FCC TEST REPORT

CATEGORY	:	Portable
PRODUCT NAME	:	SECURITY PROXIMETER
FCC ID.	:	OLA-DX150
FILING TYPE	:	Certification
BRAND NAME	:	WELLMIKE
MODEL NAME	:	DX-150
APPLICANT	:	**WELLMIKE ENTERPRISE CO., LTD** 3FL. NO. 2, LANE 497, CHUNG CHENG ROAD, HSIN TIEN, TAIPEI HSIEN, TAIWAN R.O.C.
MANUFACTURER	:	**WELLMIKE INDUSTRIES (Shen Zhen) LTD.** NO.7, LANE 1, DAN FENG STREET, SILI ROAD, GUANLAN TOWN, SHEN ZHEN CITY, GUANG DONG, 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.

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APPENDIX A. PHOTOGRAPHS OF EUT ..... **A1 ~ A10**

HISTORY OF THIS TEST REPORT

Received Date: Jan. 27, 2005
Test Date: Feb. 03, 2005
Original Report Issue Date: Feb. 14, 2005
Report No.: FR512111

■ 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 : SECURITY PROXIMETER
BRAND NAME : WELLMIKE
MODEL NAME : DX-150

APPLICANT : **WELLMIKE ENTERPRISE CO., LTD**
3FL. NO. 2, LANE 497, CHUNG CHENG ROAD, HSIN TIEN,
TAIPEI HSIEN, TAIWAN R.O.C.

MANUFACTURER : **WELLMIKE INDUSTRIES (Shen Zhen) LTD.**
NO.7, LANE 1, DAN FENG STREET, SILI ROAD, GUANLAN
TOWN, SHEN ZHEN CITY, GUANG DONG, 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 Feb. 03, 2005 at SPORTON International Inc. LAB.

Dr. Alan Lane
Vice General Manager
Sporton International Inc.

1. General Description of Equipment under Test

1.1. Applicant

WELLMIKE ENTERPRISE CO., LTD
3FL. NO. 2, LANE 497, CHUNG CHENG ROAD, HSIN TIEN, TAIPEI HSIEN, TAIWAN R.O.C.

1.2. Manufacturer

WELLMIKE INDUSTRIES (Shen Zhen) LTD.
NO.7, LANE 1, DAN FENG STREET, SILI ROAD, GUANLAN TOWN, SHEN ZHEN CITY, GUANG DONG, CHINA

1.3. Basic Description of Equipment under Test

This product is a Security Proximeter. The technical data has been listed on section“ Features of Equipment under Test ”.

1.4. Features of Equipment under Test

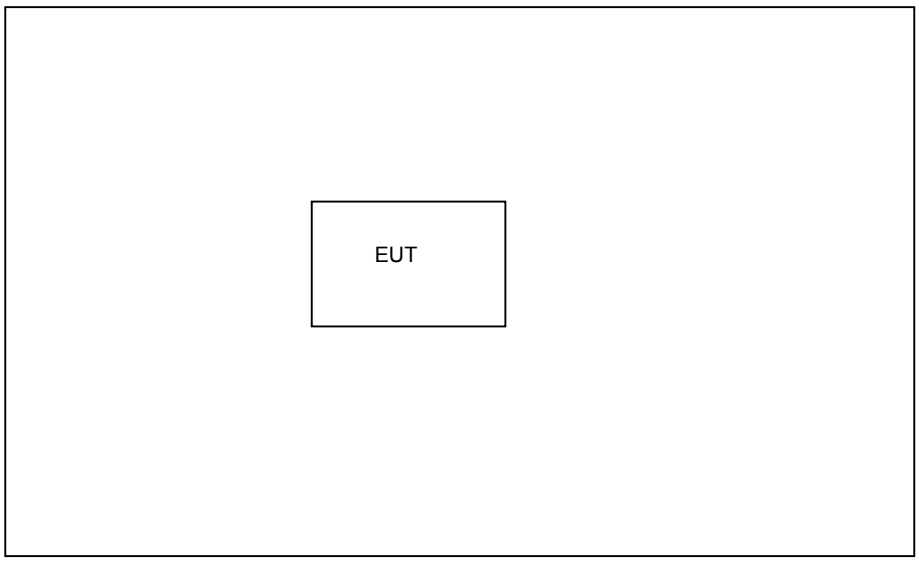
Items	Description
Type of Modulation	ASK
Frequency Band	1MHz
Carrier Frequency	433.92MHz
Antenna Type	Printed antenna
Communication Type	Simplex
Testing Duty Cycle	62.50 %
Test Power Source	DC 3.0V from Battery

1.5. Table for Carrier Frequencies

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	433.92MHz	-	-	-	-	-	-

2. Test Configuration of the Equipment under Test

2.1. Connection Diagram of Test System



2.2. The Test Mode Description

1. EUT is continuous transmitting data continuously.
2. According to ANSI C63.4-2003: Frequency range of EUT is less than 1 MHz, we only have to test the middle channel of EUT.
3. Since the EUT is hand-held device, so the following test modes was performed:
   Mode 1: X axis of EUT
   Mode 2: Y axis of EUT
   Mode 3: Z axis of EUT
4. For maximum field strength of fundamental frequency, the worst case is mode 1 (X axis) of horizontal polarization.

2.3. Description of Test Supporting Units

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

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

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. 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.

3.4. Frequency Range Investigated

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

3.5. 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.

3.6. 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 Section**	**Description of Test**	**Result**
5.1	15.209	Maximum Field Strength of Fundamental	Pass
5.2	15.207	AC Power Line Conducted Emission	NA
5.3	15.209	Spurious Radiated Emission	Pass
5.4	15.203	Antenna Requirement	Pass

5. Test Result

5.1. Test of Maximum Field Strength of Fundamental

5.1.1. Applicable Standard

Section 15.209: RF carrier radiated field strength should be fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209. The emission limit in this paragraph is based on measurement instrumentation employing an QP detector.

5.1.2. Measuring Instruments

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

5.1.3. Description of Major Test Instruments Setting

- Amplifier (HP 8447D)
  RF Gain 25 dB
  Signal Input 0.1 MHz -1.3 GHz

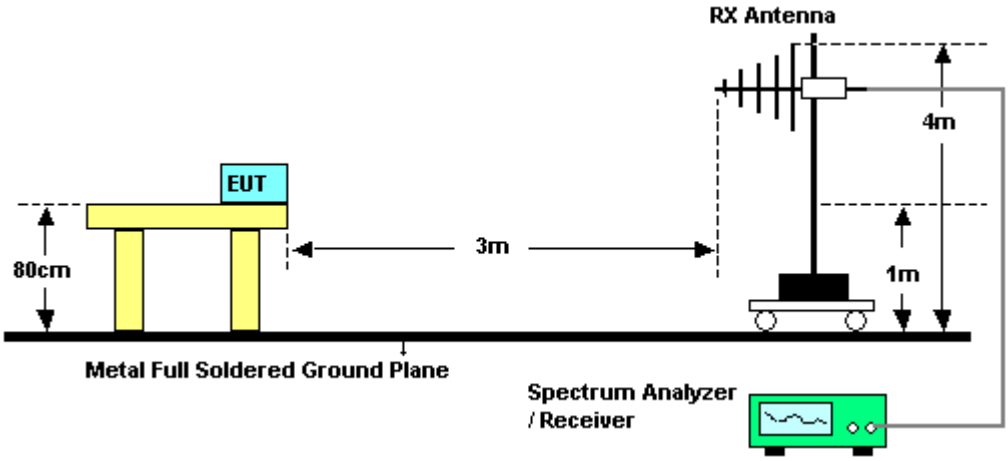
- Spectrum Analyzer (R&S FSP40)
  Attenuation 10 dB
  Start Frequency 1 GHz
  Stop Frequency 18 GHz
  Resolution Bandwidth 1 MHz
  Video Bandwidth 1 MHz
  Signal Input 9 KHz to 40 GHz

- Amplifier (MITEQ AFS44)
  RF Gain 40 dB
  Signal Input 100 MHz -26.5 GHz

5.1.4. Test Procedures and Test Instruments Setting

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 9kHz RBW of Receiver for reading under average and peak detector.

5.1.5. Test Setup Layout



5.1.6. Test Criteria

All test results complied with the requirements of 15.209. Measurement Uncertainty is 2.26dB.

5.1.7. Test Result of Maximum Field Strength

- Axis of Maximum Field Strength: X of X, Y, Z axes.
- Temperature: 21.9°C
- Relative Humidity: 52%
- Duty Cycle of the Equipment During the Test: 62.50 %
- Test Engineer: Sun Chen

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Detector
433.730	44.23	-1.77	46.00	60.54	QP

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

The power is from Battery.
Conduction Powerline test is not applicable for this EUT.

5.3. Test of Spurious Radiated Emission

5.3.1. Applicable Standard

Section 15.209: spurious radiated field strength should be comply with the radiated emission limits specified in Section 15.209. The emission limit in this paragraph is based on measurement instrumentation employing an QP detector.

5.3.2. Measuring Instruments

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

5.3.3. Description of Major Test Instruments Setting

- Amplifier (HP 8447D)
  RF Gain 25 dB
  Signal Input 0.1 MHz -1.3 GHz

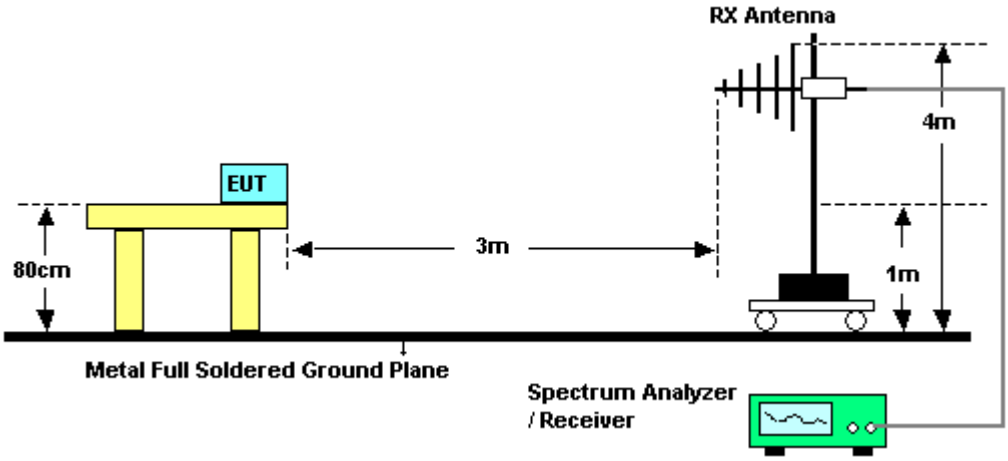
- Spectrum Analyzer (R&S FSP40)
  Attenuation 10 dB
  Start Frequency 1 GHz
  Stop Frequency 18 GHz
  Resolution Bandwidth 1 MHz
  Video Bandwidth 1 MHz
  Signal Input 9 KHz to 40 GHz

- Amplifier (MITEQ AFS44)
  RF Gain 40 dB
  Signal Input 100 MHz -26.5 GHz

5.3.4. 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 quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.

