FCC TEST REPORT

CATEGORY	:	Portable
PRODUCT NAME	:	Presenter
FILING TYPE	:	Certification
MODEL NAME	:	Z004
APPLICANT	:	**Chic Technology Corp** 16F, No. 150, Chien-1 Road, 235 Chung Ho City, Taipei Hsien, Taiwan, R.O.C.
MANUFACTURER	:	**Chic Technology Corp** Xiwang Industrial Park, Tian Tang Wei, Feng Gang, Dongguan, Guangdong, China.
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 and any agency of U.S. government.

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

1190

ILAC MRA

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HISTORY OF THIS TEST REPORT

Received Date: Mar. 18, 2005
Test Date: Apr. 26, 2005
Original Report Issue Date: Apr. 31, 2005
Report No.: FR531801

■ 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

PRODUCT NAME : Presenter

MODEL NAME : Z004

APPLICANT : **Chic Technology Corp**
16F, No. 150, Chien-1 Road, 235 Chung Ho City, Taipei Hsien, Taiwan, R.O.C.

MANUFACTURER : **Chic Technology Corp**
Xiwang Industrial Park, Tian Tang Wei, Feng Gang, Dongguan, Guangdong, China.

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 Subpart C. Testing was carried out on Apr. 26, 2005 at SPORTON International Inc. LAB.

Wayne Hsu
Sporton International Inc.

1. General Description of Equipment under Test

1.1. Applicant

Chic Technology Corp
16F, No. 150, Chien-1 Road, 235 Chung Ho City, Taipei Hsien, Taiwan, R.O.C.

1.2. Manufacturer

Chic Technology Corp
Xiwang Industrial Park, Tian Tang Wei, Feng Gang, Dongguan, Guangdong, China.

1.3. Basic Description of Equipment under Test

This product is a wireless Presenter with its receiver. Please refer to “Features of Equipment under Test ”. This report is for the transmitter part only.

1.4. Features of Equipment under Test

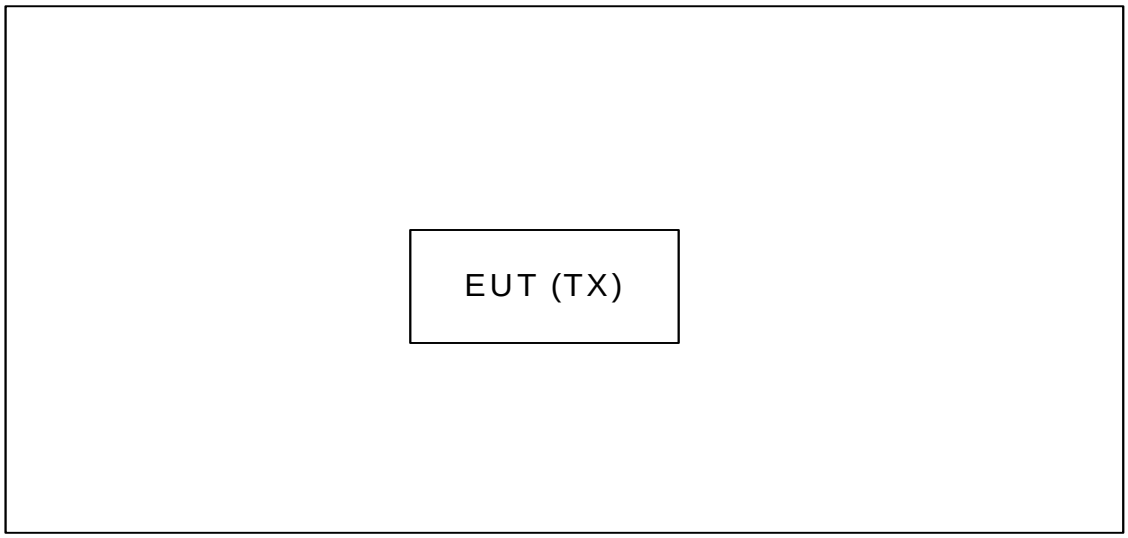
Items	Description
Type of Modulation	GFSK
Number of Channels	4
Frequency Band	2400MHz ~ 2483.5MHz
Carrier Frequency	See section 1.5 for details
Antenna Type	Printed Antenna / 0dBi
Communication Type	Simplex
Testing Duty Cycle	100.00%
Test Power Source	1.5 VDC from battery
Temperature Range (Operating)	0 ~ 40 °C

1.5. Table for Carrier Frequencies

Channel	Frequency	Channel	Frequency
1	2414 MHz	3	2462 MHz
2	2418 MHz	4	2466 MHz

2. Test Configuration of the Equipment under Test

2.1. Connection Diagram of Test System



2.2. The Test Mode Description

1. According to ANSI C63.4-2003: If the frequency range of EUT is more than 10 MHz, we have to test the lowest, middle and highest channels of EUT.
2. Spurious emission below 1GHz is independent of channel selection, so only channel 4 with GFSK modulation was tested.
3. AC conduction emission is independent of channel selection and types of antenna, so only channel 4 with GFSK modulation was tested.
4. For the maximum field strength of the fundamental frequency, the worst case is X axis of horizontal polarization.

2.3. Description of Test Supporting Units

There is no supporting unit for the test.

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	:	03CH03-HY / CO04-HY

3.2. Standards for Methods of Measurement

Here is the list of the standards followed in this test report.
ANSI C63.4-2003
47 CFR FCC Part 15 Subpart C

3.3. Frequency Range Investigated

Radiated emission test: from 9 KHz to 10th carrier harmonic

3.4. Test Distance

The test distance of radiated emission (9KHz~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.

3.5. Test Software

During testing, there is no test software for the test.

4. List of Measurements

4.1. Summary of the Test Results

Applied Standard: 47 CFR FCC Part 15 Subpart C			
Paragraph	**FCC Rule**	**Description of Test**	**Result**
5.1	15.249(a)	Maximum Field Strength of Fundamental	Pass
5.2	15.207	AC Power Line Conducted Emission	Pass
5.3	15.249(d)	Spurious Radiated Emission	Pass
5.4	15.249(d)	Band Edge Emissions	Pass
5.5	15.203	Antenna Requirement	Pass

5. Test Result

5.1. Test of Maximum Field Strength of Fundamental

5.1.1. Applicable Standard

Section 15.249(a): The field strength of emissions within these bands specified at a distance of 3 meters (measurement instrumentation employing an average detector) shall comply with the following table. The peak field strength of any emission shall not exceed the maximum permitted average limits specified in the table by more than 20 dB under any condition of modulation

Fundamental Frequency (MHz)	Field Strength of Fundamental (millivolts/meter)	Unwanted Emission (microvolts/meter)
2400-2483.5	50	500
5725-5875	50	500

5.1.2. Measuring Instruments

Item 6~17 of the table on section 6.

