

FCC TEST REPORT

for

47 CFR Part 15 Subpart C

Equipment : Notebook

Trade Name : ECS

Model No. : GREEN220

FCC ID : SA6G220IBGX

Filing Type : Certification

Applicant : ELITEGROUP COMPUTER SYSTEMS., CO., LTD.
3F, No. 240, Sec. 1, Nei Hu Road, Taipei, Taiwan ,
R.O.C.

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SPORTON International Inc.

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

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History of this test report

Original Report Issue Date: Sep. 02, 2004

☒ 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 : Notebook

Trade Name : ECS

Model No. : GREEN220

FCC ID : SA6G220IBGX

Filing Type : Certification

Applicant : ELITEGROUP COMPUTER SYSTEMS., CO., LTD.
3F, No. 240, Sec. 1, Nei Hu Road, Taipei, Taiwan ,
R.O.C.

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 Aug. 16, 2004 at **SPORTON International Inc. LAB.**



Daniel Lee
Manager

SPORTON International Inc.

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

SPORTON International Inc.

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FCC ID : SA6G220IBGX
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1. General Description of Equipment under Test

1.1. Applicant

ELITEGROUP COMPUTER SYSTEMS., CO., LTD.

3F, No. 240, Sec. 1, Nei Hu Road, Taipei, Taiwan , R.O.C.

1.2 Manufacturer

ELITEGROUP COMPUTER SYSTEMS., CO., LTD.

3F, No. 240, Sec. 1, Nei Hu Road, Taipei, Taiwan , R.O.C.

1.3 Basic Description of Equipment under Test

Equipment	: Notebook
Trade Name	: ECS
Model No.	: GREEN220
Power Supply Type	: Switching
AC Power Cord	: AC 110V, 1.2meter,2pin

1.4 Feature of Equipment under Test

Product Feature & Specification				
1. Host/Radio Interface	mini-PCI			
2. Modulation Type/Data Rate	802.11b: DBPSK, DQPSK, CCK 802.11g: BPSK, QPSK, 16QAM, 64QAM			
3. Freq.Range/Carrier Freqs.	2400 MHz ~ 2483.5 MHz			
4. Number of Channels	USA/Canada: 11	V	European: 13	
	Japan: 13, 14		Other:	
5. Carrier Frequency of each channel	2412 MHz +(n-1)*5 MHz, n= 1~11			
6. Channel Spacing	5MHz			
7. Maximum Output Power to Antenna (Normal condition)	802.11b: 17 dBm 802.11g: 17dBm			
8. Type of Antenna Connector	I-PEX			
9. Antenna Type	PIFA			
10. Antenna Gain	2.98 dBi			
11. Function Type	Transmitter		Transceiver	V
12. Power Rating (DC/AC , Voltage)	DC 20V / AC 100~240V			
13. Duty Cycle	100%			
14. Temperate Range (Operating)	0~40℃			

2 Test Configuration of Equipment under Test

2.1 Test Manner

- a. The EUT has been associated with peripherals pursuant to ANSI C63.4-2001 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.
- b. The complete test system included EUT for EMI test.
- c. The EUT can operate on eleven channels from 2412MHz to 2462MHz. (as listed in section 1.4).
- d. The following test modes were pretested for conduction test:

Mode 1: Link mode

The following test modes were pretested for radiation test:

Mode 1: 802.11b TX CH01 (2412MHz)

Mode 2: 802.11b TX CH06 (2437MHz)

Mode 3: 802.11b TX CH11 (2462MHz)

Mode 4: 802.11g TX CH01 (2412MHz)

Mode 5: 802.11g TX CH06 (2437MHz)

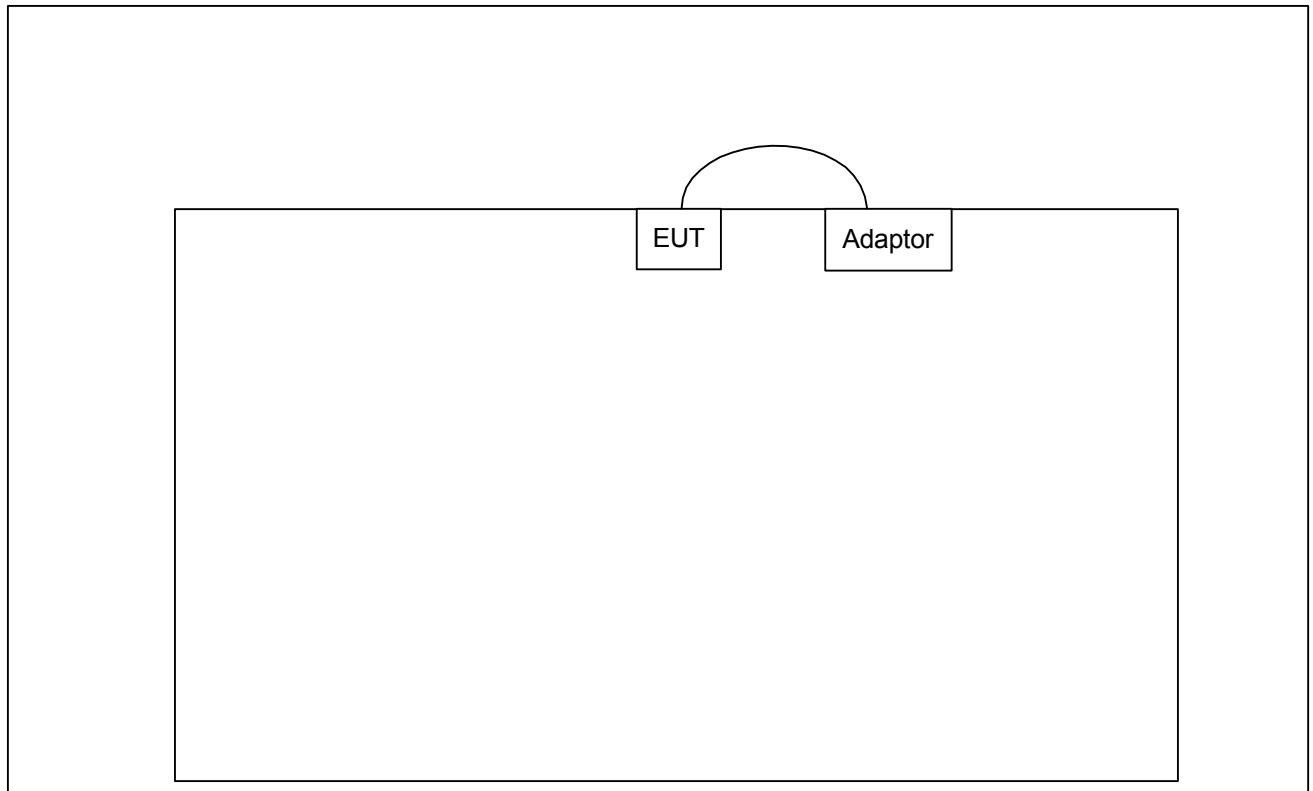
Mode 6: 802.11g TX CH11 (2462MHz)

- e. Frequency range investigated: conduction 150 kHz to 30 MHz, radiation 30 MHz to 25000MHz.

2.2 Description of Test System

The Test System includes EUT only.

2.3 Connection Diagram of Test System



3 Operation of Equipment under Test

An executive program, CRTU II .exe on WIN XP sends continuous transmitting.

The following program was executed.

4 General Information of Test

Test Site Location : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park,
Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
TEL : 886-3-327-3456
FAX : 886-3-318-0055
Test Site No : CO02-LK, 03CH06-HY

4.1 Test Voltage

110V/ 60Hz

4.2 Standard for Methods of Measurement

ANSI C63.4-2001

4.3 Test in Compliance with

47 CFR Part 15 Subpart C

4.4 Frequency Range Investigated

- a. Conduction: from 150 kHz to 30 MHz
- b. Radiation: from 30 MHz to 25000 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
15.207	Conducted Emission	Pass
15.247(a)(2)	6dB Bandwidth	Pass
15.247(b)	Maximum Peak Output Power	Pass
15.209(a)	Radiated Emission	Pass
15.247 (c)	100kHz Bandwidth of Frequency Band Edges	Pass
15.247(d)	Power Spectral Density	Pass
15.203 15.247(b)(4)	Antenna Requirement	Pass
1.1307 2.1091	RF Exposure	Pass

5.2 6dB Bandwidth

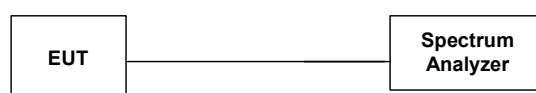
5.2.1 Measuring Instruments :

As described in chapter 10 of this test report.

5.2.2 Test Procedure :

1. The transmitter output was connected to the spectrum analyzer directly.
2. Set RBW of spectrum analyzer to 100kHz and VBW to 100kHz.
3. The 6 dB bandwidth is defined as the frequency range where the power is higher than the peak power minus 6dB.

