

FCC TEST REPORT

CATEGORY : Portable End Product
PRODUCT NAME : Wireless PS2 Game Controller
FCC ID. : OR7-GCTX01
FILING TYPE : Certification
MODEL NAME : Joystick : GCTX01
Joystic+Dongle : GC-241, AirSurt
BRAND NAME : Globlink, Intec, Keun-GII Systems, Radio Shack,
Quest Control, Gemini, Gameron

APPLICANT : **Globlink Technology Inc.**
2Fl., 101 Rui-hu Street Nei-hu(114), Taipei , 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.



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Vice General Manager
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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

Globlink Technology Inc.

2Fl., 101 Rui-hu Street Nei-hu, Taipei , Taiwan

1.2 Manufacturer

Same as 1.1

1.3 Basic Description of Equipment under Test

This product is a wireless PS2 Game Controller. It is composed by 2 independent sets, one is the handheld joystick, the other one (Dongle) is plugged on the Play Station 2. And this test report is for the joystick part only. The technical data has been listed on section " Features of Equipment under Test ".

This product is not able to communicate with Bluetooth device.

1.4 Features of Equipment under Test

ITEMS	DESCRIPTION
Type of Modulation	GFSK
Number of Channels	78
Operating Frequency Band	2402 ~ 2480MHz
Function Type	Transceiver
Antenna Type	Printed Antenna
Power Rating (DC/AC, Voltage)	6 VDC from battery
Duty Cycle	NA
Humidity Range	NA
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 configuration is operated in a manner which tends to maximize its emission characteristics in a typical application.
- c. 3 meters measurement distance in semi-anechoic chamber was used in this test.
- d. Spurious below 1GHz is independent of channel selection, so only CH 78 was tested.

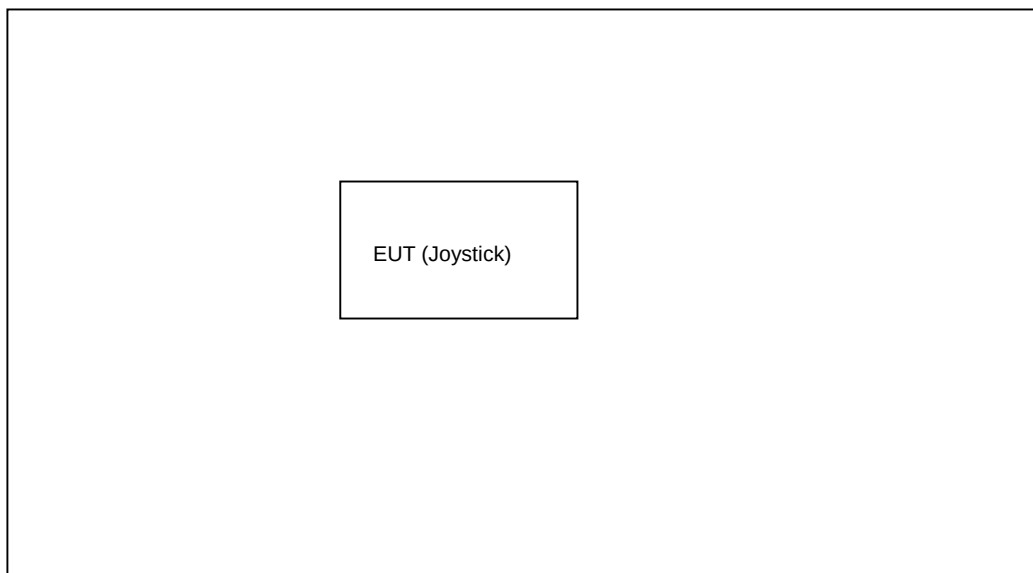
2.1 Frequency Range Investigated

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. Channel shifting is reached via wire jumping.



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 : 6VDC

Extreme Voltages : 6.9VDC

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)

3.4 DoC Statement

This EUT is also classified as a device of computer peripheral Class B which DoC has to be followed. It has been verified according to the rule of 47 CFR part 15 Subpart B, and found that all the requirements has been fulfilled.



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
6	15.235(c)(3)	Antenna Requirement	Pass



5. Test Result

5.1 Carrier Field Strength

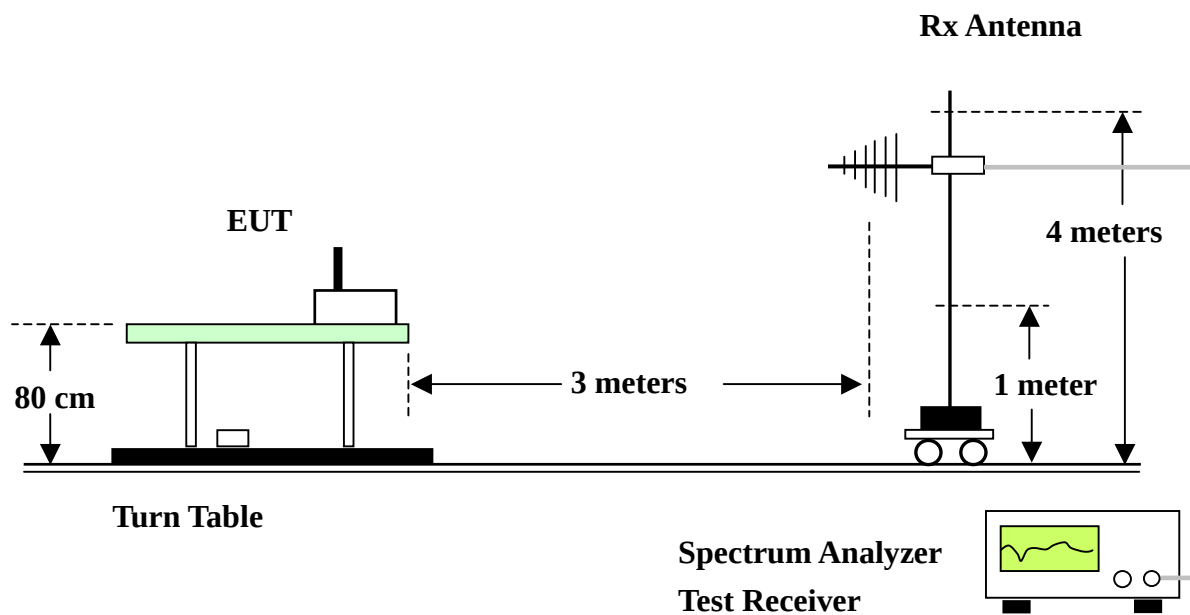
5.1.1 Measuring Instruments

Item 1~9 of the table on section 7.

5.1.2 Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT was placed on the top of the turn table 0.8 meter above ground.
3. 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.
4. Power on the EUT and all the supporting units.
5. The turn table was rotated by 360 degrees to determine the position of the highest radiation.
6. 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.
7. 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.
8. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
9. For emission above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.

