

FCC TEST REPORT

for

47 CFR, Part 15, Subpart C

Equipment : Pocket PC

Model No. : Pocket PC: PE2080A
Cradle: PE2085

FCC ID. : NM8HB25I

Filing Type : Certification

Applicant : **High Tech Computer, Corp.**
23, Hsin Hua Rd., Taoyuan, Taiwan, R.O.C.

- The test result refers exclusively to the test 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 must not be used by the applicant to claim the product in this test report endorsement by NVLAP or any agency of U.S. government.**

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

Table of Contents

History of this test report	ii
CERTIFICATE OF COMPLIANCE.....	1
1. General Description of Equipment under Test.....	2
1.1. Applicant.....	2
1.2. Manufacturer	2
1.3. Basic Description of Equipment under Test	2
1.4. Feature of Equipment under Test	3
2. Test Configuration of Equipment under Test.....	6
2.1. Test Manner	6
2.2. Description of Test System	6
2.3. Connection Diagram of Test System	8
3. Test Software	9
4. General Information of Test.....	10
4.1. Test Voltage	10
4.2. Standard for Methods of Measurement.....	10
4.3. Test in Compliance with	10
4.4. Frequency Range Investigated	10
4.5. Test Distance	10
5. Report of Measurements and Examinations	11
5.1. List of Measurements and Examinations	11
5.2. 6dB Bandwidth	12
5.3. Peak Output Power	16
5.4. Power Spectral Density	17
5.5. Hopping Channel Separation	21
5.6. Number of Hopping Frequency	25
5.7. Hopping Channel Bandwidth.....	27
5.8. Dwell Time of Each Frequency within a 30 Seconds Period.....	31
5.9. Output Power	35
5.10. 100KHz Bandwidth of Frequency Band Edges.....	39
5.11. Test of Conducted Emission.....	42
5.12. Test of Radiated Emission.....	49
5.13. Band Edges Measurement	94
6. Antenna Requirements	97
7. Antenna Factor & Cable Loss	98
8. List of Measuring Equipments Used	100
9. Uncertainty of Test Site	101
Appendix A. Photographs of EUT.....	A1 ~ A18

History of this test report

Original Report Issue Date: Jul. 21, 2003

■ No additional attachment.

☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

CERTIFICATE OF COMPLIANCE

for

47 CFR, Part 15, Subpart C

Equipment : Pocket PC

Model No. : Pocket PC: PE2080A
Cradle: PE2085

FCC ID. : NM8HB25I

Filing Type : Certification

Applicant : **High Tech Computer, Corp.**
23, Hsin Hua Rd., Taoyuan, 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 - 2001** and the equipment under test was **passed** all test items required in FCC Part 15 subpart C, relative to the equipment under test. Testing was carried out on Jul. 15, 2003 at **SPORTON International Inc. LAB.**



Alex Chen
Manager

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

1. General Description of Equipment under Test

1.1. Applicant

High Tech Computer, Corp.
23, Hsin Hua Rd., Taoyuan, Taiwan, R.O.C.

1.2. Manufacturer

Same as 1.1

1.3. Basic Description of Equipment under Test

Equipment	: Pocket PC
Model No.	: Pocket PC: PE2080A, Cradle: PE2085
FCC ID.	: NM8HB25I
Trade Name	: Hewlett-Packard Company
Cradle Cable	: Shielded, 1.2m
Power Supply Type	: Switching
AC Power Input	: Wall-Mount, 2pin
DC Power Cable	: Non-Shielded, 1.8m

1.4. Feature of Equipment under Test**<DSSS>**

1. Host/Radio Interface	UART
2. Type of Modulation	CCK for 11& 5.5 Mbps / DQPSK for 2Mbps / DBPSK for 1Mbps
3. Number of Channels	11
4. Frequency Band	2400 MHz ~2483.5MHz
5. Carrier Frequency of each channel	2412MHz+(k-1)*5MHz; k: channel number, k=1~11
6. Bandwidth of each channel	22MHz
7. Output Power to Antenna	15.15dBm
7. IF & L.O. frequency	LO: 2412 MHz ~2472 MHz
8. Type of Antenna Connector (Ex: SMA,TNC, MCX, MMCX, UFC.....etc)	SMA
9. Antenna Type / Class and Gain	Embedded inverted F antenna, +1.78dBi
10. Function Type	Transmitter
11. Duty Cycle	100%
12. Basic function of product	Pocket PC
13. Adapter	DELTA / ADP-10SB REV.BH

<FHSS>

1. Host/Radio Interface	UART
2. Type of Modulation	GFSK, BT=0.5
3. Number of Channels	79 channels
4. Frequency Band	2400~2483.5MHz
5. Carrier Frequency of each channel	2402+k MHz k= 0,...,78
6. Bandwidth of each channel	1MHz
7. Maximum Output Power to Antenna	2.21 dBm
8. IF & L.O. frequency	Direct converter
9. Type of Antenna Connector (Ex: SMA, TNC, MCX, MMCX, UFC.....etc)	SMA
10. Antenna Type / Class and Gain	Embedded inverted F antenna, 2.84 dBi
11. Function Type	Transmitter
12. Power Rating (DC/AC, Voltage)	5VDC
13. Duty Cycle	34%
14. Basic function of product	Pocket PC
15. Adapter	DELTA / ADP-10SB REV.BH

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

2. Test Configuration of Equipment under Test

2.1. Test Manner

- a. The EUT has been associated with personal computer and peripherals pursuant to ANSI C63.4-2001 and configuration operated in a manner, which tended to maximize its emission characteristics in a typical application.
- b. The complete test system included HP PC, SONY Monitor, COMPAQ PS/2 Keyboard, LOGITECH PS/2 Mouse, HP Printer, ACEEX Modem, STEREO Headset and EUT for EMI test.
- c. The following test modes were pretested for EMI test:
 - Mode 1: CH01 (2412MHz); CH00 (2402MHz)
 - Mode 2: CH06 (2437MHz); CH39 (2441MHz)
 - Mode 3: CH11 (2462MHz); CH78 (2480MHz)
- b. Frequency range investigated: conduction 150 KHz to 30 MHz, radiation 30 MHz to 24835MHz.

2.2. Description of Test System

Support Unit 1. – Personal Computer (HP)

FCC ID	: N/A
Model No.	: VECTRAC VL420 DT
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP0036
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 2. -- Monitor (SONY)

FCC ID	: N/A
Model No.	: G520
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP063
Data Cable	: Shielded, 1.7m
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 3. – PS/2 Keyboard (COMPAQ)

FCC ID : N/A
Model No. : 6511-VA
Serial No. : SP0054
Data Cable : Shielded, 1.5m
Remark : This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 4. – PS/2 Mouse (LOGITECH)

FCC ID : DZL211029
Model No. : M-S34
Serial No. : SP0041
Data Cable : Shielded, 1.7m

Support Unit 5. -- Printer (HP)

FCC ID : B94C2642X
Model No. : DJ400
Power Supply Type : Linear
Power Cord : Non-Shielded
Serial No. : SP0048
Data Cable : Shielded, 1.35m

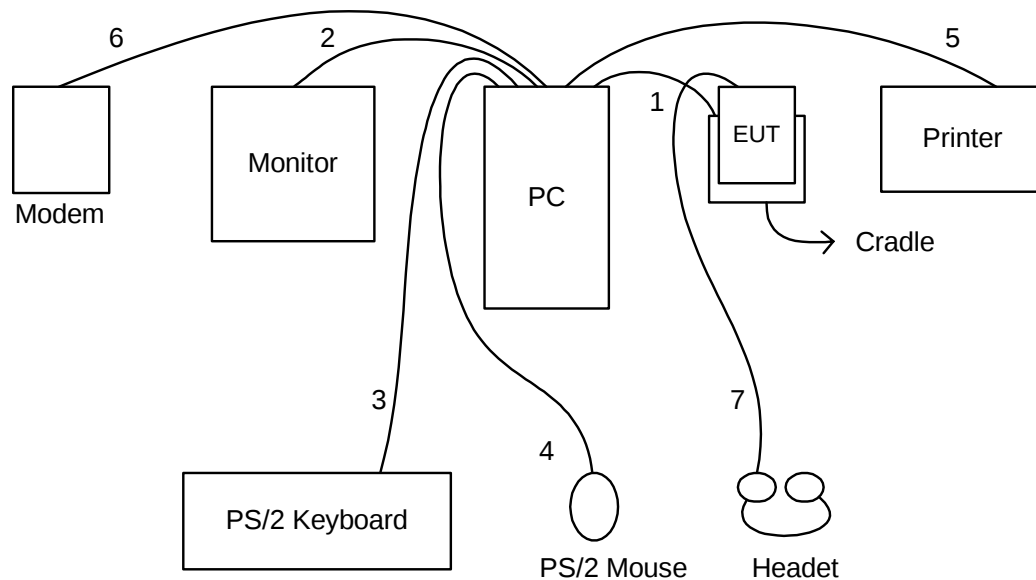
Support Unit 6. -- Modem (ACEEX)

FCC ID : IFAXDM1414
Model No. : DM1414
Power Supply Type : Linear
Power Cord : Non-Shielded
Serial No. : SP0015
Data Cable : Shielded, 1.15m

Support Unit 7. -- Headset (STEREO)

FCC ID : N/A
Model No. : MSB-206
Serial No. : SP0246
Data Cable : Non-Shielded, 1.7m

2.3. Connection Diagram of Test System



1. The USB cable is connected from PC to the EUT.
2. The I/O cable is connected from PC to the support unit 2.
3. The I/O cable is connected from PC to the support unit 3.
4. The I/O cable is connected from PC to the support unit 4.
5. The I/O cable is connected from PC to the support unit 5.
6. The I/O cable is connected from PC to the support unit 6.
7. The I/O cable is connected from EUT to the support unit 7.

3. Test Software

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

The programs was executed as follows:

- a. Turn on the power of all equipment.
- b. The PC reads the test program from the hard disk drive and runs it.
- c. The PC sends " H " messages to the monitor, and the monitor displays " H " patterns on the screen.
- d. The PC sends " H " messages to the printer, then the printer prints them on the paper.
- e. The PC sends " H " messages to the modem.
- f. The PC sends " H " messages to the internal Hard Disk, and the Hard Disk reads and writes the message.
- g. Repeat the steps from c to f.

At the same time, the following programs were executed:

- Executed "Mtty 116" to link with the EUT to receive and transmit data.
- Executed "BT Test Mode" to transmitting signals at fixed frequency.
- Executed "WLAN Test AP" to transmitting signals at fixed frequency.

4. General Information of Test

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 : CO01-HY, 03CH03-HY

4.1. Test Voltage

110V/60Hz

4.2. Standard for Methods of Measurement

ANSI C63.4-2001

4.3. Test in Compliance with

FCC Part 15, Subpart C 15.247

4.4. Frequency Range Investigated

- a. Conduction: from 150 KHz to 30 MHz
- b. Radiation: from 30 MHz to 24835 MHz

4.5. Test Distance

The test distance of radiated emission from antenna to EUT is 3 M.

5. Report of Measurements and Examinations

5.1. List of Measurements and Examinations

FCC Rule	Description of Test	Result
<u>15.107/15.207</u>	Conducted Emission	Pass
<u>15.247(a)(1)</u>	Hopping Channel Separation	Pass
<u>15.247(a)(1)(ii)</u>	Number of Hopping Frequency Used	Pass
15.247(a)(1)(ii)	Hopping Channel Bandwidth	Pass
<u>15.247(a)(1)(ii)</u>	Dwell Time of Each Frequency within a 30 Second Period	Pass
<u>15.247(b)</u>	Output Power	Pass
15.247(c)	100KHz Bandwidth of Frequency Band Edges	Pass
<u>15.203</u>	Antenna Requirement	Pass

5.2. 6dB Bandwidth

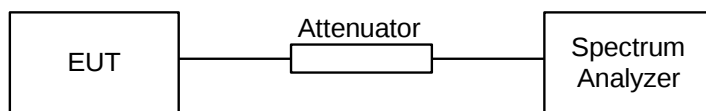
5.2.1. Measuring Instruments :

As described in chapter 9 of this test report.

5.2.2. Test Procedure :

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. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

5.2.3. Test Setup Layout :

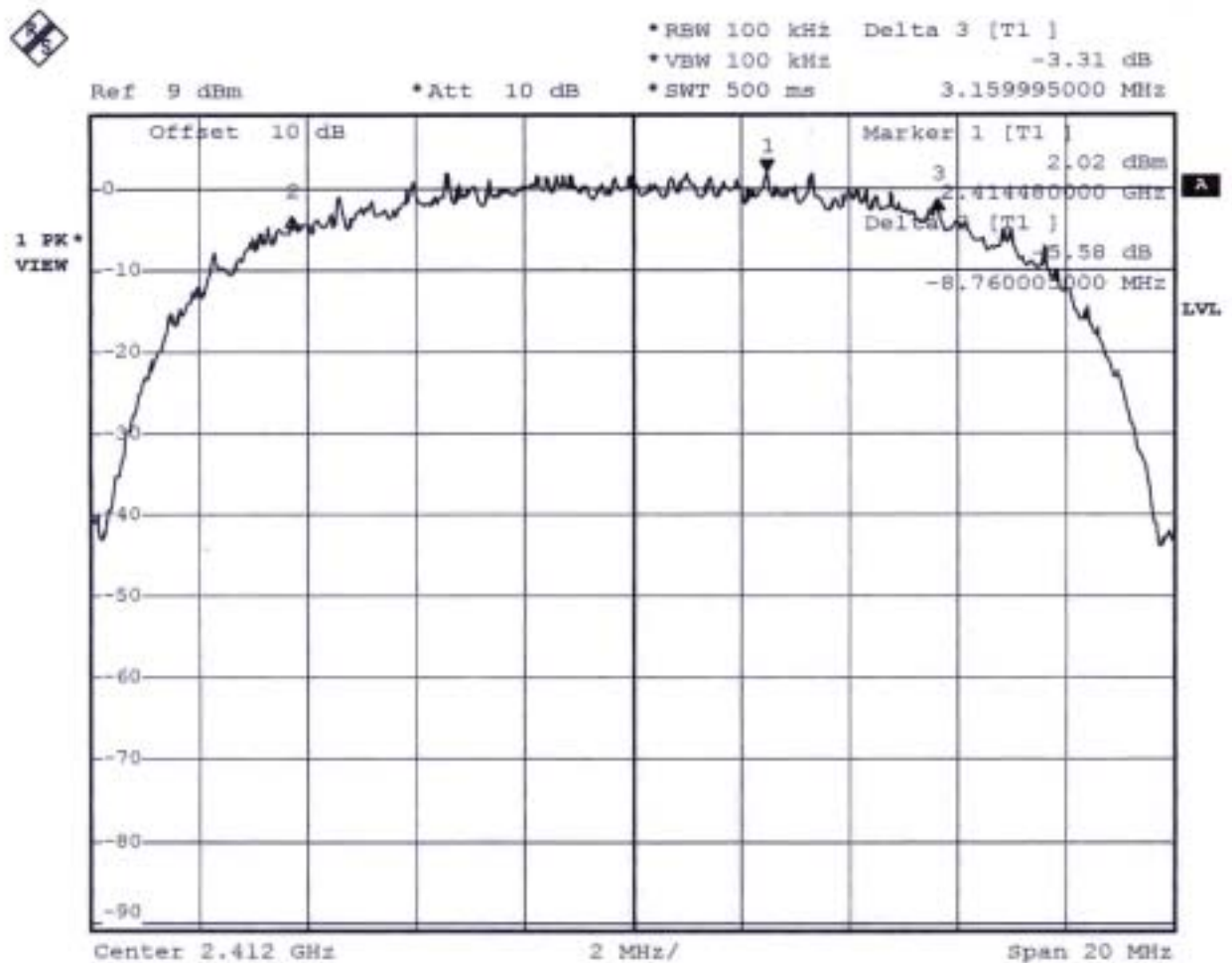


5.2.4. Test Result : The spectrum analyzer plots are attached as below

- Temperature : 26 °C
- Relative Humidity : 70%

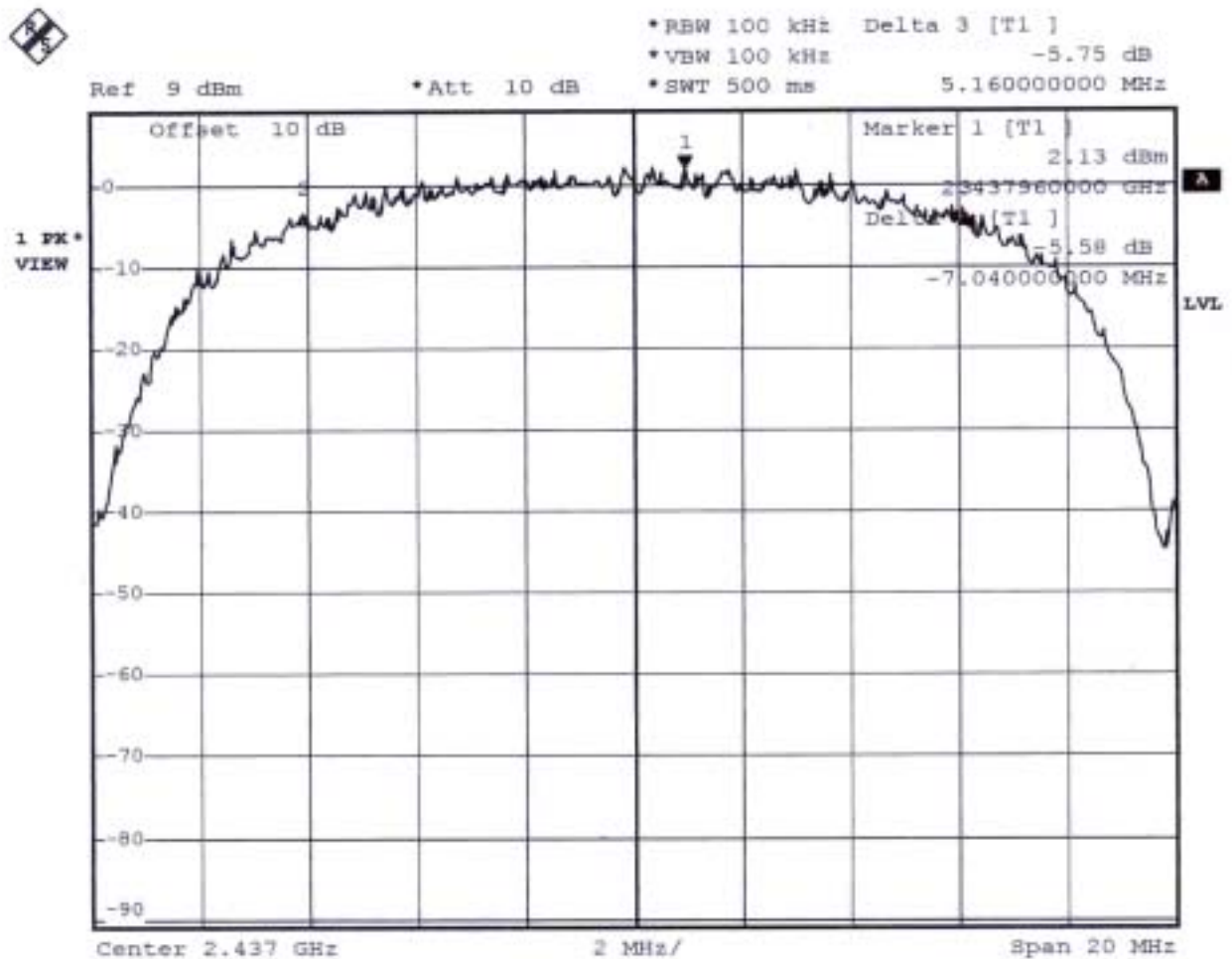
Channel	Frequency (MHz)	6dB Emission bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
1	2412	11.92	0.5	1
6	2437	12.20	0.5	2
11	2462	12.20	0.5	3

Plot1(Channel 1) :



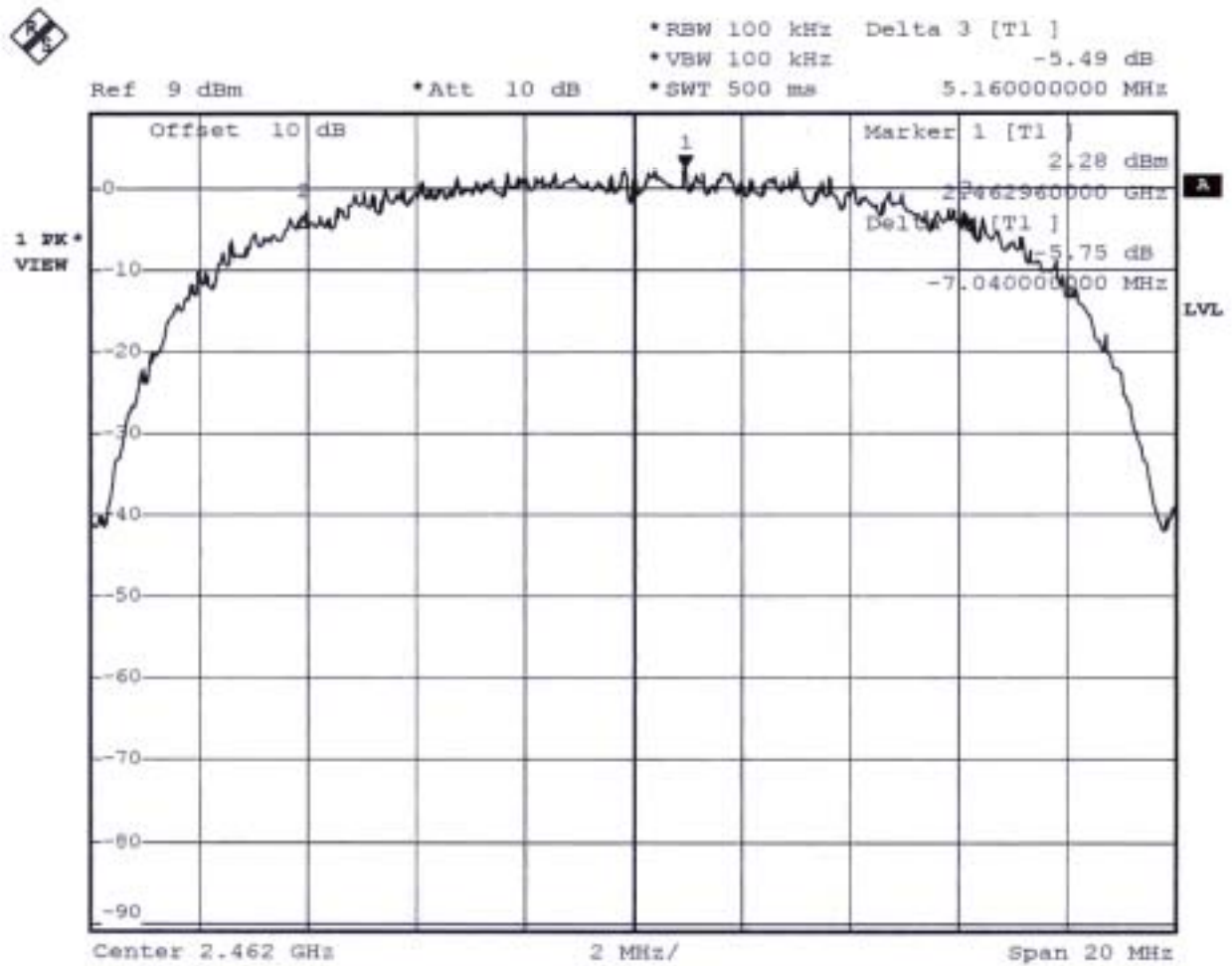
Date: 15.JUL.2003 17:00:23

Plot2(Channel 6) :



Date: 15.JUL.2003 18:18:06

Plot3(Channel 11) :



Date: 15.JUL.2003 18:15:31

Comments : 6dB Emission bandwidth>500kHz

5.3. Peak Output Power

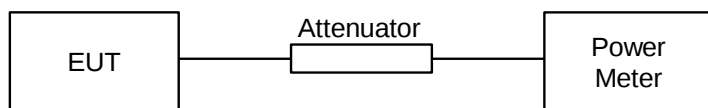
5.3.1. Measuring Instruments :

As described in chapter 9 of this test report.

5.3.2. Test Procedure :

The antenna port (RF output) of the EUT was connected to the input (RF input) of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

5.3.3. Test Setup Layout :



5.3.4. Test Result : See spectrum analyzer plots below

- Temperature : 26°C
- Relative Humidity : 70 %
- Antenna Gain: 1.78 dBi

Channel	Frequency (MHz)	Measured Output Power (dBm)	Measured Output Power (mWatt)	Limits (Watt/dBm)
1	2412	14.60	28.84031503	1W/30 dBm
6	2437	15.00	31.6227766	1W/30 dBm
11	2462	15.15	32.73406949	1W/30 dBm

- Comments : Maximum Peak Output Power < 30dBm (1Watt)

5.4. Power Spectral Density

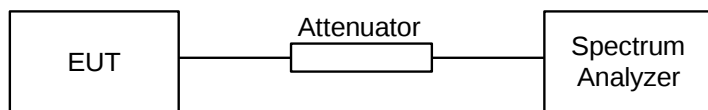
5.4.1. Measuring Instruments :

As described in chapter 9 of this test report.

5.4.2. Test Procedure :

1. The transmitter output was connected to spectrum analyzer through an attenuator.
2. The spectrum analyzer's resolution bandwidth were set at 3KHz RBW and 30KHz VBW as that of the fundamental frequency. Set the sweep time=span/3KHz.
3. The power spectral density was measured and recorded.
4. The Sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

5.4.3. Test Setup Layout :

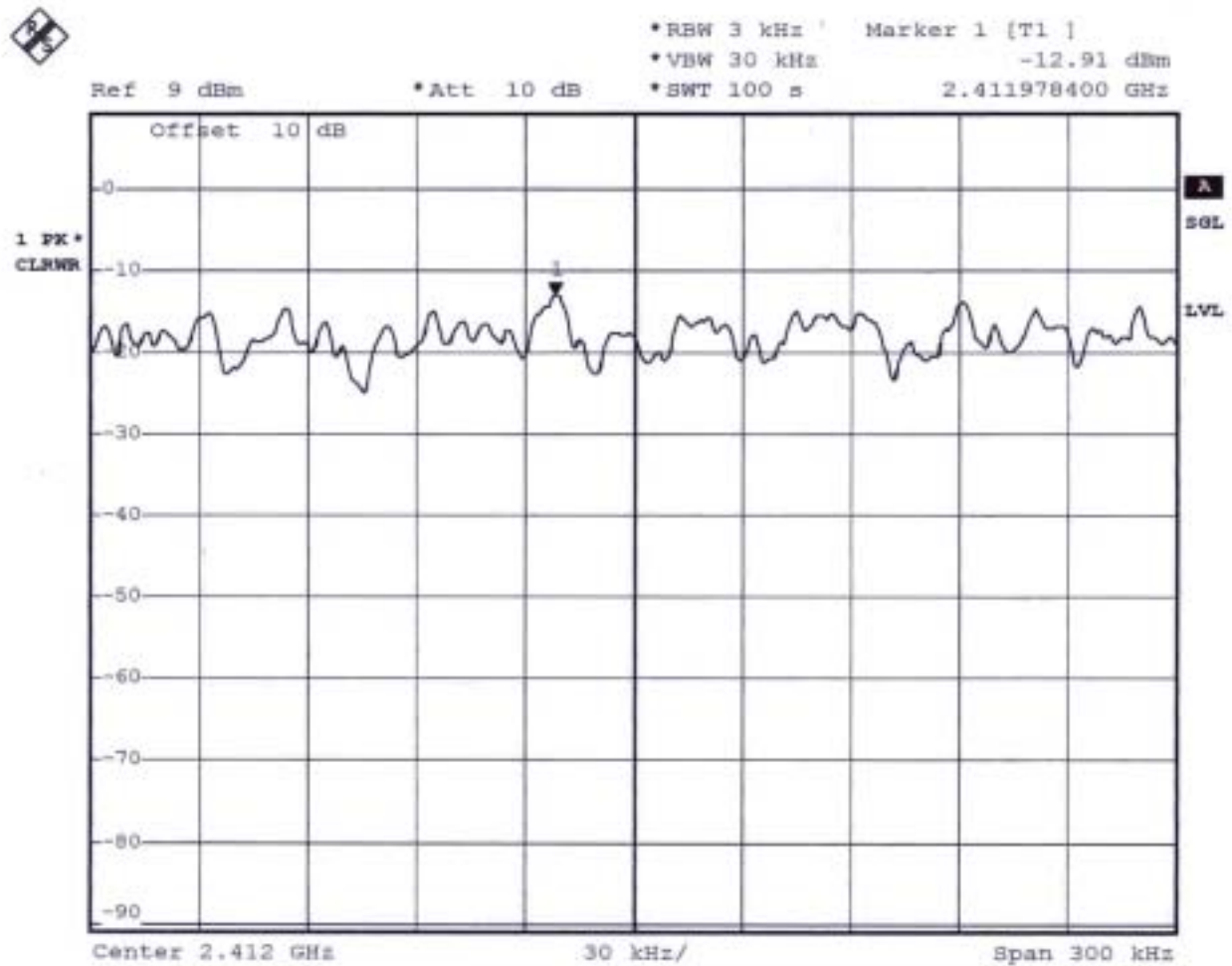


5.4.4. Test Result : See spectrum analyzer plots below

- Temperature : 26°C
- Relative Humidity : 70 %

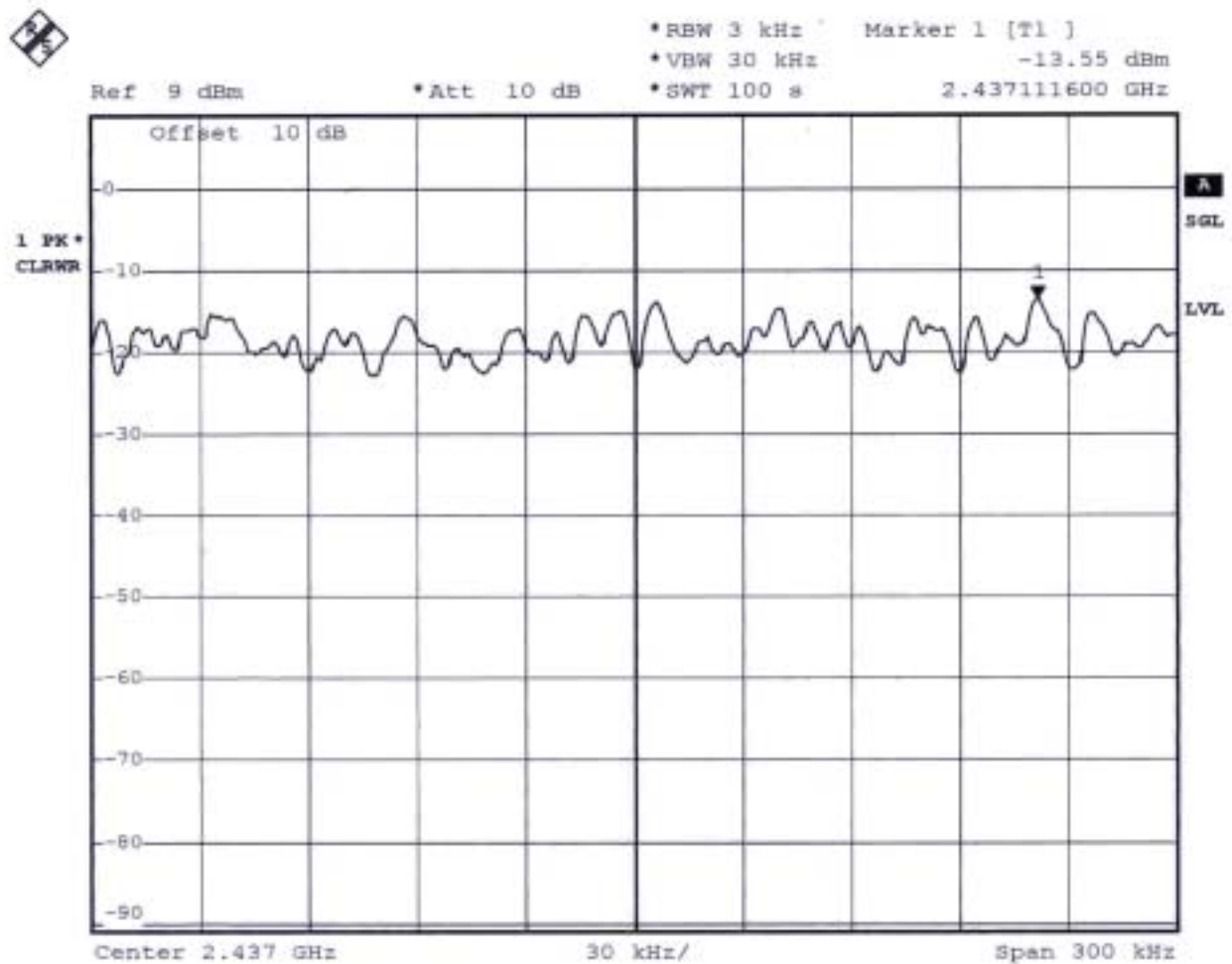
Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limits (dBm)	Plot Ref. No.
1	2412	-12.91	8	1
6	2437	-13.55	8	2
11	2462	-13.31	8	3