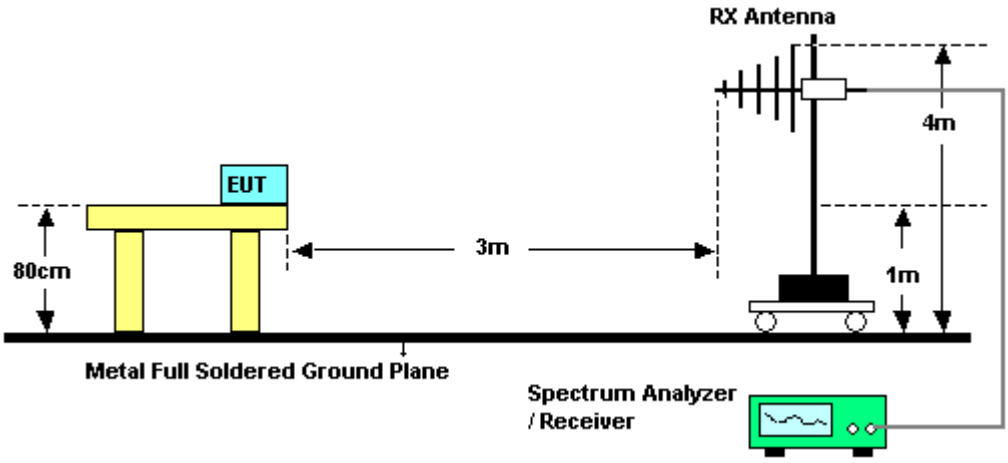
5.1.3. Description of Major Test Instruments Setting

- Spectrum Analyzer : R&S FSP40 (Radiated Measurement)
  Attenuation : Auto
  Center Frequency : Carrier Frequency
  Span Frequency : Suitable for observe
  RB : 1 MHz for PK value / 1 MHz for AV value
  VB : 1 MHz for PK value / 10 Hz for AV value
  Detector : Peak
  Trace : Max Hold
  Sweep Time : Auto

5.1.4. Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The turntable 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 turntable 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.

5.1.5. Test Setup Layout



5.1.6. Test Criteria

All test results complied with the requirements of Section 15.249(a). Measurement Uncertainty is 2.26dB.

5.1.7. Test Result

- Temperature: 25.6°C
- Relative Humidity: 53%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Wayne Hsu

Channel No.	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV/m)	Detector
1	2414	56.17	-37.83	94.00	25.94	Average
1	2414	93.15	-20.85	114.00	62.92	Peak
2	2418	56.05	-37.95	94.00	25.82	Average
2	2418	93.16	-20.84	114.00	62.93	Peak
4	2466	56.21	-37.79	94.00	54.00	Average
4	2466	94.50	-19.50	114.00	74.00	Peak

Note:

Correct Factor = Antenna Factor + Cable Loss - Preamp Factor.

Read Level = Level of Receiver or Spectrum.

Level = Read Level + Correct Factor.

5.2. Test of AC Power Line Conducted Emission

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

5.3. Test of Spurious Radiated Emission

5.3.1. Measuring Instruments

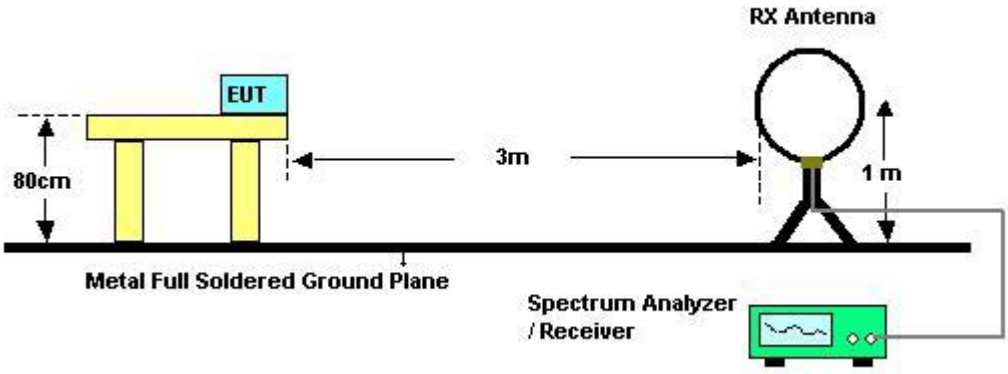
Please reference item 1~17 in chapter 6 for the instruments used for testing.

5.3.2. Test Procedures

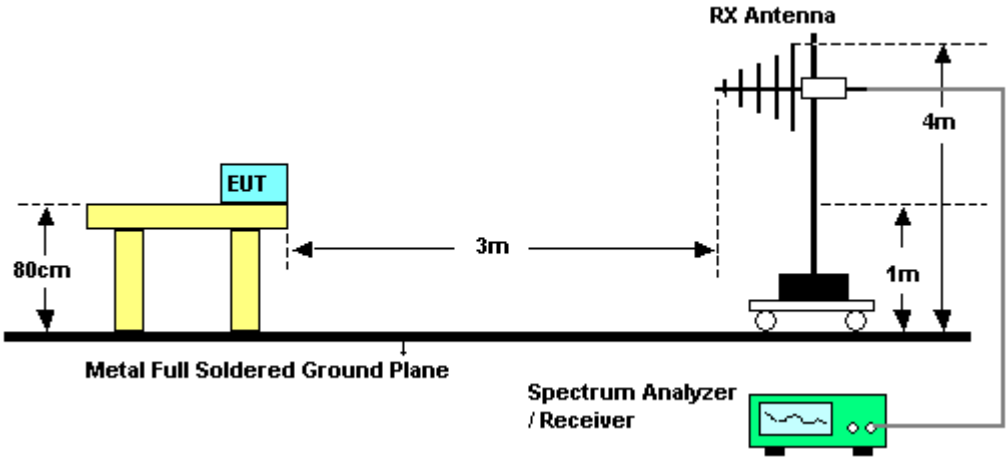
1. Configure the EUT according to ANSI C63.4.
2. The EUT was placed on the top of the turntable 0.8 meter above ground.
3. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
4. Power on the EUT and all the supporting units.
5. The turntable 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 turntable 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

For radiated emissions below 30MHz



For radiated emissions above 30MHz



5.3.4. Results of Radiated Emissions (9kHz~30MHz)

Temperature	25.6℃	**Humidity**	53%
Test Engineer	Ted Chiu	**Configurations**	CH 4 / 2466

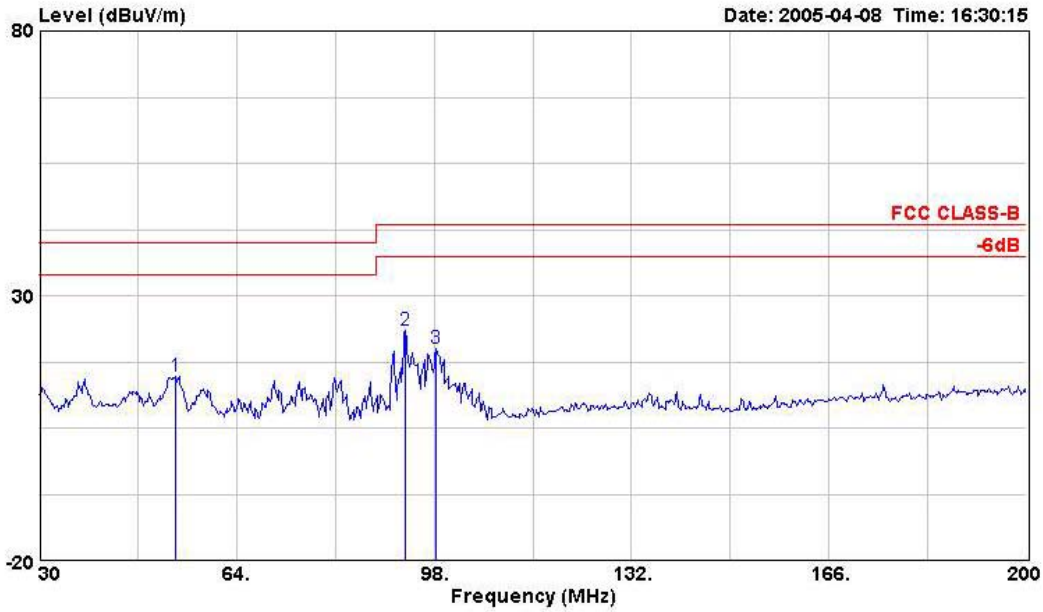
Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor.

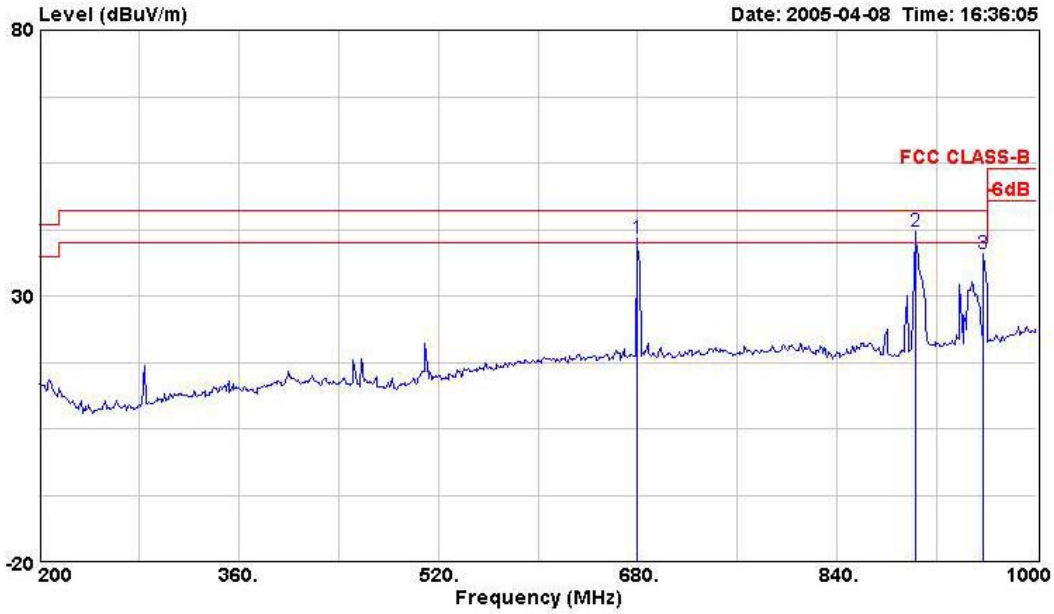
5.3.5. Test Results for CH 4 / 2466 (for emission below 1GHz)

- Temperature: 25.6°C
- Relative Humidity: 53%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal

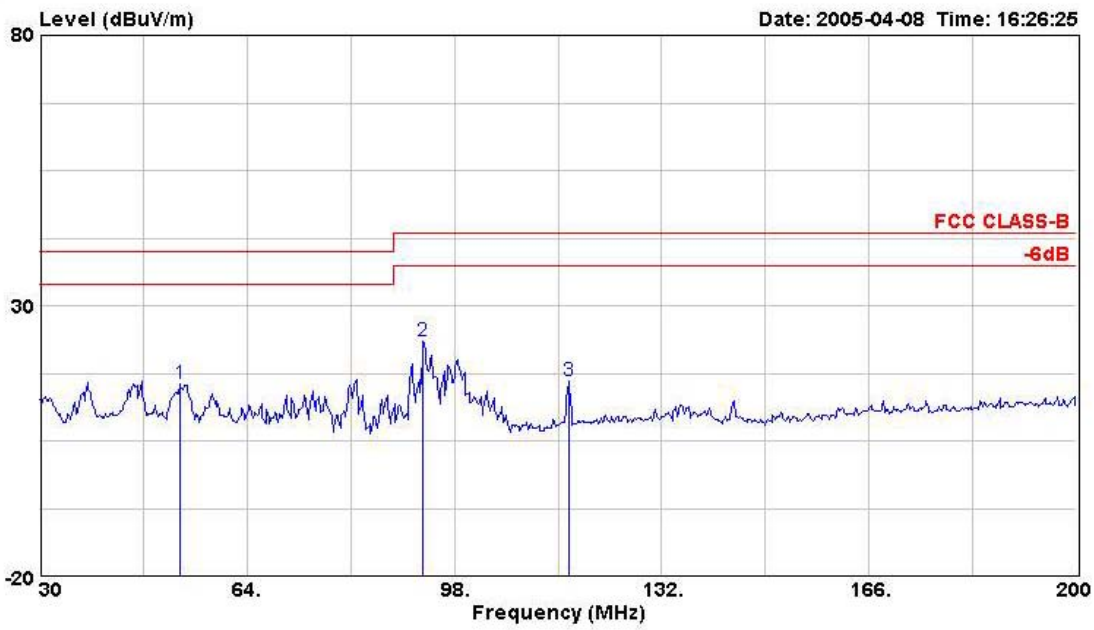


	Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
1	53.460	14.78	-25.22	33.17	40.00	-18.39	Peak
2	93.070	23.44	-20.06	43.44	43.50	-20.00	Peak
3	98.340	20.14	-23.36	40.54	43.50	-20.40	Peak