5.3.5. Test Setup Layout



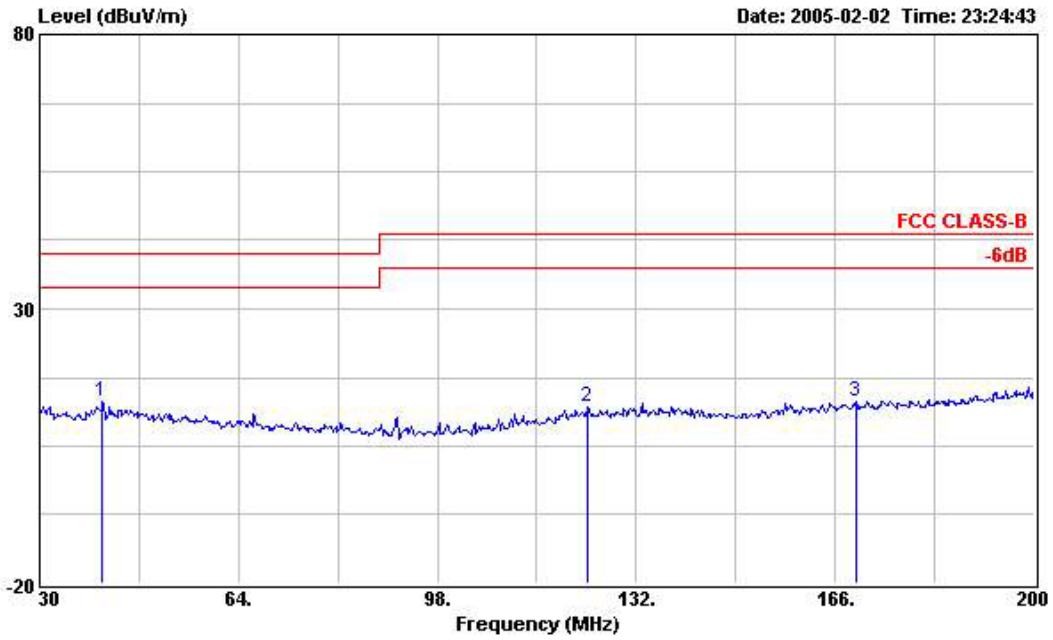
5.3.6. Test Criteria

All test results complied with the requirements of 15.209. Measurement Uncertainty is 2.26dB.

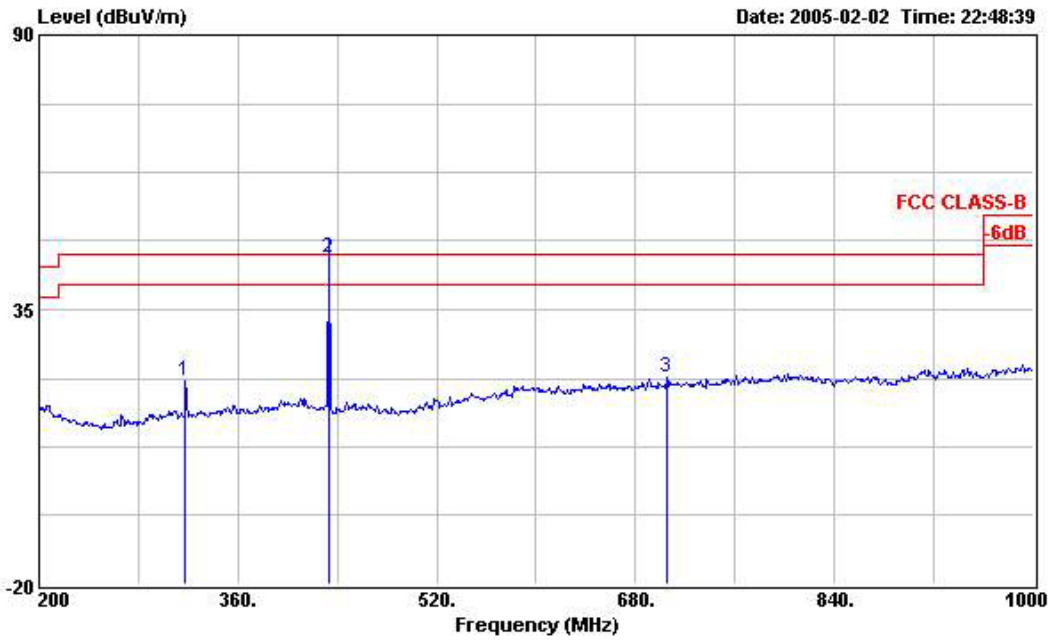
5.3.7. Test Results

- Test Mode: Mode 1 (spurious emission below 1GHz)
- Temperature: 21.9°C
- Relative Humidity: 52%
- Duty Cycle of the Equipment During the Test: 62.50 %
- Test Engineer: Sun Chen

(A) Polarization: Horizontal

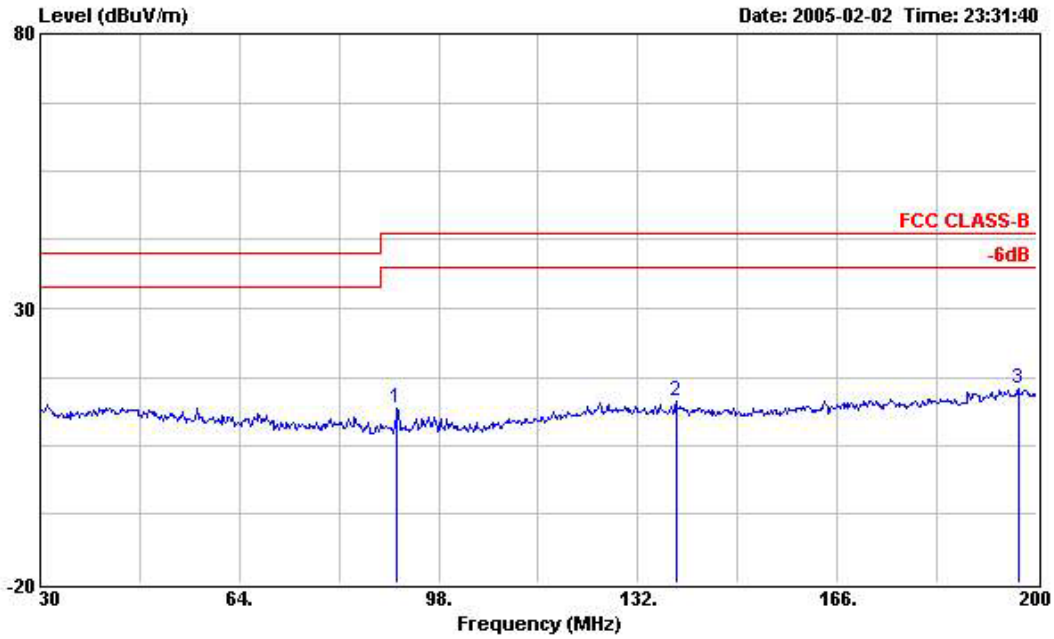


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	40.710	13.07	-26.93	40.00	28.01	12.57	0.00	27.51	Peak	---	---
2	123.670	12.01	-31.49	43.50	27.04	12.12	0.00	27.15	Peak	---	---
3	169.740	13.16	-30.34	43.50	26.58	13.64	0.00	27.06	Peak	---	---

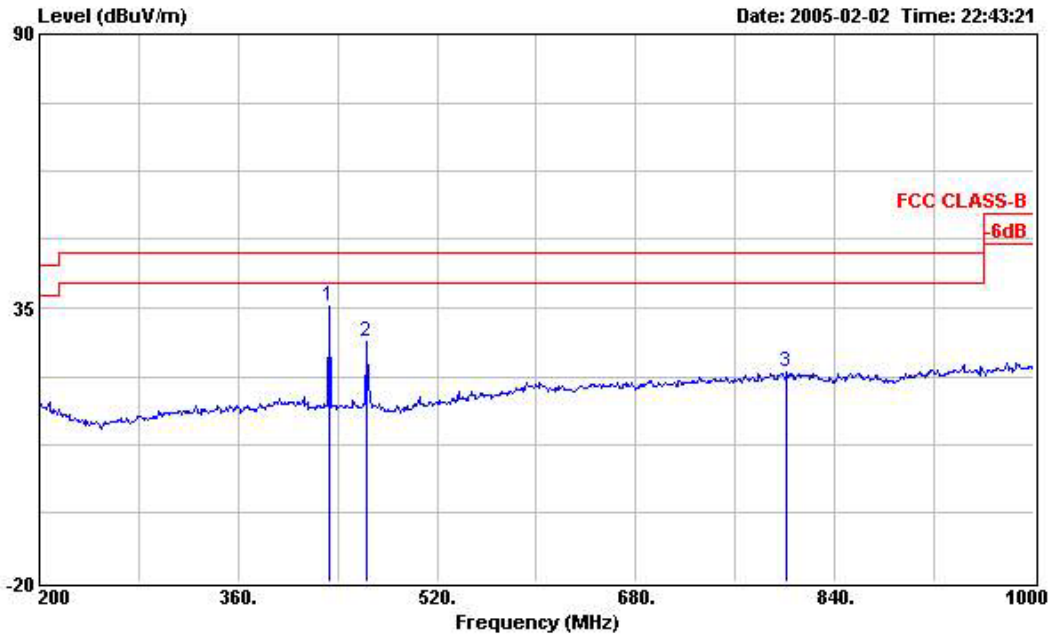


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	317.600	20.73	-25.27	46.00	33.10	14.34	0.00	26.71	Peak	---	---
2 !	432.800	45.35	-0.65	46.00	56.64	16.54	0.00	27.83	QP	---	---
3	704.800	21.51	-24.49	46.00	28.83	20.76	0.00	28.08	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	90.860	11.96	-31.54	43.50	30.69	8.54	0.00	27.27	Peak	---	---
2	138.460	13.09	-30.41	43.50	27.65	12.56	0.00	27.12	Peak	---	---
3	196.940	15.41	-28.09	43.50	26.85	15.56	0.00	27.00	Peak	---	---

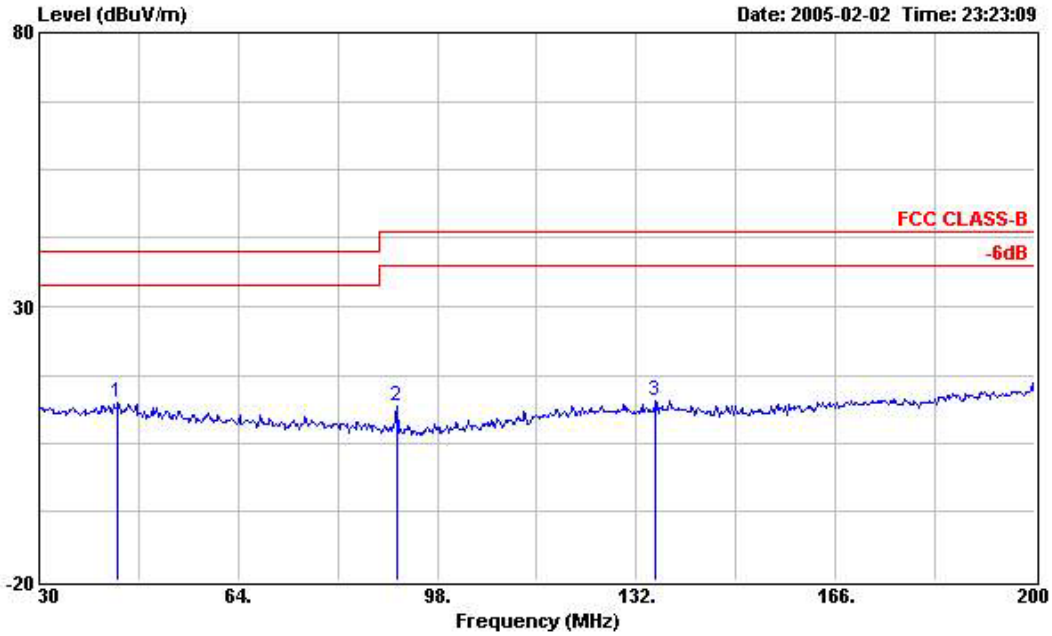


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	432.800	35.47	-10.53	46.00	46.76	16.54	0.00	27.83	Peak	---	---
2	464.000	28.05	-17.95	46.00	39.71	16.29	0.00	27.95	Peak	---	---
3	800.800	22.01	-23.99	46.00	27.81	21.90	0.00	27.70	Peak	---	---

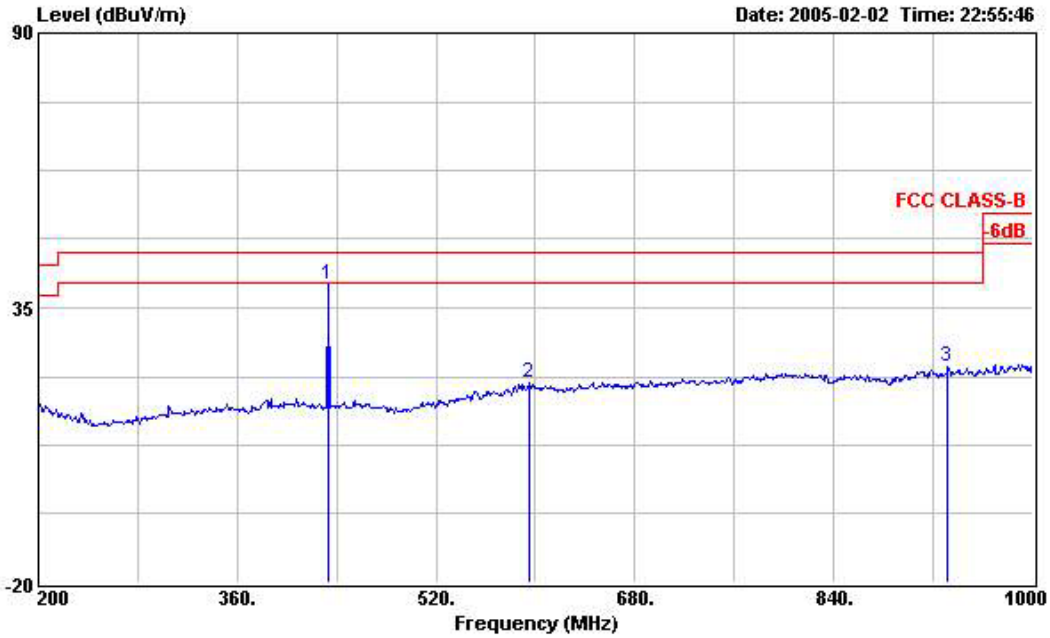
Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

- Test Mode: Mode 2 (spurious emission below 1GHz)
- Temperature: 21.9°C
- Relative Humidity: 52%
- Duty Cycle of the Equipment During the Test: 62.50%
- Test Engineer: Sun Chen

(A) Polarization: Horizontal

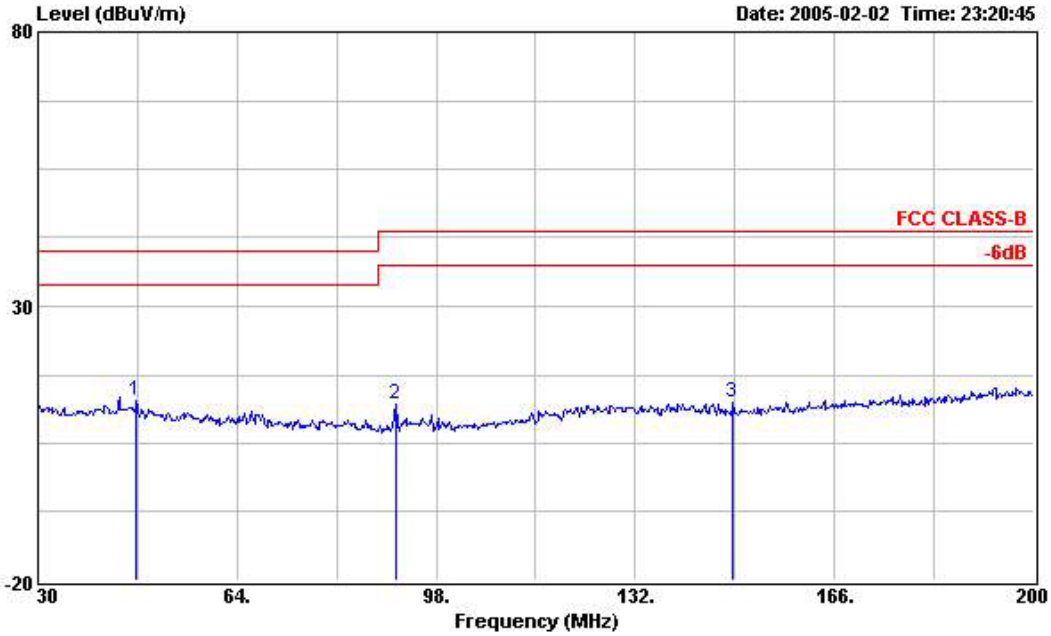


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	43.430	12.40	-27.60	40.00	27.48	12.46	0.00	27.54	Peak	---	---
2	91.030	11.97	-31.53	43.50	30.69	8.55	0.00	27.27	Peak	---	---
3	135.230	12.89	-30.61	43.50	27.55	12.47	0.00	27.13	Peak	---	---

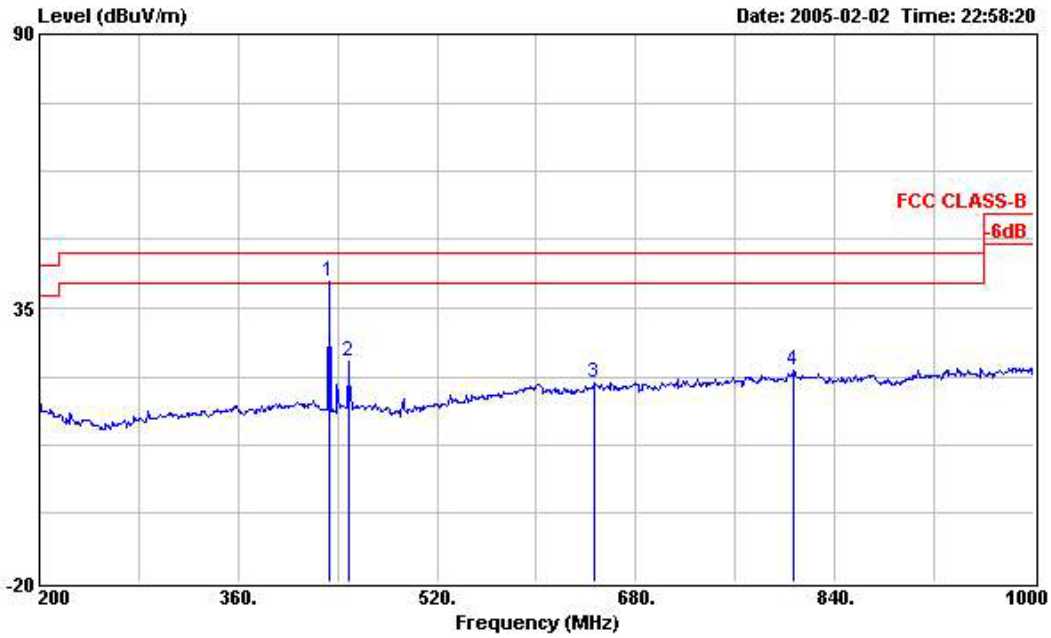


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	432.800	39.75	-6.25	46.00	51.04	16.54	0.00	27.83	Peak	---	---
2	595.200	20.16	-25.84	46.00	28.37	20.18	0.00	28.39	Peak	---	---
3	932.000	23.11	-22.89	46.00	27.97	22.40	0.00	27.26	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	46.830	12.73	-27.27	40.00	28.28	12.02	0.00	27.57	Peak	---	---
2	91.030	12.28	-31.22	43.50	31.00	8.55	0.00	27.27	Peak	---	---
3	148.660	12.33	-31.17	43.50	27.45	11.98	0.00	27.10	Peak	---	---

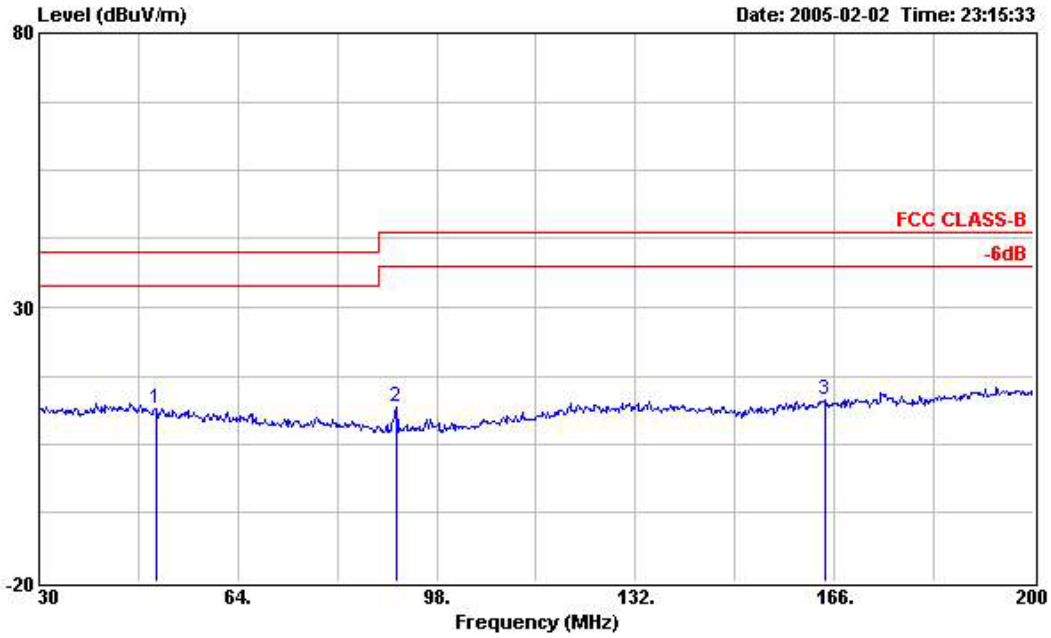


		Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	!	432.800	40.32	-5.68	46.00	51.61	16.54	0.00	27.83	Peak	---	---
2		448.800	24.34	-21.66	46.00	35.83	16.41	0.00	27.90	Peak	---	---
3		647.200	19.93	-26.07	46.00	27.65	20.54	0.00	28.26	Peak	---	---
4		807.200	22.41	-23.59	46.00	28.19	21.89	0.00	27.67	Peak	---	---

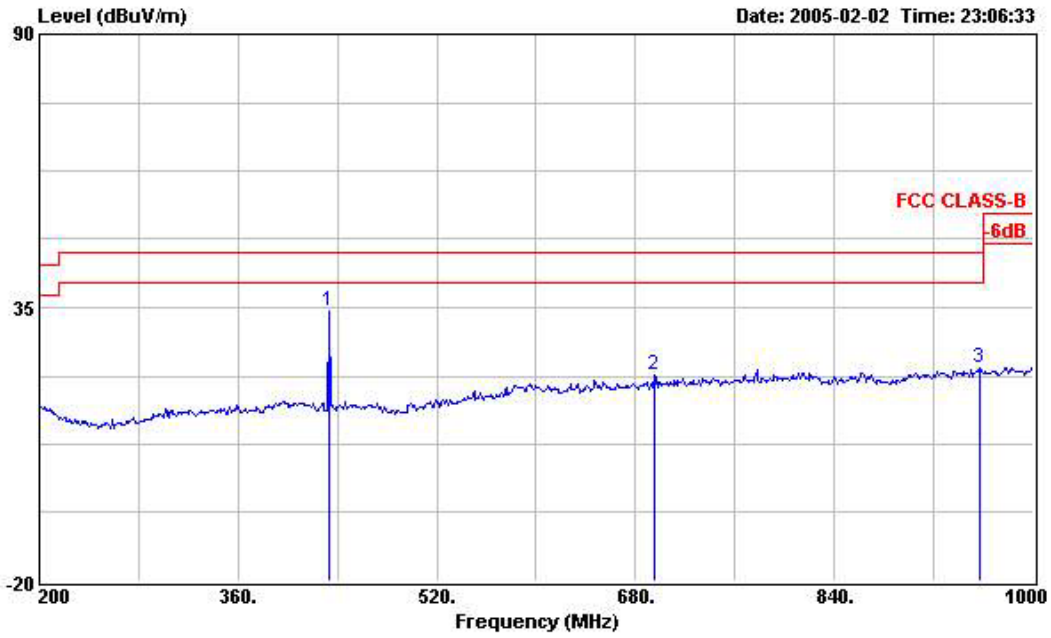
Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

- Test Mode: Mode 3 (spurious emission below 1GHz)
- Temperature: 21.9°C
- Relative Humidity: 52%
- Duty Cycle of the Equipment During the Test: 62.50%
- Test Engineer: Sun Chen

(A) Polarization: Horizontal

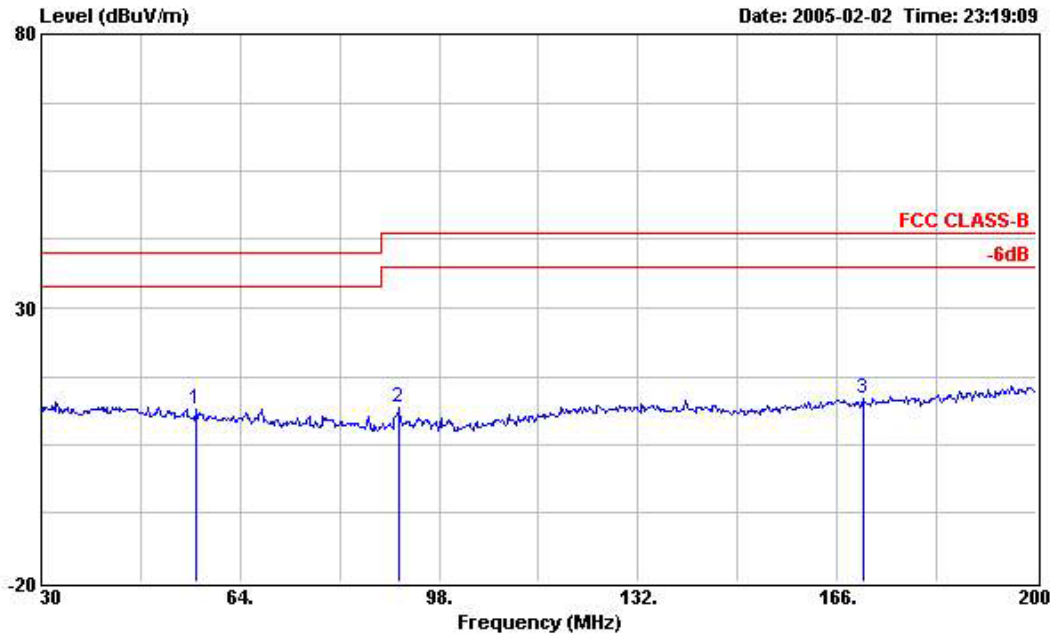


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	50.060	11.47	-28.53	40.00	27.67	11.40	0.00	27.60	Peak	---	---
2	91.030	11.89	-31.61	43.50	30.61	8.55	0.00	27.27	Peak	---	---
3	164.300	13.05	-30.45	43.50	27.05	13.07	0.00	27.07	Peak	---	---

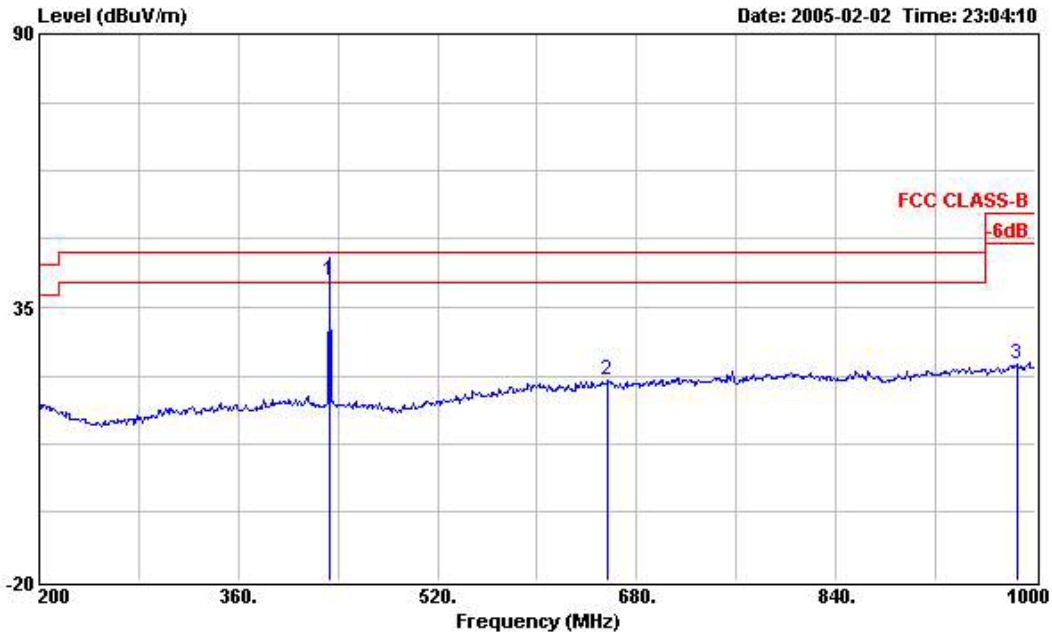


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	432.800	34.37	-11.63	46.00	45.66	16.54	0.00	27.83	Peak	---	---
2	695.200	21.33	-24.67	46.00	28.75	20.69	0.00	28.11	Peak	---	---
3	957.600	22.74	-23.26	46.00	27.10	22.96	0.00	27.32	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	56.350	11.47	-28.53	40.00	28.19	10.83	0.00	27.55	Peak	---	---
2	91.030	11.74	-31.76	43.50	30.46	8.55	0.00	27.27	Peak	---	---
3	170.420	13.38	-30.12	43.50	26.72	13.72	0.00	27.06	Peak	---	---

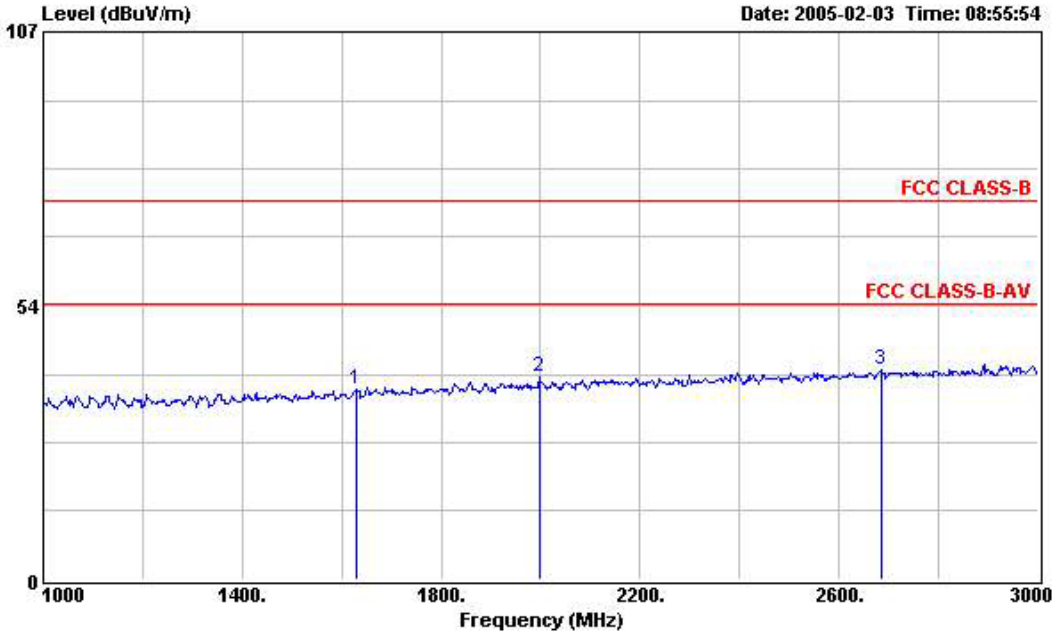


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1 !	432.800	40.21	-5.79	46.00	51.50	16.54	0.00	27.83	QP	---	---
2	656.800	20.24	-25.76	46.00	27.90	20.57	0.00	28.23	Peak	---	---
3	985.600	23.43	-30.57	54.00	27.22	23.58	0.00	27.37	Peak	---	---

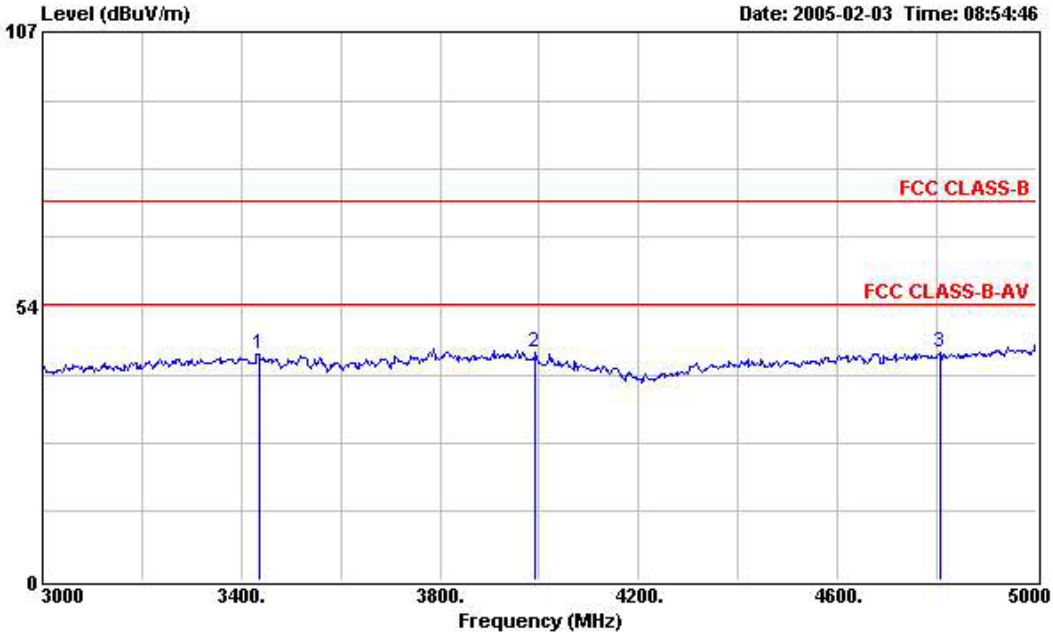
Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

- Test Mode: Mode 1 (spurious emission above 1GHz)
- Temperature: 21.9°C
- Relative Humidity: 52%
- Duty Cycle of the Equipment During the Test: 62.50 %
- Test Engineer: Sun Chen

(A) Polarization: Horizontal

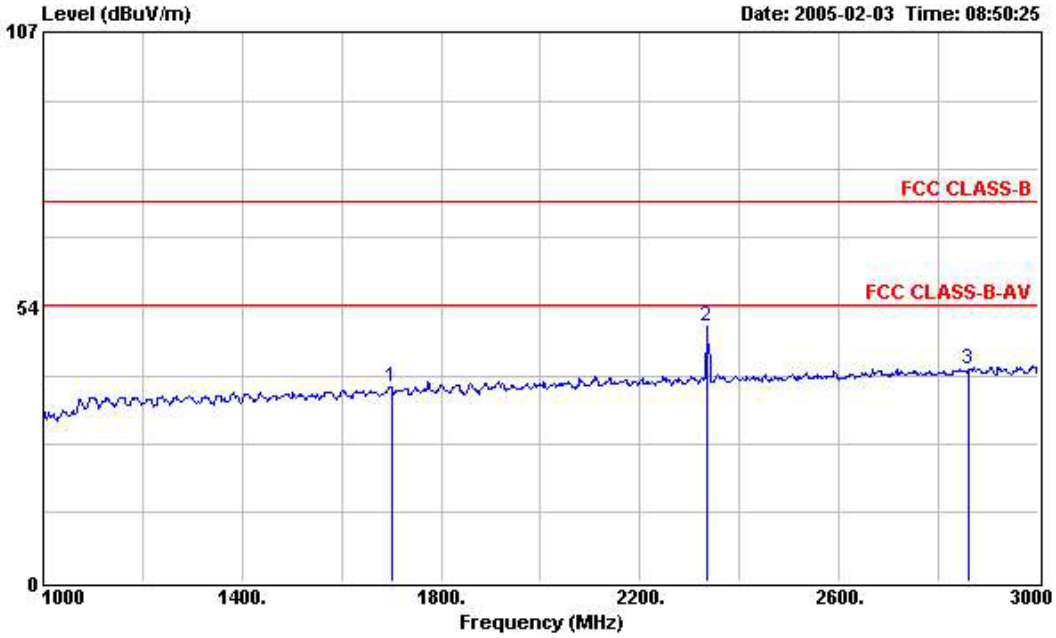


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1628.000	37.34	-36.66	74.00	49.37	25.74	1.54	39.31	Peak	---	---
2	1998.000	39.57	-34.43	74.00	50.10	27.40	1.72	39.65	Peak	---	---
3	2684.000	41.04	-32.96	74.00	49.38	29.11	2.06	39.51	Peak	---	---

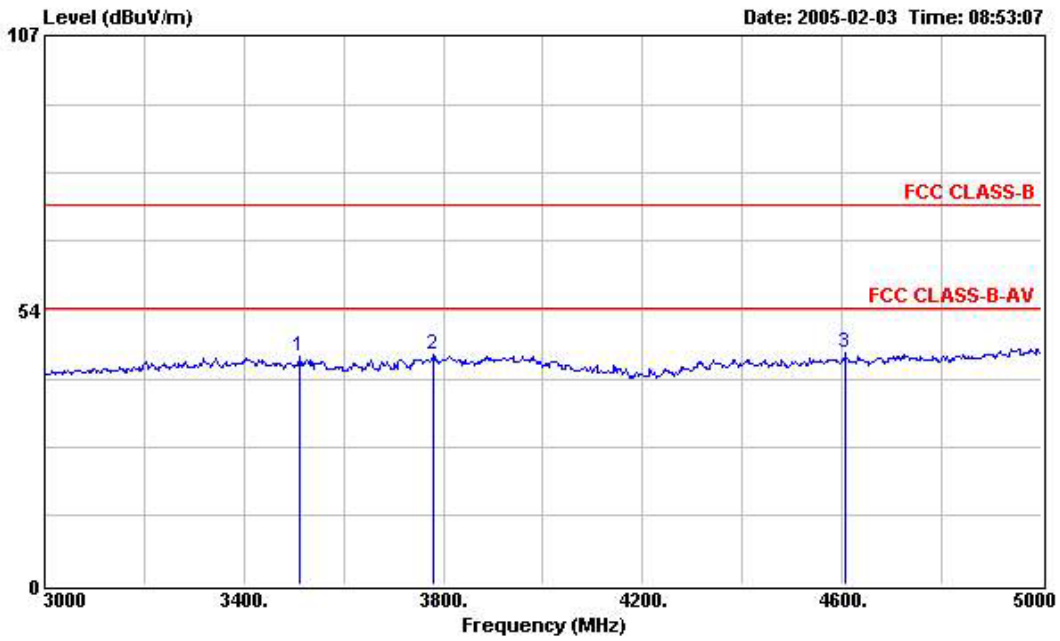


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3436.000	44.10	-29.90	74.00	49.65	31.08	2.33	38.96	Peak	---	---
2	3990.000	44.53	-29.47	74.00	48.98	32.50	2.49	39.44	Peak	---	---
3	4806.000	44.43	-29.57	74.00	48.76	32.97	2.84	40.14	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	1700.000	37.96	-36.04	74.00	49.68	26.07	1.58	39.37	Peak	---	---
2	2334.000	49.70	-24.30	74.00	59.27	28.15	1.89	39.61	Peak	---	---
3	2862.000	41.41	-32.59	74.00	49.04	29.67	2.14	39.44	Peak	---	---

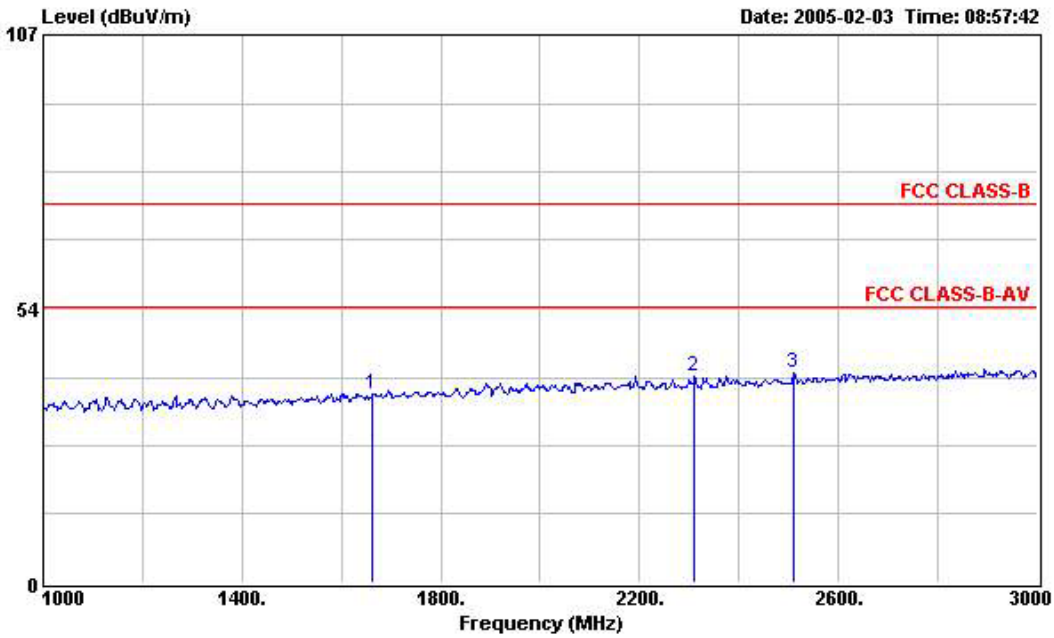


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3510.000	44.30	-29.70	74.00	49.64	31.25	2.35	38.94	Peak	---	---
2	3780.000	44.74	-29.26	74.00	49.57	31.96	2.43	39.22	Peak	---	---
3	4606.000	45.15	-28.85	74.00	49.92	32.60	2.76	40.13	Peak	---	---

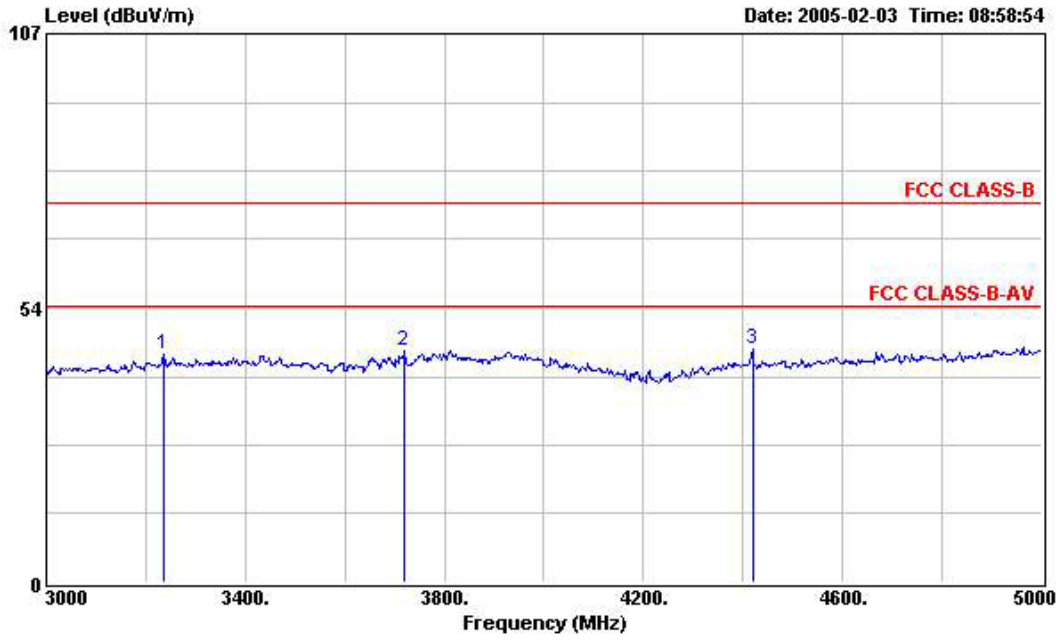
Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

- Test Mode: Mode 2 (spurious emission above 1GHz)
- Temperature: 21.9°C
- Relative Humidity: 52%
- Duty Cycle of the Equipment During the Test: 62.50%
- Test Engineer: Sun Chen

(A) Polarization: Horizontal

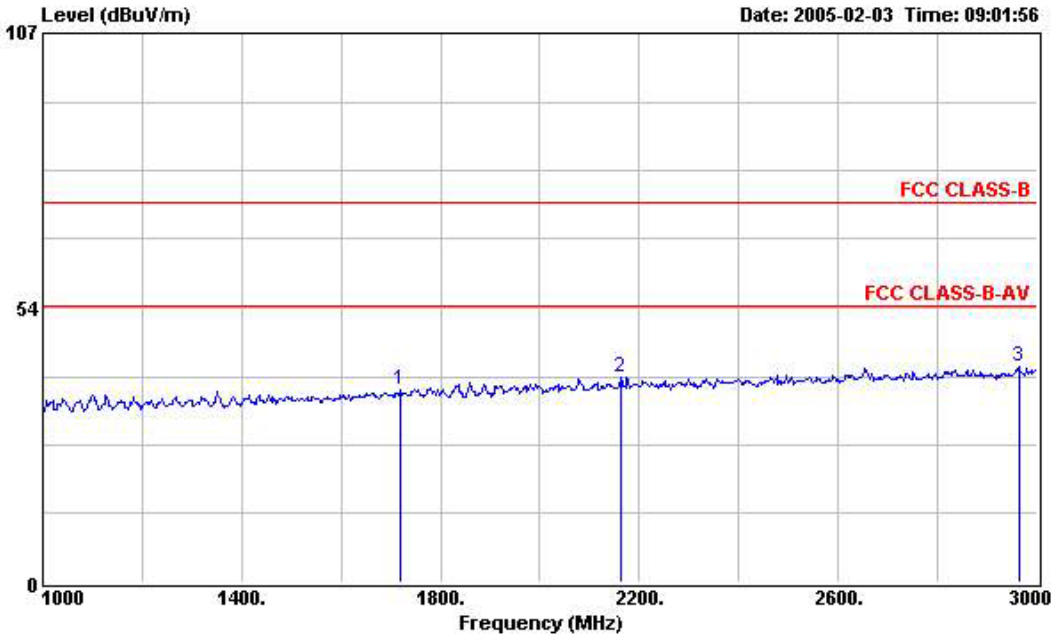


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1662.000	36.95	-37.05	74.00	48.83	25.90	1.56	39.34	Peak	---	---
2	2310.000	40.29	-33.71	74.00	49.93	28.10	1.87	39.61	Peak	---	---
3	2510.000	41.02	-32.98	74.00	50.06	28.57	1.97	39.58	Peak	---	---

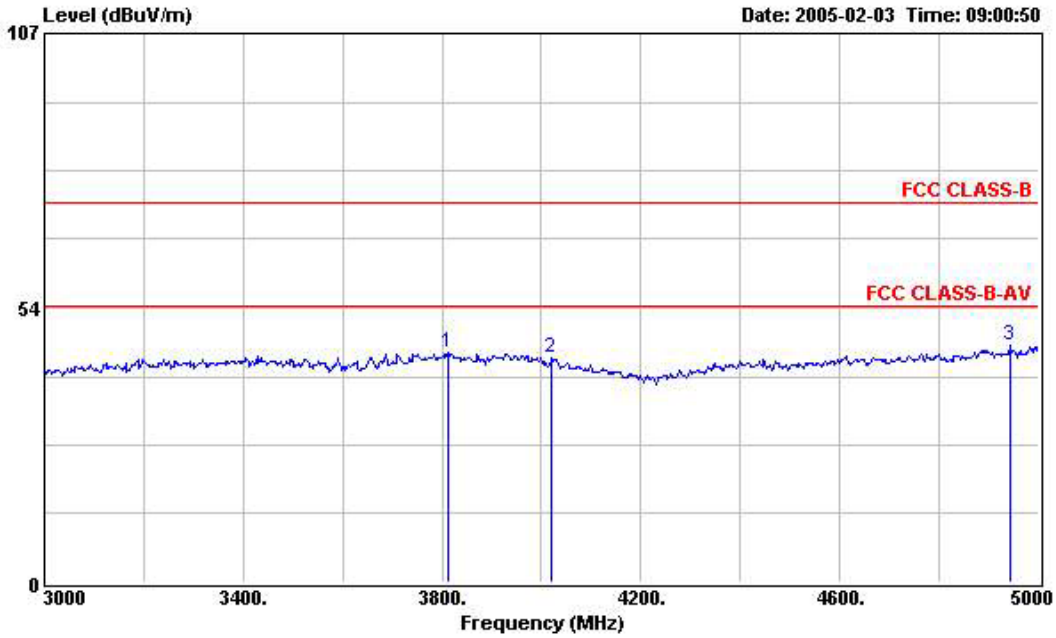


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3236.000	44.61	-29.39	74.00	50.85	30.63	2.28	39.15	Peak	---	---
2	3718.000	45.28	-28.72	74.00	50.23	31.80	2.41	39.16	Peak	---	---
3	4420.000	45.40	-28.60	74.00	50.33	32.41	2.68	40.02	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	1718.000	37.52	-36.48	74.00	49.18	26.15	1.58	39.39	Peak	---	---
2	2164.000	40.02	-33.98	74.00	50.07	27.78	1.80	39.63	Peak	---	---
3	2964.000	42.10	-31.90	74.00	49.33	29.99	2.19	39.41	Peak	---	---

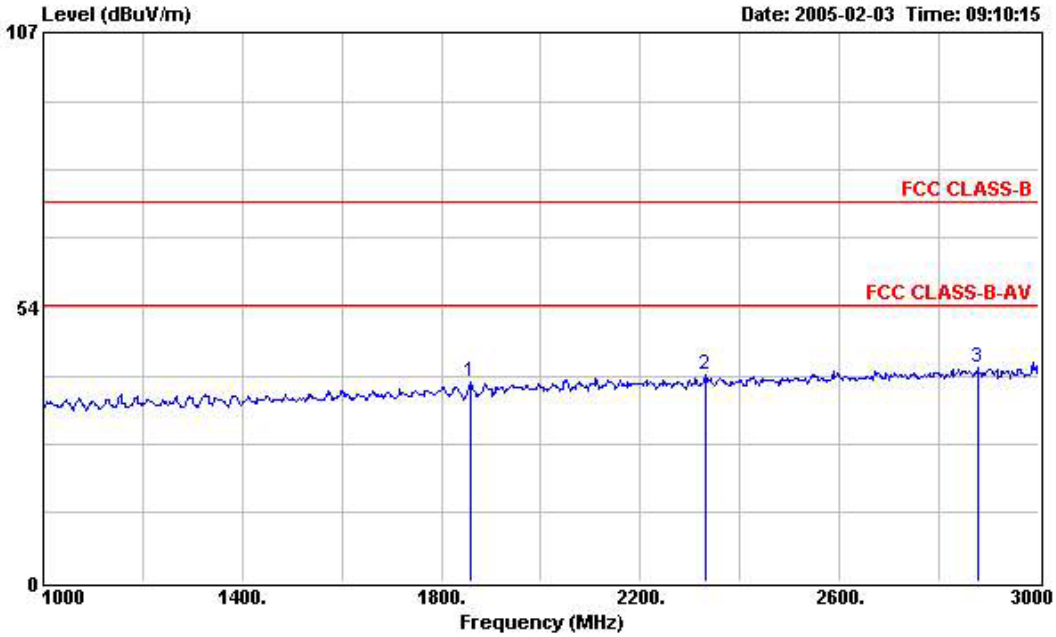


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3812.000	44.65	-29.35	74.00	49.41	32.05	2.44	39.25	Peak	---	---
2	4020.000	43.94	-30.06	74.00	48.42	32.49	2.51	39.48	Peak	---	---
3	4942.000	46.10	-27.90	74.00	50.13	33.22	2.90	40.15	Peak	---	---

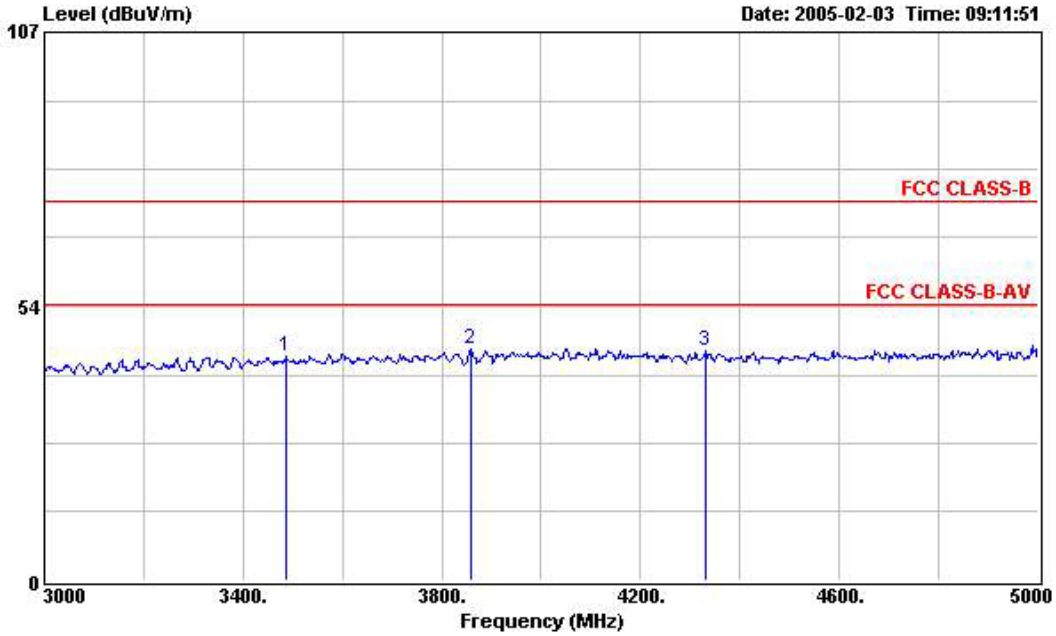
Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

- Test Mode: Mode 3 (spurious emission above 1GHz)
- Temperature: 21.9°C
- Relative Humidity: 52%
- Duty Cycle of the Equipment During the Test: 62.50%
- Test Engineer: Sun Chen