Plot1(Channel 1):



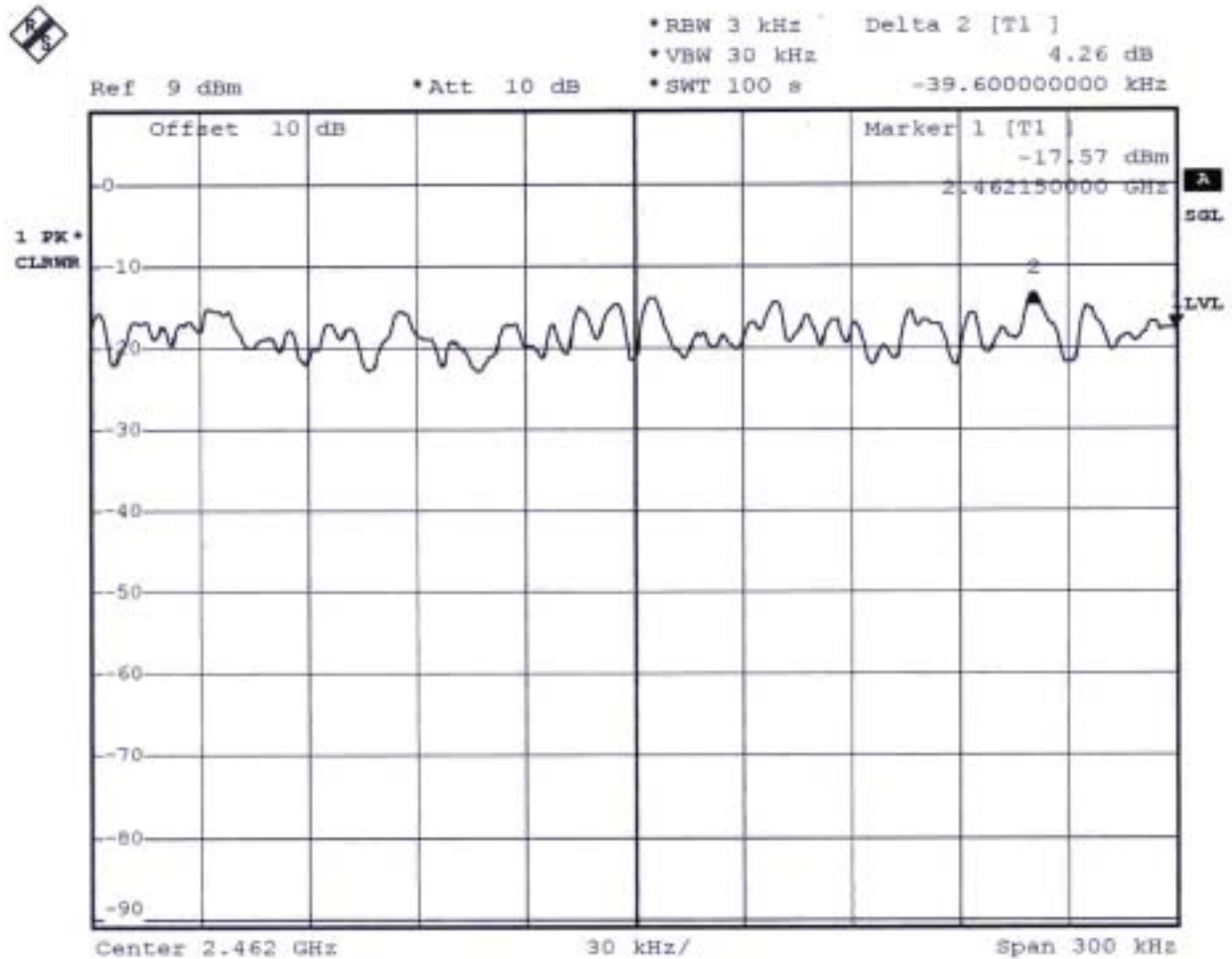
Date: 15.JUL.2003 17:24:08

Plot2(Channel 6):



Date: 15.JUL.2003 18:22:58

Plot3(Channel 11):



Date: 15.JUL.2003 18:12:10

5.5. Hopping Channel Separation

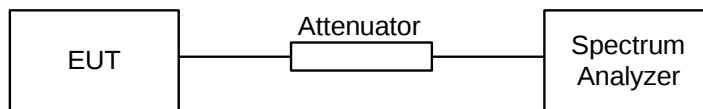
5.5.1. Measuring Instruments :

As described in chapter 9 of this test report.

5.5.2. Test Procedure :

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. The Hopping Channel Separation is defined as the channel is separated with the next channel.

5.5.3. Test Setup Layout :

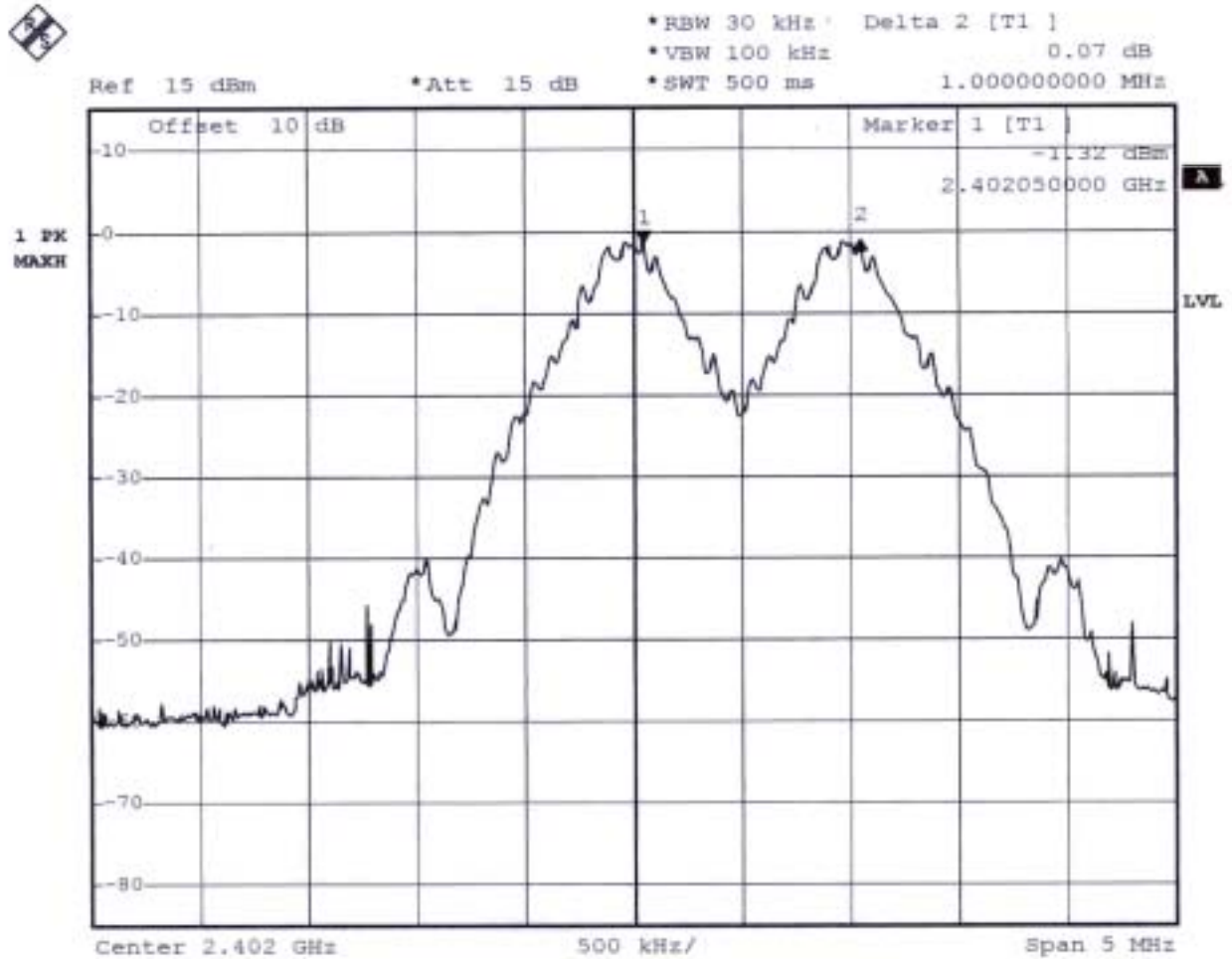


5.5.4. Test Result : The spectrum analyzer plots are attached as below

- Temperature: 26°C
- Relative Humidity: 70 %
- Duty cycle of the equipment during the test X = 34%

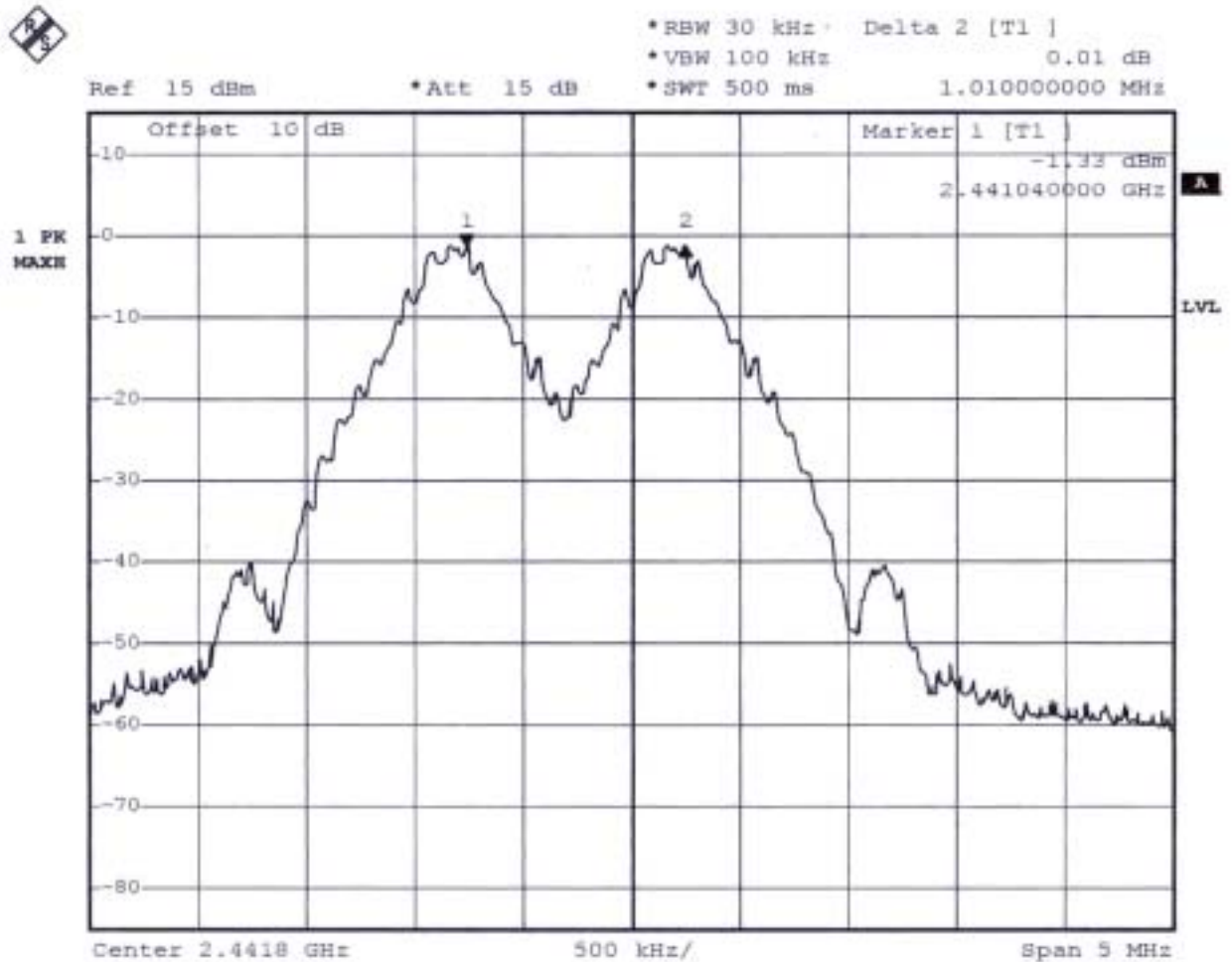
Channel	Frequency (MHz)	Hopping Channel Separation (KHz)	Limits (KHz)	Plot Ref. No.
00	2402	1000.0000	25	1
39	2441	1010.0000	25	2
78	2479	1010.0000	25	3

Plot 1 (Channel 00) :



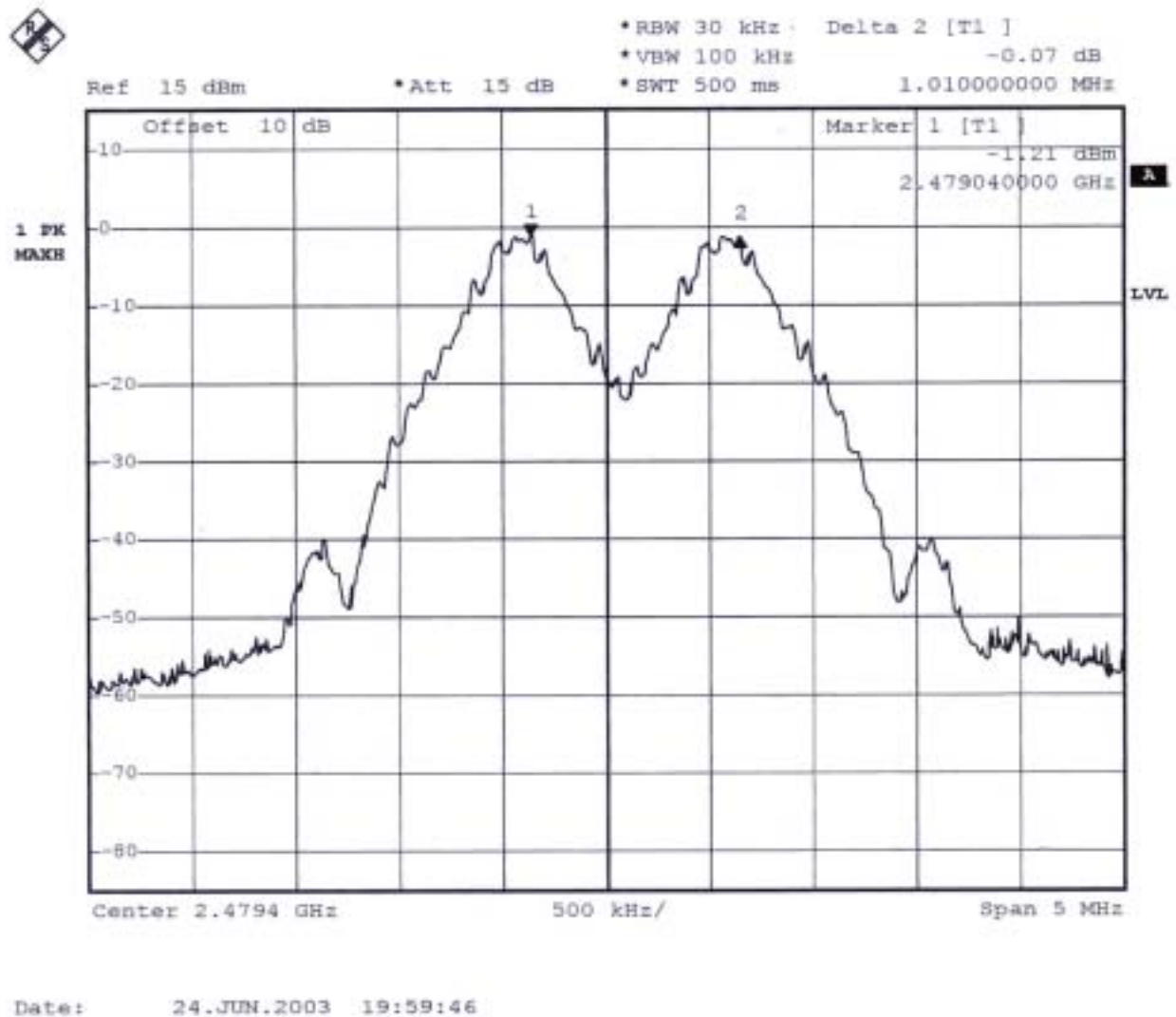
Date: 24.JUN.2003 19:38:35

Plot 2 (Channel 39) :



Date: 24.JUN.2003 19:49:48

Plot 3 (Channel 78) :



5.5.5. Test Configuration (EUT Operating Condition) :

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies respectively.

5.6. Number of Hopping Frequency

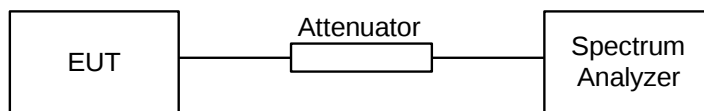
5.6.1. Measuring Instruments :

As described in chapter 9 of this test report.

5.6.2. Test Procedure :

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. The number of hopping frequency used is defined as the device has the numbers of total channel.

5.6.3. Test Setup Layout :

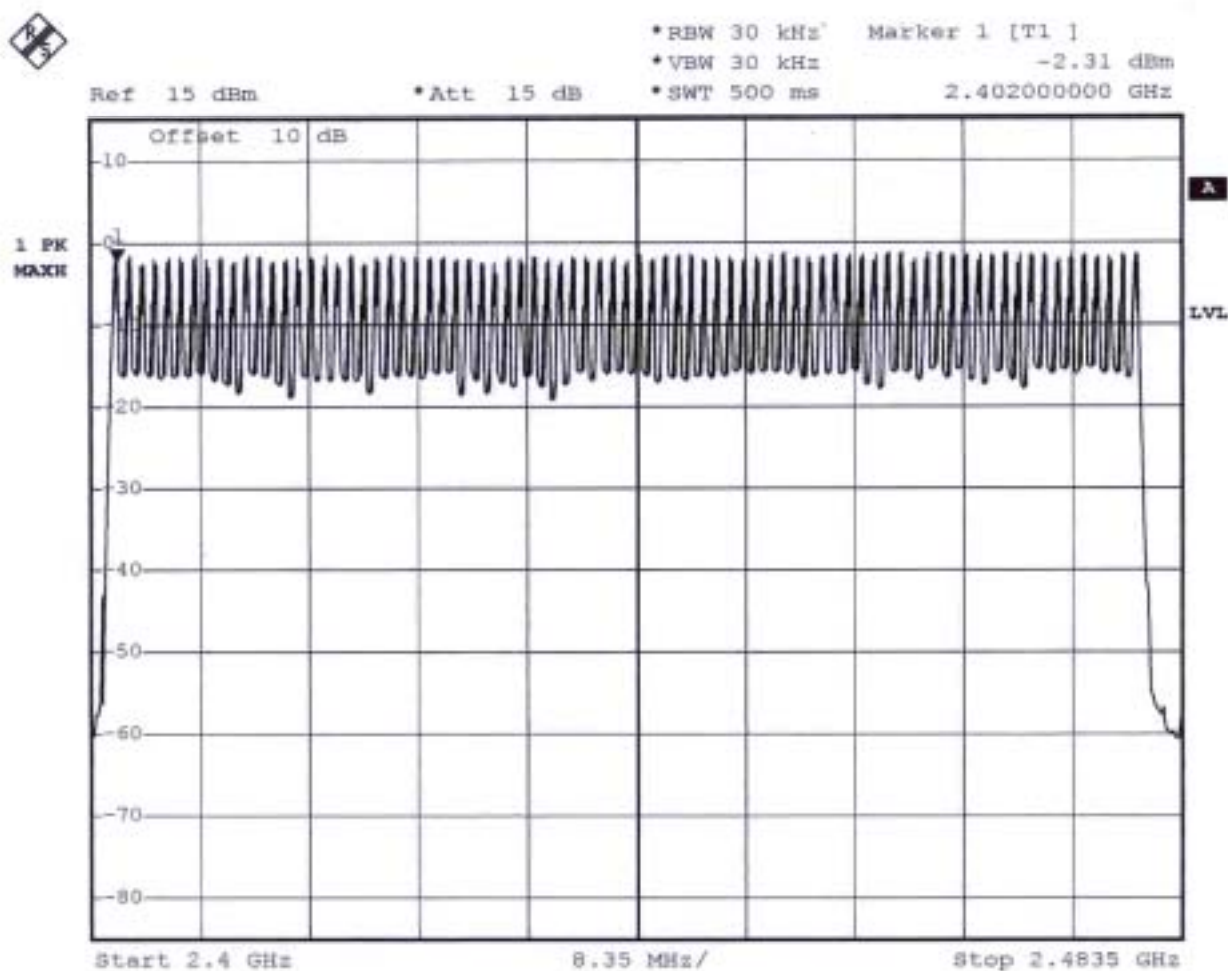


5.6.4. Test Result : See spectrum analyzer plots below

- Temperature: 26°C
- Relative Humidity: 70 %
- Duty cycle of the equipment during the test X = 34%

Number of Hopping Frequency (Channel)	Limits (Channel)	Plot Ref. No.
79	75	1

Plot 1 :



Date: 24.JUN.2003 20:19:13

5.7. Hopping Channel Bandwidth

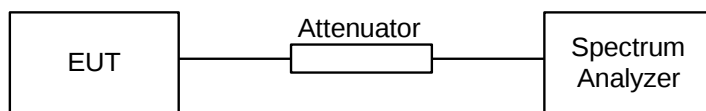
5.7.1. Measuring Instruments :

As described in chapter 9 of this test report.

5.7.2. Test Procedure :

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. The Hopping Channel bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20 dB.

5.7.3. Test Setup Layout :

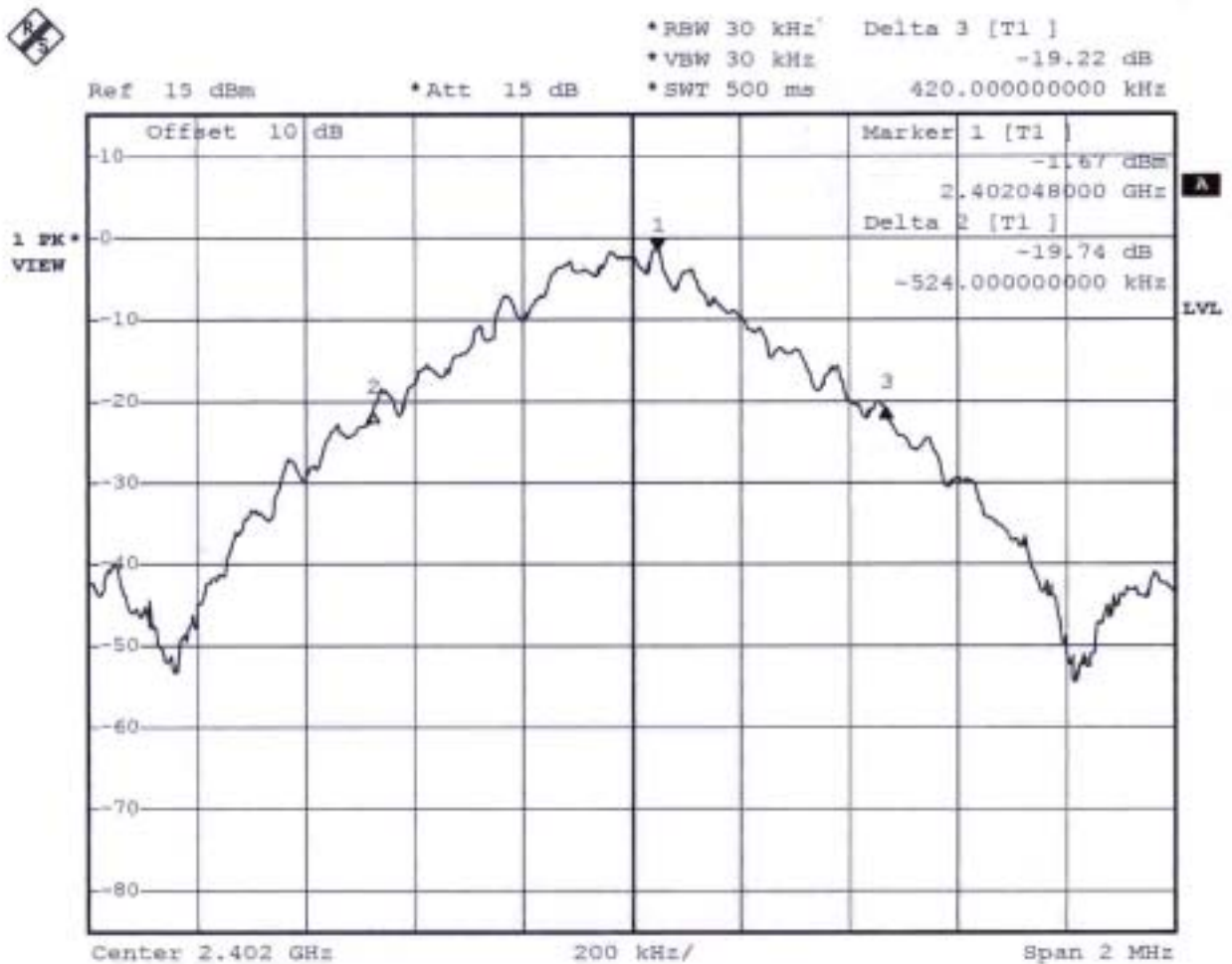


5.7.4. Test Result : See spectrum analyzer plots below

- Temperature: 26°C
- Relative Humidity: 40 %
- Duty cycle of the equipment during the test X = 34%

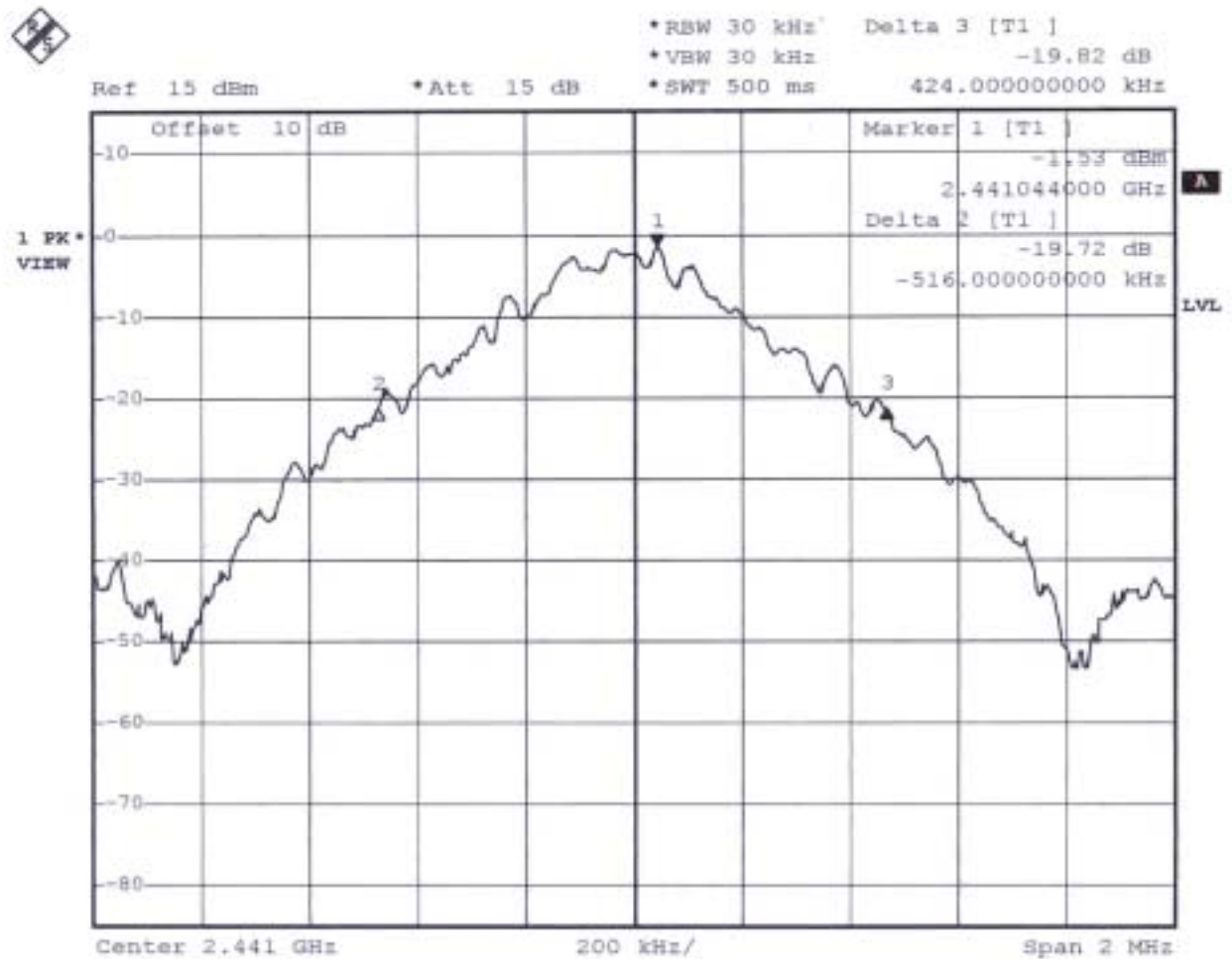
Channel	Frequency (MHz)	Hopping Channel Bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	0.9440	1.0	1
39	2441	0.9400	1.0	2
78	2480	0.9480	1.0	3