5.1.3 Test Setup Layout





5.1.4 Test Result

Test Channel	CH 00	Temperature	25 deg. C	Tested By	Steve Chen
Frequency	2402MHz	Humidity	62%		

A) Polarization: Horizontal

Frequency (MHz)	Level (dBuV/m)	Read Level (dBuV)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Limit Line (dBuV/m)	Detect Mode
2402.030	71.92	84.65	28.17	1.72	42.62	114	Peak
2401.900	51.13	63.83	28.17	1.72	42.62	94	AV

(B) Polarization: Vertical

Frequency (MHz)	Level (dBuV/m)	Read Level (dBuV)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Limit Line (dBuV/m)	Detect Mode
2401.710	75.21	87.94	28.17	1.72	42.62	114	Peak
2401.940	53.45	66.18	28.17	1.72	42.62	94	AV



Test Channel	CH 39	Temperature	25 deg. C	Tested By	Steve Chen
Frequency	2441MHz	Humidity	62%		

A) Polarization: Horizontal

Frequency (MHz)	Level (dBuV/m)	Read Level (dBuV)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Limit Line (dBuV/m)	Detect Mode
2440.900	71.64	84.23	28.27	1.75	42.61	114	Peak
2440.940	51.51	64.10	28.27	1.75	42.61	94	AV

(B) Polarization: Vertical

Frequency (MHz)	Level (dBuV/m)	Read Level (dBuV)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Limit Line (dBuV/m)	Detect Mode
2440.790	70.08	82.67	28.27	1.75	42.61	114	Peak
2440.900	50.54	63.13	28.27	1.75	42.61	94	AV



Test Channel	CH 78	Temperature	25 deg. C	Tested By	Steve Chen
Frequency	2480MHz	Humidity	62%		

A) Polarization: Horizontal

Frequency (MHz)	Level (dBuV/m)	Read Level (dBuV)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Limit Line (dBuV/m)	Detect Mode
2480.060	70.46	82.91	28.36	1.79	42.60	114	Peak
2479.910	50.66	63.11	28.36	1.79	42.60	94	AV

(B) Polarization: Vertical

Frequency (MHz)	Level (dBuV/m)	Read Level (dBuV)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Limit Line (dBuV/m)	Detect Mode
2479.800	69.60	82.03	28.38	1.79	42.60	114	Peak
2479.860	50.53	62.98	28.36	1.79	42.60	94	AV



5.2 AC Power Line Conducted Emission

This EUT is battery powered, so there is no need to test this item.

5.3 Test of Radiated Emission

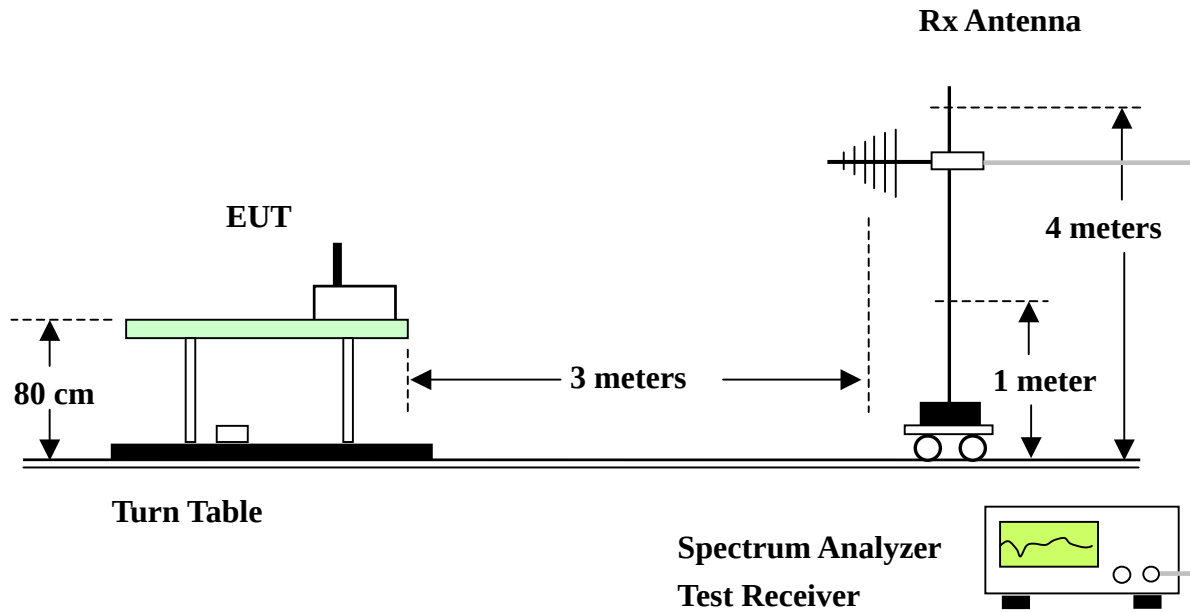
5.3.1 Measuring Instruments

Item 1~9 of the table on section 7.

5.3.2 Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT was placed on the top of the turn table 0.8 meter above ground.
3. 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.
4. Power on the EUT and all the supporting units.
5. The turn table was rotated by 360 degrees to determine the position of the highest radiation.
6. 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.
7. 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.
8. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
9. For emission above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
10. 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.
11. 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.

5.3.3. Test Setup Layout





5.3.4 Test Results and Limit

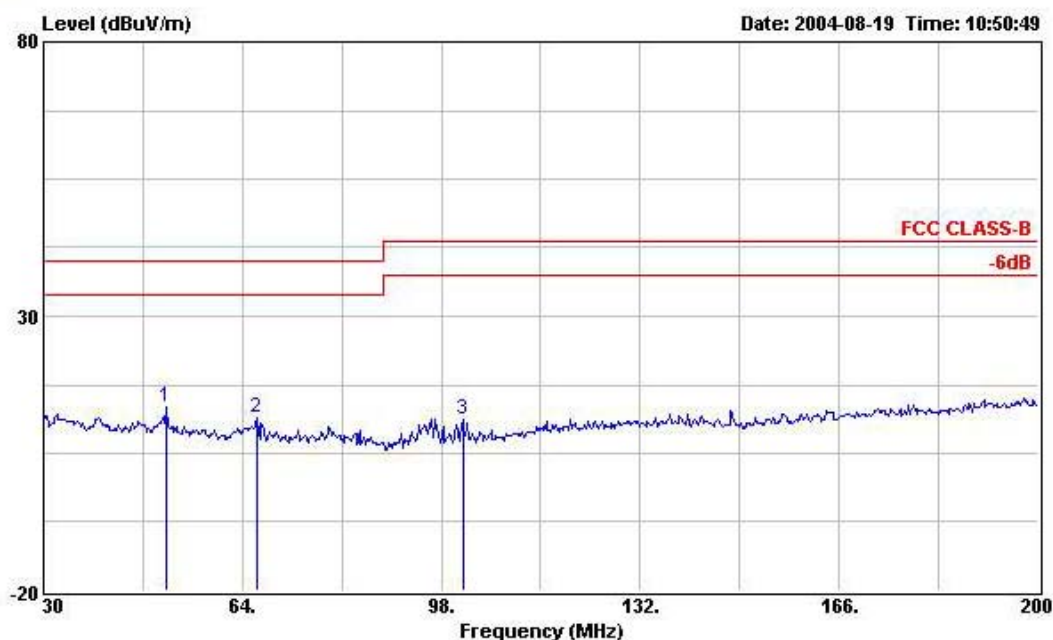
Note:

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

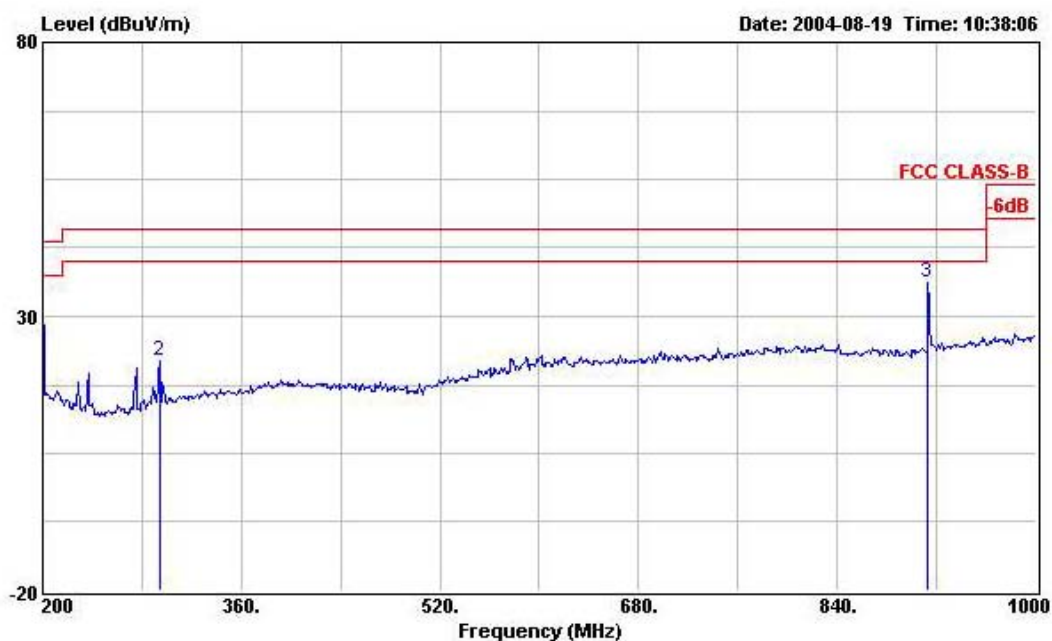
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

Test Mode	RF LINK (CH 78)	Temperature	25 deg. C	Tested By	Steve Chen
Freq. Range	30MHz~1GHz	Humidity	62%		

(A) Polarization: Horizontal

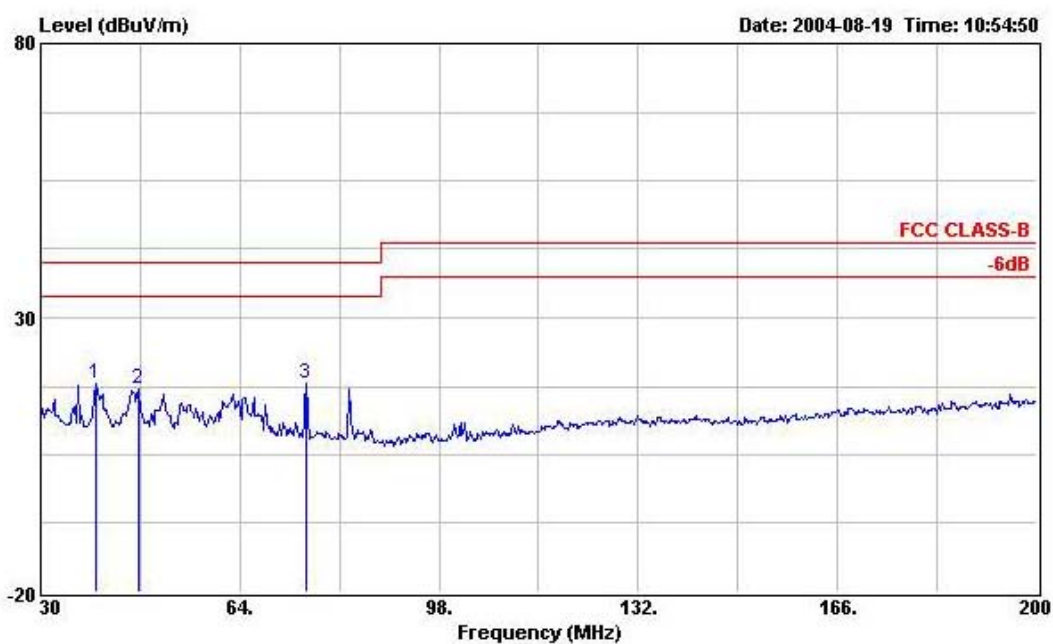


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	50.910	13.35	-26.65	40.00	28.83	11.32	1.20	28.00	Peak	---	---
2	66.380	11.39	-28.61	40.00	27.93	10.06	1.37	27.97	Peak	---	---
3	101.740	11.24	-32.26	43.50	28.09	9.25	1.80	27.90	Peak	---	---

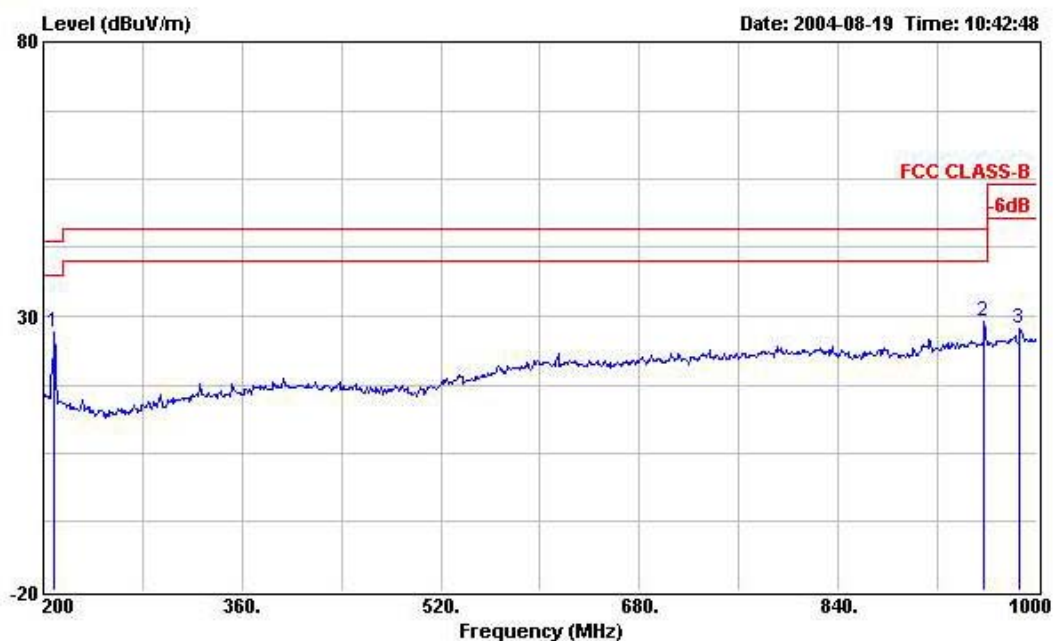


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	200.000	32.64	-10.86	43.50	41.57	16.20	2.57	27.70	Peak	---	---
2	294.400	21.89	-24.11	46.00	32.50	13.65	3.06	27.32	Peak	---	---
3	912.800	36.01	-9.99	46.00	36.92	21.99	5.39	28.29	Peak	185	234

(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	39.350	17.95	-22.05	40.00	32.41	12.50	1.06	28.02	Peak	---	---
2	46.660	17.16	-22.84	40.00	31.95	12.06	1.16	28.01	Peak	---	---
3	75.220	18.08	-21.92	40.00	34.92	9.64	1.47	27.95	Peak	---	---