(A) Polarization: Horizontal

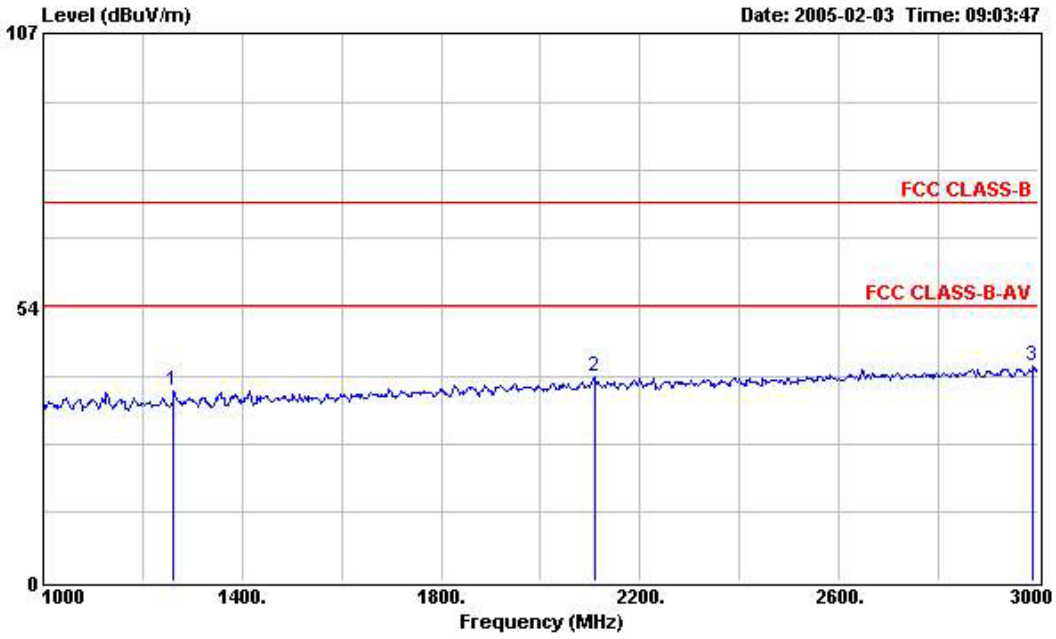


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1860.000	38.92	-35.08	74.00	50.00	26.79	1.65	39.52	Peak	---	---
2	2332.000	40.13	-33.87	74.00	49.70	28.15	1.89	39.61	Peak	---	---
3	2878.000	41.69	-32.31	74.00	49.26	29.72	2.15	39.44	Peak	---	---

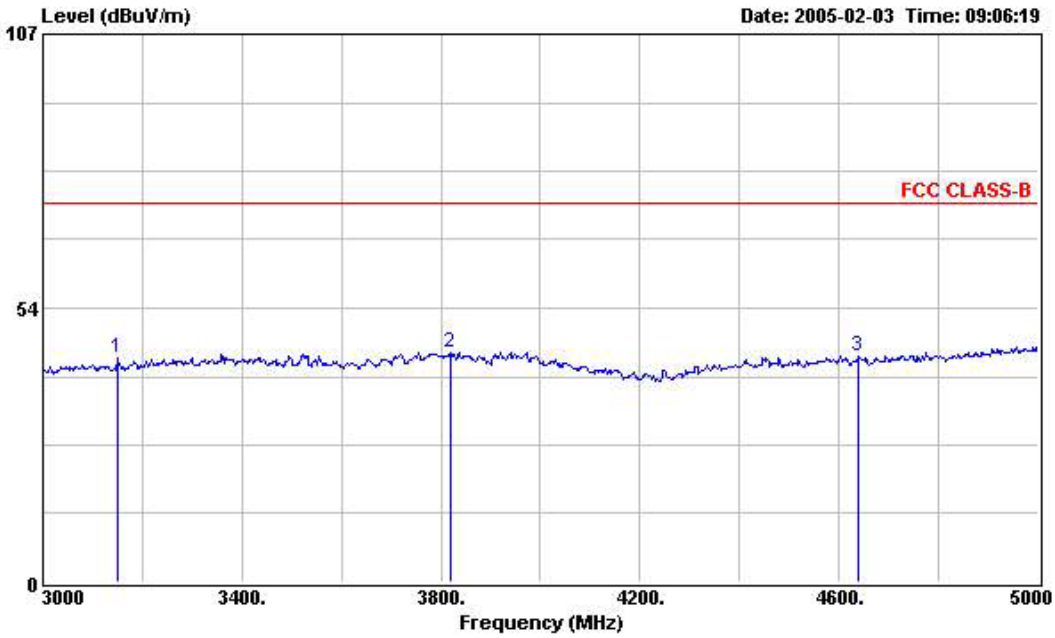


	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	3486.000	43.76	-30.24	74.00	49.13	31.19	2.35	38.91	Peak	---	---
2	3860.000	45.32	-28.68	74.00	49.99	32.17	2.46	39.30	Peak	---	---
3	4332.000	44.87	-29.13	74.00	49.70	32.43	2.64	39.90	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	1262.000	37.17	-36.83	74.00	50.33	24.69	1.36	39.21	Peak	---	---
2	2108.000	39.84	-34.16	74.00	50.05	27.65	1.78	39.64	Peak	---	---
3	2990.000	42.20	-31.80	74.00	49.33	30.07	2.20	39.40	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	3150.000	43.93	-30.07	74.00	50.47	30.44	2.25	39.23	Peak	---	---
2	3820.000	44.97	-29.03	74.00	49.72	32.07	2.44	39.26	Peak	---	---
3	4638.000	44.24	-29.76	74.00	48.94	32.66	2.77	40.13	Peak	---	---

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m)
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.3.8. Photographs of Radiated Emission Test Configuration

FRONT VIEW

REAR VIEW

5.4. Antenna Requirements

5.4.1. 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.

5.4.2. Antenna Connected Construction

There is no antenna connector for the antenna used in this product.

5.4.3. Test Criteria

All test results complied with the requirements of 15.203.

6. 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. 31, 2004	Radiation (03CH03-HY)
3	Amplifier	HP	8447D	2944A09072	100KHz – 1.3GHz	Nov. 10, 2004	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. 02, 2004	Radiation (03CH03-HY)
7	Amplifier	MITEQ	AFS44	849984	100MHz~26.5GHz	Mar. 26, 2004	Radiation (03CH03-HY)
8	Horn Antenna	EMCO	3115	6741	1GHz – 18GHz	Apr. 07, 2004	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	18GHz~40GHz	Jun. 09, 2004	Radiation (03CH03-HY)
12	RF Cable-HIGH	Jye Bao	RG142	CB030-HIGH	1GHz~29.5GHz	Dec. 04, 2004	Radiation (03CH03-HY)

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

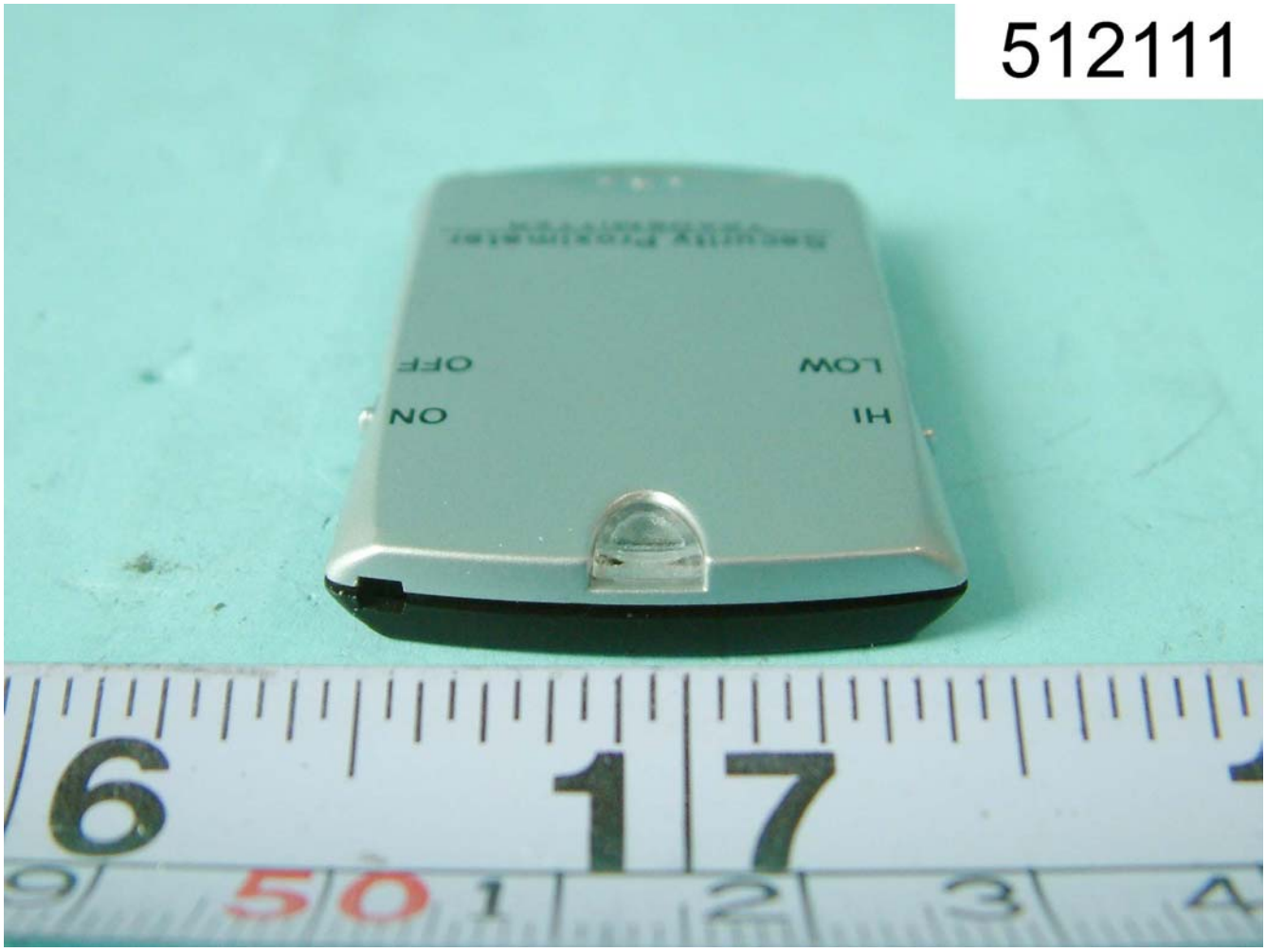
President, Taiwan Accreditation Foundation
Date:July 19, 2004

(This document is invalid unless accompanied by all 4 pages)