5.2.3 Test Setup Layout :



5.2.4 Test Result :

- Mode 1~3 : WLAN 802.11b
- Temperature : 26°C
- Relative Humidity : 53%

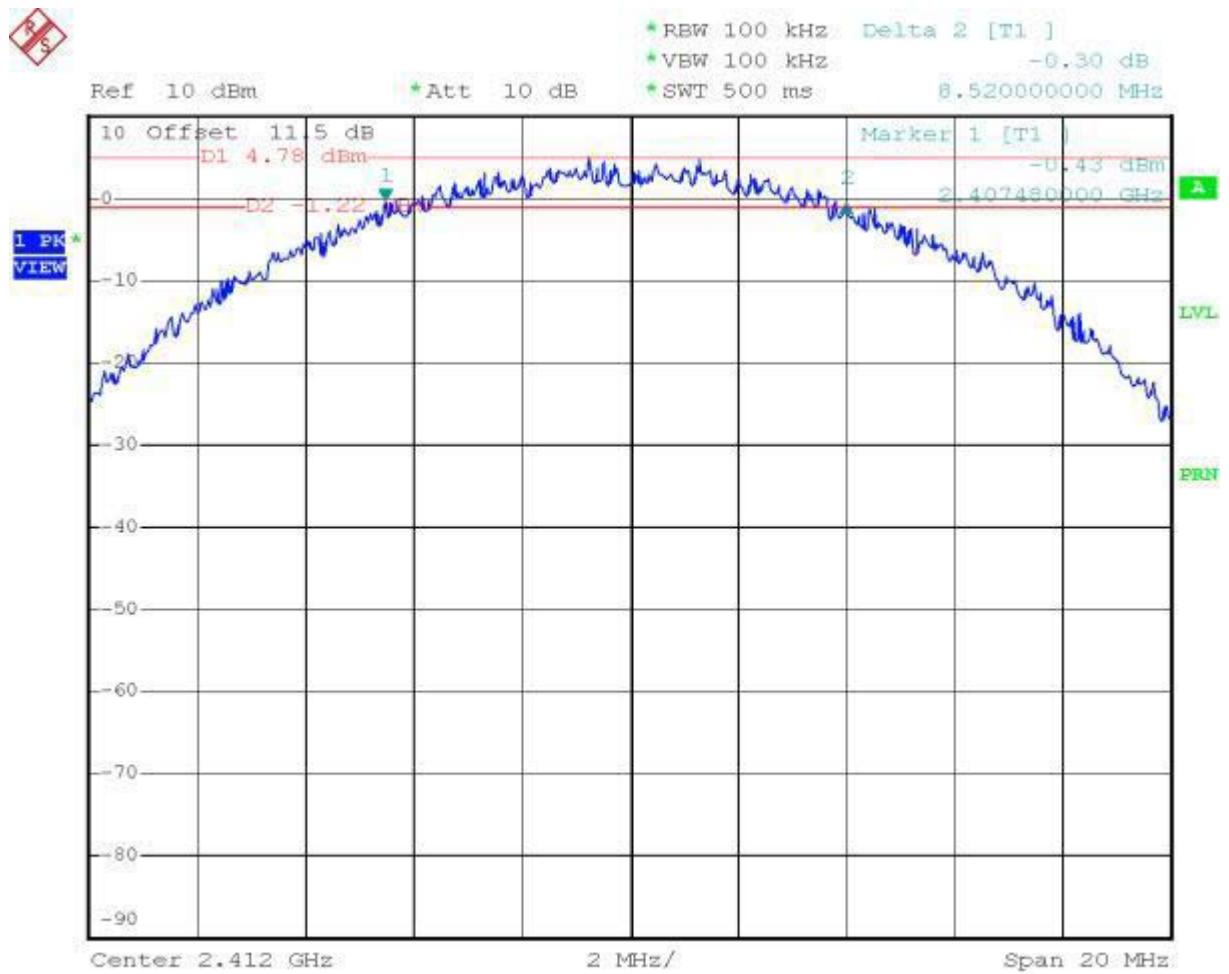
Channel	Frequency (MHz)	6dB Emission bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
01	2412	8.52	0.5	Mode 1
06	2437	8.76	0.5	Mode 2
11	2462	9.00	0.5	Mode 3

- Mode 4~6 : WLAN 802.11g
- Temperature : 26°C
- Relative Humidity : 53%

Channel	Frequency (MHz)	6dB Emission bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
01	2412	16.48	0.5	Mode 4
06	2437	16.56	0.5	Mode 5
11	2462	16.48	0.5	Mode 6

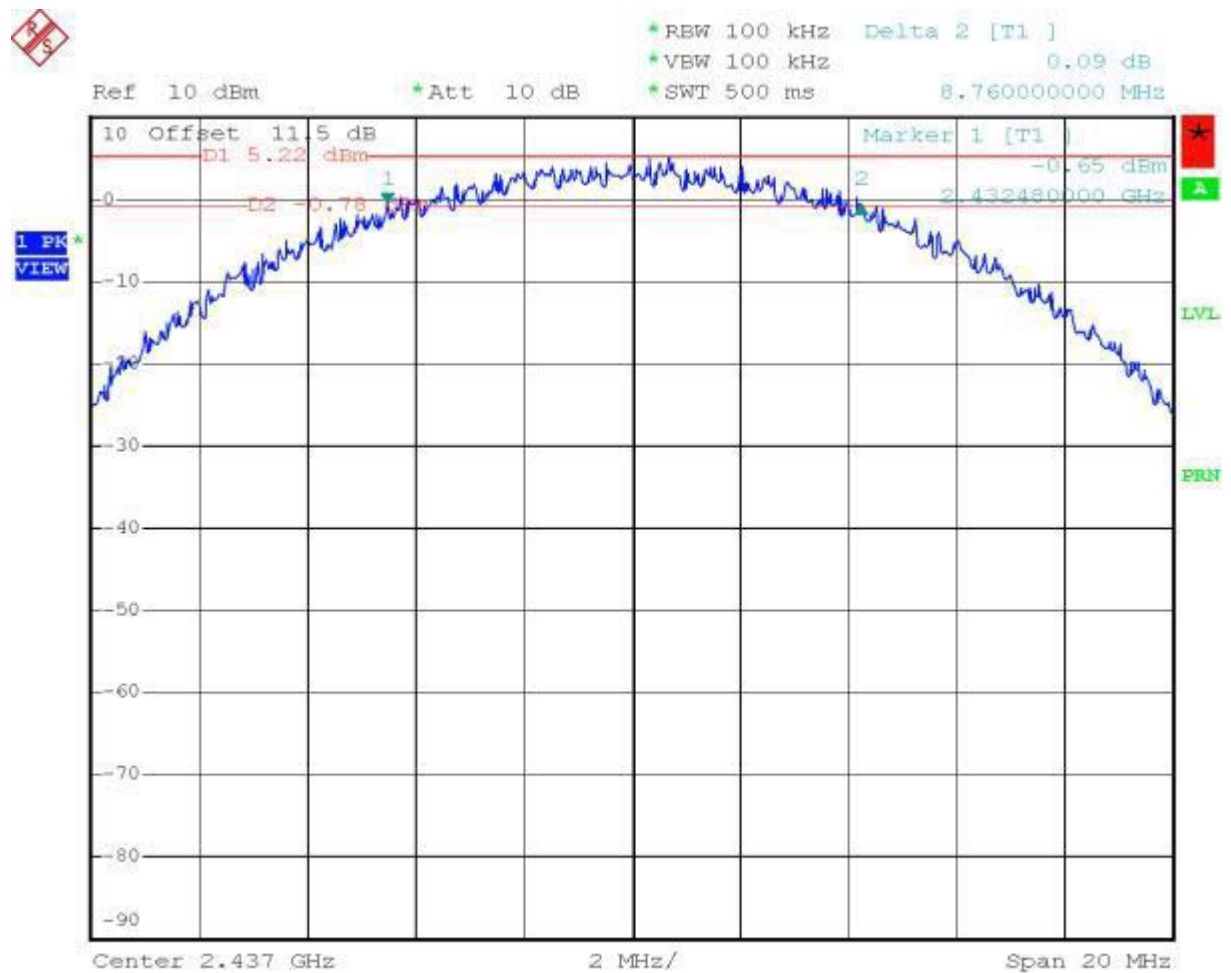
5.2.5 6dB Bandwidth

Mode 1 : 802.11b Tx CH01 (2412MHz)



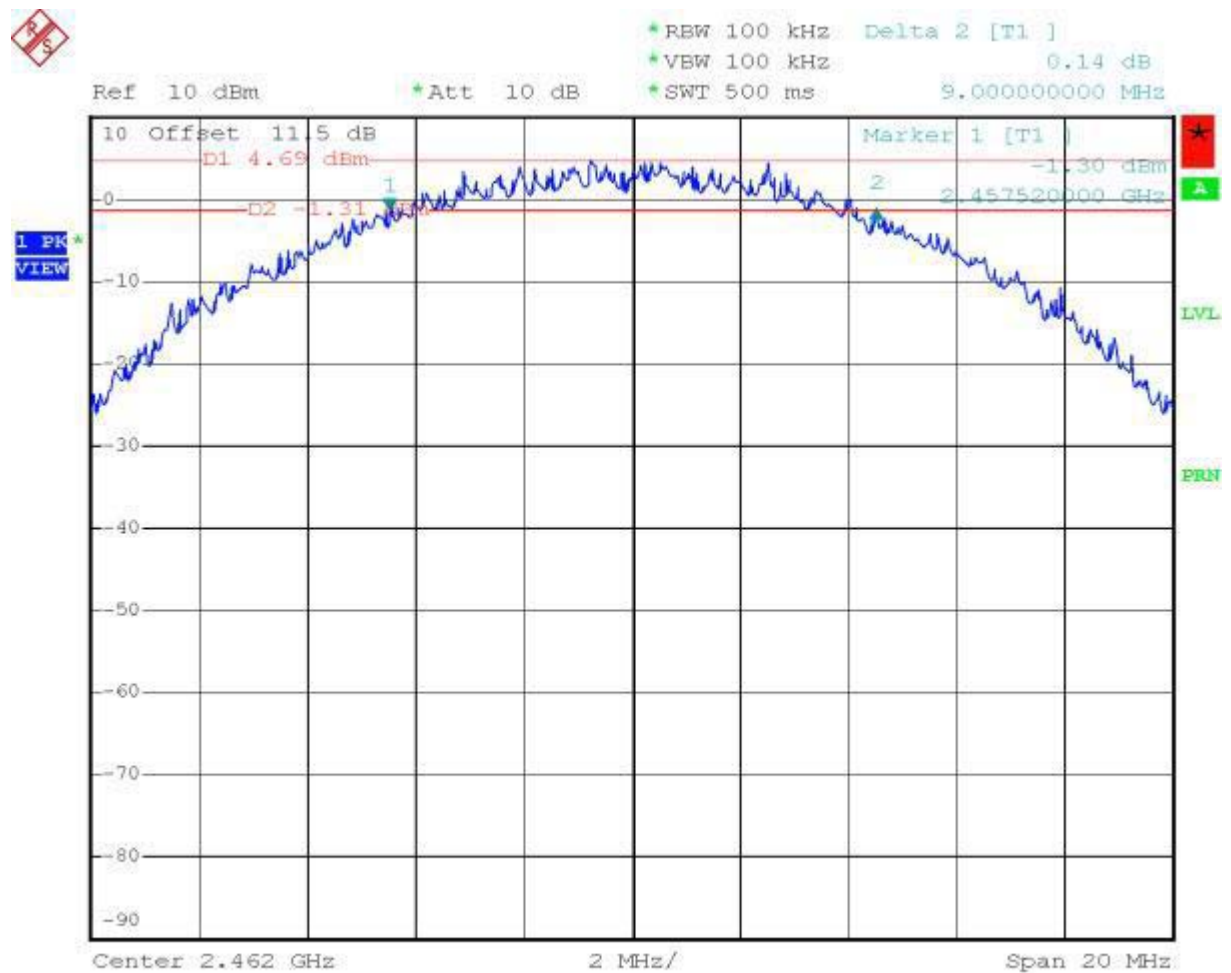
Date: 12.AUG.2004 17:13:10

Mode 2 : 802.11b Tx CH06 (2437MHz)



