FCC TEST REPORT

CATEGORY	:	Portable
PRODUCT NAME	:	Bluetooth Headset
FCC ID.	:	QVZ-H3
FILING TYPE	:	Certification
BRAND NAME	:	Motorola
MODEL NAME	:	H3
APPLICANT	:	**Motorola Inc.** 600 North US Highway 45, Room AN2, Libertyville, Illinois, 60048, U.S.A.
MANUFACTURER	:	**Microlink Communications Inc.** 8F, No. 31, Hsintai Rd., Chupei City Hsinchu 302, Taiwan, R.O.C.
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 equipment used to perform the test is calibrated and traceable to NML/ROC or NIST/USA.

CNLA

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ILAC MRA

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HISTORY OF THIS TEST REPORT

Received Date: Mar. 15, 2005
Test Date: Oct. 07, 2005
Original Report Issue Date: Dec. 02, 2005
Report No.: FR531503-04

■ 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	:	Bluetooth Headset
BRAND NAME	:	Motorola
MODEL NAME	:	H3
APPLICANT	:	**Motorola Inc.** 600 North US Highway 45, Room AN2, Libertyville, Illinois, 60048, U.S.A.
MANUFACTURER	:	**Microlink Communications Inc.** 8F, No. 31, Hsintai Rd., Chupei City Hsinchu 302, Taiwan, R.O.C.

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 Oct. 07, 2005 at SPORTON International Inc. LAB.

Wayne Hsu / Supervisor
Sporton International Inc.

1. General Description of Equipment under Test

1.1. Applicant

Motorola Inc.
600 North US Highway 45, Room AN2, Libertyville, Illinois, 60048, U.S.A.

1.2. Manufacturer

Microlink Communications Inc.
8F, No. 31, Hsintai Rd., Chupei City Hsinchu 302, Taiwan, R.O.C.

1.3. Basic Description of Equipment under Test

This product is a headset with Bluetooth wireless solution. 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	GFSK
Number of Channels	79
Frequency Band	2402 MHz ~ 2480 MHz
Carrier Frequency	See section 1.6 for details
Data Rate	1 Mbps
Channel Bandwidth	837 kHz
Max. Conducted Output Power	0.58 dBm
Antenna Type	See section 1.5 for details
Testing Duty Cycle	47.60%
Test Power Source	3.7 VDC chargeable battery
Temperature Range (Operating)	-10 ~ 55 °C

1.5. Antenna Description

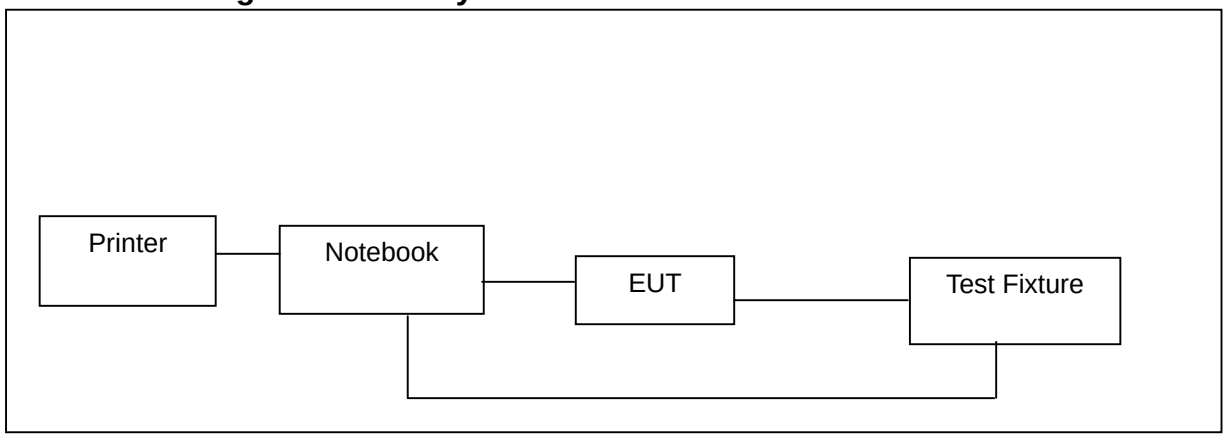
No.	Antenna Type	Gain (dBi)
1	Printed Antenna	4.27

1.6. Table for Carrier Frequencies

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	20	2422 MHz	40	2442 MHz	60	2462 MHz
01	2417 MHz	21	2423 MHz	41	2443 MHz	61	2463 MHz
02	2422 MHz	22	2424 MHz	42	2444 MHz	62	2464 MHz
03	2427 MHz	23	2425 MHz	43	2445 MHz	63	2465 MHz
04	2403 MHz	24	2426 MHz	44	2446 MHz	64	2466 MHz
05	2404 MHz	25	2427 MHz	45	2447 MHz	65	2467 MHz
06	2405 MHz	26	2428 MHz	46	2448 MHz	66	2468 MHz
07	2406 MHz	27	2429 MHz	47	2449 MHz	67	2469 MHz
08	2407 MHz	28	2430 MHz	48	2450 MHz	68	2470 MHz
09	2408 MHz	29	2431 MHz	49	2451 MHz	69	2471 MHz
10	2409 MHz	30	2432 MHz	50	2452 MHz	70	2472 MHz
11	2410 MHz	31	2433 MHz	51	2453 MHz	71	2473 MHz
12	2411 MHz	32	2434 MHz	52	2454 MHz	72	2474 MHz
13	2412 MHz	33	2435 MHz	53	2455 MHz	73	2475 MHz
14	2413 MHz	34	2436 MHz	54	2456 MHz	74	2476 MHz
15	2414 MHz	35	2437 MHz	55	2457 MHz	75	2477 MHz
16	2415 MHz	36	2438 MHz	56	2458 MHz	76	2478 MHz
17	2416 MHz	37	2439 MHz	57	2459 MHz	77	2479 MHz
18	2417 MHz	38	2440 MHz	58	2460 MHz	78	2480 MHz
19	2418 MHz	39	2441 MHz	59	2461 MHz		

2. Test Configuration of the Equipment under Test

2.1. Connection Diagram of Test System



2.2. The Test Mode Description

1. For FHSS modulation, GFSK is the worst case on all test items.
2. According to ANSI C63.4-2003: If frequency range of EUT is more than 10 MHz, we have to test the lowest, middle and highest channels of EUT.
3. Spurious emission below 1GHz is independent of channel selection, so only channel 78 with GFSK modulation was tested.
4. AC conduction emission is independent of channel selection, so only channel 78 with GFSK modulation was tested.

2.3. Description of Test Supporting Units

Support unit	Brand	Model No.	Serial No.	FCC ID	Data cable (m)
Notebook	DELL	PP01L	SP0005	Yes	-
Printer	EPSON	Stylus Color 680	SP0016	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 : 03CH03-HY / TH01-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, 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.

Power Parameter Table

Test Software	**Bluetest**		
Test Channel	CH 00	CH 39	CH 79
Test Frequency	2402MHz	2441MHz	2480MHz
TX Power	63	63	63

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	15.247(a)(1)	Hopping Channel Bandwidth	Pass
5.2	15.247(a)(1)	Hopping Channel Separation	Pass
5.3	15.247(b)(1)	Number of Hopping Frequency Used	Pass
5.4	15.247(a)(1)(iii)	Dwell Time of Each Frequency	Pass
5.5	15.247(b)(1)	Maximum Peak Output Power	Pass
5.6	15.247(d)	Band Edges Emission	Pass
5.7	15.207	AC Power Line Conducted Emission	Pass
5.8	15.247(d)	Spurious Radiated Emission	Pass
5.9	15.203/15.247(b)/(c)	Antenna Requirement	Pass

5. Test Result

5.1. Test of Hopping Channel Bandwidth

5.1.1. Applicable Standard

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

5.1.2. Measuring Instruments

Item 18 of the table on section 6.

5.1.3. Description of Major Test Instruments Setting

- Spectrum Analyzer : R&S FSP30
  Attenuation : Auto
  Center Frequency : 2402 MHz / 2441 MHz / 2480 MHz
  Span Frequency : > 20dB Bandwidth
  RB : 30 kHz
  VB : 100 kHz
  Detector : Peak
  Trace : Max Hold
  Sweep Time : Auto

5.1.4. Test Procedures

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 30KHz and VBW to 100KHz.
3. Set Detector to Peak, Trace to Max Hold and Sweep Time is Auto.
4. The spectrum width with level higher than 20dB below the peak level.
5. Repeat above 1~3 points for the middle and highest channel of the EUT.

5.1.5. Test Setup Layout

5.1.6. Test Criteria

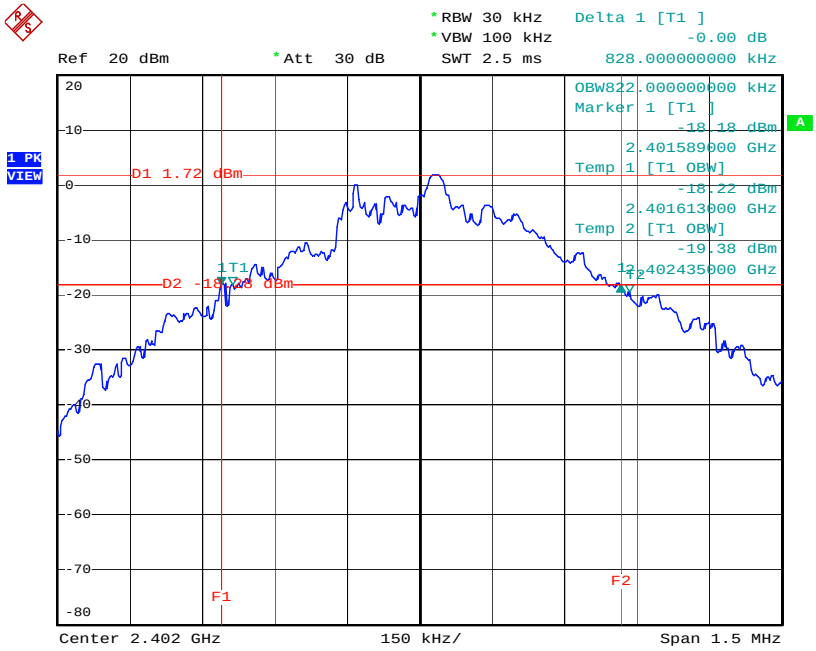
All test results complied with the requirements of Section 15.247(a)(1). Measurement Uncertainty is $1x10^{-5}$.

5.1.7. Test Result

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 47.60%
- Test Engineer: Sam Lee

Modulation Type	Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	Min. Limit (kHz)
GFSK	00	2402 MHz	822.00	25
GFSK	39	2441 MHz	837.00	25
GFSK	78	2480 MHz	831.00	25

Modulation Type: GFSK (Channel 00)：



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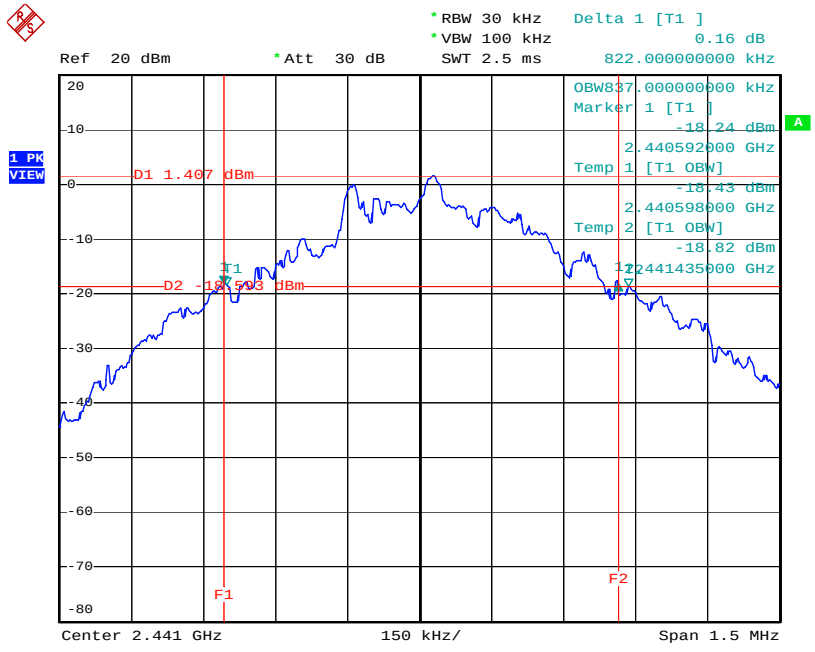
Modulation Type: GFSK (Channel 39)：



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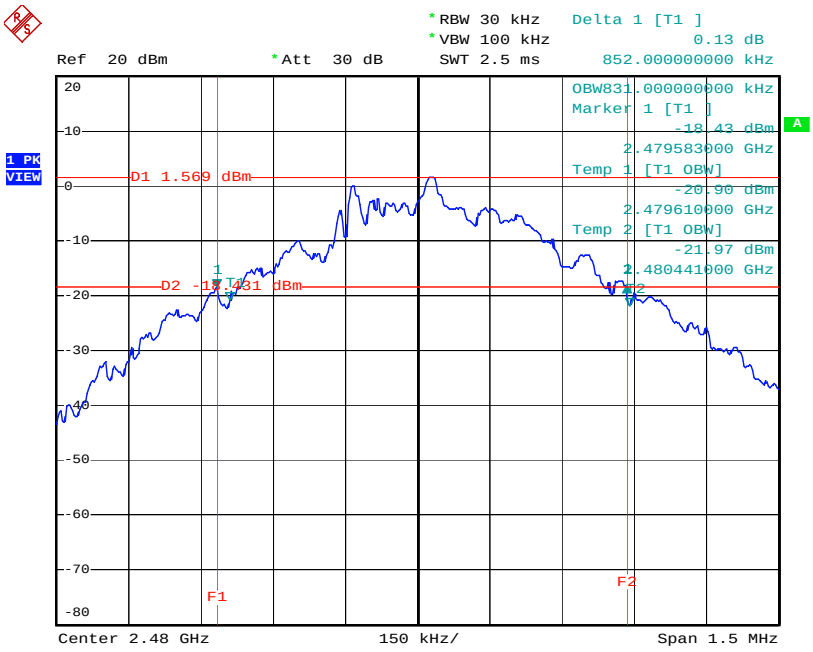
Modulation Type: GFSK (Channel 78)：



Date: 7.OCT.2005 17:47:19

5.2. Test of Hopping Channel Separation

5.2.1. Applicable Standard

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

5.2.2. Measuring Instruments

Item 18 of the table on section 6.