Plot 1 (Channel 00)



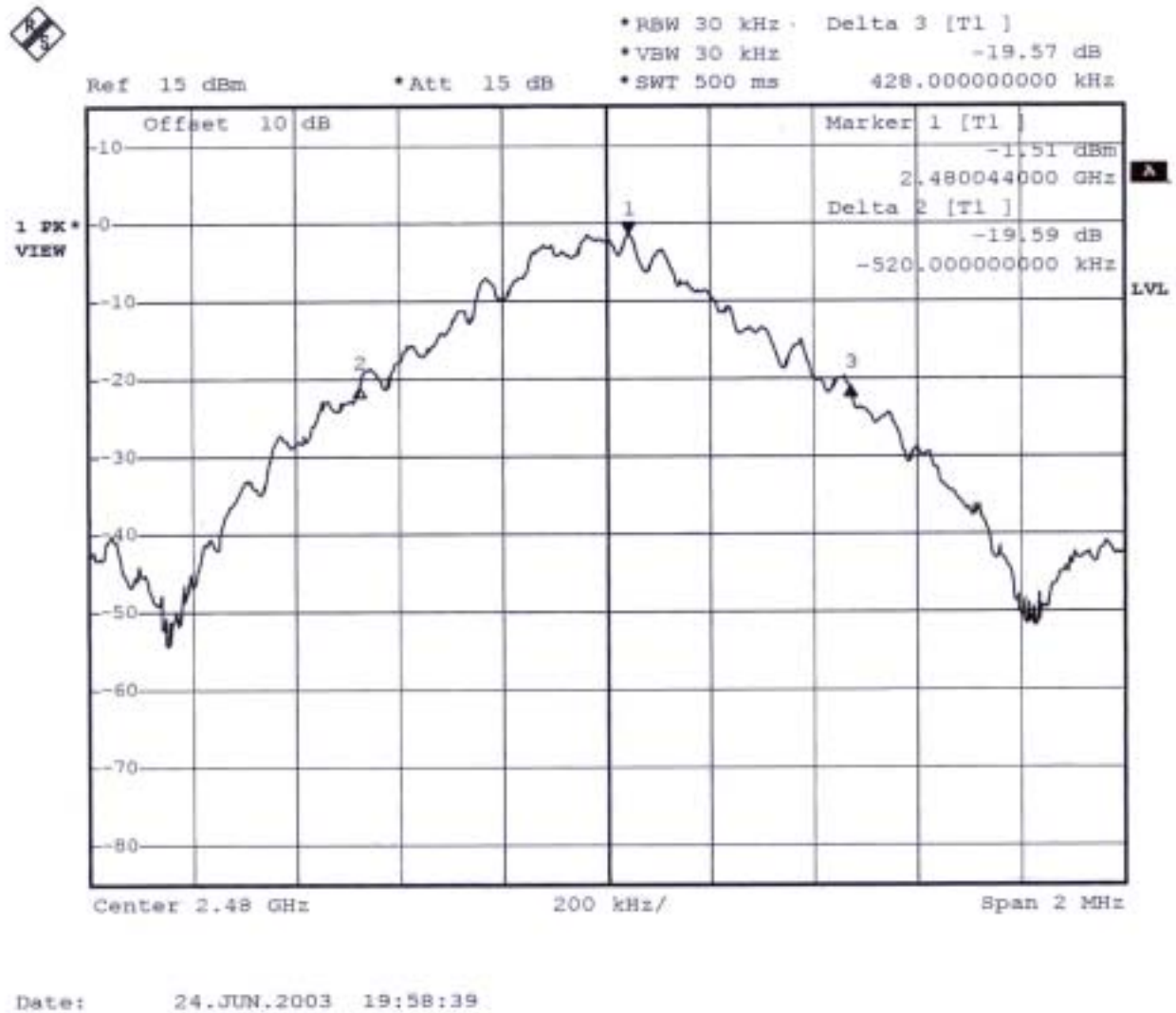
Date: 24.JUN.2003 20:04:26

Plot 2 (Channel 39)



Date: 24.JUN.2003 20:05:33

Plot 3 (Channel 78)



5.7.5. Test Configuration (EUT Operating Condition) :

Same as Section 5.2.5.

5.8. Dwell Time of Each Frequency within a 30 Seconds Period

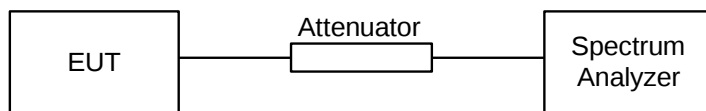
5.8.1. Measuring Instruments :

As described in chapter 9 of this test report.

5.8.2. Test Procedure :

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 the center frequency on any frequency would be measure and set the frequency span to zero span.

5.8.3. Test Setup Layout :

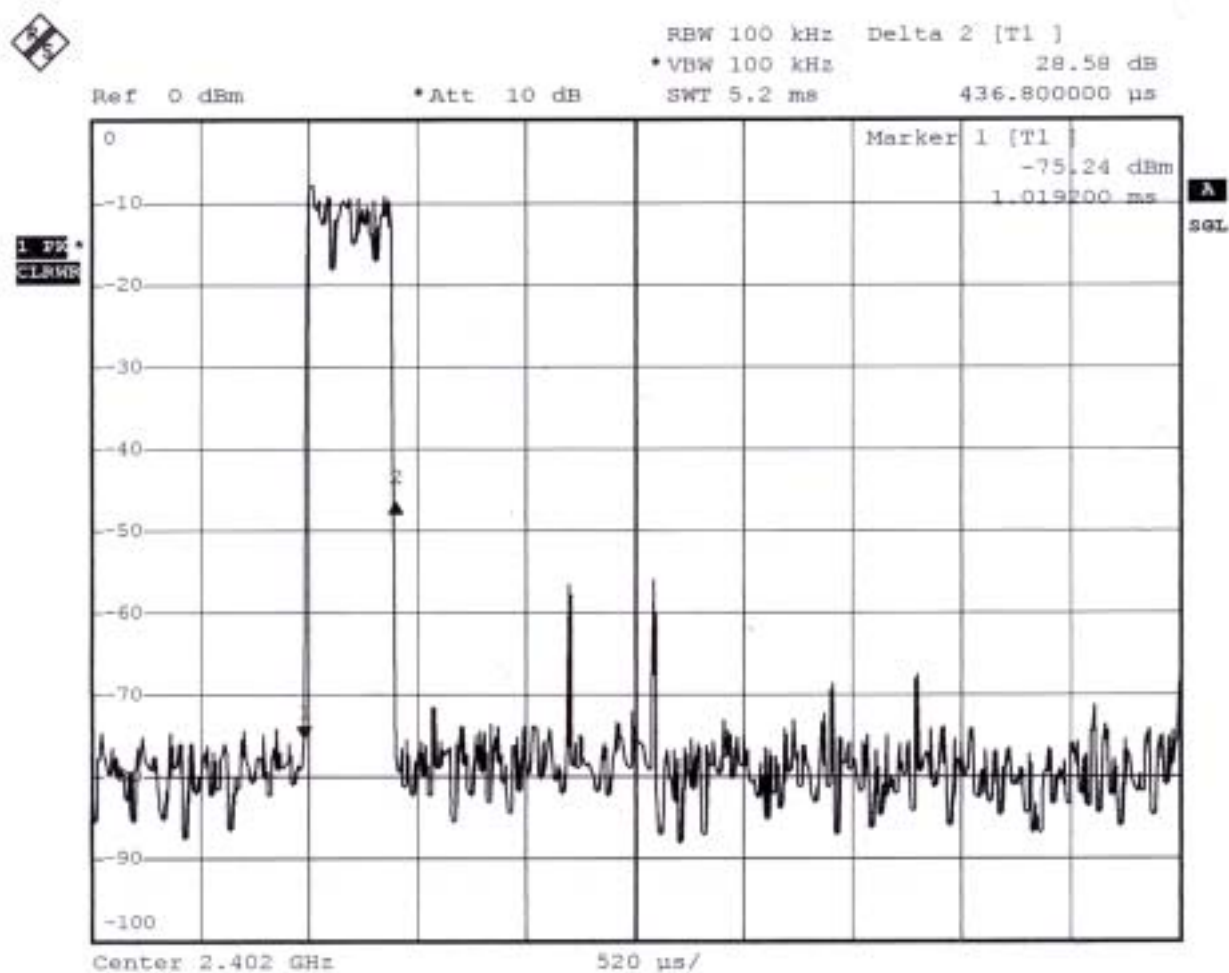


5.8.4. Test Result : See spectrum analyzer plots below

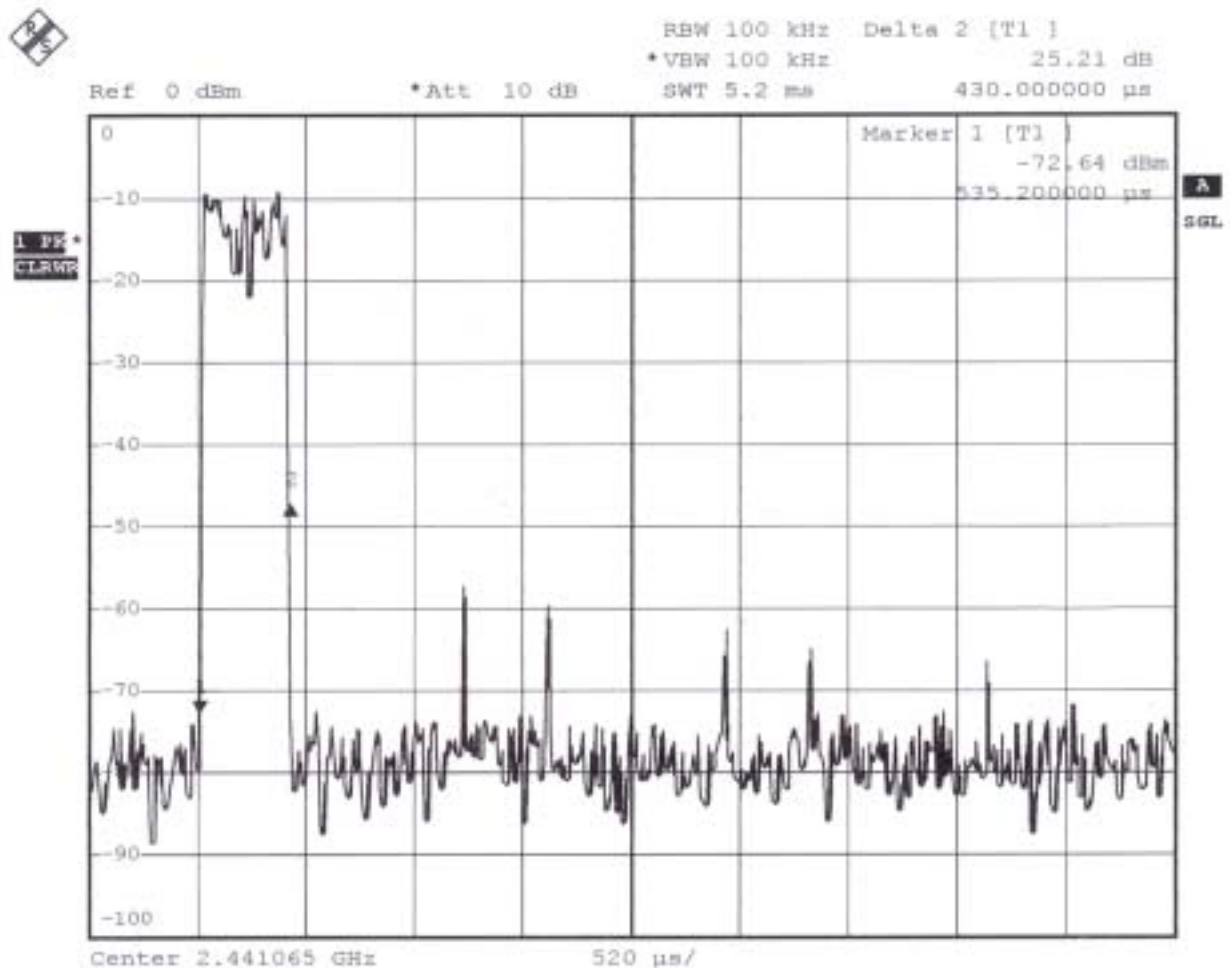
- Temperature: 26°C
- Relative Humidity: 70 %
- Duty cycle of the equipment during the test X = 34%

Channel	Frequency (MHz)	Dwell Time (s)	Limits (s)	Plot Ref. No.
00	2402	0.34944	0.4	1
39	2441	0.34400	0.4	2
78	2480	0.35776	0.4	3

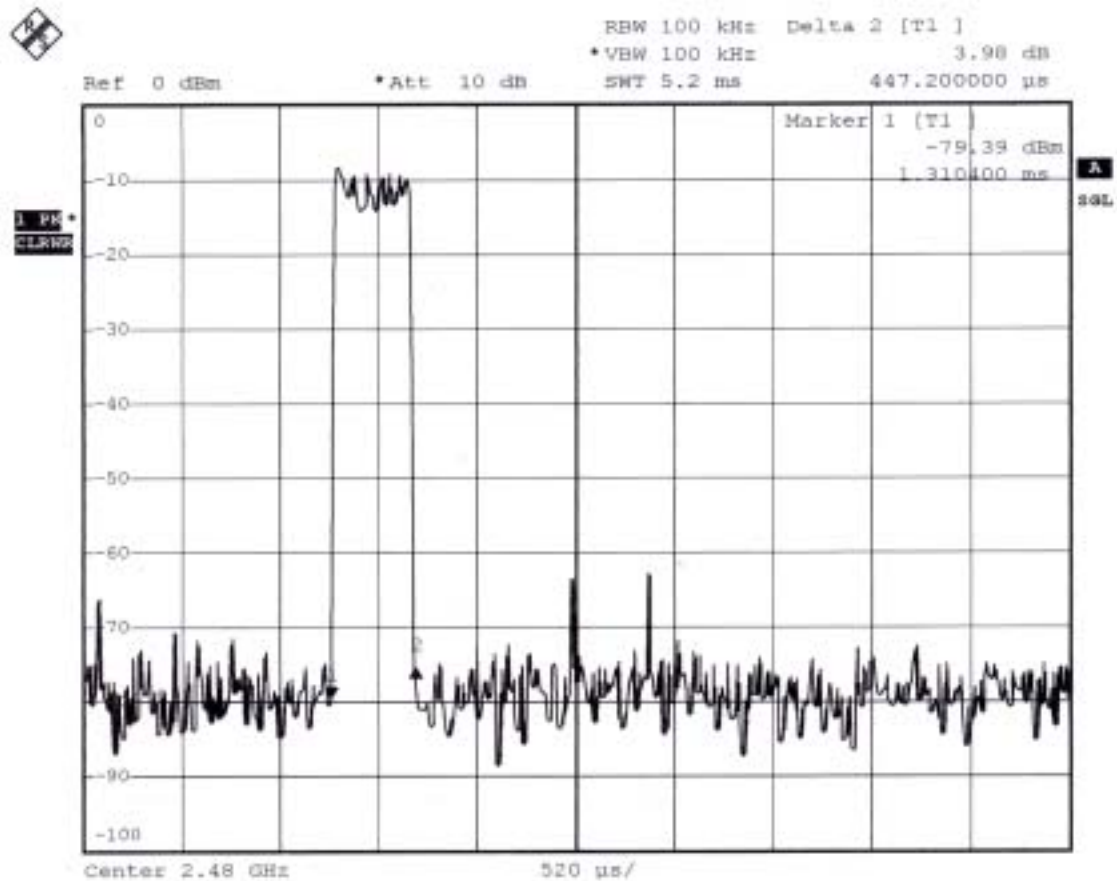
Plot 1 (Channel 00)



Plot 2 (Channel 39)



Plot 3 (Channel 78)



5.8.5. Test Configuration (EUT Operating Condition) :

Same as Section 5.2.5.

5.9. Output Power

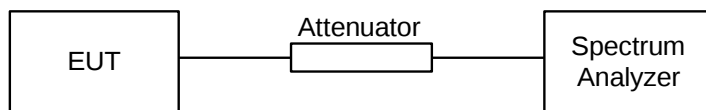
5.9.1. Measuring Instruments :

As described in chapter 9 of this test report.

5.9.2. Test Procedure :

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. The center frequency of the spectrum analyzer was set to the fundamental frequency and using 1MHz RBW and 1MHz VBW.

5.9.3. Test Setup Layout :

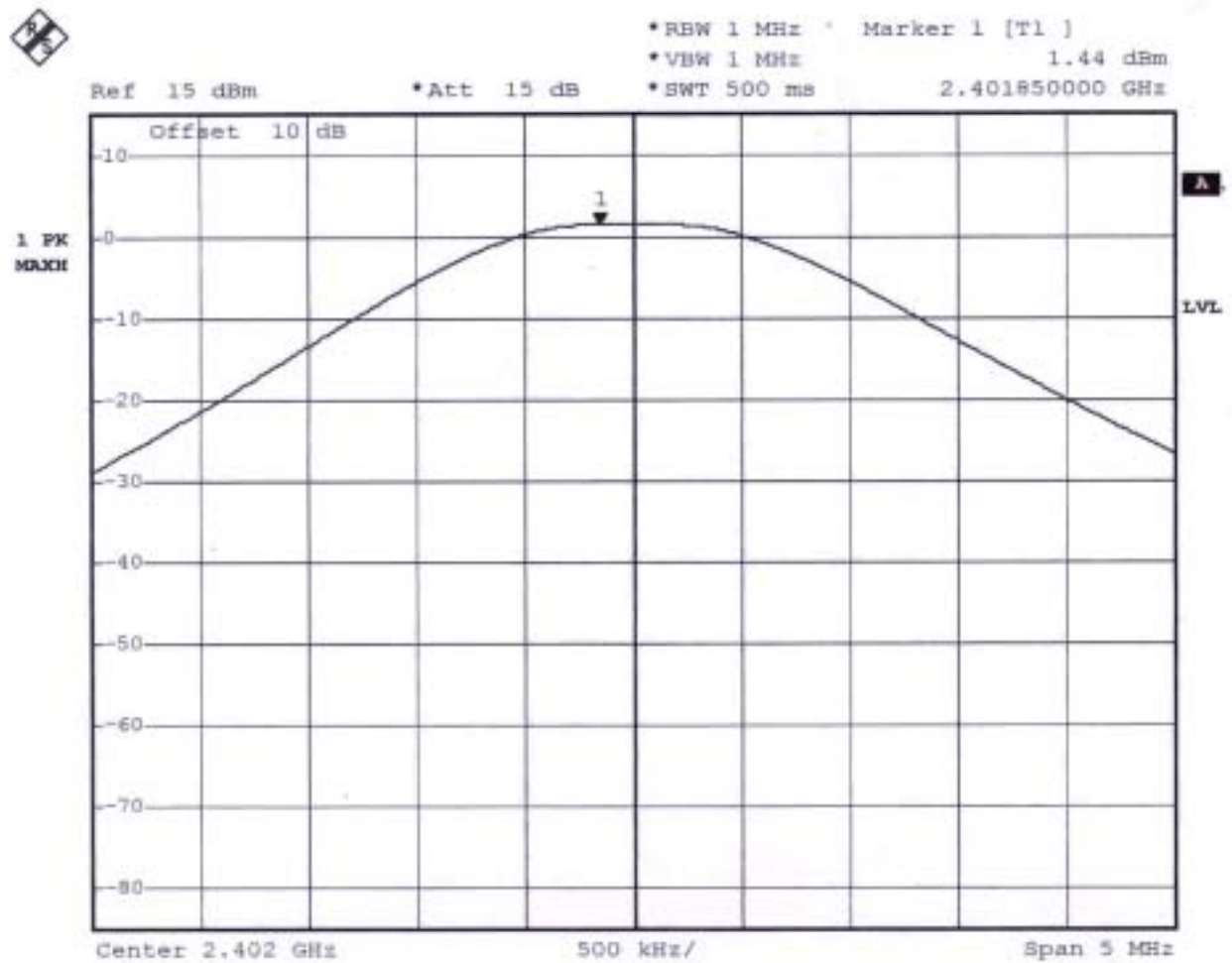


5.9.4. Test Result : See spectrum analyzer plots below

- Temperature: 26°C
- Relative Humidity: 70 %
- Duty cycle of the equipment during the test X = 34%

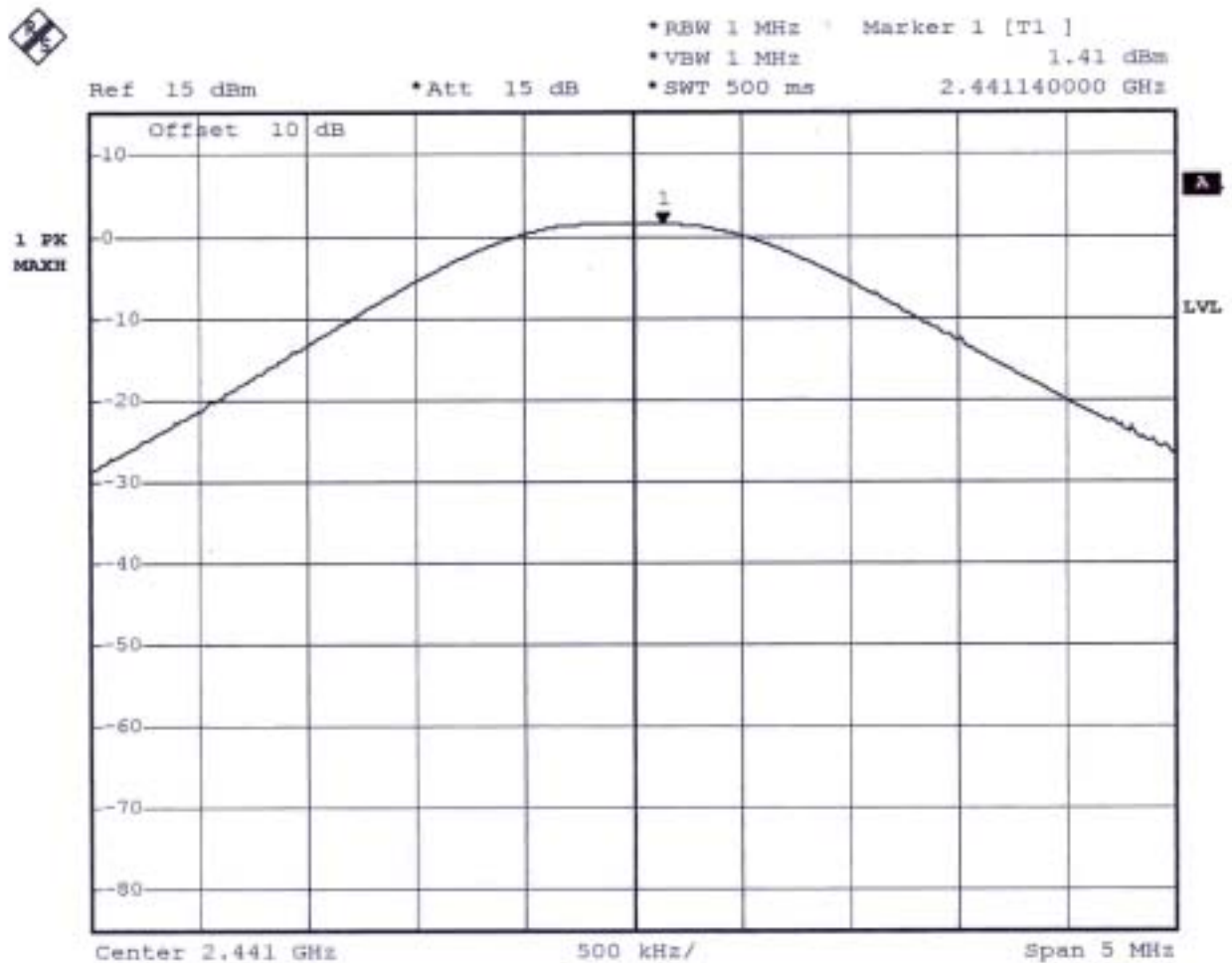
Channel	Frequency	Measured Output Power	Measured Output Power	Limits
	(MHz)	(dBm)	(mWatt)	(Watt/dBm)
00	2402	1.44	1.393156803	1W/30 dBm
39	2441	1.41	1.383566379	1W/30 dBm
78	2480	1.53	1.422328787	1W/30 dBm

Plot 1 (Channel 00)



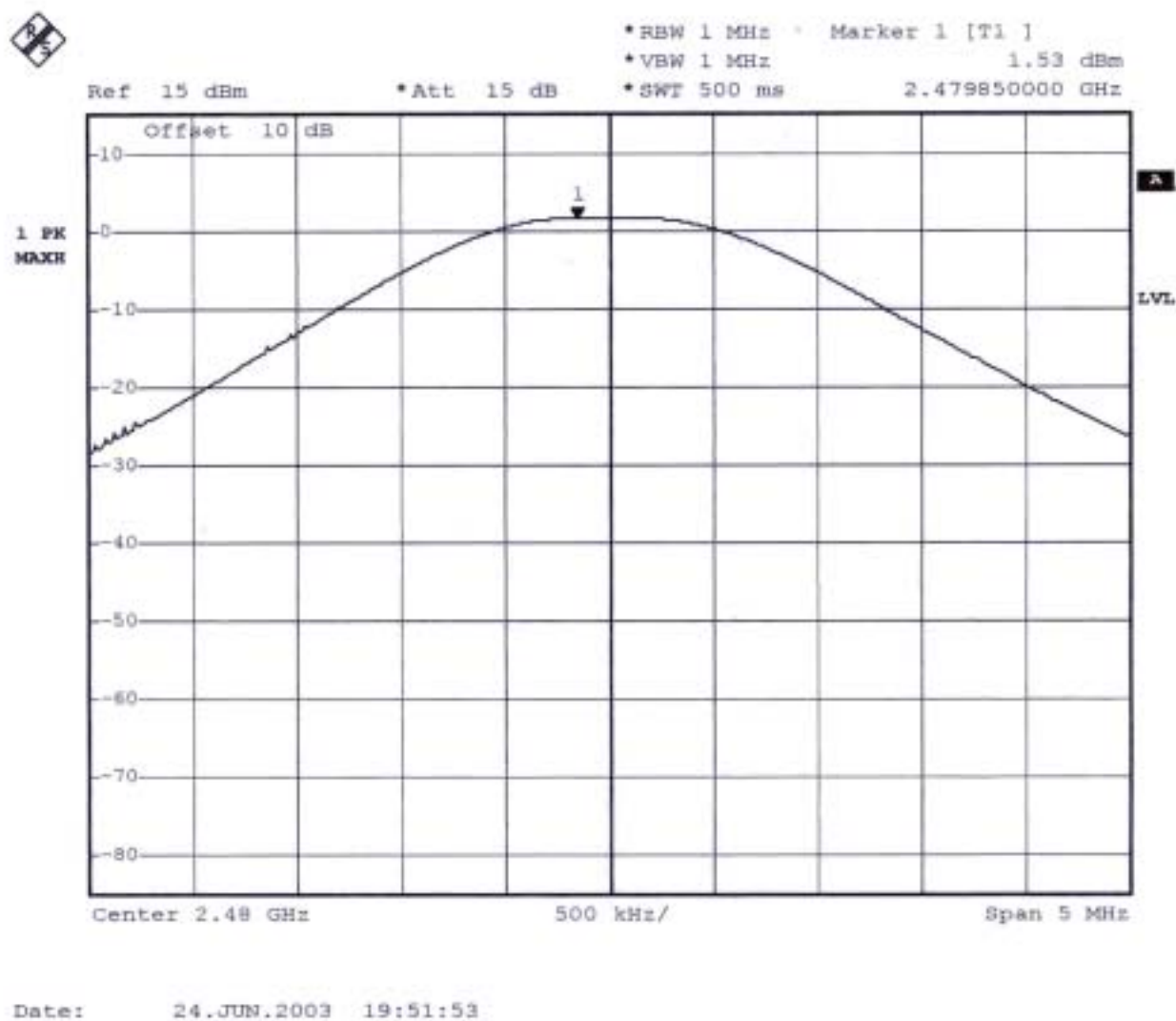
Date: 24.JUN.2003 19:39:10

Plot 2 (Channel 39)



Date: 24.JUN.2003 19:50:50

Plot 3 (Channel 78)



5.9.5. Test Configuration (EUT Operating Condition) :

Same as Section 5.2.5.

5.10. 100KHz Bandwidth of Frequency Band Edges

5.10.1. Measuring Instruments :

As described in chapter 9 of this test report.

5.10.2. Test Procedure :

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set both RBW and VBW of spectrum analyzer to 100KHz with convenient frequency span including 100 KHz bandwidth from band edge.
3. The band edges was measured and recorded.

