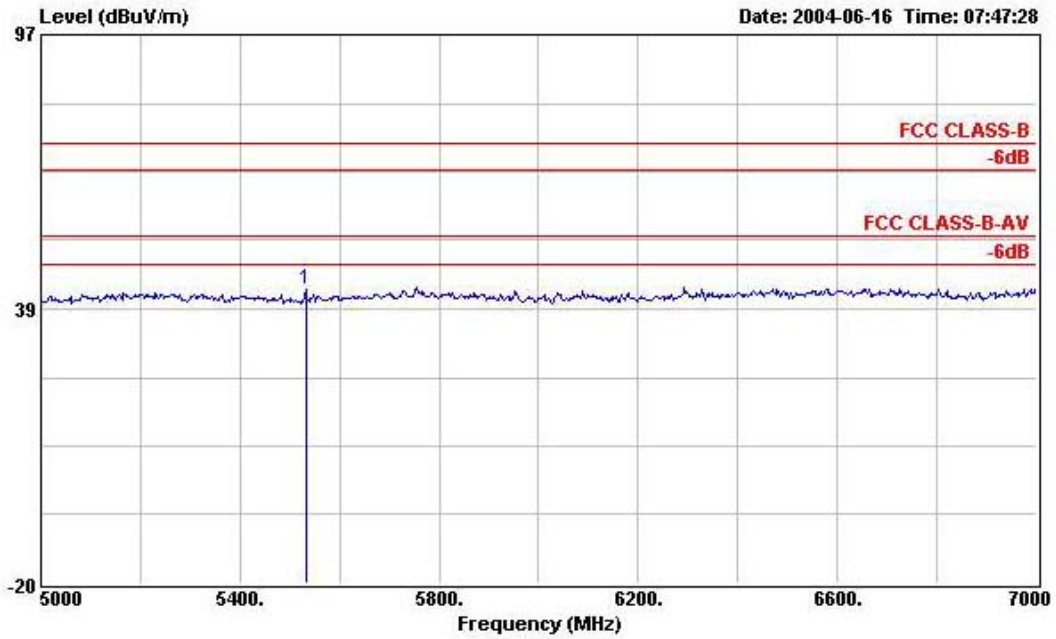
(A) Polarization: Horizontal



	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp	Remark	Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor		Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1844.000	39.44	-14.56	54.00	52.07	26.54	1.64	40.81	Average	---	---
2	2766.000	38.30	-15.70	54.00	48.17	29.38	1.95	41.20	Average	---	---



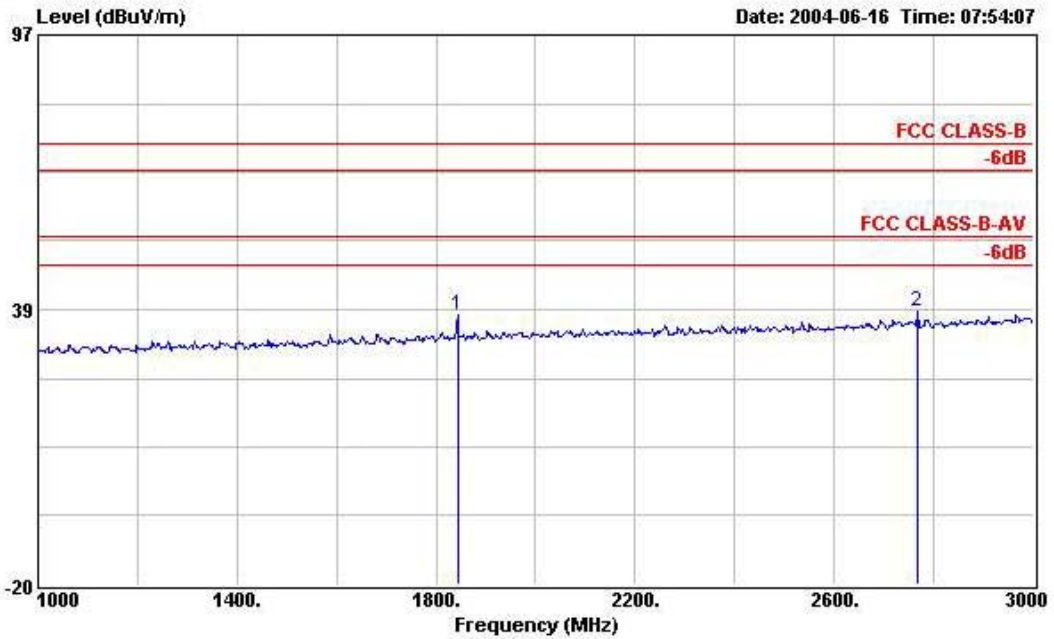
	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp	Remark	Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor		Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3686.000	41.71	-12.29	54.00	49.43	31.85	1.81	41.38	Average	---	---