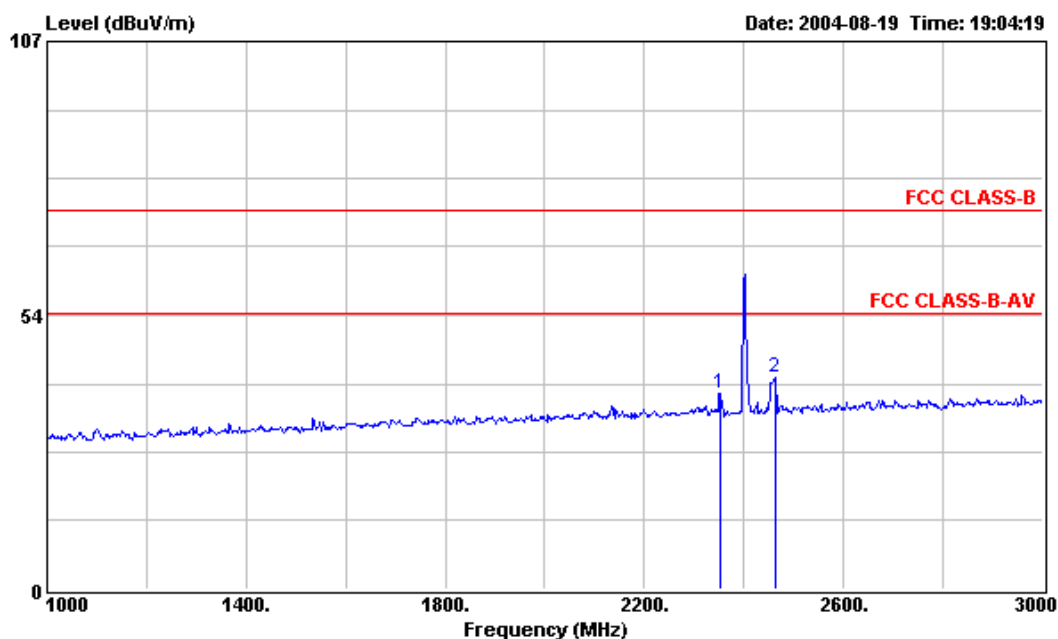


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	208.800	26.94	-16.56	43.50	36.50	15.50	2.60	27.66	Peak	---	---
2	957.600	28.95	-17.05	46.00	28.58	22.96	5.65	28.24	Peak	---	---
3	986.400	27.64	-26.36	54.00	26.61	23.59	5.65	28.21	Peak	---	---



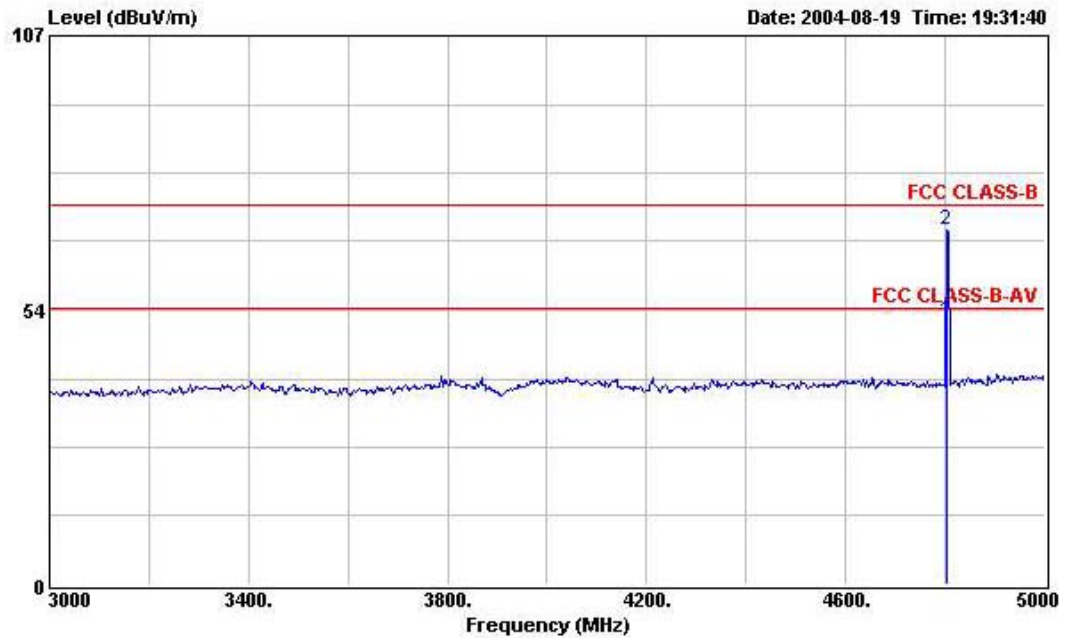
Test Mode	CH 00 (2402MHz)	Temperature	25 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	62%		

(A) Polarization: Horizontal



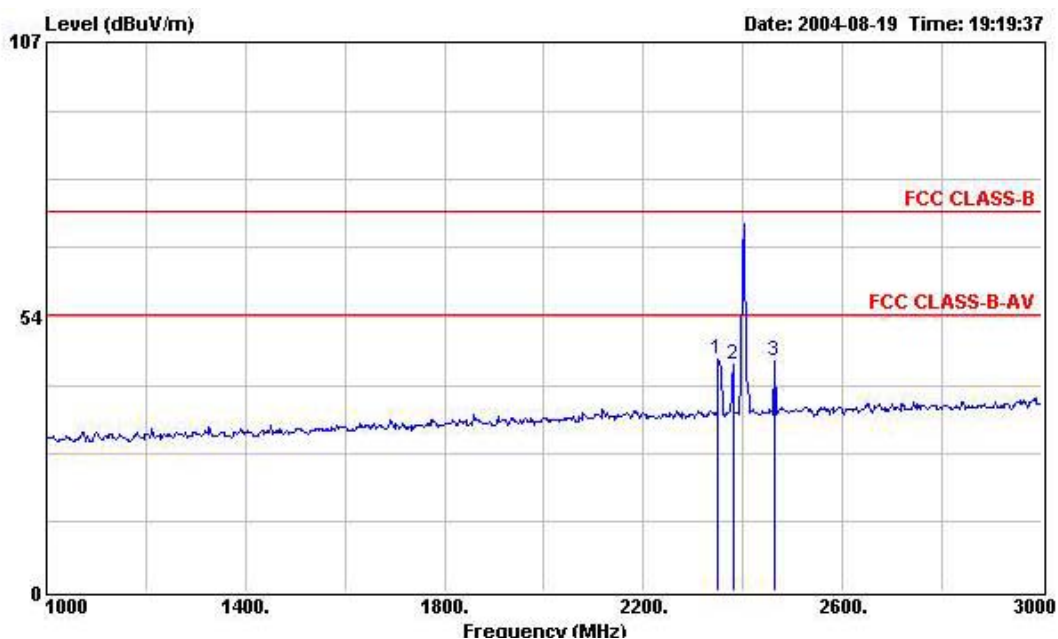
	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2352.000	38.20	-15.80	54.00	51.10	28.04	1.69	42.63	Average	---	---
2	2462.000	41.47	-12.53	54.00	53.96	28.33	1.79	42.61	Average	---	---

Remark : The peak one is the carrier frequency.