5.10.3. Test Result :

Test Result in lower band (Channel 00) : PASS

Test Result in higher band(Channel 78) : PASS

5.10.4. Note on Band edge Emission

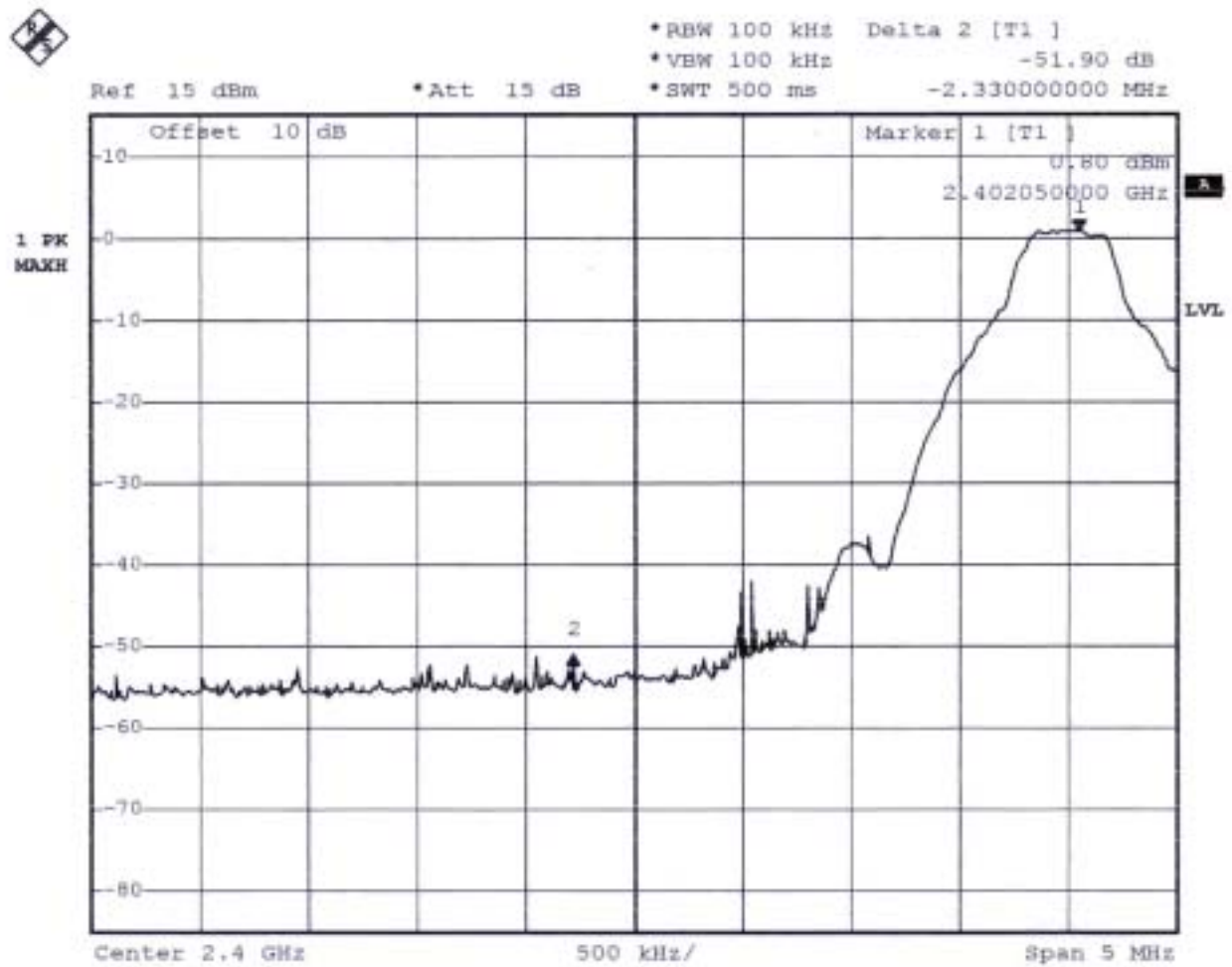
The band edge emission plot on page 41. shows 54.76dB delta between carrier maximum power and local maximum emission in the restricted band (2.4835GHz).

Channel	Polarity	The emission of carrier power strength (dB μ V/m)	The maximum field strength in restrict band (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Result
00	H	94.02	36.27	74	-37.73	Peak	Pass
	H	92.54	34.79	54	-19.21	Average	Pass
	V	97.84	40.09	74	-33.91	Peak	Pass
	V	97.44	39.69	54	-14.31	Average	Pass
78	H	87.81	33.05	74.00	-40.95	Peak	Pass
	H	87.46	32.70	54.00	-21.30	Average	Pass
	V	93.35	38.59	74.00	-35.41	Peak	Pass
	V	92.75	37.99	54.00	-16.01	Average	Pass

* The maximum field strength in restricted band is the emission of carrier power strength subtract to the delta between carrier maximum power and local maximum emission in the restricted band.

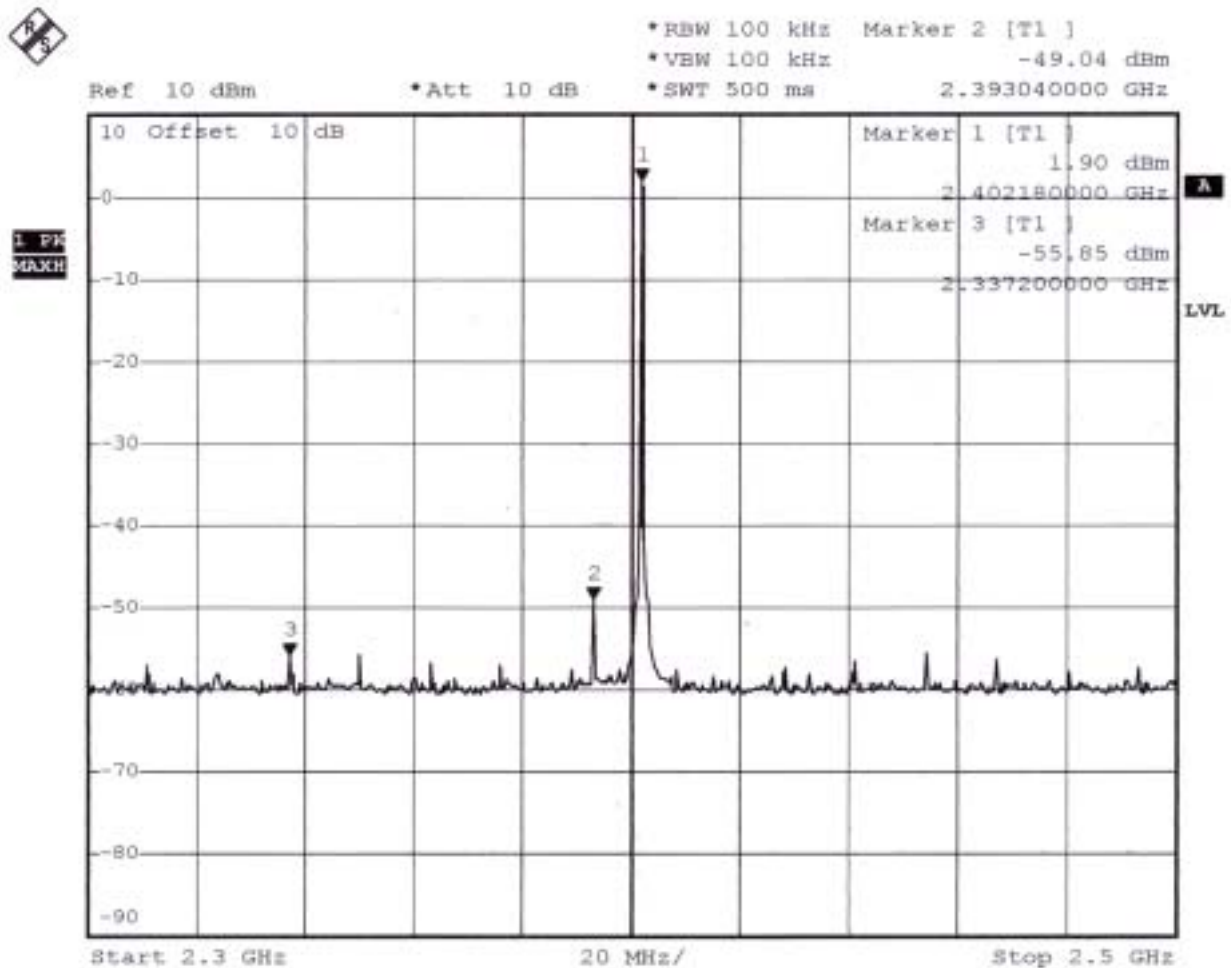
The spectrum analyzer plots are attached as below :

Plot 1 (Channel 00) :



Date: 24.JUN.2003 19:40:30

Plot 2 (Channel 78) :



Comments : All emissions in those 100kHz bandwidth are attenuated more then 20dB from carrier maximum power.

5.10.5. Test Configuration (EUT Operating Condition) :

The software provided by client to enable the EUT under transmission condition continuously at lowest, and highest channel frequencies respectively.

5.11. Test of Conducted Emission

Conducted Emissions were measured from 150 KHz to 30 MHz with a bandwidth of 9 KHz and return leads of the EUT according to the methods defined in ANSI C63.4-2001 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

5.11.1. Major Measuring Instruments :

• Test Receiver	(R&S ESCS 30)
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

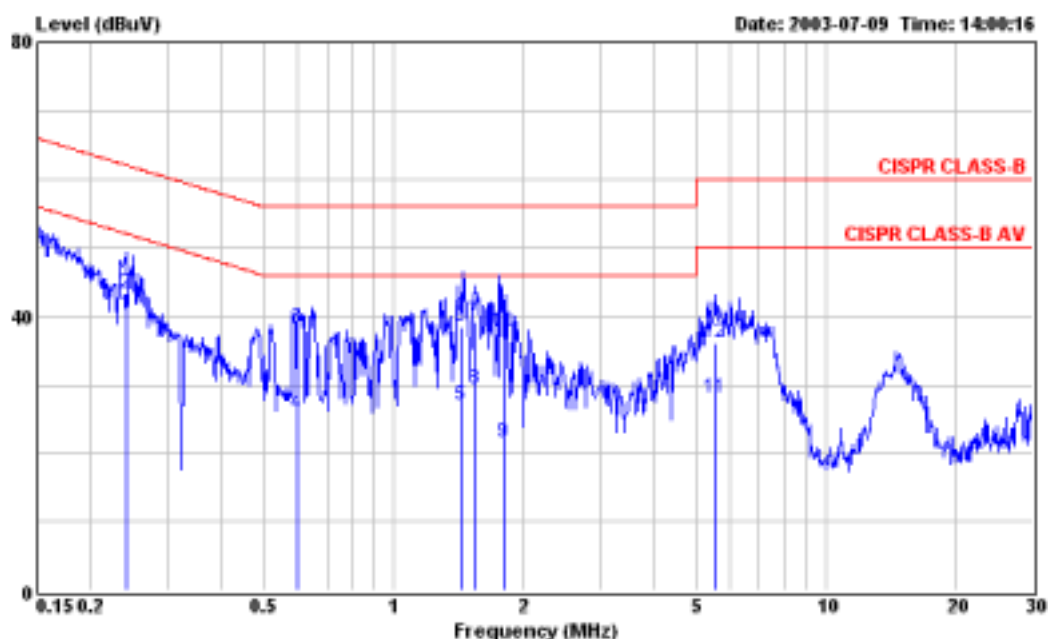
5.11.2. Test Procedures :

- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connect to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 KHz to 30 MHz was searched.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

5.11.3. Test Result of Conducted Emission :

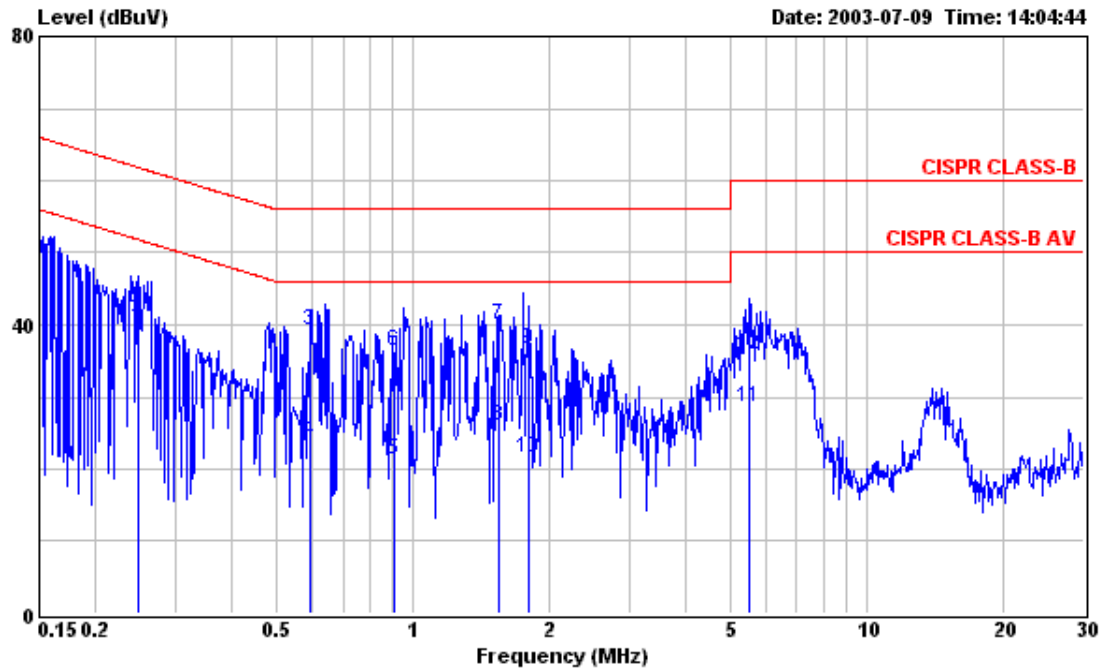
- Test Mode: Mode 1
- Frequency Range of Test: from 150KHz to 30 MHz
- Temperature: 28.9°C
- Relative Humidity: 64 %

■ The test was passed at the minimum margin that marked by a frame in the following data



Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 LINE
 EUT : POCKET PC
 Power : 110V/60Hz
 Model : PE2080A
 Memo : TX CH01 2412MHz
 : TX CH00 2402MHz
 : POCKET +CRADLE

	Over	Limit	Read	Probe	Cable	
Freq	Level	Limit	Line	Level	Factor	Loss
MHz	dBuV	dB	dBuV	dBuV	dB	dB
1	0.241	40.34	-11.72	52.06	40.20	0.10
2	0.241	43.31	-18.74	62.05	43.17	0.10
3	0.601	38.08	-17.92	56.00	37.90	0.10
4	0.601	25.65	-20.35	46.00	25.47	0.10
5	1.426	27.01	-18.99	46.00	26.01	0.10
6	1.426	38.45	-17.55	56.00	38.25	0.10
7	1.550	39.29	-16.71	56.00	39.08	0.10
8	1.550	29.28	-16.72	46.00	29.07	0.10
9	1.790	21.54	-24.46	46.00	21.33	0.10
10	1.790	37.57	-18.43	56.00	37.36	0.10
11	5.530	27.99	-22.01	50.00	27.54	0.14
12	5.530	36.12	-23.88	60.00	35.67	0.14



Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 NEUTRAL
 EUT : POCKET PC
 Power : 110V/60Hz
 Model : PE2080A
 Memo : TX CH01 2412MHz
 : TX CH00 2402MHz
 : POCKET +CRADLE

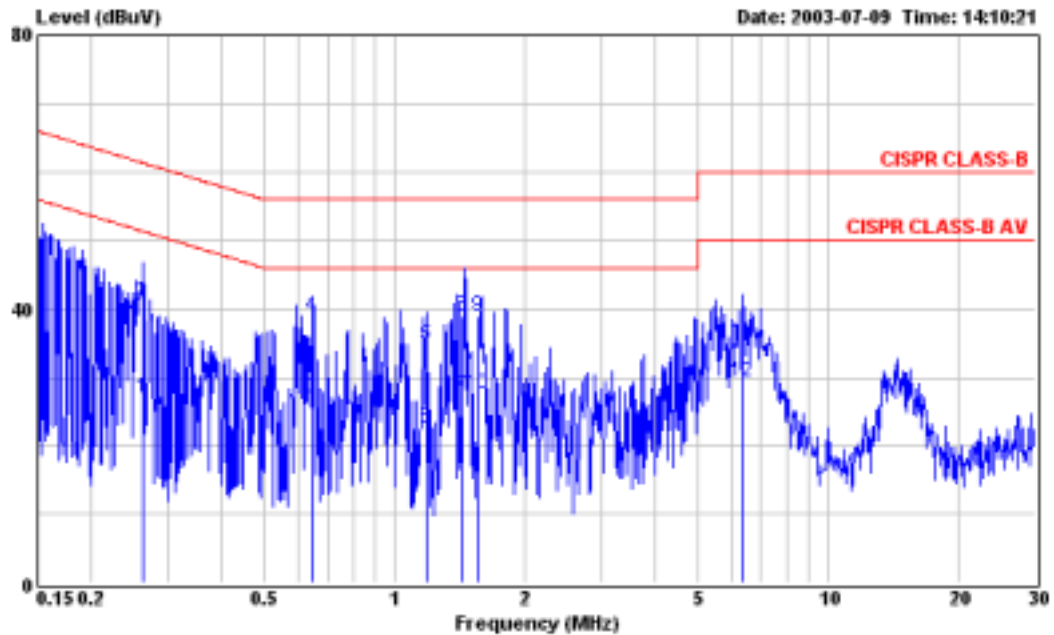
	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.248	39.74	-12.08	51.82	39.60	0.10	0.04	Average
2	0.248	42.44	-19.38	61.82	42.30	0.10	0.04	QP
3	0.595	39.25	-16.75	56.00	39.07	0.10	0.08	QP
4	0.595	23.83	-22.17	46.00	23.65	0.10	0.08	Average
5	0.905	21.34	-24.66	46.00	21.16	0.10	0.08	Average
6	0.905	36.43	-19.57	56.00	36.25	0.10	0.08	QP
7	1.546	40.13	-15.87	56.00	39.92	0.10	0.11	QP
8	1.546	25.86	-20.14	46.00	25.65	0.10	0.11	Average
9	1.796	36.61	-19.39	56.00	36.40	0.10	0.11	QP
10	1.796	21.59	-24.41	46.00	21.38	0.10	0.11	Average
11	5.480	28.61	-21.39	50.00	28.10	0.20	0.31	Average
12	5.480	35.90	-24.10	60.00	35.39	0.20	0.31	QP

Test Engineer : 

John Huang

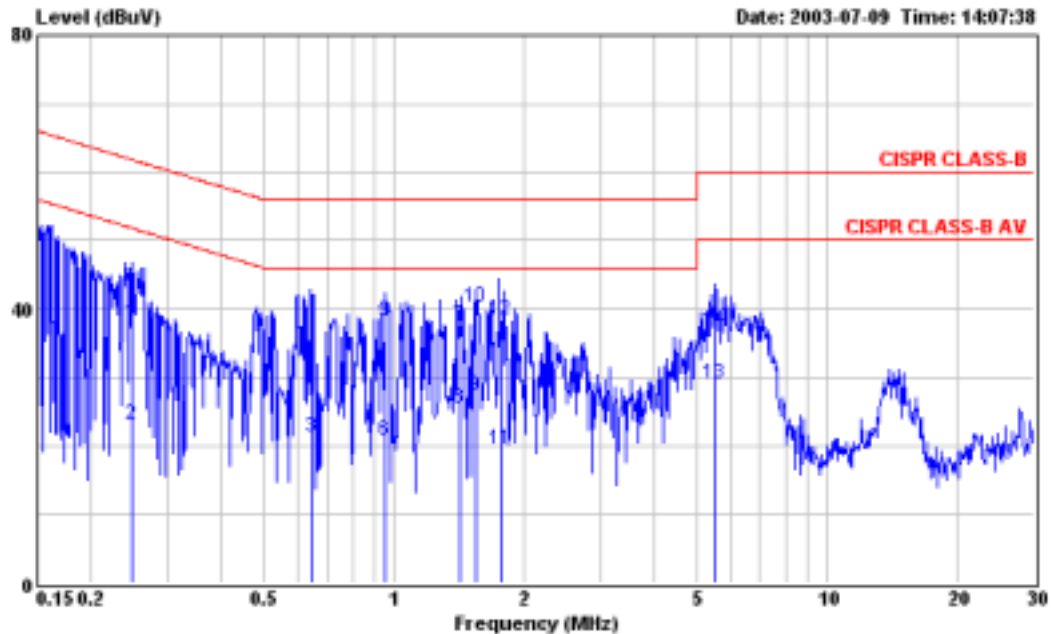
- Test Mode: Mode 2
- Frequency Range of Test: from 150KHz to 30 MHz
- Temperature: 28.9°C
- Relative Humidity: 64 %

■ The test was passed at the minimum margin that marked by a frame in the following data



Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 LINE
 EUT : POCKET PC
 Power : 110V/60Hz
 Model : PE2080A
 Memo : TX CH06 2437MHz
 : TX CH39 2441MHz
 : POCKET +CRADLE

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.262	26.92	-24.46	51.38	26.78	0.10	0.04	Average
2	0.262	40.93	-20.45	61.38	40.79	0.10	0.04	QP
3	0.646	27.05	-18.95	46.00	26.87	0.10	0.08	Average
4	0.646	39.05	-16.95	56.00	38.87	0.10	0.08	QP
5	1.180	34.86	-21.14	56.00	34.67	0.10	0.09	QP
6	1.180	22.49	-23.51	46.00	22.30	0.10	0.09	Average
7	1.426	27.21	-18.79	46.00	27.01	0.10	0.10	Average
8	1.426	39.04	-16.96	56.00	38.84	0.10	0.10	QP
9	1.553	38.87	-17.13	56.00	38.66	0.10	0.11	QP
10	1.553	27.50	-18.50	46.00	27.29	0.10	0.11	Average
11	6.350	35.10	-24.90	60.00	34.64	0.15	0.31	QP
12	6.350	29.37	-20.63	50.00	28.91	0.15	0.31	Average



Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 NEUTRAL
 EUT : POCKET PC
 Power : 110V/60Hz
 Model : PE2080A
 Memo : TX CH06 2437MHz
 : TX CH39 2441MHz
 : POCKET +CRADLE

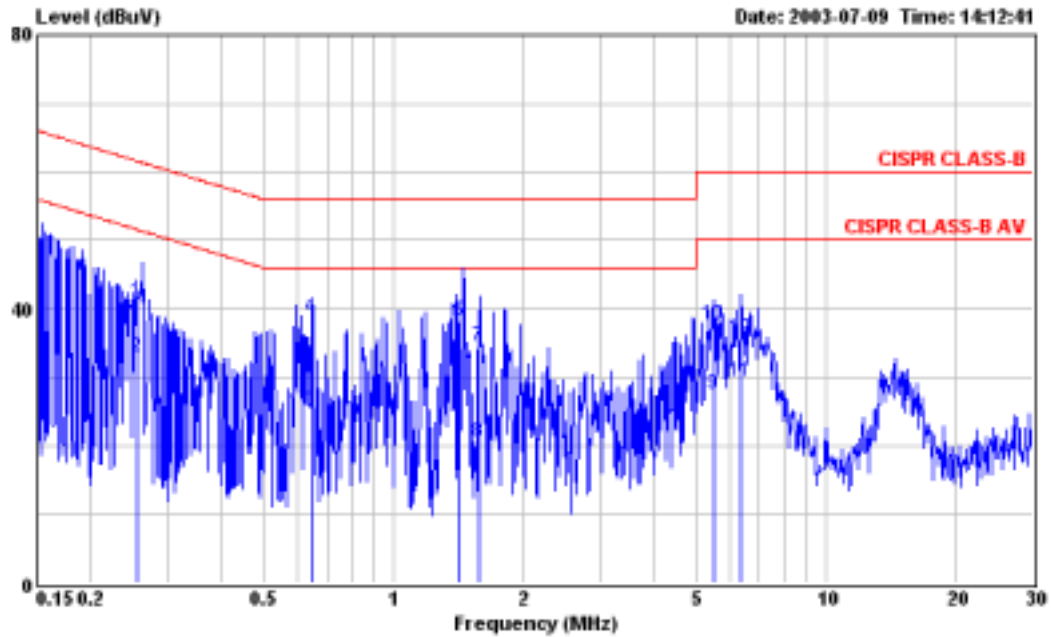
	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.247	38.13	-23.73	61.86	37.99	0.10	0.04	QP
2	0.247	23.14	-28.72	51.86	23.00	0.10	0.04	Average
3	0.644	21.33	-34.67	56.00	21.15	0.10	0.08	QP
4	0.644	31.87	-14.13	46.00	31.69	0.10	0.08	Average
5	0.948	38.10	-17.90	56.00	37.92	0.10	0.08	QP
6	0.948	20.85	-25.15	46.00	20.67	0.10	0.08	Average
7	1.413	37.76	-18.24	56.00	37.56	0.10	0.10	QP
8	1.413	25.41	-20.59	46.00	25.21	0.10	0.10	Average
9	1.545	27.39	-18.61	46.00	27.18	0.10	0.11	Average
10	1.545	40.25	-15.75	56.00	40.04	0.10	0.11	QP
11	1.762	19.57	-26.43	46.00	19.36	0.10	0.11	Average
12	1.762	38.52	-17.48	56.00	38.31	0.10	0.11	QP
13	5.480	29.00	-21.00	50.00	28.49	0.20	0.31	Average
14	5.480	36.92	-23.08	60.00	36.41	0.20	0.31	QP

Test Engineer : 

John Huang

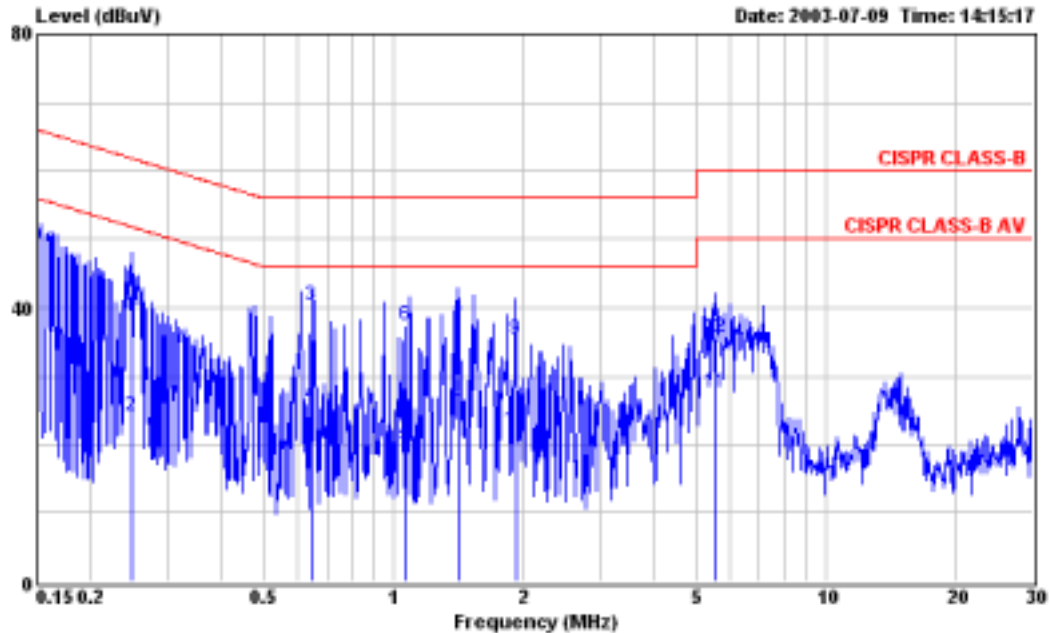
- Test Mode: Mode 3
- Frequency Range of Test: from 150KHz to 30 MHz
- Temperature: 28.9°C
- Relative Humidity: 64 %

■ The test was passed at the minimum margin that marked by a frame in the following data



Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 LINE
 EUT : POCKET PC
 Power : 110V/60Hz
 Model : PE2080A
 Memo : TX CH11 2462MHz
 : TX CH78 2480MHz
 : POCKET +CRADLE

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.255	41.02	-20.57	61.59	40.00	0.10	0.04	QP
2	0.255	32.95	-18.64	51.59	32.81	0.10	0.04	Average
3	0.647	24.83	-21.17	46.00	24.65	0.10	0.08	Average
4	0.647	30.62	-17.30	56.00	30.44	0.10	0.00	QP
5	1.417	38.31	-17.69	56.00	38.11	0.10	0.10	QP
6	1.417	27.11	-18.89	46.00	26.91	0.10	0.10	Average
7	1.560	34.51	-21.49	56.00	34.30	0.10	0.11	QP
8	1.560	20.64	-25.36	46.00	20.43	0.10	0.11	Average
9	5.510	27.44	-22.56	50.00	27.00	0.13	0.31	Average
10	5.510	37.64	-22.36	60.00	37.20	0.13	0.31	QP
11	6.350	29.29	-20.71	50.00	28.83	0.15	0.31	Average
12	6.350	35.52	-24.48	60.00	35.06	0.15	0.31	QP



Site : C001-HY
 Condition : CISPR CLASS-B 2003 2001/008 NEUTRAL
 EUT : POCKET PC
 Power : 110V/60Hz
 Model : PE2080A
 Memo : TX CH11 2462MHz
 : TX CH78 2480MHz
 : POCKET +CRADLE

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.247	38.82	-23.04	61.86	38.68	0.10	0.04	QP
2	0.247	24.27	-27.59	51.86	24.13	0.10	0.04	Average
3	0.644	40.19	-15.81	56.00	40.01	0.10	0.08	QP
4	0.644	25.71	-20.29	46.00	25.53	0.10	0.08	Average
5	1.063	19.81	-26.19	46.00	19.63	0.10	0.08	Average
6	1.063	37.42	-18.58	56.00	37.24	0.10	0.08	QP
7	1.414	37.22	-18.78	56.00	37.02	0.10	0.10	QP
8	1.414	26.25	-19.75	46.00	26.05	0.10	0.10	Average
9	1.917	35.43	-20.57	56.00	35.21	0.10	0.12	QP
10	1.917	22.11	-23.89	46.00	21.89	0.10	0.12	Average
11	5.560	27.48	-22.52	50.00	26.97	0.20	0.31	Average
12	5.560	35.64	-24.36	60.00	35.13	0.20	0.31	QP

Test Engineer :

John Huang

5.12. Test of Radiated Emission

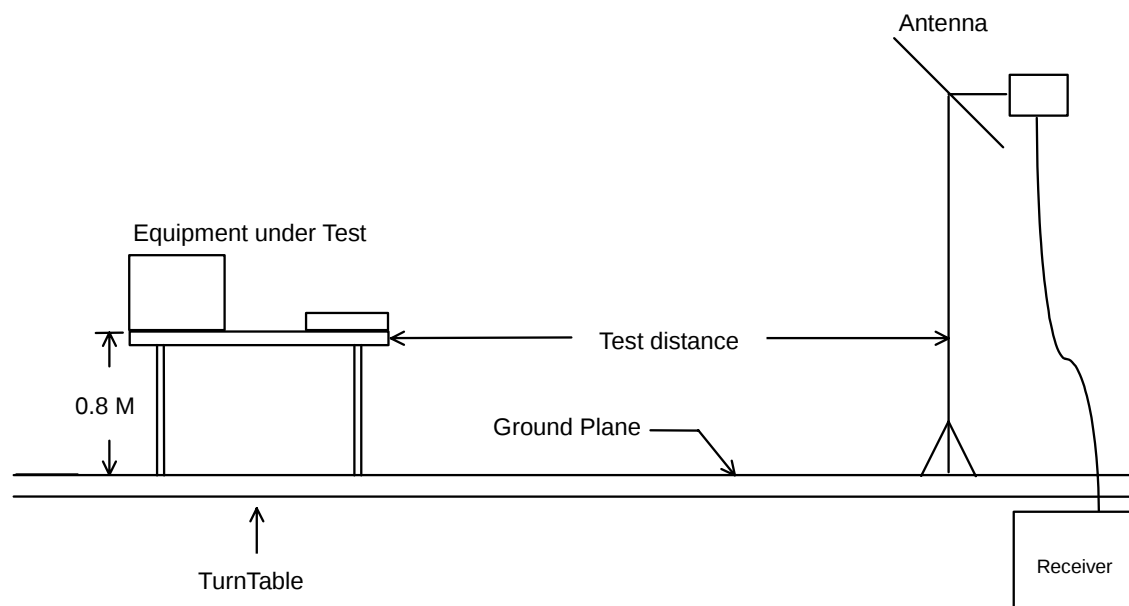
Radiated emissions from 30 MHz to 24.8 GHz were measured according to the methods defines in ANSI C63.4-2001. The EUT was placed on a nonmetallic stand, 0.8 meter above the ground plane, as shown in section 5.13.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions

5.12.1. Major Measuring Instruments

● Amplifier	(MITEQ AFS44)
RF Gain	40 dB
Signal Input	100 MHz to 26.5 GHz
● Amplifier	(HP 8447D)
RF Gain	30 dB
Signal Input	100 KHz to 1.3 GHz
● Spectrum analyzer	(R&S FSP40)
Attenuation	10 dB
Start Frequency	1 GHz
Stop Frequency	24 GHz
Resolution Bandwidth	1 MHz
Video Bandwidth	1 MHz
Signal Input	9 KHz to 40 GHz
● Test Receiver	(SCHAFFNER SCR3501)
Resolution Bandwidth	120 KHz
Frequency Band	9 K – 1 GHz
Quasi-Peak Detector	ON for Quasi-Peak Mode OFF for Peak Mode

5.12.2. Test Procedures

1. The EUT was placed on a rotatable table top 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
5. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. If the emission level of the EUT in peak mode was 3 dB lower than the 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 and reported.
8. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower 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.