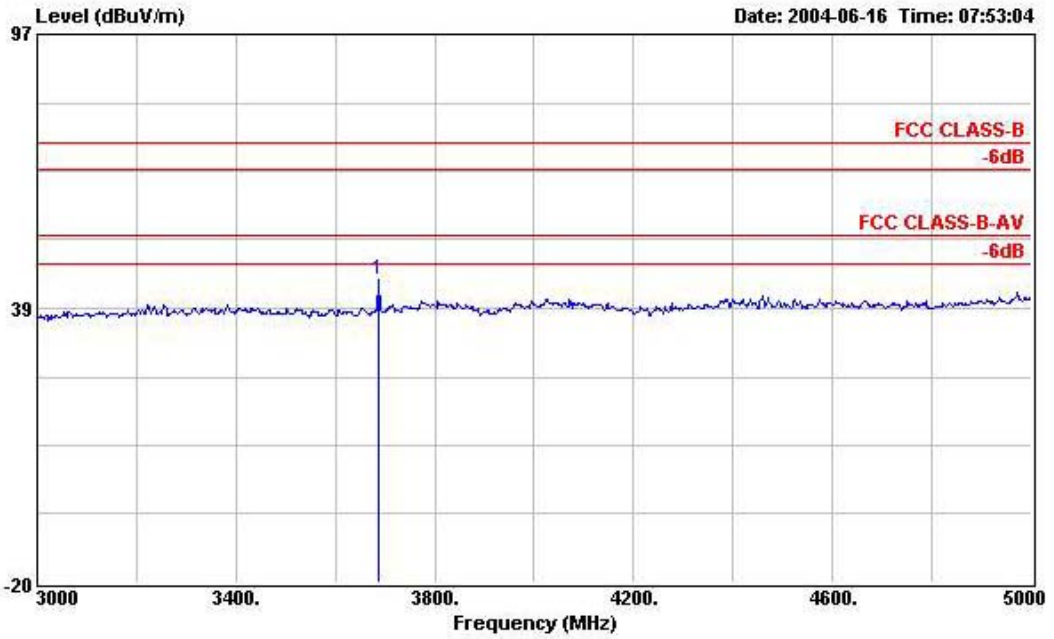
	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	5532.000	42.69	-11.31	54.00	48.77	34.41	2.63	43.12	Average	---	---



(B) Polarization: Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1844.000	37.35	-16.65	54.00	49.98	26.54	1.64	40.81	Average	---	---
2	2766.000	38.11	-15.89	54.00	47.98	29.38	1.95	41.20	Average	---	---

