



FCC ID: OR7GP201
Issued on Nov. 30, 2004

Report No.: FR4O2010

FCC TEST REPORT

CATEGORY : Portable
PRODUCT NAME : Air Mouse
FCC ID. : OR7GP201
FILING TYPE : Certification
BRAND NAME : GLOBLINK, TARGUS, HAMA, TRUST, SKYWAY, VIVANCO,
MASTER CHOICE, CENTRIOS, MOTOROLA,
LEADERSHIP, OFFICE DEPOT, CENTRIOS, PLANT21
MODEL NAME : GP-201
APPLICANT : **Globlink Technology Inc.**
2Fl., 101 Rui-hu Street Nei-hu Taipei Taiwan
MANUFACTURER : The 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.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

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
SPORTON International Inc.
Sporton International Inc.

NVLAP[®]

Lab Code: 200079-0

SPORTON International Inc.

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History of this test report

Original Report Issue Date: Nov. 30, 2004

Report No.: FR4O2010

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

Attachment No.	Issue Date	Description



CERTIFICATE OF COMPLIANCE

with

47 CFR FCC Part 15 Subpart C (Section 15.249)

PRODUCT NAME : Air Mouse

BRAND NAME : GLOBLINK, TARGUS, HAMA, TRUST, SKYWAY, VIVANCO,
MASTER CHOICE, CENTRIOS, MOTOROLA,
LEADERSHIP, OFFICE DEPOT, CENTRIOS, PLANT21

MODEL NAME : GP-201

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

MANUFACTURER : The same as applicant

I **HEREBY** CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in ANSI C63.4 - 2003 and all test are performed according to 47 CFR FCC Part 15. Testing was carried out on Nov. 29, 2004 at SPORTON International Inc. LAB.

A handwritten signature in blue ink, appearing to read 'Alan Lane', is written over a horizontal line.

Dr. Alan Lane
Vice General Manager
SPORTON International Inc.



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

The same as applicant

1.3. Basic Description of Equipment under Test

This product is a wireless presenter and receiver with GFSK modulation solution. The receiver is used to be plugged on the USB port of the computer. Features of Equipment under Test

1.4. Features of Equipment under Test

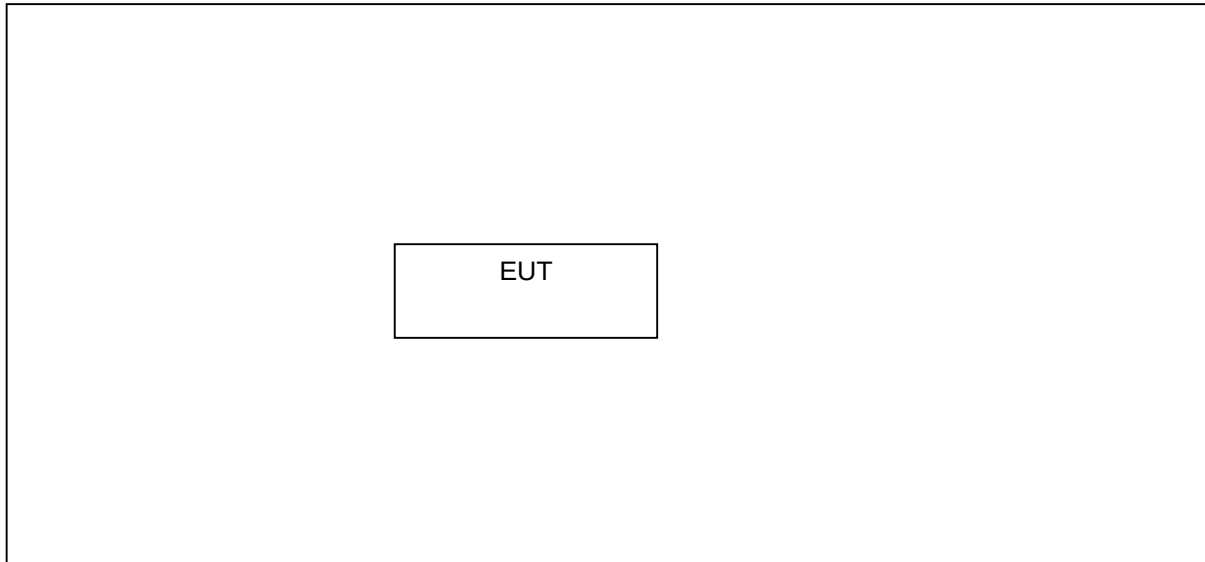
Items	Description
Type of Modulation	: GFSK
Number of Channels	: 8
Frequency Band	: 2423MHz ~ 2477MHz
Carrier Frequency	: See section 1.5 for details
Channel Bandwidth	: 1MHz
Antenna Type	: Printed Antenna
Testing Duty Cycle	: 100.00%
Power Rating (DC/AC, Voltage)	: 3.0 VDC from battery
Test Power Source	: NA
Temperature Range (Operating)	: 0 ~ 40