CNLA-ZL03191E Page 1 of 4

APPENDIX A. Photographs of EUT

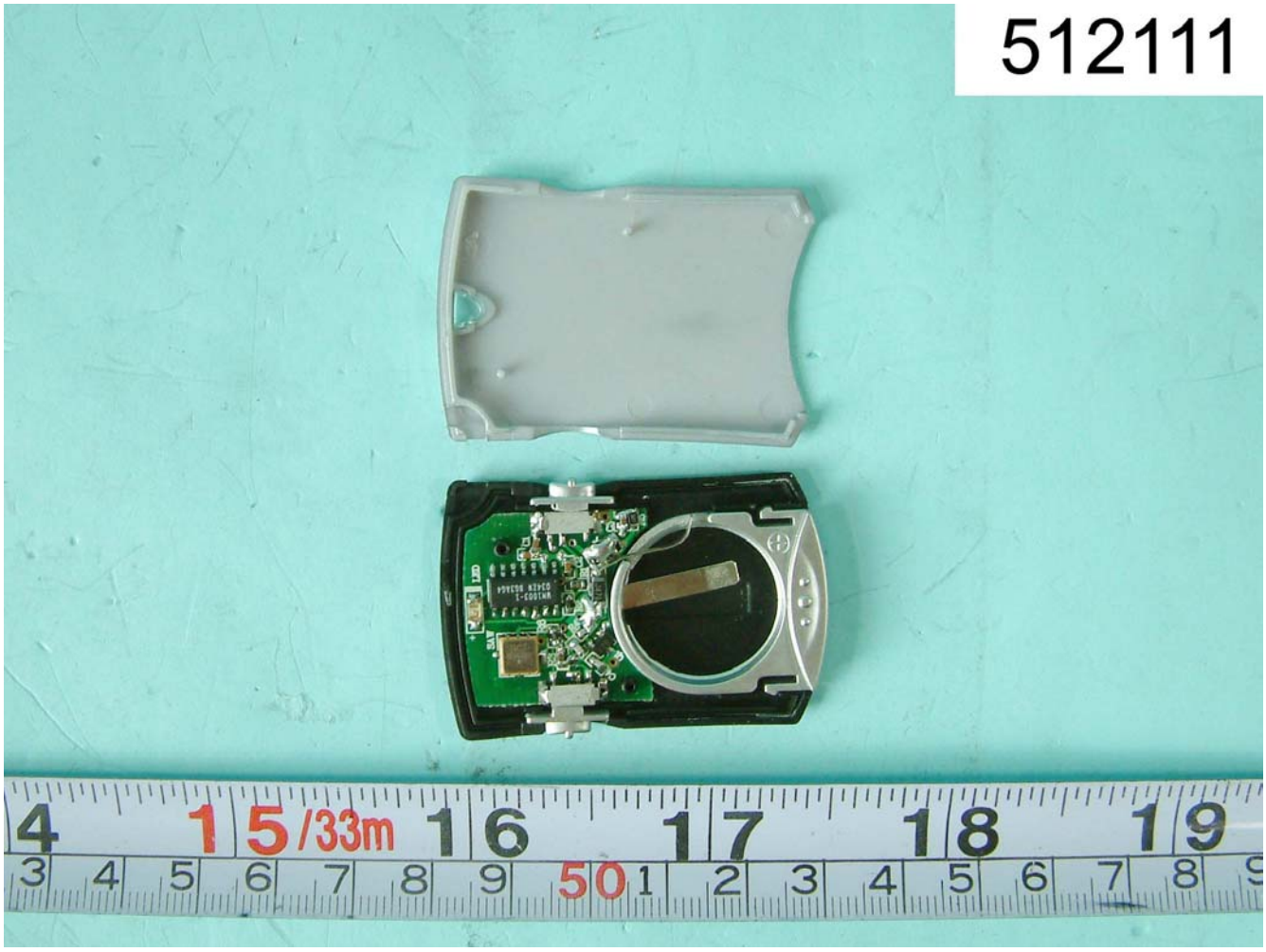
512111
ON
OFF
HI
LOW
Security Proximeter
TRANSMITTER
16
17
50


512111
OFF
ON
LOW
HI

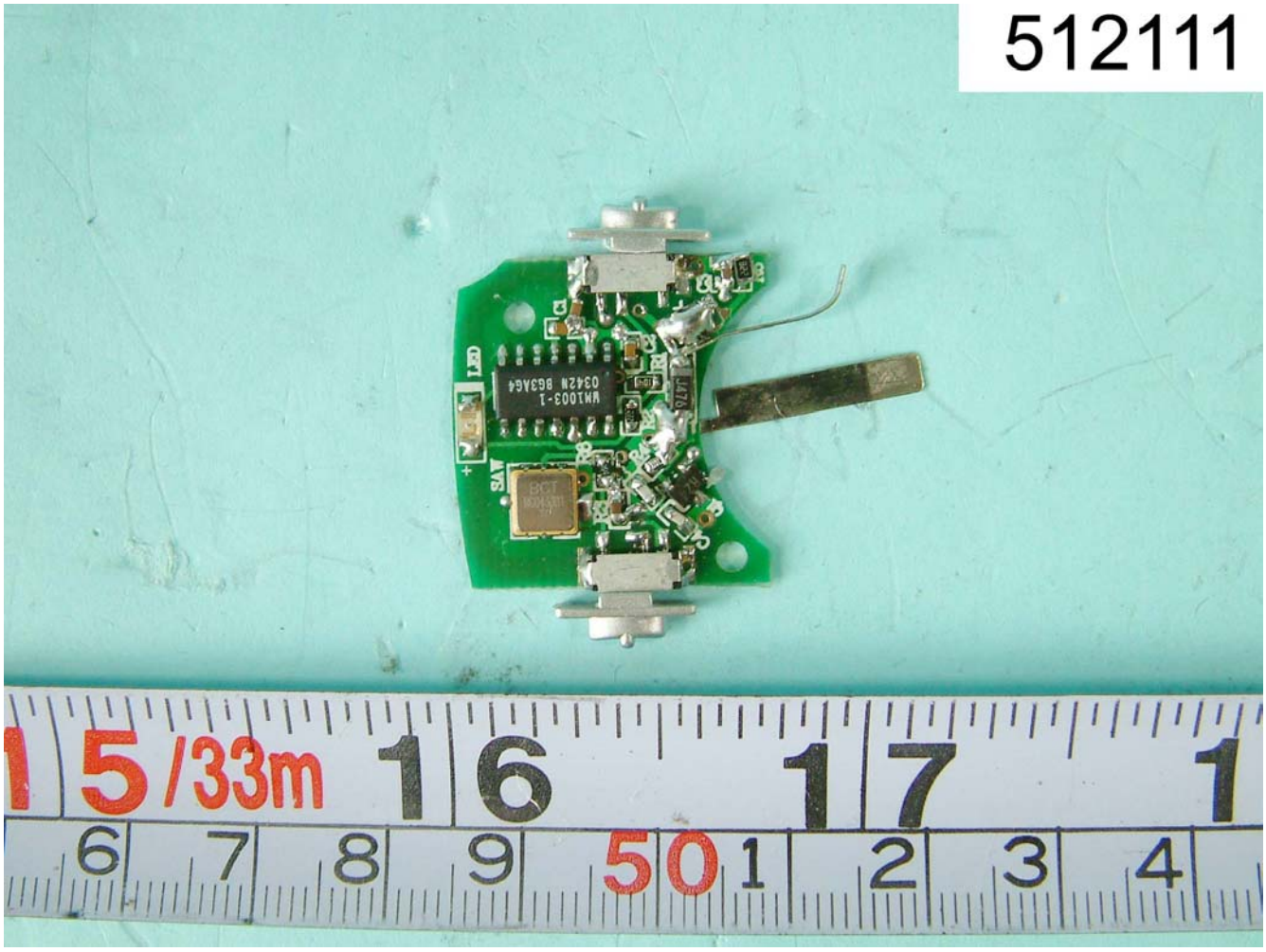
512111
Security Proximeter
TRANSMITTER
OFF
ON

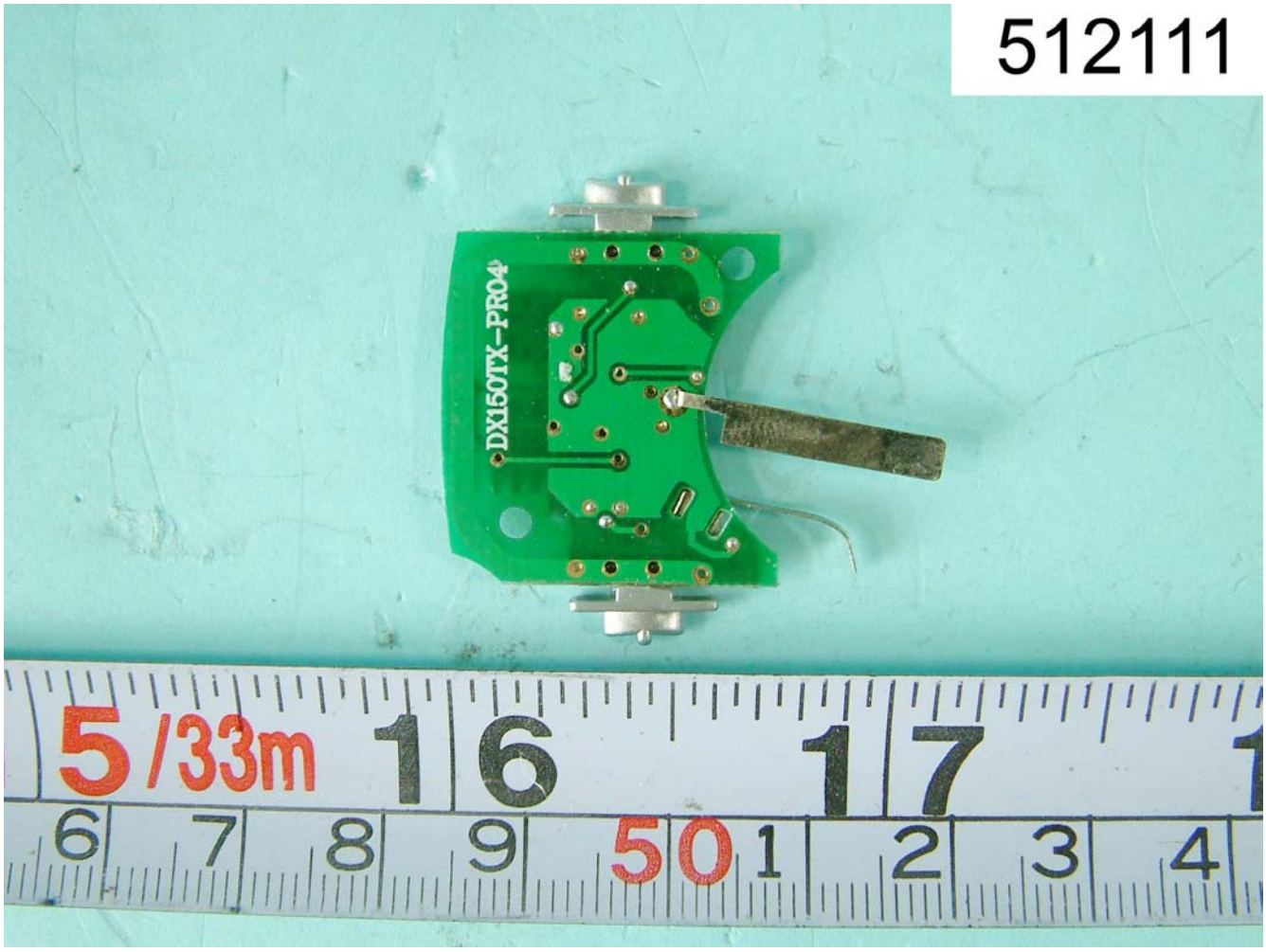
512111
Security Proximeter
TRANSMITTER
HI
LOW
ON
OFF
5/33m
16
17
18
50

512111


512111

512111
15/33m


512111
15/33m
16
17
6
7
8
9
50
1
2
3
4


512111
DX150TX-PR04
5/33m
16
17
6
7
8
9
50
1
2
3
4