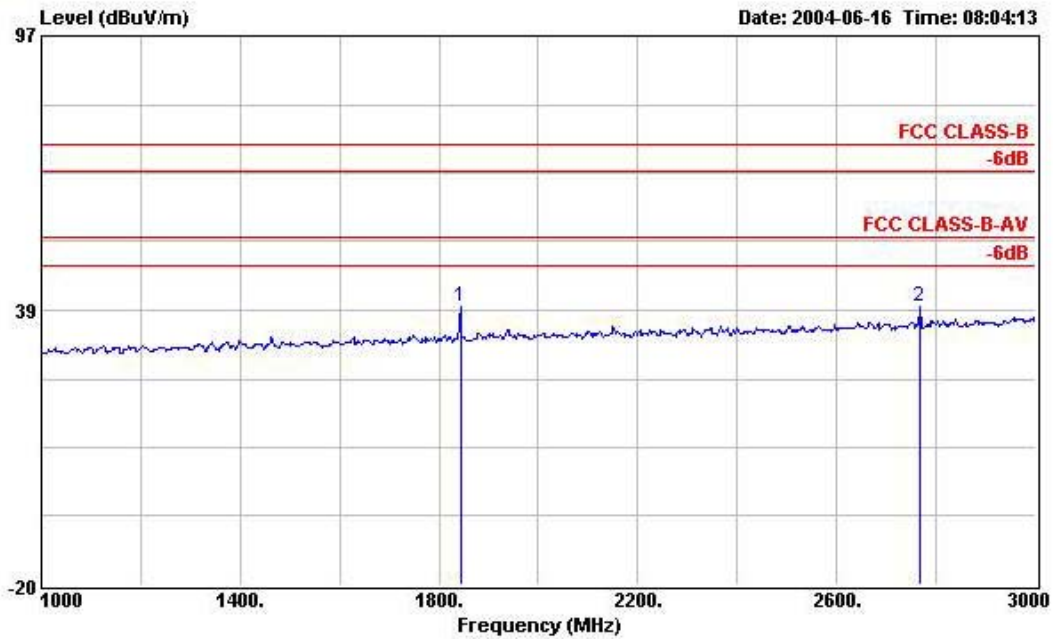


	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp	Remark	Ant	Table
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3686.000	44.43	-9.57	54.00	52.15	31.85	1.81	41.38	Average	100	320

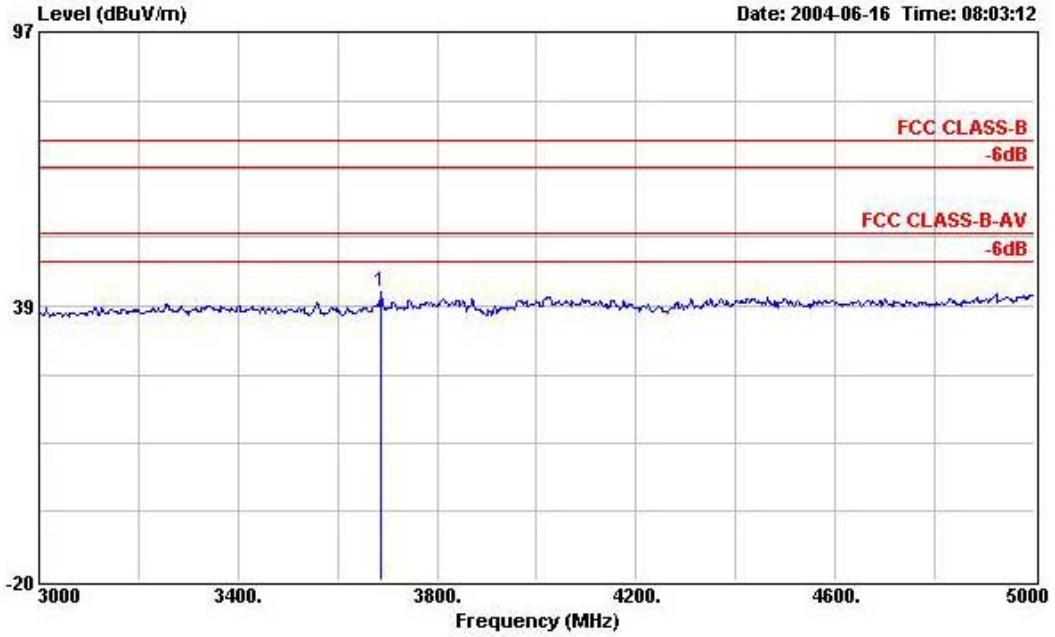


Test Mode	Mode 2	Temperature	26.6 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~10GHz	Humidity	66%		