1.5. Table for Carrier Frequencies

Channel	Frequency	Channel	Frequency
01	2423 MHz	05	2453 MHz
02	2431 MHz	06	2461 MHz
03	2439 MHz	07	2469 MHz
04	2447 MHz	08	2477 MHz

2. Test Configuration of the Equipment under Test

2.1. Connection Diagram of Test System



2.2. The Test Mode Description

Spurious emission below 1GHz is independent of channel selection, so only channel 08 was tested. AC conduction emission is independent of channel selection, so only channel 08 was tested. The EUT is hand held device, so X, Y and Z axes were performed in the test report.

2.3. Description of Test Supporting Units

Support unit	Brand	Model No.	Serial No.	FCC ID	Data cable (m)
Notebook	COMPAQ	Presario 1500	SP0004	Doc	-
Printer	EPSON	STYLUS COLOR 680	SP0046	Yes	1.35



3. General Information of Test

3.1. Test Facility

Test Site Location : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiag, Tao Yuan Hsien, Taiwan, R.O.C.
: TEL 886-3-327-3456
: FAX 886-3-318-0055
Test Site No : 03CH01-HY / TH01-HY

3.2. Test Conditions

Normal Voltage : 3.00V
Extreme Voltages : NA
Normal Temperature : 20
Extreme Temperature : 0 and 40

3.3. Standards for Methods of Measurement

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

ANSI C63.4-2003

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.

3.5. Frequency Range Investigated

Radiated emission test: from 30 MHz to 10th carrier harmonic

3.6. Test Distance

The test distance of radiated emission (30MHz~1GHz) test from antenna to EUT is 3 M.
The test distance of radiated emission (1GHz~10th carrier harmonic) test from antenna to EUT is 3 M.

3.7. Test Software

During testing, Channel & Power Controlling Software: This was provided by the manufacturer and is able to let the test engineer select the operating channel as well as the RF output power. The parameters for channel selection is trying to offer the test engineer the ability to fix the operating channel for testing, both normal data and continuously transmitting modes are allowed, and that for RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.



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	Maximum Carrier Field Strength	Pass
5.2	15.249	Band Edges Emission	Pass
5.3	15.207	AC Power Line Conducted Emission	NA
5.4	15.209/15.249	Spurious Radiated Emission	Pass
5.5	15.203	Antenna Requirement	Pass

5. Test Result

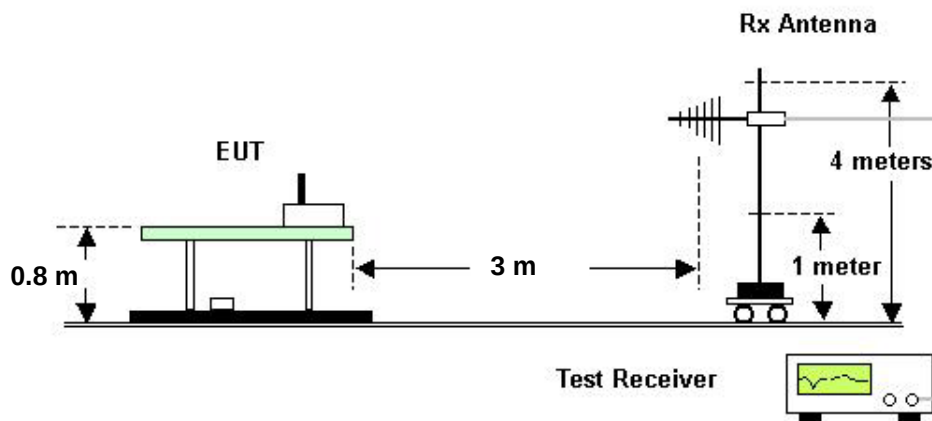
5.1. Test of Maximum Carrier Field Strength

5.1.1. Measuring Instruments

Item 6~17 of the table is on section 6.

5.1.2. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The turn table was rotated by 360 degrees to determine the position of the highest radiation.
3. 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.
4. For carrier field strength 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.
5. For carrier field strength emission, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
6. Test Setup Layout





5.1.3. Test Result:

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou
- Maximum axis: X

Channel	Frequency	Level	Over	Limit	Read	Detector
	(MHz)	(dBuV/m)	Limit	Line	Level	
			(dB)	(dBuV/m)	(dBuV/m)	
01	2423 MHz	61.22	-32.78	94.00	24.47	Average
01	2423 MHz	63.43	-50.57	114.00	12.56	Peak
04	2447 MHz	62.82	-31.18	94.00	32.64	Average
04	2447 MHz	64.84	-49.16	114.00	34.66	Peak
08	2477 MHz	61.90	-32.10	94.00	33.97	Average
08	2477 MHz	64.24	-49.76	114.00	31.63	Peak

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



5.2. Test of Band Edges Emission

5.2.1. Measuring Instruments

Item 6~17 of the table is on section 6.

5.2.2. Test Procedures

1. The transmitter is set to the lowest and highest channel.
2. Configure the EUT according to ANSI C63.4.
3. The turn table was rotated by 360 degrees to determine the position of the highest radiation.
4. 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.
5. For band edge 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.
6. For band edge emission, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.

5.2.3. Test Result

Temperature: 26°C

Relative Humidity: 64%

Duty Cycle of the Equipment During the Test: 100.00%

Test Engineer: Ted Chou

Test Channel	Freq. (MHz)	Level* (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Read (dBuV/m)	Trace (PK/AV)
01	2389 MHz	54.47	-19.53	74	24.47	PK
01	2389 MHz	42.56	-11.44	54	12.56	AV
08	2386 MHz	54.61	-19.39	74	24.32	PK
08	2386 MHz	42.89	-11.11	54	12.60	AV

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level*.

Level* : The max field strength in the restricted bands.



5.3. Test of AC Power Line Conducted Emission

It is not required to test the item because the EUT is powered by batteries.

5.4. Test of Spurious Radiated Emission

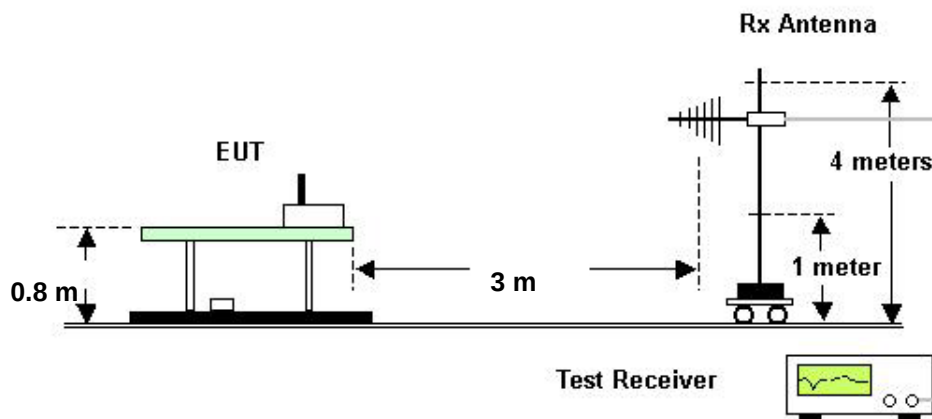
5.4.1. Measuring Instruments

Please reference item 6~17 in chapter 6 for the instruments used for testing.