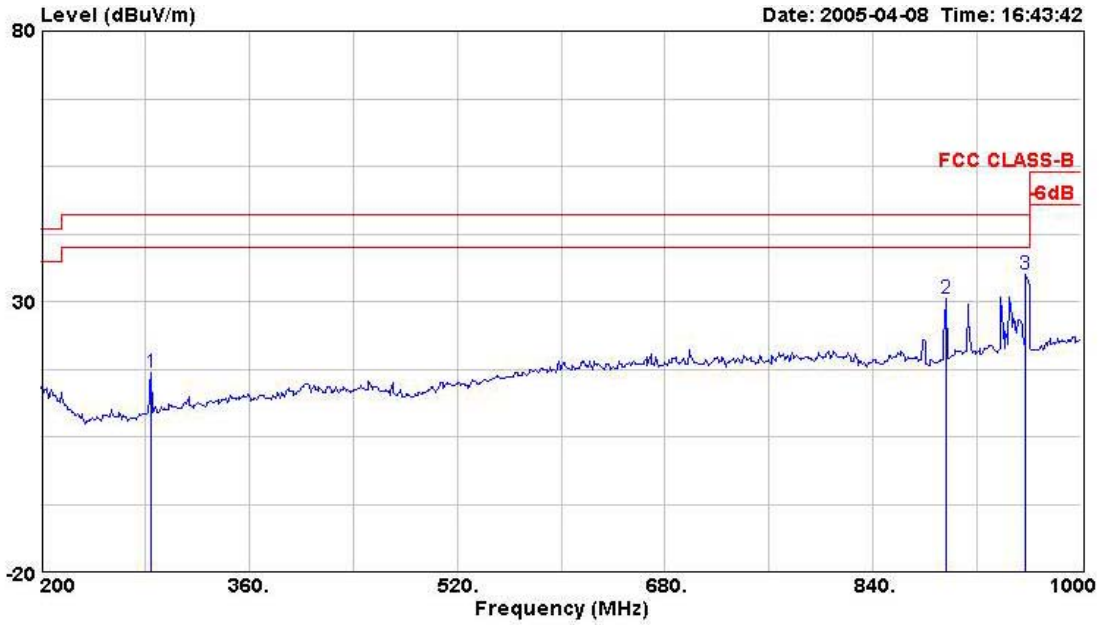


	Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
1 @	679.200	40.79	-5.21	48.20	46.00	-7.41	Peak
2 @	902.400	42.00	-4.00	47.03	46.00	-5.03	Peak
3 @	957.600	37.88	-8.12	41.21	46.00	-3.33	Peak

(B) Polarization: Vertical



	Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
1	52.950	15.47	-24.53	33.81	40.00	-18.34	Peak
2	92.900	23.35	-20.15	43.36	43.50	-20.01	Peak
3	116.700	16.16	-27.34	33.96	43.50	-17.80	Peak



	Freq	Level	Over Limit	Read Level	Limit Line	Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	
1	284.800	16.91	-29.09	32.42	46.00	-15.51	Peak
2	896.000	30.56	-15.44	35.70	46.00	-5.14	Peak
3 @	957.600	35.12	-10.88	38.45	46.00	-3.33	Peak

Note:

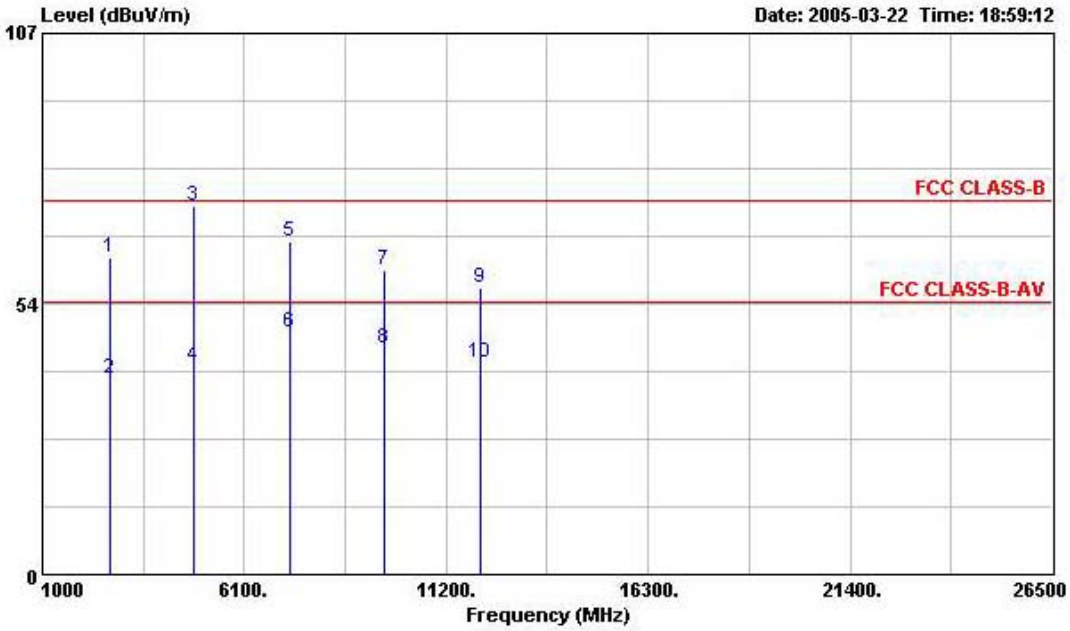
Emission level (dBuV/m) = 20 log Emission level (uV/m)

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

5.3.6. Test Results for CH 1 / 2414 (for emission above 1GHz)

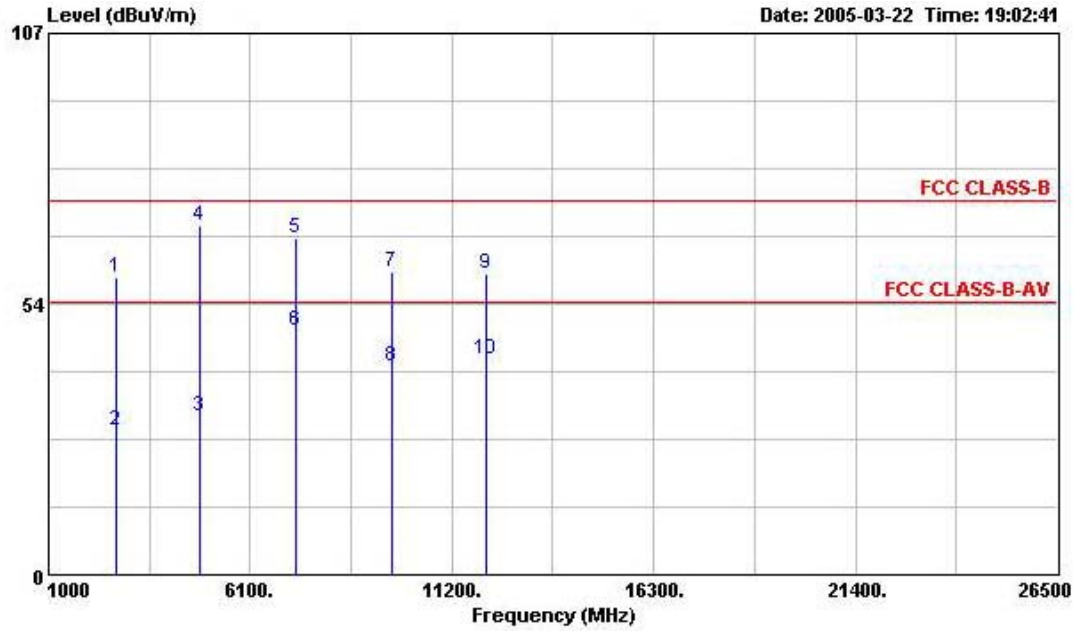
- Temperature: 25.6°C
- Relative Humidity: 53%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal



		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1		2700.000	62.59	-11.41	74.00	70.91	29.14	2.05	39.51	Peak
2		2700.000	38.66	-15.34	54.00	46.98	29.14	2.05	39.51	Average
3	@	4828.000	72.91	-1.09	74.00	77.22	32.99	2.84	40.14	Peak
4		4828.000	41.18	-12.82	54.00	45.49	32.99	2.84	40.14	Average
5		7240.000	65.98	-8.02	74.00	66.01	35.82	3.62	39.47	Peak
6		7240.000	47.77	-6.23	54.00	51.42	35.82	0.00	39.47	Average
7		9656.000	60.15	-13.85	74.00	60.62	38.28	0.00	38.74	Peak
8		9656.000	44.69	-9.31	54.00	45.15	38.28	0.00	38.74	Average
9		12068.000	56.76	-17.24	74.00	51.25	39.42	4.63	38.54	Peak
10		12068.000	41.72	-12.28	54.00	36.21	39.42	4.63	38.54	Average

(B) Polarization: Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	2700.000	58.88	-15.12	74.00	67.20	29.14	2.05	39.51	Peak
2	2700.000	28.41	-25.59	54.00	36.73	29.14	2.05	39.51	Average
3	4832.000	31.17	-22.83	54.00	35.46	32.99	2.86	40.14	Average
4	4832.000	69.10	-4.90	74.00	73.40	32.99	2.86	40.14	Peak
5	7244.000	66.56	-7.44	74.00	66.59	35.82	3.62	39.47	PEAK
6	7244.000	48.24	-5.76	54.00	51.89	35.82	0.00	39.47	Average
7	9660.000	59.82	-14.18	74.00	56.28	38.28	4.01	38.74	PEAK
8	9660.000	41.26	-12.74	54.00	41.72	38.28	0.00	38.74	Average
9	12068.000	59.47	-14.53	74.00	53.96	39.42	4.63	38.54	PEAK
10	12068.000	42.64	-11.36	54.00	37.13	39.42	4.63	38.54	Average

Note:

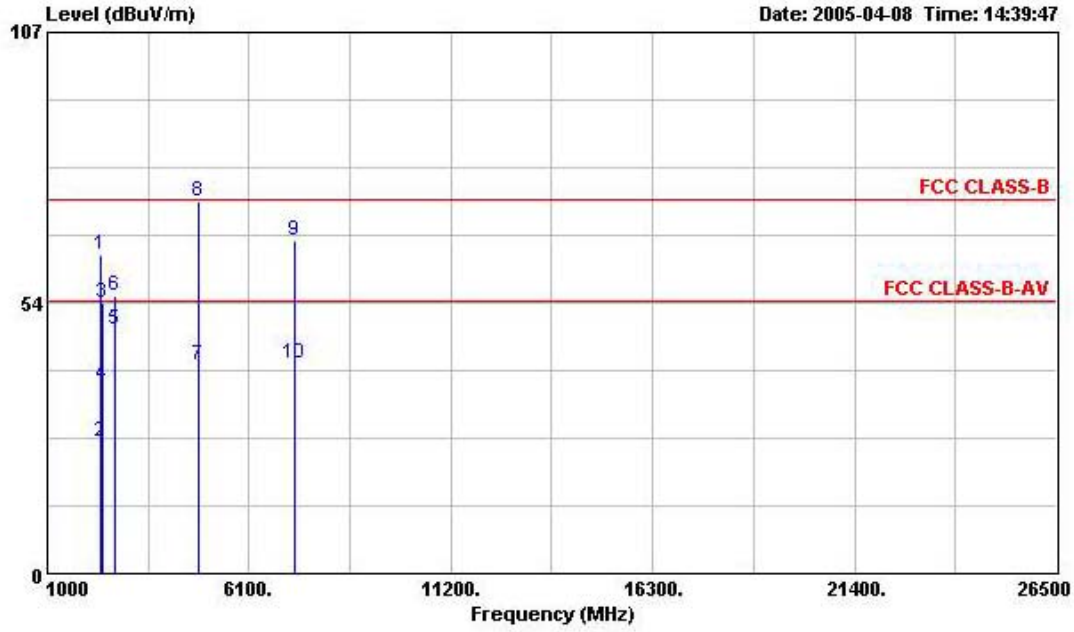
Emission level (dBuV/m) = 20 log Emission level (uV/m)

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

5.3.7. Test Results for CH 2 / 2418 (for emission above 1GHz)

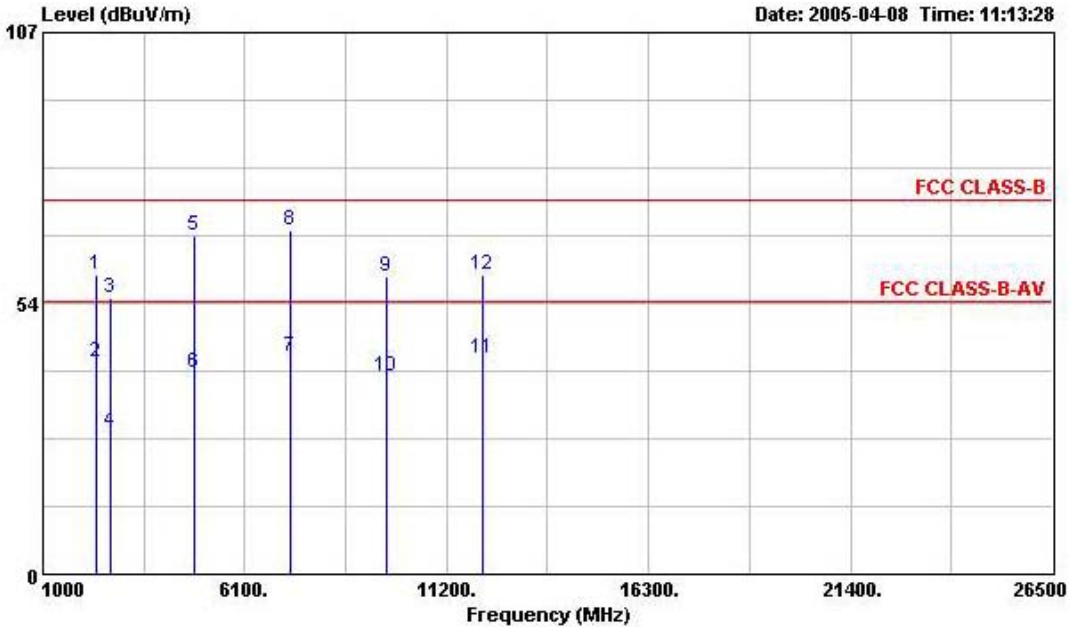
- Temperature: 25.6°C
- Relative Humidity: 53%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	2332.000	62.90	-11.10	74.00	72.50	28.12	1.88	39.61	Peak
2	2332.000	26.21	-27.79	54.00	35.81	28.12	1.88	39.61	Average
3	2382.000	53.41	-20.59	74.00	62.87	28.23	1.90	39.60	Peak
4	2382.000	37.21	-16.79	54.00	48.58	28.23	0.00	39.60	Average
5	2718.000	48.10	-5.90	54.00	58.41	29.19	0.00	39.50	Average
6	2718.000	55.03	-18.97	74.00	63.26	29.19	2.07	39.50	Peak
7	4836.000	41.12	-12.88	54.00	45.38	33.02	2.86	40.14	Average
8 @	4836.000	73.42	-0.58	74.00	77.68	33.02	2.86	40.14	Peak
9	7252.000	65.89	-8.11	74.00	65.87	35.88	3.62	39.47	Peak
10	7252.000	41.47	-12.53	54.00	41.45	35.88	3.62	39.47	Average