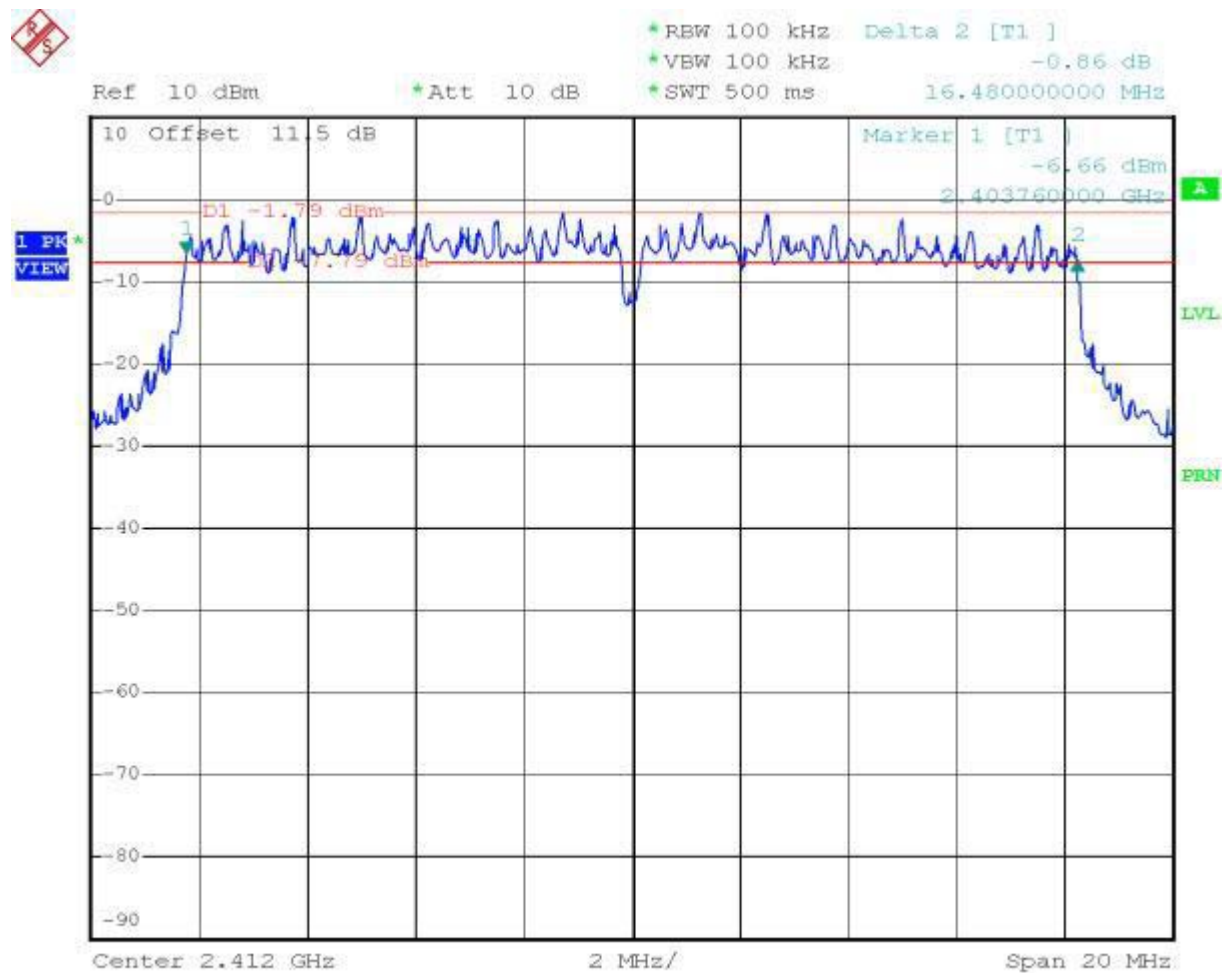
Date: 12.AUG.2004 17:14:46

Mode 3 : 802.11b Tx CH11(2462MHz)



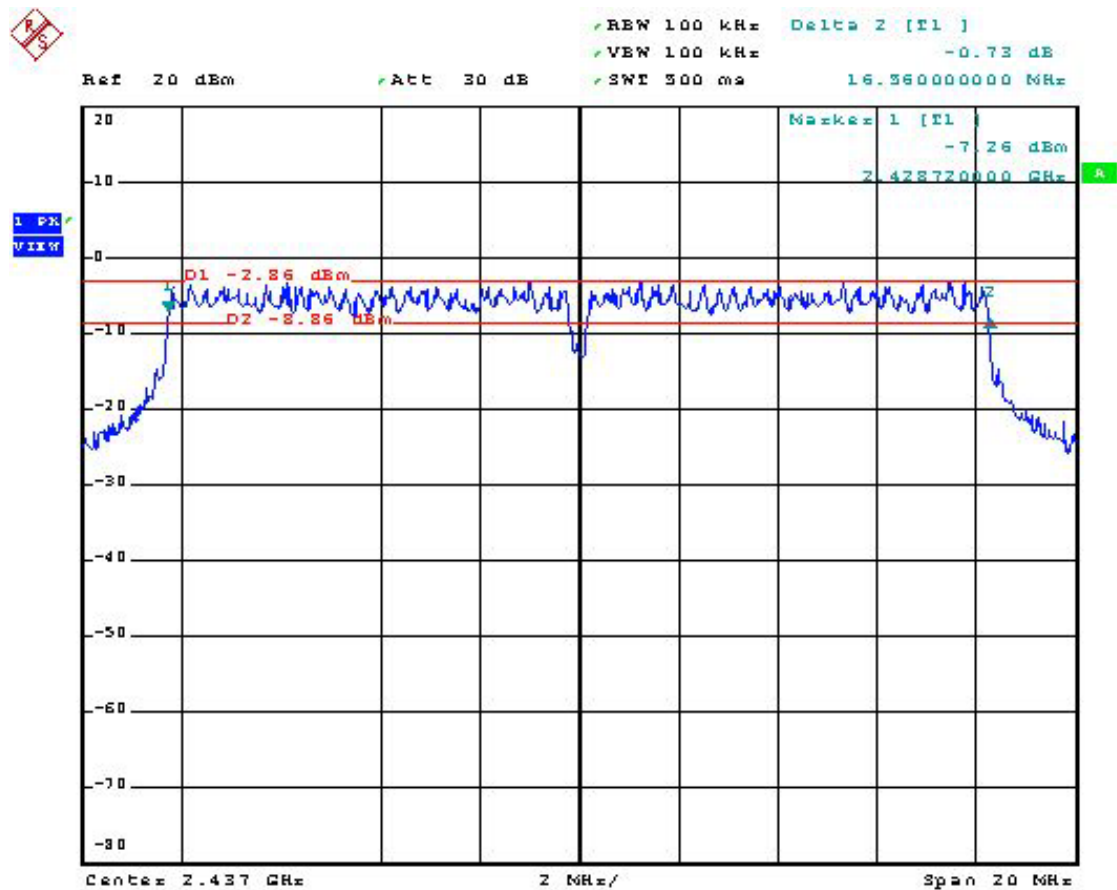
Date: 12.AUG.2004 17:16:26

Mode 4 : 802.11g Tx CH01 (2412MHz)

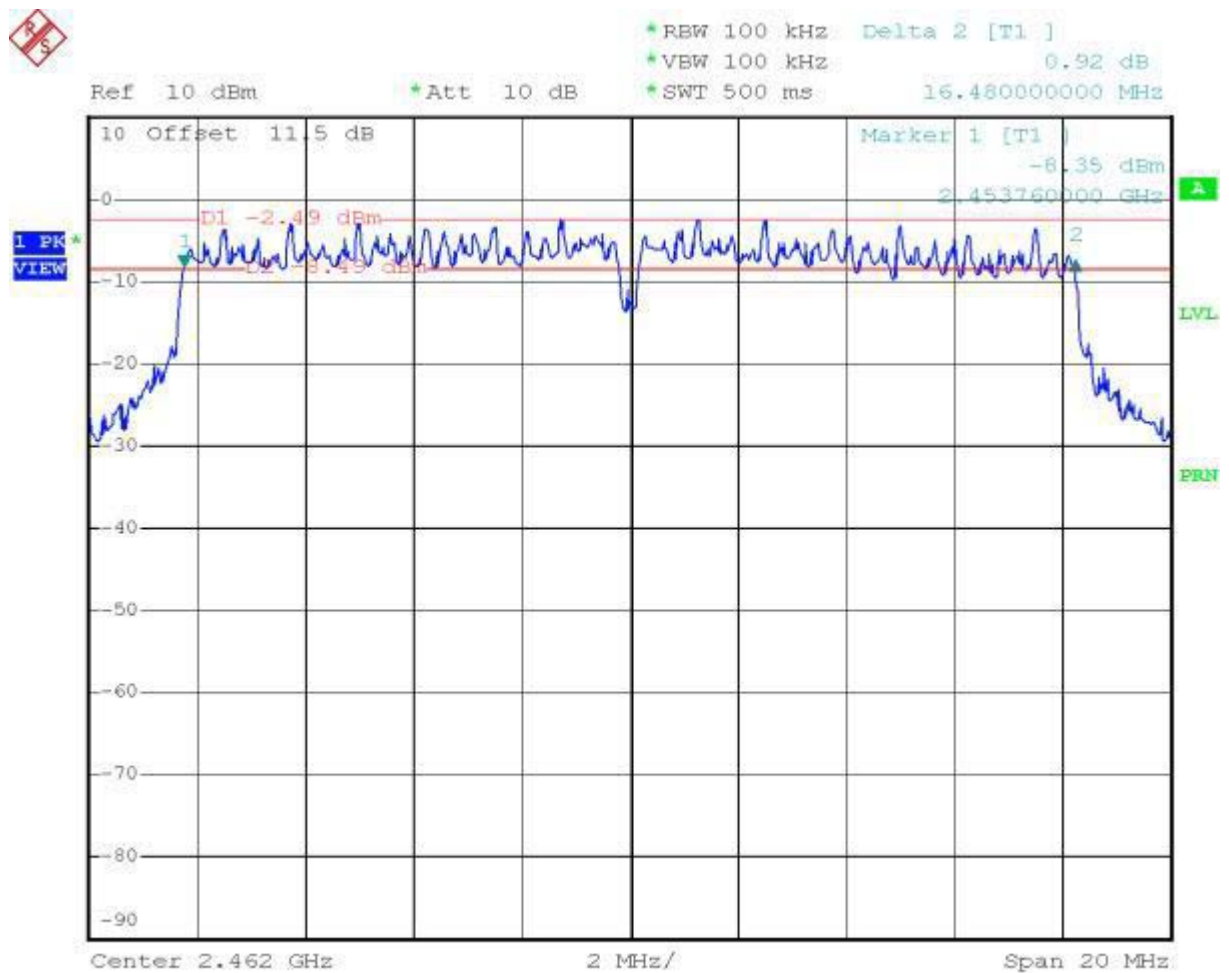


Date: 12.AUG.2004 17:18:20

Mode 5 : 802.11g Tx CH06 (2437MHz)



Mode 6 : 802.11g Tx CH011 (2462MHz)



Date: 12.AUG.2004 17:20:47

5.3 Power Spectral Density

5.3.1 Measuring Instruments :

As described in chapter 10 of this test report.

5.3.2 Test Procedure :

1. The transmitter output was connected to spectrum analyzer directly.
2. The spectrum analyzer's resolution bandwidth was 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.

5.3.3 Test Setup Layout :



5.3.4 Test Result :

- Mode 1~3: WLAN 802.11b
- Temperature : 26°C,
- Relative Humidity : 53%

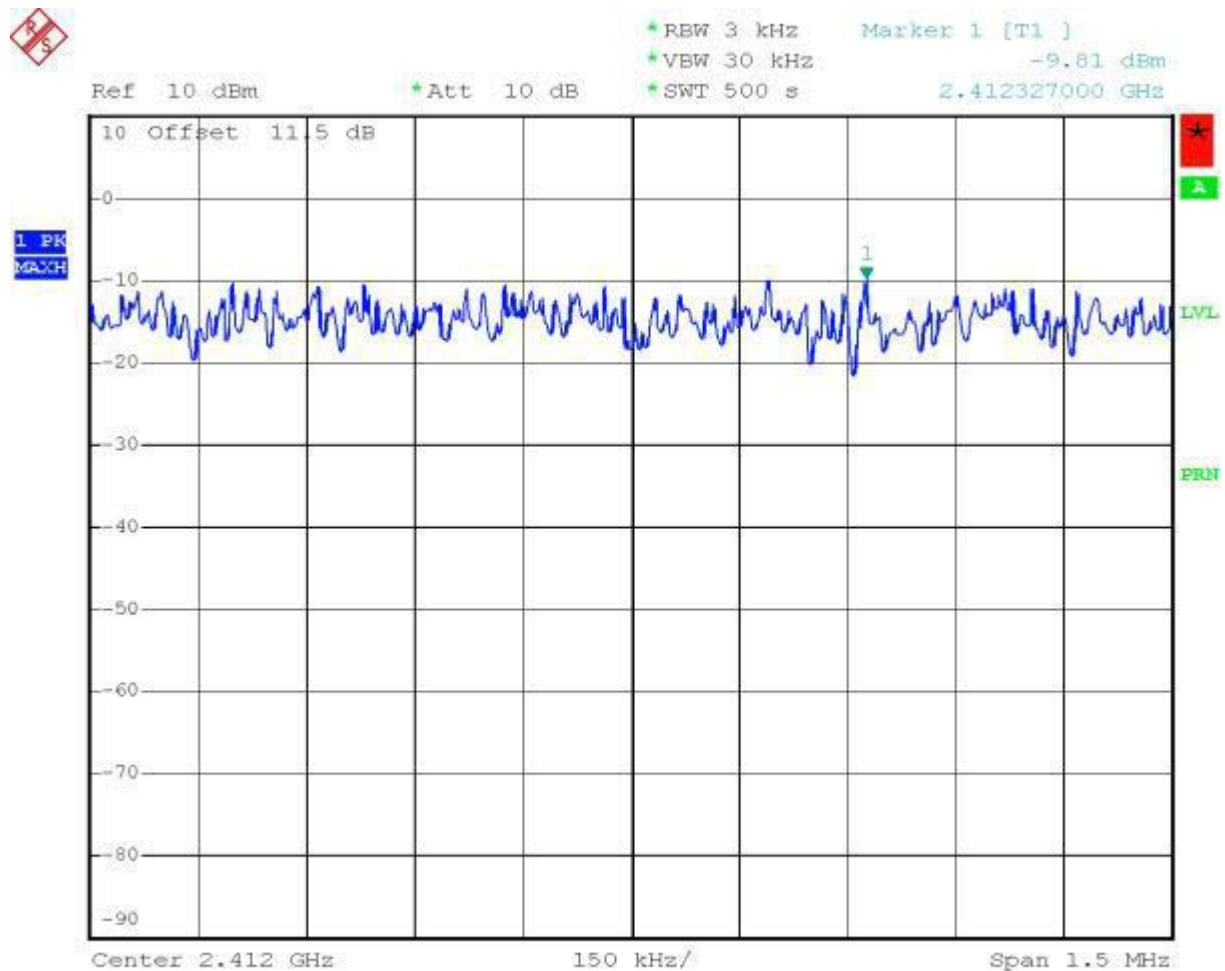
Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)	Plot Ref. No.
01	2412	-9.81	8	Mode 1
06	2437	-9.14	8	Mode 2
11	2462	-9.39	8	Mode 3

- Mode 4~6: WLAN 802.11g
- Temperature : 26°C,
- Relative Humidity : 53%

Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)	Plot Ref. No.
01	2412	-15.60	8	Mode 4
06	2437	-15.57	8	Mode 5
11	2462	-16.10	8	Mode 6

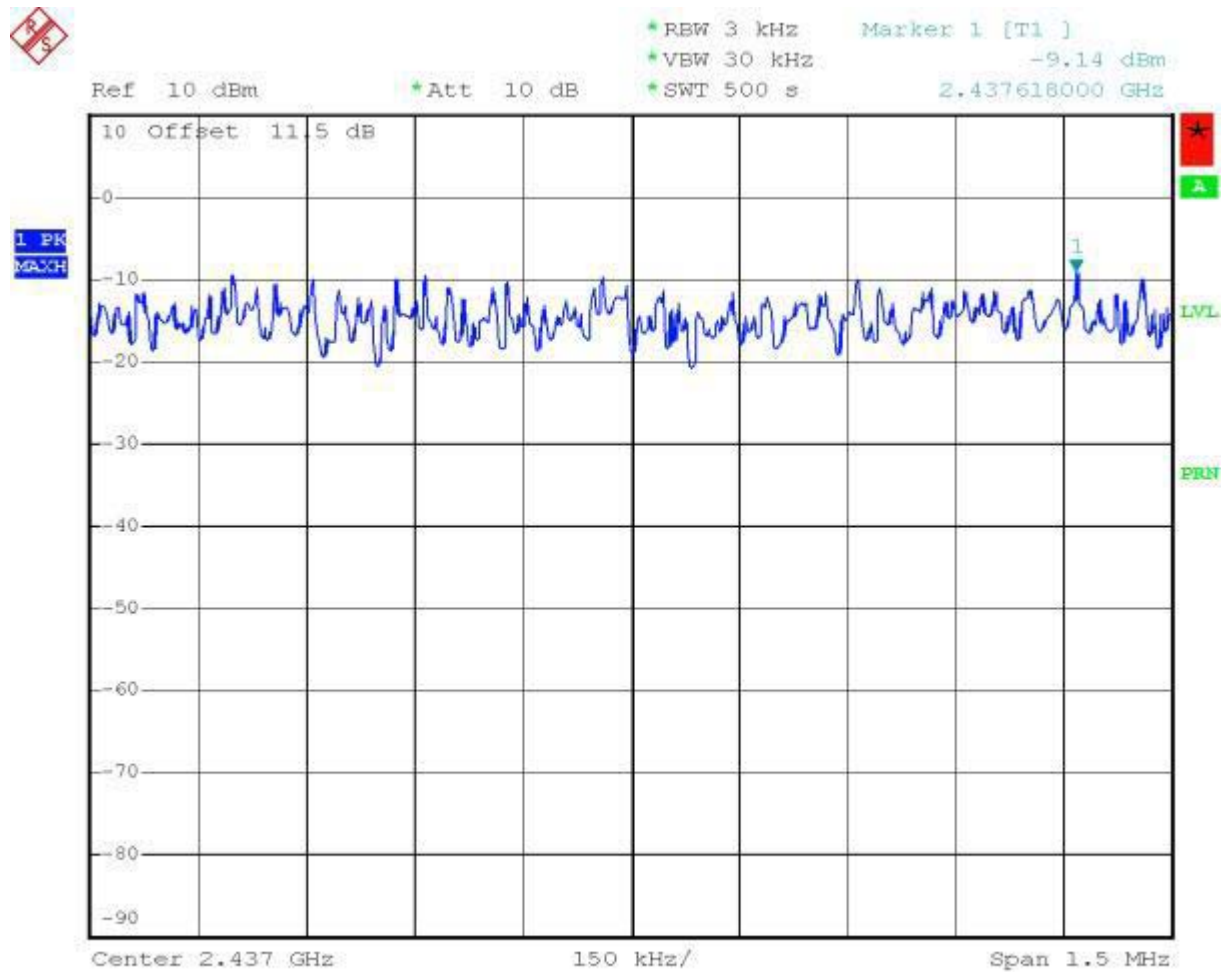
5.3.5 Power Spectral Density

Mode 1 : 802.11b Tx CH01(2412MHz)



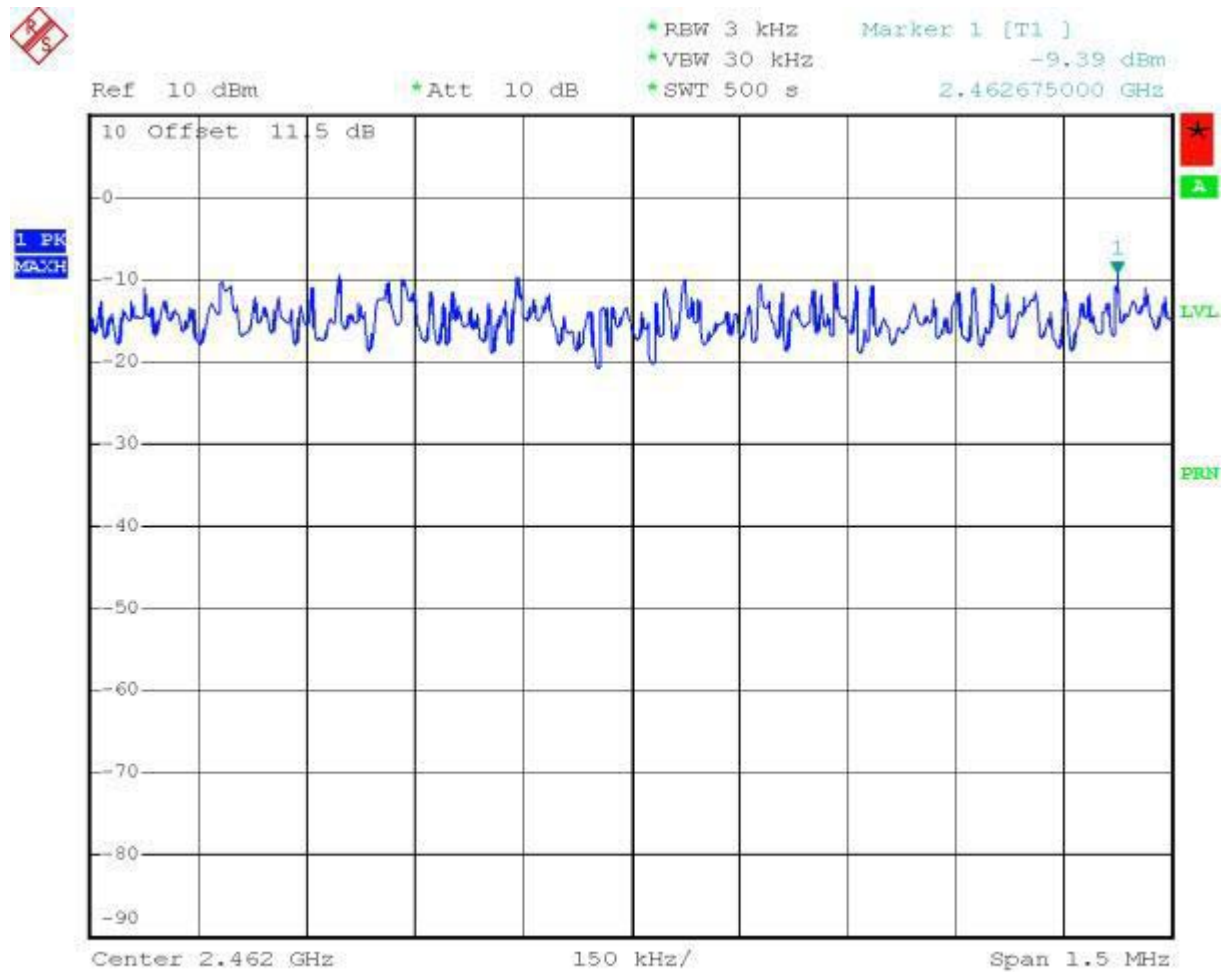
Date: 12.AUG.2004 17:29:56

Mode 2 : 802.11b Tx CH06 (2437MHz)



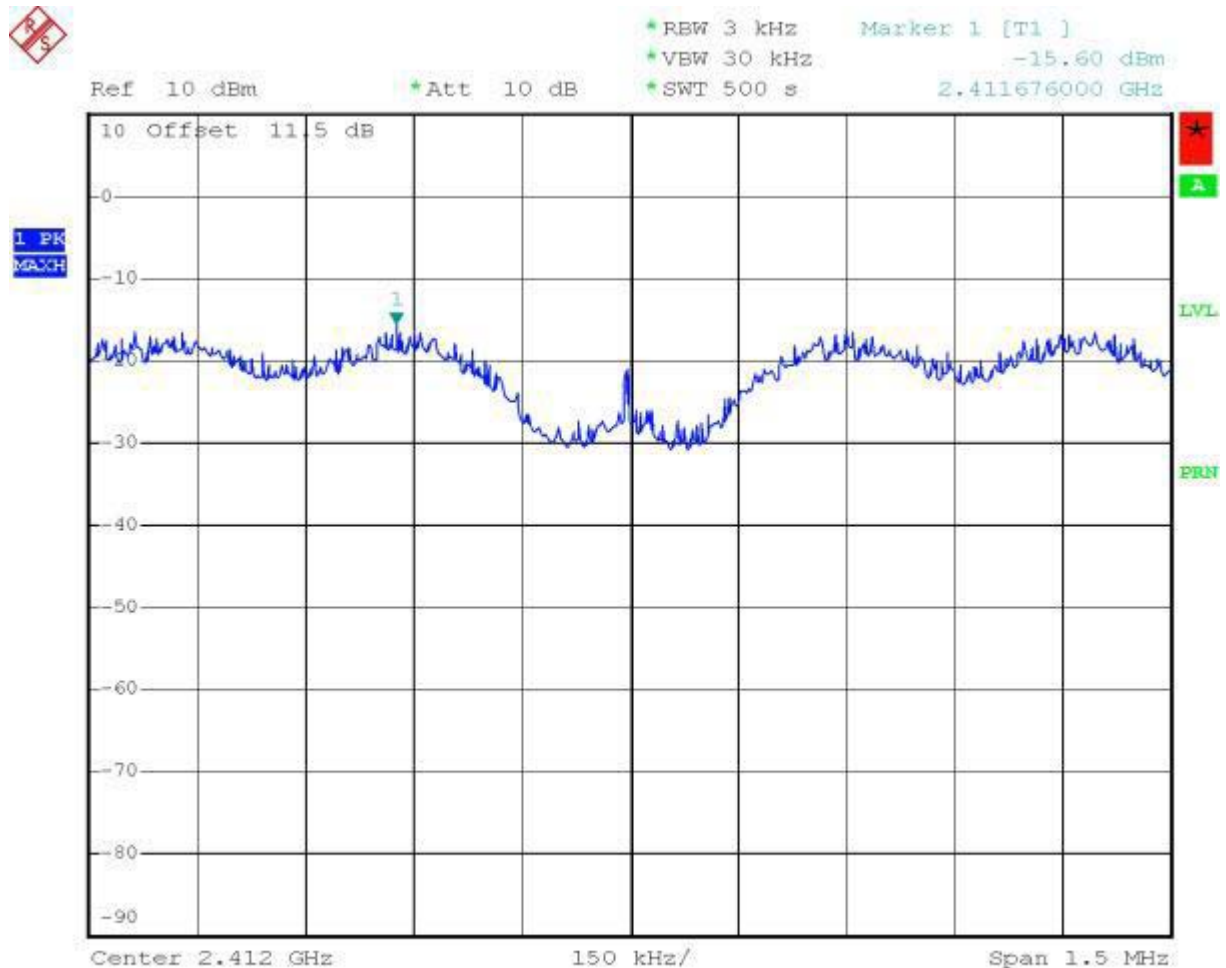
Date: 12.AUG.2004 17:31:06

Mode 3 : 802.11b Tx CH11 (2462MHz)



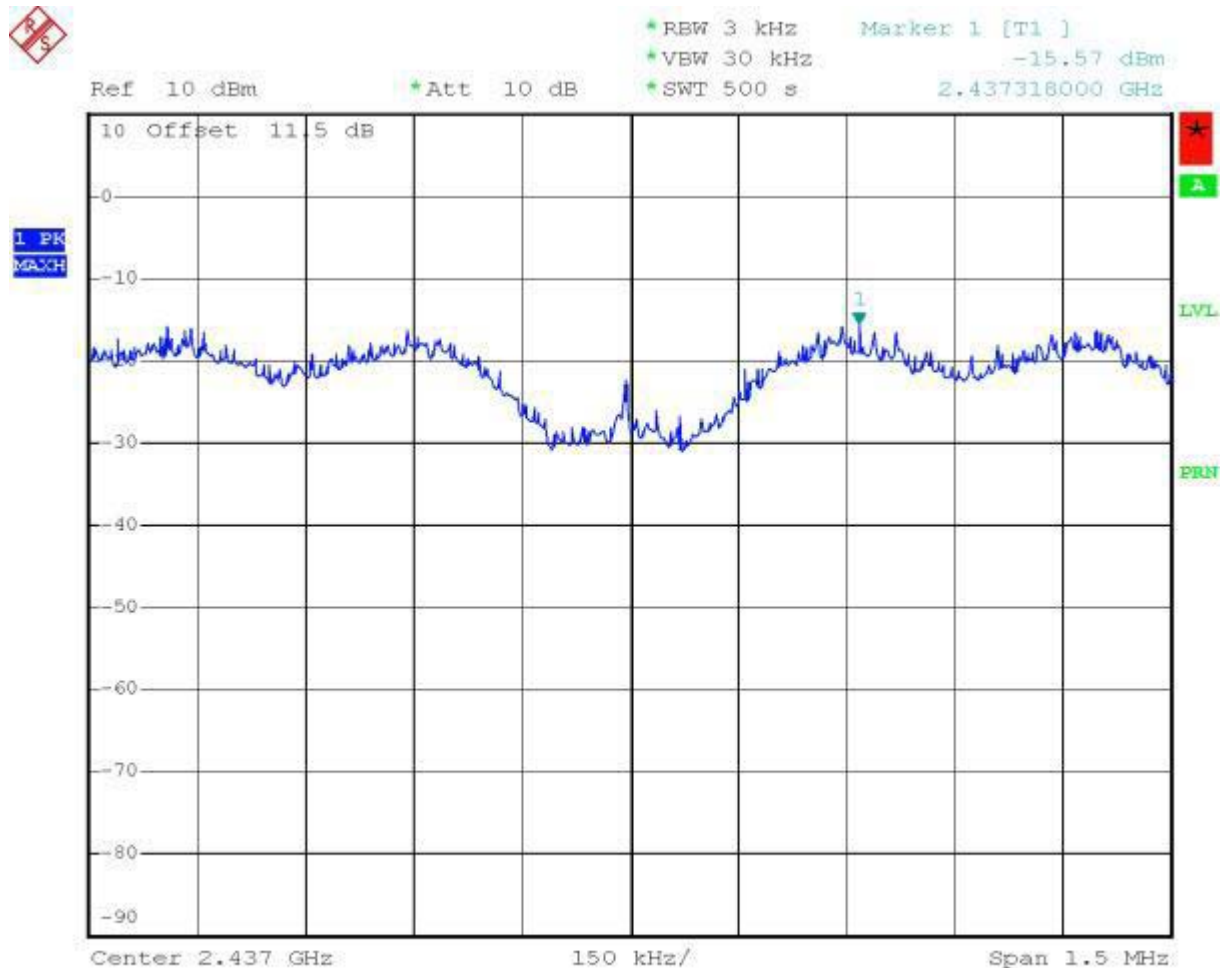
Date: 12.AUG.2004 17:32:09

Mode 4 : 802.11g Tx CH01 (2412MHz)



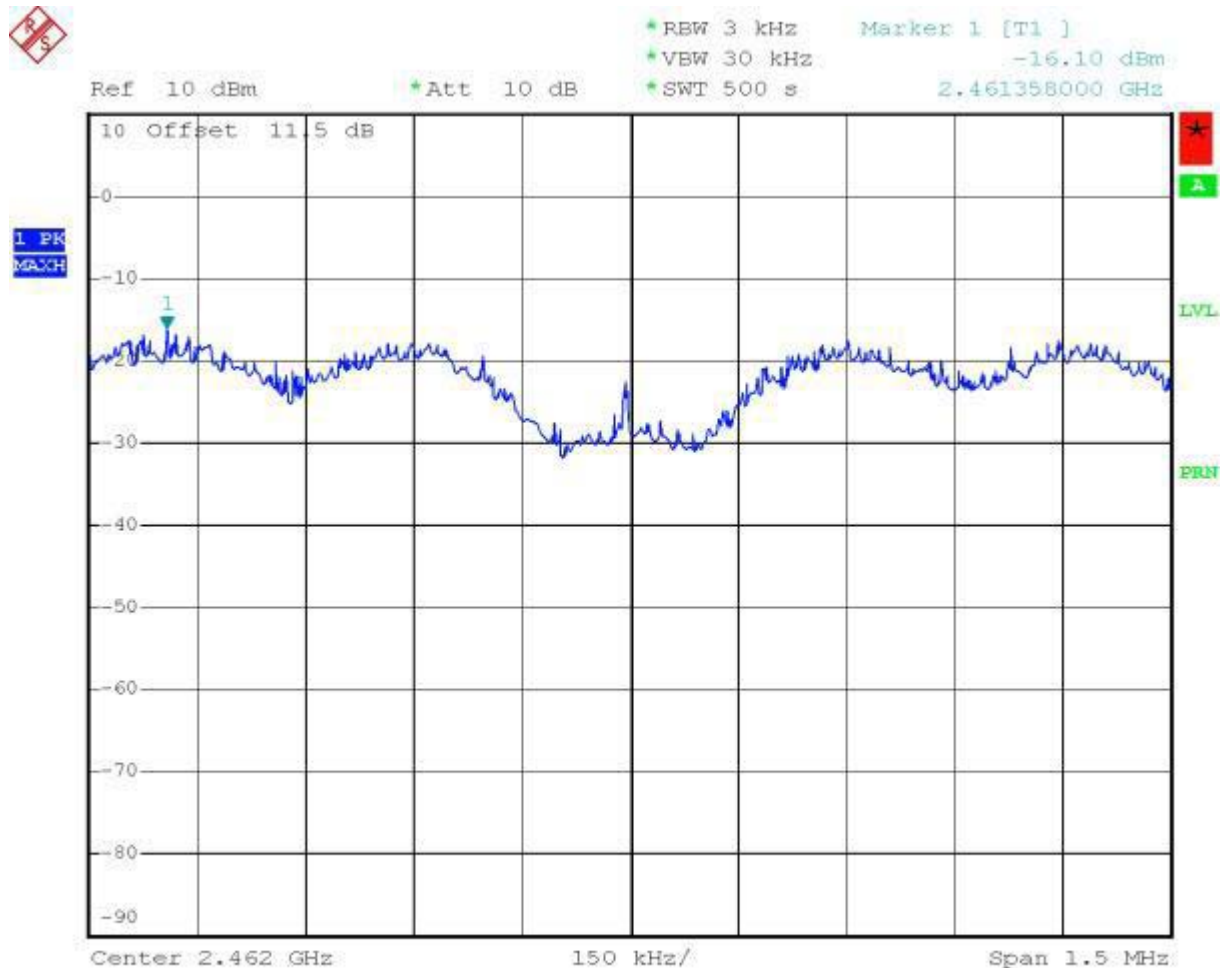
Date: 12.AUG.2004 17:28:27

Mode 5 : 802.11g Tx CH11 (2437MHz)



Date: 12.AUG.2004 17:27:23

Mode 6 : 802.11g Tx CH11 (2462MHz)



Date: 12.AUG.2004 17:24:21

5.4 Band Edges Measurement

5.4.1 Measuring Instruments :

As described in chapter 10 of this test report.

5.4.2 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 suitable frequency span including 100 kHz bandwidth from band edge.
3. The band edges was measured and recorded.

5.4.3 Test Result :

- Temperature : 26°C,
- Relative Humidity : 53%
- Test Result in lower band (Channel 1) : PASS
- Test Result in higher band (Channel 11) : PASS

5.4.4 Note on Band Edge Emission

Mode 1 and 3 : WLAN 802.11b

The band edge emission shows 34.97 dB delta between carrier maximum power and local maximum emission in the restricted band (2.390GHz).

The band edge emission shows 52.50 dB delta between carrier maximum power and local maximum emission in the restricted band (2.4835GHz)

Channel	Polarity	The emission of carrier power strength	Frequency	The emission of band edge power strength	Limit	Margin	Remark	Result
		(dB μ V/m)	(MHz)	(dB μ V/m)	(dB μ V/m)	(dB)		
01	H	99.88	2399.78	64.91	74	-9.09	Peak	Pass
	H	87.24	2399.78	52.27	54	-1.73	Average	Pass
	V	101.64	2399.78	66.67	74	-7.33	Peak	Pass
	V	88.67	2399.78	53.7	54	-0.3	Average	Pass
11	H	96.28	2489.98	43.78	74	-30.22	Peak	Pass
	H	83.5	2489.98	31	54	-23	Average	Pass
	V	97.99	2489.98	45.49	74	-28.51	Peak	Pass
	V	85.2	2489.98	32.7	54	-21.3	Average	Pass

Mode 4 and 6 : WLAN 802.11g

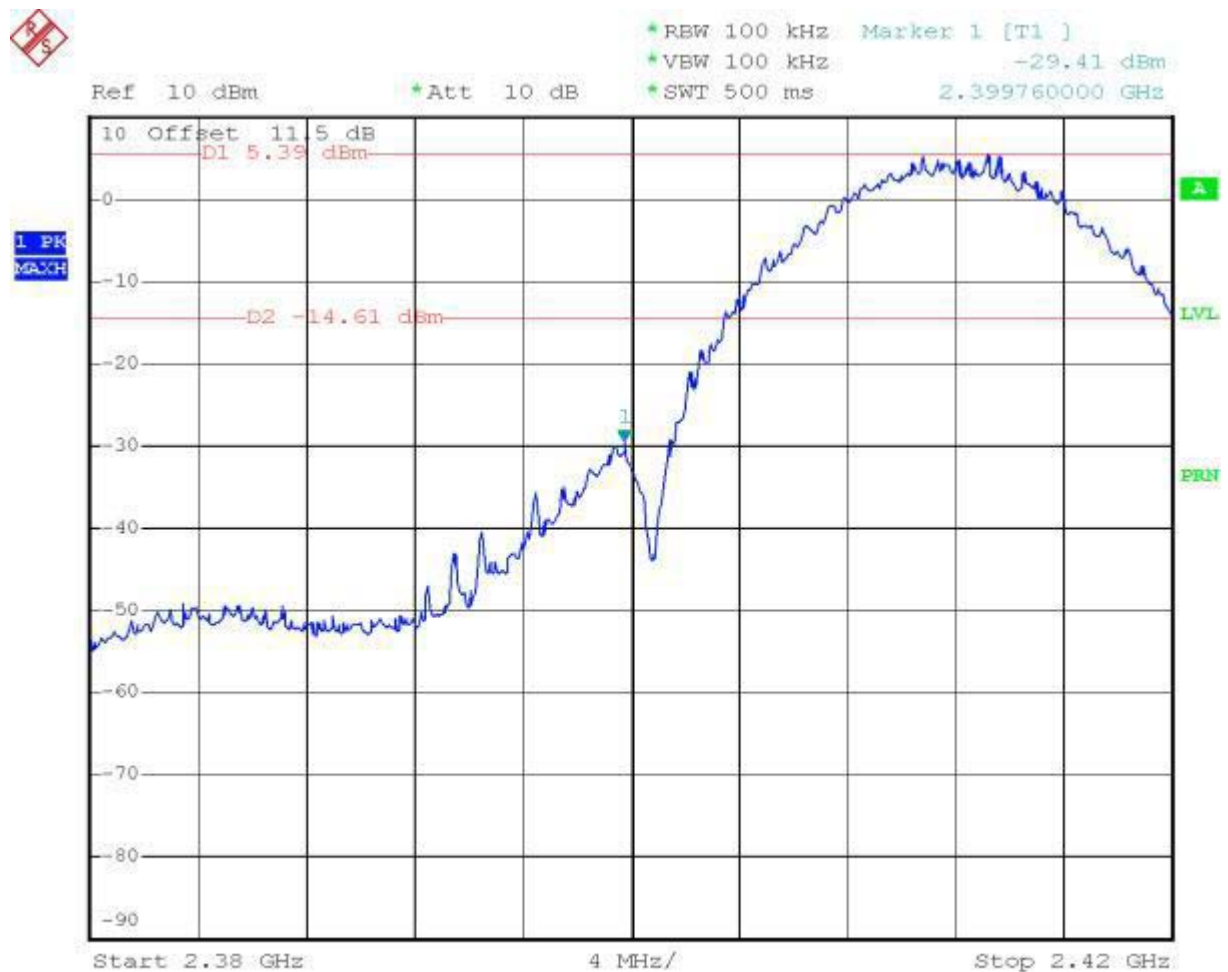
The band edge emission shows 29.85 dB delta between carrier maximum power and local maximum emission in the restricted band (2.390GHz).

The band edge emission shows 43.00 dB delta between carrier maximum power and local maximum emission in the restricted band (2.4835GHz)

Channel	Polarity	The emission of carrier power strength	Frequency	The emission of band edge power strength	Limit	Margin	Remark	Result
		(dB μ V/m)	(MHz)	(dB μ V/m)	(dB μ V/m)	(dB)		
01	H	94.44	2399.80	64.59	74	-9.41	Peak	Pass
	H	68.47	2399.80	38.62	54	-15.38	Average	Pass
	V	99.31	2399.80	69.46	74	-4.54	Peak	Pass
	V	71.12	2399.80	41.27	54	-12.73	Average	Pass
11	H	92.17	2483.63	49.17	74	-24.83	Peak	Pass
	H	66.22	2483.63	23.22	54	-30.78	Average	Pass
	V	92.06	2483.63	49.06	74	-24.94	Peak	Pass
	V	66.23	2483.63	23.23	54	-30.77	Average	Pass

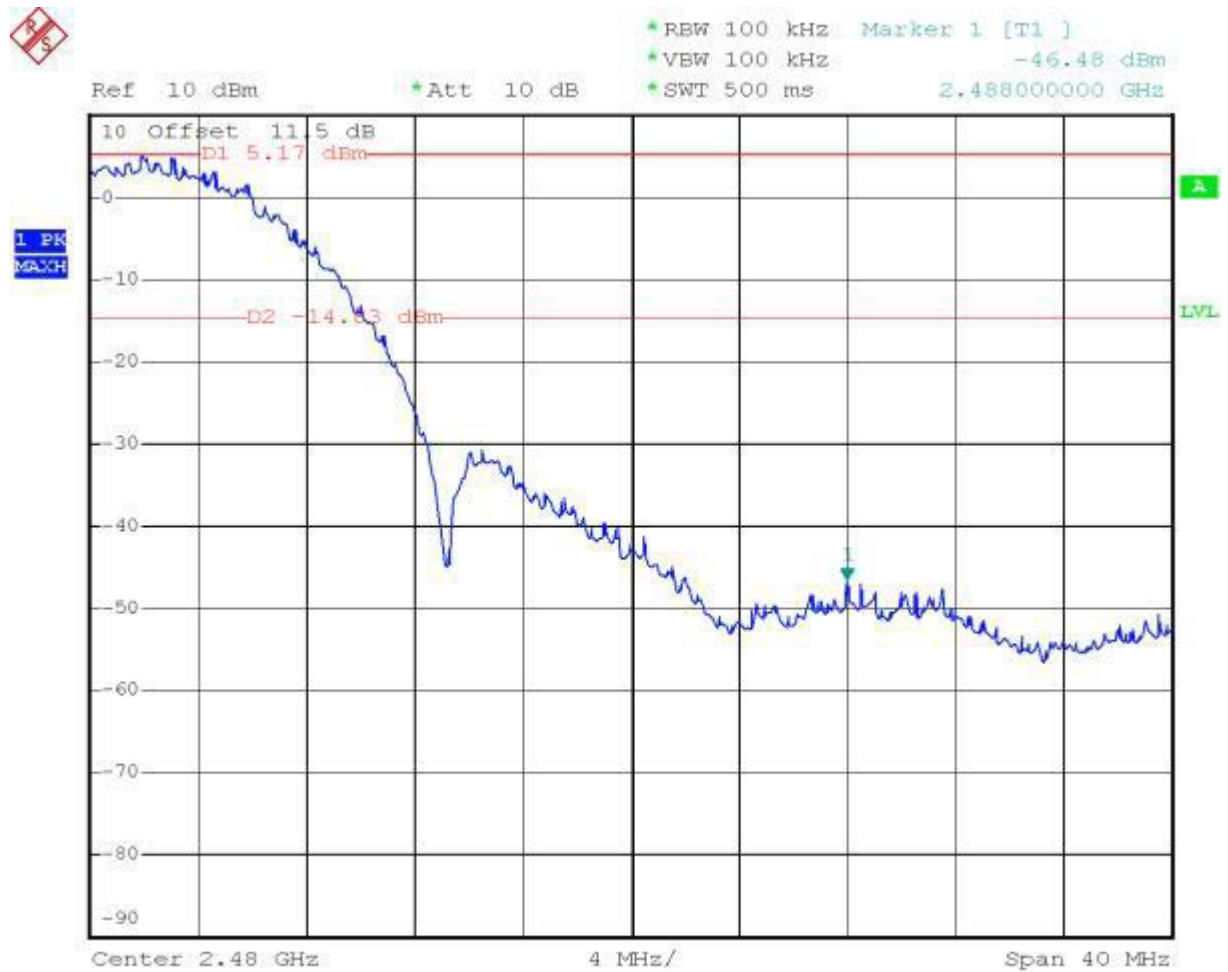
5.4.5 20dB Band Edge

Mode1 : 802.11b Tx CH01 (2412MHz)



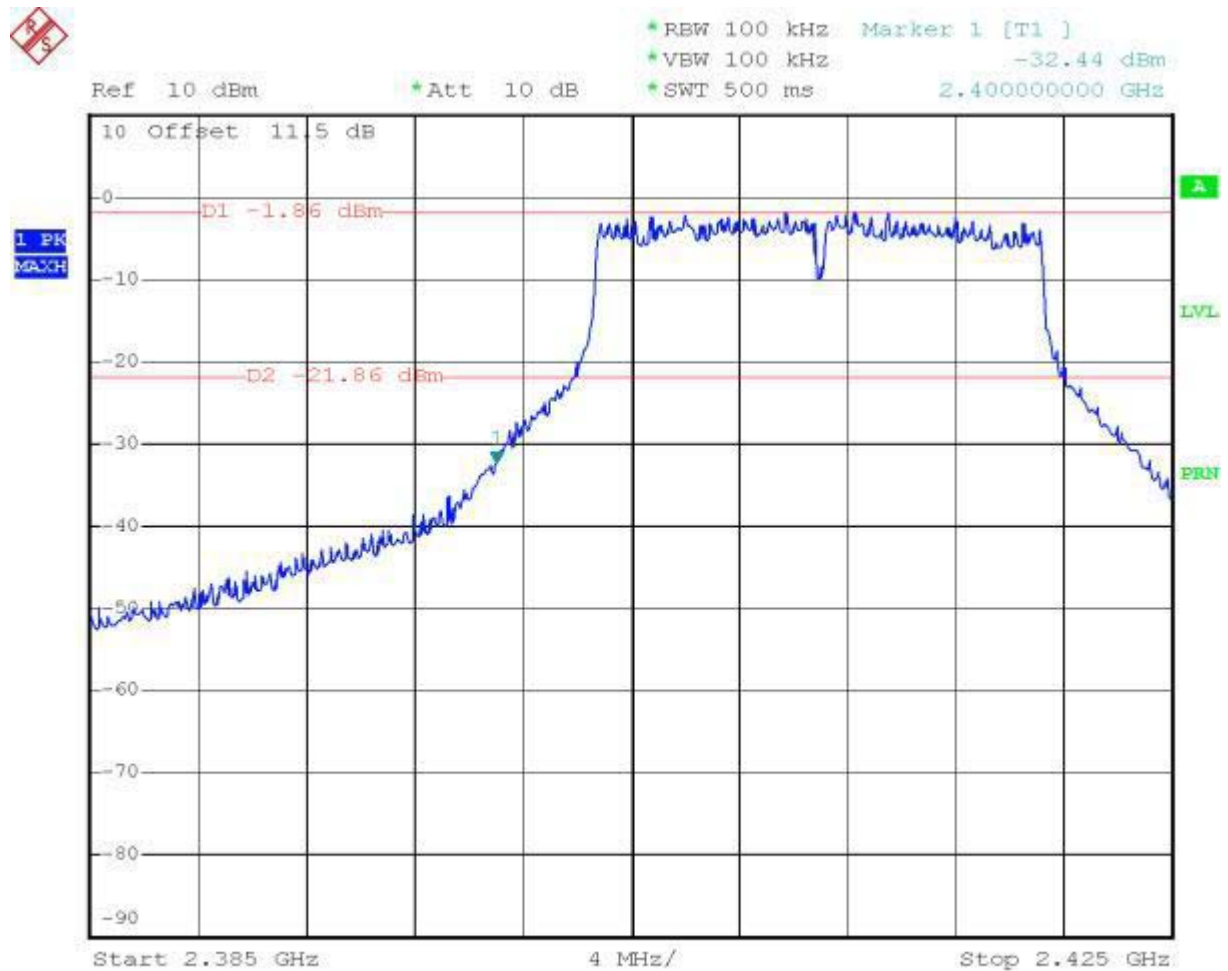
Date: 12.AUG.2004 17:39:18

Mode 3 : 802.11b Tx CH11 (2462MHz)



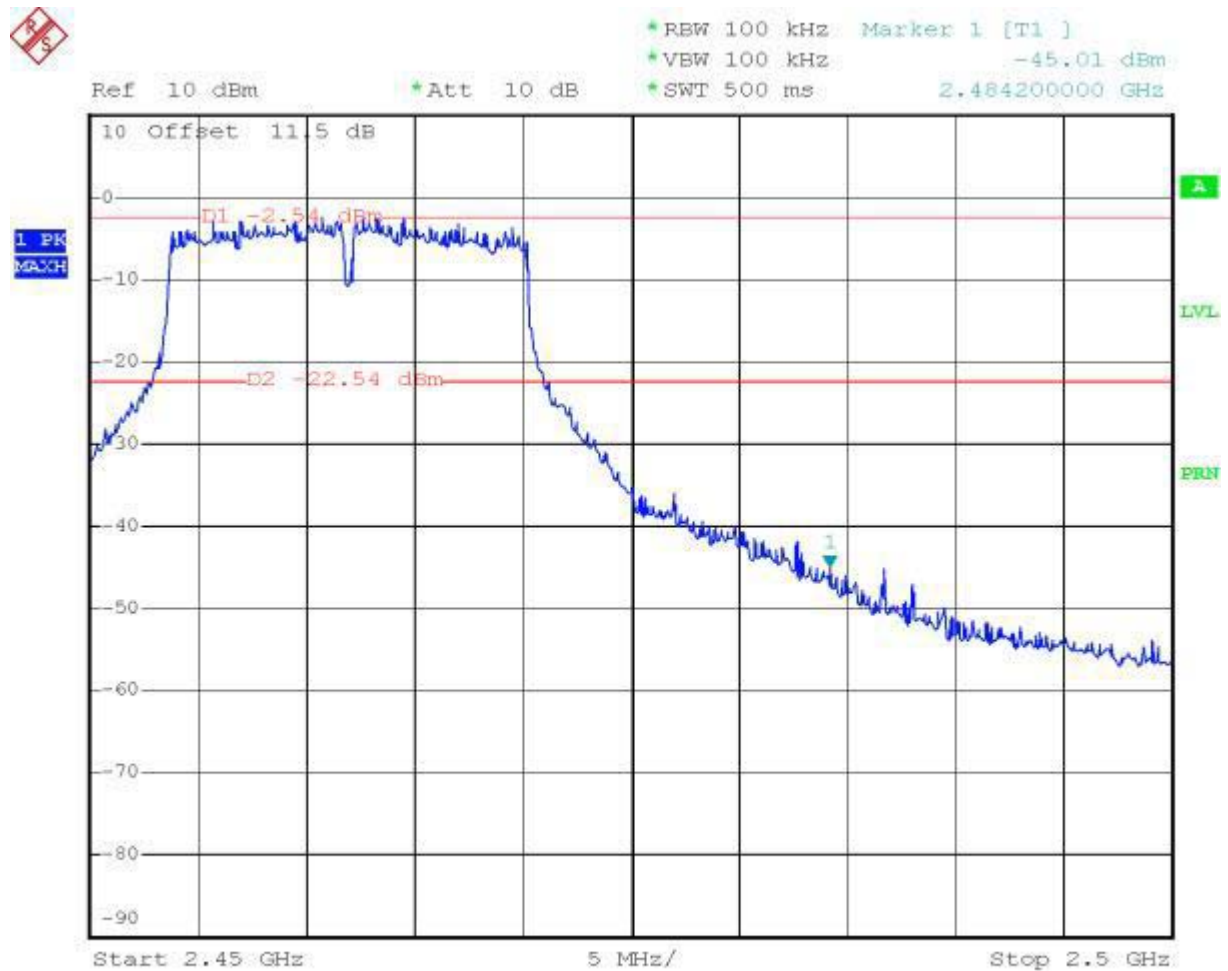
Date: 12.AUG.2004 17:47:11

Mode 4 : 802.11g Tx CH01 (2412MHz)



Date: 12.AUG.2004 17:54:05

Mode 6 : 802.11g Tx CH11 (2462MHz)



Date: 12.AUG.2004 17:58:35

5.5 Peak Output Power

5.5.1 Measuring Instruments :

As described in chapter 10 of this test report.

5.5.2 Test Procedure :

The antenna port (RF output) of the EUT was connected to the input (RF input) of a power meter.
The power is equal to the reading level on power meter plus cable loss at the EUT antenna terminal.

5.5.3 Test Setup Layout :



5.5.4 Test Result :

- Mode 1~3 : WLAN 802.11b
- Temperature : 26°C
- Relative Humidity : 53 %

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
01	2412	17.45	1W/30 dBm
06	2437	17.26	1W/30 dBm
11	2462	17.4	1W/30 dBm

- Mode 4~6 : WLAN 802.11g
- Temperature : 26°C
- Relative Humidity : 53 %

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
01	2412	17.37	1W/30 dBm
06	2437	17.41	1W/30 dBm
11	2462	17.27	1W/30 dBm

6. 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.

6.1. 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

6.2. Test Procedures

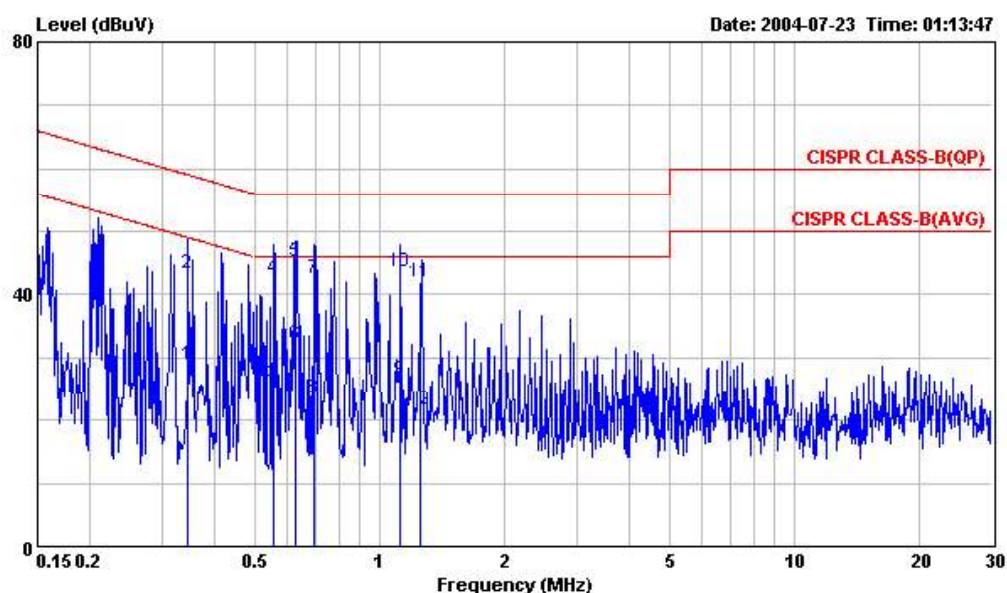
- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power port of the line impedance stabilization network (LISN).
- c. All the support units are connect to the other LISN.
- 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.

6.3. Test Result of Conducted Emission

6.3.1 Frequency Range of Test : 150kHz to 30 MHz

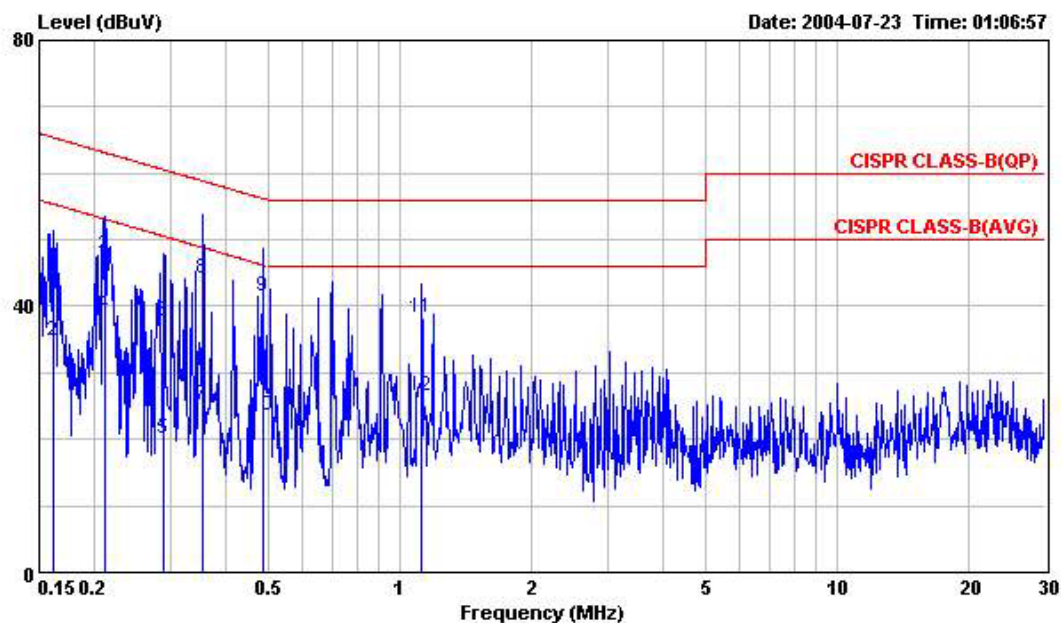
- Test Mode : Mode 1
- Temperature : 26°C
- Relative Humidity : 53 %

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



Site : CO02-LK
 Condition : CISPR CLASS-B(QP) LISN02/10070-920902 LINE
 EUT: NOTEBOOK
 MODEL: GREEN220
 POWER: 110Vac60Hz
 MEMO: FULL SYSTEM
 : LCD PANEL
 : 1280*800 /60Hz
 : LAN : 100Mbps
 : CD-W

	Freq	Level	Over	Limit	Read		Cable	LISN	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Factor	Remark
			dB	dBuV	dBuV	dB	dB	dB	
1	0.346	28.87	-20.19	49.06	28.77	0.10	0.00	0.10	Average
2	0.346	43.32	-15.74	59.06	43.22	0.10	0.00	0.10	QP
3	0.558	25.82	-20.18	46.00	25.72	0.10	0.00	0.10	Average
4	0.558	42.54	-13.46	56.00	42.44	0.10	0.00	0.10	QP
5	0.630	45.34	-10.66	56.00	45.23	0.11	0.01	0.10	QP
6	0.630	31.99	-14.01	46.00	31.88	0.11	0.01	0.10	Average
7	0.697	42.44	-13.56	56.00	42.33	0.11	0.01	0.10	QP
8	0.697	23.44	-22.56	46.00	23.33	0.11	0.01	0.10	Average
9	1.120	26.58	-19.42	46.00	26.46	0.12	0.02	0.10	Average
10	1.120	43.68	-12.32	56.00	43.56	0.12	0.02	0.10	QP
11	1.260	42.07	-13.93	56.00	41.95	0.12	0.02	0.10	QP
12	1.260	21.56	-24.44	46.00	21.44	0.12	0.02	0.10	Average



Site : CO02-LK
 Condition : CISPR CLASS-B(QP) LISN02/10070-920902 NEUTRAL
 EUT: : NOTEBOOK
 MODEL: : GREEN220
 POWER: : 110Vac60Hz
 MEMO: : FULL SYSTEM
 : LCD PANEL
 : 1280*800 /60Hz
 : LAN : 100Mbps
 : CD-W

	Freq	Level	Over	Limit	Read	Cable	LISN	
	MHz	dBuV	Limit	Line	Level	Loss	Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB
1	0.162	45.43	-19.93	65.36	45.33	0.10	0.00	0.10 QP
2	0.162	34.83	-20.53	55.36	34.73	0.10	0.00	0.10 Average
3	0.213	47.65	-15.44	63.09	47.55	0.10	0.00	0.10 QP
4	0.213	38.77	-14.32	53.09	38.67	0.10	0.00	0.10 Average
5	0.289	19.97	-30.58	50.55	19.87	0.10	0.00	0.10 Average
6	0.289	37.73	-22.82	60.55	37.63	0.10	0.00	0.10 QP
7	0.356	25.07	-23.75	48.82	24.97	0.10	0.00	0.10 Average
8	0.356	44.22	-14.60	58.82	44.12	0.10	0.00	0.10 QP
9	0.486	41.40	-14.84	56.24	41.29	0.11	0.01	0.10 QP
10	0.486	23.43	-22.81	46.24	23.32	0.11	0.01	0.10 Average
11	1.120	38.36	-17.64	56.00	38.24	0.12	0.02	0.10 QP
12	1.120	26.53	-19.47	46.00	26.41	0.12	0.02	0.10 Average

Test Engineer : 

Jay

7. