



FCC ID: O8FAOKI
Issued on June 10, 2005

Report No.: FR551207

FCC TEST REPORT

CATEGORY : Portable
PRODUCT NAME : PDA
FCC ID. : O8FAOKI
FILING TYPE : Certification
BRAND NAME : palm
MODEL NAME : T|X
APPLICANT : **palm, Inc.**
950 West Maude Ave Sunnyvale, CA 94085-2801 USA
MANUFACTURER : **Inventec Appliances (Shanghai) Co., Ltd.**
7. Gui Qing Road, Shanghai 200233, China P.R.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.



Lab Code: 200079-0

SPORTON International Inc.

TEL : 886-2-2696-2468

FAX : 886-2-2696-2255

Table of Contents

HISTORY OF THIS TEST REPORT	II
CERTIFICATE OF COMPLIANCE.....	III
1. GENERAL DESCRIPTION OF EQUIPMENT UNDER TEST.....	1
1.1. Applicant	1
1.2. Manufacturer	1
1.3. Basic Description of Equipment under Test.....	1
1.4. Features of Equipment under Test	1
1.5. Table for Carrier Frequencies	2
2. TEST CONFIGURATION OF THE EQUIPMENT UNDER TEST	3
2.1. Connection Diagram of Conducted Test System.....	3
2.2. The Test Mode Description.....	4
2.3. Description of Test Supporting Units	4
3. GENERAL INFORMATION OF TEST	5
3.1. Test Facility	5
3.2. Standards for Methods of Measurement.....	5
3.3. Frequency Range Investigated	5
3.4. Test Distance	5
3.5. Test Software	5
4. LIST OF MEASUREMENTS	6
4.1. Summary of the Test Results.....	6
5. TEST RESULT	7
5.1. Test of 6dB Spectrum Bandwidth (WLAN).....	7
5.2. Test of Maximum Conducted Output Power (WLAN)	10
5.3. Test of Peak Power Spectral Density (WLAN).....	11
5.4. Test of Band Edges Emission (WLAN)	14
5.5. Test of Hopping Channel Bandwidth (BLUETOOTH)	19
5.6. Test of Number of Hopping Frequency (BLUETOOTH)	22
5.7. Test of Hopping Channel Separation (BLUETOOTH)	24
5.8. Test of Dwell Time of Each Frequency (BLUETOOTH).....	27
5.9. Maximum Peak Output Power (BLUETOOTH).....	33
5.10. Test of Band Edges Emission	34
5.11. Test of AC Power Line Conducted Emission.....	39
5.12. Test of Spurious Radiated Emission	50
5.13. Antenna Requirements	73
6. LIST OF MEASURING EQUIPMENTS USED.....	74
7. COMPANY PROFILE.....	76
7.1. Certificate of Accreditation	76
7.2. Test Location	76
8. CERTIFICATE OF NVLAP ACCREDITATION.....	77
APPENDIX A. PHOTOGRAPHS OF EUT	A1 ~ A16



HISTORY OF THIS TEST REPORT

Received Date: May 12, 2005

Test Date: June 09, 2005

Original Report Issue Date: June 10, 2005

Report No.: FR551207

☒ 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 : PDA

BRAND NAME : palm

MODEL NAME : TjX

APPLICANT : palm, Inc.

950 West Maude Ave Sunnyvale, CA 94085-2801 USA

MANUFACTURER : Inventec Appliances (Shanghai) Co., Ltd.

7. Gui Qing Road, Shanghai 200233, China P.R.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 June 09, 2005 at SPORTON International Inc. LAB.



Wayne Hsu / Supervisor
Sporton International Inc.

1. General Description of Equipment under Test

1.1. Applicant

palm, Inc.

950 West Maude Ave Sunnyvale, CA 94085-2801 USA

1.2. Manufacturer

Inventec Appliances (Shanghai) Co., Ltd.

7. Gui Qing Road, Shanghai 200233, China P.R.C.

1.3. Basic Description of Equipment under Test

This product is a PDA with IEEE 802.11b WLAN and Bluetooth function. The radio technical data has been listed on section "Features of Equipment under Test". This PDA is intended to be plugged in the USB port of the computer.

1.4. Features of Equipment under Test

Items	Description
Type of Modulation	WLAN: DSSS BLUETOOTH: GFSK
Number of Channels	WLAN: 11 BLUETOOTH: 79
Frequency Band (Bluetooth)	WLAN: 2412MHz ~ 2462MHz BLUETOOTH: 2402 MHz ~ 2480 MHz
Carrier Frequency	See section 1.5 for details
Channel Bandwidth	WLAN: 22MHz BLUETOOTH: 1MHz
Data Rate	CCK : 1, 2, 5.5, 11Mbps GFSK: 1Mbps
Max. Output Power	WLAN: 14.92 dBm BLUETOOTH: 1.91 dBm
Antenna Type / Gain	WLAN: Printed Antenna / 0.84 dBi BLUETOOTH: Chip Antenna / 4.40 dBi
Function Type	Transceiver
Power Rating (DC/AC, Voltage)	3.7V DC (From Battery), 5V DC (From Adapter)
Test Power Source	120V AC (from Adapter)
Temperature Range (Operating)	10 ~ 55 °C

1.5. Table for Carrier Frequencies

WLAN Function

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	05	2432 MHz	09	2452 MHz
02	2417 MHz	06	2437 MHz	10	2457 MHz
03	2422 MHz	07	2442 MHz	11	2462 MHz
04	2427 MHz	08	2447 MHz		

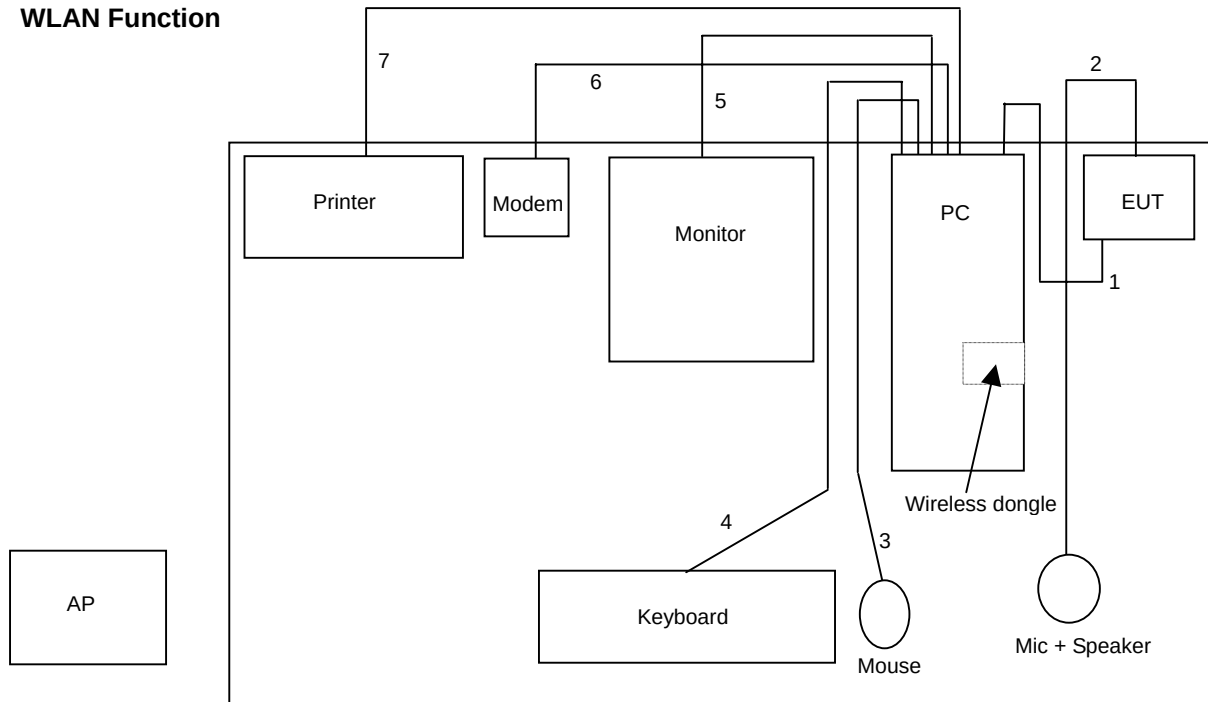
BLUETOOTH Function

Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	27	2429 MHz	54	2456 MHz
01	2403 MHz	28	2430 MHz	55	2457 MHz
02	2404 MHz	29	2431 MHz	56	2458 MHz
03	2405 MHz	30	2432 MHz	57	2459 MHz
04	2406 MHz	31	2433 MHz	58	2460 MHz
05	2407 MHz	32	2434 MHz	59	2461 MHz
06	2408 MHz	33	2435 MHz	60	2462 MHz
07	2409 MHz	34	2436 MHz	61	2463 MHz
08	2410 MHz	35	2437 MHz	62	2464 MHz
09	2411 MHz	36	2438 MHz	63	2465 MHz
10	2412 MHz	37	2439 MHz	64	2466 MHz
11	2413 MHz	38	2440 MHz	65	2467 MHz
12	2414 MHz	39	2441 MHz	66	2468 MHz
13	2415 MHz	40	2442 MHz	67	2469 MHz
14	2416 MHz	41	2443 MHz	68	2470 MHz
15	2417 MHz	42	2444 MHz	69	2471 MHz
16	2418 MHz	43	2445 MHz	70	2472 MHz
17	2419 MHz	44	2446 MHz	71	2473 MHz
18	2420 MHz	45	2447 MHz	72	2474 MHz
19	2421 MHz	46	2448 MHz	73	2475 MHz
20	2422 MHz	47	2449 MHz	74	2476 MHz
21	2423 MHz	48	2450 MHz	75	2477 MHz
22	2424 MHz	49	2451 MHz	76	2478 MHz
23	2425 MHz	50	2452 MHz	77	2479 MHz
24	2426 MHz	51	2453 MHz	78	2480 MHz
25	2427 MHz	52	2454 MHz		
26	2428 MHz	53	2455 MHz		

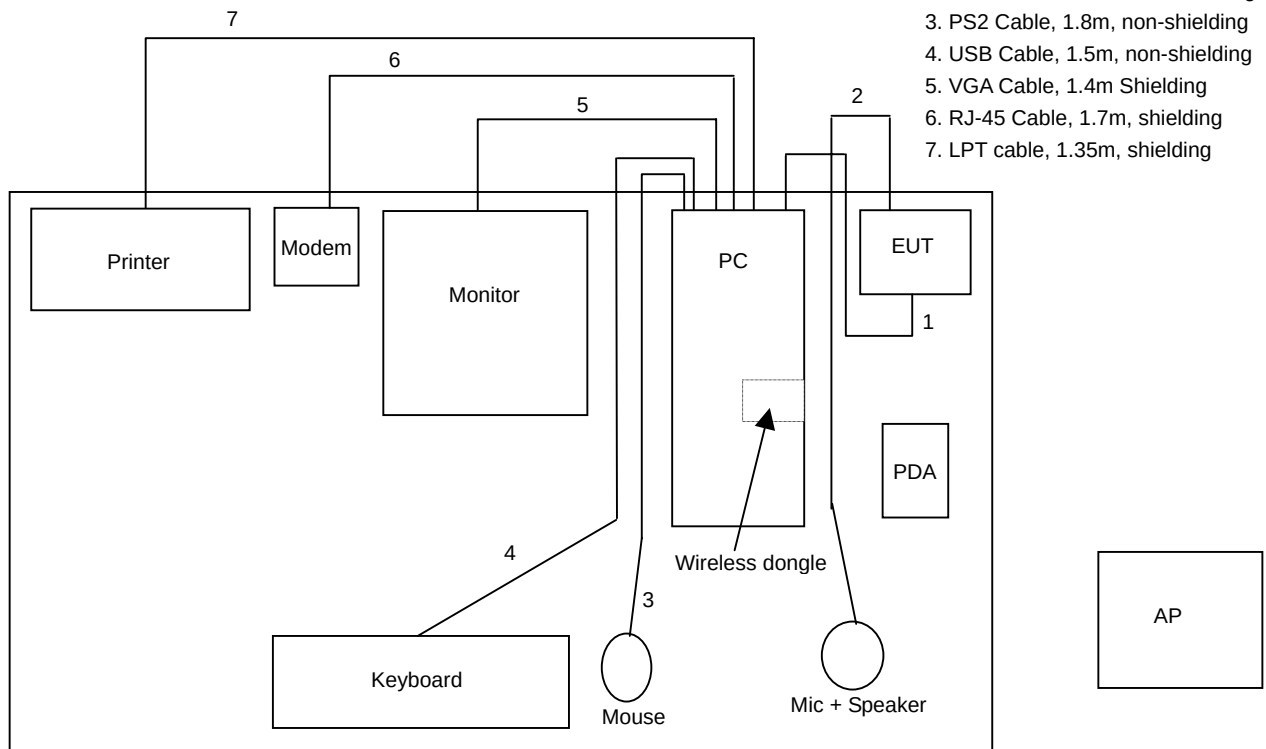
2. Test Configuration of the Equipment under Test

2.1. Connection Diagram of Conducted Test System

WLAN Function



Bluetooth Function



Cable:

1. USB Cable, 1.9m Shielding
2. Audio Cable, 1.8m non-shielding
3. PS2 Cable, 1.8m, non-shielding
4. USB Cable, 1.5m, non-shielding
5. VGA Cable, 1.4m Shielding
6. RJ-45 Cable, 1.7m, shielding
7. LPT cable, 1.35m, shielding

2.2. The Test Mode Description

1. For DSSS modulation, CCK is the worst case on all test items.
2. For FHSS modulation, GFSK is the worst case on all test items.
3. 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.
4. According to ANSI C63.4-2003: The EUT is a portable device is required to be investigated in each of 3 axis, The X axis is worse case.
5. For WLAN, spurious emission below 1GHz is independent of channel selection, so only channel 6 with CCK modulation was tested.
6. For BLUETOOTH, spurious emission below 1GHz is independent of channel selection, so only channel 39 was tested.
7. AC conduction emission is independent of channel selection; there are 3 functions during the test:
 - (1) WLAN function: EUT link with AP wirelessly.
 - (2) USB function: EUT link with PC by USB cable.
 - (3) Bluetooth function: EUT link with PDA wirelessly.

2.3. Description of Test Supporting Units

Support unit	Brand	Model No.	CE Mark
PC	HP	DTPC-22	Yes
Monitor	SONY	G420	Yes
Printer	EPSON	LQ-300	Yes
Keyboard	BTC	9110	Yes
Mouse (PS2)	Microsoft	1004	Yes
MODEM	ACEEX	DM1414	Yes
Mic + Speaker	J-S	CD-87MV	Yes
Wireless Dongle	CELLINK	-	Yes
AP (Remote workstation)	eci	B-FOCuS	Yes
PDA	provide by customer		

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 / 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 30 MHz to 10th carrier harmonic.

3.4. 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.

3.5. Test Software

Executed one self-test program to keep sending signals.

An executive program, EMCTEST.EXE under WIN XP, which generates a complete line of continuously repeating " H " pattern was used as the test software.

Conducted Emission:

At the same time, the following programs were executed:

- Executed one self-test program to keep sending signals.
- USB Link mode: Executed "Microsoft Active Sync" to sending data between PC and EUT.
- Bluetooth mode: Executed "Bluehost" to linking with Bluetooth Device.
- WLAN mode: Executed "Ping" to display the status of linking with WLAN Device.

Radiated Emission:

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

4. List of Measurements

4.1. Summary of the Test Results

Applied Standard: 47 CFR FCC Part 15 Subpart C			
Paragraph	FCC Section	Description of Test	Result
5.1	15.247(a)(2)	6dB Spectrum Bandwidth (WLAN)	Pass
5.2	15.247(b)(3)	Maximum Peak Conducted Output Power (WLAN)	Pass
5.3	15.247(e)	Peak Power Spectral Density (WLAN)	Pass
5.4	15.247(d)	Band Edges Emission (WLAN)	Pass
5.5	15.247(a)(1)	Hopping Channel Bandwidth (Bluetooth)	Pass
5.6	15.247(b)(1)	Number of Hopping Frequency Used (Bluetooth)	Pass
5.7	15.247(a)(1)	Hopping Channel Separation (Bluetooth)	Pass
5.8	15.247(a)(1)(iii)	Dwell Time of Each Frequency (Bluetooth)	Pass
5.9	15.247(b)(1)	Maximum Peak Output Power (Bluetooth)	Pass
5.10	15.247(d)	Band Edges Emission (Bluetooth)	Pass
5.11	15.207	AC Power Line Conducted Emission	Pass
5.12	15.247(d)	Spurious Radiated Emission	Pass
5.13	15.203/15.247(b)/(c)	Antenna Requirement	Pass

5. Test Result

5.1. Test of 6dB Spectrum Bandwidth (WLAN)

5.1.1. Applicable Standard

Section 15.247(a)(2): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 6 dB bandwidth of the hopping channel, whichever is greater.

5.1.2. Measuring Instruments

Item 18 of the table on section 6.

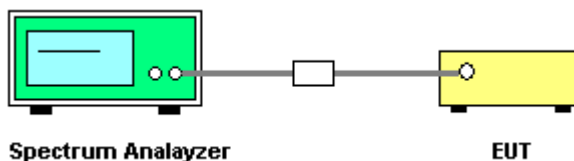
5.1.3. Description of Major Test Instruments Setting

- Spectrum Analyzer : R&S FSP30
- Attenuation : Auto
- Center Frequency : 2412 MHz / 2437 MHz / 2462 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 100KHz 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 6dB below the peak level.
5. Repeat above 1~3 points for the lowest, middle and highest channel of the EUT.

5.1.5. Test Setup Layout



5.1.6. Test Criteria

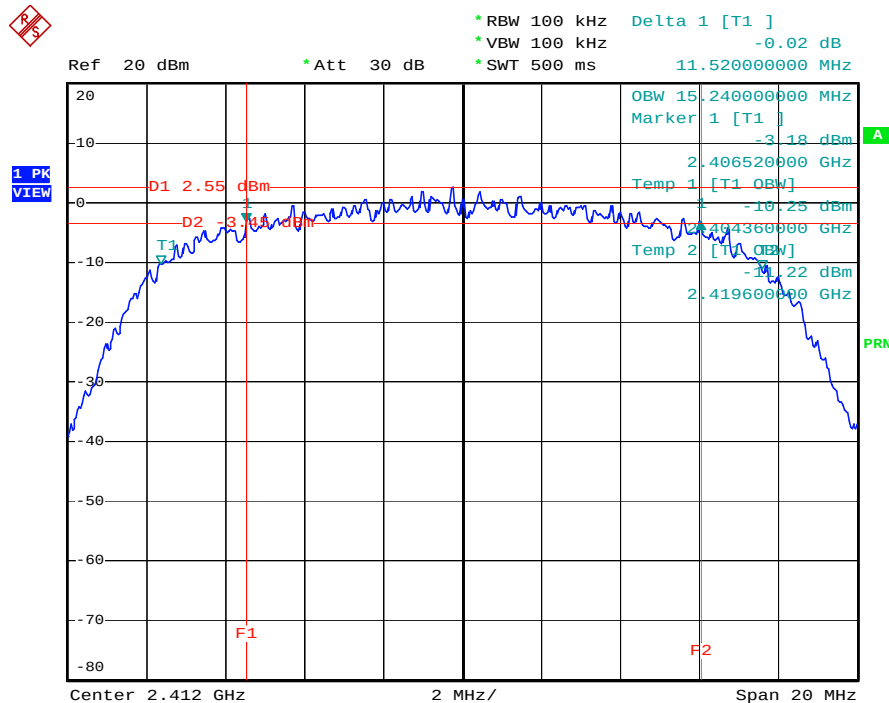
All test results complied with the requirements of Section 15.247(a)(2). Measurement Uncertainty is 1×10^{-5} .

5.1.7. Test Result

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100%
- Test Engineer: Edison Lu

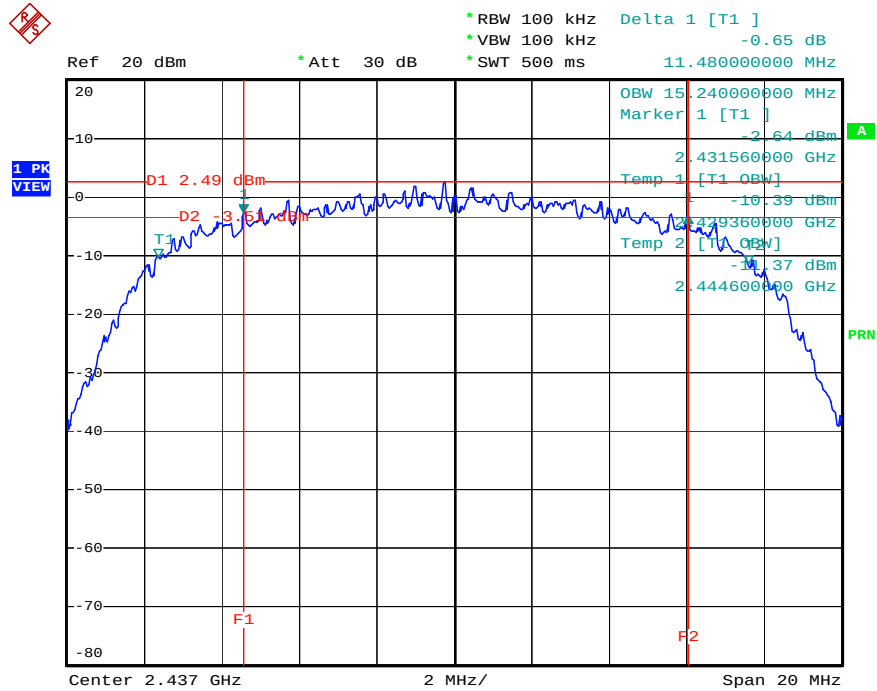
Modulation Type	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Min. Limit (kHz)
DSSS	01	2412 MHz	11.52	0.5
DSSS	06	2437 MHz	11.48	0.5
DSSS	11	2462 MHz	11.52	0.5

Modulation Type: DSSS (Channel 2412 MHz) :



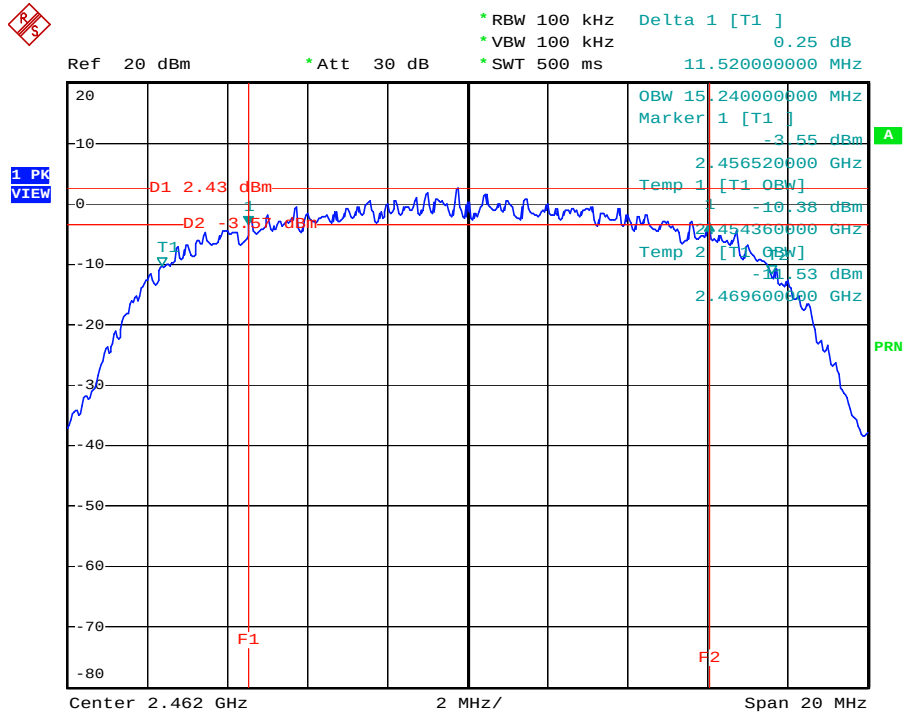
Date: 25.JUL.2005 11:23:00

Modulation Type: DSSS (Channel 2437 MHz) :



Date: 25.JUL.2005 11:30:45

Modulation Type: DSSS (Channel 2462 MHz) :



Date: 25.JUL.2005 11:33:01

5.2. Test of Maximum Conducted Output Power (WLAN)

5.2.1. Applicable Standard

Section 15.247(b)(3): The maximum peak output power shall not exceed 1 watt (30dBm). Except as shown below, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the above stated values by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

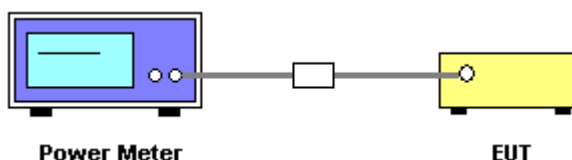
5.2.2. Measuring Instruments

Item 19, 21 of the table are on section 6.

5.2.3. Test Procedures and Test Instruments Setting

1. The transmitter output was connected to the peak power meter through an attenuator.
2. Repeated the 1 for the middle and highest channel of the EUT.

5.2.4. Test Setup Layout



5.2.5. Test Criteria

All test results complied with the requirements of 15.247(b)(3). Measurement Uncertainty is 1.5dB.

5.2.6. Test Result of Conducted Power

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100%
- Test Engineer: Edison Lu

Modulation Type	Channel No.	Frequency (MHz)	Output Power (dBm)	Limits (dBm)
DSSS	01	2412 MHz	14.92	30
DSSS	06	2437 MHz	14.81	30
DSSS	11	2462 MHz	14.76	30

5.3. Test of Peak Power Spectral Density (WLAN)

5.3.1. Applicable Standard

Section 15.247(e): For digital modulation systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

5.3.2. Measuring Instruments

Item 18 of the table is on section 6.

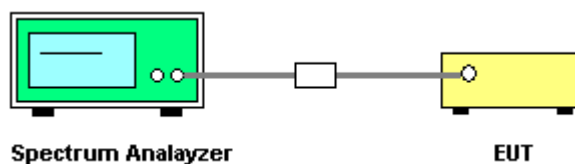
5.3.3. Description of Major Test Instruments Setting

- Spectrum Analyzer : R&S FSP30
- Attenuation : Auto
- Center Frequency : 2412 MHz / 2437 MHz / 2462 MHz
- Span Frequency : 1.5MHz
- RB : 3 kHz
- VB : 30 kHz
- Detector : Peak
- Trace : Max Hold
- Sweep Time : 500s

5.3.4. Test Procedures

1. The transmitter output is connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 3kHz and VBW to 30kHz. Set Detector to Peak, Trace to Max Hold.
3. Mark the frequency with maximum peak power as the center of the display of the spectrum.
4. Set the span to 1.5MHz and the sweep time to 500s and record the maximum peak value.
5. Repeated the 1~4 for the lowest, middle and highest channel of the EUT.

5.3.5. Test Setup Layout



5.3.6. Test Criteria

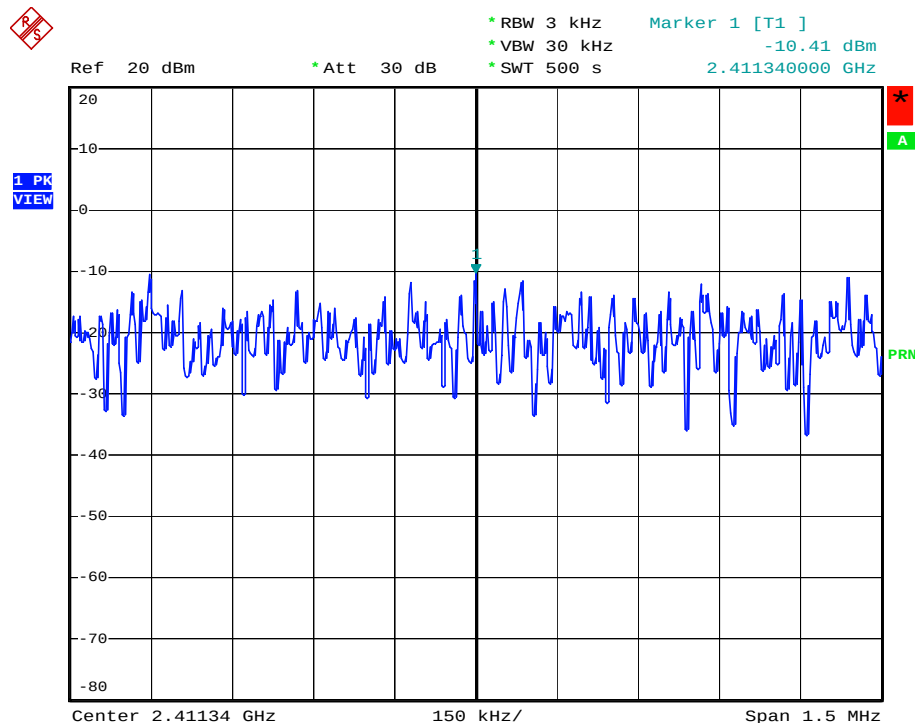
All test results complied with the requirements of 15.247(e). Measurement Uncertainty is 1.5dB.

5.3.7. Test Result: See spectrum analyzer plots below

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100%
- Test Engineer: Edison Lu

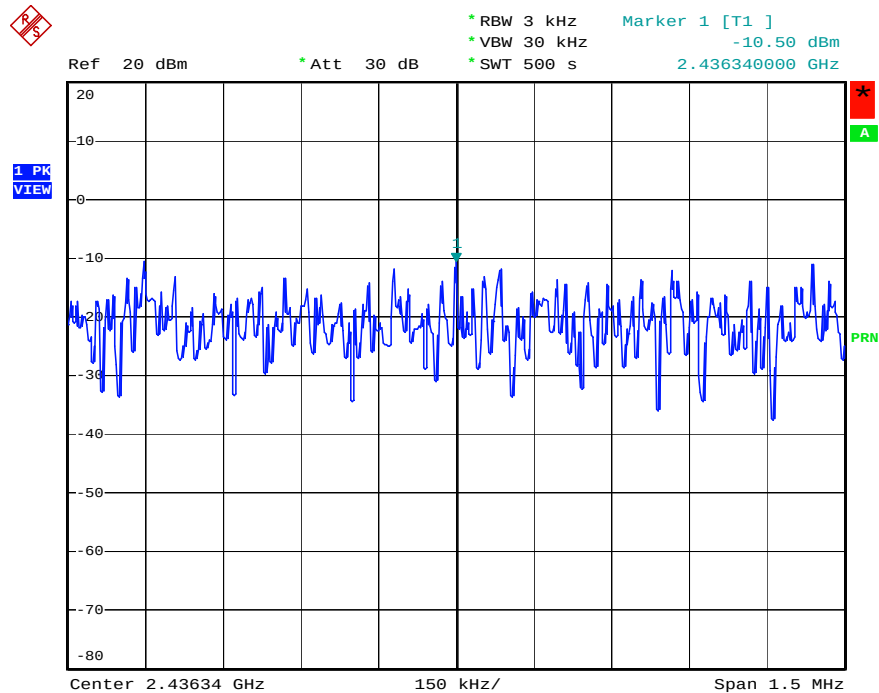
Modulation Type	Channel No.	Frequency (MHz)	Power Density (dBm)	Limits (dBm)
DSSS	01	2412 MHz	-10.41	8
DSSS	06	2437 MHz	-10.50	8
DSSS	11	2462 MHz	-10.52	8

Modulation Type: DSSS (Channel 2412 MHz) :



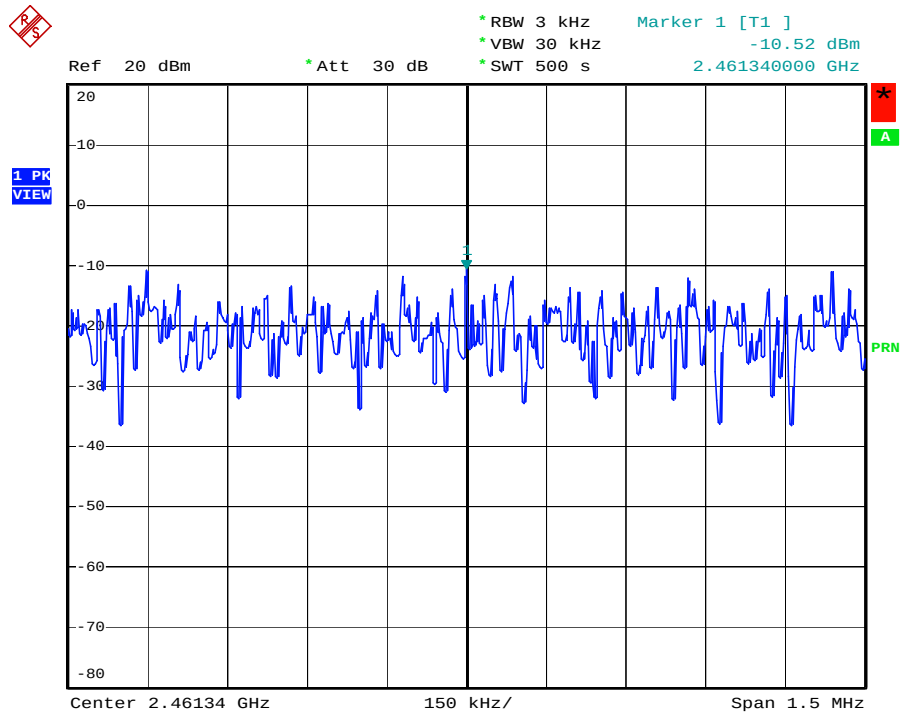
Date: 23.MAY.2005 12:43:17

Modulation Type: DSSS (Channel 2437 MHz) :



Date: 23.MAY.2005 12:46:28

Modulation Type: DSSS (Channel 2462 MHz) :



Date: 23.MAY.2005 12:56:01

5.4. Test of Band Edges Emission (WLAN)

5.4.1. 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 6.3, must also comply with the radiated emission limits specified in Section 6.2.1.

5.4.2. 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.

5.4.3. Description of Major Test Instruments Setting

- Spectrum Analyzer : R&S FSP30 (Conducted Measurement)
 - Attenuation : Auto
 - Center Frequency : 2412 MHz / 2462 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 : 2412 MHz / 2462 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

5.4.4. Test Procedures

Conducted Measurement

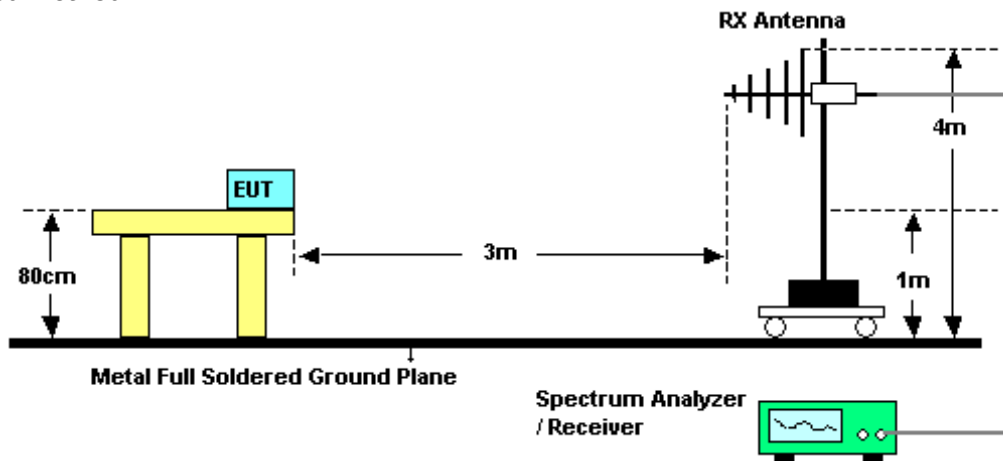
1. The transmitter is set to the lowest channel.
2. The transmitter output was connected to the spectrum analyzer via a cable and cable loss is used as the offset of the spectrum analyzer.
3. Set both RBW and VBW of spectrum analyzer to 100KHz with convenient frequency span including 100MHz bandwidth 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

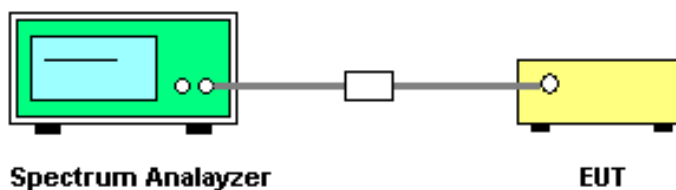
1. Configure the EUT according to ANSI C63.4-2003.
2. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of 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.
6. The transmitter set to the highest channel and repeated 2~5.

5.4.5. Test Setup

Radiated Method



Conducted Method

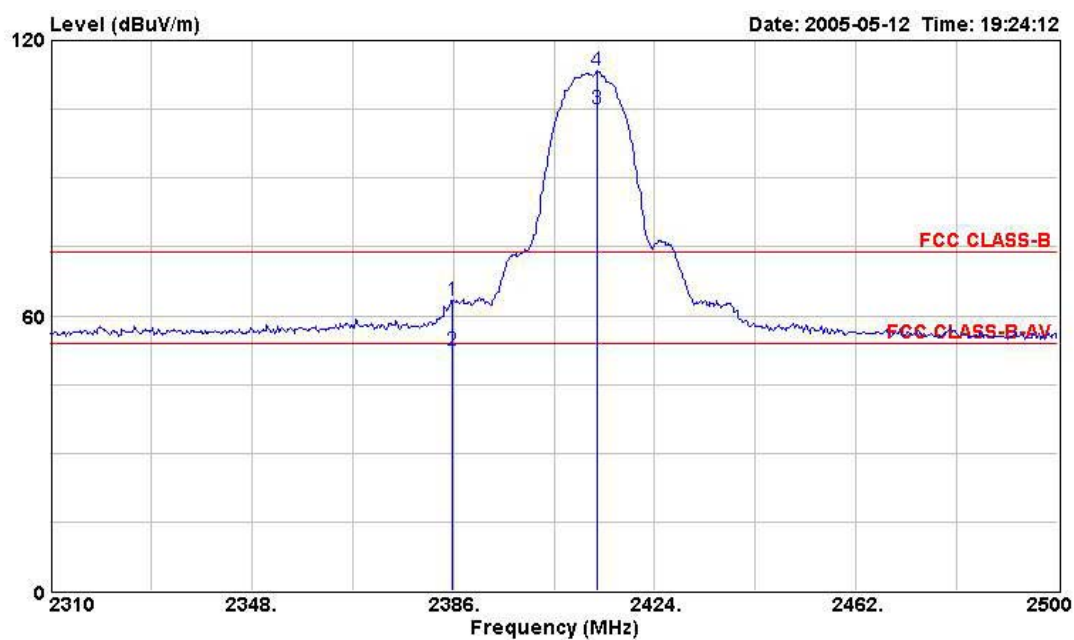


5.4.6. Test Criteria

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

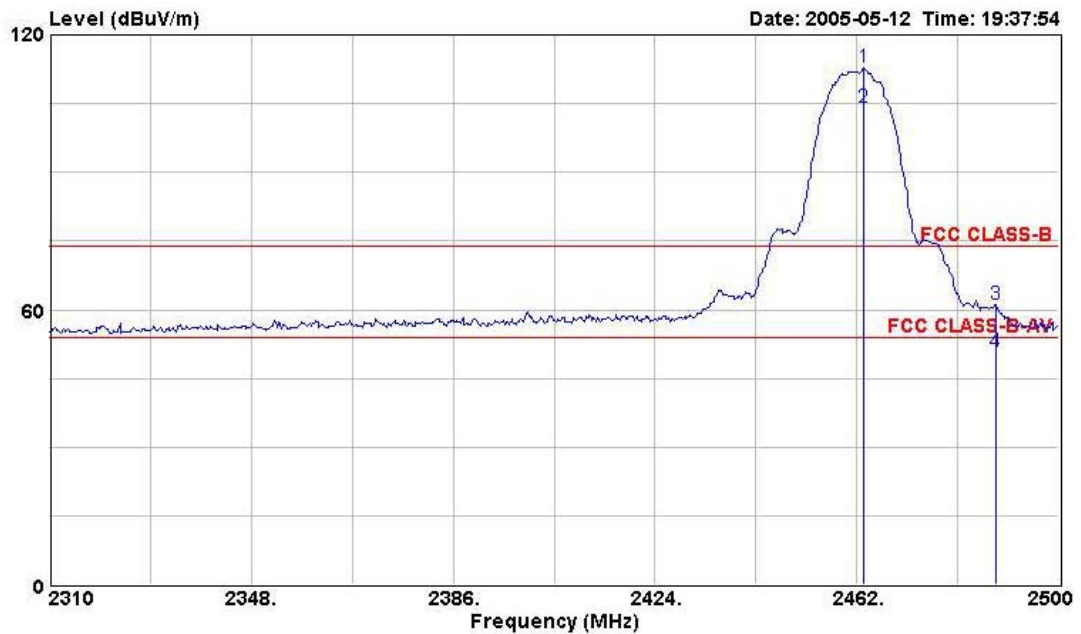
5.4.7. Test Result of Radiated Emission

Modulation Type: DSSS (Channel 2412 MHz) :



	Freq	Level	Over	Read	Limit	Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Loss	Factor	Remark
			dB	dBuV	dBuV/m	dB	dB	
1	2385.810	63.38	-10.62	33.26	74.00	30.12	1.90	0.00 Peak
2	2385.810	52.51	-1.49	22.39	54.00	30.12	1.90	0.00 Average

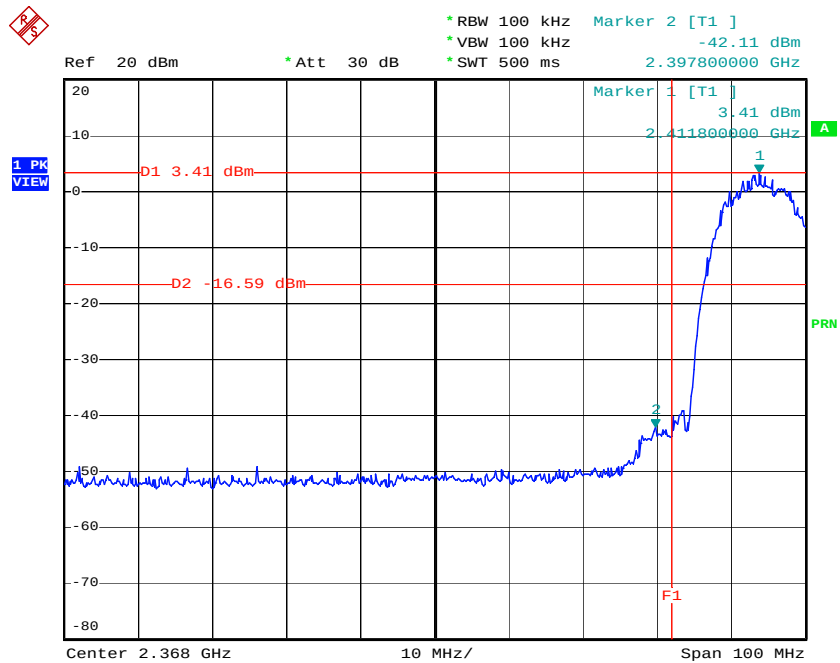
Modulation Type: DSSS (Channel 2462 MHz) :



	Freq	Level	Over	Read	Limit	Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Factor	Loss	Factor
			dB	dBuV	dBuV/m	dB	dB	dB
3	2488.220	61.19	-12.81	30.83	74.00	30.36	1.96	0.00
4	2488.220	50.90	-3.10	20.54	54.00	30.36	1.96	0.00
								Peak
								Average

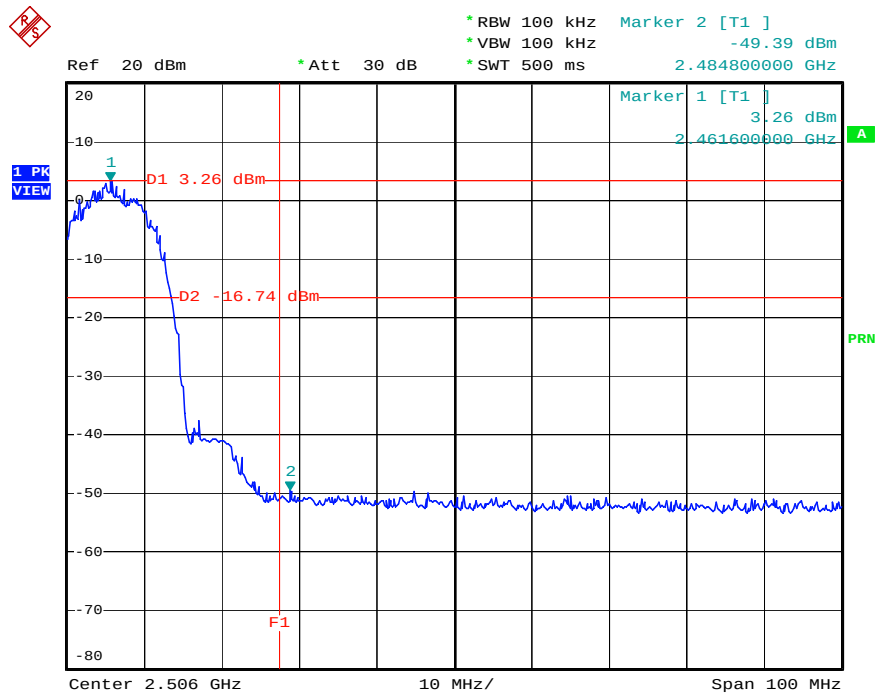
5.4.8. Test Result of Conducted Emission

Modulation Type: DSSS (Channel 2412 MHz) :



Date: 23.MAY.2005 12:39:42

5.4.9. Modulation Type: DSSS (Channel 2462 MHz) :



Date: 23.MAY.2005 12:51:40

5.5. Test of Hopping Channel Bandwidth (BLUETOOTH)

5.5.1. 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.

5.5.2. Measuring Instruments

Item 18 of the table is on section 6.

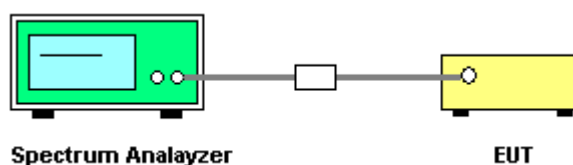
5.5.3. Description of Major Test Instruments Setting

- 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

5.5.4. 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 6dB spectrum width is the spectrum with level higher than 20dB below the peak level.
5. Repeat above 1~3 points for the lowest, middle and highest channel of the EUT.

5.5.5. Test Setup Layout



5.5.6. Test Criteria

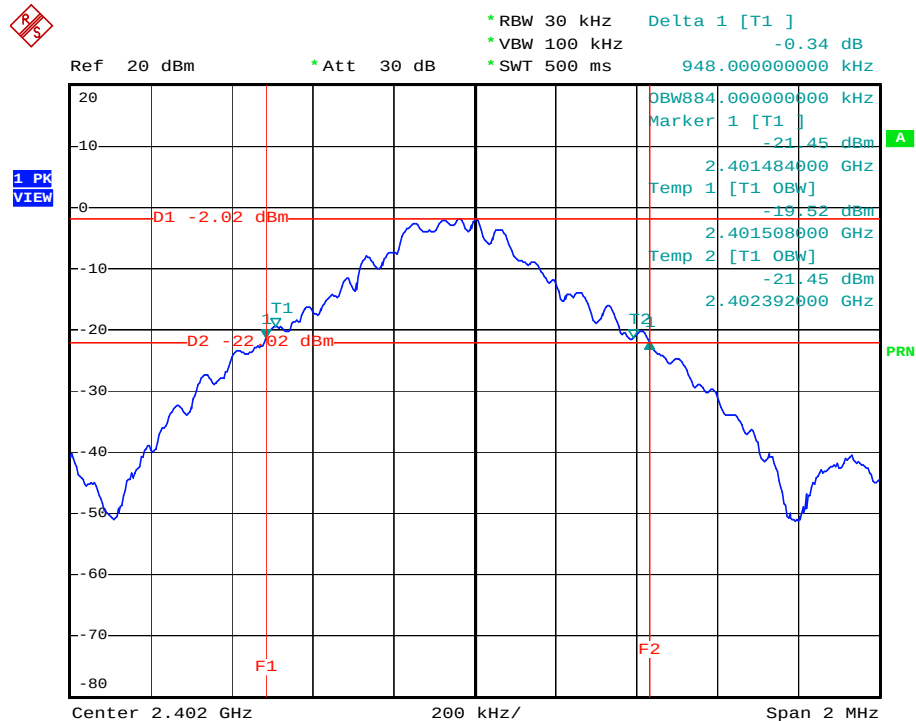
All test results complied with the requirements of Section 15.247(a)(1). Measurement Uncertainty is 1×10^{-5} .

5.5.7. Test Result : See spectrum analyzer plots below

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 38.10%
- Test Engineer: Edison Lu

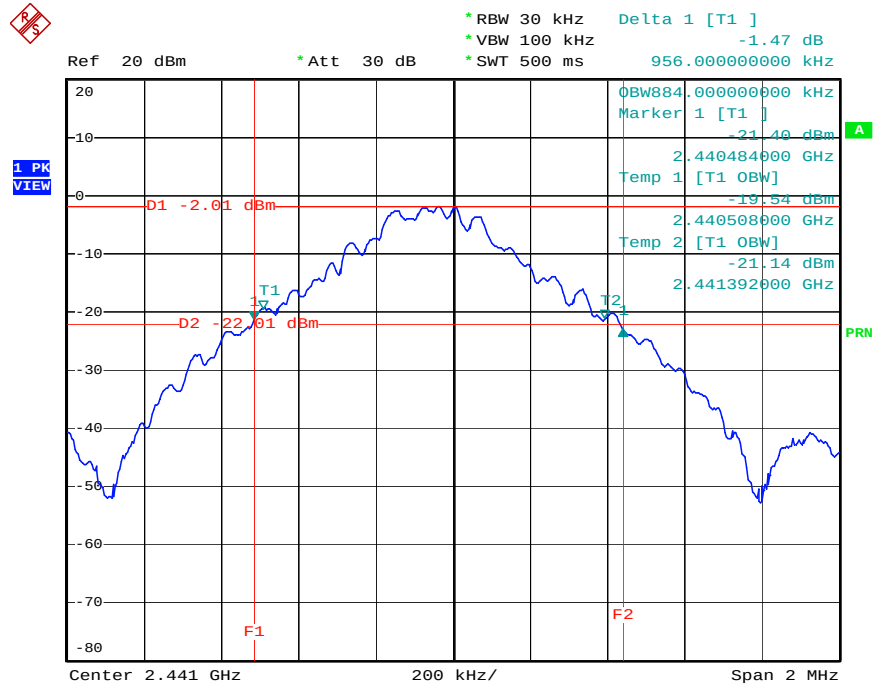
Modulation Type	Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	Min. Limit (kHz)
GFSK	00	2402 MHz	948.00	25
GFSK	39	2441 MHz	956.00	25
GFSK	78	2480 MHz	948.00	25

Modulation Type: GFSK (Channel 2402 MHz) :



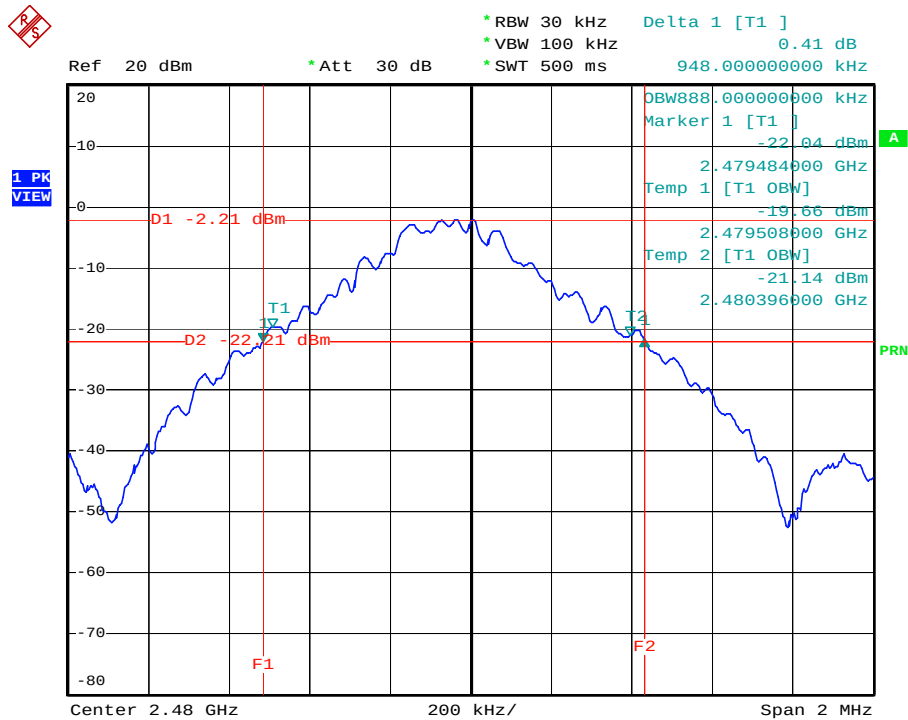
Date: 22.JUL.2005 16:10:10

Modulation Type: GFSK (Channel 2441 MHz) :



Date: 22.JUL.2005 16:13:43

Modulation Type: GFSK (Channel 2480 MHz) :



Date: 22.JUL.2005 16:15:14

5.6. Test of Number of Hopping Frequency (BLUETOOTH)

5.6.1. 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.

5.6.2. Measuring Instruments

Item 18 of the table on section 6.

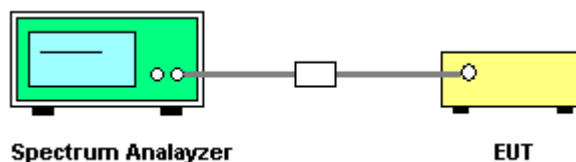
5.6.3. Description of Major Test Instruments Setting

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

5.6.4. 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.

5.6.5. Test Setup Layout



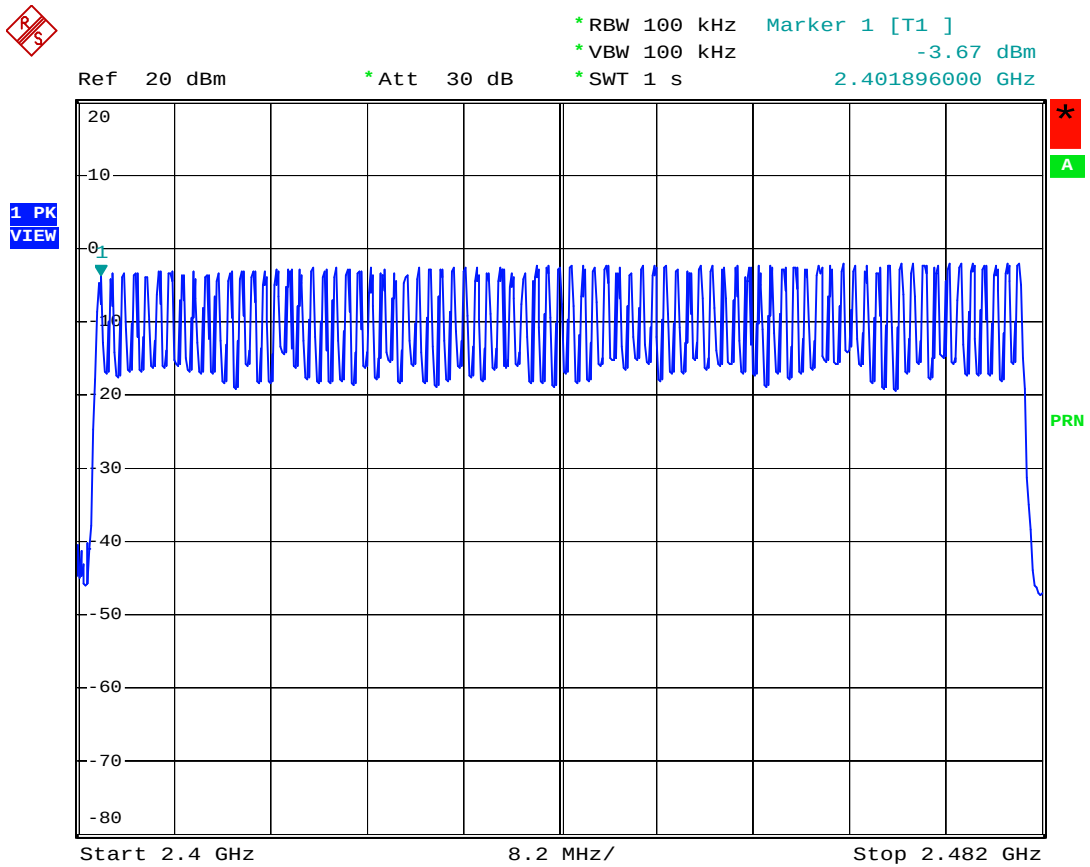
5.6.6. Test Criteria

All test results complied with the requirements of Section 15.247(b)(1). Measurement Uncertainty is 1×10^{-5} .

5.6.7. Test Result : See spectrum analyzer plots below

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 38.10%
- Test Engineer: Edison Lu

Modulation Type	Channel No.	Frequency (MHz)	Number of Hopping Ch. (Channels)	Min. Limit (Channels)
GFSK	00 ~ 78	2402MHz ~ 248MHz	79	75



Date: 7.JUN.2005 09:22:38

5.7. Test of Hopping Channel Separation (BLUETOOTH)

5.7.1. 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.

5.7.2. Measuring Instruments

Item 18 of the table on section 6.

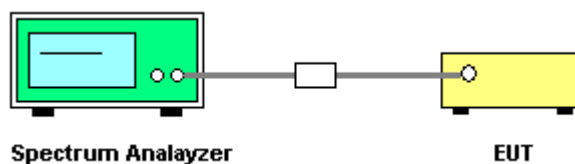
5.7.3. Description of Major Test Instruments Setting

- 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

5.7.4. 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 lowest, middle and highest channel of the EUT.

5.7.5. Test Setup Layout



5.7.6. Test Criteria

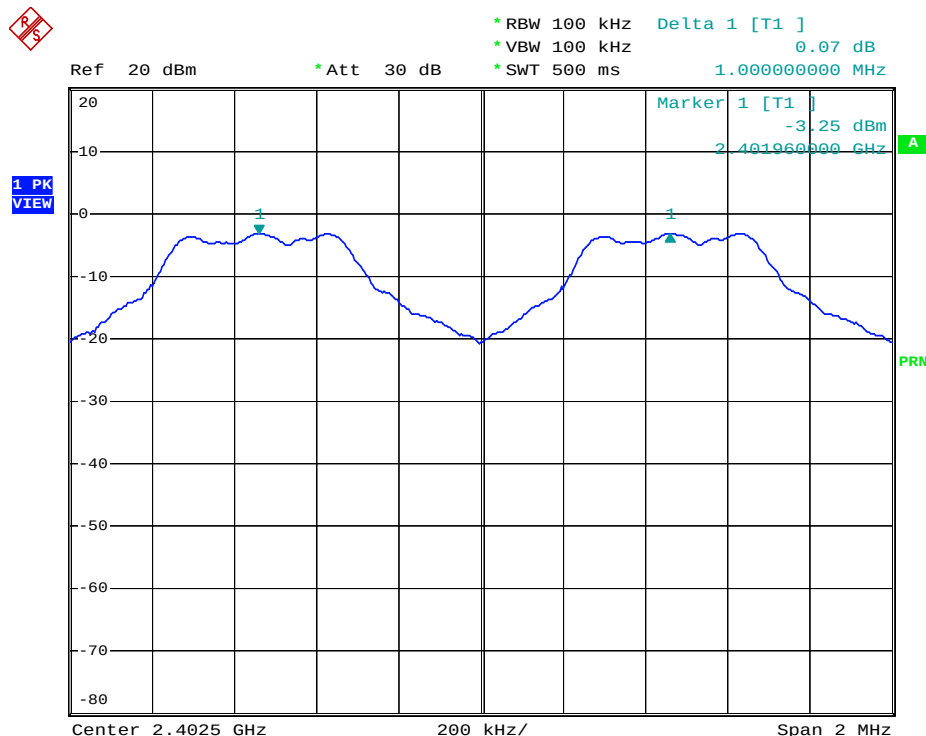
All test results complied with the requirements of Section 15.247(a)(1). Measurement Uncertainty is 1×10^{-5} .

5.7.7. Test Result

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 38.10%
- Test Engineer: Edison Lu

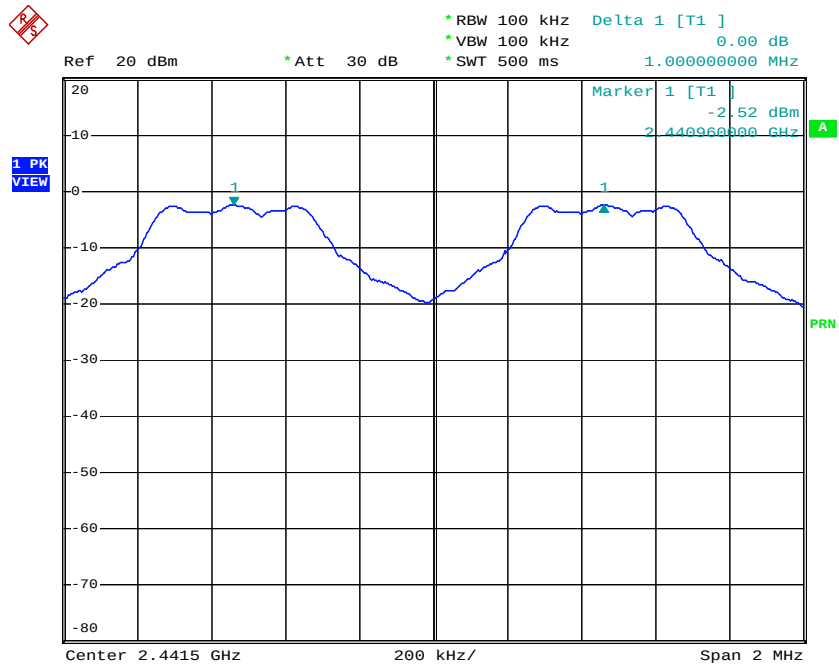
Modulation Type	Channel No.	Frequency (MHz)	Hopping Channel Separation (KHz)	Limits (KHz)
GFSK	00	2402 MHz	1000.0000	948.00
GFSK	39	2441 MHz	1000.0000	956.00
GFSK	78	2480 MHz	1000.0000	948.00

Modulation Type: GFSK (Channel 2402 MHz) :



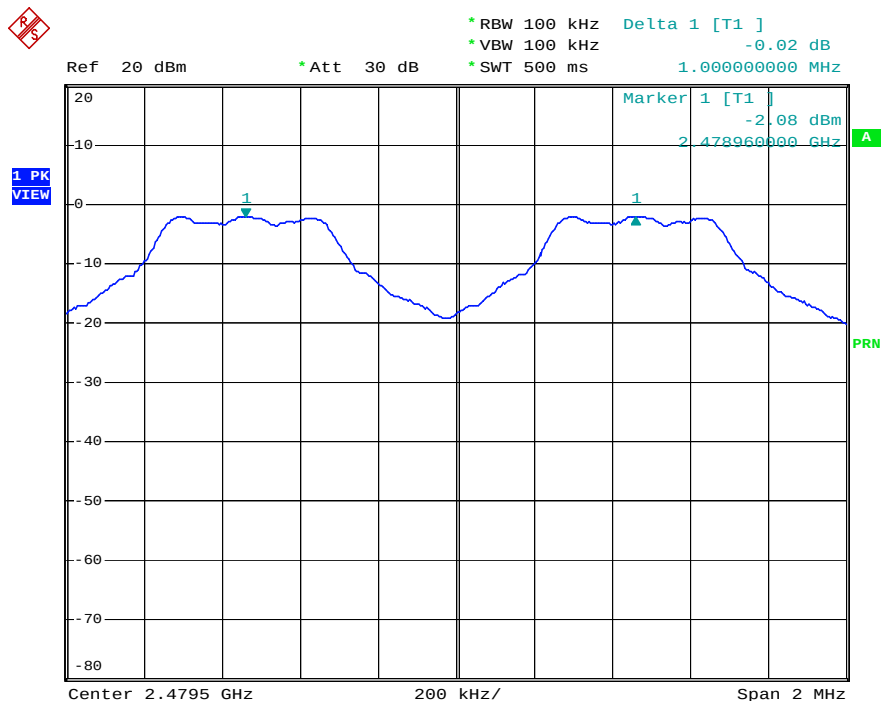
Date: 7. JUN. 2005 09:05:02

Modulation Type: GFSK (Channel 2441 MHz) :



Date: 7. JUN. 2005 09:05:49

Modulation Type: GFSK (Channel 2480 MHz) :



Date: 7. JUN. 2005 09:06:55

5.8. Test of Dwell Time of Each Frequency (BLUETOOTH)

5.8.1. Applicable Standard

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

5.8.2. Measuring Instruments

Item 18 of the table on section 6.

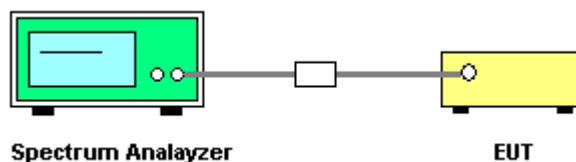
5.8.3. Description of Major Test Instruments Setting

- 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

5.8.4. 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.

5.8.5. Test Setup Layout



5.8.6. Test Criteria

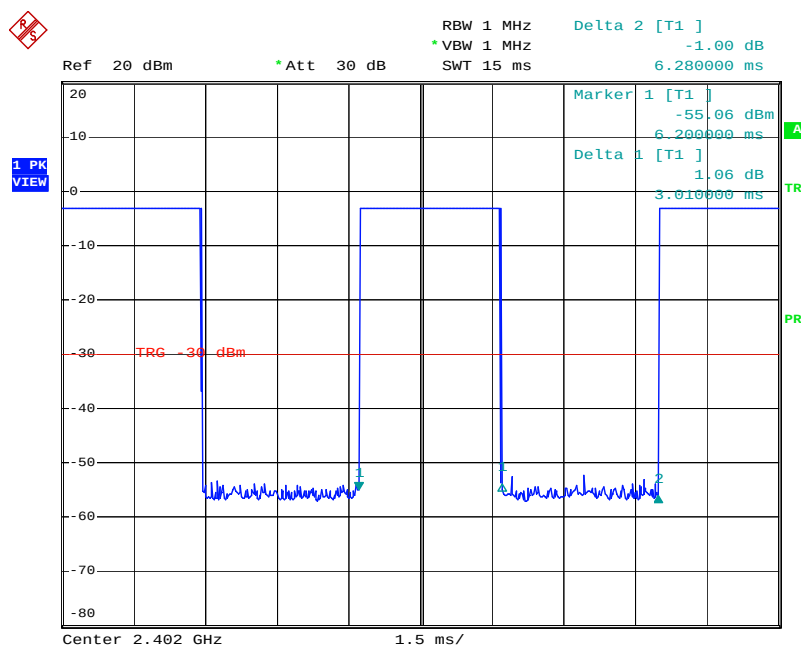
All test results complied with the requirements of Section 15.247(a)(1)(iii). Measurement Uncertainty is 1×10^{-5} .

5.8.7. Test Result

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 38.10%
- Test Engineer: Edison Lu

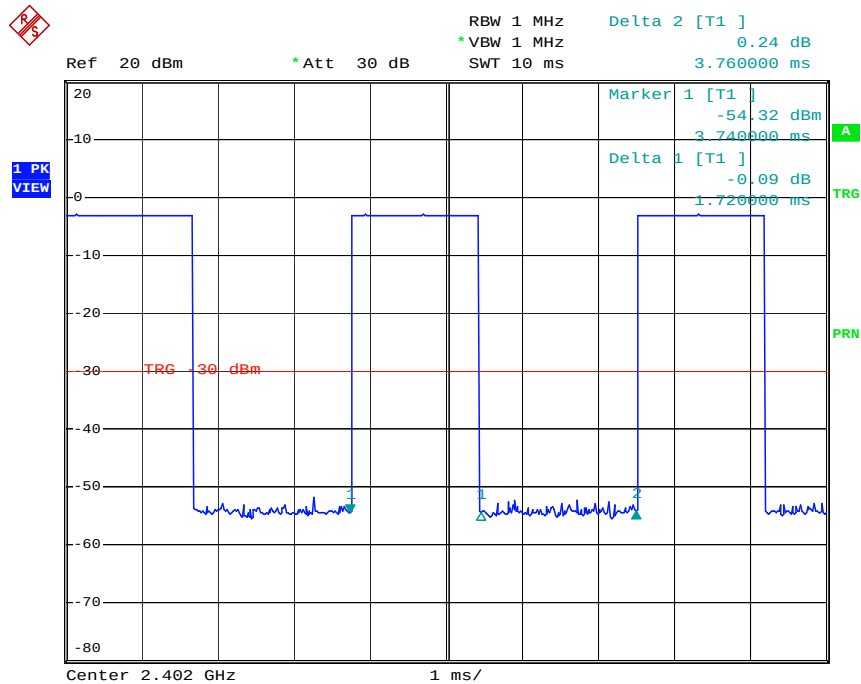
Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2402 MHz	3.0100	0.3211	0.4000
DH3	2402 MHz	1.7200	0.2752	0.4000
DH1	2402 MHz	0.4800	0.1536	0.4000
DH5	2441 MHz	3.0100	0.3211	0.4000
DH3	2441 MHz	1.7200	0.2752	0.4000
DH1	2441 MHz	0.4800	0.1536	0.4000
DH5	2480 MHz	3.0100	0.3211	0.4000
DH3	2480 MHz	1.7200	0.2752	0.4000
DH1	2480 MHz	0.4800	0.1536	0.4000

DH5 Modulation Type: GFSK (Channel 2402 MHz) :



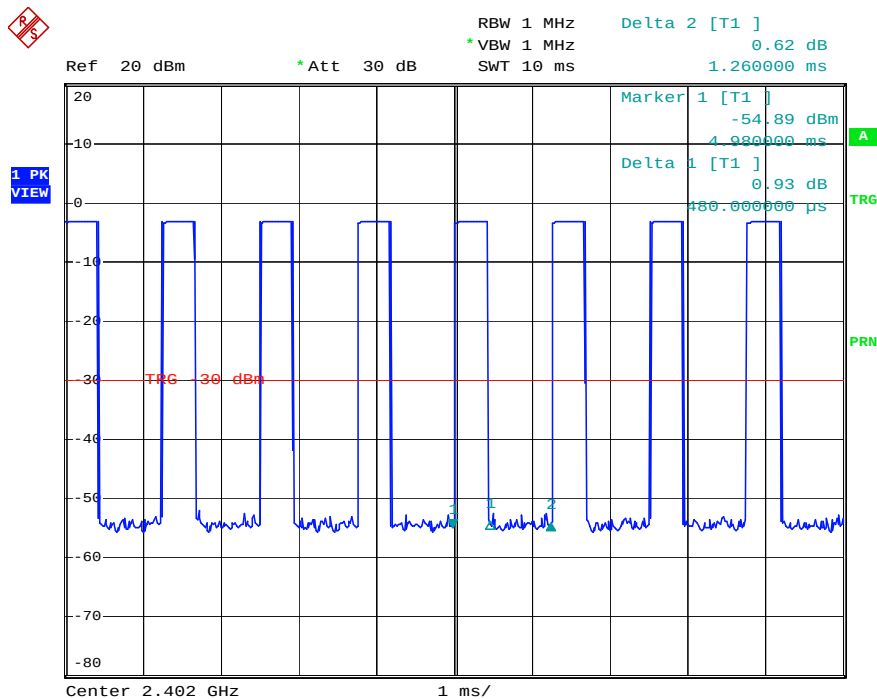
Date: 7. JUN. 2005 09:12:37

DH3 Modulation Type: GFSK (Channel 2402MHz) :



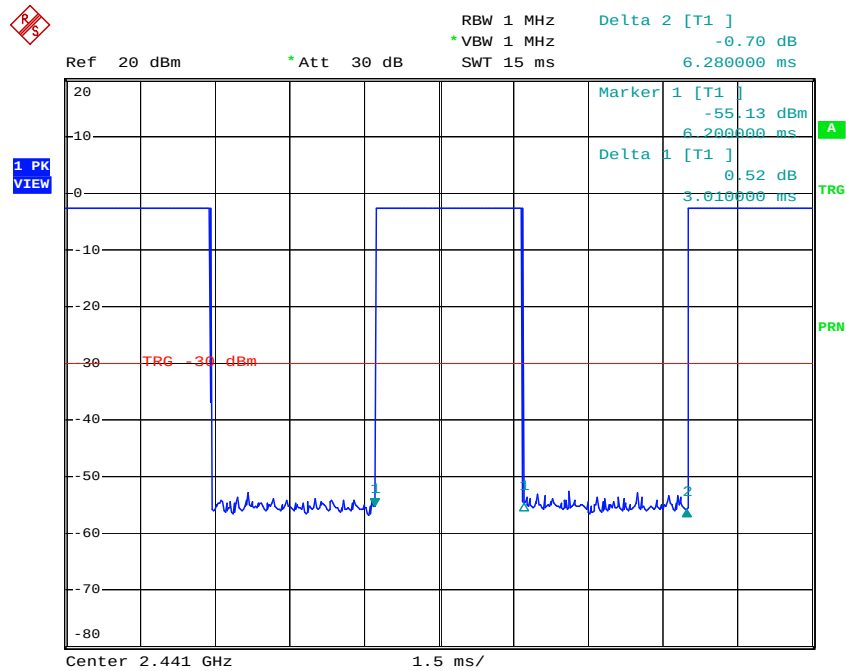
Date: 7. JUN. 2005 09:09:42

DH1 Modulation Type: GFSK (Channel 2402 MHz) :



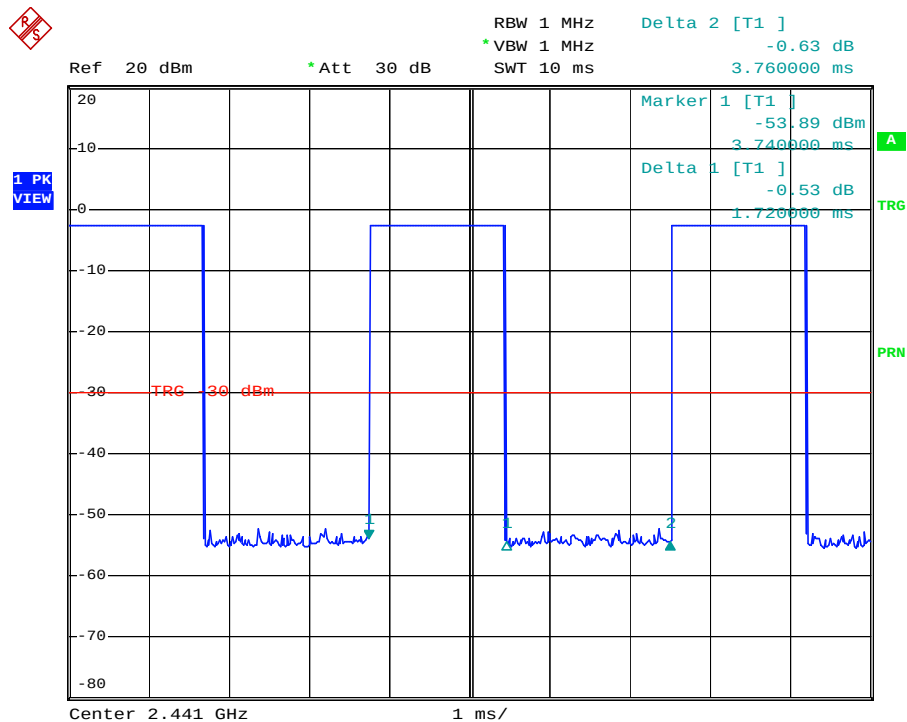
Date: 7. JUN. 2005 09:09:01

DH5 Modulation Type: GFSK (Channel 2441 MHz) :



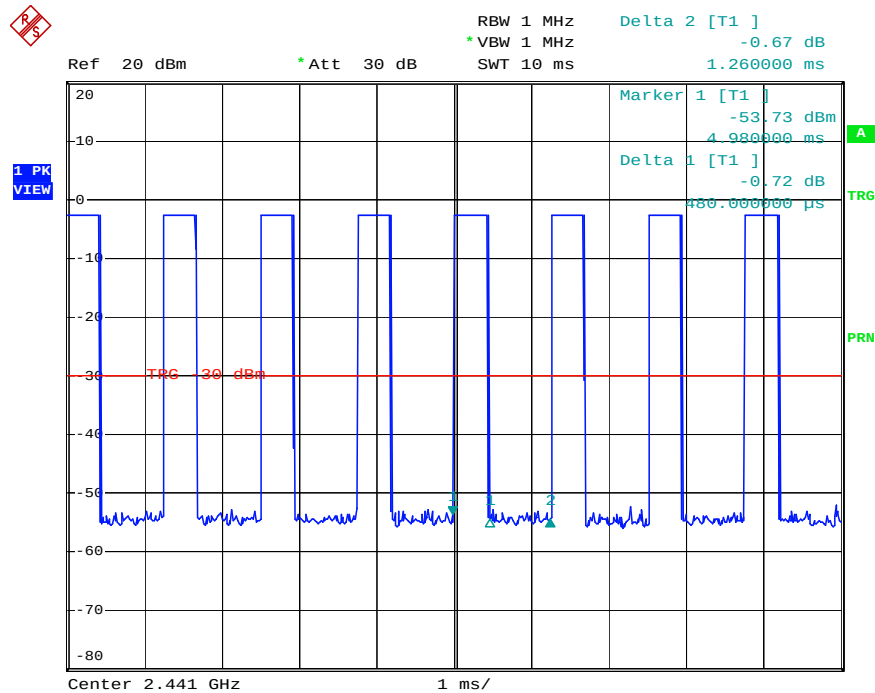
Date: 7. JUN. 2005 09:15:56

DH3 Modulation Type: GFSK (Channel 2441 MHz) :



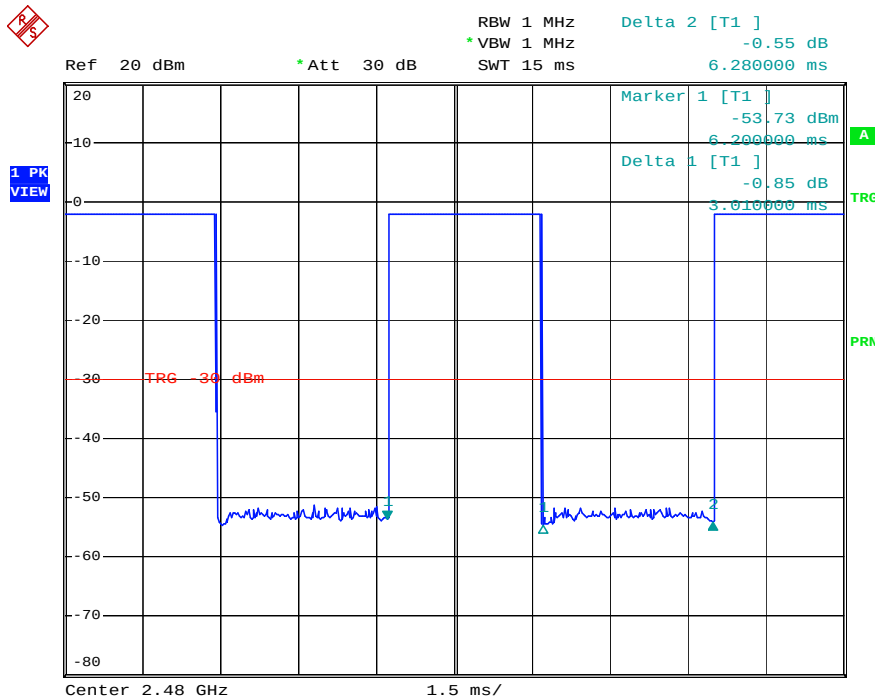
Date: 7. JUN. 2005 09:15:05

DH1 Modulation Type: GFSK (Channel 2441 MHz) :



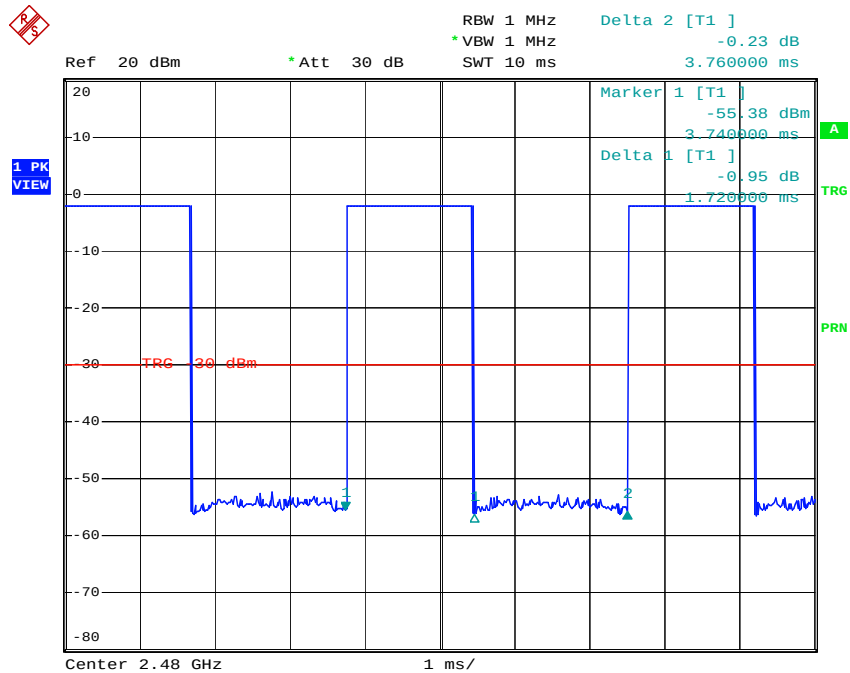
Date: 7.JUN.2005 09:14:23

DH5 Modulation Type: GFSK (Channel 2480 MHz) :



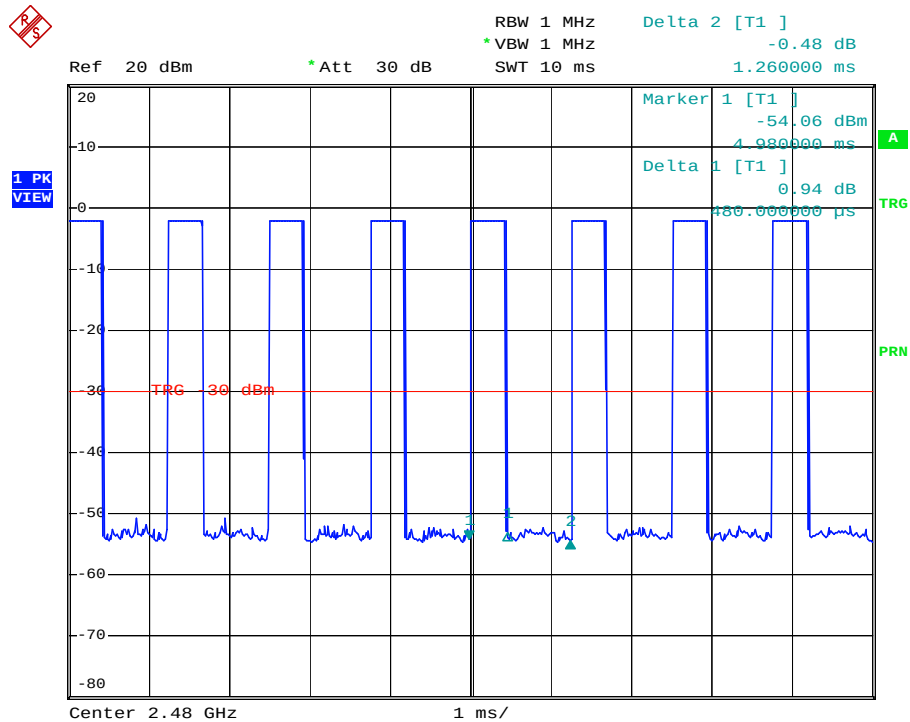
Date: 7.JUN.2005 09:19:09

DH3 Modulation Type: GFSK (Channel 2480 MHz) :



Date: 7.JUN.2005 09:18:29

DH1 Modulation Type: GFSK (Channel2480 MHz) :



Date: 7.JUN.2005 09:17:00

5.9. Maximum Peak Output Power (BLUETOOTH)

5.9.1. 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.

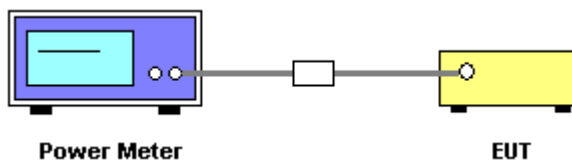
5.9.2. Measuring Instruments

Item 19, 21 of the table on section 6.

5.9.3. Test Procedures and Test Instruments Setting

1. The transmitter output was connected to the peak power meter and recorded the peak value.
2. Repeated point 1 for the middle and highest channel of the EUT.

5.9.4. Test Setup Layout



5.9.5. Test Criteria

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

5.9.6. Test Result of Conducted Peak Power

- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 38.10%
- Test Engineer: Edison Lu

Modulation Type	Channel No.	Frequency (MHz)	Output Power (dBm)	Limits (dBm)
GFSK	00	2402 MHz	1.91	30
GFSK	39	2441 MHz	1.53	30
GFSK	78	2480 MHz	1.07	30

5.10. Test of Band Edges Emission

5.10.1. 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.

5.10.2. 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.

5.10.3. 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

5.10.4. Test Procedures

Conducted Measurement

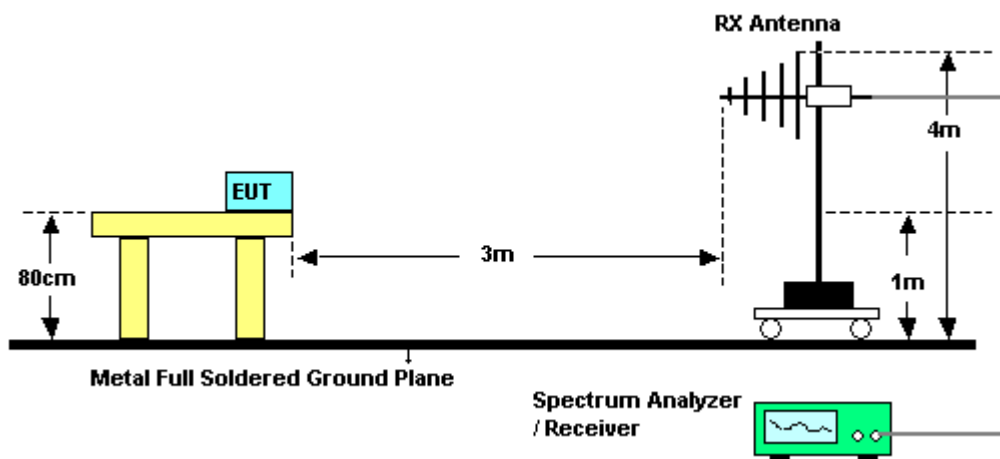
1. The transmitter is set to the lowest channel.
2. The transmitter output was connected to the spectrum analyzer via a cable and cable loss is used as the offset of the spectrum analyzer.
3. Set both RBW and VBW of spectrum analyzer to 100KHz with convenient frequency span including 100MHz bandwidth 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

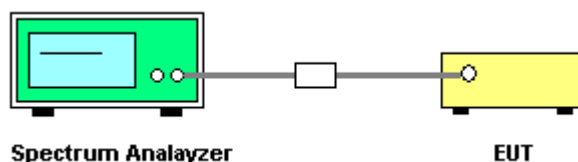
1. Configure the EUT according to ANSI C63.4.
2. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both 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.
6. The transmitter set to the highest channel and repeated 2~5.

5.10.5. Test Setup

Radiated Method



Conducted Method

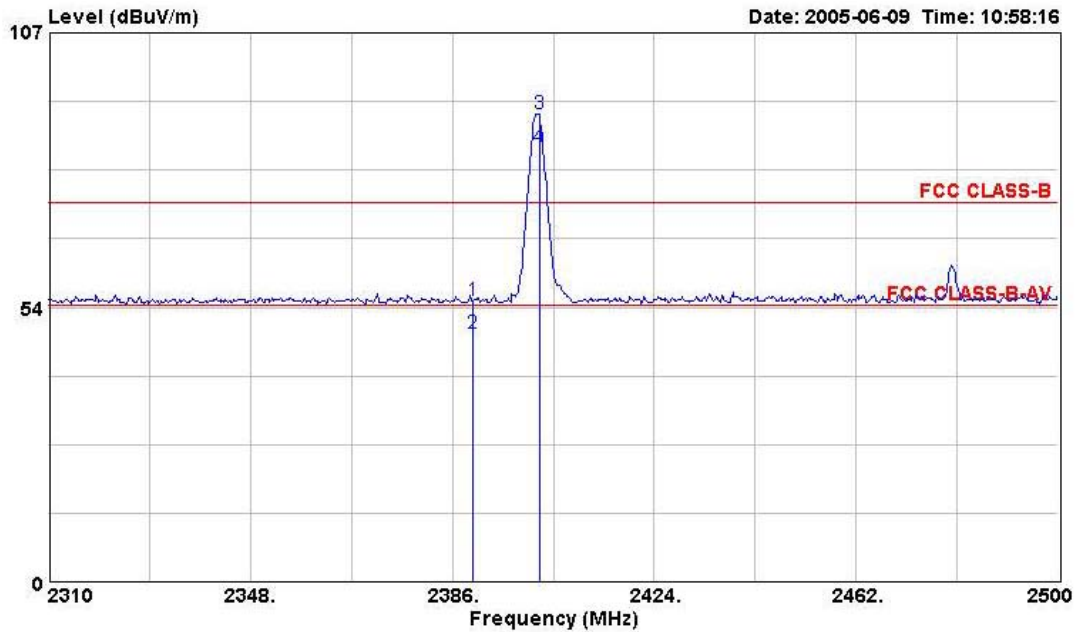


5.10.6. Test Criteria

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

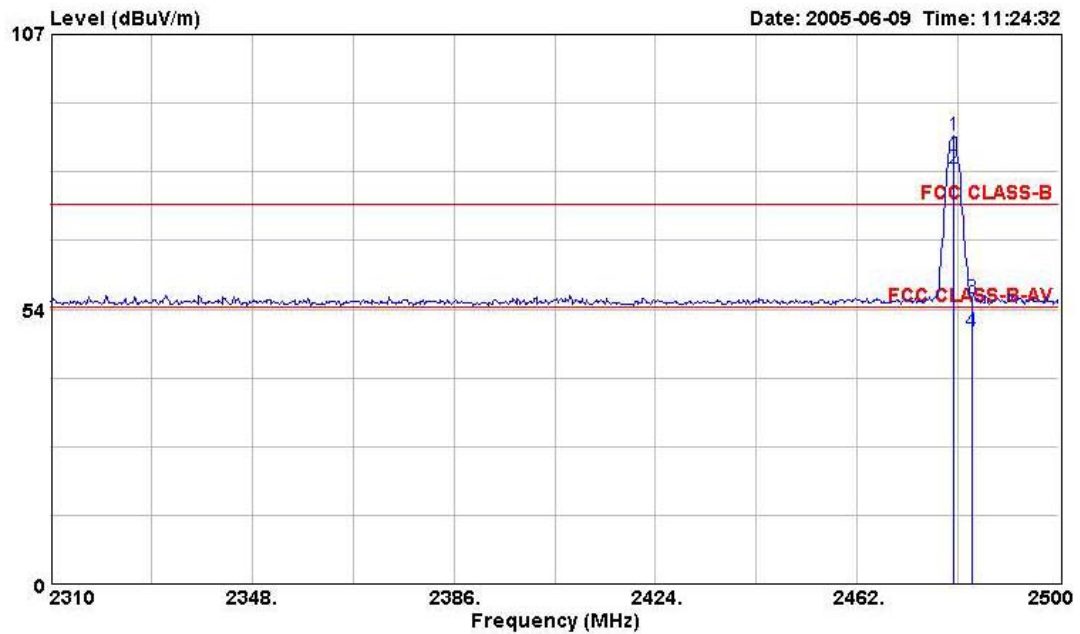
5.10.7. Test Result of Radiated Emission

Modulation Type: GFSK (Channel 2412 MHz) :



	Freq	Level	Over Limit	Read Level	Limit Line	Factor	Cable Loss	Preamplifier Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	dB	dB	
1	2389.600	54.88	-19.12	24.76	74.00	30.12	1.90	0.00	Peak
2	2389.600	48.48	-5.52	18.36	54.00	30.12	1.90	0.00	Average