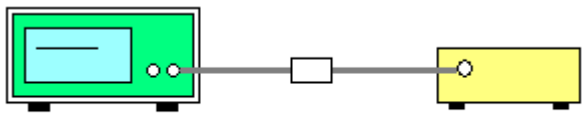
5.2.3. Description of Major Test Instruments Setting

- Spectrum Analyzer : R&S FSP30
  Attenuation : Auto
  Center Frequency : 2402 MHz / 2441 MHz / 2480 MHz
  Span Frequency : > One time channel separation
  RB : 100 kHz
  VB : 100 kHz
  Detector : Peak
  Trace : Max Hold
  Sweep Time : Auto

5.2.4. Test Procedures

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 100KHz and VBW to 100KHz.
3. Set Detector to Peak, Trace to Max Hold and Sweep Time is Auto.
4. The Hopping Channel Separation is defined as the separation between 2 neighboring hopping frequencies.
5. Repeat above 1~3 points for the middle and highest channel of the EUT.

5.2.5. Test Setup Layout



5.2.6. Test Criteria

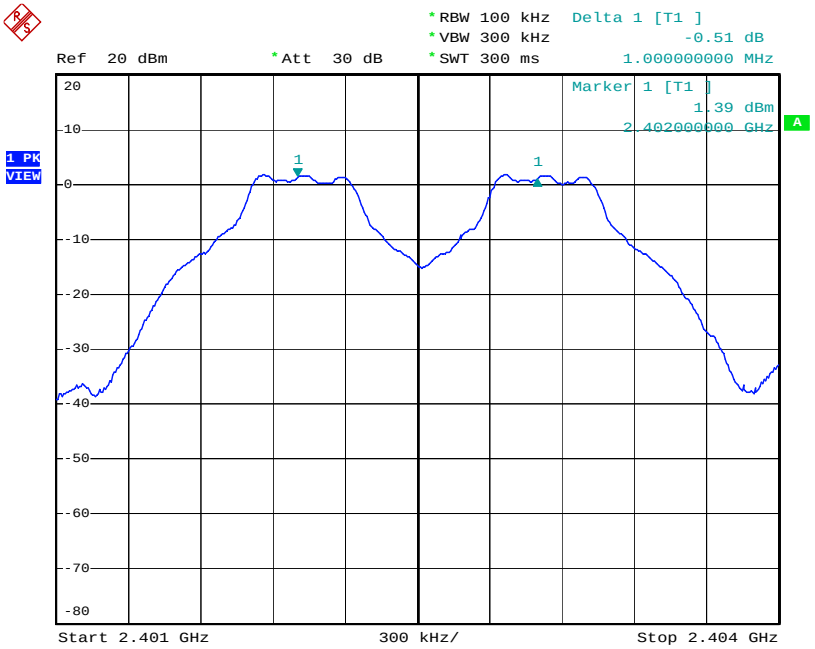
All test results complied with the requirements of Section 15.247(a)(1). Measurement Uncertainty is $1x10^{-5}$.

5.2.7. Test Result

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 47.60%
- Test Engineer: Sam Lee

Modulation Type	Channel No.	Frequency (MHz)	Hopping Channel Separation (kHz)	Min. Limit (kHz)
GFSK	00	2402 MHz	1000	822.00
GFSK	39	2441 MHz	1000	837.00
GFSK	78	2480 MHz	1000	831.00

Modulation Type: GFSK (Channel 00)：



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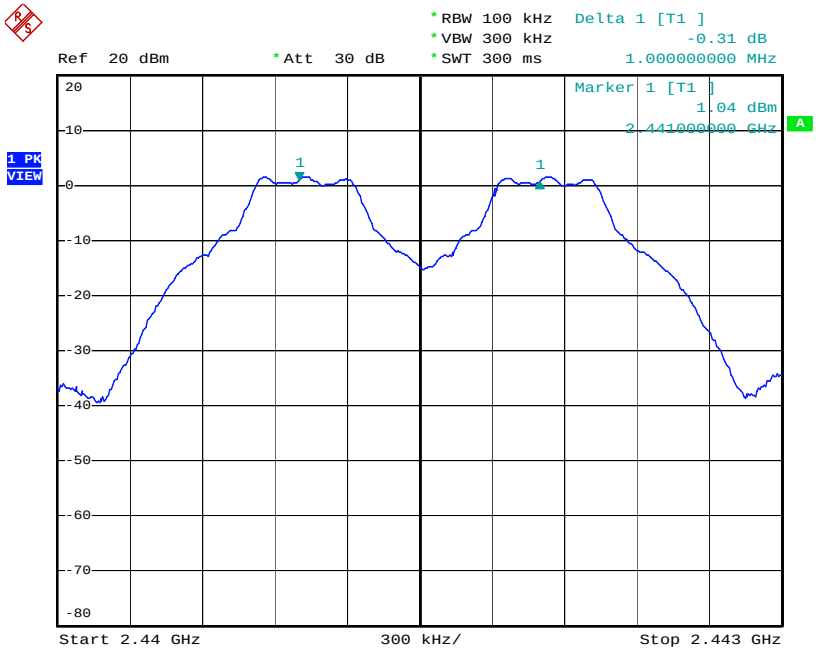
Modulation Type: GFSK (Channel 39)：



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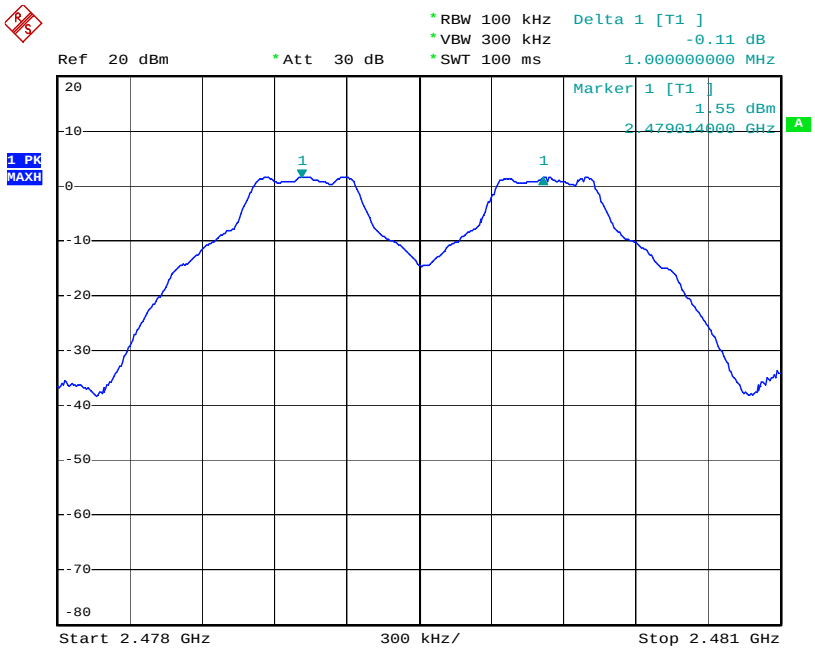
Modulation Type: GFSK (Channel 78)：



Date: 7.OCT.2005 17:59:57

5.3. Test of Number of Hopping Frequency

5.3.1. Applicable Standard

Section 15.247(b)(1): For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels.

5.3.2. Measuring Instruments

Item 18 of the table on section 6.

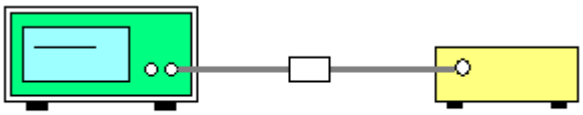
5.3.3. Description of Major Test Instruments Setting

- Spectrum Analyzer : R&S FSP30
  Attenuation : Auto
  Center Frequency : 2402 MHz ~ 2480 MHz
  Span Frequency : > Operation frequency range
  RB : 100 kHz
  VB : 100 kHz

5.3.4. Test Procedures

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 100KHz and VBW to 100KHz.
3. Set Detector to Peak, Trace to Max Hold and Sweep Time is Auto.
4. Observe frequency hopping in 2400MHz~2483.5MHz, there are at least 75 non-overlapping channels.
5. Repeat above 1~3 points for the middle and highest channel of the EUT.

5.3.5. Test Setup Layout



5.3.6. Test Criteria

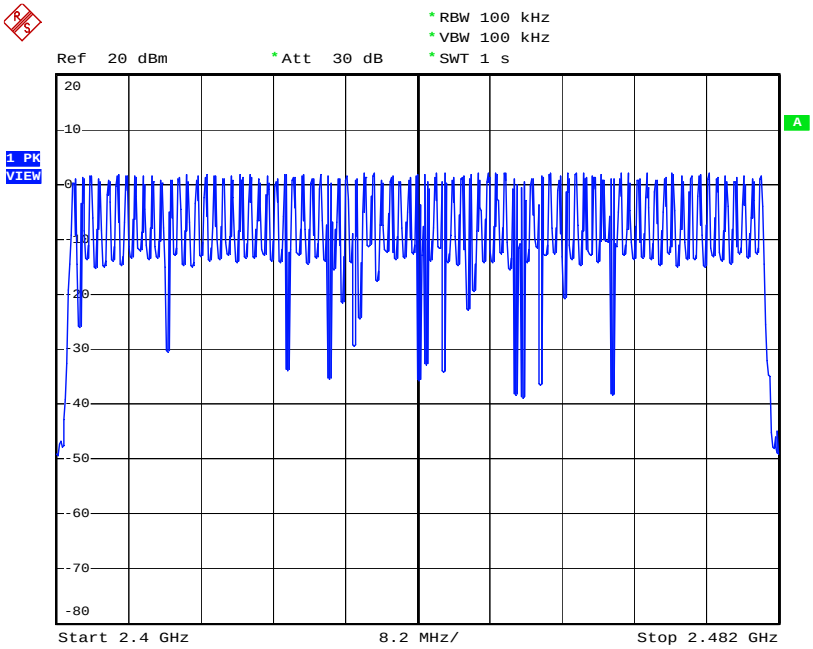
All test results complied with the requirements of Section 15.247(b)(1).

5.3.7. Test Result

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 47.60%
- Test Engineer: Sam Lee

Modulation Type	Channel No.	Frequency (MHz)	Number of Hopping Ch. (Channels)	Min. Limit (Channels)
GFSK	00 ~ 78	2402 MHz ~ 2480 MHz	79	75

Modulation Type: GFSK (Channel 00 ~ Channel 78)：



Date: 7.OCT.2005 17:44:47

5.4. Test of Dwell Time of Each Frequency

5.4.1. Measuring Instruments

Item 18 of the table on section 6.