(A) Polarization: Horizontal



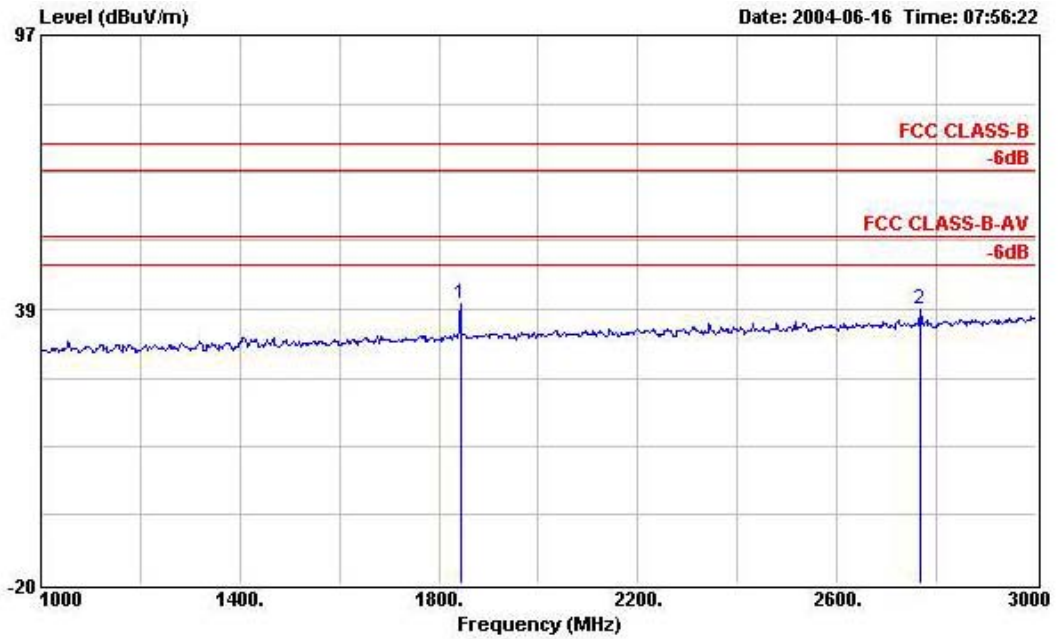
	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp	Remark	Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor		Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1844.000	39.18	-14.82	54.00	51.81	26.54	1.64	40.81	Average	---	---
2	2766.000	39.27	-14.73	54.00	49.14	29.38	1.95	41.20	Average	---	---



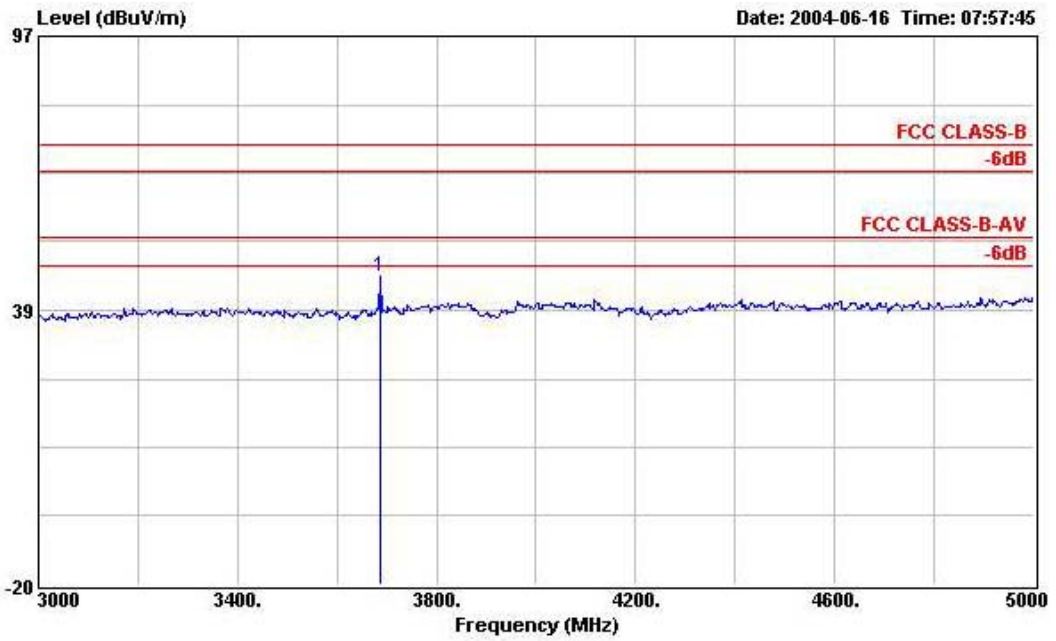
	Freq	Level	Over Limit	Limit	Read	Probe	Cable	Preamp	Remark	Ant	Table
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3686.000	41.68	-12.32	54.00	49.40	31.85	1.81	41.38	Average	---	---



(B) Polarization: Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1844.000	39.61	-14.39	54.00	52.24	26.54	1.64	40.81	Average	---	---
2	2766.000	38.65	-15.35	54.00	48.52	29.38	1.95	41.20	Average	---	---

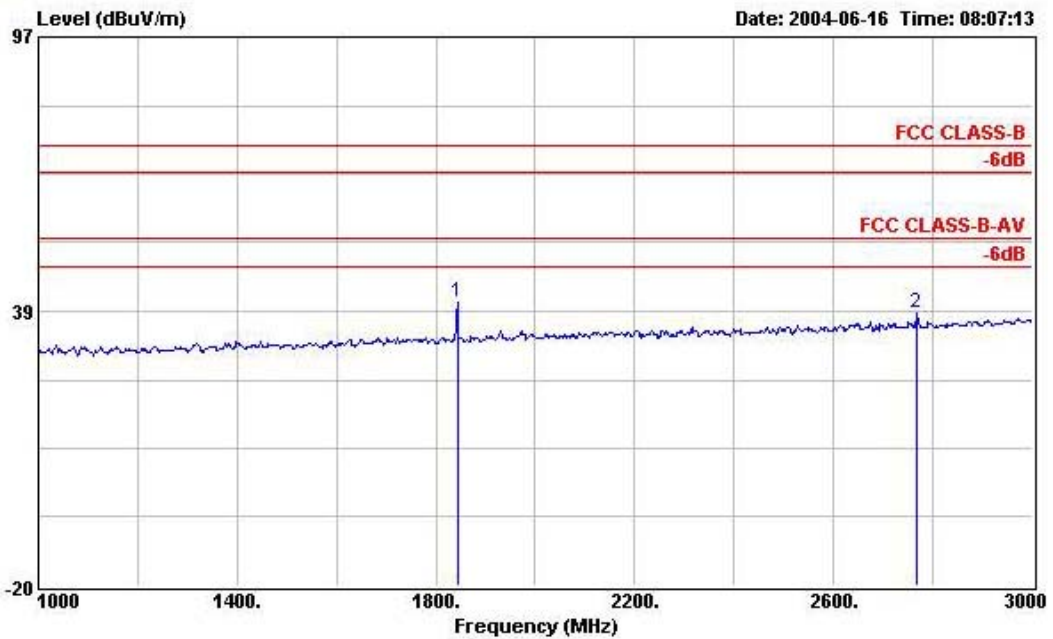


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3686.000	45.59	-8.41	54.00	53.31	31.85	1.81	41.38	Average	100	325

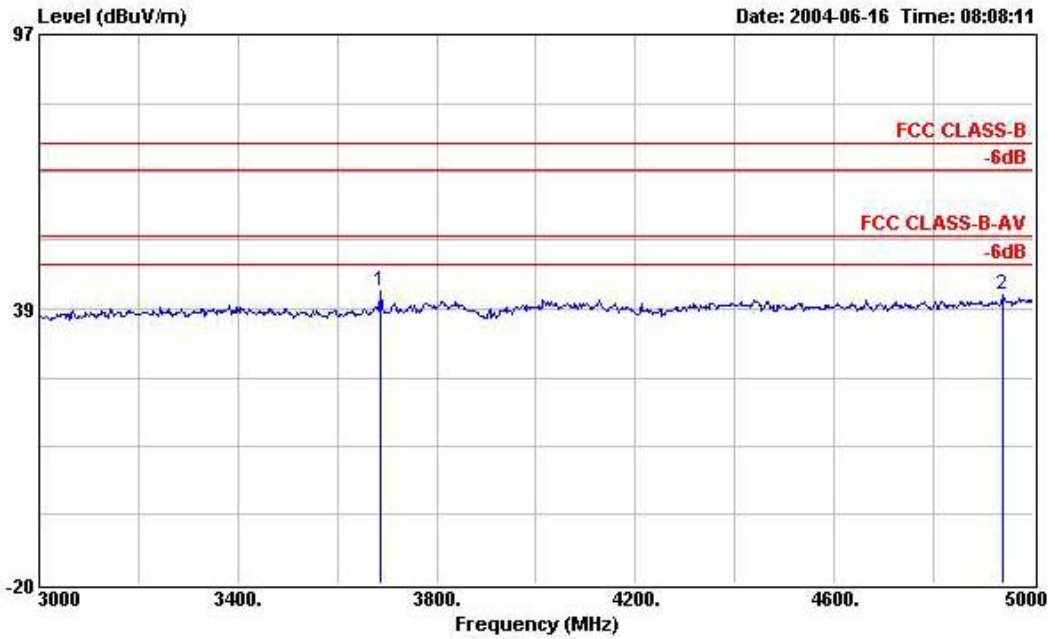


Test Mode	Mode 3	Temperature	26.6 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~10GHz	Humidity	66%		

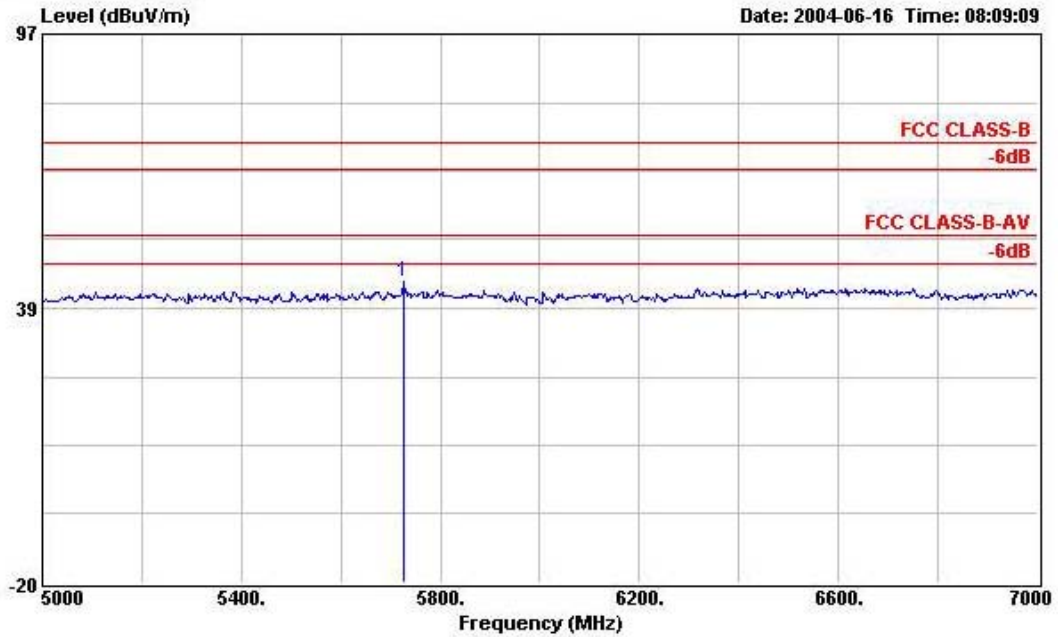
(A) Polarization: Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamplifier	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1844.000	40.31	-13.69	54.00	52.94	26.54	1.64	40.81	Average	---	---
2	2766.000	38.10	-15.90	54.00	47.97	29.38	1.95	41.20	Average	---	---