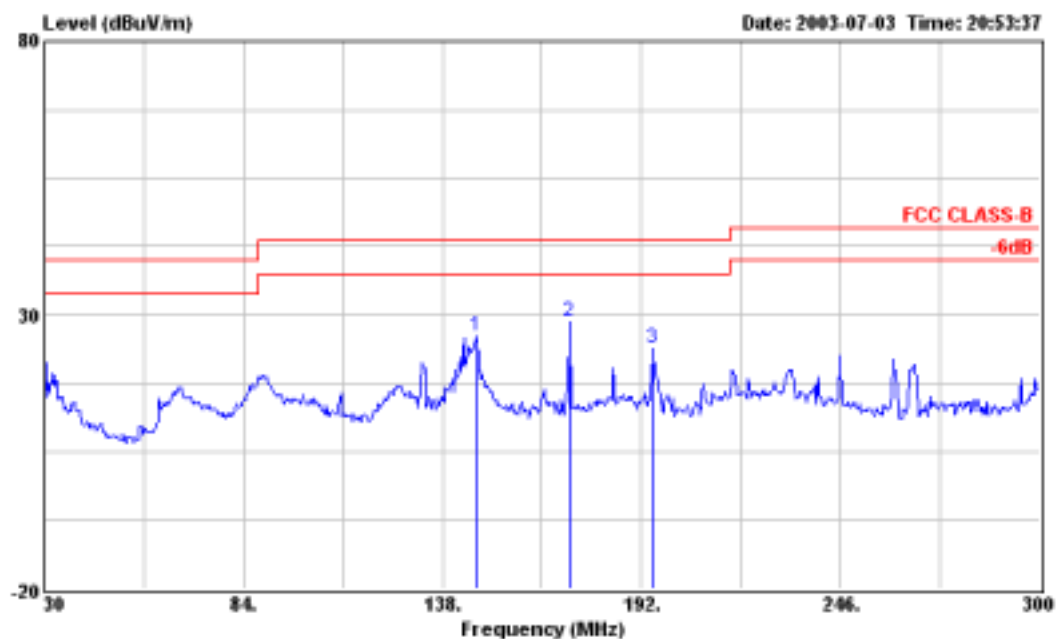
5.12.3. Typical Test Setup Layout of Radiated Emission

5.12.4. Test Result of Radiated Emission

- Test Mode: Mode 1
- Test Distance: 3 M
- Temperature: 26 °C
- Relative Humidity: 70 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

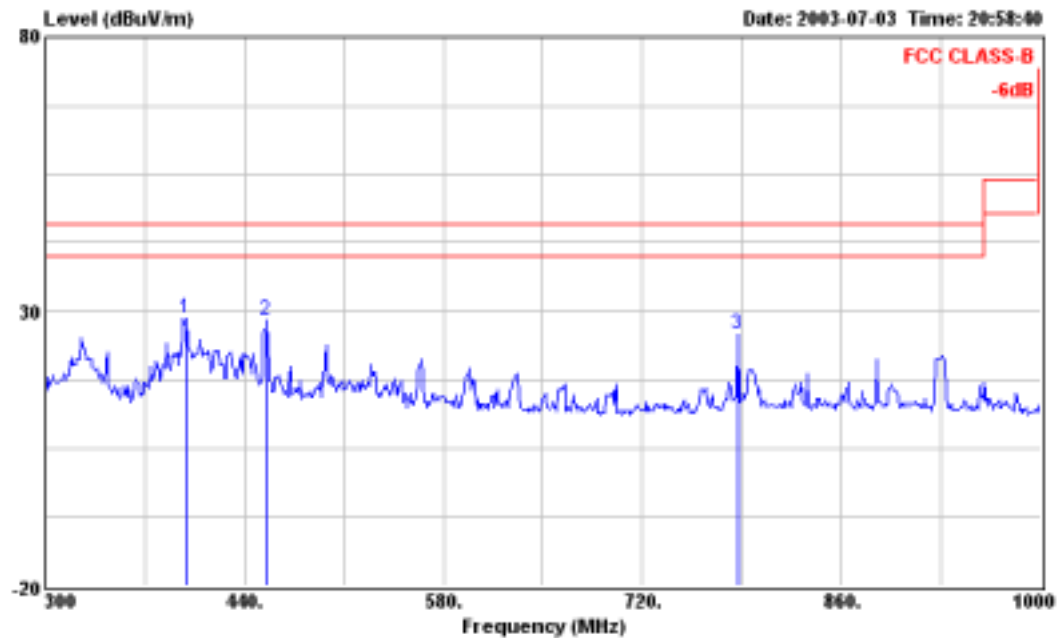
■ The test was passed at the minimum margin that marked by the frame in the following test record

- Spurious Emission



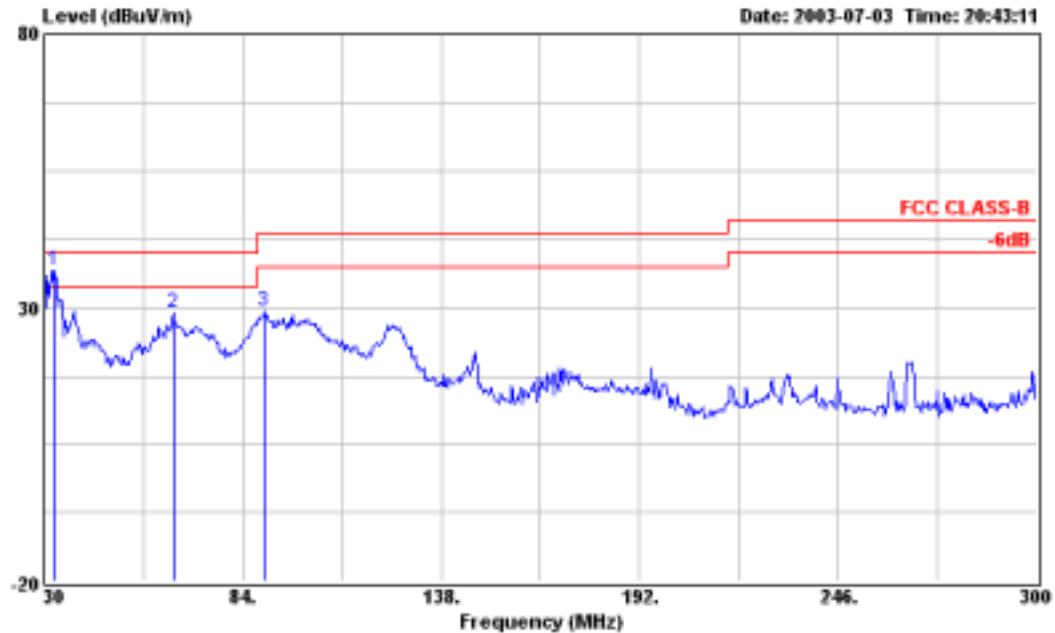
Site : 03CH03-HY
 Condition : 3m 03CH03-MAT HORIZONTAL
 EUT : Pocket PC
 Power : 110V/60Hz
 MODEL : FE2080A
 MEMO : TX CH01 2412MHz
 : TX CH00 2402MHz
 : Cradle
 : F362011

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	147.180	25.96	-17.54	43.50	41.04	9.65	2.00	26.01	Peak	---	---
2	172.290	28.69	-14.81	43.50	45.80	7.48	2.12	26.71	Peak	---	---
3	194.970	23.68	-19.82	43.50	40.71	7.34	2.25	26.62	Peak	---	---



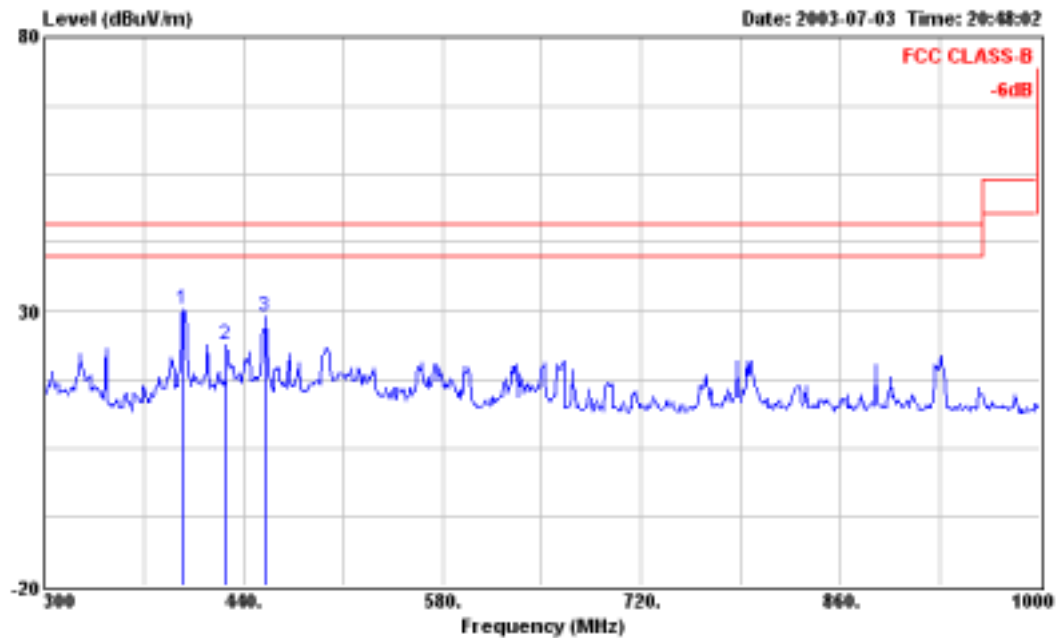
Site : 03CH03-HY
 Condition : 3m 03CH03-MAT HORIZONTAL
 EUT : Pocket PC
 Power : 110V/60Hz
 MODEL : PE2080A
 MEMO : TX CH01 2412MHz
 : TX CH00 2402MHz
 : Cradle
 : F362011

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	399.400	28.05	-17.15	46.00	37.94	14.60	3.51	27.20	Peak	---	---
2	455.400	28.32	-17.68	46.00	36.82	15.40	3.58	27.48	Peak	---	---
3	786.500	25.86	-20.14	46.00	30.15	18.68	5.03	28.00	Peak	---	---



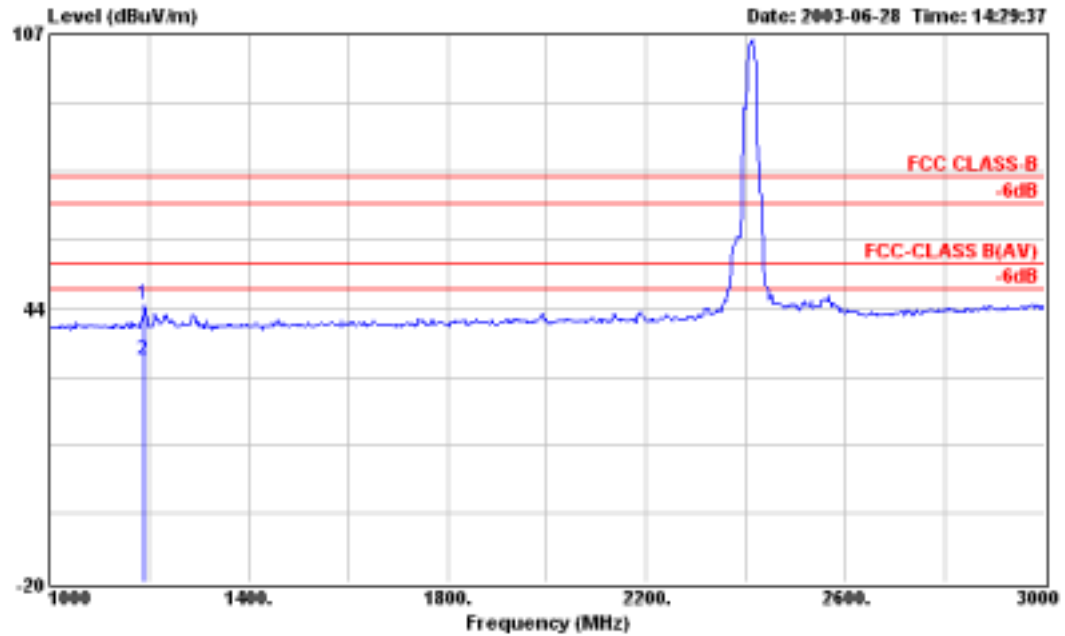
Site : 03CH03-NY
 Condition : 3m 03CH03-MAT VERTICAL
 EUT : Pocket PC
 Power : 110V/60Hz
 MODEL : PE2080A
 MEMO : TX CH01 2412MHz
 : TX CH02 2402MHz
 : Cradle
 : F362011

	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	32.970	36.85	-3.15	40.00	49.12	13.80	1.03	27.10	Peak	100	85
2	65.100	28.97	-11.03	40.00	49.05	4.78	1.41	27.07	Peak	---	---
3	89.940	29.27	-14.23	43.50	46.08	8.78	1.43	27.02	Peak	---	---



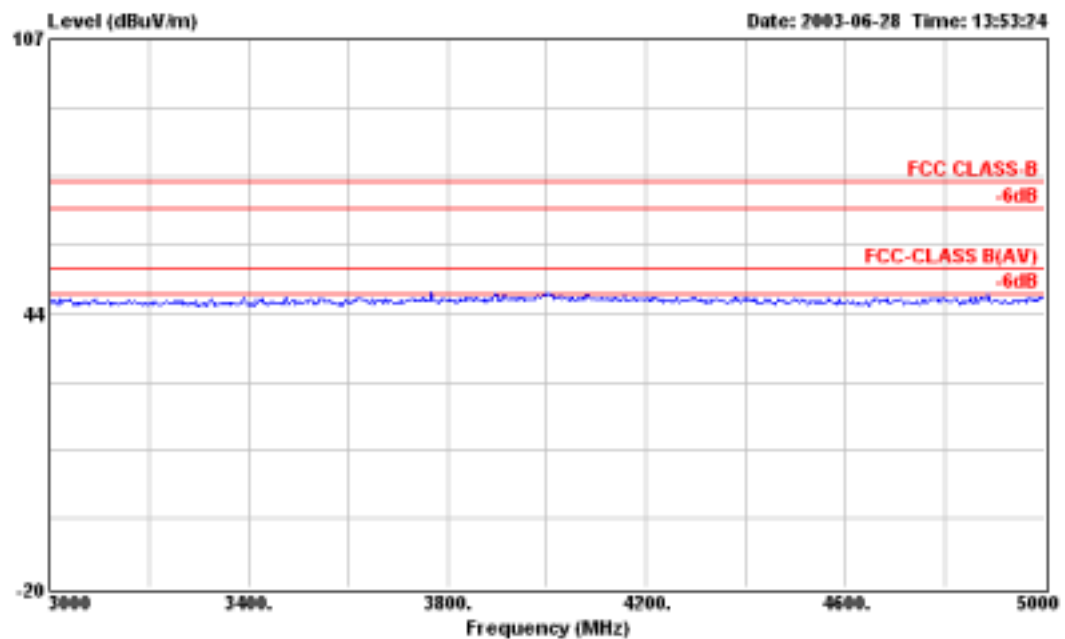
Site : 03CH03-HY
 Condition : 3m 03CH03-MAT VERTICAL
 EUT : Pocket PC
 Power : 110V/60Hz
 MODEL : PE2080A
 MEMO : TX CH01 2412MHz
 : TX CH00 2402MHz
 : Cradle
 : F362011

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	397.300	30.20	-15.80	46.00	39.33	14.54	3.51	27.18	Peak	---	---
2	428.100	28.78	-22.22	46.00	32.56	15.03	3.53	27.34	Peak	---	---
3	455.400	28.92	-17.08	46.00	37.42	15.40	3.58	27.48	Peak	---	---

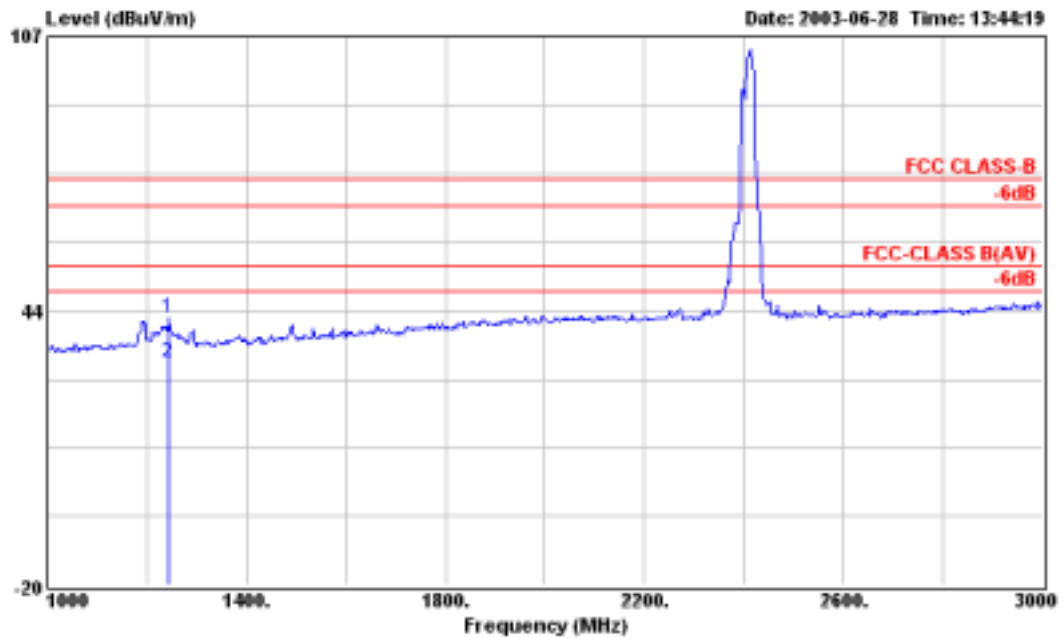


Site : 03CH03-NY
 Condition : FCC CLASS-B 3m 10094 HORN-H HORIZONTAL
 EUT : PDA
 POWER : 110V/60Hz
 Model : PE2080A
 Memo : TX CH01 2412MHz
 Memo : TX CH00 2402MHz
 Memo : Radiated
 Memo : Cradle
 Memo : F362011

	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1190.000	44.19	-29.81	74.00	50.97	25.60	4.23	36.61	Peak	---	---
2	1190.000	31.46	-22.54	54.00	38.24	25.60	4.23	36.61	Average	---	---

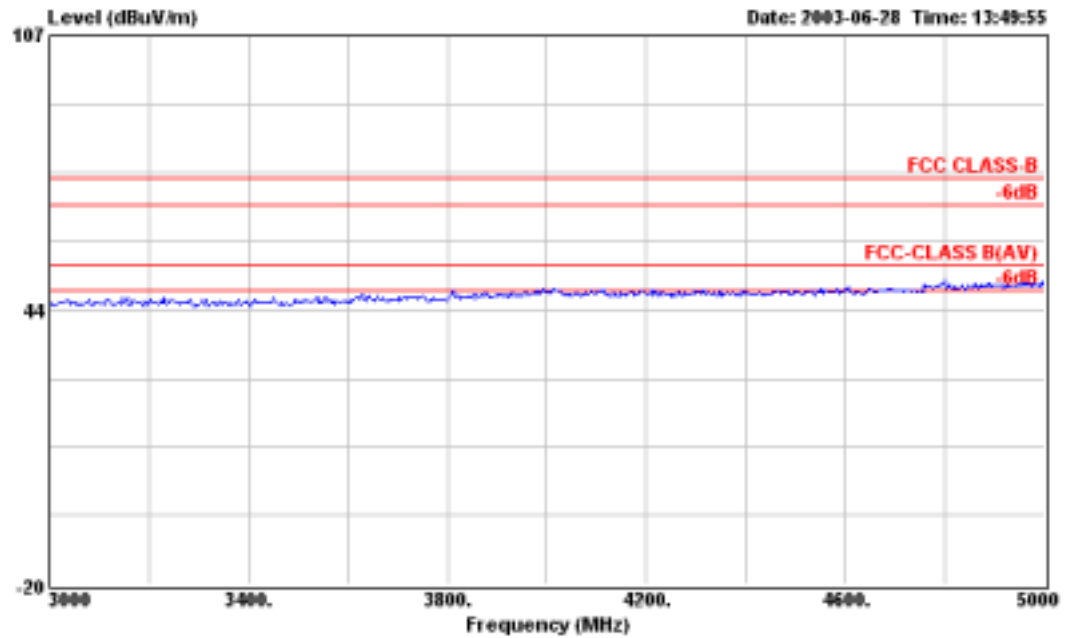


Site : 03CH03-NY
Condition : FCC CLASS-B 3m 10094 HORN-H HORIZONTAL
EUT : PDA
POWER : 110V/60Hz
Model : PE2080A
Memo : TX CH01 2412MHz
Memo : TX CH00 2402MHz
Memo : Radiated
Memo : Cradle
Memo : F362011



Site : 03CH03-NY
 Condition : FCC CLASS-B 3m 10094 HORN-V VERTICAL
 EUT : PDA
 POWER : 110V/60Hz
 Model : PE2080A
 Memo : TX CH01 2412MHz
 Memo : TX CH00 2402MHz
 Memo : Radiated
 Memo : Cradle
 Memo : F362011

	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1244.000	41.65	-32.35	74.00	40.13	25.82	4.31	36.61		---	---
2	1244.000	31.44	-22.56	54.00	37.92	25.82	4.31	36.61	Average	---	---

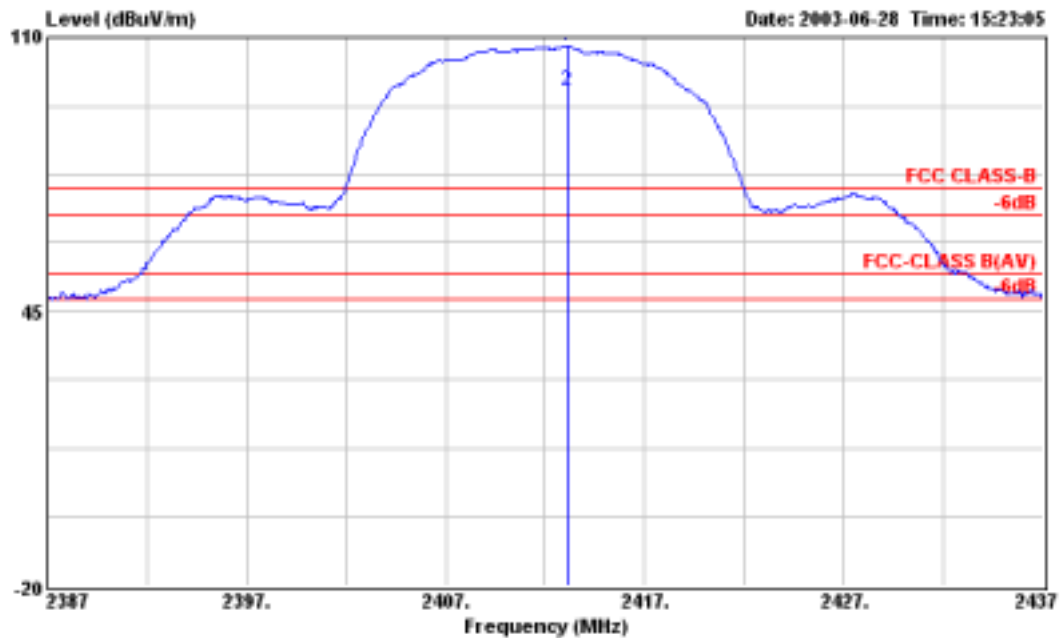


Site : 03CH03-NY
Condition : FCC CLASS-B 3m 10094 HORN-V VERTICAL
EUT : PDA
POWER : 110V/60Hz
Model : PE2080A
Memo : TX CH01 2412MHz
Memo : TX CH00 2402MHz
Memo : Radiated
Memo : Cradle
Memo : F362011

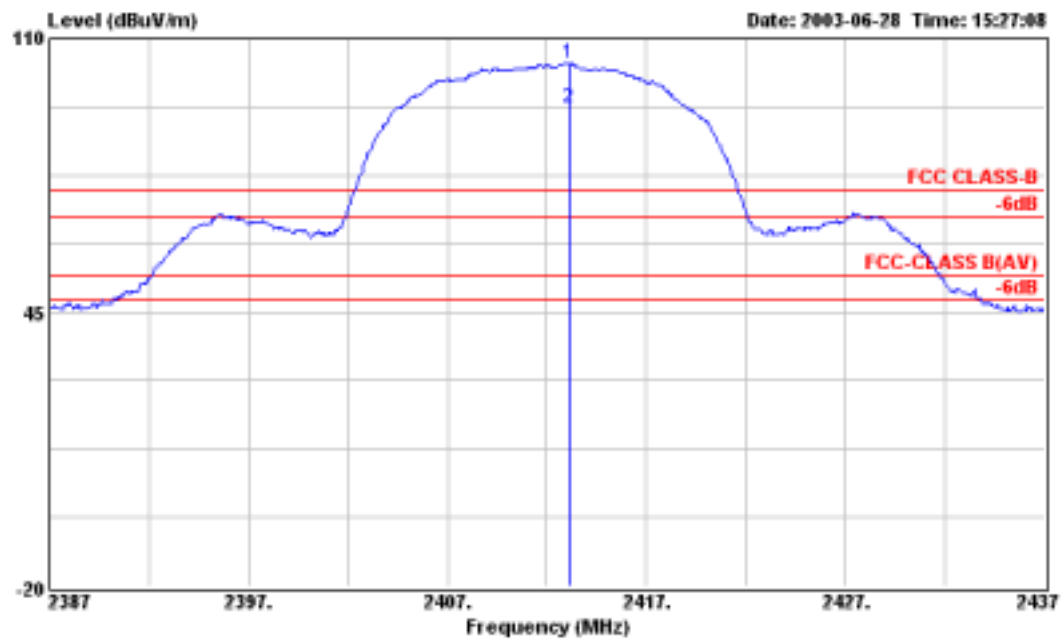
➤ For 5GHz ~ 25GHz

Remark: Frequency from 5000MHz to 25000MHz, the emission emitted by the EUT is too low to be measured

- Field strength of fundamental and harmonics
- CH 01 2412MHz



Site : 03CH03-HY
 Condition : FCC CLASS-B 3m 10094 HORN-H HORIZONTAL
 EUT : PDA
 POWER : 110V/60Hz
 Model : PE2080A
 Memo : TX CH01 2412MHz
 Memo : Carrier Power
 Memo : Radiated
 Memo : Cradle
 Memo : F362011

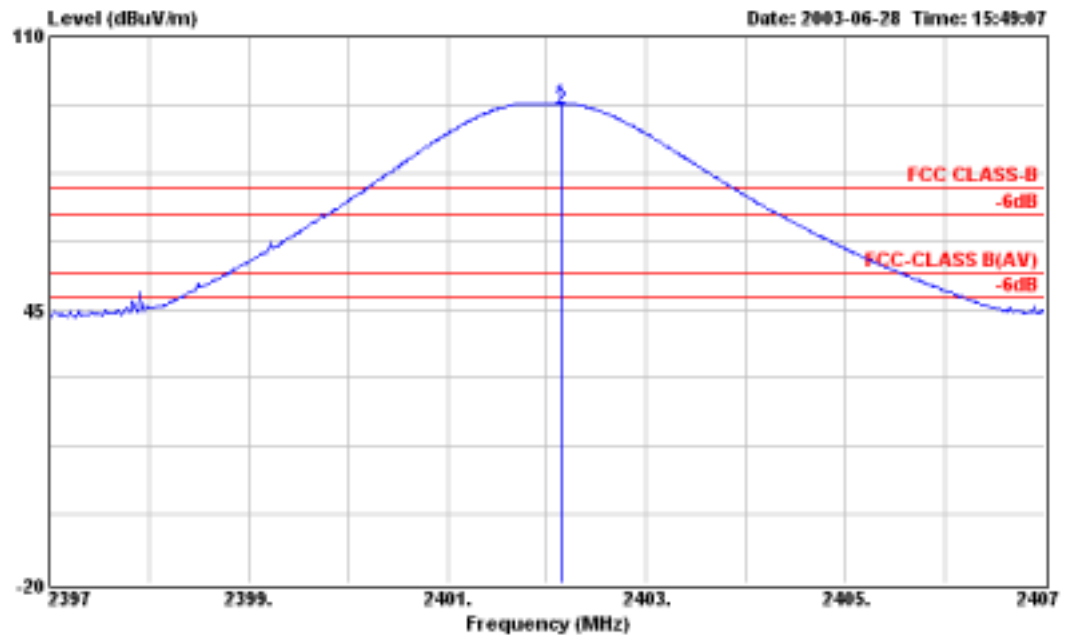


Site : 03CH03-NY
Condition : FCC CLASS-B 3m 10094 HORN-V VERTICAL
EUT : PDA
POWER : 110V/60Hz
Model : PE2080A
Memo : TX CH01 2412MHz
Memo : Carrier Power
Memo : Radiated
Memo : Cradle
Memo : F362011

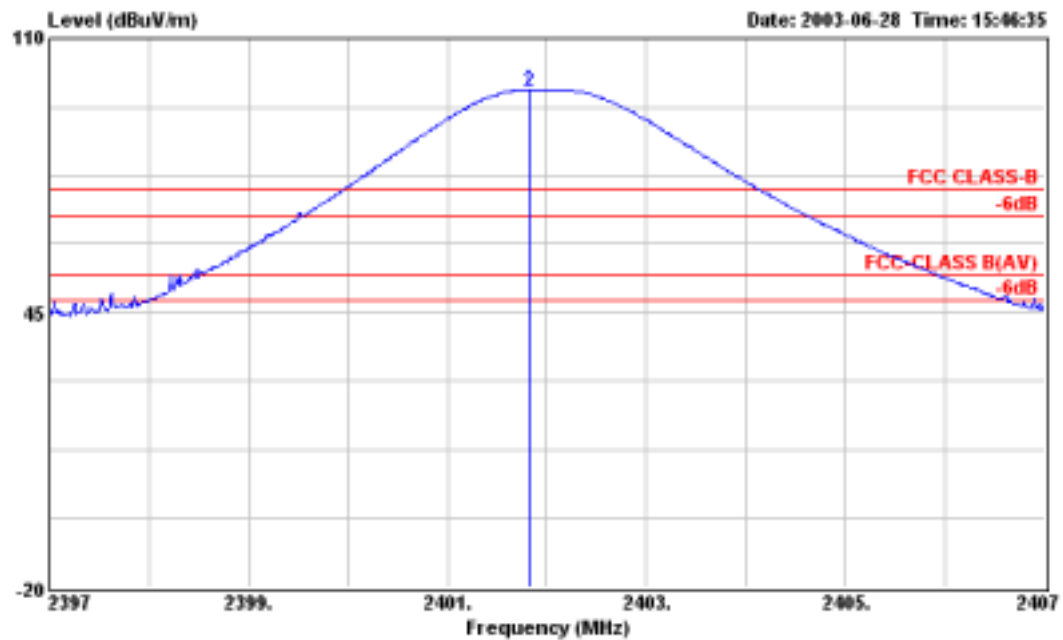
Frequency	Antenna	Cable	Reading	Limits	Emission	Level	Margin	Detect		
	Polarity	Factor	Loss							
(MHz)		(dB/m)	(dB)	(dBuV)	(dBuV/m)	(uV/m)	(dBuV/m)	(uV/m)	(dB)	Mode
2413.100	H	30.18	6.23	71.65	-	-	108.06	252929.80		Peak
2413.100	H	30.18	6.23	60.83	-	-	97.24	72777.98		A.V.
2413.100	V	30.18	6.23	67.86	-	-	104.27	163493.32		Peak
2413.100	V	30.18	6.23	56.93	-	-	93.34	46451.53		A.V.
4824.000	V/H						-			Peak, A.V.
7236.000	V/H						-			Peak, A.V.
9648.000	V/H						-			Peak, A.V.
12060.000	V/H						-			Peak, A.V.
14472.000	V/H						-			Peak, A.V.
16884.000	V/H						-			Peak, A.V.
19296.000	V/H						-			Peak, A.V.
21708.000	V/H						-			Peak, A.V.
24120.000	V/H						-			Peak, A.V.

Remark: The emission emitted by the EUT is too low to be measured except the emission listed above

■ CH 00 2402MHz



Site : 03CH03-NY
Condition : FCC CLASS-B 3a 10094 HORN-H HORIZONTAL
EUT : PDA
POWER : 110V/60Hz
Model : PE2080A
Memo : TX CH00 2402MHz
Memo : Carrier Power
Memo : Radiated
Memo : Cradle
Memo : F362011



Site : 03CH03-HY
Condition : FCC CLASS-B 3m 10094 HORN-V VERTICAL
EUT : PDA
POWER : 110V/60Hz
Model : PE2080A
Memo : TX CH00 2402MHz
Memo : Carrier Power
Memo : Radiated
Memo : Cradle
Memo : F362011

Frequency	Antenna	Cable	Reading	Limits	Emission	Level	Margin	Detect	
Polarity	Factor	Loss							
(MHz)	(dB/m)	(dB)	(dBuV)	(dBuV/m)	(uV/m)	(dBuV/m)	(uV/m)	(dB)	Mode
2402.150	H	30.19	6.20	57.63	-	-	94.02	50234.26	Peak
2402.150	H	30.19	6.20	56.15	-	-	92.54	42364.30	A.V.
2401.830	V	30.19	6.20	61.45	-	-	97.84	77983.01	Peak
2401.830	V	30.19	6.20	61.05	-	-	97.44	74473.20	A.V.
4804.000	V/H					-			Peak, A.V.
7206.000	V/H					-			Peak, A.V.
9608.000	V/H					-			Peak, A.V.
12010.000	V/H					-			Peak, A.V.
14412.000	V/H					-			Peak, A.V.
16814.000	V/H					-			Peak, A.V.
19216.000	V/H					-			Peak, A.V.
21618.000	V/H					-			Peak, A.V.
24020.000	V/H					-			Peak, A.V.

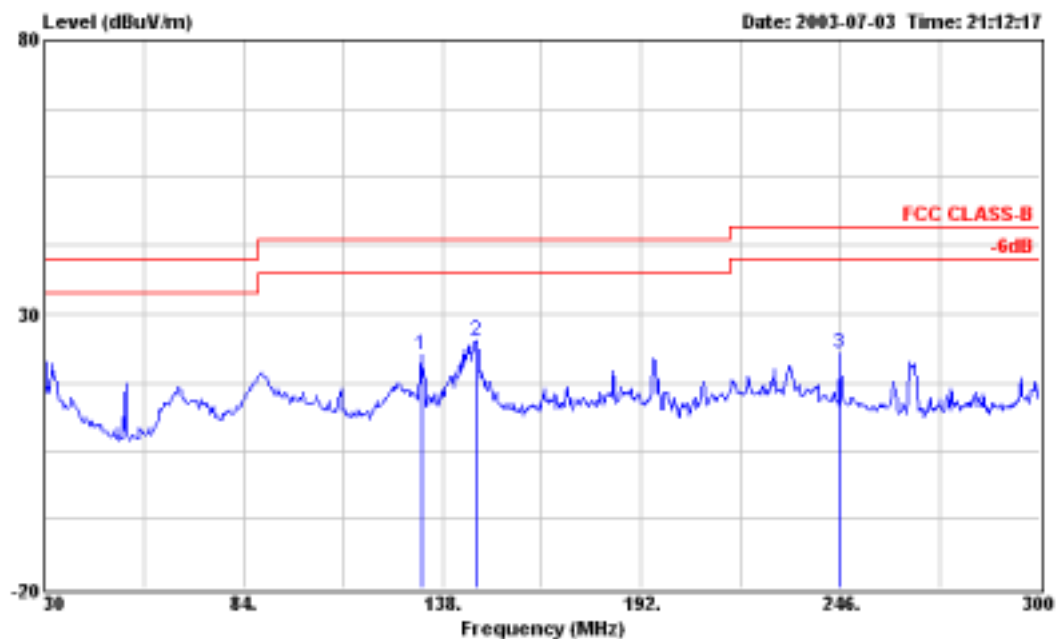
Remark: The emission emitted by the EUT is too low to be measured except the emission listed above

Test Engineer : 
Jay Zhong

- Test Mode: Mode 2
- Test Distance: 3 M
- Temperature: 26 °C
- Relative Humidity: 70 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

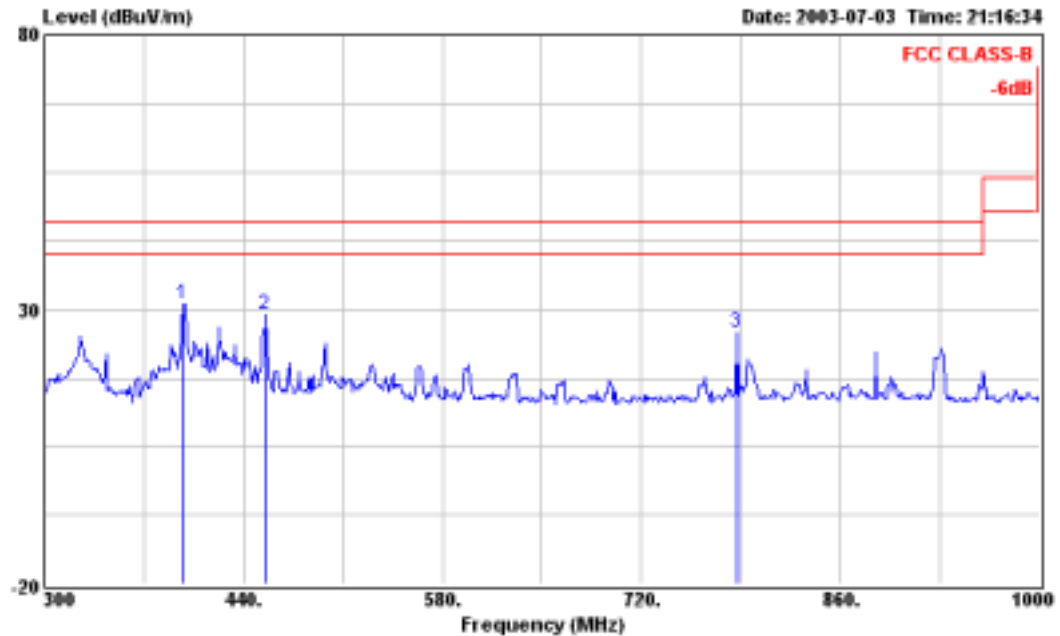
■ The test was passed at the minimum margin that marked by the frame in the following test record

■ Spurious Emission



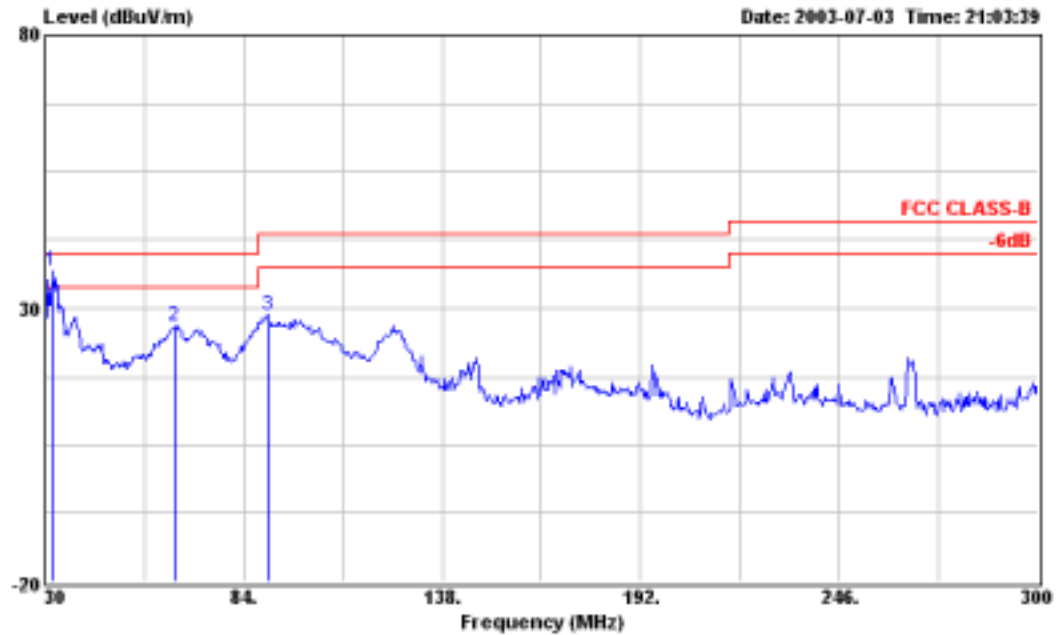
Site : 03CH03-HY
 Condition : 3m 03CH03-MAT HORIZONTAL
 EUT : Pocket PC
 Power : 110V/60Hz
 MODEL : PE2080A
 MEMO : TX CH06 2437MHz
 : TX CH39 2441MHz
 : Cradle
 : F362011

	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	132.330	22.57	-20.93	43.50	37.03	10.45	1.96	26.87	Peak	---	---
2	147.180	25.06	-18.44	43.50	40.14	9.65	2.08	26.81	Peak	---	---
3	245.730	22.85	-23.15	46.00	35.71	11.16	2.50	26.60	Peak	---	---



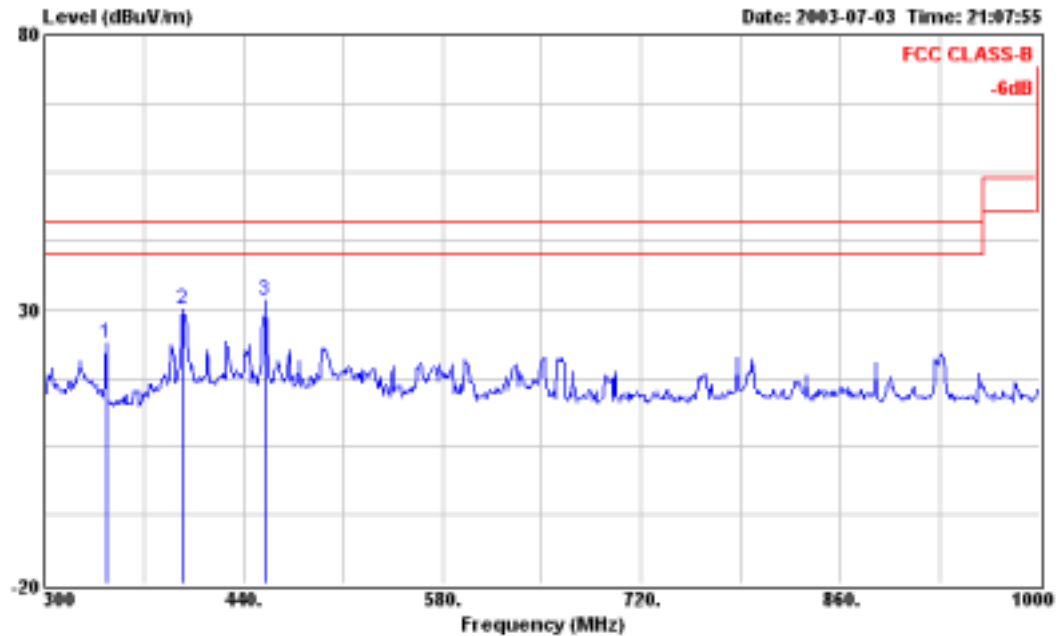
Site : 03CH03-HY
 Condition : 3m 03CH03-MAT HORIZONTAL
 EUT : Pocket PC
 Power : 110V/60Hz
 MODEL : PE2080A
 MEMO : TX CH06 2437MHz
 : TX CH39 2441MHz
 : Cradle
 : F362011

	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	398.000	30.91	-15.09	46.00	40.02	14.57	3.51	27.19	Peak	---	---
2	455.400	29.07	-16.93	46.00	37.57	15.40	3.58	27.48	Peak	---	---
3	786.500	25.88	-20.12	46.00	30.17	18.68	5.03	28.00	Peak	---	---



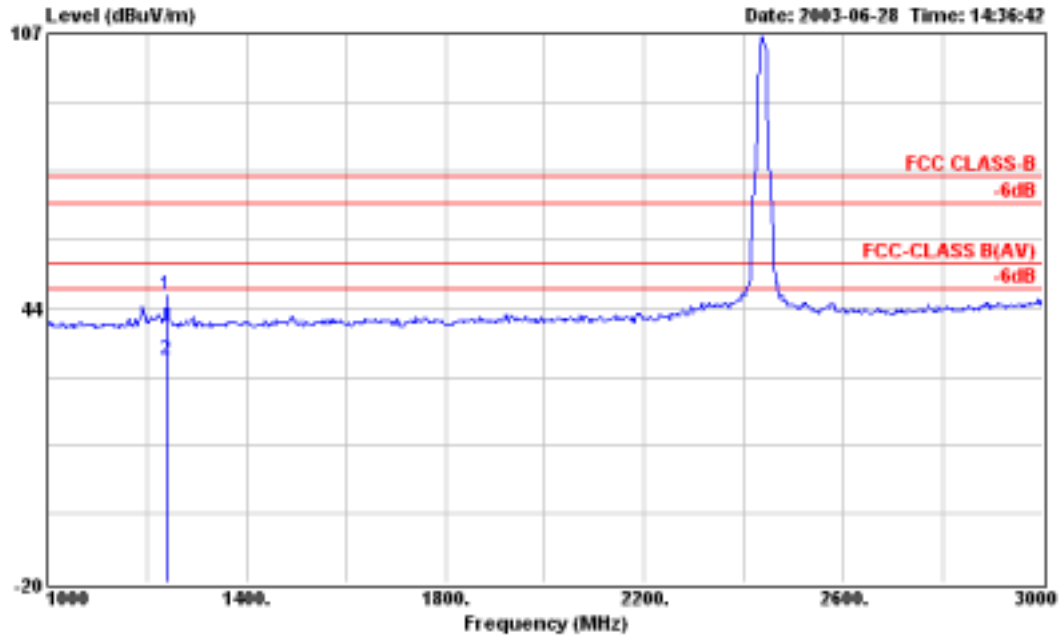
Site : 03CH03-HY
 Condition : 3m 03CH03-MAT VERTICAL
 EUT : Pocket PC
 Power : 110V/60Hz
 MODEL : PE2080A
 MEMO : TX CH06 2437MHz
 : TX CH39 2441MHz
 : Cradle
 : F362011

	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	31.890	36.87	-3.13	40.00	48.66	14.29	1.02	27.10	Peak	100	87
2	65.370	26.82	-13.18	40.00	47.72	4.76	1.41	27.07	Peak	---	---
3	91.020	20.72	-14.78	43.50	45.39	8.84	1.51	27.02	Peak	---	---



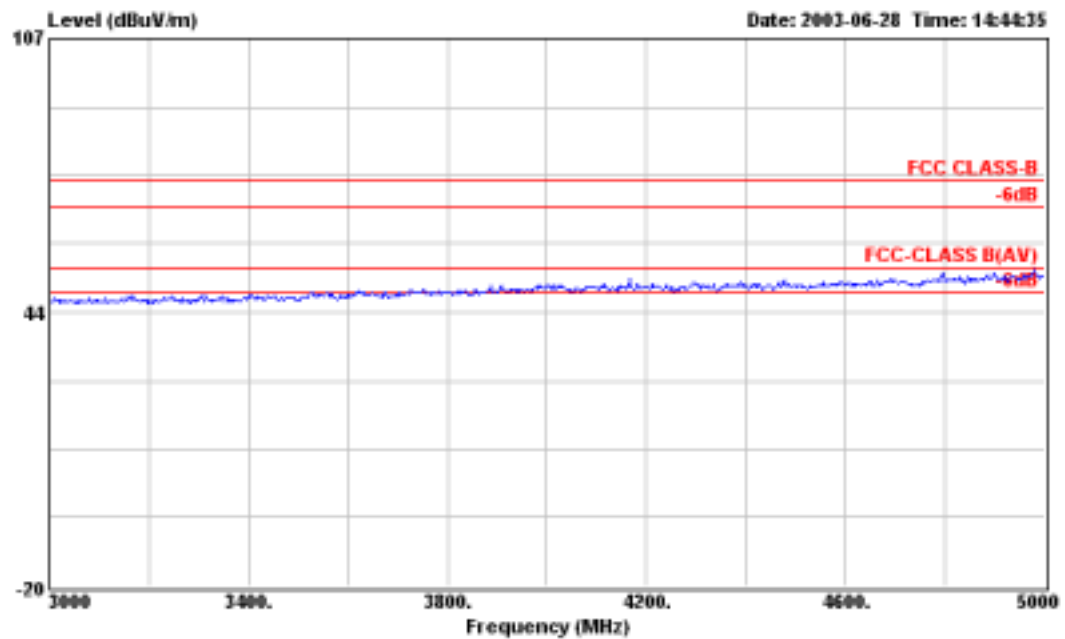
Site : 03CH03-MY
 Condition : 3m 03CH03-MAT VERTICAL
 EUT : Pocket PC
 Power : 110V/60Hz
 MODEL : PE2080A
 MEMO : TX CH06 2437MHz
 : TX CH39 2441MHz
 : Cradle
 : F362011

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	343.400	23.94	-22.06	46.00	34.61	12.79	3.40	26.86	Peak	---	---
2	397.300	29.04	-16.16	46.00	30.97	14.54	3.51	27.10	Peak	---	---
3	455.400	31.65	-14.35	46.00	40.15	15.40	3.58	27.48	Peak	---	---

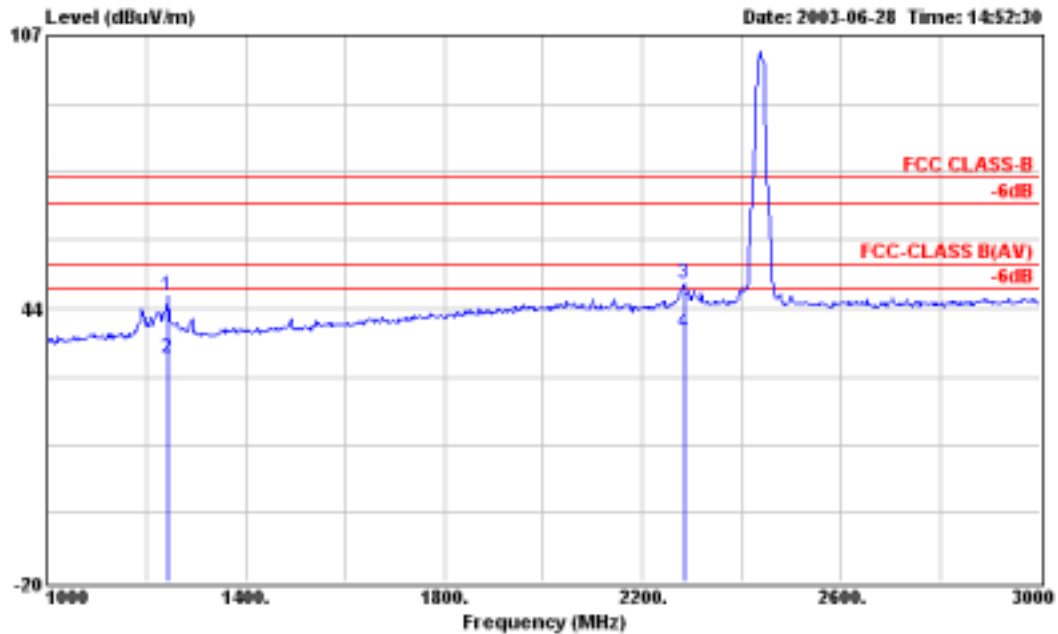


Site : 03CH03-NY
 Condition : FCC CLASS-B 3m 10094 HORN-H HORIZONTAL
 EUT : PDA
 POWER : 110V/60Hz
 Model : PE2080A
 Memo : TX CH06 2437MHz
 Memo : TX CH39 2441MHz
 Memo : Radiated
 Memo : Cradle
 Memo : F362011

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1238.000	46.39	-27.61	74.00	52.90	25.80	4.30	36.61	Peak	---	---
2	1238.000	31.71	-22.29	54.00	38.22	25.80	4.30	36.61	Average	---	---

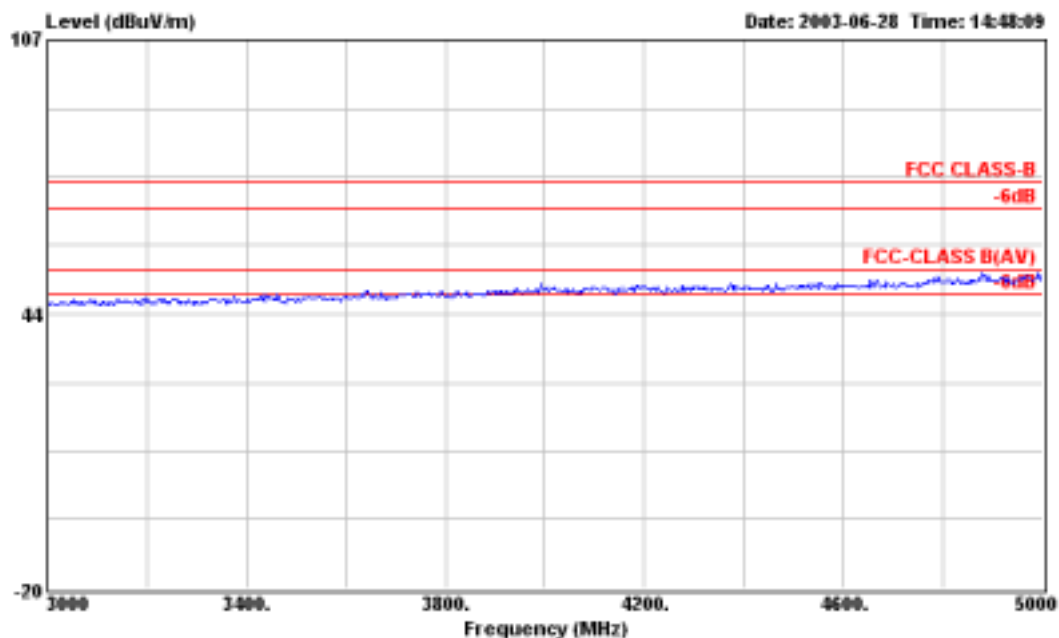


Site : 03CH03-HY
Condition : FCC CLASS-B 3m 10094 HORN-H HORIZONTAL
EUT : FDA
POWER : 110V/60Hz
Model : PE2080A
Memo : TX CH06 2437MHz
Memo : TX CH39 2441MHz
Memo : Radiated
Memo : Cradle
Memo : F362011



Site : 03CH03-HY
 Condition : FCC CLASS-B 3m 10094 HORN-V VERTICAL
 EUT : FDA
 POWER : 110V/60Hz
 Model : PR2000A
 Memo : TX CH06 2437MHz
 Memo : TX CH39 2441MHz
 Memo : Radiated
 Memo : Cradle
 Memo : F362011

	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1244.000	46.32	-27.68	74.00	52.80	25.82	4.31	36.61	Peak	---	---
2	1244.000	31.84	-22.16	54.00	38.32	25.82	4.31	36.61	Average	---	---
3	2284.000	49.18	-24.82	74.00	49.06	30.31	6.06	36.25	Peak	---	---
4	2284.000	37.68	-16.32	54.00	37.56	30.31	6.06	36.25	Average	---	---

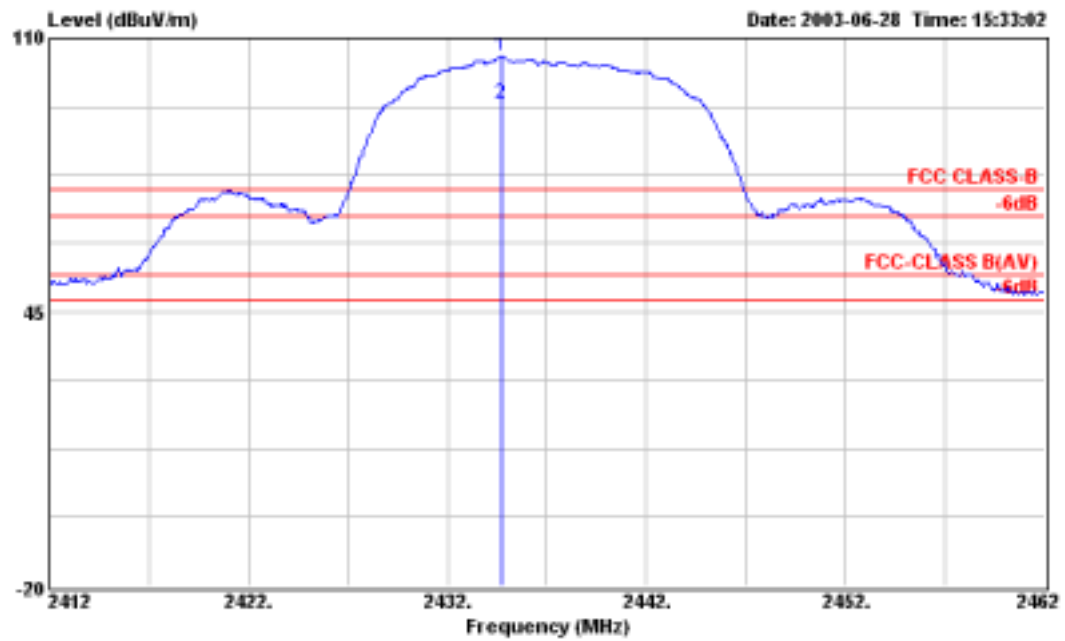


Site : 03CH03-HY
Condition : FCC CLASS-B 3m 10094 HORN-V VERTICAL
EUT : FDA
POWER : 110V/60Hz
Model : PR2000A
Memo : TX CH06 2437MHz
Memo : TX CH39 2441MHz
Memo : Radiated
Memo : Cradle
Memo : F362011

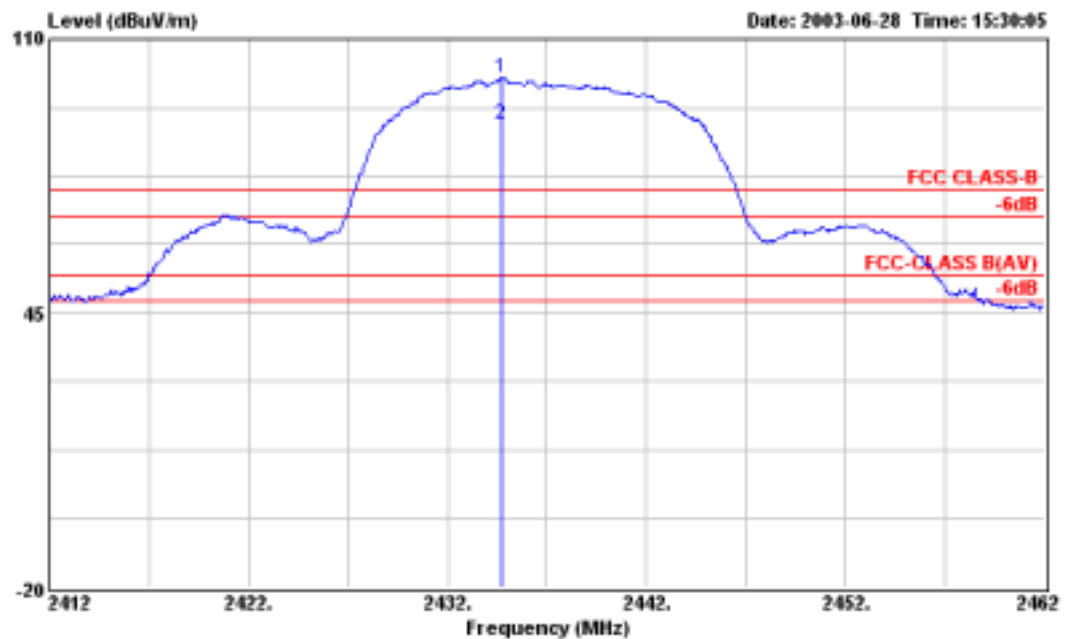
➤ For 5GHz ~ 25GHz

Remark: Frequency from 5000MHz to 25000MHz, the emission emitted by the EUT is too low to be measured

- Field strength of fundamental and harmonics
- CH 06 (2437MHz)



Site : 03CH03-HY
Condition : FCC CLASS-B 3m 10094 HORN-H HORIZONTAL
EUT : FDA
POWER : 110V/60Hz
Model : PE2080A
Memo : TX CH06 2437MHz
Memo : Carrier Power
Memo : Radiated
Memo : Cradle
Memo : F362011

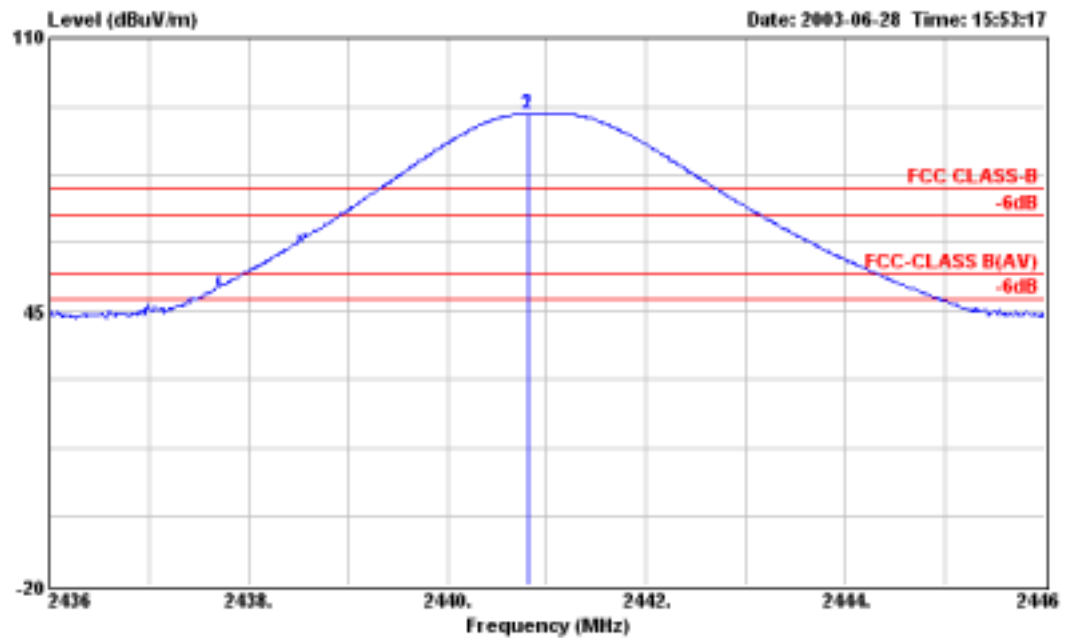


Site : 03CH03-HY
Condition : FCC CLASS-B 3m 10094 HORN-V VERTICAL
EUT : PDA
POWER : 110V/60Hz
Model : PE2080A
Memo : TX CH06 2437MHz
Memo : Carrier Power
Memo : Radiated
Memo : Cradle
Memo : F362011

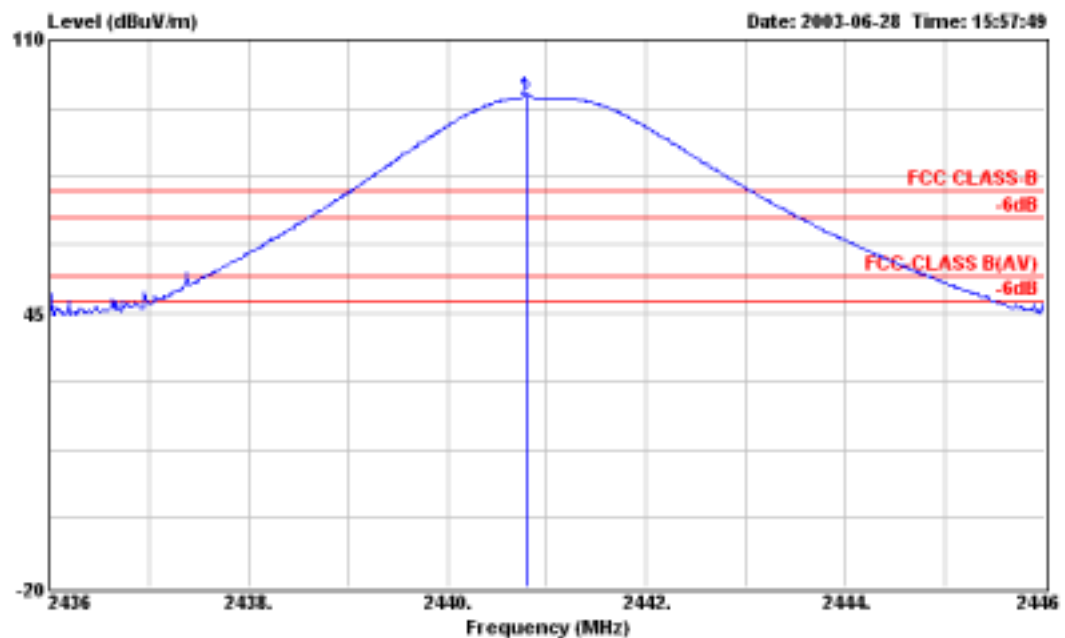
Frequency	Antenna	Cable	Reading	Limits	Emission	Level	Margin	Detect	
Polarity	Factor	Loss							
(MHz)	(dB/m)	(dB)	(dBuV)	(dBuV/m)	(uV/m)	(dBuV/m)	(uV/m)	(dB)	Mode
2434.700	H	30.15	6.26	69.17	-	-	105.58	190107.83	Peak
2434.700	H	30.15	6.26	57.91	-	-	94.32	51999.60	A.V.
2434.750	V	30.15	6.26	64.38	-	-	100.79	109521.66	Peak
2434.750	V	30.15	6.26	53.27	-	-	89.68	30478.95	A.V.
4874.000	V/H					-			Peak, A.V.
7311.000	V/H					-			Peak, A.V.
9748.000	V/H					-			Peak, A.V.
12185.000	V/H					-			Peak, A.V.
14622.000	V/H					-			Peak, A.V.
17059.000	V/H					-			Peak, A.V.
19496.000	V/H					-			Peak, A.V.
21933.000	V/H					-			Peak, A.V.
24370.000	V/H					-			Peak, A.V.

Remark: The emission emitted by the EUT is too low to be measured except the emission listed above

■ CH 39 (2441MHz)



Site : 03CH03-HY
Condition : FCC CLASS-B 3m 10094 HORN-H HORIZONTAL
EUT : PDA
POWER : 110V/60Hz
Model : PE2080A
Memo : TX CH39 2441MHz
Memo : Carrier Power
Memo : Radiated
Memo : Cradle
Memo : F362011



Site : 03CH03-HY
Condition : FCC CLASS-B 3m 10094 HORN-V VERTICAL
EUT : FDA
POWER : 110V/60Hz
Model : PE2080A
Memo : TX CH39 2441MHz
Memo : Carrier Power
Memo : Radiated
Memo : Cradle
Memo : F362011

Frequency	Antenna	Cable	Reading	Limits	Emission	Level	Margin	Detect	
Polarity	Factor	Loss							
(MHz)	(dB/m)	(dB)	(dBuV)	(dBuV/m)	(uV/m)	(dBuV/m)	(uV/m)	(dB)	Mode
2440.820	H	30.15	6.26	55.55	-	-	91.96	39627.80	Peak
2440.820	H	30.15	6.26	55.28	-	-	91.69	38414.93	A.V.
2440.790	V	30.15	6.26	59.90	-	-	96.31	65388.29	Peak
2440.790	V	30.15	6.26	59.33	-	-	95.74	61235.04	A.V.
4882.000	V/H						-		Peak, A.V.
7323.000	V/H						-		Peak, A.V.
9764.000	V/H						-		Peak, A.V.
12205.000	V/H						-		Peak, A.V.
14646.000	V/H						-		Peak, A.V.
17087.000	V/H						-		Peak, A.V.
19528.000	V/H						-		Peak, A.V.
21969.000	V/H						-		Peak, A.V.
24410.000	V/H						-		Peak, A.V.

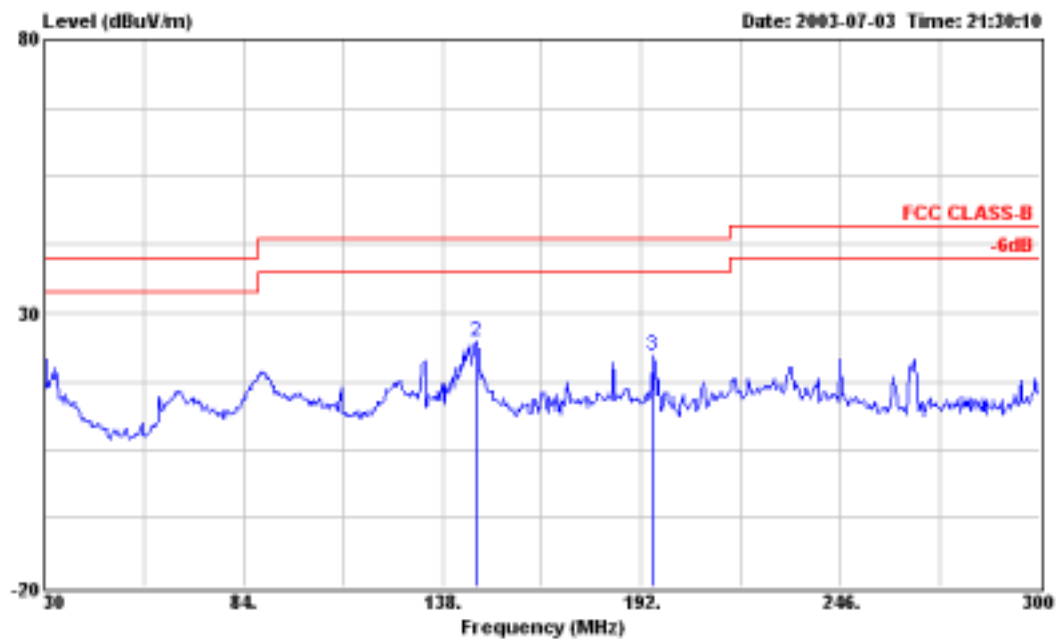
Remark: The emission emitted by the EUT is too low to be measured except the emission listed above

Test Engineer : 
Jay Zhong

- Test Mode: Mode 3
- Test Distance: 3 M
- Temperature: 26 °C
- Relative Humidity: 70 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

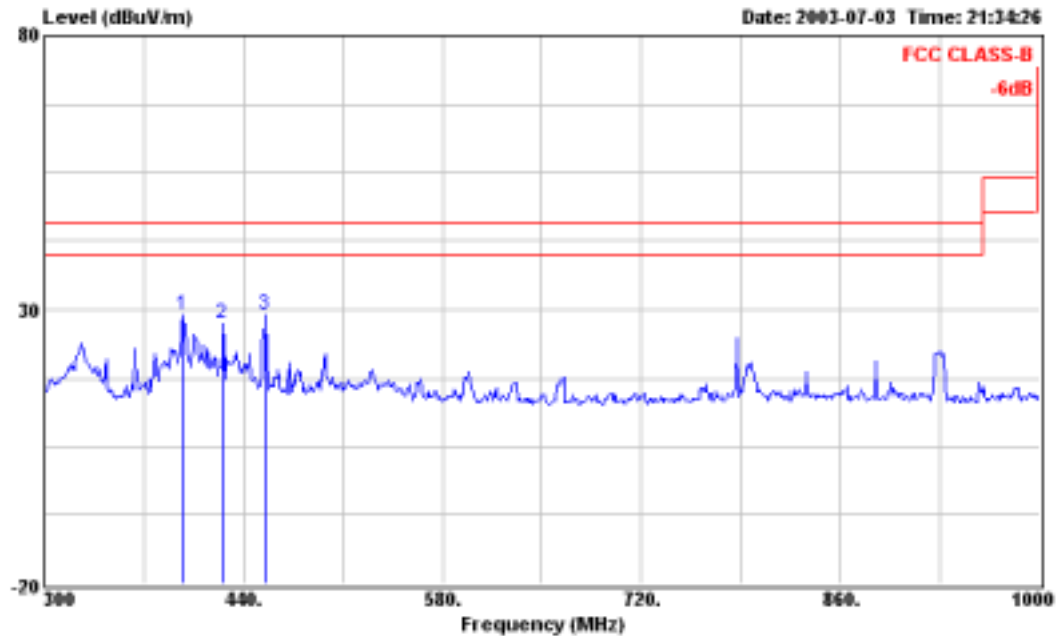
■ The test was passed at the minimum margin that marked by the frame in the following test record

■ Spurious Emission



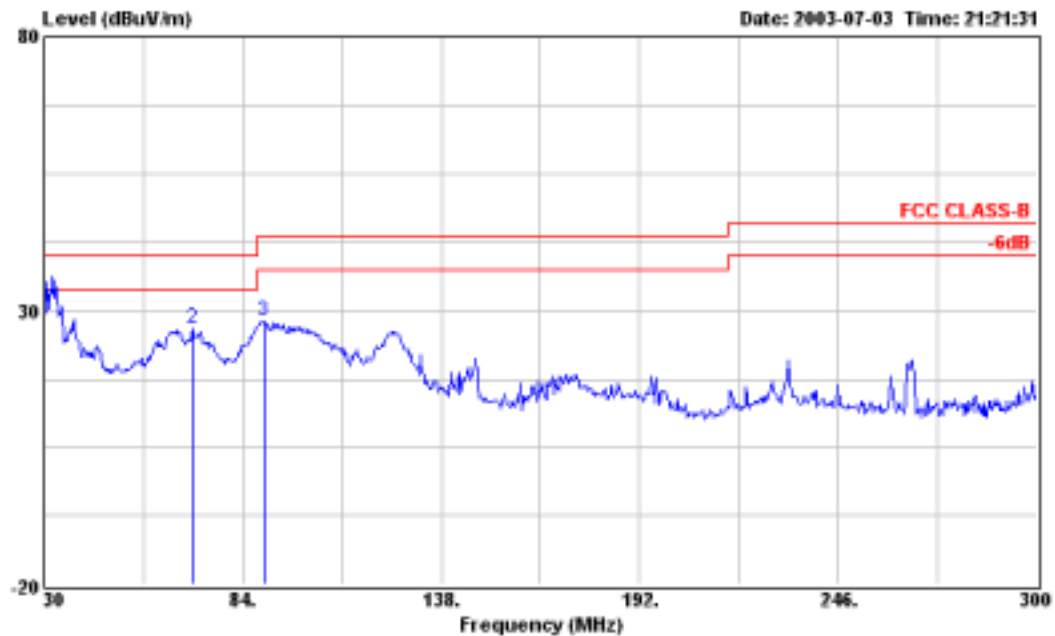
Site : 03CH03-HY
 Condition : 3m 03CH03-MAT HORIZONTAL
 EUT : Pocket PC
 Power : 110V/60Hz
 MODEL : PE2080A
 MEMO : TX CH11 2462MHz
 : TX CH78 2480MHz
 : Cradle
 : F362011

	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	30.000	23.88	-16.12	40.00	34.62	15.35	1.01	27.10	Peak	---	---
2	147.180	24.88	-18.62	43.50	39.96	9.65	2.08	26.81	Peak	---	---
3	194.970	22.28	-21.22	43.50	39.31	7.34	2.25	26.62	Peak	---	---



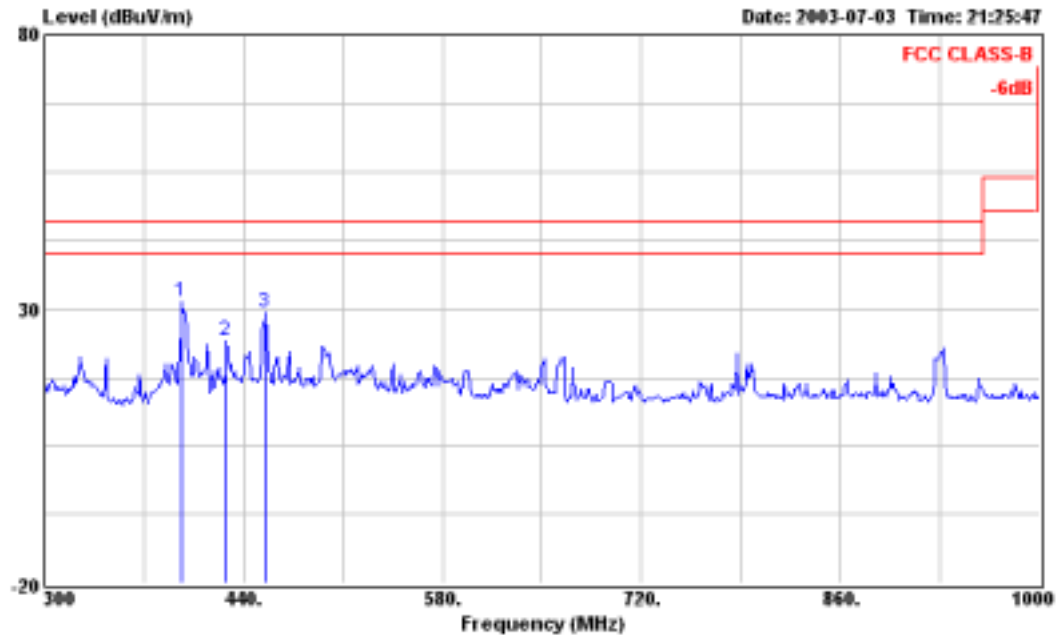
Site : 03CH03-HY
 Condition : 3m 03CH03-MAT HORIZONTAL
 EUT : Pocket PC
 Power : 110V/60Hz
 MODEL : PE2080A
 MEMO : TX CH11 2462MHz
 : TX CH76 2480MHz
 : Cradle
 : F362011

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	397.300	29.00	-17.00	46.00	38.13	14.54	3.51	27.18	Peak	---	---
2	425.300	27.26	-18.74	46.00	36.07	14.99	3.53	27.33	Peak	---	---
3	455.400	29.17	-16.83	46.00	37.67	15.40	3.50	27.48	Peak	---	---



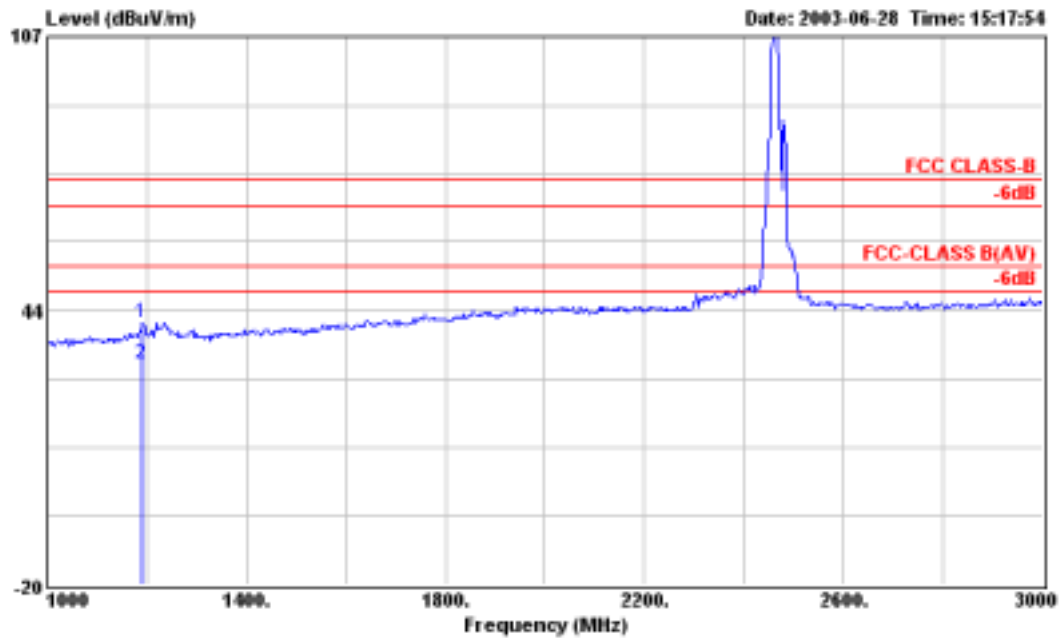
Site : 03CH03-NY
 Condition : 3m 03CH03-MAT VERTICAL
 EUT : Pocket PC
 Power : 110V/60Hz
 MODEL : PE2080A
 MEMO : TX CH11 2462MHz
 : TX CH78 2480MHz
 : Cradle
 : F362011

	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	30.000	36.31	-3.69	40.00	47.05	15.35	1.01	27.10	Peak	100	49
2	70.500	26.78	-13.22	40.00	47.01	4.58	1.45	27.06	Peak	---	---
3	89.940	28.02	-15.48	43.50	44.83	8.78	1.43	27.02	Peak	---	---



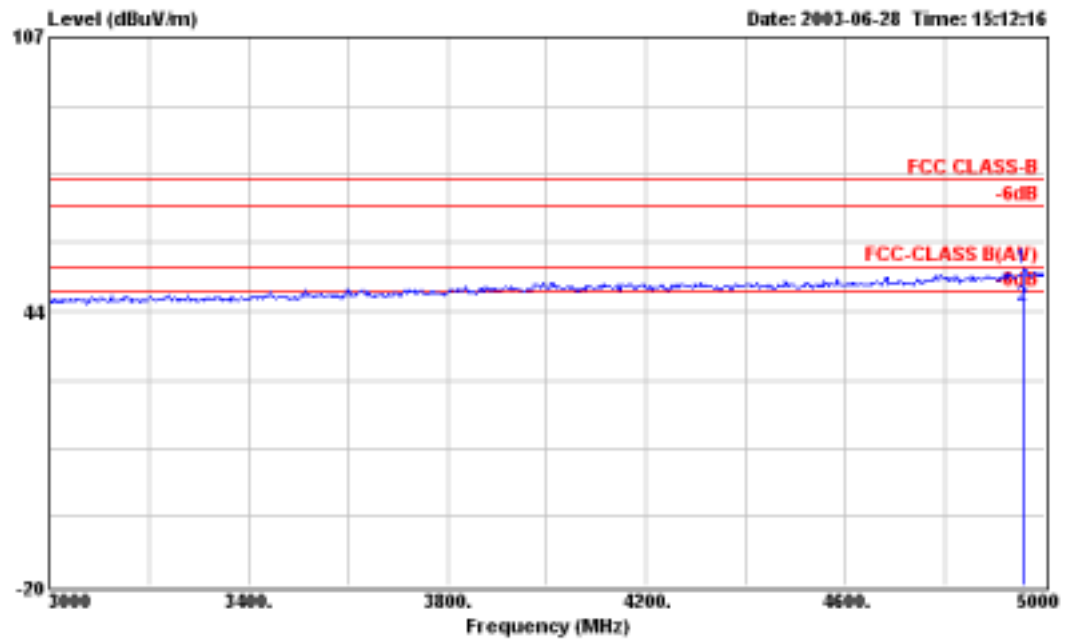
Site : 03CH03-NY
 Condition : 3m 03CH03-MAT VERTICAL
 EUT : Pocket PC
 Power : 110V/60Hz
 MODEL : PE2080A
 MEMO : TX CH11 2462MHz
 : TX CH78 2480MHz
 : Cradle
 : F362011

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	396.600	31.23	-14.77	46.00	40.38	14.52	3.51	27.18	Peak	---	---
2	420.100	24.10	-21.82	46.00	32.96	15.03	3.53	27.34	Peak	---	---
3	455.400	29.40	-16.60	46.00	37.90	15.40	3.58	27.48	Peak	---	---

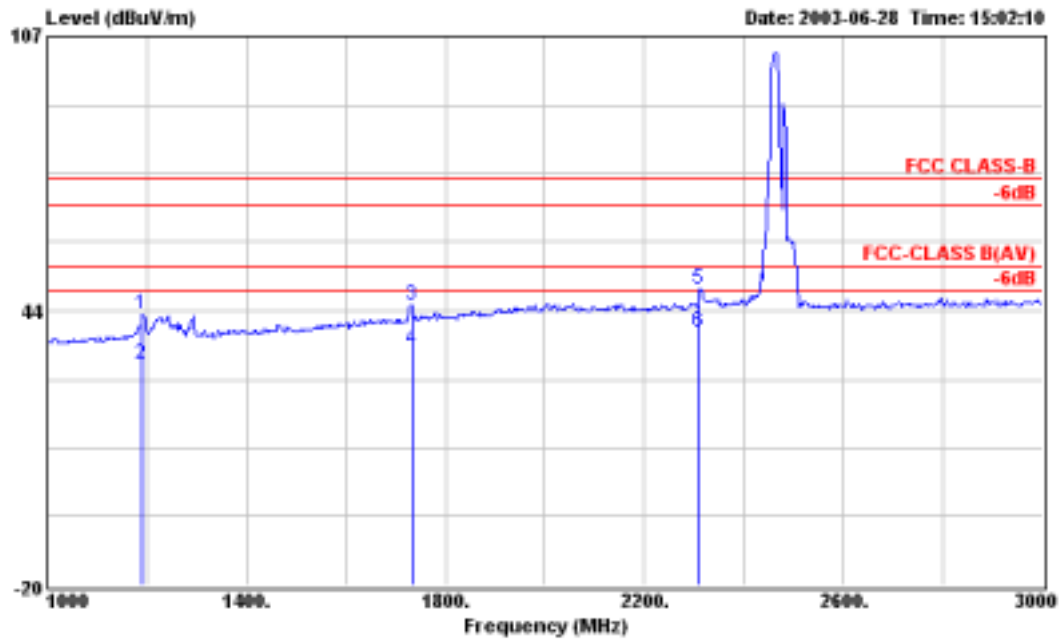


Site : 03CH03-HY
 Condition : FCC CLASS-B 3m 10094 HORN-H HORIZONTAL
 EUT : PDA
 POWER : 110V/60Hz
 Model : PE2080A
 Memo : TX CH11 2462MHz
 Memo : TX CH78 2480MHz
 Memo : Radiated
 Memo : Cradle
 Memo : F362011

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1190.000	40.69	-33.31	74.00	47.47	25.60	4.23	36.61	Peak	---	---
2	1190.000	31.05	-22.95	54.00	37.83	25.60	4.23	36.61	Average	---	---

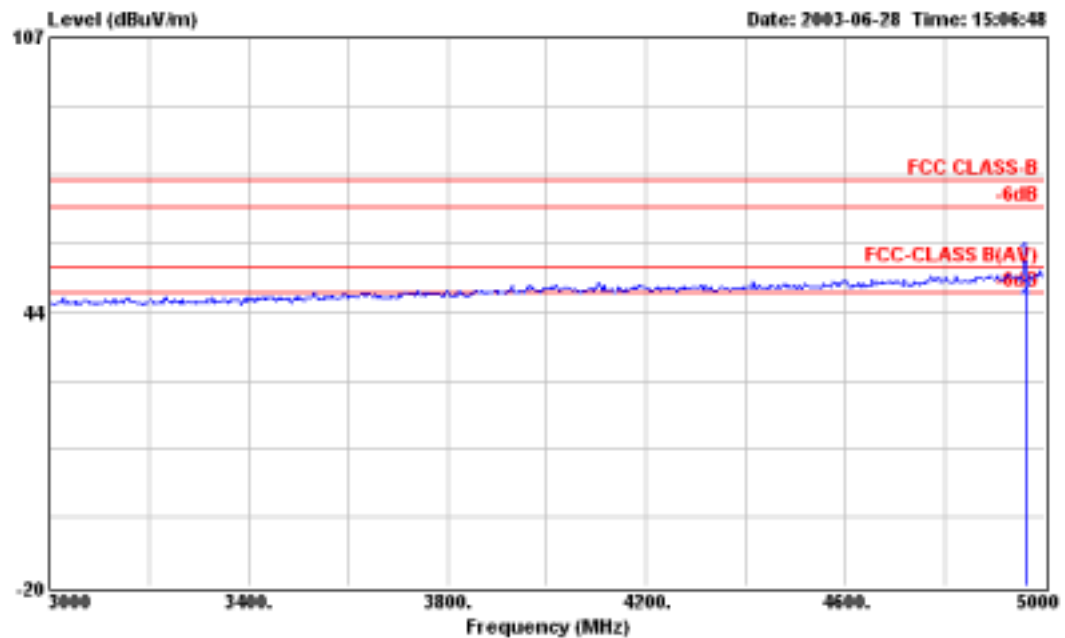


Site : 03CH03-HY
Condition : FCC CLASS-B 3m 10094 HORN-H HORIZONTAL
EUT : PDA
POWER : 110V/60Hz
Model : PE2000A
Memo : TX CH11 2462MHz
Memo : TX CH78 2480MHz
Memo : Radiated
Memo : Cradle
Memo : F362011