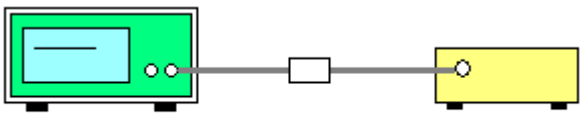
5.4.2. Description of Major Test Instruments Setting

- Spectrum Analyzer : R&S FSP30
  Attenuation : Auto
  Center Frequency : 2402 MHz / 2441 MHz / 2480 MHz
  Span Frequency : 0MHz
  RB : 1 MHz
  VB : 1 MHz
  Detector : Peak
  Trigger : Video
  Sweep Time : > One pulse time

5.4.3. T Test Procedures and Test Instruments Setting

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 1000kHz and VBW to 1000kHz.
3. Set Detector to Peak, Trace to Max Hold and Sweep Time is more than once pulse time.
4. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
5. Set the EUT for DH5, DH3 and DH1 packet transmitting.
6. Measure the maximum time duration of one single pulse.
7. DH5 Packet permit maximum 3.37 hops per second in each channel. So, the dwell time is the time duration of the pulse times 106.6 within 31.6 seconds.
8. DH3 Packet permit maximum 5.06 hops per second in each channel. So, the dwell time is the time duration of the pulse times 160 within 31.6 seconds.
9. DH1 Packet permit maximum 10.12 hops per second in each channel. So, the dwell time is the time duration of the pulse times 320 within 31.6 seconds.

5.4.4. Test Setup Layout



5.4.5. Test Criteria

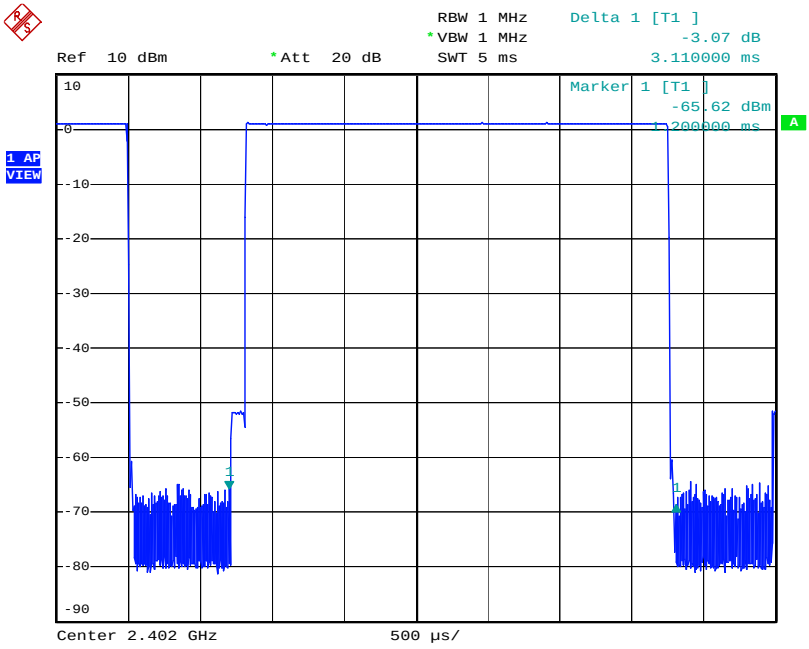
All test results complied with the requirements of Section 15.247(a)(1)(iii). Measurement Uncertainty is $1x10^{-5}$.

5.4.6. Test Result

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 47.60%
- Test Engineer: Sam Lee

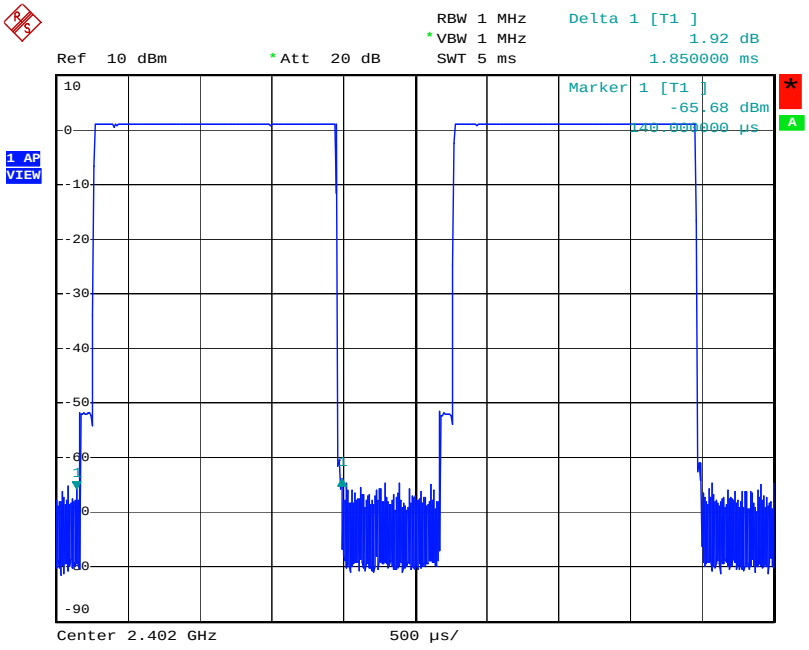
Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2402 MHz	3.1000	0.3307	0.4
DH3	2402 MHz	1.8500	0.2960	0.4
DH1	2402 MHz	0.5800	0.1856	0.4
DH5	2441 MHz	3.1000	0.3307	0.4
DH3	2441 MHz	1.8500	0.2960	0.4
DH1	2441 MHz	0.5800	0.1856	0.4
DH5	2480 MHz	3.1000	0.3307	0.4
DH3	2480 MHz	1.8500	0.2960	0.4
DH1	2480 MHz	0.5800	0.1872	0.4

DH5 Modulation Type: GFSK (Channel 00)：



Date: 7.OCT.2005 17:55:01

DH3 Modulation Type: GFSK (Channel 00)：



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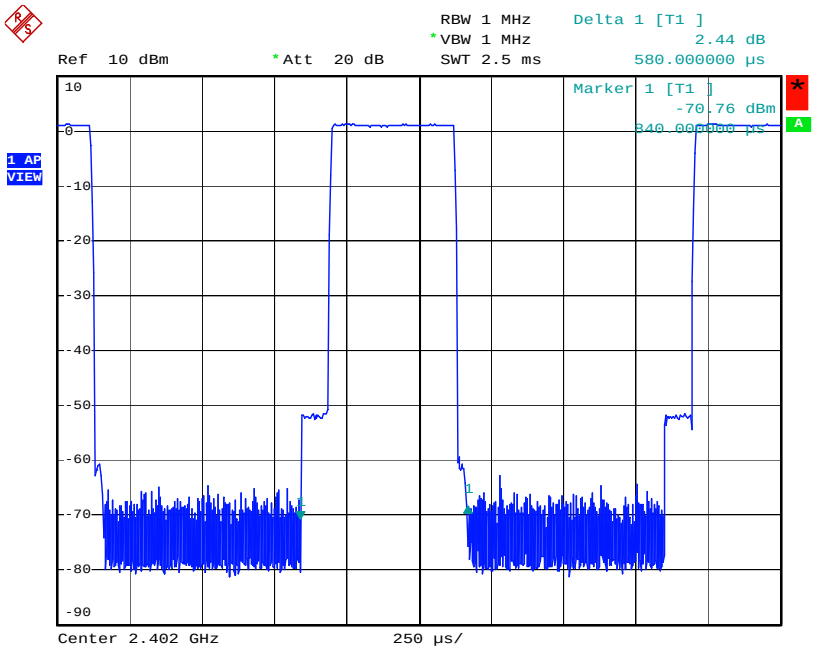
DH1 Modulation Type: GFSK (Channel 00)：



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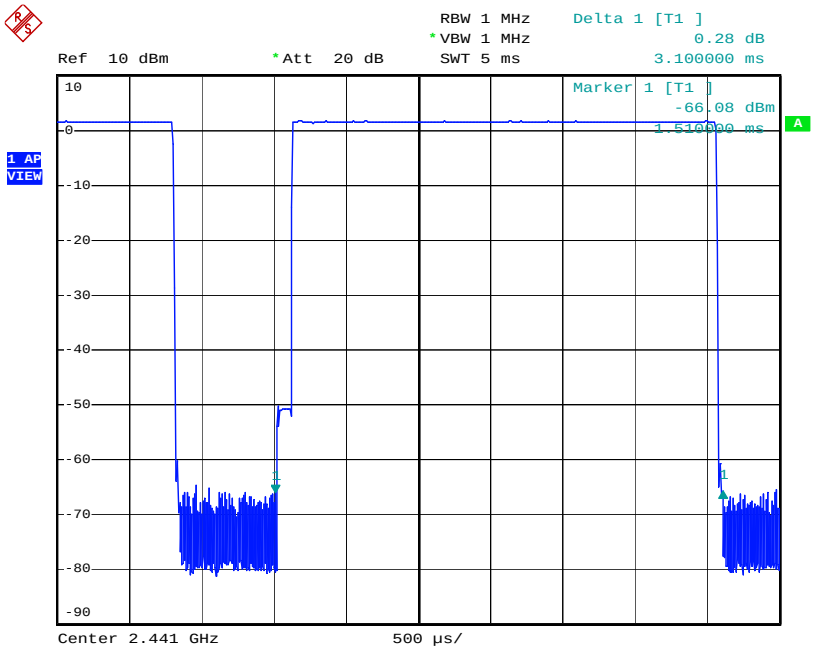
DH5 Modulation Type: GFSK (Channel 39)：



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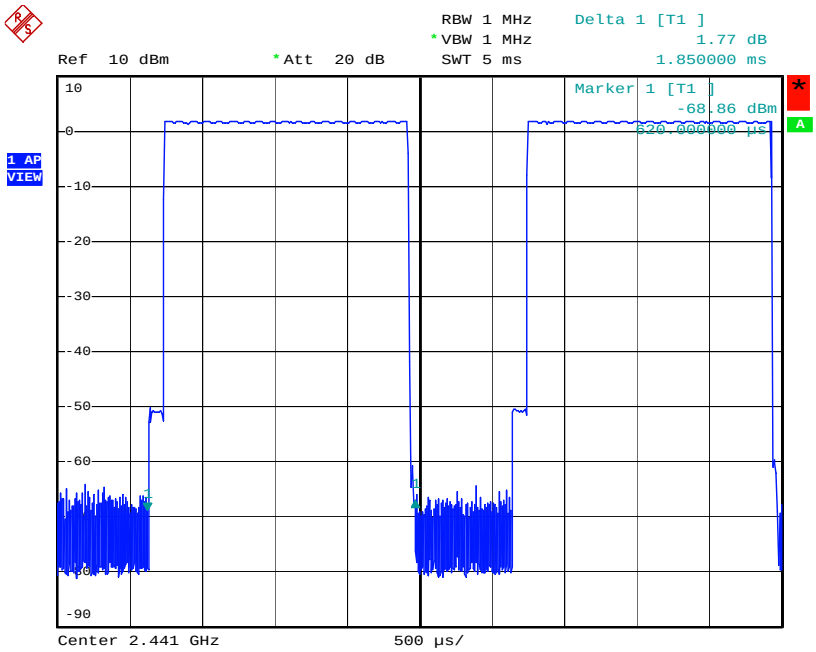
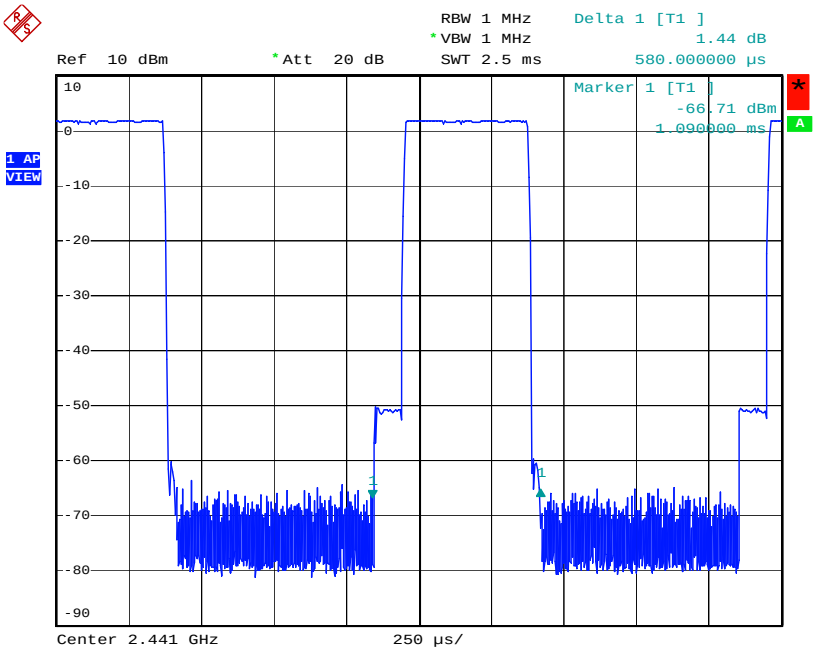
DH3 Modulation Type: GFSK (Channel 39)：



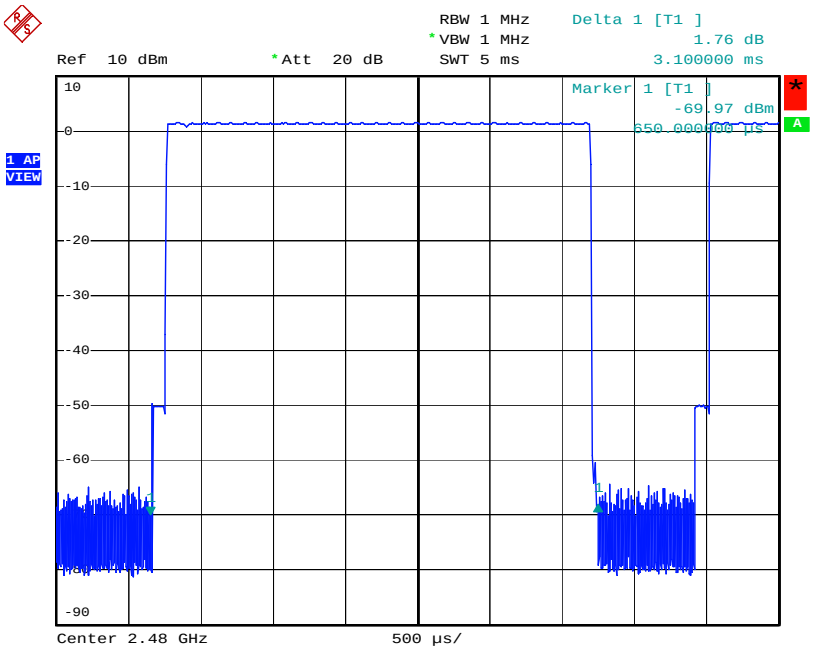
Date: 7.OCT.2005 17:53:02

DH1 Modulation Type: GFSK (Channel 39)：



Date: 7.OCT.2005 17:51:42

DH5 Modulation Type: GFSK (Channel 78)：



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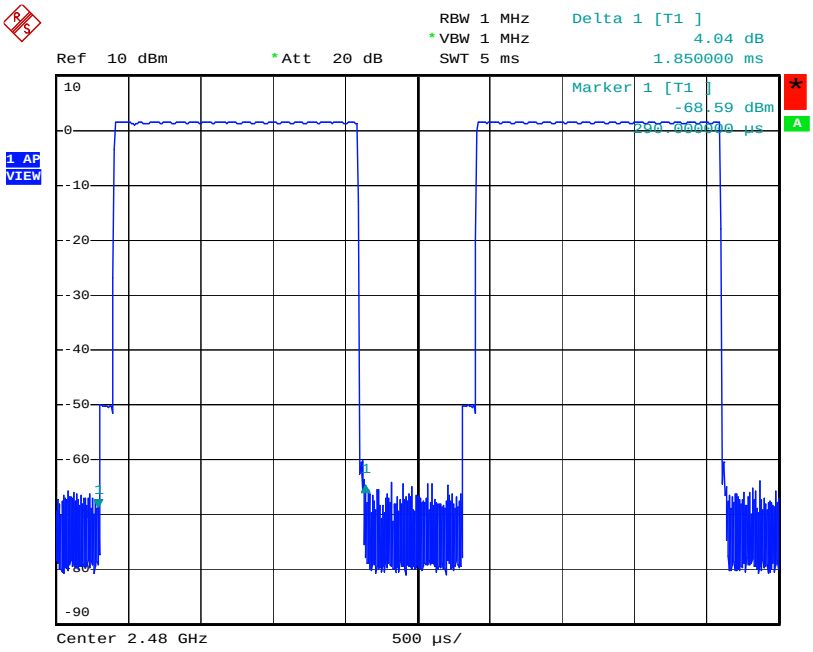
DH3 Modulation Type: GFSK (Channel 78)：



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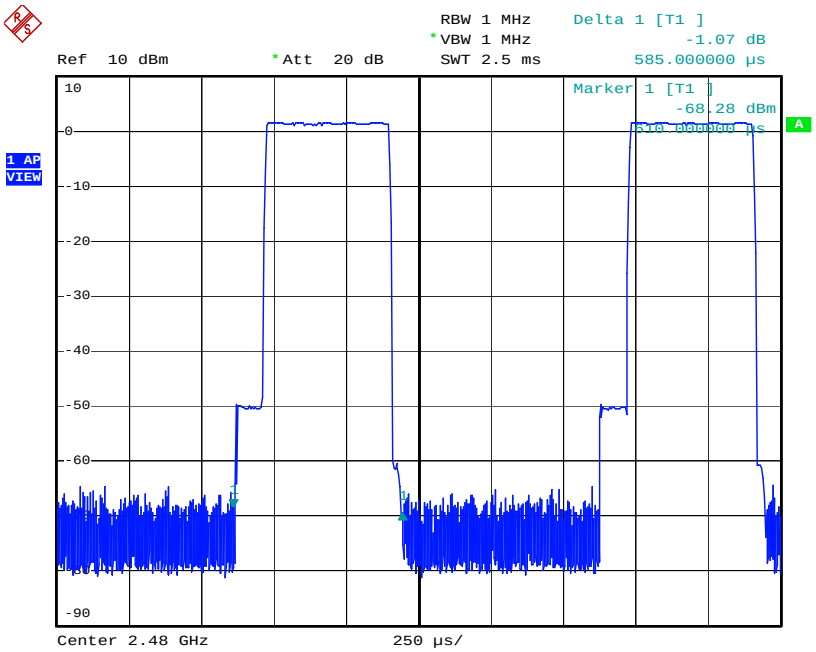
DH1 Modulation Type: GFSK (Channel 78)：



Date: 7.OCT.2005 17:51:20

5.5. Maximum Peak Output Power

5.5.1. Applicable Standard

Section 15.247(b)(1): For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels and The maximum peak output power shall not exceed 1 watt.

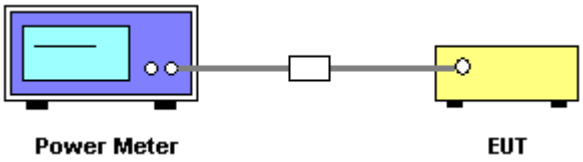
5.5.2. Measuring Instruments

Item 19, 21 of the table on section 6.

5.5.3. Test Procedures and Test Instruments Setting

1. The transmitter output was connected to the peak power meter and recorded the peak value.
2. The filter and attenuator has the same peak value instrument parameters.
3. Repeated the 1 for the middle and highest channel of the EUT.

5.5.4. Test Setup Layout



5.5.5. Test Criteria

All test results complied with the requirements of 15.247(b)(1). Measurement Uncertainty is 1.5dB.

5.5.6. Test Result of Conducted Peak Power

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 47.60%
- Test Engineer: Sam Lee

Modulation Type	Channel No.	Frequency (MHz)	Output Power (dBm)	Limits (dBm)
GFSK	00	2402 MHz	0.58	30
GFSK	39	2441 MHz	0.52	30
GFSK	78	2480 MHz	-1.58	30

5.6. Test of Band Edges Emission

5.6.1. Applicable Standard

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. In addition, radiated emissions that fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209.

5.6.2. Measuring Instruments

Item 6~17 of the table on section 6 for radiated measurement.
Item 18 of the table on section 6 for conducted measurement.

5.6.3. Description of Major Test Instruments Setting

- Spectrum Analyzer : R&S FSP30 (Conducted Measurement)
  Attenuation : Auto
  Center Frequency : 2402 MHz / 2480 MHz
  Span Frequency : 100MHz
  RB : 100 kHz
  VB : 100 kHz
  Detector : Peak
  Trace : Max Hold
  Sweep Time : Auto

- Spectrum Analyzer : R&S FSP40 (Radiated Measurement)
  Attenuation : Auto
  Center Frequency : 2402 MHz / 2480 MHz
  Span Frequency : 100MHz
  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

5.6.4. Test Procedures

Conducted Measurement

1. The transmitter is set to the lowest channel.
2. The transmitter output was connected to the spectrum analyzer via a cable and cable loss is used as the offset of the spectrum analyzer.
3. Set both RBW and VBW of spectrum analyzer to 100KHz with convenient frequency span including 100MHz bandwidth from lower band edge. Then detector set to peak and max hold this trace.
4. The lowest band edges emission was measured and recorded.

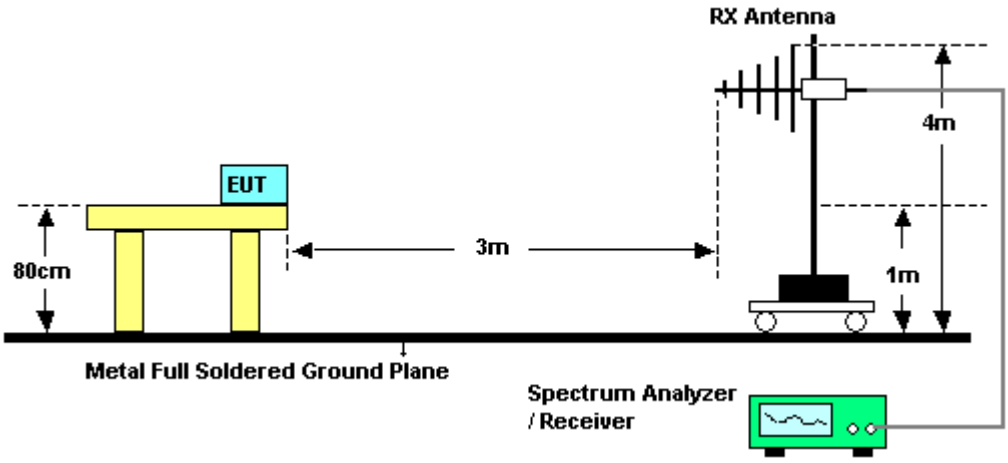
5. The transmitter set to the highest channel and repeated 2~4.

Radiated Measurement

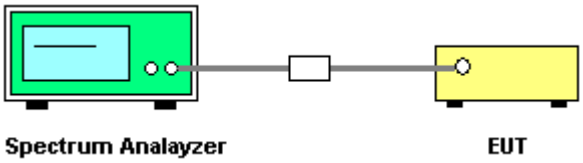
1. Configure the EUT according to ANSI C63.4.
2. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
4. For 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.
5. For band edge emission, use 10Hz VBW and 1MHz RBW for reading under AV and use 1MHz VBW and 1 MHz RBW for reading under PK.

5.6.5. Test Setup

Radiated Method



Conducted Method



5.6.6. Test Criteria

All test results complied with the requirements of 15.247(d). Measurement Uncertainty is 2.26dB.

5.6.7. Test Result of Radiated Emission

- Test Channel: 00
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 46.80%
- Test Engineer: Steven Lu

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	2390.000	51.30	-22.70	74.00	15.70	28.88	6.72	0.00	PEAK	---	---
2	2390.000	23.99	-30.01	54.00	-11.61	28.88	6.72	0.00	Average	---	---

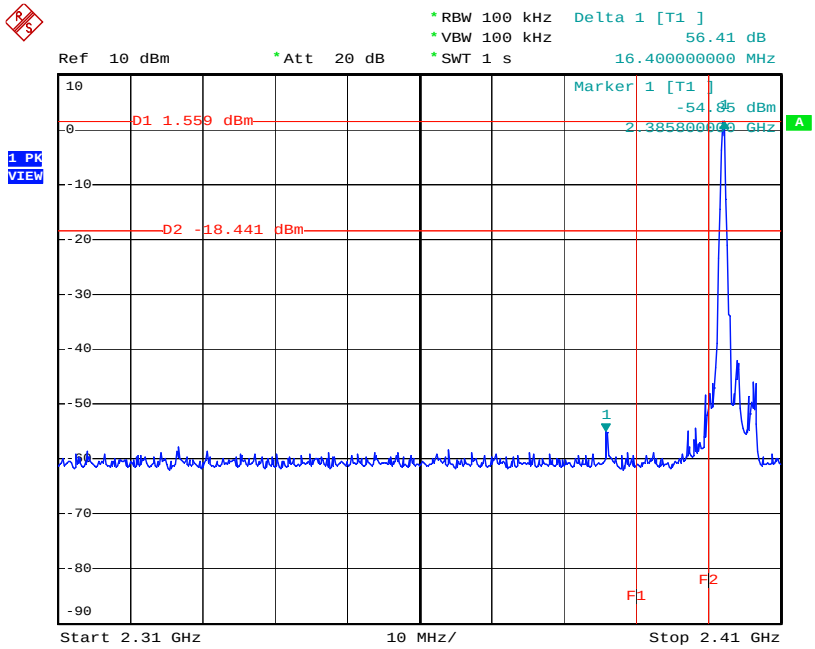
- Test Channel: 78
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 46.80%
- Test Engineer: Steven Lu

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	2483.500	24.52	-29.48	54.00	-11.40	28.98	6.94	0.00	Average	---	---
2 @	2483.500	57.43	-16.57	74.00	21.51	28.98	6.94	0.00	Peak	---	---

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

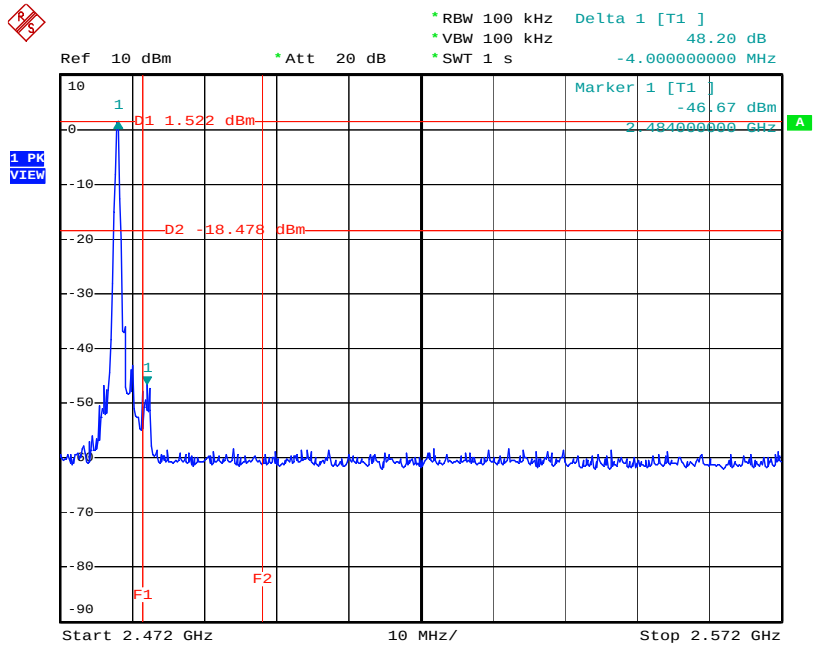
Test Result of Conducted Emission

Modulation Type: GFSK (Channel 00)：



Date: 7.OCT.2005 17:43:43

Modulation Type: GFSK (Channel 78)：



Date: 7.OCT.2005 17:48:01

5.7. Test of AC Power Line Conducted Emission

5.7.1. Limit

For a Low-power Radio-frequency Device which is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

5.7.2. Measuring Instruments and Setting

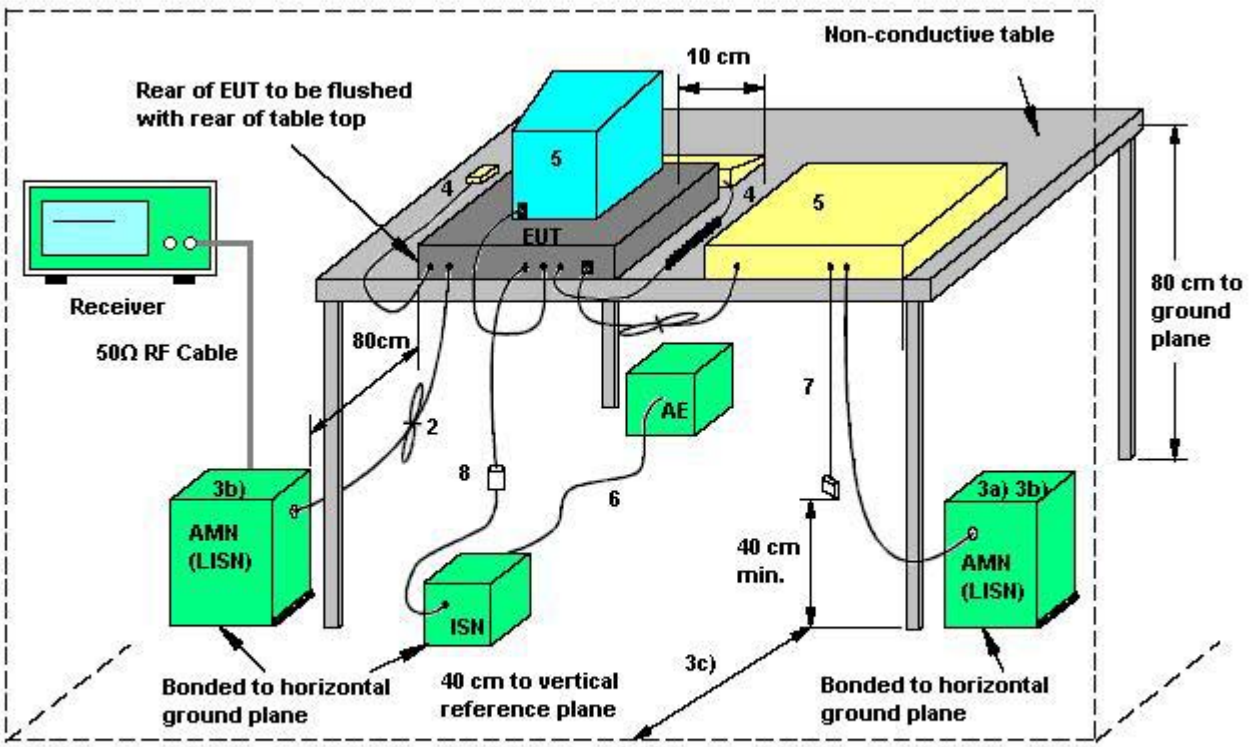
Please refer to section 5 in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

5.7.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 KHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

5.7.4. Test Setup Layout



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

1. If cables, which hang closer than 40 cm to the horizontal metal groundplane, cannot be shortened to appropriate length, the excess shall be folded back and forth forming a bundle 30 cm to 40 cm long.
2. Excess mains cord shall be bundled in the centre or shortened to appropriate length.
3. EUT is connected to one artificial mains network (AMN). All AMNs and ISNs may alternatively be connected to a vertical reference plane or metal wall.
4. All other units of a system are powered from a second AMN. A multiple outlet strip can be used for multiple mains cords.
5. AMN and ISN are 80 cm from the EUT and at least 80 cm from other units and other metal planes.
6. Mains cords and signal cables shall be positioned for their entire lengths, as far as possible, at 40 cm from the vertical reference plane.
7. Cables of hand operated devices, such as keyboards, mouses, etc. shall be placed as for normal usage.
8. Peripherals shall be placed at a distance of 10 cm from each other and from the controller, except for the monitor which, if this is an acceptable installation practice, shall be placed directly on the top of the controller.
9. I/O signal cable intended for external connection.
10. The end of the I/O signal cables which are not connected to an AE may be terminated, if required, using correct terminating impedance.
11. If used, the current probe shall be placed at 0,1 m from the ISN.

5.7.5. Test Deviation

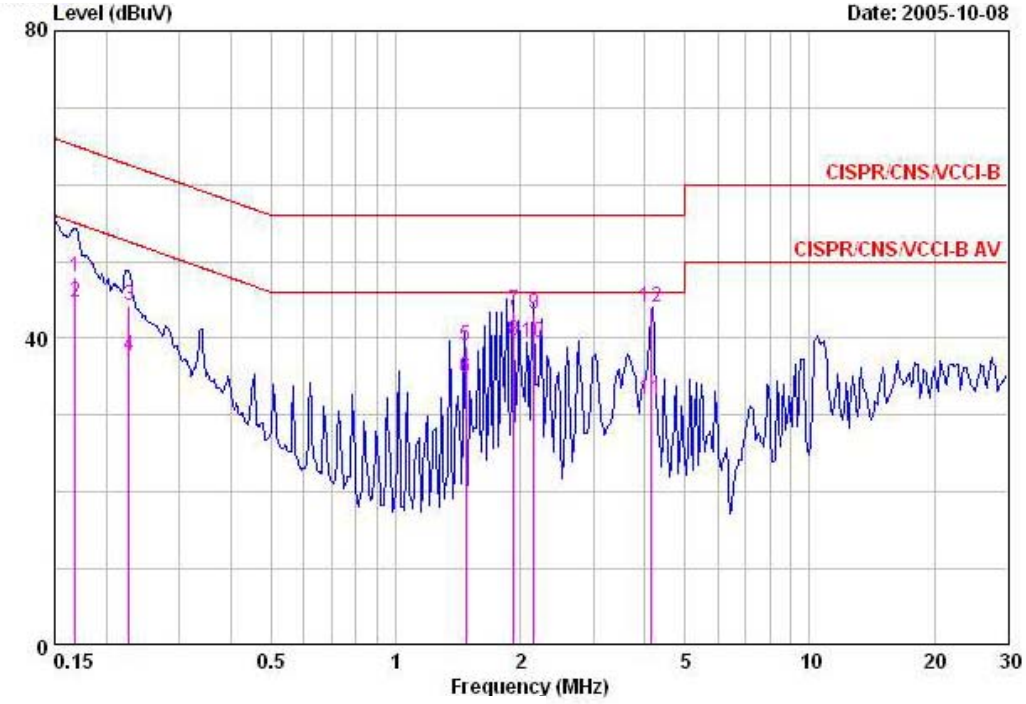
There is no deviations with the original standard.

5.7.6. EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

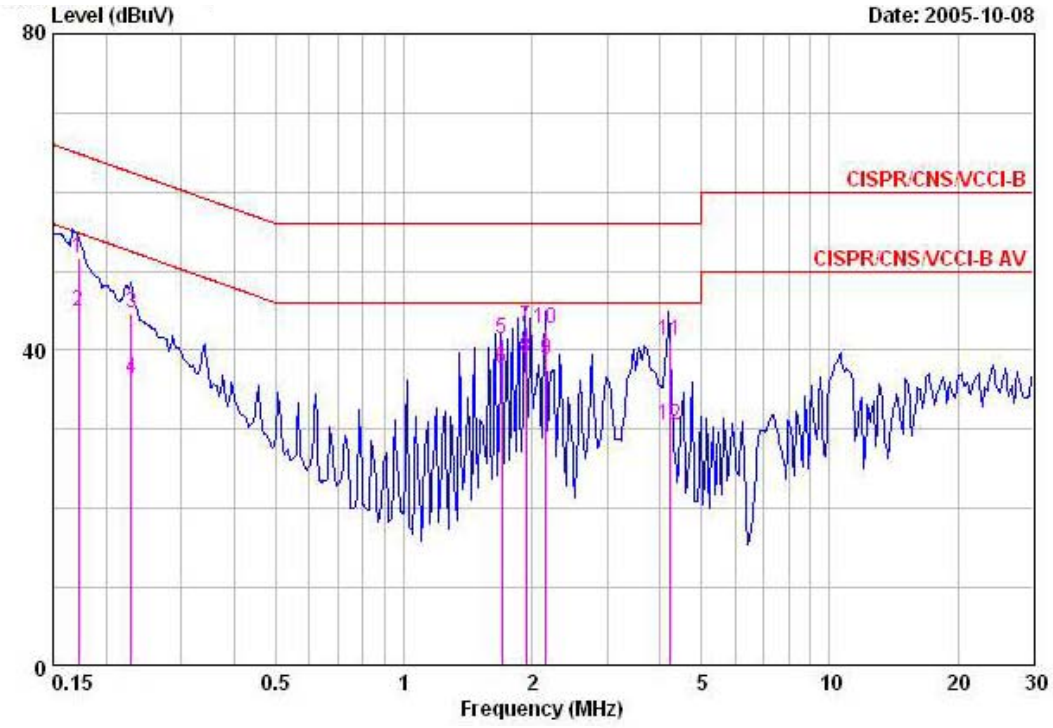
5.7.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	26℃	**Humidity**	58%
Test Engineer	Steven Lu	**Phase**	Line
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16850	47.87	-17.16	65.03	45.74	1.93	0.20	QP
2	0.16850	44.58	-10.45	55.03	42.45	1.93	0.20	AVERAGE
3	0.22651	44.25	-18.32	62.58	43.02	1.03	0.20	QP
4	0.22651	37.68	-14.89	52.58	36.45	1.03	0.20	AVERAGE
5	1.474	39.02	-16.98	56.00	38.61	0.30	0.11	QP
6	1.474	34.98	-11.02	46.00	34.57	0.30	0.11	AVERAGE
7	1.929	43.53	-12.47	56.00	43.04	0.30	0.19	QP
8 @	1.929	39.72	-6.28	46.00	39.23	0.30	0.19	AVERAGE
9	2.156	43.21	-12.79	56.00	42.71	0.30	0.20	QP
10	2.156	39.55	-6.45	46.00	39.05	0.30	0.20	AVERAGE
11	4.143	31.97	-14.03	46.00	31.30	0.37	0.30	AVERAGE
12	4.143	44.04	-11.96	56.00	43.37	0.37	0.30	QP