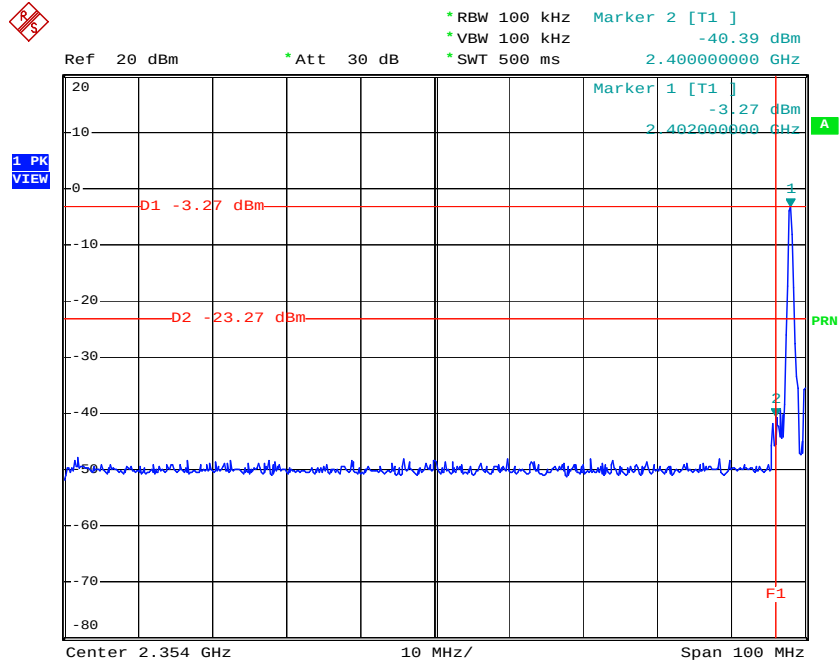
Modulation Type: GFSK (Channel 2462 MHz) :



	Freq	Level	Over	Read	Limit	Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Loss	Factor	Remark
			dB	dBuV	dBuV/m	dB	dB	
3	2483.660	55.69	-18.31	25.36	74.00	30.33	1.96	0.00 Peak
4	2483.660	49.27	-4.73	18.94	54.00	30.33	1.96	0.00 Average

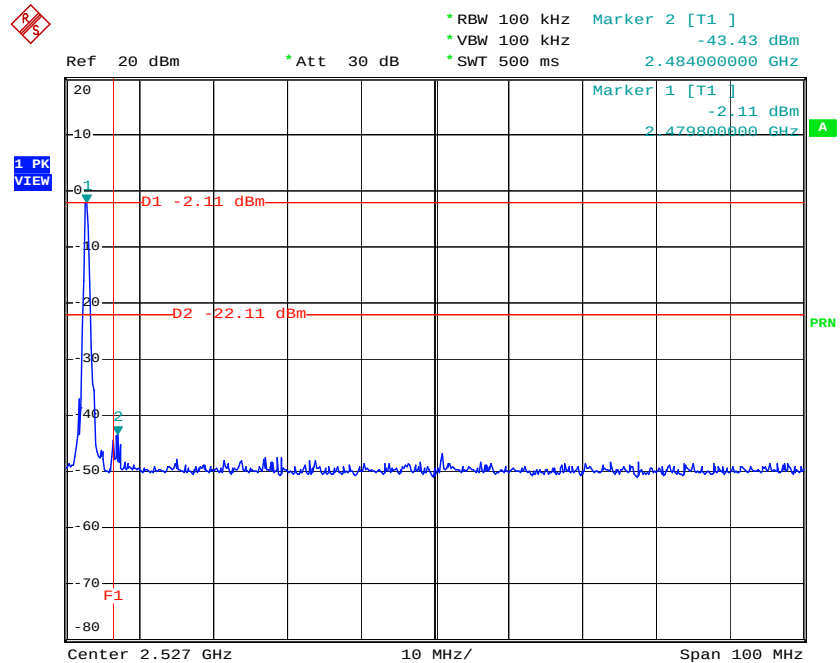
5.10.8. Test Result of Conducted Emission

Modulation Type: GFSK (Channel 00) :



Date: 7. JUN. 2005 09:03:43

Modulation Type: GFSK (Channel 78) :



Date: 7. JUN. 2005 09:02:16

5.11. Test of AC Power Line Conducted Emission

5.11.1. Applicable Standard

Section 15.207: For a Low-power Radio-frequency Device 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

5.11.2. Measuring Instruments

Please reference item 1~5 in chapter 6 for the instruments used for testing.

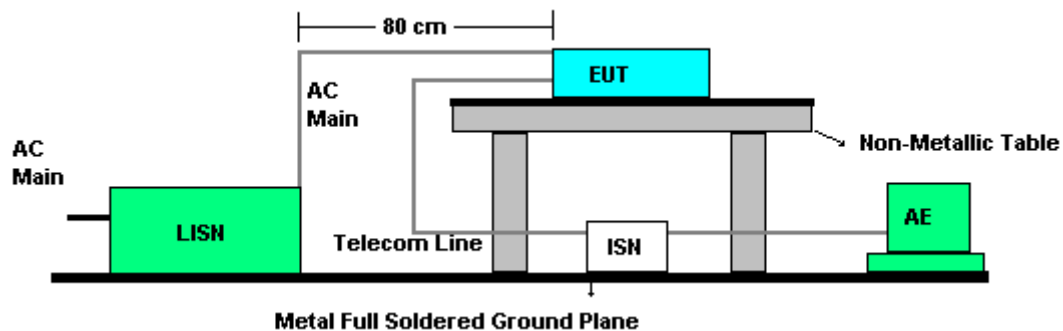
5.11.3. Description of Major Test Instruments Setting

- Test Receiver : R&S ESCS 30
- Attenuation : 10 dB
- Start Frequency : 0.15 MHz
- Stop Frequency : 30 MHz
- IF Bandwidth : 9 KHz

5.11.4. Test Procedures

1. Configure the EUT according to ANSI C63.4-2003.
2. The 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.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN)
4. All the support units are connected to the other LISNs. The LISN should provides 50uH/50ohms coupling impedance.
5. The frequency range from 150 KHz to 30 MHz was searched.
6. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
7. The measurement has to be done between each power line and ground at the power terminal for each RF channel. Only one RF channel has to be investigated since this test is independent with the RF channel selection.

5.11.5. Test Setup Layout



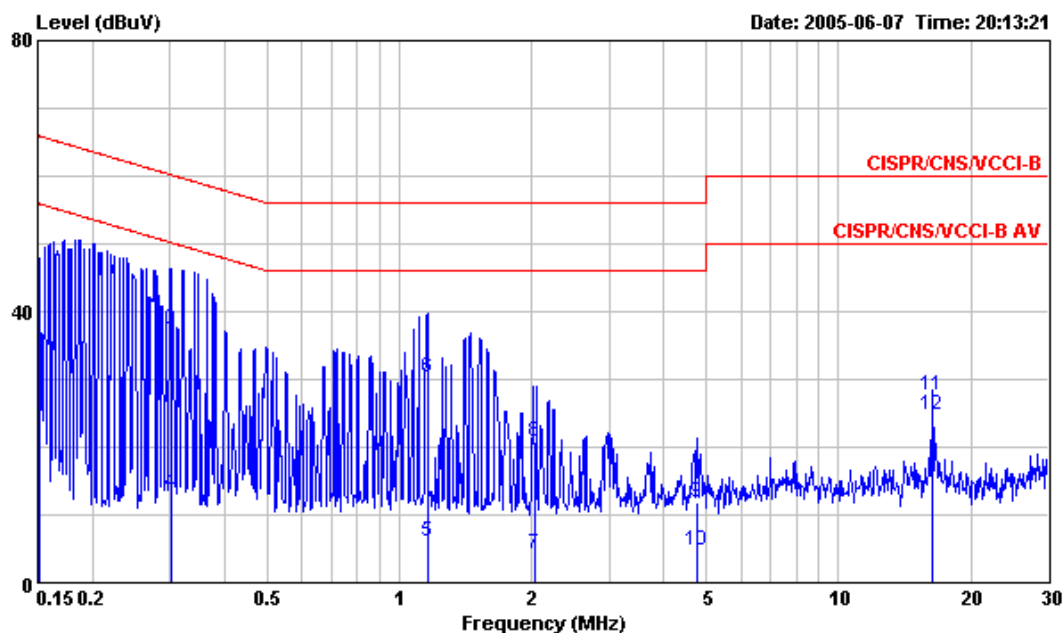
5.11.6. Test Criteria

All test results complied with the requirements of 15.207. Measurement Uncertainty is 2.54dB.

5.11.7. Test Result of Conducted Emission

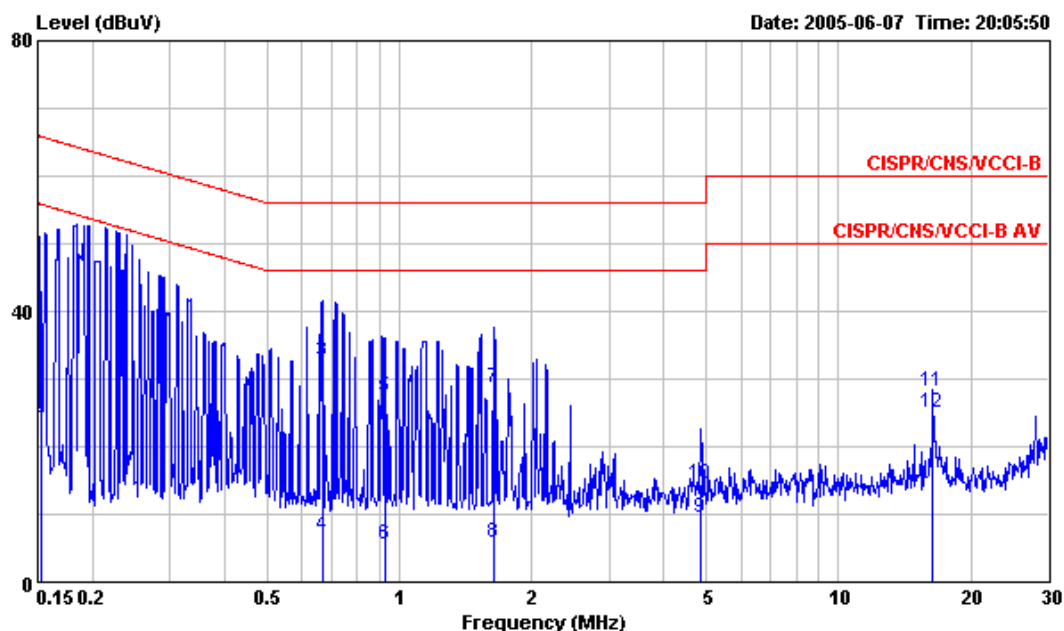
- Test Mode: WLAN Function
- Temperature: 26°C
- Relative Humidity: 64%
- Test Engineer: Sky Wu

Line to Ground



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1509860	42.50	-23.45	65.95	41.91	0.06	0.53	QP
2	0.1509860	24.46	-31.49	55.95	23.87	0.06	0.53	Average
3	0.3018750	37.33	-22.86	60.19	36.95	0.06	0.32	QP
4	0.3018750	13.10	-37.09	50.19	12.72	0.06	0.32	Average
5	1.161	5.98	-40.02	46.00	5.32	0.11	0.55	Average
6	1.161	30.25	-25.75	56.00	29.59	0.11	0.55	QP
7	2.041	4.25	-41.75	46.00	3.92	0.11	0.22	Average
8	2.041	20.78	-35.22	56.00	20.45	0.11	0.22	QP
9	4.771	11.88	-44.12	56.00	11.40	0.21	0.27	QP
10	4.771	4.83	-41.17	46.00	4.35	0.21	0.27	Average
11	16.339	27.75	-32.25	60.00	26.94	0.24	0.57	QP
12	16.339	24.61	-25.39	50.00	23.80	0.24	0.57	Average

Neutral to Ground



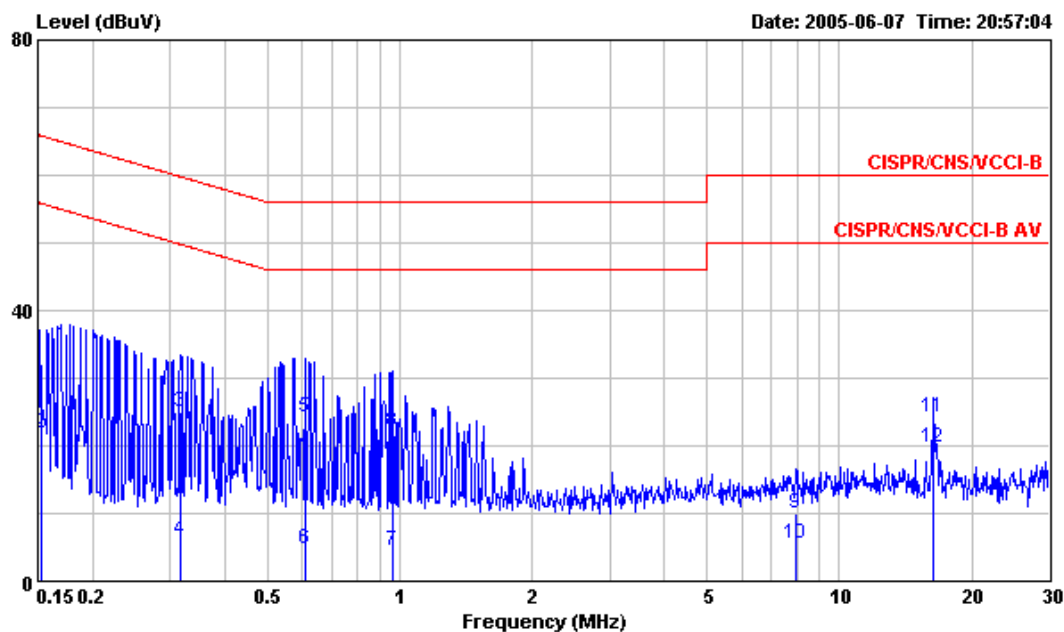
	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1524050	43.18	-22.69	65.87	42.55	0.11	0.52	QP
2	0.1524050	24.29	-31.58	55.87	23.66	0.11	0.52	Average
3	0.6683160	32.68	-23.32	56.00	31.79	0.23	0.66	QP
4	0.6683160	6.84	-39.16	46.00	5.95	0.23	0.66	Average
5	0.9269290	27.47	-28.53	56.00	26.58	0.23	0.66	QP
6	0.9269290	5.51	-40.49	46.00	4.62	0.23	0.66	Average
7	1.641	28.67	-27.33	56.00	28.10	0.23	0.34	QP
8	1.641	5.68	-40.32	46.00	5.11	0.23	0.34	Average
9	4.851	9.57	-36.43	46.00	9.05	0.25	0.27	Average
10	4.851	14.45	-41.55	56.00	13.93	0.25	0.27	QP
11	16.340	28.06	-31.94	60.00	27.13	0.36	0.57	QP
12	16.340	24.94	-25.06	50.00	24.01	0.36	0.57	Average

Note:

Corrected Reading: LISN Factor + Cable Loss + Read Level = Level.

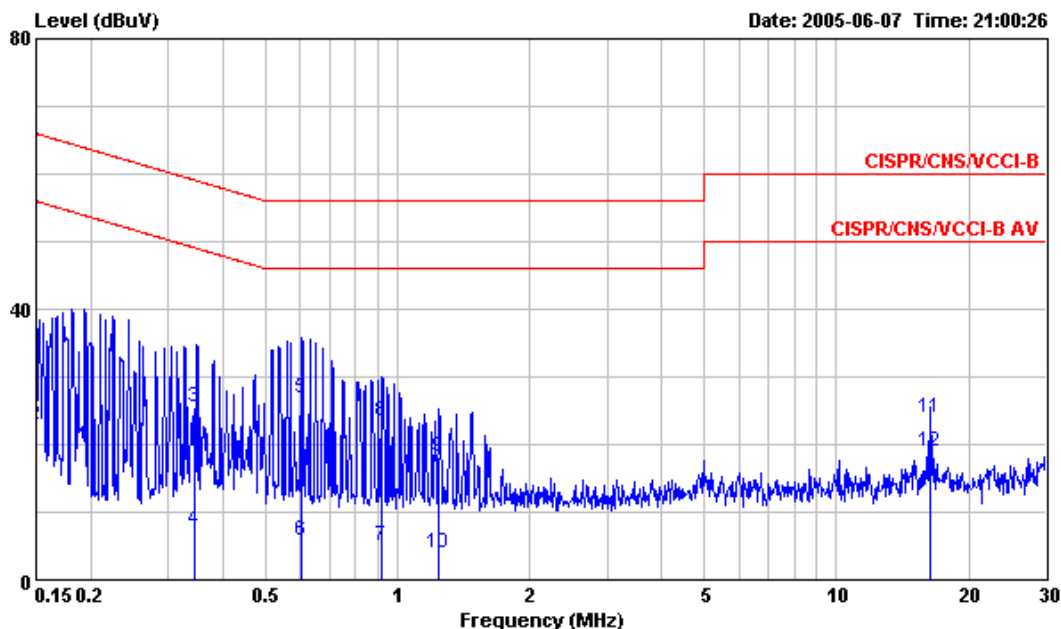
- Test Mode: USB Function
- Temperature: 26°C
- Relative Humidity: 64%
- Test Engineer: Sky Wu

Line to Ground



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1533850	30.50	-35.31	65.81	29.93	0.06	0.51	QP
2	0.1533850	21.96	-33.85	55.81	21.39	0.06	0.51	Average
3	0.3166190	25.05	-34.75	59.80	24.68	0.06	0.31	QP
4	0.3166190	6.06	-43.74	49.80	5.69	0.06	0.31	Average
5	0.6088040	24.10	-31.90	56.00	23.48	0.11	0.51	QP
6	0.6088040	4.82	-41.18	46.00	4.20	0.11	0.51	Average
7	0.9645610	4.52	-41.48	46.00	3.76	0.11	0.65	Average
8	0.9645610	22.12	-33.88	56.00	21.36	0.11	0.65	QP
9	7.981	10.05	-49.95	60.00	9.58	0.21	0.26	QP
10	7.981	5.51	-44.49	50.00	5.04	0.21	0.26	Average
11	16.338	24.09	-35.91	60.00	23.28	0.24	0.57	QP
12	16.338	19.79	-30.21	50.00	18.98	0.24	0.57	Average

Neutral to Ground



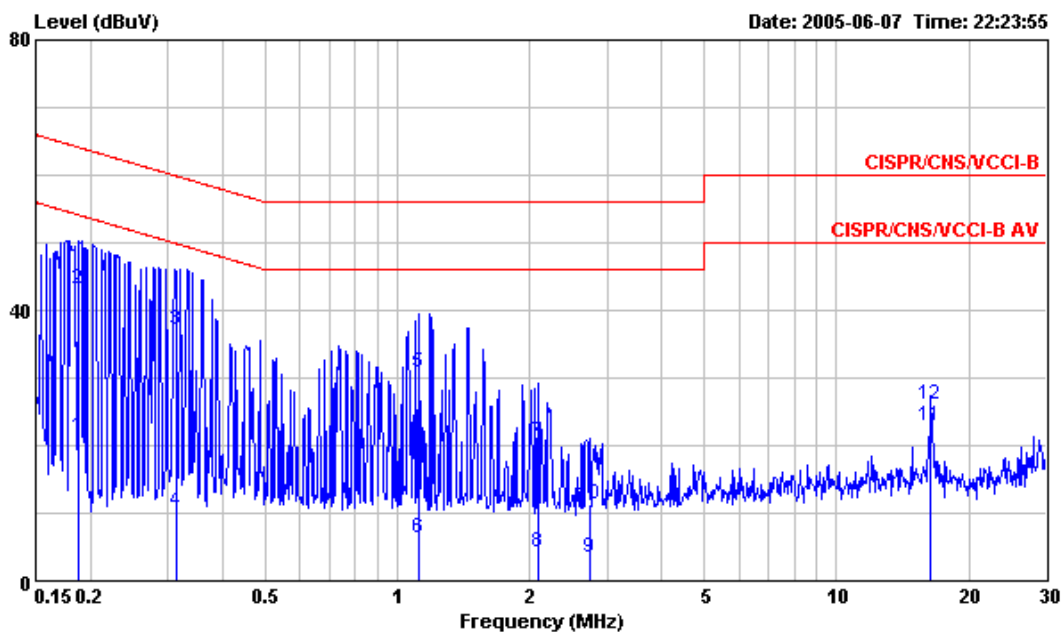
	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1505620	30.78	-35.19	65.97	30.14	0.11	0.53	QP
2	0.1505620	22.86	-33.11	55.97	22.22	0.11	0.53	Average
3	0.3451810	25.63	-33.45	59.08	25.22	0.11	0.30	QP
4	0.3451810	7.25	-41.83	49.08	6.84	0.11	0.30	Average
5	0.6013300	26.83	-29.17	56.00	26.11	0.23	0.49	QP
6	0.6013300	5.66	-40.34	46.00	4.94	0.23	0.49	Average
7	0.9233040	5.01	-40.99	46.00	4.12	0.23	0.66	Average
8	0.9233040	23.52	-32.48	56.00	22.63	0.23	0.66	QP
9	1.239	18.26	-37.74	56.00	17.52	0.23	0.51	QP
10	1.239	4.00	-42.00	46.00	3.26	0.23	0.51	Average
11	16.342	23.86	-36.14	60.00	22.93	0.36	0.57	QP
12	16.342	19.01	-30.99	50.00	18.08	0.36	0.57	Average

Note:

Corrected Reading: LISN Factor + Cable Loss + Read Level = Level.

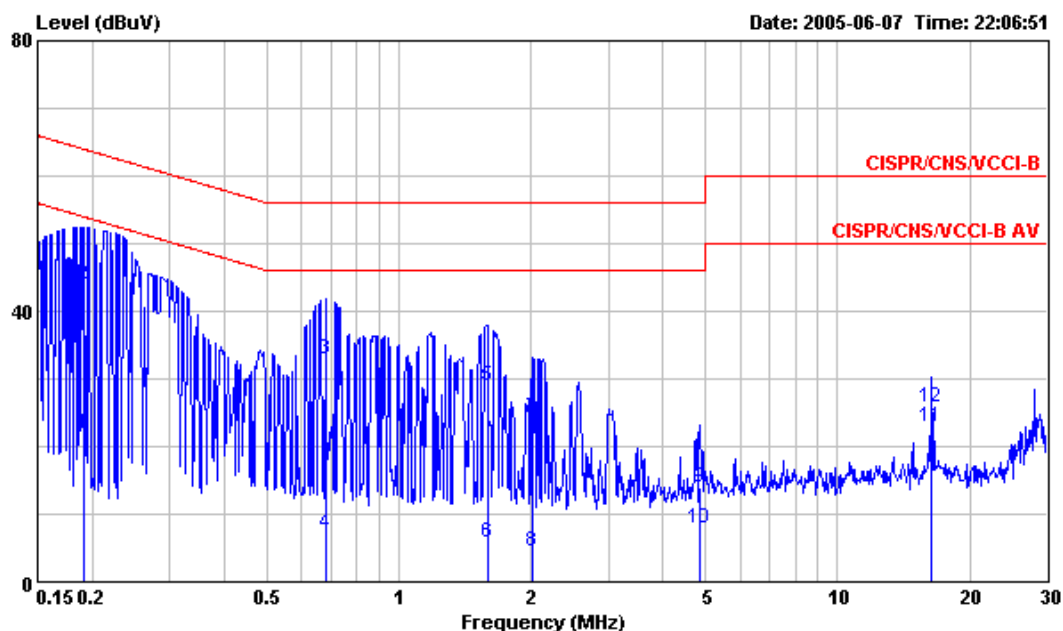
- Test Mode: Bluetooth Function
- Temperature: 26°C
- Relative Humidity: 64%
- Test Engineer: Sky Wu

Line to Ground



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1868850	21.33	-32.84	54.17	20.99	0.06	0.28	Average
2	@0.1868850	43.28	-20.89	64.17	42.94	0.06	0.28	QP
3	0.3129060	37.07	-22.82	59.89	36.70	0.06	0.31	QP
4	0.3129060	10.38	-39.51	49.89	10.01	0.06	0.31	Average
5	1.121	30.70	-25.30	56.00	30.02	0.11	0.57	QP
6	1.121	6.21	-39.79	46.00	5.53	0.11	0.57	Average
7	2.091	20.41	-35.59	56.00	20.07	0.12	0.22	QP
8	2.091	4.22	-41.78	46.00	3.88	0.12	0.22	Average
9	2.751	3.40	-42.60	46.00	2.98	0.16	0.26	Average
10	2.751	11.30	-44.70	56.00	10.88	0.16	0.26	QP
11	16.340	22.79	-27.21	50.00	21.98	0.24	0.57	Average
12	16.340	25.95	-34.05	60.00	25.14	0.24	0.57	QP

Neutral to Ground



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1904300	21.85	-32.17	54.02	21.48	0.11	0.26	Average
2	0.1904300	44.04	-19.98	64.02	43.67	0.11	0.26	QP
3	0.6803040	32.93	-23.07	56.00	32.02	0.23	0.68	QP
4	0.6803040	7.08	-38.92	46.00	6.17	0.23	0.68	Average
5	1.591	28.97	-27.03	56.00	28.38	0.23	0.36	QP
6	1.591	5.85	-40.15	46.00	5.26	0.23	0.36	Average
7	2.021	24.33	-31.67	56.00	23.88	0.23	0.22	QP
8	2.021	4.40	-41.60	46.00	3.95	0.23	0.22	Average
9	4.851	13.94	-42.06	56.00	13.42	0.25	0.27	QP
10	4.851	7.91	-38.09	46.00	7.39	0.25	0.27	Average
11	16.341	22.95	-27.05	50.00	22.02	0.36	0.57	Average
12	16.341	25.90	-34.10	60.00	24.97	0.36	0.57	QP

Note:

Corrected Reading: LISN Factor + Cable Loss + Read Level = Level.

5.11.8. Photographs of Conducted Emission Test Configuration

WLAN Function

FRONT VIEW



REAR VIEW



USB Function

FRONT VIEW



REAR VIEW



Bluetooth Function

FRONT VIEW



REAR VIEW



5.12. Test of Spurious Radiated Emission

5.12.1. 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.

5.12.2. Measuring Instruments

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

5.12.3. Description of Major Test Instruments Setting

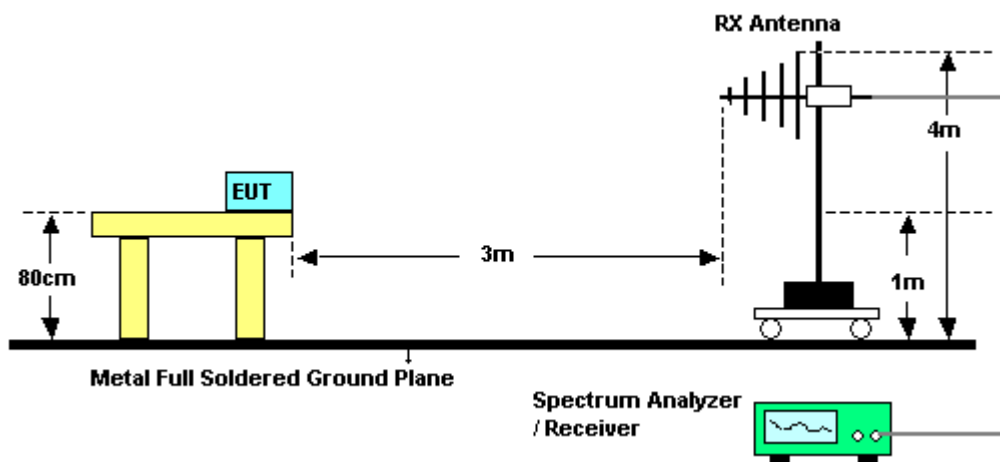
- Spectrum Analyzer : R&S FSP40
 - Attenuation : Auto
 - Start Frequency : 1000 MHz
 - Stop Frequency : 10th carrier harmonic
 - RB / VB : 1 MHz / 1MHz for Peak
 - RB / VB : 1 MHz / 10Hz for Average
- Test Receiver : R&S ESCS 30
 - Attenuation : Auto
 - Start Frequency : 30 MHz
 - Stop Frequency : 1000 MHz
 - RB : 120 KHz for QP or PK

5.12.4. Test Procedures

1. Configure the EUT according to ANSI C63.4-2003.
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.

5.12.5. Test Setup Layout



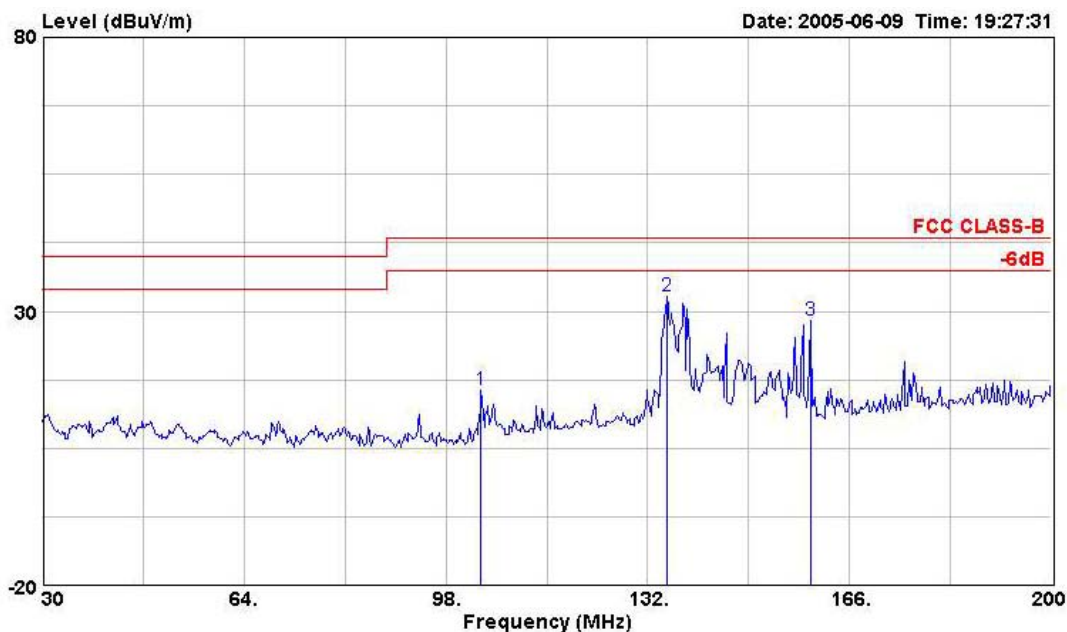
5.12.6. Test Criteria

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

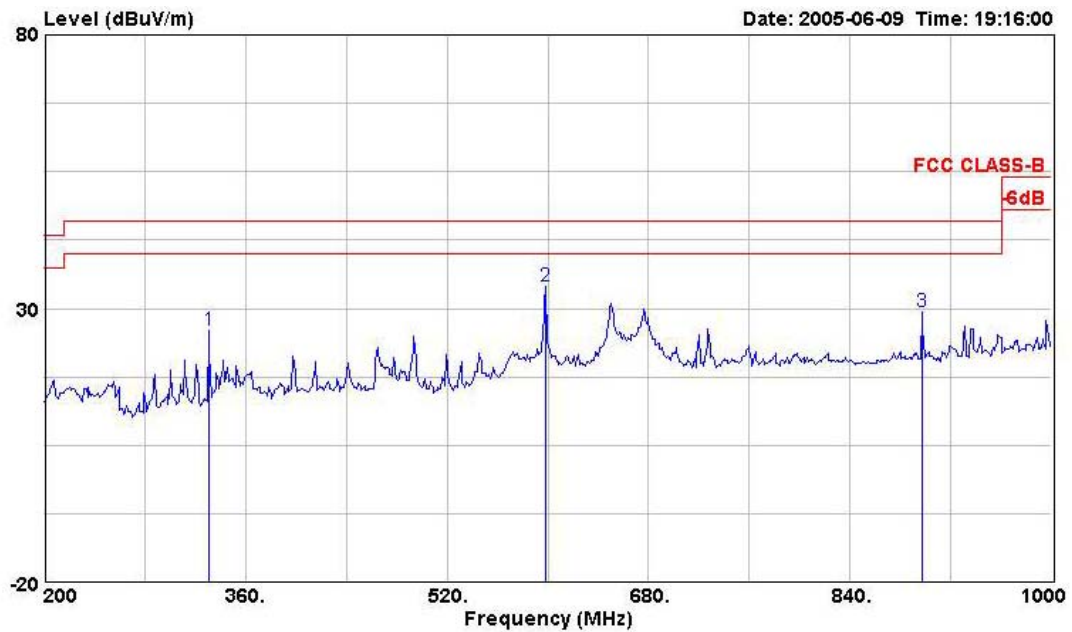
5.12.7. Test Results

- Test Mode: WLAN Function for CH 06 / 2437 MHz (for emission below 1GHz)
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal

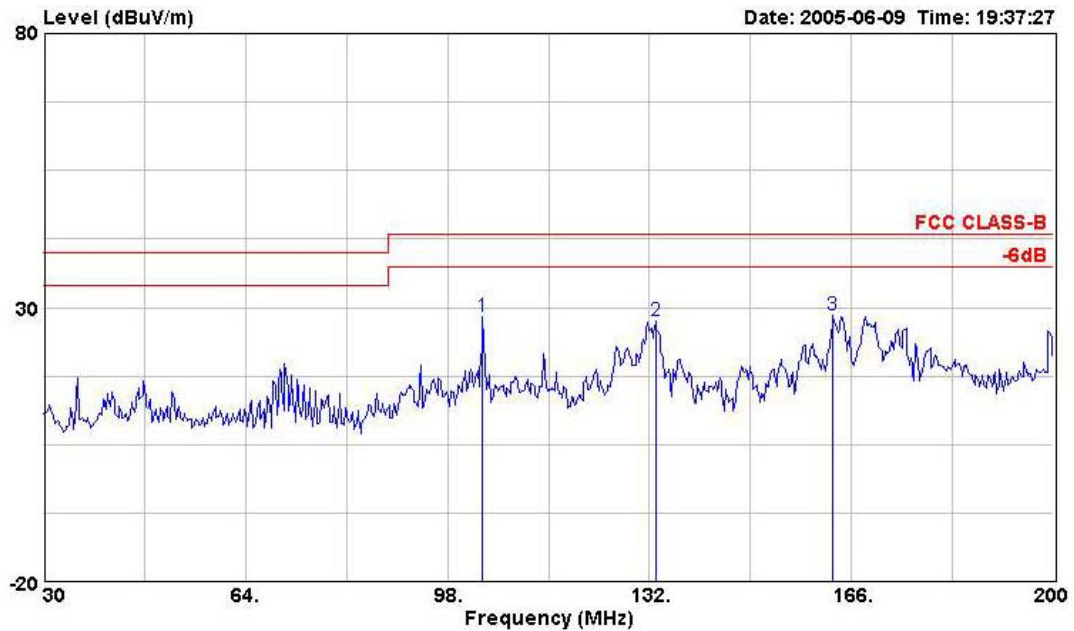


	Freq	Level	Over Limit	Read Level	Limit Line	Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	dB	dB	
1 @	103.950	15.70	-27.80	35.67	43.50	-19.97	0.98	30.51	Peak
2 @	135.230	32.75	-10.75	49.85	43.50	-17.10	1.16	30.74	Peak
3 @	159.370	28.44	-15.06	45.08	43.50	-16.64	1.27	30.47	Peak

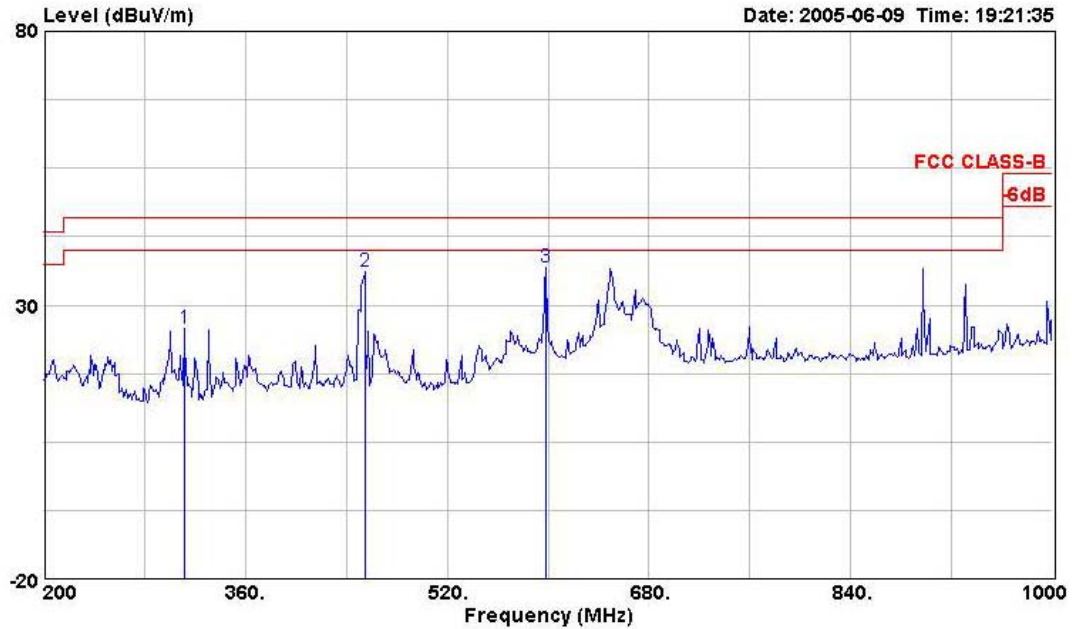


	Freq	Level	Over Limit	Read Level	Limit Line	Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	dB	dB	
1	330.400	25.89	-20.11	40.20	46.00	-14.31	1.77	30.78	Peak
2	598.400	34.01	-11.99	42.38	46.00	-8.37	2.39	31.09	Peak
3	896.800	29.27	-16.73	34.41	46.00	-5.14	3.12	29.96	Peak

(B) Polarization: Vertical



	Freq	Level	Over	Read	Limit	Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Loss	Factor	Remark
			dB	dBuV	dBuV/m	dB	dB	
1	103.950	28.30	-15.20	48.27	43.50	-19.97	0.98	30.51 Peak
2	133.020	27.65	-15.85	44.80	43.50	-17.15	1.15	30.72 Peak
3	162.940	28.56	-14.94	44.69	43.50	-16.13	1.27	30.31 Peak



	Freq	Level	Over	Read	Limit		Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Factor	Loss	Factor	Remark
			dB	dBuV	dBuV/m	dB	dB	dB	
1	311.200	25.63	-20.37	40.35	46.00	-14.72	1.71	30.58	Peak
2	454.400	36.00	-10.00	48.61	46.00	-12.61	2.13	31.09	Peak
3	598.400	36.81	-9.19	45.18	46.00	-8.37	2.39	31.09	Peak

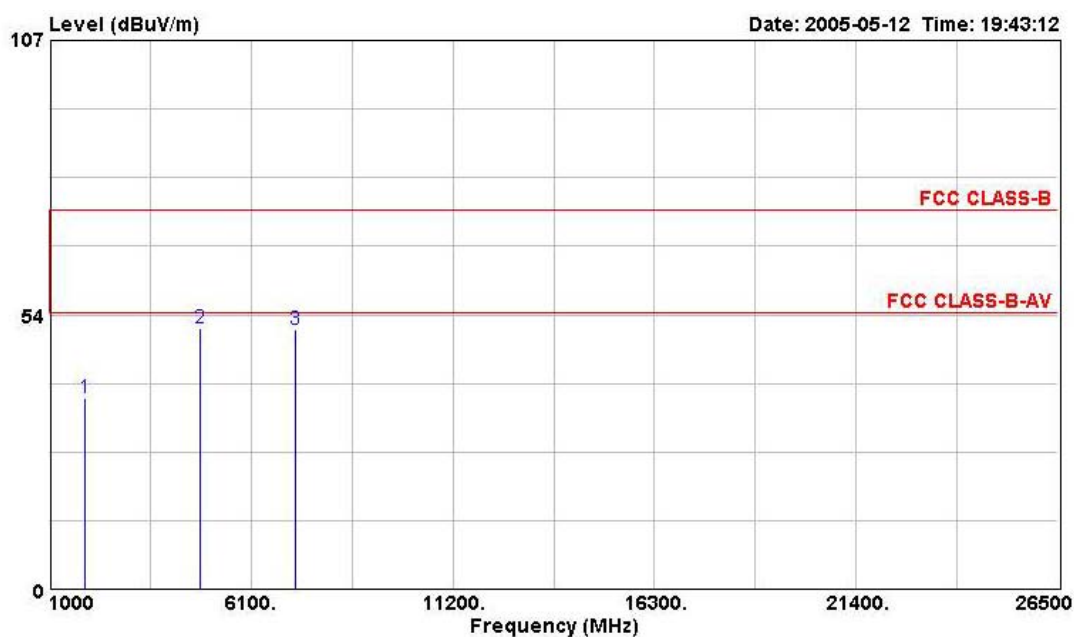
Note:

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

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

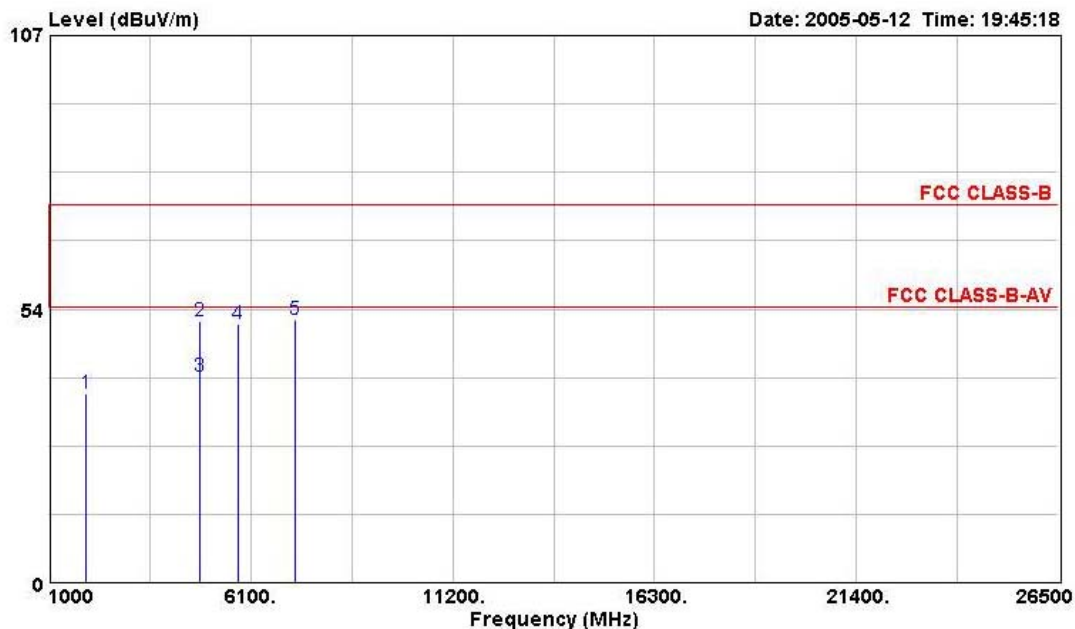
- Test Mode: WLAN Function for CH 01 / 2412 MHz (for emission above 1GHz)
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal



	Freq	Level	Over Limit	Read Level	Limit	Line Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	dB	dB	
1	1886.000	37.39	-36.61	49.41	74.00	-12.02	1.66	40.66	Peak
2	4824.000	50.92	-23.08	56.76	74.00	-5.84	2.84	41.80	PEAK
3	7232.000	50.53	-23.47	53.13	74.00	-2.60	3.62	42.20	PEAK

(B) Polarization: Vertical



	Freq	Level	Over Limit	Read Level	Limit Line	Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	dB	dB	
1	1926.000	36.85	-37.15	48.73	74.00	-11.88	1.68	40.70	Peak
2 @	4824.000	51.17	-22.83	57.01	74.00	-5.84	2.84	41.80	PEAK
3 @	4824.000	40.18	-13.82	46.02	54.00	-5.84	2.84	41.80	Average
4 @	5788.000	50.61	-23.39	55.64	74.00	-5.03	3.18	42.47	PEAK
5 @	7236.000	51.49	-22.51	54.06	74.00	-2.58	3.62	42.18	PEAK

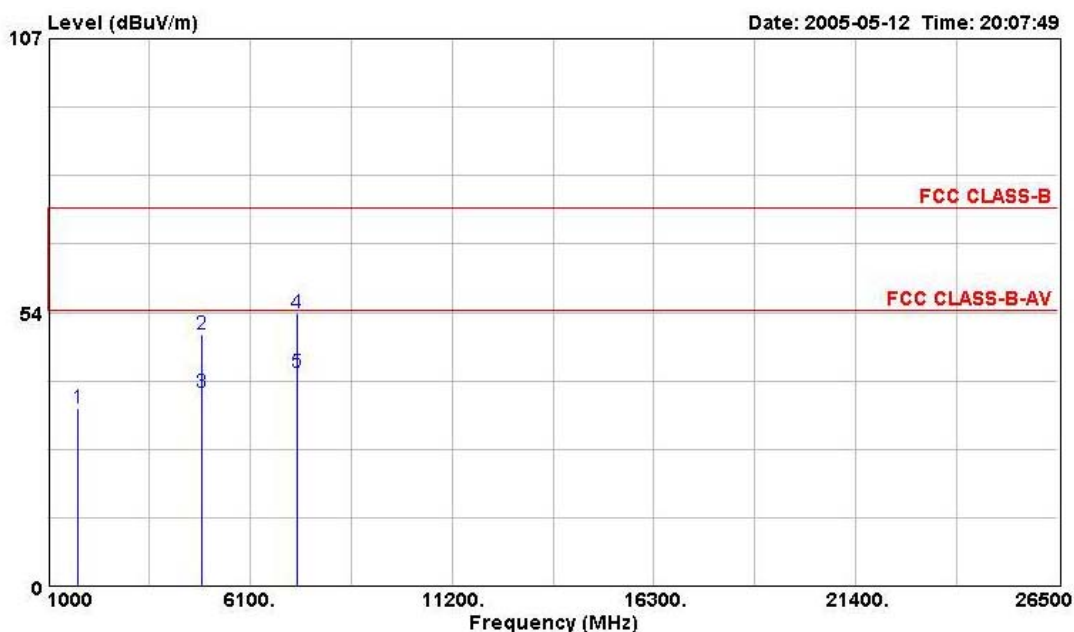
Note:

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

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

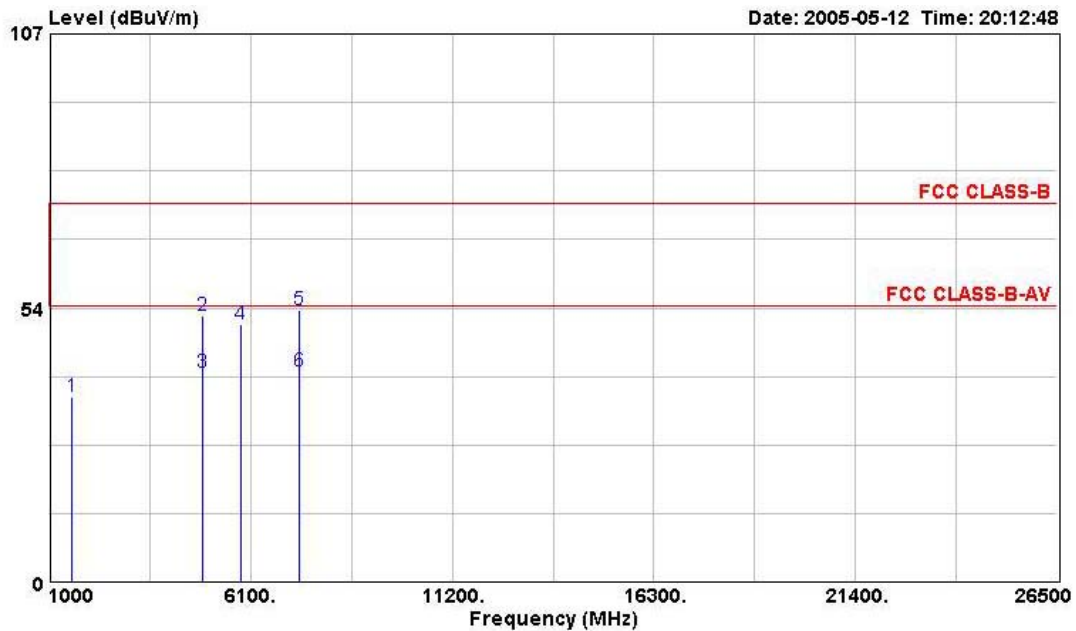
- Test Mode: WLAN Function for CH 06 / 2437 MHz (for emission above 1GHz)
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal



	Freq	Level	Over	Read	Limit		Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Factor	Loss	Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	dB	dB	
1	1770.000	34.65	-39.35	47.08	74.00	-12.43	1.60	40.51	Peak
2	4872.000	49.12	-24.88	54.84	74.00	-5.72	2.87	41.80	PEAK
3	4872.000	37.90	-16.10	43.62	54.00	-5.72	2.87	41.80	Average
4	7308.000	53.36	-20.64	55.70	74.00	-2.34	3.65	42.13	PEAK
5	7308.000	41.63	-12.37	43.97	54.00	-2.34	3.65	42.13	Average

(B) Polarization: Vertical



	Freq	Level	Over	Read	Limit		Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Factor	Loss	Factor	Remark
			dB	dBuV	dBuV/m	dB	dB	dB	
1	1586.000	36.26	-37.74	49.37	74.00	-13.11	1.51	40.28	Peak
2	4876.000	51.96	-22.04	57.68	74.00	-5.72	2.87	41.80	PEAK
3	4876.000	40.75	-13.25	46.47	54.00	-5.72	2.87	41.80	Average
4	5848.000	50.18	-23.82	55.21	74.00	-5.03	3.21	42.50	PEAK
5	7312.000	53.05	-20.95	55.36	74.00	-2.31	3.65	42.11	PEAK
6	7312.000	41.01	-12.99	43.32	54.00	-2.31	3.65	42.11	Average

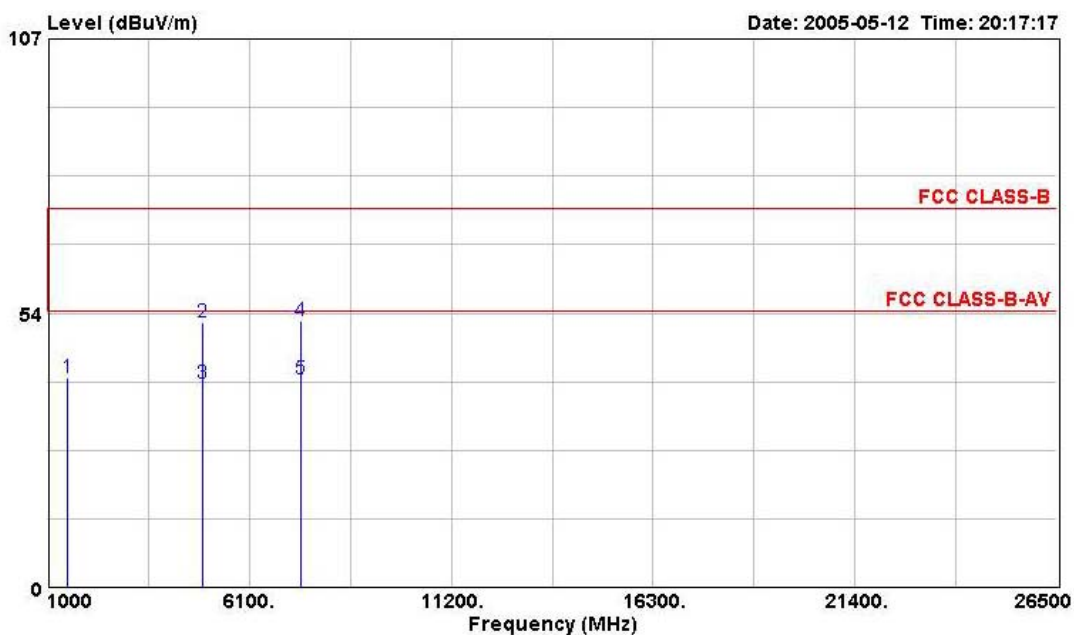
Note:

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

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

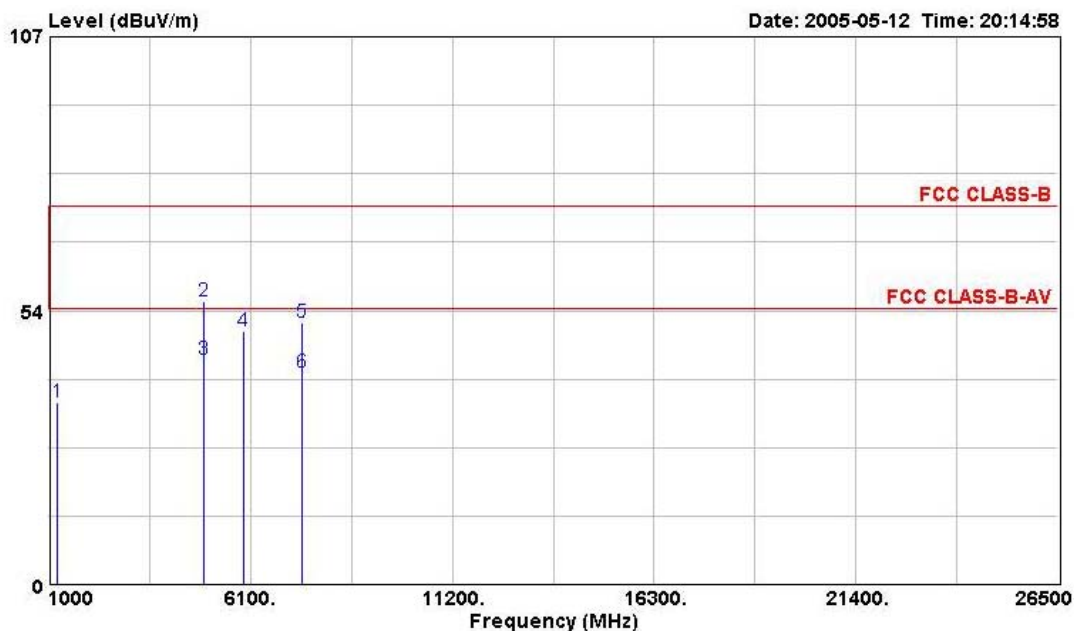
- Test Mode: WLAN Function for CH 11 / 2462 MHz (for emission above 1GHz)
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 100%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal



	Freq	Level	Over	Read	Limit		Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Factor	Loss	Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	dB	dB	
1	1518.000	40.82	-33.18	54.17	74.00	-13.35	1.47	40.19	Peak
2	4928.000	51.75	-22.25	57.38	74.00	-5.62	2.89	41.80	PEAK
3	4928.000	39.87	-14.13	45.49	54.00	-5.62	2.89	41.80	Average
4	7384.000	51.86	-22.14	53.89	74.00	-2.03	3.68	42.06	PEAK
5	7384.000	40.48	-13.52	42.51	54.00	-2.03	3.68	42.06	Average

(B) Polarization: Vertical



	Freq	Level	Over	Read	Limit		Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Factor	Loss	Factor	Remark
			dB	dBuV	dBuV/m	dB	dB	dB	
1	1226.000	35.70	-38.30	49.71	74.00	-14.01	1.33	40.10	Peak
2	4928.000	55.43	-18.57	61.05	74.00	-5.62	2.89	41.80	PEAK
3	4928.000	43.82	-10.18	49.44	54.00	-5.62	2.89	41.80	Average
4	5908.000	49.61	-24.39	54.64	74.00	-5.03	3.22	42.54	PEAK
5	7384.000	51.09	-22.91	53.12	74.00	-2.03	3.68	42.06	PEAK
6	7384.000	41.30	-12.70	43.33	54.00	-2.03	3.68	42.06	Average

Note:

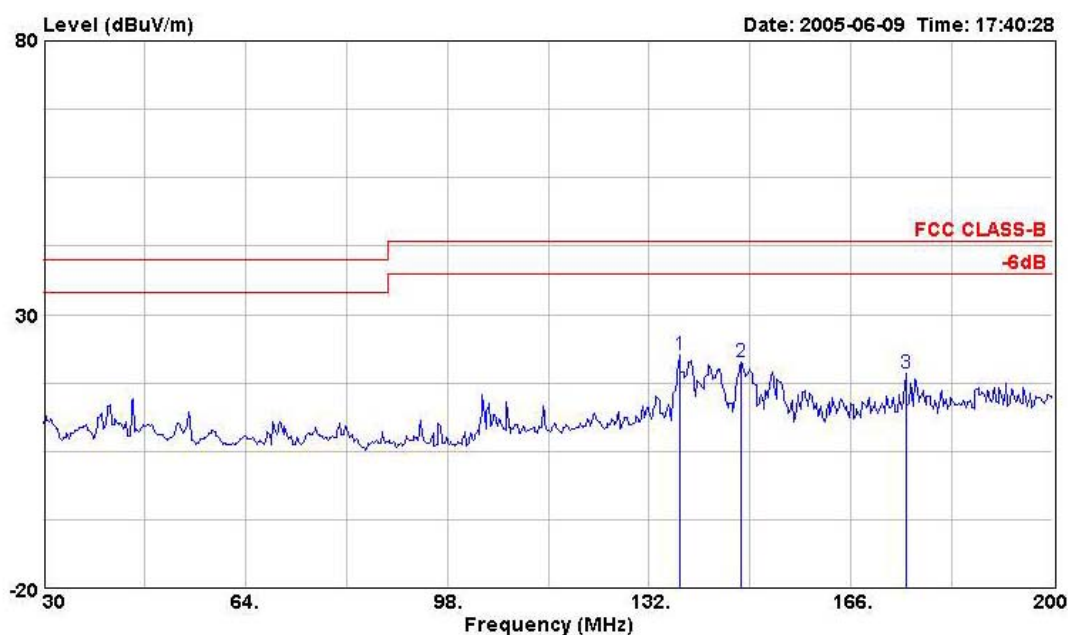
Emission level (dBuV/m) = 20 log Emission level (uV/m)

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

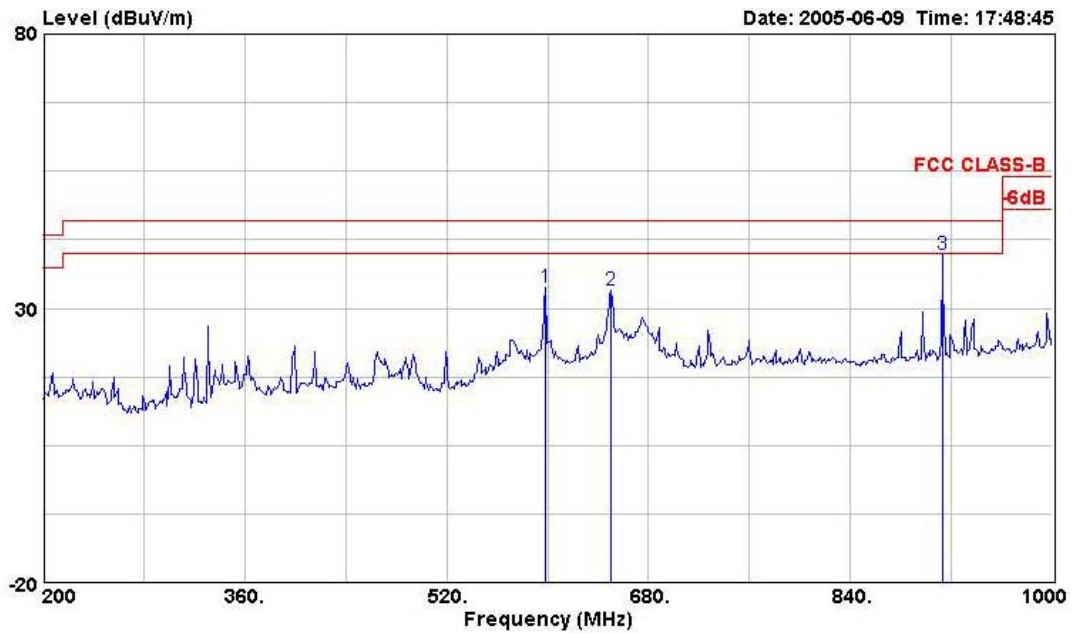
5.12.8. Test Results

- Test Mode: Bluetooth Function for CH 39 / 2441 MHz (for emission below 1GHz)
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 38.10%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal

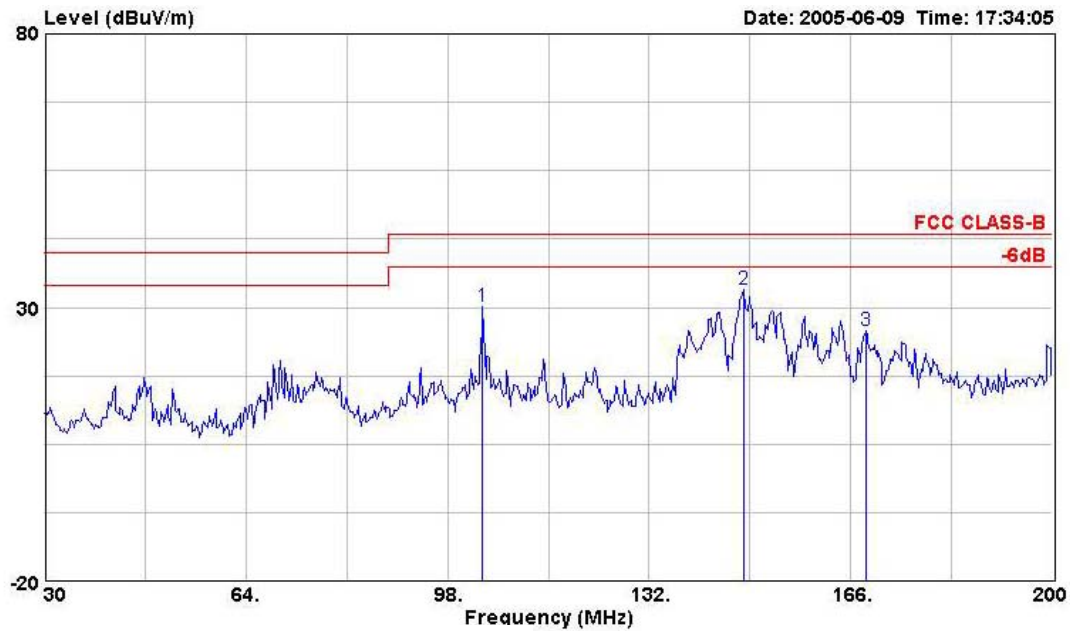


	Freq	Level	Over Limit	Read Level	Limit Line	Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	dB	dB	
1	137.100	22.69	-20.81	39.75	43.50	-17.06	1.17	30.75	Peak
2	147.470	21.19	-22.31	38.43	43.50	-17.24	1.19	30.50	Peak
3	175.180	19.14	-24.36	33.63	43.50	-14.49	1.28	29.96	Peak

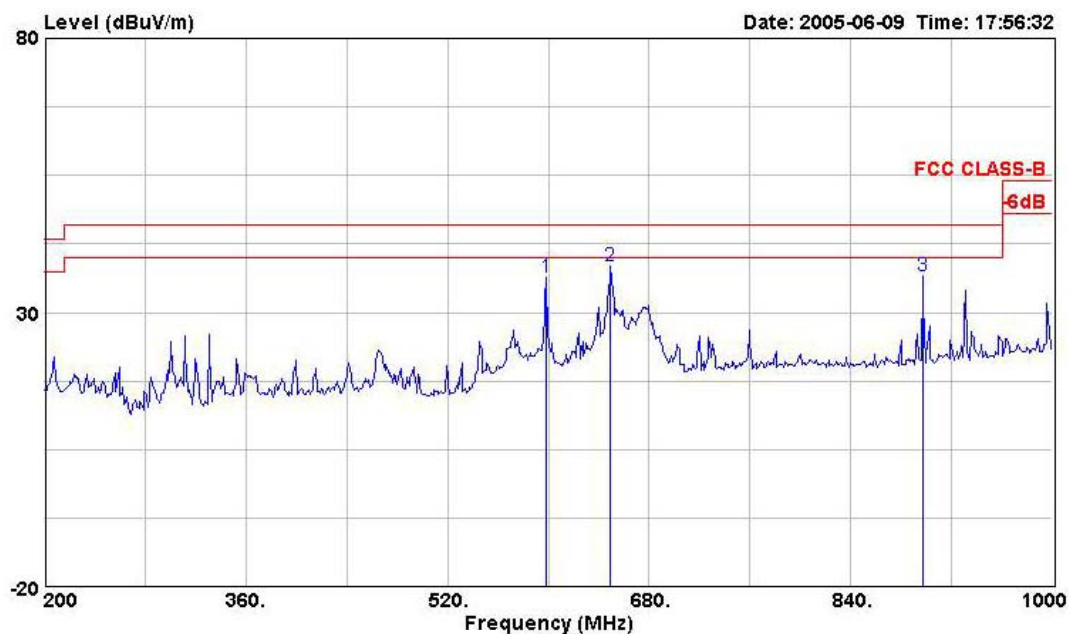


	Freq	Level	Over Limit	Read Level	Limit Line	Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	dB	dB	
1 @	598.400	33.72	-12.28	42.09	46.00	-8.37	2.39	31.09	Peak
2 @	650.400	33.18	-12.82	40.63	46.00	-7.45	2.49	30.49	Peak
3 @	912.800	39.88	-6.12	44.58	46.00	-4.70	3.08	29.78	Peak

(B) Polarization: Vertical



	Freq	Level	Over	Read	Limit		Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Factor	Loss	Factor	Remark
			dB	dBuV	dBuV/m	dB	dB	dB	
1	103.950	30.07	-13.43	50.04	43.50	-19.97	0.98	30.51	Peak
2	147.980	33.24	-10.26	50.52	43.50	-17.28	1.19	30.50	Peak
3	168.550	25.76	-17.74	40.97	43.50	-15.21	1.28	30.00	Peak



	Freq	Level	Over	Read	Limit		Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Factor	Loss	Factor	Remark
			dB	dBuV	dBuV/m	dB	dB	dB	
1	598.400	36.31	-9.69	44.68	46.00	-8.37	2.39	31.09	Peak
2	649.600	38.38	-7.62	45.83	46.00	-7.45	2.49	30.49	Peak
3	896.800	36.67	-9.33	41.81	46.00	-5.14	3.12	29.96	Peak

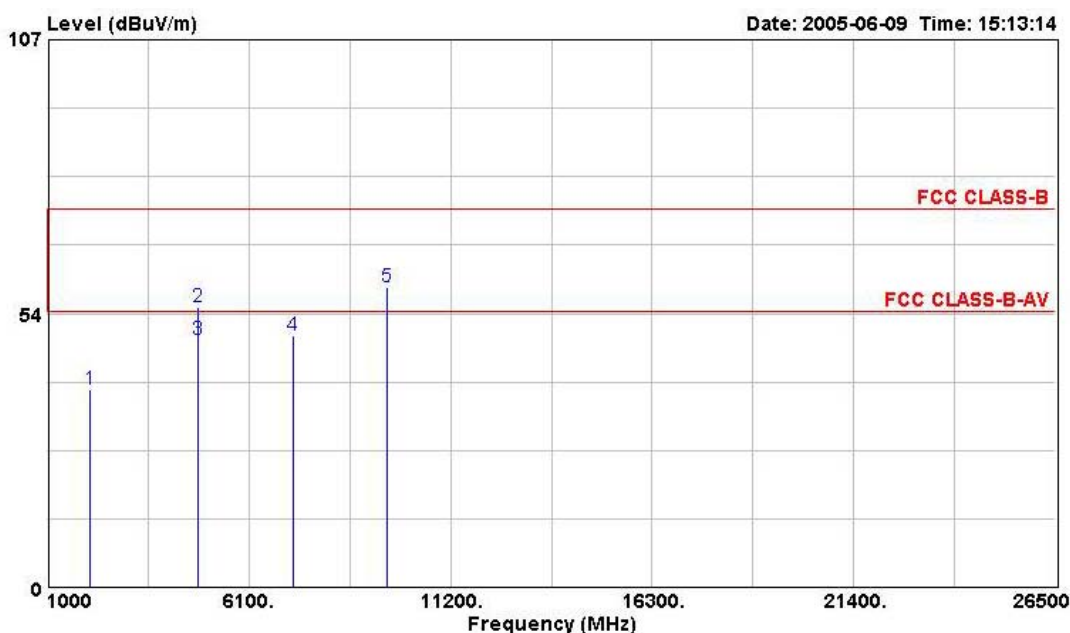
Note:

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

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

- Test Mode: Bluetooth Function for CH 00 / 2402 MHz (for emission above 1GHz)
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 38.10%
- Test Engineer: Ted Chiu

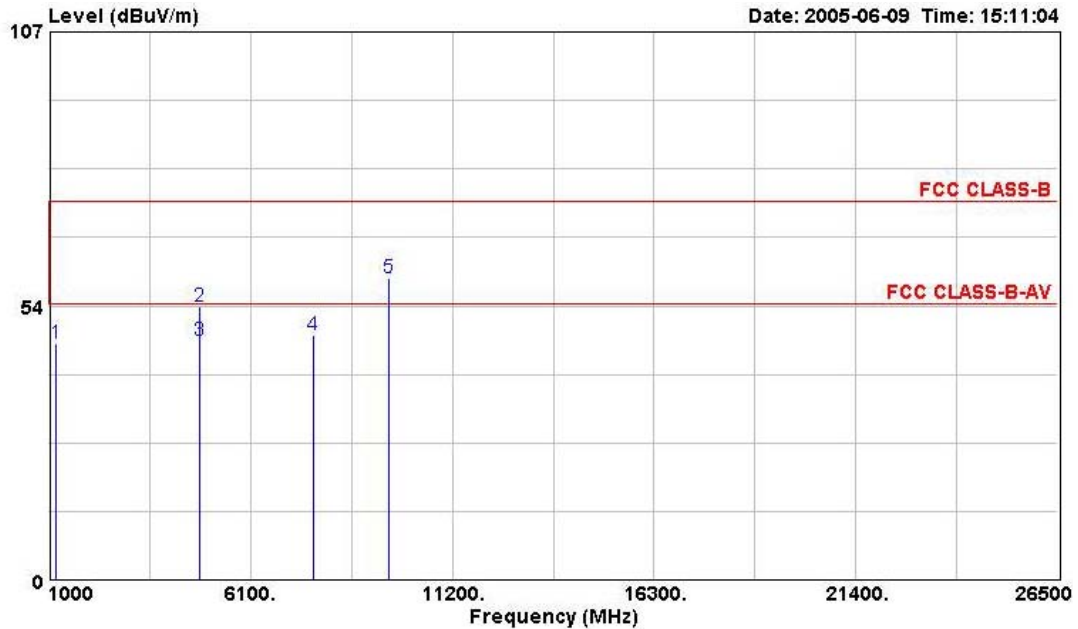
(A) Polarization: Horizontal



	Freq	Level	Over	Read	Limit		Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Factor	Loss	Factor	Remark
			dB	dBuV	dBuV/m	dB	dB	dB	
1	2078.000	38.70	-35.30	50.15	74.00	-11.45	1.75	40.82	Peak
2	4804.000	54.85	-19.15	60.71	74.00	-5.87	2.84	41.80	PEAK
3	4804.000	48.43	-5.57	54.30	54.00	-5.87	2.84	41.80	Average
4	7204.000	49.08	-24.92	51.80	74.00	-2.72	3.61	42.23	PEAK
5	9608.000	58.73	-15.27	55.43	74.00	3.30	4.01	39.00	PEAK

Note: Item 5 is on un-restricted band, so the limit is -20dBc for such emission.

(B) Polarization: Vertical



	Freq	Level	Over	Read	Limit		Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Factor	Loss	Factor	Remark
			dB	dBuV	dBuV/m	dB	dB	dB	
1	1196.000	46.24	-27.76	60.30	74.00	-14.06	1.32	40.09	Peak
2	4804.000	53.24	-20.76	59.11	74.00	-5.87	2.84	41.80	PEAK
3	4804.000	46.84	-7.16	52.71	54.00	-5.87	2.84	41.80	Average
4	7680.000	47.85	-26.15	48.99	74.00	-1.14	3.78	41.71	PEAK
5	9608.000	59.06	-14.94	55.76	74.00	3.30	4.01	39.00	PEAK

Note:

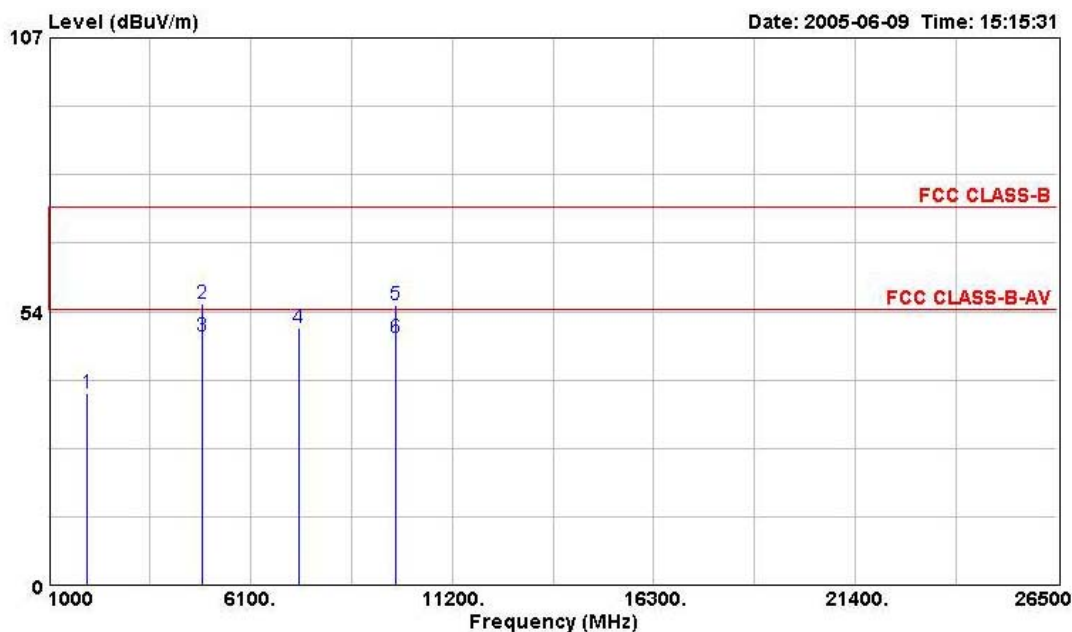
Note: Item 5 is on un-restricted band, so the limit is -20dBc for such emission.

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

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

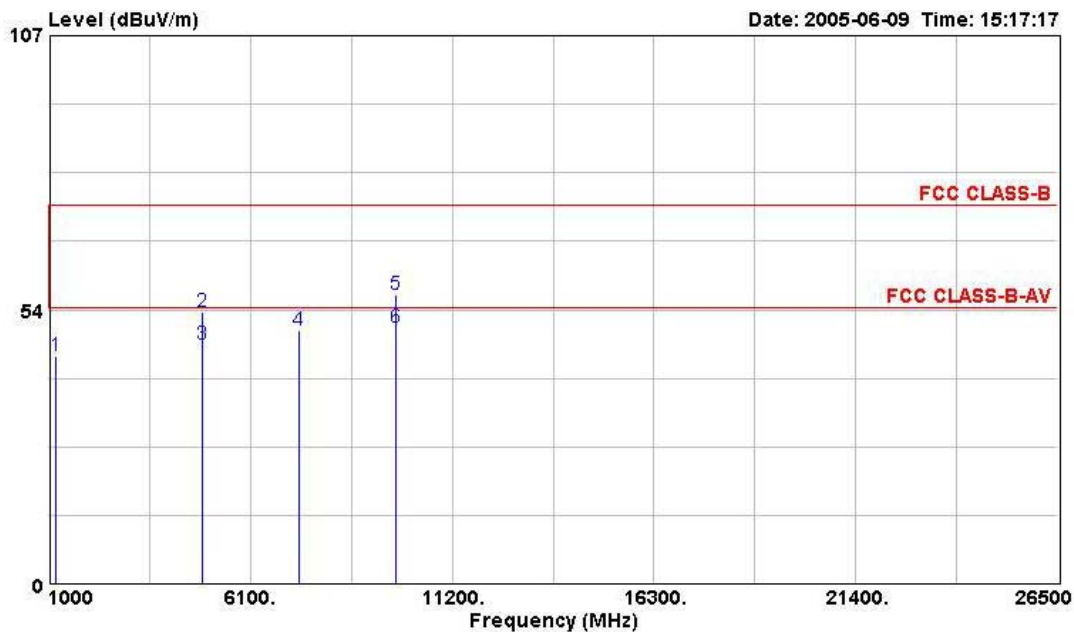
- Test Mode: Bluetooth Function for CH 39 / 2441 MHz (for emission above 1GHz)
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 38.10%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal



	Freq	Level	Over	Read	Limit		Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Factor	Loss	Factor	Remark
			dB	dBuV	dBuV/m	dB	dB	dB	
1	1974.000	37.65	-36.35	49.36	74.00	-11.71	1.70	40.76	Peak
2	4884.000	54.95	-19.05	60.67	74.00	-5.72	2.87	41.80	PEAK
3	4884.000	48.53	-5.47	54.25	54.00	-5.72	2.87	41.80	Average
4	7320.000	50.32	-23.68	52.59	74.00	-2.27	3.65	42.11	PEAK
5	9764.000	54.71	-19.29	51.16	74.00	3.55	3.99	39.04	PEAK
6	9764.000	48.29	-5.71	44.74	54.00	3.55	3.99	39.04	Average

(B) Polarization: Vertical



	Freq	Level	Over	Read	Limit		Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Factor	Loss	Factor	Remark
			dB	dBuV	dBuV/m	dB	dB	dB	
1	1196.000	44.60	-29.40	58.66	74.00	-14.06	1.32	40.09	Peak
2	4884.000	53.08	-20.92	58.80	74.00	-5.72	2.87	41.80	PEAK
3	4884.000	46.66	-7.34	52.38	54.00	-5.72	2.87	41.80	Average
4	7320.000	49.60	-24.40	51.88	74.00	-2.27	3.65	42.11	PEAK
5	9764.000	56.44	-17.56	52.89	74.00	3.55	3.99	39.04	PEAK
6	9764.000	50.02	-3.98	46.47	54.00	3.55	3.99	39.04	Average

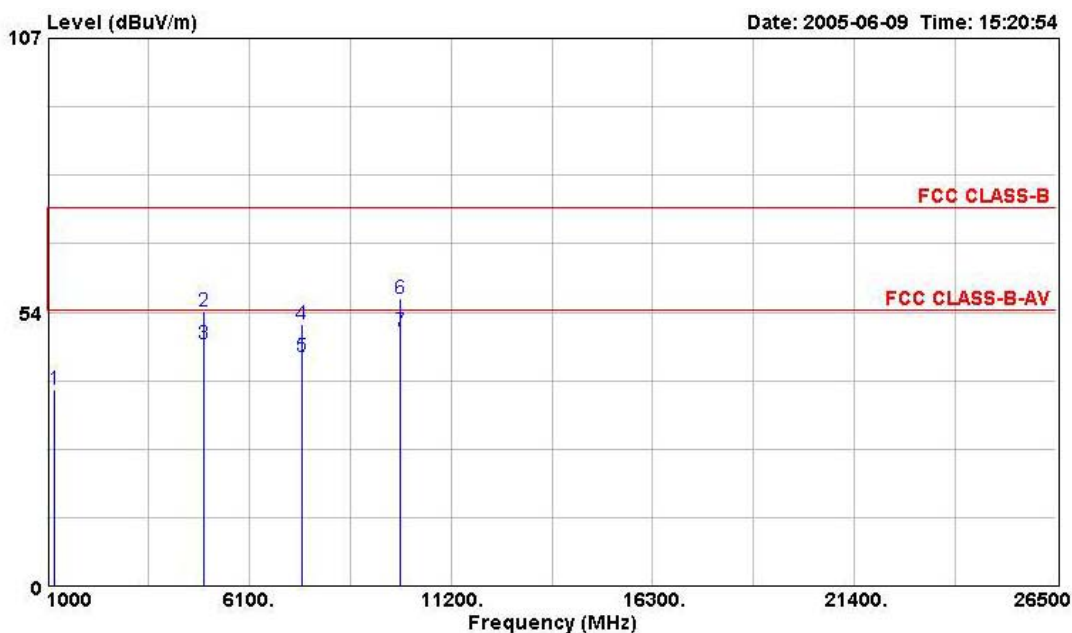
Note:

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

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

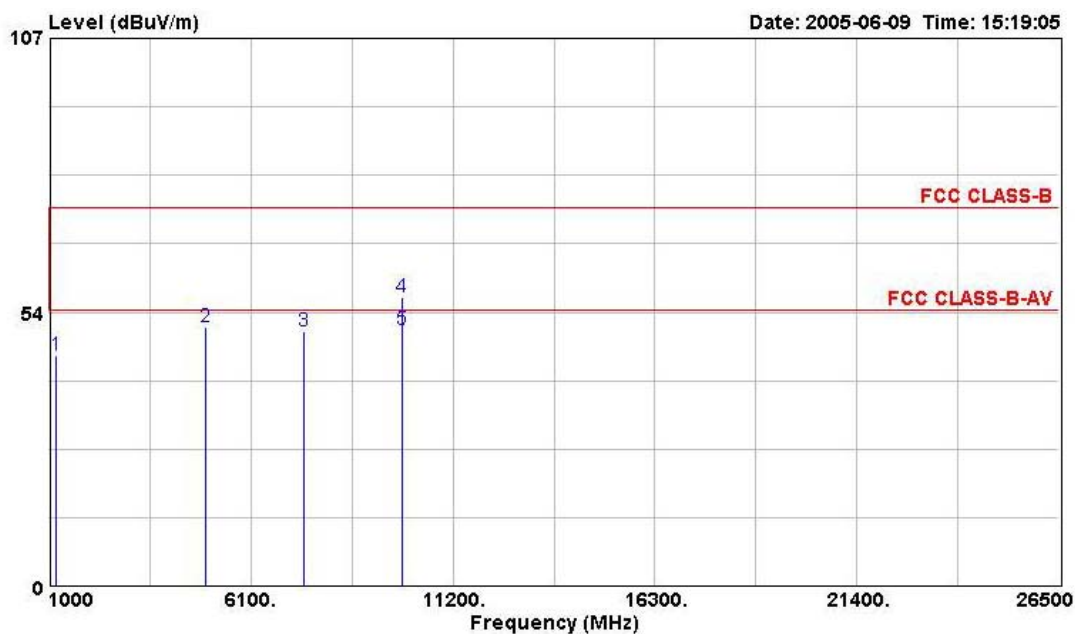
- Test Mode: Bluetooth Function for CH 78 / 2480 MHz (for emission above 1GHz)
- Temperature: 26°C
- Relative Humidity: 64%
- Duty Cycle of the Equipment During the Test: 38.10%
- Test Engineer: Ted Chiu

(A) Polarization: Horizontal



	Freq	Level	Over	Read	Limit		Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Factor	Loss	Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	dB	dB	
1	1196.000	38.41	-35.59	52.47	74.00	-14.06	1.32	40.09	Peak
2	4960.000	53.66	-20.34	59.21	74.00	-5.55	2.91	41.80	PEAK
3	4960.000	47.26	-6.74	52.81	54.00	-5.55	2.91	41.80	Average
4	7440.000	51.15	-22.85	52.98	74.00	-1.82	3.69	41.99	PEAK
5	7440.000	44.73	-9.27	46.55	54.00	-1.82	3.69	41.99	Average
6	9920.000	56.08	-17.92	52.31	74.00	3.77	3.98	39.09	PEAK
7	9920.000	49.66	-4.34	45.89	54.00	3.77	3.98	39.09	Average

(B) Polarization: Vertical



	Freq	Level	Over	Read	Limit		Cable	Preamp	
	MHz	dBuV/m	Limit	Level	Line	Factor	Loss	Factor	Remark
	MHz	dBuV/m	dB	dBuV	dBuV/m	dB	dB	dB	
1	1196.000	44.95	-29.05	59.01	74.00	-14.06	1.32	40.09	Peak
2	4960.000	50.48	-23.52	56.03	74.00	-5.55	2.91	41.80	PEAK
3	7440.000	49.69	-24.31	51.51	74.00	-1.82	3.69	41.99	PEAK
4	9920.000	56.45	-17.55	52.68	74.00	3.77	3.98	39.09	PEAK
5	9920.000	50.03	-3.97	46.26	54.00	3.77	3.98	39.09	Average

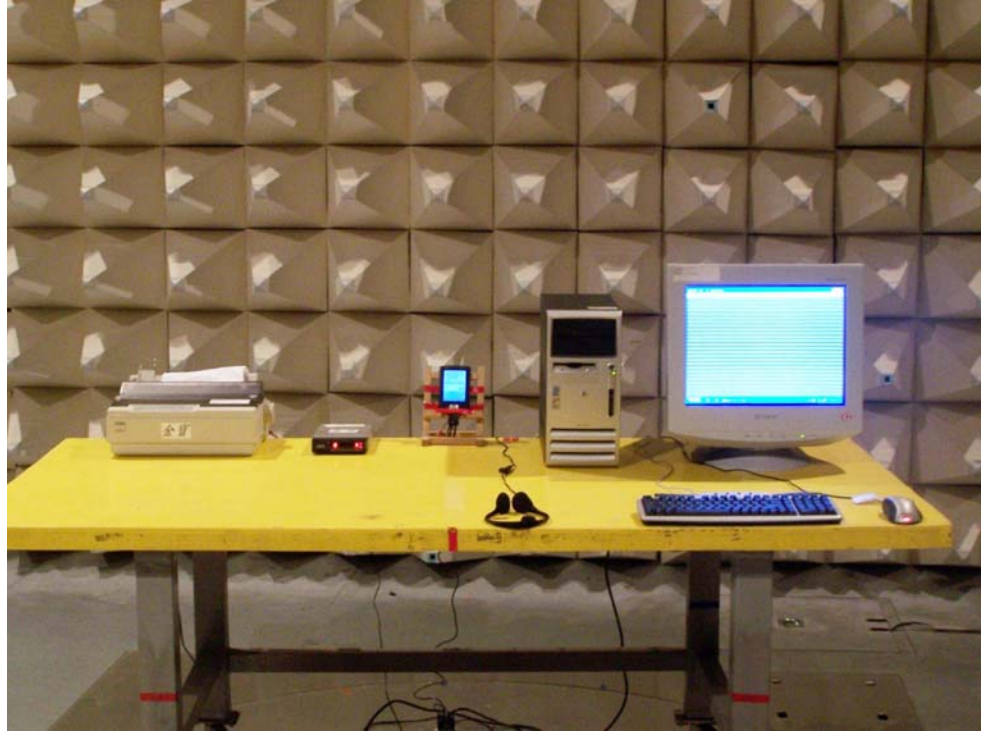
Note:

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

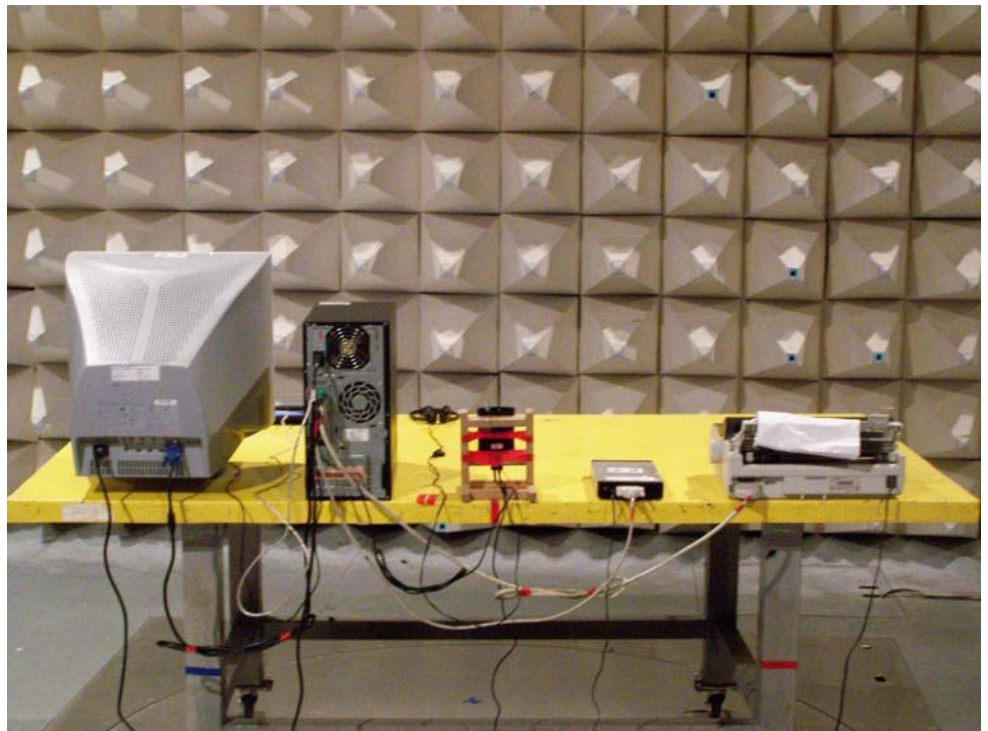
Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

5.12.9. Photographs of Radiated Emission Test Configuration

FRONT VIEW



REAR VIEW





5.13. Antenna Requirements

5.13.1. 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 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.

5.13.2. Antenna Connected Construction

There is no antenna connector for integral printed antenna (WLAN) and chip antenna. (Bluetooth)

5.13.3. Antenna Gain

The maximum Gain antenna used in this product is printed and chip antenna which is directly soldered on the PCB without antenna connector.

5.13.4. 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. 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	RF Cable-HIGH	SUHNER	SUCOFLES 106	SN30094/6	1GHz~26.5GHz	Mar. 04, 2005	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	FSP30	100023	9kHz – 30GHz	Aug. 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	DC Power Source	G.W.	GPC-6030D	C671845	DC 1V – 60V	Dec. 28, 2004	Conducted (TH01-HY)
24	Temp. and Humidity Chamber	KSON	THS-C3L	612	N/A	Oct. 01, 2004	Conducted (TH01-HY)
25	RF CABLE-1m	Jye Bao	RG142	CB034-1m	20MHz – 7GHz	Jan. 01, 2005	Conducted (TH01-HY)
26	RF CABLE-2m	Jye Bao	RG142	CB035-2m	20MHz – 1GHz	Jan. 01, 2005	Conducted (TH01-HY)
27	Data Generator	Tektronix	J310345	J310345	400Mbps	Dec. 21, 2004	Conducted (TH01-HY)
28	OscilloScope	Tektronix	TDS1012	C038520	100MHz-1Gs/s	Jan. 02, 2005	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 facility 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 2 nd Rd., Taipei 114, Taiwan, R.O.C. TEL : 02-2794-8886 FAX : 02-2794-9777

8. Certificate of NVLAP Accreditation

United States Department of Commerce National Institute of Standards and Technology	
	
ISO/IEC 17025:1999 ISO 9002:1994	
Certificate of Accreditation	
SPORTON INTERNATIONAL, INC. TAIPEI HSIEN 221 TAIWAN	
<i>is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:</i>	
ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS	
December 31, 2005 <i>Effective through</i>	 For the National Institute of Standards and Technology NVLAP Lab Code: 200079-0

NVLAP-01C (06-01)



FCC ID: O8FAOKI
Issued on July 04, 2005

Report No.: FR551207-01

Appendix B. Attachment of Report for Change Applicant / Brand / Model

47 CFR FCC Part 15 Subpart C

CATEGORY : Portable
PRODUCT NAME : PDA
FCC ID. : O8FAOKI
FILING TYPE : Certification
BRAND NAME : palm
MODEL NAME : T|X

APPLICANT : palm, Inc.
950 West Maude Ave Sunnyvale, CA 94085-2801 USA

MANUFACTURER : Inventec Appliances (Shanghai) Co., Ltd.
7. Gui Qing Road, Shanghai 200233, China P.R.C.

ISSUED BY : SPORTON INTERNATIONAL INC.
6F, No. 106, Sec. 1, Hsin Tai Wu Rd., His Chih, Taipei Hsien,
Taiwan, R.O.C.

This attachment is an extension of the original test report no. **FR551207** for change Applicant / Brand / Model as above.