5.4.2. 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.

5.4.3. Test Setup Layout





5.4.4. Test Results for CH 08 / 2477 MHz (for emission below 1GHz)

- Test Mode: X
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(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	131.660	23.46	-20.04	43.50	36.15	12.38	2.07	27.14	Peak	---	---
2	147.980	21.01	-22.49	43.50	33.86	12.03	2.22	27.10	Peak	---	---
3	185.380	23.47	-20.03	43.50	33.43	14.62	2.45	27.03	Peak	---	---
1	358.400	20.63	-25.37	46.00	28.93	15.57	3.33	27.20	Peak	---	---
2	586.400	23.10	-22.90	46.00	27.35	19.82	4.29	28.36	Peak	---	---
3	790.400	27.89	-18.11	46.00	28.80	21.78	5.05	27.74	Peak	109	87

(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	62.980	13.61	-26.39	40.00	29.49	10.29	1.33	27.50	Peak	---	---
2	135.060	15.47	-28.03	43.50	28.14	12.47	1.99	27.13	Peak	---	---
3	156.310	17.38	-26.12	43.50	29.84	12.35	2.28	27.09	Peak	---	---
1	284.800	18.67	-27.33	46.00	28.86	13.36	3.03	26.58	Peak	---	---
2	300.800	20.70	-25.30	46.00	30.31	13.82	3.08	26.51	Peak	---	---
3	352.800	20.74	-25.26	46.00	29.19	15.40	3.28	27.13	Peak	---	---

Note:

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

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

5.4.5. Test Results for CH 01 / 2423 MHz (for emission above 1GHz)

- Test Mode: X
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(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	4848.000	49.94	-24.06	74.00	54.59	33.02	2.47	40.14	Peak	---	---
2	6632.000	47.91	-26.09	74.00	49.99	34.52	3.06	39.66	Peak	---	---
3	7644.000	49.88	-24.12	74.00	49.35	36.75	3.13	39.35	Peak	---	---

(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	4848.000	50.96	-23.04	74.00	55.61	33.02	2.47	40.14	Peak	---	---
2	5140.000	45.96	-28.04	74.00	50.13	33.49	2.45	40.11	Peak	---	---
3	7268.000	50.10	-23.90	74.00	50.62	35.88	3.07	39.47	Peak	---	---

Note:

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

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



5.4.6. Test Results for CH 04 / 2447 MHz (for emission above 1GHz)

- Test Mode: X
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(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	4896.000	50.45	-23.55	74.00	54.97	33.11	2.51	40.14	Peak	---	---
2	5848.000	46.28	-27.72	74.00	49.47	34.07	2.64	39.90	Peak	---	---
3	7340.000	48.36	-25.64	74.00	48.71	36.13	2.97	39.45	Peak	---	---

(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	4896.000	51.15	-22.85	74.00	55.67	33.11	2.51	40.14	Peak	---	---
2	6420.000	47.04	-26.96	74.00	49.65	34.27	2.84	39.72	Peak	---	---
3	7340.000	49.79	-24.21	74.00	50.14	36.13	2.97	39.45	Peak	---	---

Note:

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

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



5.4.7. Test Results for CH 08 / 2477 MHz (for emission above 1GHz)

- Test Mode: X
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(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	4956.000	50.56	-23.44	74.00	55.03	33.24	2.44	40.15	Peak	---	---
2	5852.000	46.65	-27.35	74.00	49.84	34.07	2.64	39.90	Peak	---	---
3	7428.000	50.37	-23.63	74.00	50.50	36.39	2.90	39.42	Peak	---	---

(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	4956.000	51.27	-22.73	74.00	55.74	33.24	2.44	40.15	Peak	---	---
2	6652.000	47.30	-26.70	74.00	49.37	34.55	3.03	39.65	Peak	---	---
3	7600.000	49.33	-24.67	74.00	49.04	36.70	2.96	39.37	Peak	---	---

Note:

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

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



5.4.8. Test Results for CH 08 / 2477 MHz (for emission below 1GHz)

- Test Mode: Y
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(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	71.820	12.62	-27.38	40.00	28.87	9.74	1.43	27.42	Peak	---	---
2	119.590	17.27	-26.23	43.50	30.63	11.85	1.95	27.16	Peak	---	---
3	167.700	17.52	-25.98	43.50	28.81	13.42	2.35	27.06	Peak	---	---
1	279.200	20.28	-25.72	46.00	30.68	13.19	3.01	26.60	Peak	---	---
2	605.600	24.68	-21.32	46.00	28.22	20.42	4.42	28.38	Peak	---	---
3	861.600	26.58	-19.42	46.00	26.96	21.78	5.23	27.39	Peak	---	---

(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	62.980	14.84	-25.16	40.00	30.72	10.29	1.33	27.50	Peak	---	---
2	119.590	14.63	-28.87	43.50	27.99	11.85	1.95	27.16	Peak	---	---
3	185.380	17.03	-26.47	43.50	26.99	14.62	2.45	27.03	Peak	---	---
1	428.800	20.25	-25.75	46.00	27.88	16.57	3.61	27.81	Peak	---	---
2	816.800	27.34	-18.66	46.00	27.98	21.87	5.11	27.62	Peak	---	---
3	957.600	29.07	-16.93	46.00	27.78	22.96	5.65	27.32	Peak	122	34

Note:

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

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



5.4.9. Test Results for CH 01 / 2423 MHz (for emission above 1GHz)

- Test Mode: Y
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(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	4848.000	53.32	-20.68	74.00	57.97	33.02	2.47	40.14	Peak	---	---
2	5848.000	46.81	-27.19	74.00	50.00	34.07	2.64	39.90	Peak	---	---
3	7268.000	49.48	-4.52	54.00	50.00	35.88	3.07	39.47	Average	---	---
4	7268.000	52.60	-21.40	74.00	53.12	35.88	3.07	39.47	Peak	---	---

(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	4848.000	52.65	-21.35	74.00	57.30	33.02	2.47	40.14	Peak	---	---
2	4848.000	50.10	-3.90	54.00	54.75	33.02	2.47	40.14	Average	---	---
3	5844.000	46.65	-27.35	74.00	49.84	34.07	2.64	39.90	Peak	---	---
4	7268.000	53.64	-20.36	74.00	54.16	35.88	3.07	39.47	Peak	---	---
5	7268.000	52.43	-1.57	54.00	52.95	35.88	3.07	39.47	Average	---	---

Note:

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

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



5.4.10. Test Results for CH 04 / 2447 MHz (for emission above 1GHz)

- Test Mode: Y
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(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	4896.000	50.16	-23.84	74.00	54.68	33.11	2.51	40.14	Peak	---	---
2	5784.000	46.46	-27.54	74.00	49.78	34.06	2.54	39.92	Peak	---	---
3	7340.000	51.51	-22.49	74.00	51.86	36.13	2.97	39.45	Peak	---	---

(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	4896.000	53.28	-20.72	74.00	57.80	33.11	2.51	40.14	Peak	---	---
2	6720.000	47.65	-26.35	74.00	49.66	34.63	2.99	39.63	Peak	---	---
3	7340.000	51.11	-22.89	74.00	51.46	36.13	2.97	39.45	Peak	---	---

Note:

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

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

5.4.11. Test Results for CH 08 / 2477 MHz (for emission above 1GHz)

- Test Mode: Y
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(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	4956.000	48.42	-25.58	74.00	52.89	33.24	2.44	40.15	Peak	---	---
2	5880.000	46.26	-27.74	74.00	49.35	34.08	2.72	39.89	Peak	---	---
3	7428.000	48.44	-25.56	74.00	48.57	36.39	2.90	39.42	Peak	---	---

(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	4956.000	53.41	-20.59	74.00	57.88	33.24	2.44	40.15	Peak	---	---
2	6660.000	47.12	-26.88	74.00	49.19	34.55	3.03	39.65	Peak	---	---
3	7428.000	49.98	-24.02	74.00	50.11	36.39	2.90	39.42	Peak	---	---

Note:

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

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



5.4.12. Test Results for CH 08 / 2477 MHz (for emission below 1GHz)

- Test Mode: Z
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(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	119.590	19.60	-23.90	43.50	32.96	11.85	1.95	27.16	Peak	---	---
2	150.870	20.50	-23.00	43.50	33.38	11.96	2.26	27.10	Peak	---	---
3	175.180	24.44	-19.06	43.50	34.91	14.20	2.38	27.05	Peak	---	---
1	211.200	22.58	-20.92	43.50	31.61	15.30	2.61	26.94	Peak	---	---
2	432.800	24.46	-21.54	46.00	32.12	16.54	3.63	27.83	Peak	---	---
3	912.800	34.68	-11.32	46.00	34.53	21.99	5.39	27.23	Peak	110	51

(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	61.790	16.77	-23.23	40.00	32.57	10.38	1.32	27.50	Peak	---	---
2	119.590	14.30	-29.20	43.50	27.66	11.85	1.95	27.16	Peak	---	---
3	179.430	16.96	-26.54	43.50	27.37	14.20	2.43	27.04	Peak	---	---
1	796.800	26.92	-19.08	46.00	27.66	21.86	5.11	27.71	Peak	---	---
2	914.400	30.20	-15.80	46.00	30.02	22.02	5.39	27.23	Peak	---	---
3	957.600	30.92	-15.08	46.00	29.63	22.96	5.65	27.32	Peak	---	---

Note:

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

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



5.4.13. Test Results for CH 01 / 2423 MHz (for emission above 1GHz)

- Test Mode: Z
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(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	4848.000	51.46	-22.54	74.00	56.11	33.02	2.47	40.14	Peak	---	---
2	5776.000	45.56	-28.44	74.00	48.88	34.06	2.54	39.92	Peak	---	---
3	7268.000	54.45	-19.55	74.00	54.97	35.88	3.07	39.47	Peak	---	---
4	7268.000	51.82	-2.18	54.00	52.34	35.88	3.07	39.47	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	4848.000	51.22	-22.78	74.00	55.87	33.02	2.47	40.14	Peak	---	---
2	6412.000	46.35	-27.65	74.00	48.96	34.27	2.84	39.72	Peak	---	---
3	7268.000	55.16	-18.84	74.00	55.68	35.88	3.07	39.47	Peak	---	---
4	7268.000	52.63	-1.37	54.00	53.15	35.88	3.07	39.47	Average	---	---

Note:

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

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

5.4.14. Test Results for CH 04 / 2447 MHz (for emission above 1GHz)

- Test Mode: Z
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(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	4896.000	52.92	-21.08	74.00	57.44	33.11	2.51	40.14	Peak	---	---
2	4896.000	51.15	-2.85	54.00	55.67	33.11	2.51	40.14	Average	---	---
3	5836.000	46.52	-27.48	74.00	49.71	34.07	2.64	39.90	Peak	---	---
4	7340.000	51.03	-2.97	54.00	51.38	36.13	2.97	39.45	Average	---	---
5	7340.000	53.80	-20.20	74.00	54.15	36.13	2.97	39.45	Peak	---	---

(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	4896.000	53.11	-20.89	74.00	57.63	33.11	2.51	40.14	Peak	---	---
2	4896.000	51.52	-2.48	54.00	56.04	33.11	2.51	40.14	Average	---	---
3	5776.000	45.60	-28.40	74.00	48.92	34.06	2.54	39.92	Peak	---	---
4	7340.000	52.59	-1.41	54.00	52.94	36.13	2.97	39.45	Average	---	---
5	7340.000	55.82	-18.18	74.00	56.17	36.13	2.97	39.45	Peak	---	---

Note:

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

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

5.4.15. Test Results for CH 08 / 2477 MHz (for emission above 1GHz)

- Test Mode: Z
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chou

(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	4956.000	52.96	-21.04	74.00	57.43	33.24	2.44	40.15	Peak	---	---
2	4956.000	50.87	-3.13	54.00	55.34	33.24	2.44	40.15	Average	---	---
3	6736.000	47.27	-26.73	74.00	49.26	34.66	2.98	39.63	Peak	---	---
4	7428.000	54.64	-19.36	74.00	54.77	36.39	2.90	39.42	Peak	---	---
5	7428.000	52.07	-1.93	54.00	52.20	36.39	2.90	39.42	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	4956.000	53.28	-20.72	74.00	57.75	33.24	2.44	40.15	Peak	---	---
2	4956.000	51.89	-2.11	54.00	56.36	33.24	2.44	40.15	Average	---	---
3	5716.000	46.00	-28.00	74.00	49.29	34.04	2.61	39.94	Peak	---	---
4	7428.000	55.18	-18.82	74.00	55.31	36.39	2.90	39.42	Peak	---	---
5	7428.000	52.69	-1.31	54.00	52.82	36.39	2.90	39.42	Average	---	---

Note:

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

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

5.4.16. Photographs of Radiated Emission Test Configuration

FRONT VIEW



REAR VIEW





5.5. Antenna Requirements

5.5.1. 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.

5.5.2. Antenna Connected Construction

There is no antenna connector for printed antenna.



6. List of Measuring Equipments Used

Items	Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
1	EMC Receiver	R&S	ESCS 30	100174	9 KHz – 2.75 GHz	Feb. 16, 2004	Conduction (CO04-HY)
2	LISN	MessTec	NNB-2/16Z	2001/004	9 KHz – 30 MHz	Jun. 09, 2004	Conduction (CO04-HY)
3	LISN (Support Unit)	MessTec	NNB-2/16Z	99041	9 KHz – 30 MHz	Apr. 27, 2004	Conduction (CO04-HY)
4	EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)
5	RF Cable-CON	UTIFLEX	3102-26886-4	CB044	9KHz~30MHz	Apr. 21, 2004	Conduction (CO04-HY)
6	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	Jun. 21, 2004	Radiation (03CH03-HY)
7	Spectrum analyzer	R&S	FSP40	100004	9KHZ~40GHz	Aug. 31, 2004	Radiation (03CH03-HY)
8	Amplifier	HP	8447D	2944A09072	100KHz – 1.3GHz	Nov. 04, 2004	Radiation (03CH03-HY)
9	Biconical Antenna	SCHWARZBECK	VHBB 9124	301	30MHz – 200MHz	Jul. 28, 2004	Radiation (03CH03-HY)
10	Log Antenna	SCHWARZBECK	VUSLP 9111	221	200MHz -1GHz	Jul. 28, 2004	Radiation (03CH03-HY)
11	RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	Dec. 03, 2003	Radiation (03CH03-HY)
12	Amplifier	MITEQ	AFS44	849984	100MHz~26.5GHz	Mar. 26, 2004	Radiation (03CH03-HY)
13	Horn Antenna	EMCO	3115	6741	1GHz – 18GHz	Apr. 07, 2004	Radiation (03CH03-HY)
14	Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	Radiation (03CH03-HY)
15	Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
16	Horn Antenna	Schwarzbeck	BBHA9170	154	18GHz~40GHz	Jun. 09, 2004	Radiation (03CH03-HY)
17	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.

APPENDIX A. Photographs of EUT