Temperature	26℃	Humidity	58%
Test Engineer	Steven Lu	Phase	Neutral
Configuration	Normal Link		

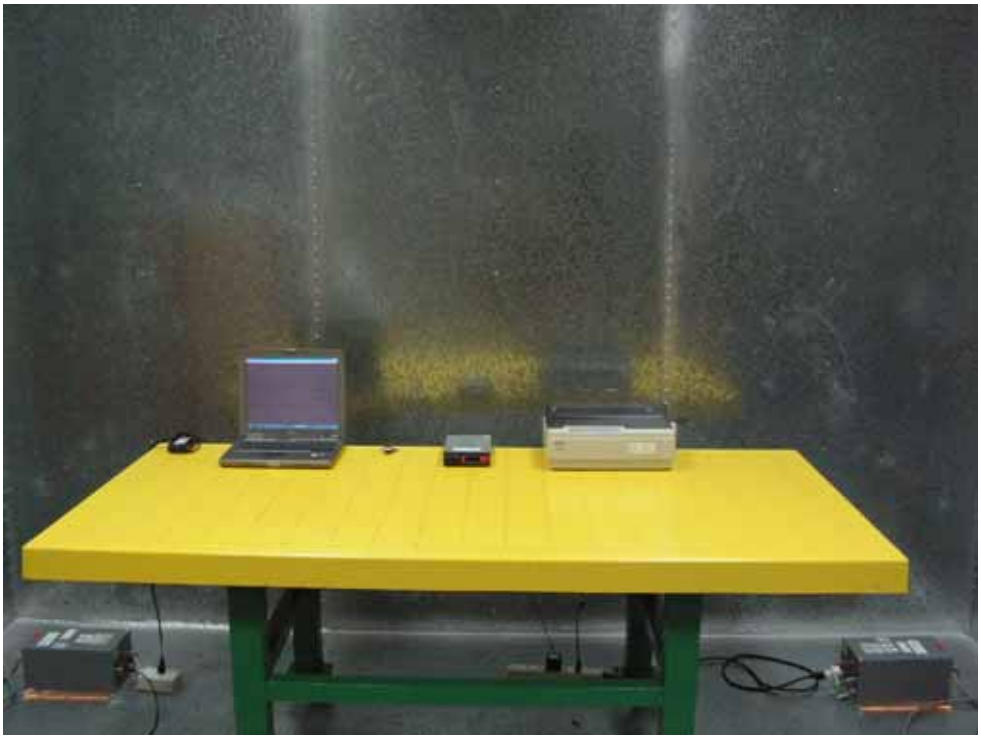


	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.17227	51.61	-13.24	64.85	49.75	1.66	0.20	QP
2	0.17227	44.96	-9.89	54.85	43.10	1.66	0.20	AVERAGE
3	0.22918	44.65	-17.83	62.48	43.54	0.91	0.20	QP
4	0.22918	36.38	-16.10	52.48	35.27	0.91	0.20	AVERAGE
5	1.702	41.35	-14.65	56.00	40.95	0.26	0.14	QP
6	1.702	37.71	-8.29	46.00	37.31	0.26	0.14	AVERAGE
7	1.932	43.00	-13.00	56.00	42.60	0.21	0.19	QP
8	1.932	39.09	-6.91	46.00	38.69	0.21	0.19	AVERAGE
9	2.158	38.88	-7.12	46.00	38.45	0.23	0.20	AVERAGE
10	2.158	42.74	-13.26	56.00	42.31	0.23	0.20	QP
11	4.205	41.24	-14.76	56.00	40.64	0.30	0.30	QP
12	4.205	30.45	-15.55	46.00	29.85	0.30	0.30	AVERAGE

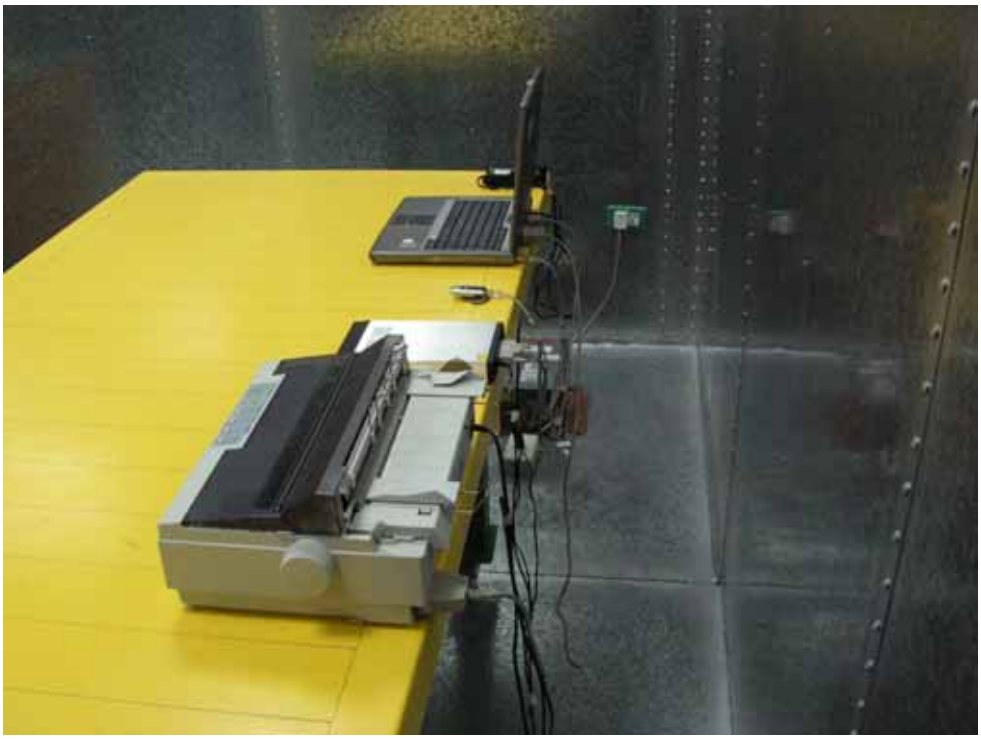
Note:
Level = Read Level + LISN Factor + Cable Loss.

5.7.8. Photographs of Conducted Emission Test Configuration

FRONT VIEW



REAR VIEW



5.8. Test of Spurious Radiated Emission

5.8.1. Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 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

5.8.2. Measuring Instruments and Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100KHz / 100KHz for peak

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

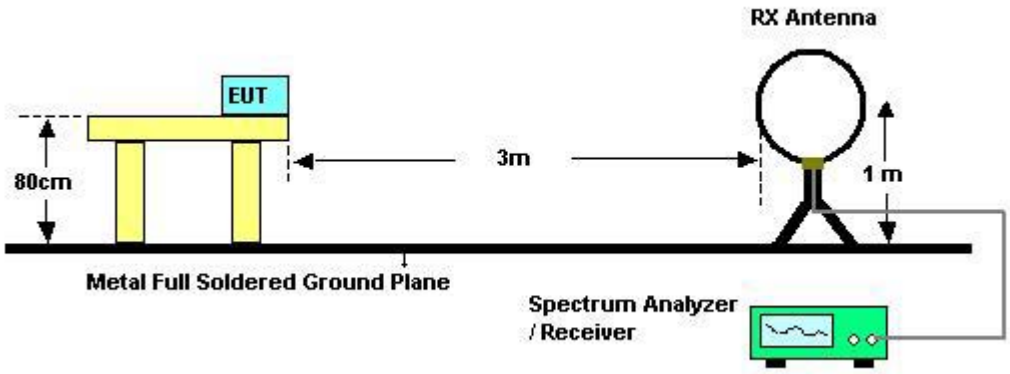
5.8.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. 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.
2. Power on the EUT and all the supporting units. 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 emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, 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.

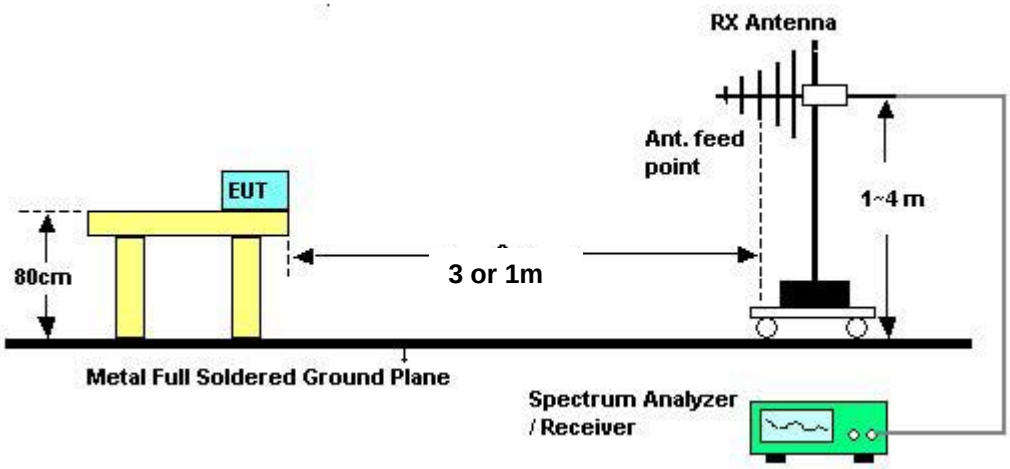
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions 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.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions 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.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

5.8.4. Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1m.
Distance extrapolation factor = 20 log (specific distanc [3m] / test distance [1m]) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

5.8.5. Test Deviation

There are no deviations with the original standard.

5.8.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	24℃	**Humidity**	55%
Test Engineer	Steven Lu	**Configurations**	channel 39

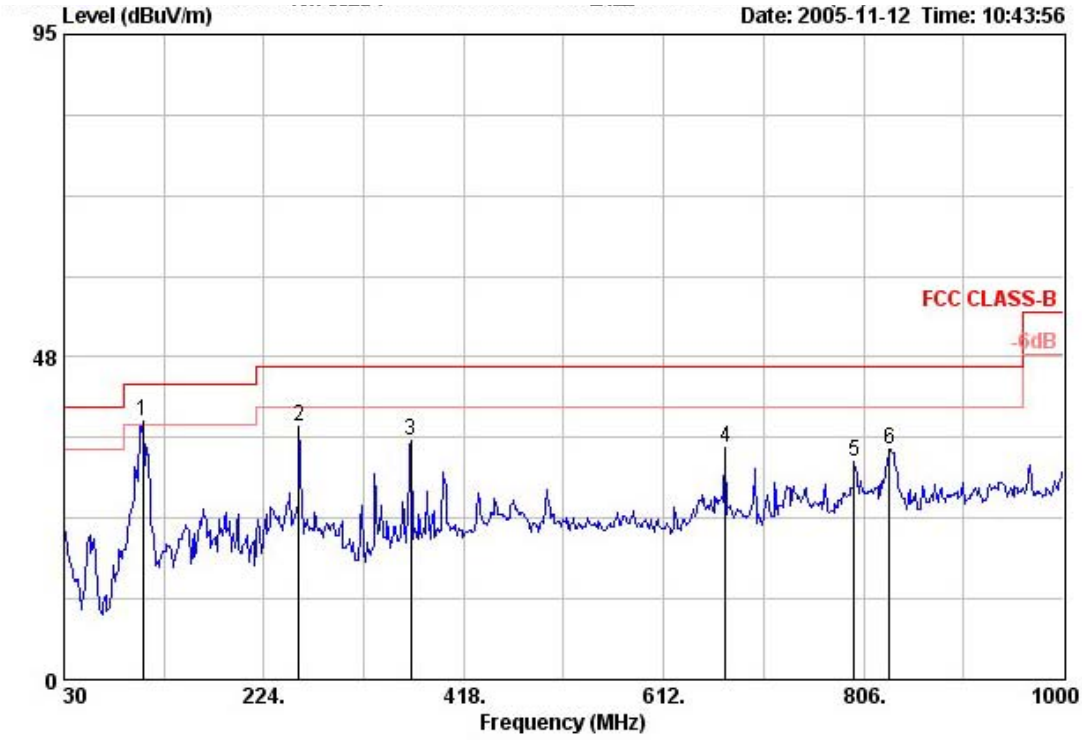
Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

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.