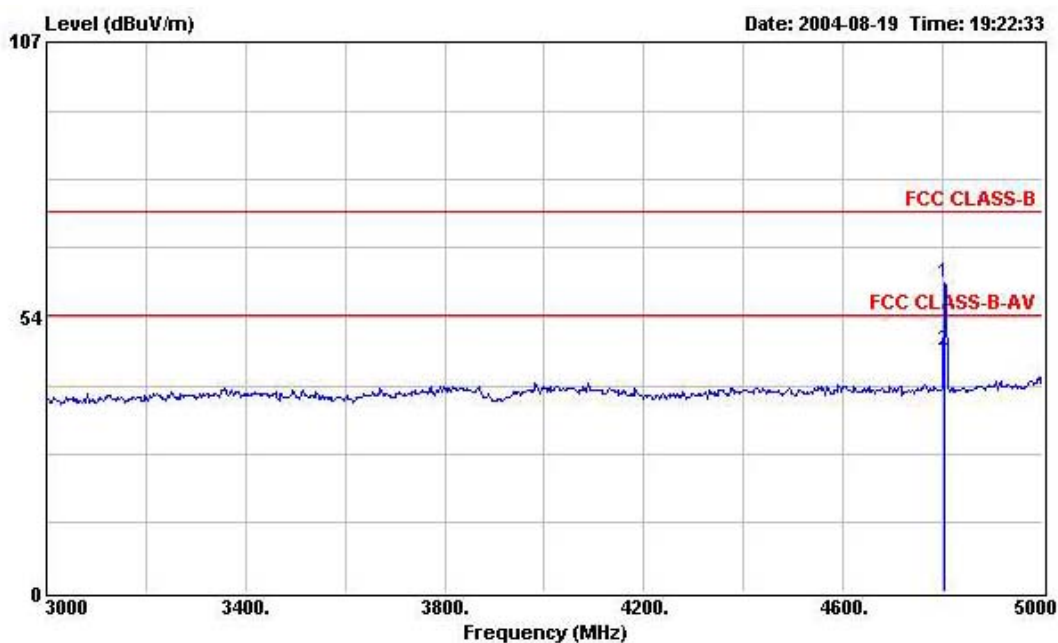
	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	4804.000	51.34	-2.66	54.00	60.10	33.19	2.40	44.35	Average	174	184
2	4804.000	69.05	-4.95	74.00	77.81	33.19	2.40	44.35	Peak	---	---

(B) Polarization: Vertical



	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
			Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2350.000	45.16	-8.84	54.00	58.07	28.04	1.68	42.63	Average	---	---
2	2380.000	44.27	-9.73	54.00	57.07	28.11	1.71	42.62	Average	---	---
3	2462.000	44.89	-9.11	54.00	57.38	28.33	1.79	42.61	Average	---	---

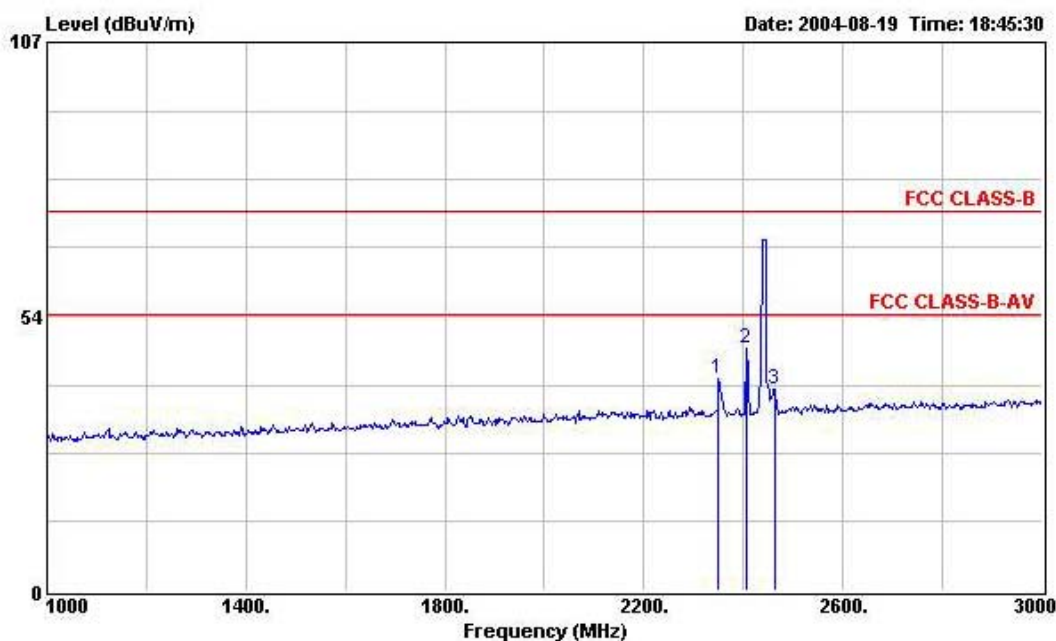
Remark : The peak one is the carrier frequency.



	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	4804.000	60.11	-13.89	74.00	68.87	33.19	2.40	44.35	Peak	---	---
2	4804.000	46.98	-7.02	54.00	55.74	33.19	2.40	44.35	Average	---	---

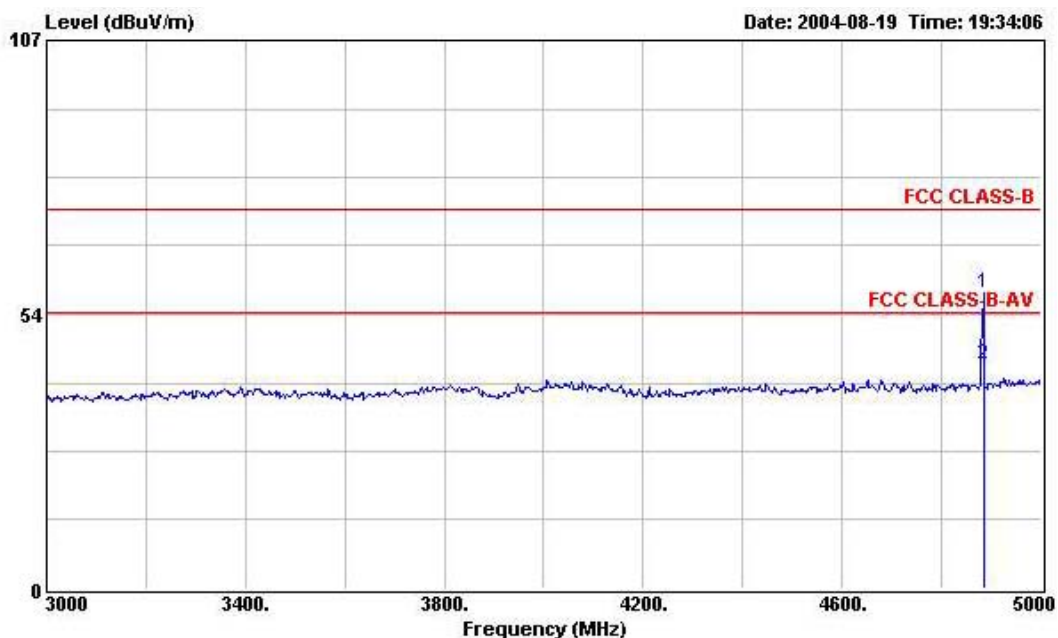
Test Mode	CH 39 (2441MHz)	Temperature	25 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	62%		