(B) Polarization: Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	2332.000	59.03	-14.97	74.00	68.63	28.12	1.88	39.61	Peak
2	2332.000	41.87	-12.13	54.00	53.36	28.12	0.00	39.61	Average
3	2718.000	54.48	-19.52	74.00	62.71	29.19	2.07	39.50	Peak
4	2718.000	28.32	-25.68	54.00	36.55	29.19	2.07	39.50	Average
5	4840.000	66.85	-7.15	74.00	71.11	33.02	2.86	40.14	PEAK
6	4840.000	39.74	-14.26	54.00	44.00	33.02	2.86	40.14	Average
7	7252.000	42.85	-11.15	54.00	42.83	35.88	3.62	39.47	Average
8	7252.000	68.03	-5.97	74.00	68.01	35.88	3.62	39.47	PEAK
9	9672.000	58.65	-15.35	74.00	55.07	38.31	4.01	38.74	PEAK
10	9672.000	39.22	-14.78	54.00	39.65	38.31	0.00	38.74	Average
11	12092.000	42.42	-11.58	54.00	36.92	39.40	4.65	38.54	Average
12	12092.000	59.23	-14.77	74.00	53.73	39.40	4.65	38.54	PEAK

Note:

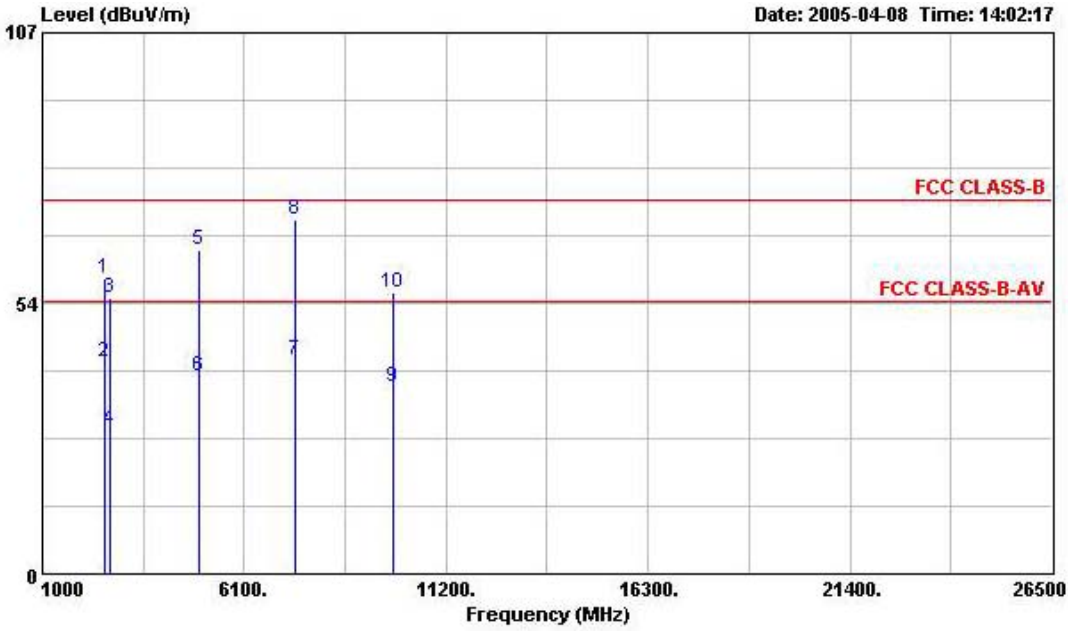
Emission level (dBuV/m) = 20 log Emission level (uV/m)