5.8.8. Test Results for CH 39 / 2441MHz (for emission below 1GHz)

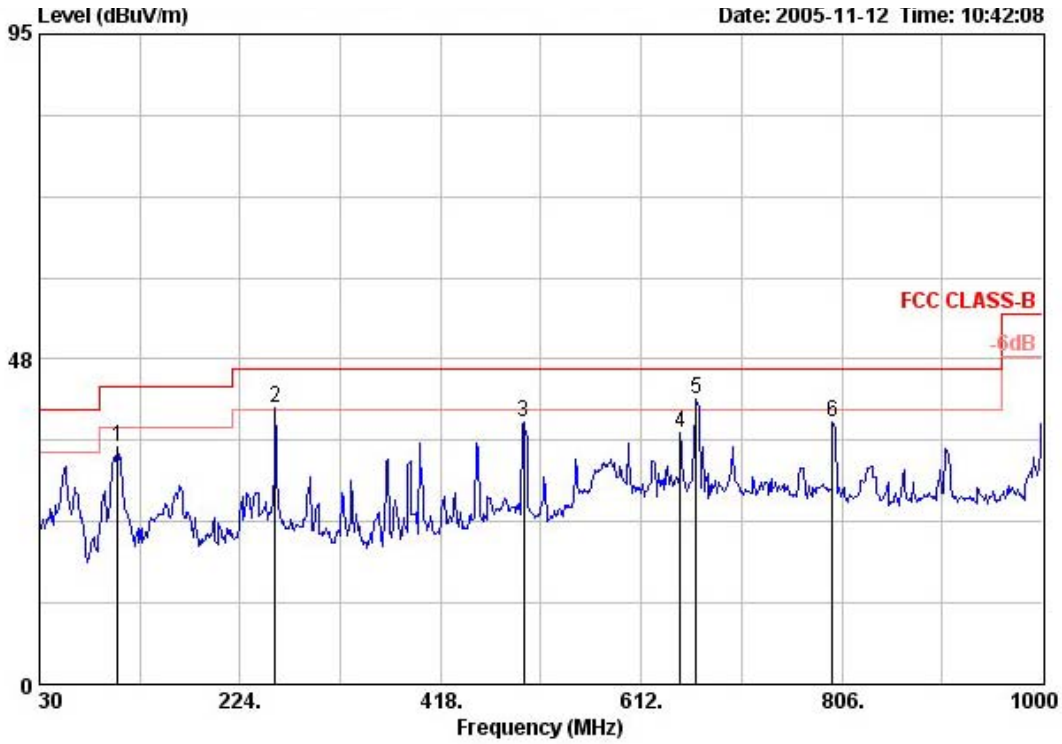
- Modulation Type: GFSK
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 47.60%
- Test Engineer: Steven Lu

(A) Polarization: Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	106.630	38.03	-5.47	43.50	57.19	11.07	1.50	31.73	Peak	---	---
2	257.950	37.30	-8.70	46.00	53.54	12.63	2.48	31.35	Peak	---	---
3	366.590	35.24	-10.76	46.00	49.05	14.85	2.50	31.17	Peak	---	---
4	672.140	34.28	-11.72	46.00	42.40	18.74	3.54	30.40	Peak	---	---
5	797.270	32.03	-13.97	46.00	38.39	20.02	3.81	30.19	Peak	---	---
6	831.220	34.00	-12.00	46.00	39.80	20.41	3.93	30.14	Peak	---	---

(B) Polarization: Vertical



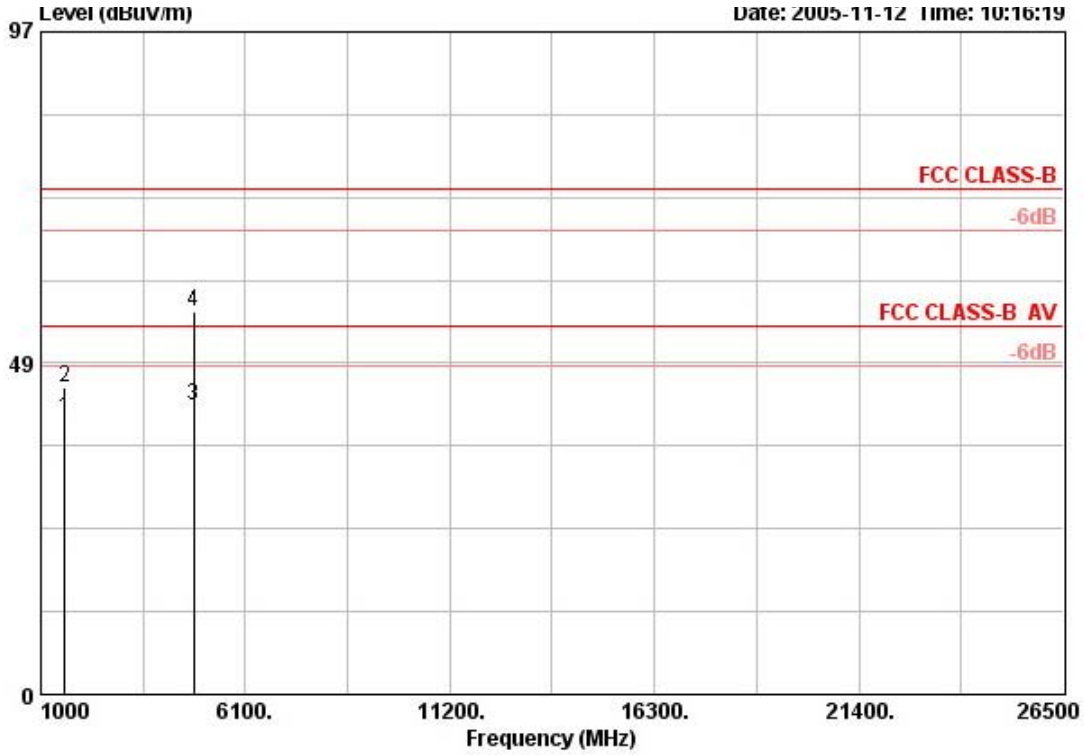
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	105.660	34.66	-8.84	43.50	53.93	10.95	1.50	31.72	Peak	---	---
2 @	257.950	40.26	-5.74	46.00	56.49	12.63	2.48	31.35	Peak	---	---
3	498.510	38.42	-7.58	46.00	48.90	17.18	3.28	30.94	Peak	---	---
4	649.830	36.88	-9.12	46.00	44.90	18.78	3.50	30.30	Peak	---	---
5 @	665.350	41.80	-4.20	46.00	49.90	18.73	3.53	30.37	Peak	---	---
6	797.270	38.34	-7.66	46.00	44.69	20.02	3.81	30.19	Peak	---	---

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

5.8.9. Test Results for CH 00 / 2402 MHz (for emission above 1GHz)

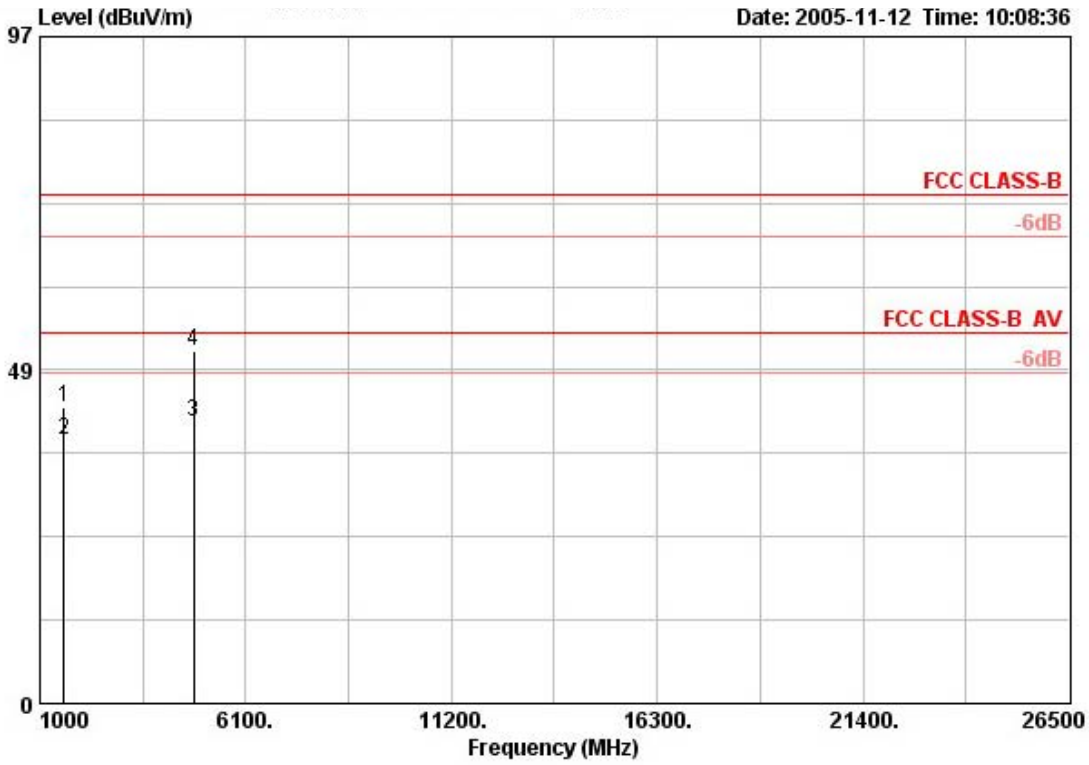
- Modulation Type: GFSK
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 47.60%
- Test Engineer: Steven Lu

(A) Polarization: Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1601.930	40.31	-13.69	54.00	43.72	25.92	5.38	34.72	AVERAGE	---	---
2	1602.070	44.88	-29.12	74.00	48.29	25.92	5.38	34.72	PEAK	---	---
3	4803.950	42.26	-11.74	54.00	33.54	32.81	11.07	35.17	AVERAGE	---	---
4	4803.950	56.10	-17.90	74.00	47.39	32.81	11.07	35.17	PEAK	---	---

(B) Polarization: Vertical



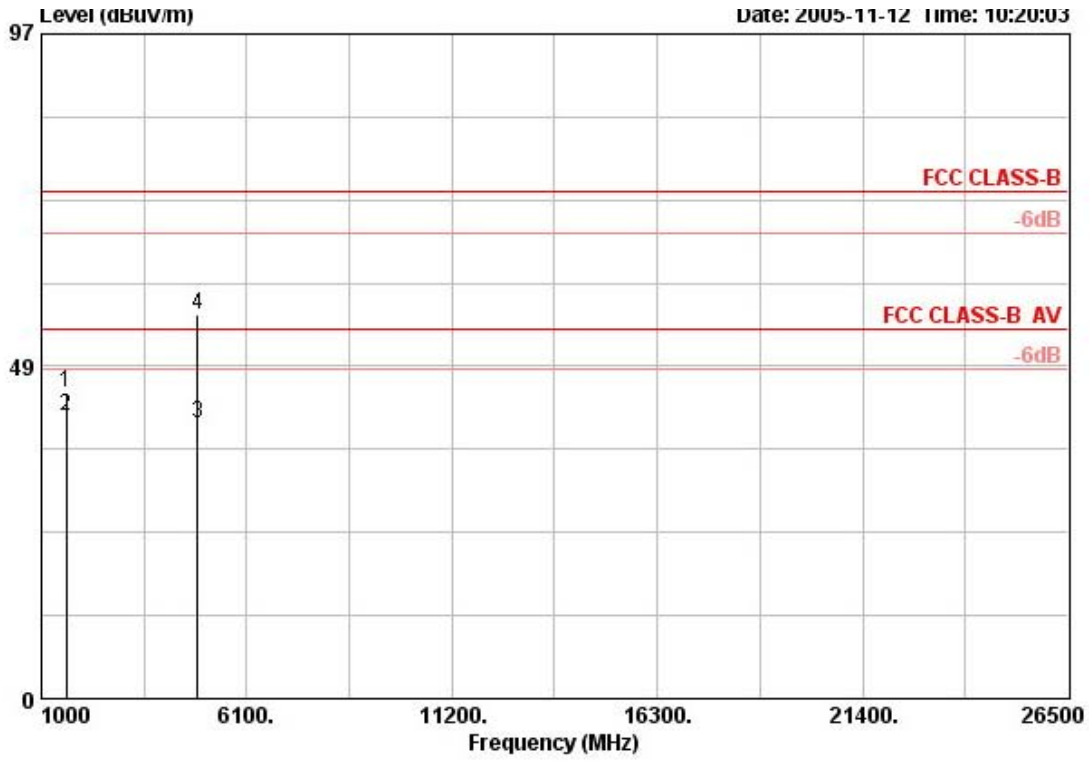
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1601.880	43.09	-30.91	74.00	46.51	25.92	5.38	34.72	PEAK	---	---
2	1601.990	38.38	-15.62	54.00	41.79	25.92	5.38	34.72	AVERAGE	---	---
3	4804.050	40.89	-13.11	54.00	32.17	32.81	11.07	35.17	AVERAGE	---	---
4	4804.260	51.34	-22.66	74.00	42.62	32.81	11.07	35.17	PEAK	---	---

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

5.8.10. Test Results for CH 39 / 2441 MHz (for emission above 1GHz)

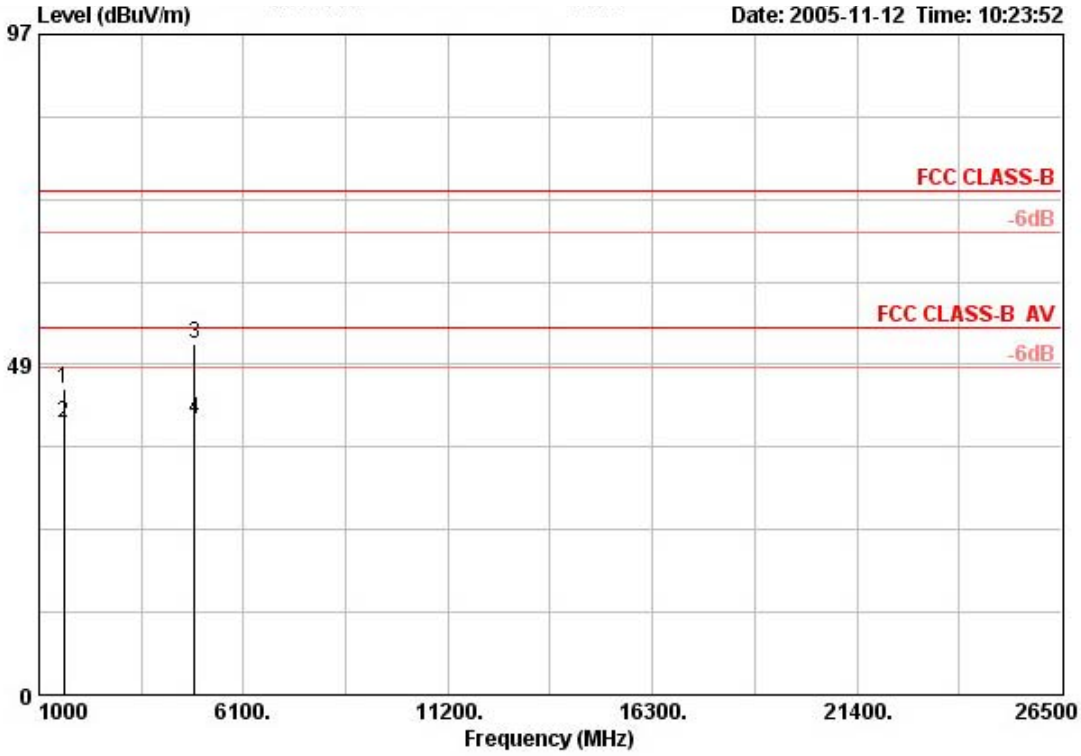
- Modulation Type: GFSK
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 47.60%
- Test Engineer: Steven Lu

(A) Polarization: Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1627.920	44.60	-29.40	74.00	47.81	26.13	5.38	34.73	PEAK	---	---
2	1628.000	41.14	-12.86	54.00	44.36	26.13	5.38	34.73	AVERAGE	---	---
3	4881.810	40.22	-13.78	54.00	31.37	32.88	11.12	35.15	AVERAGE	---	---
4	4881.810	55.96	-18.04	74.00	47.11	32.88	11.12	35.15	PEAK	---	---

(B) Polarization: Vertical



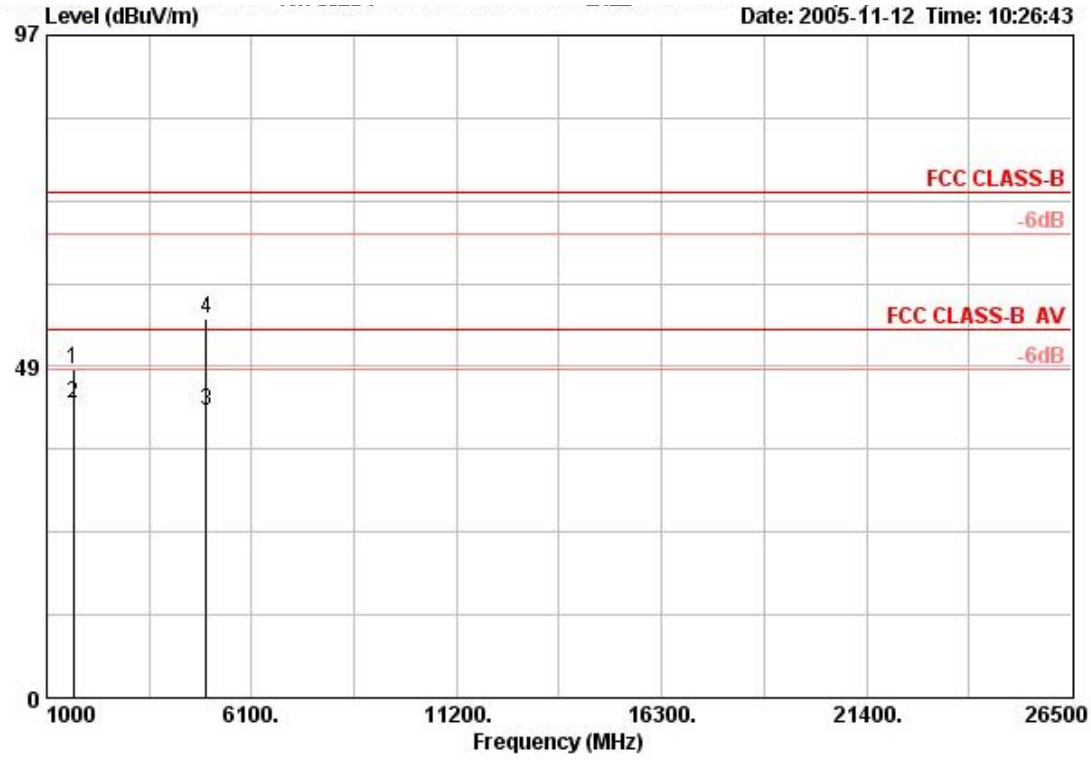
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1627.970	44.81	-29.19	74.00	48.03	26.13	5.38	34.73	PEAK	---	---
2	1628.000	39.79	-14.21	54.00	43.01	26.13	5.38	34.73	AVERAGE	---	---
3	4881.270	51.46	-22.54	74.00	42.61	32.88	11.12	35.15	PEAK	---	---
4	4881.270	40.46	-13.54	54.00	31.61	32.88	11.12	35.15	AVERAGE	---	---

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

5.8.11. Test Results for CH 78 / 2480 MHz (for emission above 1GHz)

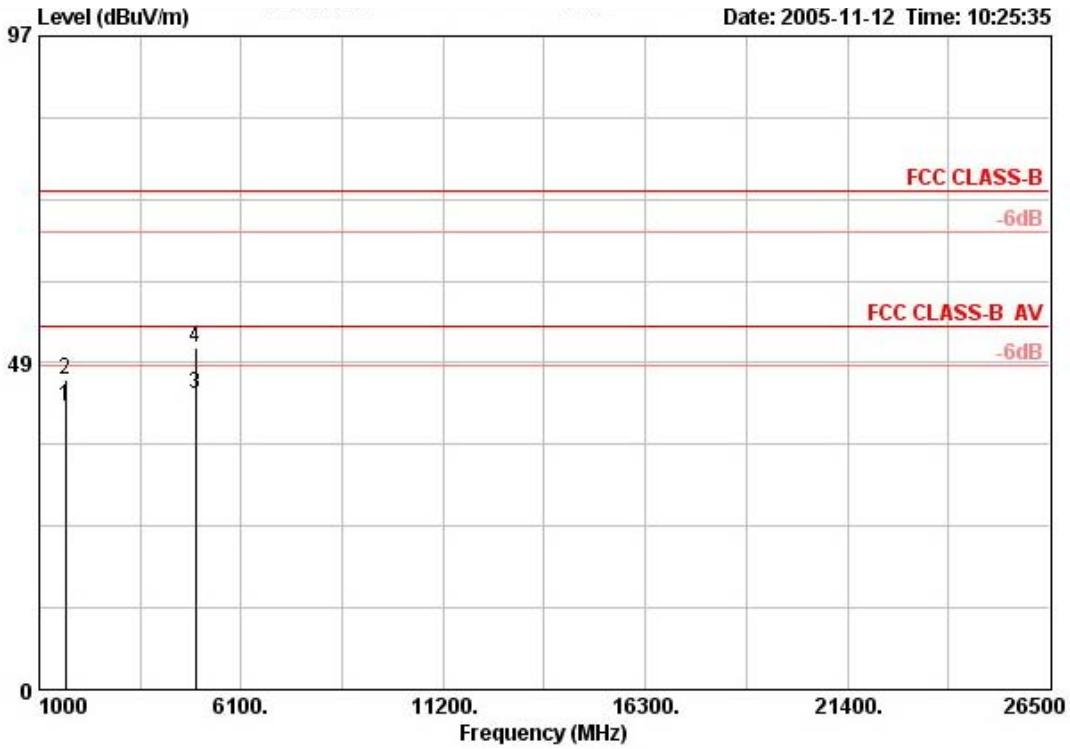
- Modulation Type: GFSK
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 47.60%
- Test Engineer: Steven Lu

(A) Polarization: Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1653.950	48.04	-25.96	74.00	51.11	26.23	5.45	34.74	PEAK	---	---
2	1653.950	43.04	-10.96	54.00	46.11	26.23	5.45	34.74	AVERAGE	---	---
3	4961.510	42.07	-11.93	54.00	33.07	32.97	11.17	35.14	AVERAGE	---	---
4	4961.510	55.49	-18.51	74.00	46.48	32.97	11.17	35.14	PEAK	---	---

(B) Polarization: Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1653.950	41.93	-12.07	54.00	45.00	26.23	5.45	34.74	AVERAGE	---	---
2	1653.950	45.93	-28.07	74.00	49.00	26.23	5.45	34.74	PEAK	---	---
3	4957.500	43.79	-10.21	54.00	34.79	32.97	11.17	35.14	AVERAGE	---	---
4	4957.500	50.79	-23.21	74.00	41.79	32.97	11.17	35.14	PEAK	---	---

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

5.8.12. Photographs of Radiated Emission Test Configuration

FRONT VIEW

REAR VIEW

5.9. Antenna Requirements

5.9.1. 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.

Section 3.10.1(4):
The limitation on type of antenna specified the requirements of 2.2 is not.(Only for DGT)

Section 15.247(b)/(c):
If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
If the intentional radiator is used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

5.9.2. Antenna Connected Construction

There is no antenna connector for printed antenna.

5.9.3. Antenna Gain

All antennas gain of EUT is less than 6dBi. Therefore peak conducted power limit shall not be degraded any more. Antenna report of manufacturer will have more detail antenna gain or antenna pattern.

5.9.4. Test Criteria

All test results complied with the requirements of 15.203/15.247(b)/(c).

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. 15, 2005	Conduction (CO04-HY)
2	LISN	MessTec	NNB-2/16Z	2001/004	9kHz – 30MHz	Jun. 09, 2004	Conduction (CO04-HY)
3	LISN (Support Unit)	MessTec	NNB-2/16Z	99041	9kHz – 30MHz	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	SCHAFFNER	CPA9231A	18667	9KHz – 2GHz	Jan. 10, 2005	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	Feb. 22, 2005	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.01, 2004	Radiation (03CH03-HY)

※ Calibration Interval of instruments listed above is one year.

Items	Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
18	Spectrum analyzer	R&S	FSP7	838858/014	9KHZ~7GHZ	Sep. 02, 2004	Conducted (TH01-HY)
19	Power meter	R&S	NRVS	100444	DC~40GHz	Jun. 15, 2004	Conducted (TH01-HY)
20	Power sensor	R&S	NRV-Z55	100049	DC~40GHz	Jun. 15, 2004	Conducted (TH01-HY)
21	Power Sensor	R&S	NRV-Z32	100057	30MHz-6GHz	Jun. 15, 2004	Conducted (TH01-HY)
22	AC power source	HPC	HPA-500W	HPA-9100024	AC 0~300V	Jun. 16, 2004	Conducted (TH01-HY)
23	AC power source	G.W.	GPC-6030D	C671845	DC 1V~60V	Nov. 05, 2004	Conducted (TH01-HY)
24	Temp. and Humidity Chamber	KSON	THS-C3L	612	N/A	Sep. 30, 2004	Conducted (TH01-HY)
25	RF CABLE-1m	Jye Bao	RG142	CB034-1m	20MHz~7GHz	Dec. 31, 2004	Conducted (TH01-HY)
26	RF CABLE-2m	Jye Bao	RG142	CB035-2m	20MHz~1GHz	Dec. 31, 2004	Conducted (TH01-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：	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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