(A) Polarization: Horizontal



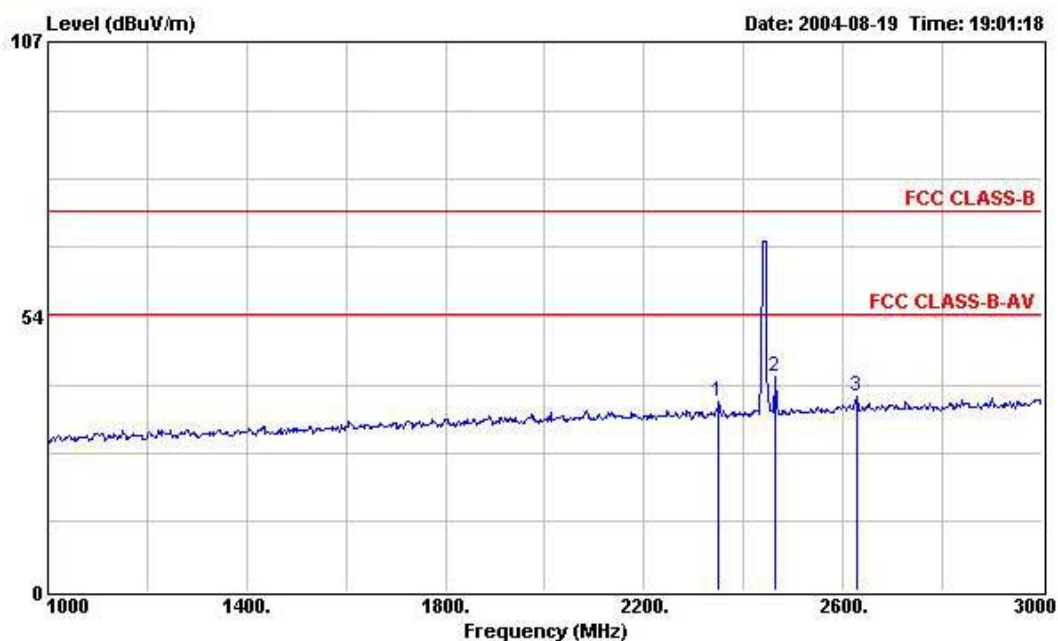
	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2350.000	41.23	-12.77	54.00	54.14	28.04	1.68	42.63	Average	---	---
2	2406.000	47.11	-6.89	54.00	59.82	28.18	1.73	42.62	Average	---	---
3	2462.000	39.09	-14.91	54.00	51.58	28.33	1.79	42.61	Average	---	---

Remark : The peak one is the carrier frequency.



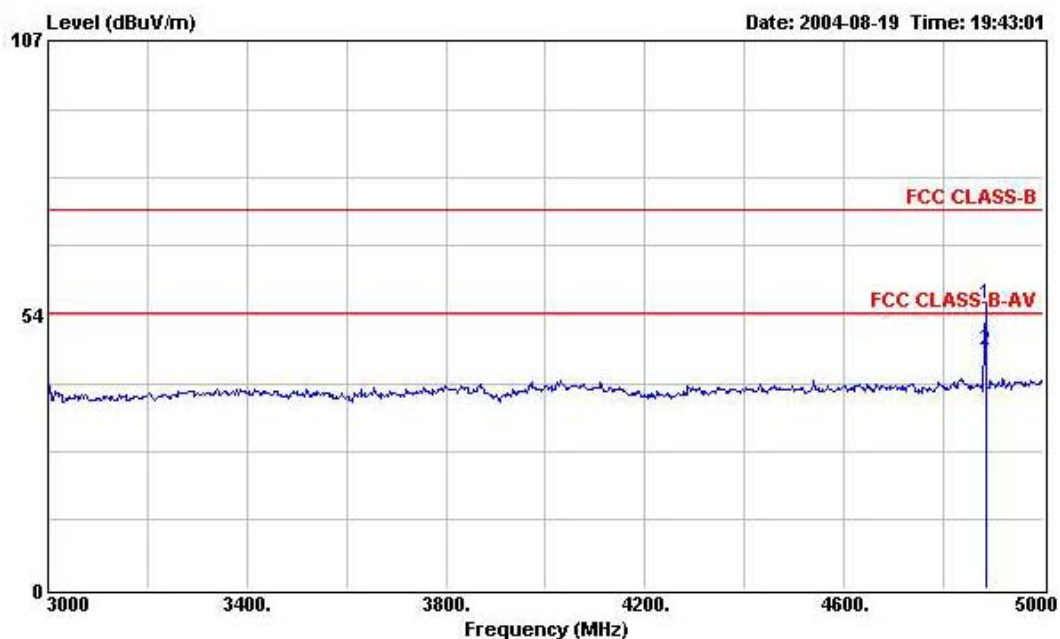
	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	4884.000	57.54	-16.46	74.00	66.08	33.37	2.51	44.42	Peak	---	---
2	4884.000	43.87	-10.13	54.00	52.41	33.37	2.51	44.42	Average	---	---

(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	2350.000	36.66	-17.34	54.00	49.57	28.04	1.68	42.63	Average	---	---
2	2462.000	41.78	-12.22	54.00	54.27	28.33	1.79	42.61	Average	---	---
3	2628.000	37.98	-16.02	54.00	49.83	28.89	1.94	42.68	Average	---	---

Remark : The peak one is the carrier frequency.

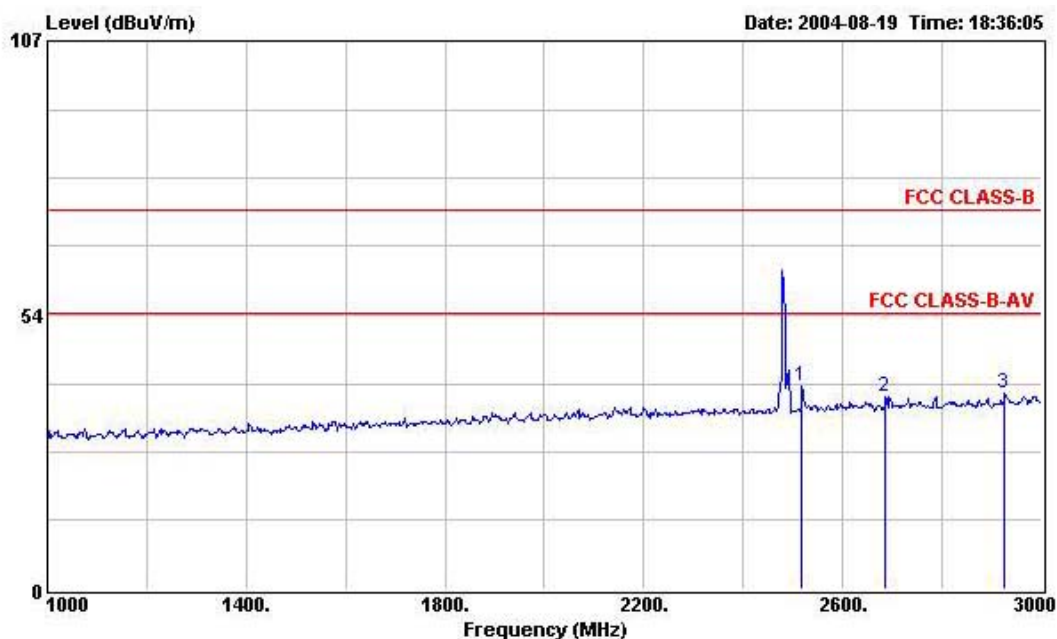


	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	4884.000	55.63	-18.37	74.00	64.17	33.37	2.51	44.42	Peak	---	---
2	4884.000	46.69	-7.31	54.00	55.23	33.37	2.51	44.42	Average	132	214