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

5.3.8. Test Results for CH 4 / 2466 (for emission above 1GHz)

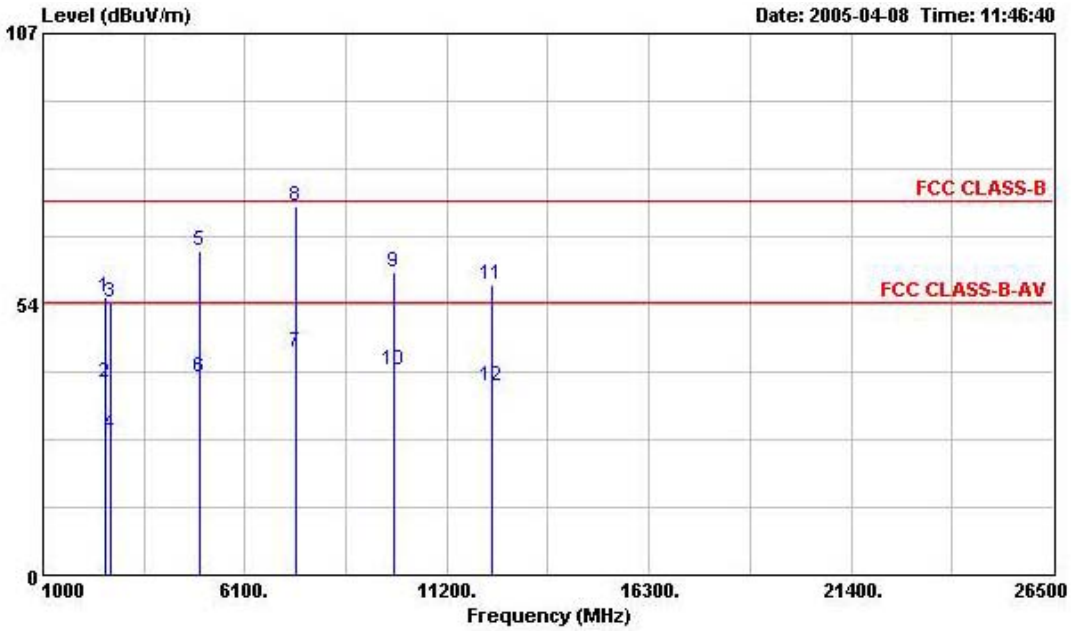
- Temperature: 25.6°C
- Relative Humidity: 53%
- Duty Cycle of the Equipment During the Test: 100.00%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	2566.000	58.36	-15.64	74.00	67.21	28.71	2.00	39.56	Peak
2	2566.000	41.78	-12.22	54.00	52.63	28.71	0.00	39.56	Average
3	2718.000	54.61	-19.39	74.00	62.84	29.19	2.07	39.50	Peak
4	2718.000	28.38	-25.62	54.00	36.61	29.19	2.07	39.50	Average
5	4936.000	64.12	-9.88	74.00	68.17	33.21	2.89	40.15	Peak
6	4936.000	39.07	-14.93	54.00	43.12	33.21	2.89	40.15	Average
7	7396.000	42.12	-11.88	54.00	41.59	36.29	3.68	39.43	Average
8	7396.000	69.93	-4.07	74.00	69.40	36.29	3.68	39.43	Peak
9	9864.000	36.95	-17.05	54.00	36.98	38.65	0.00	38.68	Average
10	9864.000	55.53	-18.47	74.00	51.57	38.65	3.99	38.68	Peak

(B) Polarization: Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	2566.000	54.90	-19.10	74.00	63.75	28.71	2.00	39.56	Peak
2	2566.000	38.11	-15.89	54.00	48.96	28.71	0.00	39.56	Average
3	2718.000	54.00	-20.00	74.00	62.23	29.19	2.07	39.50	Peak
4	2718.000	27.92	-26.08	54.00	36.15	29.19	2.07	39.50	Average
5	4936.000	64.21	-9.79	74.00	68.26	33.21	2.89	40.15	PEAK
6	4936.000	39.08	-14.92	54.00	43.13	33.21	2.89	40.15	Average
7	7396.000	43.88	-10.12	54.00	43.35	36.29	3.68	39.43	Average
8 @	7396.000	72.95	-1.05	74.00	72.42	36.29	3.68	39.43	Peak
9	9864.000	59.85	-14.15	74.00	55.89	38.65	3.99	38.68	Peak
10	9864.000	40.39	-13.61	54.00	40.42	38.65	0.00	38.68	Average
11	12328.000	57.39	-16.61	74.00	52.08	39.11	4.74	38.53	Peak
12	12328.000	37.47	-16.53	54.00	36.89	39.11	0.00	38.53	Average

Note:

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

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

5.3.9. Photographs of Radiated Emission Test Configuration

FRONT VIEW

REAR VIEW

5.4. Band Edge Emissions Measurement

5.4.1. Limit

Band edge emissions radiated outside of the specified frequency bands shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

5.4.2. Measuring Instruments and Setting

Please refer to section 5 in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100 KHz /100 KHz for Peak

5.4.3. Test Procedures

1. The test procedure is the same as section 4.2.3, only the freqeuncy range investigated is limited to 2MHz around bandedges.
2. In case the emission is fail due to the used RB/VB is too wide, marker-delta method of FCC Public Notice DA00-705 will be followed.

5.4.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.2.4.

5.4.5. Test Deviation

There is no deviation with the original standard.

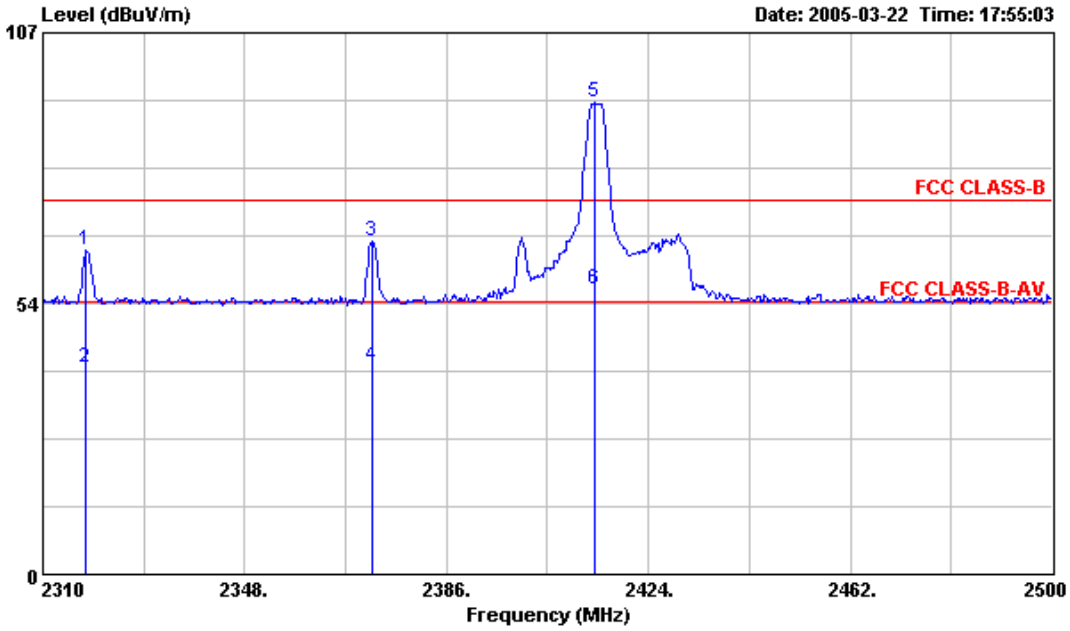
5.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.4.7. Test Result of Band Edge and Fundamental Emissions