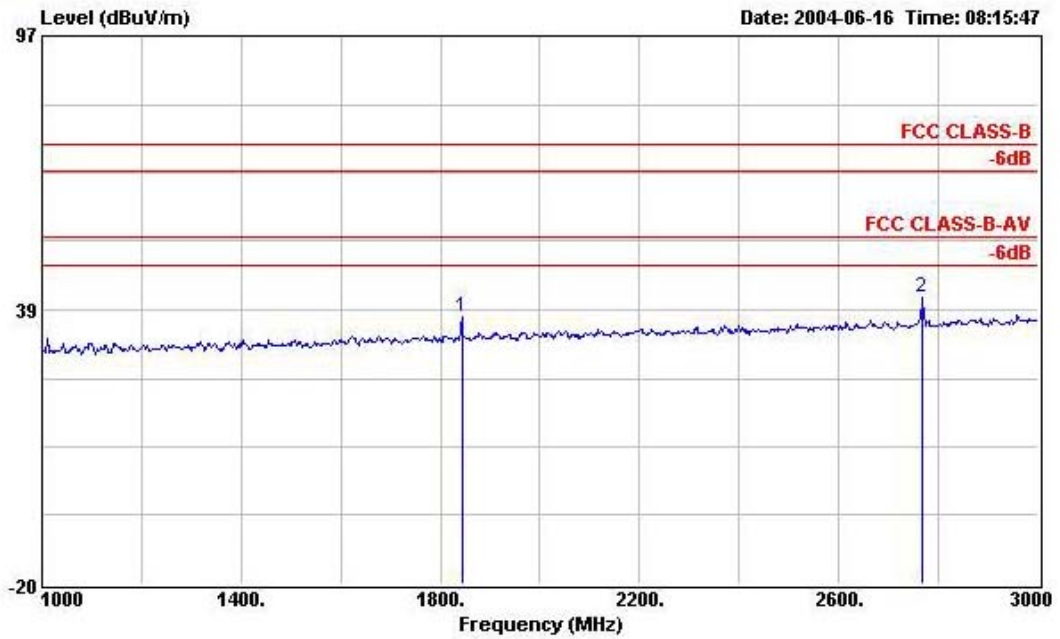
	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3686.000	42.48	-11.52	54.00	50.20	31.85	1.81	41.38	Average	---	---
2	4940.000	41.64	-12.36	54.00	48.23	33.49	2.45	42.53	Average	---	---



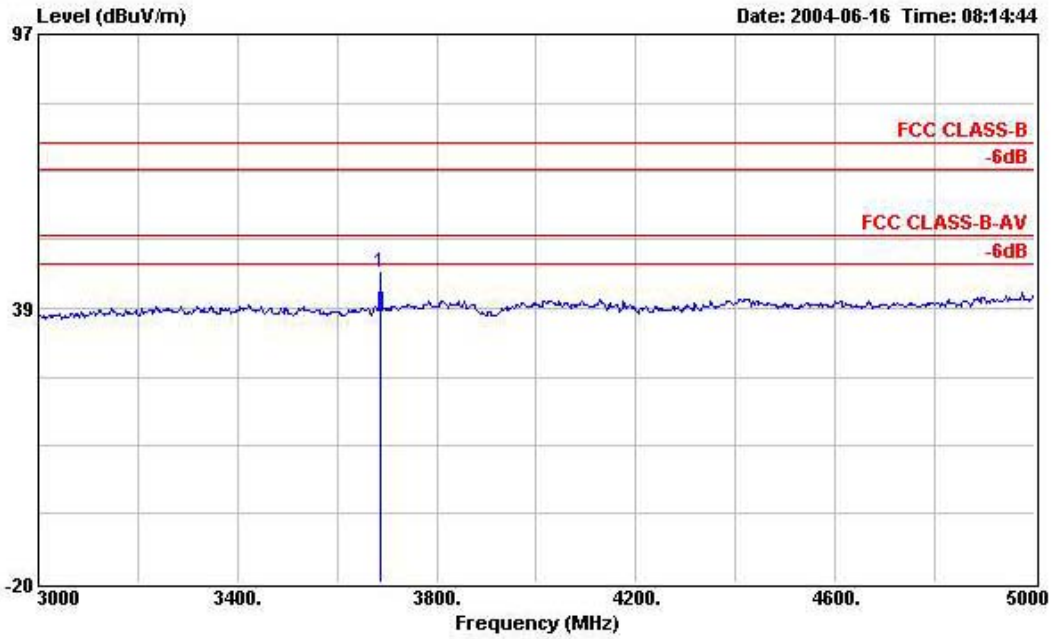
	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	5726.000	44.05	-9.95	54.00	50.11	34.49	2.64	43.19	Average	---	---



(B) Polarization: Vertical



	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp	Remark	Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor		Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1844.000	36.93	-17.07	54.00	49.56	26.54	1.64	40.81	Average	---	---
2	2766.000	41.03	-12.97	54.00	50.90	29.38	1.95	41.20	Average	---	---



	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp	Remark	Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor		Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3686.000	45.98	-8.02	54.00	53.70	31.85	1.81	41.38	Average	100	312

5.5.5 Photographs of Radiated Emission Test Configuration

- The photographs show the configuration that generates the maximum emission.

FRONT VIEW



REAR VIEW





6 Antenna Requirements

6.1 Standard Applicable

47 CFR Part15 Section 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.

47 CFR Part15 Section 15.235 (c):

The antenna shall be a single element, one meter or less in length, permanently mounted on the enclosure containing the device.

6.2 Antenna Construction

The antenna used in this device is printed antenna, there is no antenna connector.



7 List of Measuring Equipments Used

Items	Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
1	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	Jun. 21, 2003	Radiation (03CH03-HY)
2	Spectrum analyzer	R&S	FSP40	100004	9KHZ~40GHz	Aug. 23, 2003	Radiation (03CH03-HY)
3	Amplifier	HP	8447D	2944A09072	100KHz – 1.3GHz	Nov. 05, 2003	Radiation (03CH03-HY)
4	Biconical Antenna	SCHWARZBECK	VHBB 9124	301	30MHz –200MHz	Jul. 24, 2003	Radiation (03CH03-HY)
5	Log Antenna	SCHWARZBECK	VUSLP 9111	221	200MHz -1GHz	Jul. 24, 2003	Radiation (03CH03-HY)
6	RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	Dec. 03, 2003	Radiation (03CH03-HY)
7	Amplifier	MITEQ	AFS44	879981	100MHz~26.5GHz	Jul. 23, 2003	Radiation (03CH03-HY)
8	Horn Antenna	COM-POWER	3115	6821	1GHz – 18GHz	Sep. 12, 2003	Radiation (03CH03-HY)
9	Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	Radiation (03CH03-HY)
10	Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
11	Horn Antenna	Schwarzbeck	BBHA9170	154	15GHz~40GHz	Jun. 01, 2004	Radiation (03CH03-HY)
12	RF Cable-HIGH	Jye Bao	RG142	CB030-HIGH	1GHz~29.5GHz	Dec. 05, 2003	Radiation (03CH03-HY)

※ Calibration Interval of instruments listed above is one year.