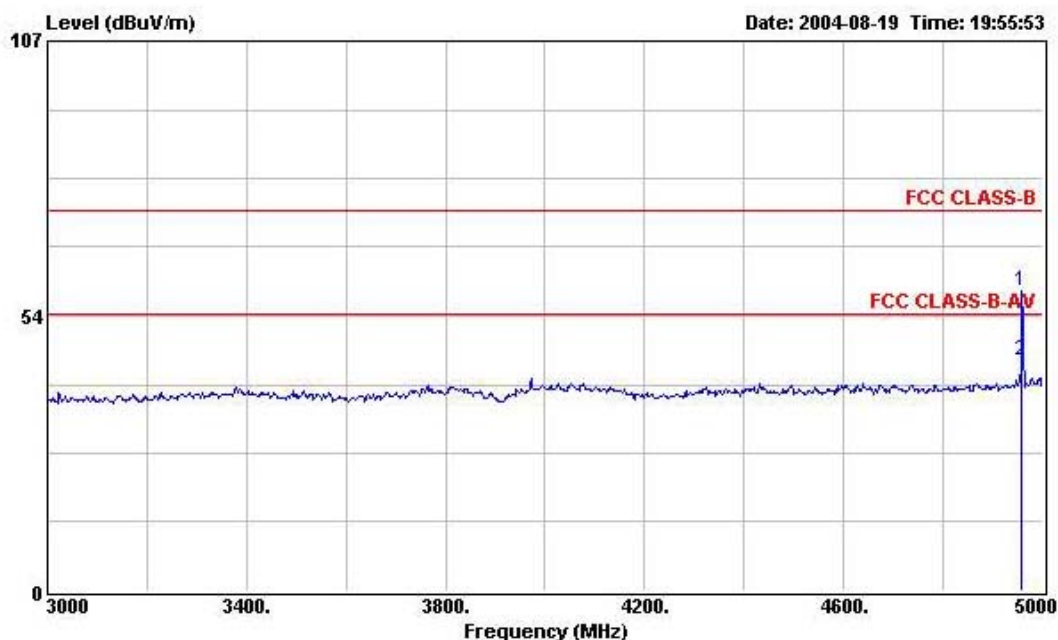
Test Mode	CH 78 (2480MHz)	Temperature	25 deg. C	Tested By	Steve Chen
Freq. Range	1GHz~25GHz	Humidity	62%		

(A) Polarization: Horizontal



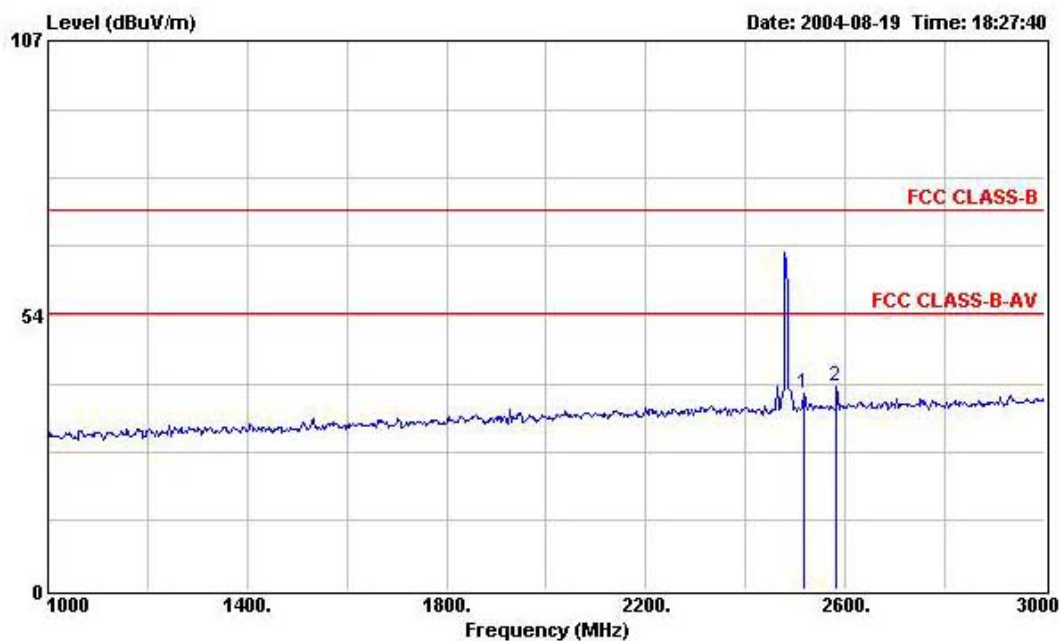
	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2518.000	39.69	-14.31	54.00	51.94	28.51	1.86	42.62	Average	---	---
2	2686.000	37.44	-16.56	54.00	49.09	29.10	1.97	42.72	Average	---	---
3	2926.000	38.08	-15.92	54.00	49.06	29.95	1.94	42.87	Average	---	---

Remark : The peak one is the carrier frequency.



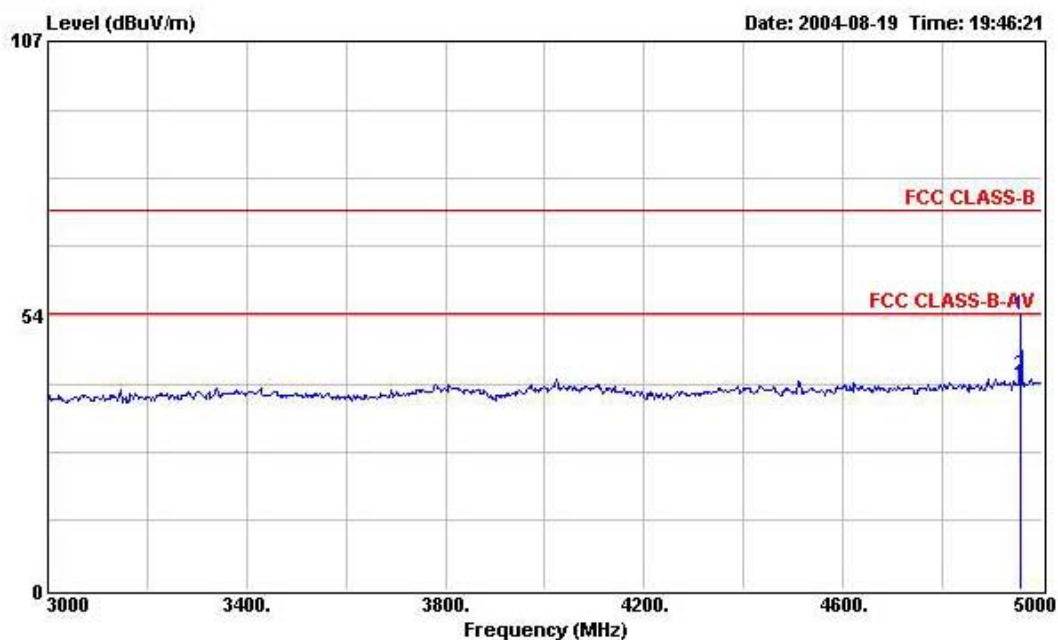
	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	4958.000	58.25	-15.75	74.00	66.75	33.53	2.44	44.47	Peak	---	---
2	4958.000	44.88	-9.12	54.00	53.38	33.53	2.44	44.47	Average	148	214

(B) Polarization: Vertical



	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2518.000	38.29	-15.71	54.00	50.54	28.51	1.86	42.62	Average	---	---
2	2582.000	39.50	-14.50	54.00	51.53	28.73	1.90	42.66	Average	---	---

Remark : The peak one is the carrier frequency.