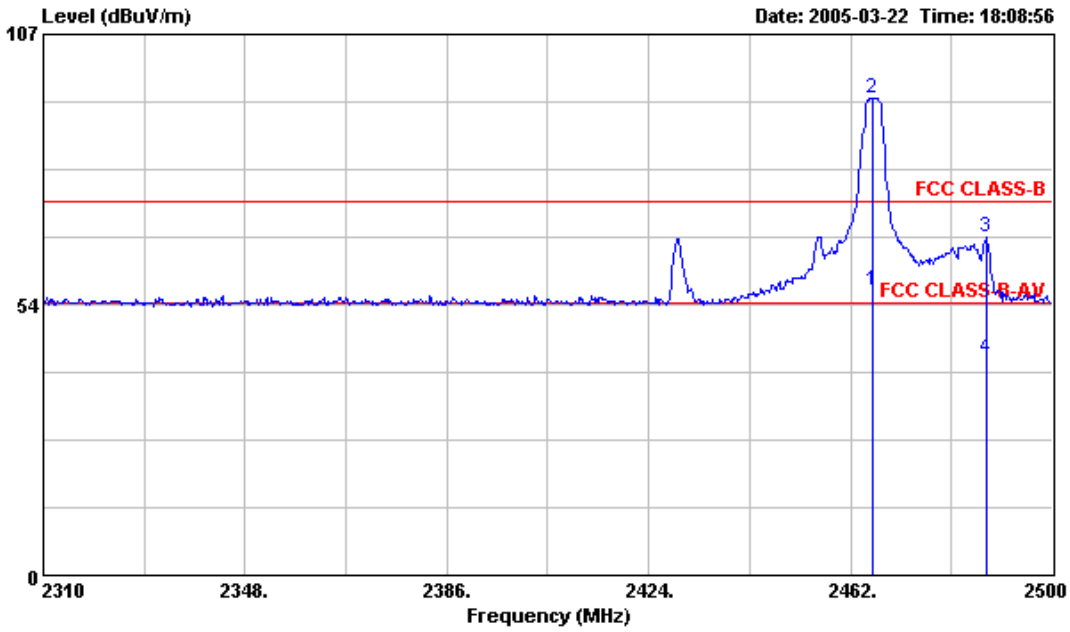
Temperature	20℃	Humidity	70%
Test Engineer	Ted Chiu	Configurations	Channel 1, 4

Channel 1



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	2318.170	64.01	-9.99	74.00	34.02	28.12	1.87	0.00	Peak
2	2318.170	40.86	-13.14	54.00	10.87	28.12	1.87	0.00	Average
3	2372.130	65.86	-8.14	74.00	35.72	28.23	1.90	0.00	Peak
4	2372.130	41.12	-12.88	54.00	10.98	28.23	1.90	0.00	Average

Channel 4



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
3	2487.460	66.80	-7.20	74.00	36.38	28.46	1.96	0.00	Peak
4	2487.460	42.91	-11.09	54.00	12.49	28.46	1.96	0.00	Average

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
Receiving maximum band edge emissions are Vertical Polarization / Horizontal Polarization.

5.5. Antenna Requirements

5.5.1. Standard Applicable

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

5.5.2. Antenna Connected Construction

There is no antenna connector for Printed antenna.

5.5.3. Test Criteria

All test results complied with the requirements of Section 15.203.

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	9kHz – 2.75GHz	Feb. 19, 2005	Conduction (CO04-HY)
2	LISN	EMCO	3810/2NM	9703-1839	9kHz – 30MHz	Mar. 15, 2005	Conduction (CO04-HY)
3	LISN (Support Unit)	MessTec	NNB-2/16Z	99041	9kHz – 30MHz	Apr. 08, 2005	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. 20, 2005	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~4GHz	Aug. 31, 2004	Radiation (03CH03-HY)
8	Amplifier	Schaffner	CPA9231A	18667	9KHz – 2GHz	Jan. 04, 2005	Radiation (03CH03-HY)
9	Biconical Antenna	SCHWARZBECK	VHBB 9124	301	30MHz –200MHz	Jul. 23, 2004	Radiation (03CH03-HY)
10	Log Antenna	SCHWARZBECK	VUSLP 9111	221	200MHz -1GHz	Jul. 23, 2004	Radiation (03CH03-HY)
11	RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	Dec. 02, 2004	Radiation (03CH03-HY)
12	Amplifier	MITEQ	AFS44	879984	1GHz~26.5GHz	Mar. 25, 2005	Radiation (03CH03-HY)
13	Horn Antenna	COMPOWER	AH-118	10092	1GHz – 18GHz	Feb. 18, 2005	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	15GHz~40GHz	Jun. 09, 2004	Radiation (03CH03-HY)
17	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	Jun. 21, 2004	Radiation (03CH03-HY)
18	Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz - 30 MHz	May 24, 2004*	Radiation (03CH03-HY)

※ Calibration Interval of instruments listed above is one year.
※ * Calibration Interval of instruments listed above is two year.

7. Company Profile

SPORTON Lab. was established in 1986 with one shielded room: the first private EMI test facility, offering local manufacturers an alternative EMI test familial apart from ERSO. In 1988, one 3M and 10M/3M open area test site were setup and also obtained official accreditation from FCC, VCCI and NEMKO. In 1993, a Safety laboratory was founded and obtained accreditation from UL of USA, CSA of Canada and TUV (Rhineland & PS) of Germany. In 1995, one EMC lab, including EMI and EMS test facilities was setup. In 1997, SPORTON Group has provided financial expense to relocate the headquarter to Orient Scientific Park in Taipei Hsien to offer more comprehensive, more qualified and better service to local suppliers and manufactures. In 1999, Safety Group and Component Group were setup. In 2001, SPORTON has established 3M/10M chamber in Hwa Ya Technology Park.

7.1. Certificate of Accreditation

Taiwan	BSMI, CNLA, DGT
USA	FCC, NVLAP, UL
EU	Nemko, TUV
Japan	VCCI
Canada	Industry Canada

7.2. Test Location

SHIJR	ADD：	6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C.
	TEL：	02-2696-2468
	FAX：	02-2696-2255
HWA YA	ADD：	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
	TEL：	03-327-3456
	FAX：	03-318-0055
LINKOU	ADD：	No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C
	TEL：	02-2601-1640
	FAX：	02-2601-1695
DUNGHU	ADD：	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C.
	TEL：	02-2631-4739
	FAX：	02-2631-9740
JUNGHE	ADD：	7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C.
	TEL：	02-8227-2020
	FAX：	02-8227-2626
NEIHU	ADD：	4Fl., No. 339, Hsin Hu 2nd Rd., Taipei 114, Taiwan, R.O.C.
	TEL：	02-2794-8886
	FAX：	02-2794-9777

8. CNLA Certificate of Accreditation

Test Lab.	:	Sporton International Inc.
Accreditation Number	:	1190
Originally Accredited	:	2003/12/15
Effective Period	:	2003/12/15~2006/12/14
Accredited Scope	:	47 CFR FCC Part 15 Subpart C (9kHz~40GHz)

Taiwan Accreditation Foundation
Chinese National Laboratory Accreditation
Certificate of Accreditation

Accreditation Criteria:	ISO 17025
Accreditation Number:	1190
Organization/Laboratory:	EMC & Wireless Communications Laboratory,Sporton International Inc.
Originally Accredited:	December 15, 2003
Effective Period:	December 15, 2003 To December 14, 2006
Accredited Scope:	Electrical Testing Field, 7 items, details shown in the following pages.
Specific Accreditation Program:	Recognition and Approval of Designated Laboratory for Commodities Inspection

President, Taiwan Accreditation Foundation
Date:July 19, 2004

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