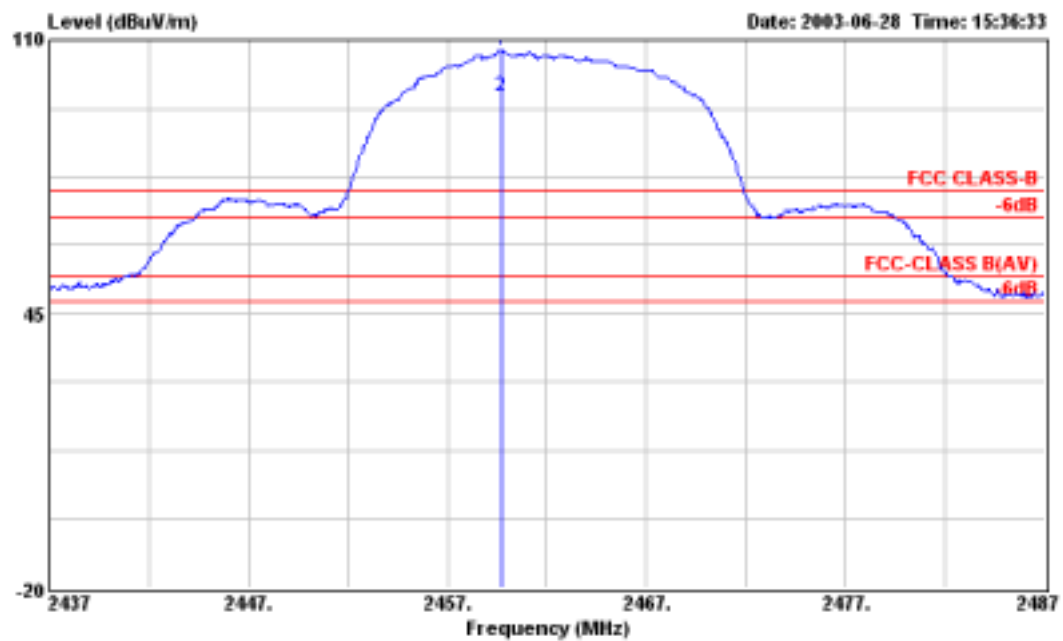
Site : 03CH03-HY
 Condition : FCC CLASS-B 3m 10094 HORN-V VERTICAL
 EUT : FDA
 POWER : 110V/60Hz
 Model : PE2080A
 Memo : TX CH11 2462MHz
 Memo : TX CH78 2480MHz
 Memo : Radiated
 Memo : Cradle
 Memo : F362011

	Freq	Level	Over	Limit	Read	Probe	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	1190.000	42.56	-31.44	74.00	49.34	25.60	4.23	36.61	Peak	---	---
2	1190.000	31.17	-22.83	54.00	37.95	25.60	4.23	36.61	Average	---	---
3	1732.000	44.65	-29.35	74.00	47.30	28.64	5.16	36.45	Peak	---	---
4	1732.000	34.51	-19.49	54.00	37.16	28.64	5.16	36.45	Average	---	---
5	2310.000	48.35	-25.65	74.00	48.23	30.28	6.09	36.25	Peak	---	---
6	2310.000	38.62	-15.38	54.00	38.50	30.28	6.09	36.25	Average	---	---

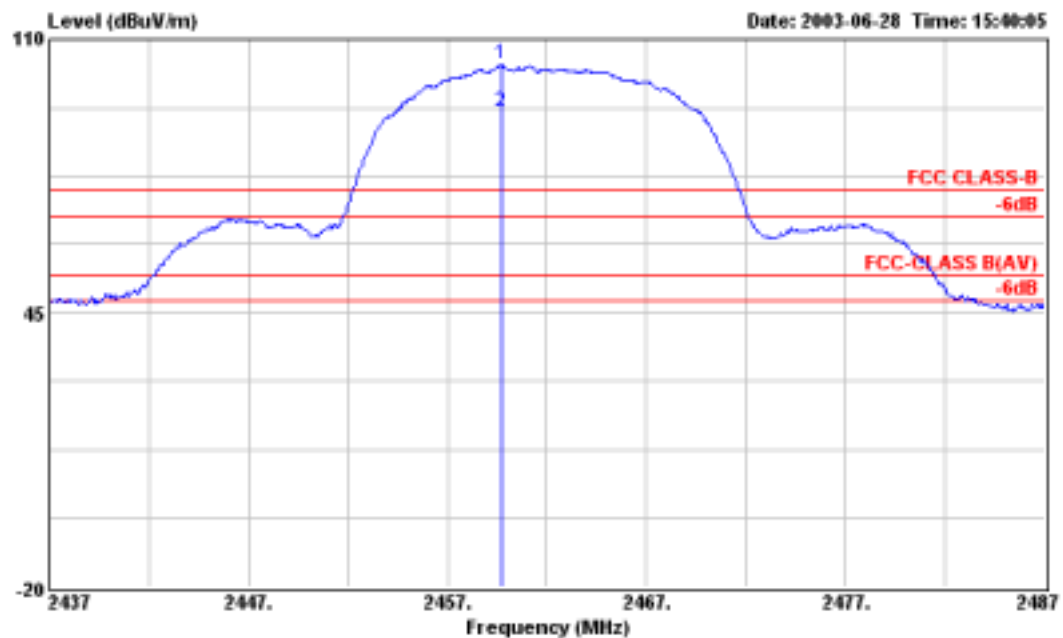


Site : 03CH03-NY
Condition : FCC CLASS-B 3m 10094 HORN-V VERTICAL
EUT : PDA
POWER : 110V/60Hz
Model : PE2080A
Memo : TX CH11 2462MHz
Memo : TX CH70 2480MHz
Memo : Radiated
Memo : Cradle
Memo : F362011

- Field strength of fundamental and harmonics
- CH 11 (2462MHz)



Site : 03CH03-HY
Condition : FCC CLASS-B 3m 10094 HORN-H HORIZONTAL
EUT : PDA
POWER : 110V/60Hz
Model : PE2080A
Memo : TX CH11 2462MHz
Memo : Carrier Power
Memo : Radiated
Memo : Cradle
Memo : F362011

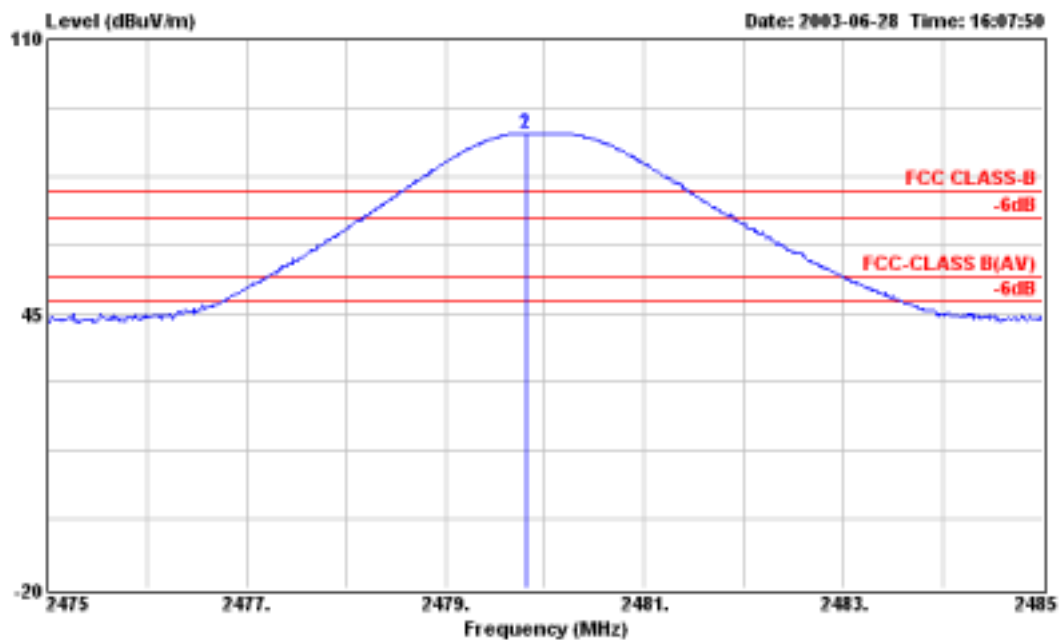


Site : 03CH03-HY
Condition : FCC CLASS-B 3m 10094 HORN-V VERTICAL
EUT : PDA
POWER : 110V/60Hz
Model : PE2080A
Memo : TX CH11 2462MHz
Memo : Carrier Power
Memo : Radiated
Memo : Cradle
Memo : F362011

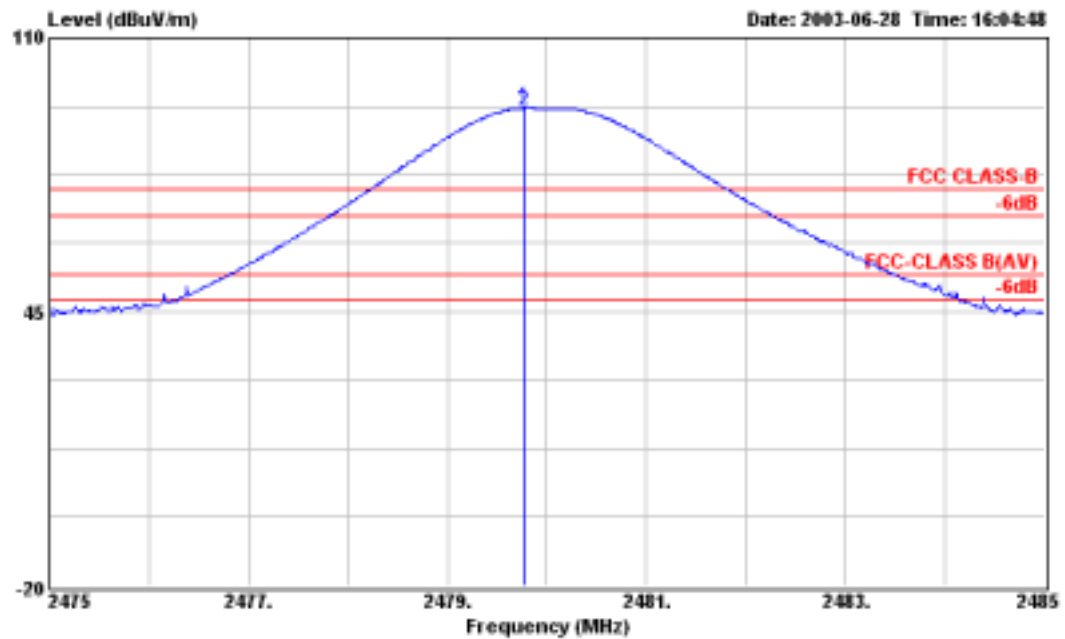
Frequency	Antenna	Cable	Reading	Limits	Emission	Level	Margin	Detect	
Polarity	Factor	Loss							
(MHz)	(dB/m)	(dB)	(dBuV)	(dBuV/m)	(uV/m)	(dBuV/m)	(uV/m)	(dB)	Mode
2459.700	H	30.13	6.29	71.09	-	-	107.51	237410.54	Peak
2459.700	H	30.13	6.29	60.04	-	-	96.46	66527.32	A.V.
2459.000	V	30.13	6.29	67.52	-	-	103.94	157398.29	Peak
2459.000	V	30.13	6.29	56.46	-	-	92.88	44055.49	A.V.
4924.000	V/H					-			Peak, A.V.
7386.000	V/H					-			Peak, A.V.
9848.000	V/H					-			Peak, A.V.
12310.000	V/H					-			Peak, A.V.
14772.000	V/H					-			Peak, A.V.
17234.000	V/H					-			Peak, A.V.
19696.000	V/H					-			Peak, A.V.
22158.000	V/H					-			Peak, A.V.
24620.000	V/H					-			Peak, A.V.

Remark: The emission emitted by the EUT is too low to be measured except the emission listed above

■ CH 78 (2480MHz)



Site : 03CH03-NY
Condition : FCC CLASS-B 3a 10094 HORN-H HORIZONTAL
EUT : PDA
POWER : 110V/60Hz
Model : PB2080A
Memo : TX CH78 2480MHz
Memo : Carrier Power
Memo : Radiated
Memo : Cradle
Memo : F362011



Site : 03CH03-HY
Condition : FCC CLASS-B 3m 10094 HORN-V VERTICAL
EUT : FDA
POWER : 110V/60Hz
Model : PE2080A
Memo : TX CH78 2480MHz
Memo : Carrier Power
Memo : Radiated
Memo : Cradle
Memo : F362011

Frequency	Antenna	Cable	Reading	Limits	Emission	Level	Margin	Detect		
Polarity	Factor	Loss								
(MHz)	(dB/m)	(dB)	(dBuV)	(dBuV/m)	(uV/m)	(dBuV/m)	(uV/m)	(dB)	Mode	
2479.820	H	30.12	6.30	51.39	-	-	87.81	24575.37	Peak	
2479.820	H	30.12	6.30	51.04	-	-	87.46	23604.78	A.V.	
4958.000	H	33.70	9.14	10.42	74.00	5011.87	53.26	460.26	-20.74	Peak
4958.000	H	33.70	9.14	1.81	54.00	501.19	44.65	170.80	-9.35	A.V.
2479.000	V	30.12	6.30	56.93	-	-	93.35	46505.04		Peak
2479.000	V	60.12	6.30	26.33	-	-	92.75	43401.03		A.V.
4964.000	V	33.72	9.14	12.34	74.00	5011.87	55.20	575.44	-18.80	Peak
4964.000	V	33.72	9.14	3.68	54.00	501.19	46.54	212.32	-7.46	A.V.
7440.000	V/H						-			Peak, A.V.
9920.000	V/H						-			Peak, A.V.
12400.000	V/H						-			Peak, A.V.
14880.000	V/H						-			Peak, A.V.
17360.000	V/H						-			Peak, A.V.
19840.000	V/H						-			Peak, A.V.
22320.000	V/H						-			Peak, A.V.
24800.000	V/H						-			Peak, A.V.

Remark: The emission emitted by the EUT is too low to be measured except the emission listed above

Test Engineer :

Jay

Jay Zhong

5.13. Band Edges Measurement

5.13.1. Measuring Instruments :

As described in chapter 9 of this test report.

5.13.2. Test Procedure :

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set both RBW and VBW of spectrum analyzer to 100KHz with convenient frequency span including 100 KHz bandwidth from band edge.
3. The band edges was measured and recorded.

5.13.3. Test Result :

- Test Result in lower band (Channel 1) : PASS
- Test Result in higher band(Channel 11) : PASS

5.13.4. Note on Band edge Emission

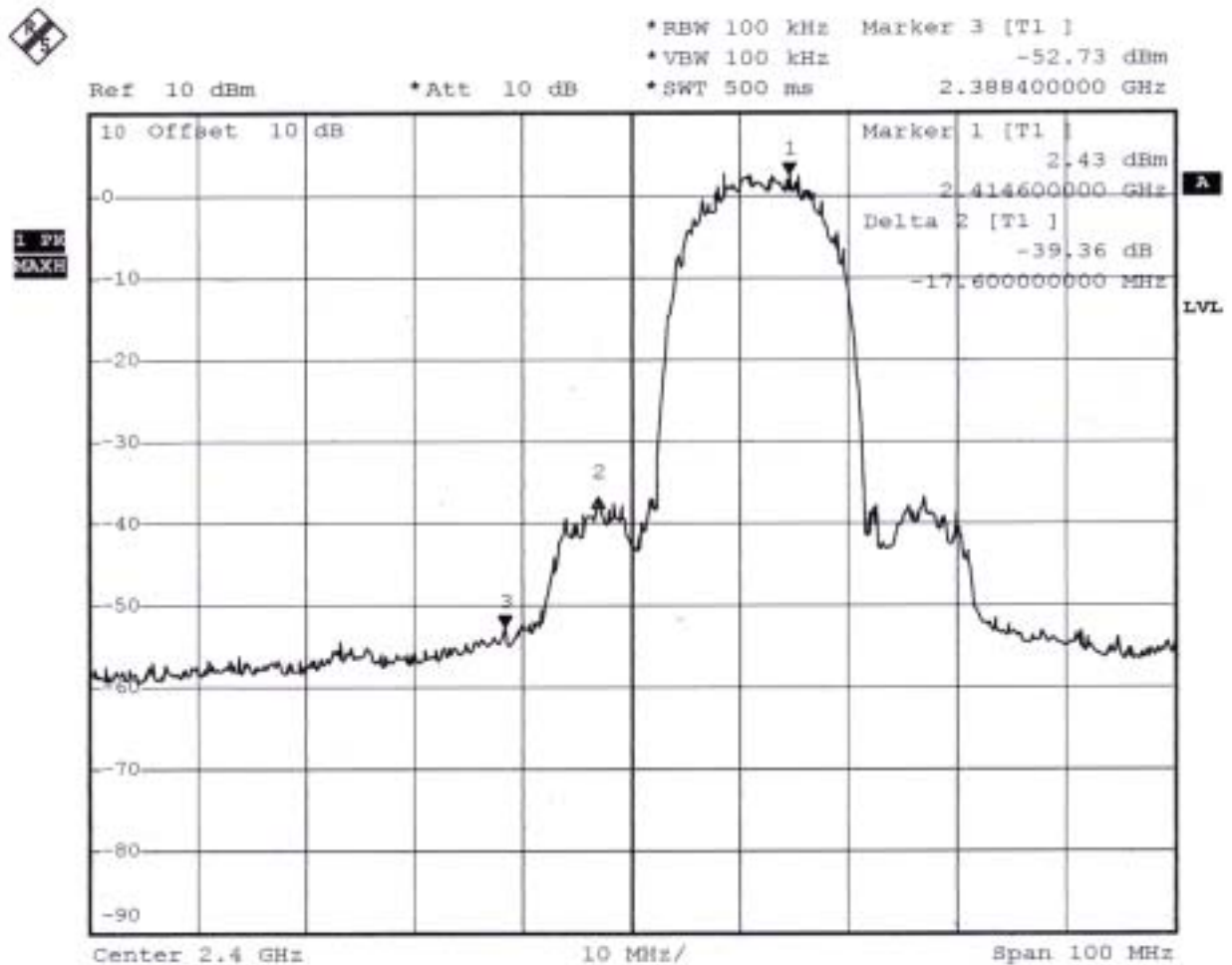
The band edge emission plot on page 123. shows 55.60dB delta between carrier maximum power and local maximum emission in the restricted band (2.4835GHz).

Channel	Polarity	The emission of carrier power strength (dB μ V/m)	The maximum field strength in restrict band (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
01	H	108.06	52.90	74.00	-21.10	Peak
	H	97.24	42.08	54.00	-11.92	Average
	V	104.27	49.11	74.00	-24.89	Peak
	V	93.34	38.18	54.00	-15.82	Average
11	H	107.51	51.91	74.00	-22.09	Peak
	H	96.46	40.86	54.00	-13.14	Average
	V	103.94	48.34	74.00	-25.66	Peak
	V	92.88	37.28	54.00	-16.72	Average

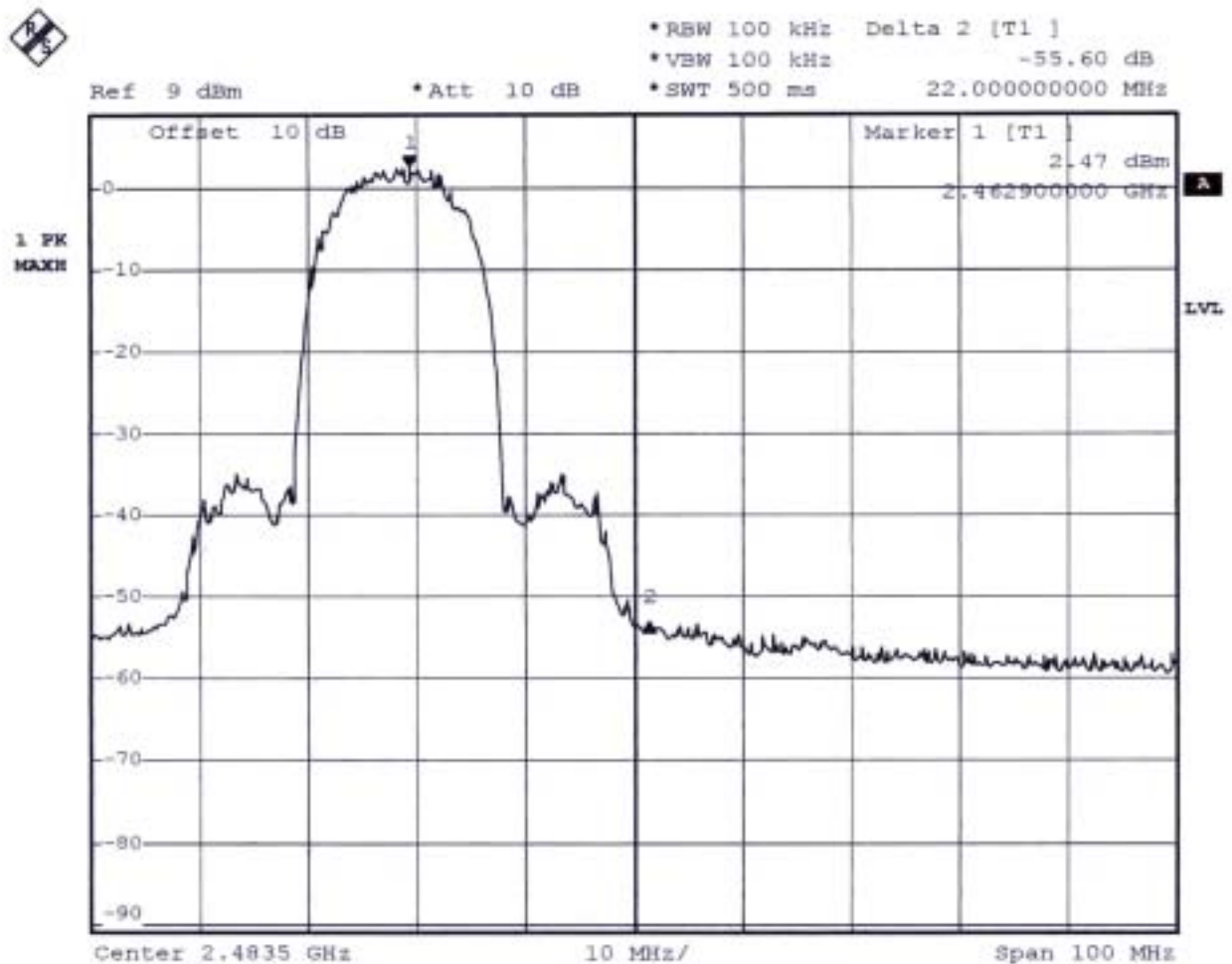
* The maximum field strength in restricted band is the emission of carrier power strength subtract to the delta between carrier maximum power and local maximum emission in the restricted band.

The spectrum analyzer plots are attached as below :

Plot1 (Channel 1) :



Plot2 (Channel 11) :



Date: 15.JUL.2003 18:09:01

Comments : All emissions in any 100kHz bandwidth outside the band edge are attenuated more than 20dB from the carrier.

6. Antenna Requirements

The EUT use a undetachable antenna. It is considered meet antenna requirement of FCC.

6.1.1. Standard Applicable

For intentional device, according to FCC 47 CFR 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

6.1.2. Antenna Connected Construction

The maximum Gain antenna used in this product is Embedded inverted F antenna. The coaxial cable of the antenna is fixed to the antenna.

7. EMI Suppression Component List

1. Add gasket on panel.
(As the Internal photo No.9)

2. Add gasket on panel.
(As the Internal photo No.12)

3. Add absorb on main board.
(As the Internal photo No.12)

8. Antenna Factor & Cable Loss

Frequency (MHz)	Antenna Factor (dB)	Cable Loss (dB)	Frequency (MHz)	Antenna Factor (dB)	Cable Loss (dB)
30	15.35	1.01	1000	24.30	3.49
35	13.63	1.04	2000	31.10	4.70
40	11.11	1.09	3000	29.60	5.67
45	10.59	1.24	4000	30.80	6.56
50	6.47	1.43	5000	34.20	7.59
55	5.83	1.39	6000	33.30	8.80
60	5.18	1.59	7000	37.80	9.46
65	4.81	1.41	8000	39.40	10.26
70	4.43	1.43	9000	38.40	10.53
75	5.10	1.55	10000	38.90	11.73
80	5.91	1.56	11000	41.10	12.25
85	7.33	1.62	12000	42.70	13.56
90	8.74	1.41	13000	39.90	13.58
95	9.05	1.81	14000	43.70	13.76
100	9.36	1.68	15000	43.40	14.30
110	9.65	1.73	16000	40.90	15.16
120	9.97	1.79	17000	44.40	15.88
130	10.51	1.93	18000	47.10	16.09
140	10.32	2.06	19000	37.60	16.98
150	9.42	2.09	20000	37.30	16.21
160	8.09	2.12	21000	37.00	20.13
170	7.43	2.12	22000	38.00	19.24
180	7.60	2.12	23000	38.70	19.64
190	7.43	2.21	24000	38.60	20.54
200	7.26	2.29	25000	38.90	20.14
220	9.11	2.42	14000	24.30	3.49
240	10.88	2.54	15000	31.10	4.70
260	11.75	2.66	16000	29.60	5.67
280	11.55	2.76	17000	30.80	6.56
300	11.36	2.85	18000	34.20	7.59
320	12.03	3.10	19000	33.30	8.80
340	12.69	3.36	20000	37.80	9.46
360	13.33	3.49	21000	39.40	10.26
380	14.00	3.50	22000	38.40	10.53
400	14.63	3.51	23000	38.90	11.73
450	15.33	3.55	24000	41.10	12.25
500	16.03	3.81	25000	42.70	13.56
550	16.65	4.05			
600	17.29	4.23			
650	17.64	4.63			
700	18.00	4.74			
750	18.39	4.95			
800	18.79	5.06			
850	19.10	5.18			
900	19.42	5.40			
950	19.58	5.91			
1000	19.75	5.58			

9. List of Measuring Equipments Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100132	9 KHz – 2.75 GHz	Jun. 12, 2003	Conduction (CO01-HY)
LISN	MessTec	NNB-2/16Z	2001-008	9 KHz – 30 MHz	Apr. 29, 2003	Conduction (CO01-HY)
LISN (Support Unit)	MessTec	NNB-2/16Z	2001-009	9 KHz – 30 MHz	Apr. 29, 2003	Conduction (CO01-HY)
EMI Filter	LINDGREN	LRE-2060	1004	< 450 Hz	N/A	Conduction (CO01-HY)
EMI Filter	LINDGREN	N6006	201052	0 ~ 60 Hz	N/A	Conduction (CO01-HY)
RF Cable-CON	Suhner Switzerland	RG223/U	CB029	9KHz~30MHz	Jan. 07, 2003	Conduction (CO01-HY)
50 ohm BNC type Terminal	NOBLE	50ohm	TM009	50 ohm	Apr. 24, 2003	Conduction (CO01-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	Jun. 21, 2003	Radiation (03CH03-HY)
Spectrum analyzer	R&S	FSP40	100004/040	9KHZ~40GHZ	Aug. 07, 2002	Radiation (03CH03-HY)
Receiver	SCHAFFNER	SCR 3501	417	9 KHz –1GHz	Feb. 20, 2003	Radiation (03CH03-HY)
Amplifier	HP	8447D	2944A09072	100KHz – 1.3GHz	Oct. 21, 2002	Radiation (03CH03-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2687	30MHz –2GHz	Dec. 21, 2002	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	Jan. 02, 2003	Radiation (03CH03-HY)
Amplifier	MITEQ	AFS44	879981	100MHz~26.5GHz	Aug. 12, 2002	Radiation (03CH03-HY)
Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170154	15GHz~40GHz	Jun. 02, 2003	Radiation (03CH03-HY)
RF Cable-HIGH	Jye Bao	RG142	CB030-HIGH	1GHz~29.5GHz	Mar. 14, 2003	Radiation (03CH03-HY)
Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	Radiation (03CH03-HY)
Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
RF Cable-HIGH	Jye Bao	RG142	CB030-HIGH	1GHz~29.5GHz	Mar. 14, 2003	Radiation (03CH03-HY)
Spectrum analyzer	R&S	FSP7	838858/037	9KHZ~7GHZ	Feb. 05, 2003	Conducted
Power meter	R&S	NRVS	100444	DC~40GHz	May 28, 2003	Conducted
Power sensor	R&S	NRV-Z55	100049	DC~40GHz	May 28, 2003	Conducted
Power Sensor	R&S	NRV-Z32	100057	30MHz-6GHz	May 28, 2003	Conducted
AC power source	HPC	HPA-500W	HPA-9100024	AC 0~300V	May 27, 2003	Conducted
Temp. and Humidity	KSON	THS-C3L	612	N/A	Oct. 02, 2002	Conducted

Calibration Interval of instruments listed above is one year.

10. Uncertainty of Test Site

Uncertainty of Radiated Emission Measurement

Contribution	Probability Distribution	3m
Antenna factor calibration	normal(k=2)	±1
cable loss calibration	normal(k=2)	±0.3
RCV/SPA specification	rectangular	±2
Antenna Directivity	rectangular	±3
Antenna Factor V.S. Height	rectangular	±2
Antenna Factor Interpolation for Frequency	rectangular	±0.25
site imperfection	rectangular	±2
Mismatch Receiver VSWR $\Gamma_1=0.09$ Antenna VSWR $\Gamma_2=0.67$ Uncertainty= $20\log(1-\Gamma_1\Gamma_2)$	U-shaped	±0.54
combined standard uncertainty $U_e(y)$	normal	±2.7
Measuring uncertainty for a level of confidence of 95% $U=2U_e(y)$	normal (k=2)	±5.4

$$U = \sqrt{\{(1/2)^2 + (0.3/2)^2 + (2^2 + 0.5^2 + 2^2 + 0.25^2 + 2^2)/3 + (0.54)^2/2\}} = 2.2 \text{ for 10m test distance}$$

$$U = \sqrt{\{(1/2)^2 + (0.3/2)^2 + (2^2 + 3^2 + 2^2 + 0.25^2 + 2^2)/3 + (0.54)^2/2\}} = 2.7 \text{ for 3m test distance}$$

Uncertainty of Conducted Emission Measurement

Contribution	Probability Distribution	150KHz – 30MHz
Cable and I/P attenuator calibration	normal(k=2)	±0.3
RCV/SPA specification	rectangular	±2
LISN coupling specification	rectangular	±1.5
Transducer factor frequency interpolation	rectangular	±0.2
Mismatch Receiver VSWR $\Gamma_1=0.09$ LISN VSWR $\Gamma_2=0.33$ Uncertainty= $20\log(1-\Gamma_1\Gamma_2)$	U-shaped	0.2
combined standard uncertainty $U_e(y)$	normal	±1.66
Measuring uncertainty for a level of confidence of 95% $U=2U_e(y)$	normal (k=2)	±3.32

$$U = \sqrt{\{(0.3/2)^2 + (2^2 + 1.5^2 + 0.2^2)/3 + (0.2)^2/2\}} = 1.66$$