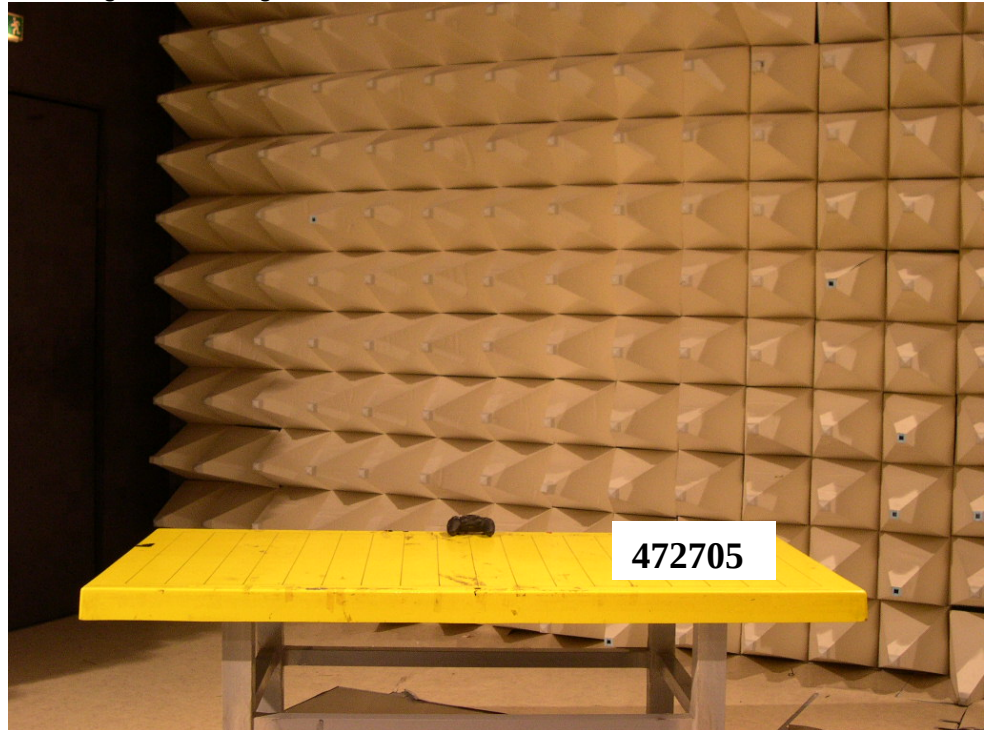


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	4958.000	53.60	-20.40	74.00	62.10	33.53	2.44	44.47	Peak	---	---
2	4958.000	41.68	-12.32	54.00	50.18	33.53	2.44	44.47	Average	---	---

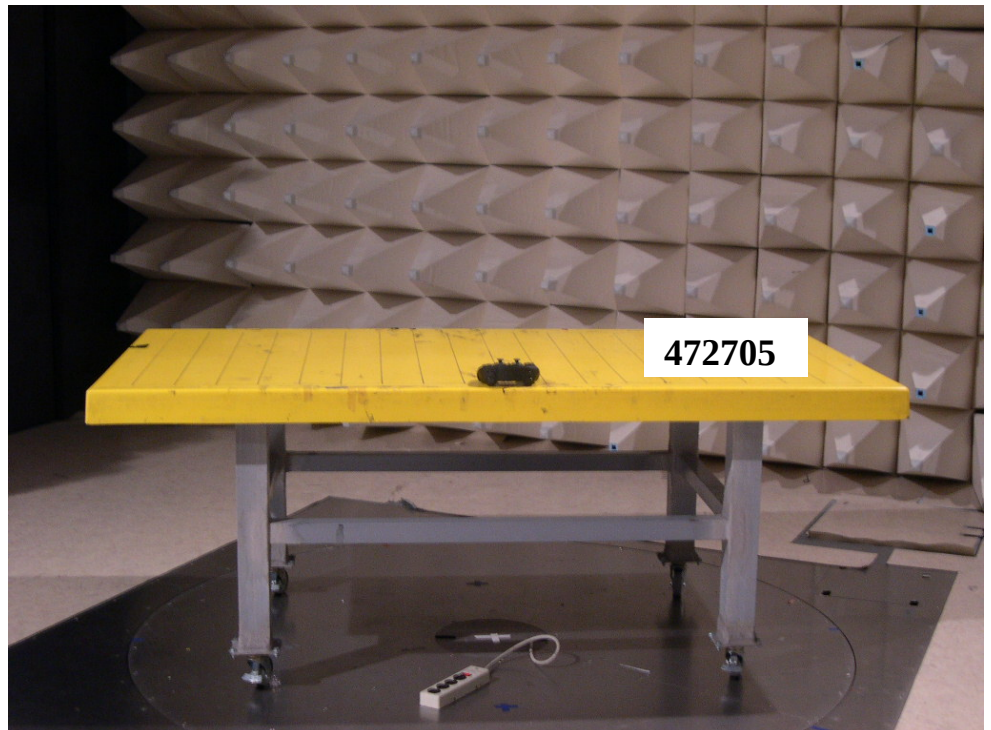
5.3.5 Photographs of Radiated Emission Test Configuration

- 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, 2004	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. 28, 2004	Radiation (03CH03-HY)
5	Log Antenna	SCHWARZBECK	VUSLP 9111	221	200MHz -1GHz	Jul. 28, 2004	Radiation (03CH03-HY)
6	RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	Dec. 03, 2003	Radiation (03CH03-HY)
7	Amplifier	MITEQ	AFS44	849984	100MHz~26.5GHz	Mar. 26, 2004	Radiation (03CH03-HY)
8	Horn Antenna	EMCO	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. 09, 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.

Items	Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
1	Spectrum analyzer	R&S	FSP7	838858/014	9KHZ~7GHZ	Sep. 03, 2003	Conducted (TH01-HY)
2	Power meter	R&S	NRVS	100444	DC~40GHz	Jun. 15, 2004	Conducted (TH01-HY)
3	Power sensor	R&S	NRV-Z55	100049	DC~40GHz	Jun. 15, 2004	Conducted (TH01-HY)
4	Power Sensor	R&S	NRV-Z32	100057	30MHz-6GHz	Jun. 15, 2004	Conducted (TH01-HY)
5	AC power source	HPC	HPA-500W	HPA-9100024	AC 0~300V	Jun. 16, 2004	Conducted (TH01-HY)
6	AC power source	G.W.	GPC-6030D	C671845	DC 1V~60V	Nov. 06, 2003	Conducted (TH01-HY)
7	Temp. and Humidity Chamber	KSON	THS-C3L	612	N/A	Oct. 01, 2003	Conducted (TH01-HY)
8	RF CABLE-1m	Jye Bao	RG142	CB034-1m	20MHz~7GHz	Jan. 01, 2004	Conducted (TH01-HY)
9	RF CABLE-2m	Jye Bao	RG142	CB035-2m	20MHz~1GHz	Jan. 01, 2004	Conducted (TH01-HY)

※ Calibration Interval of instruments listed above is one year.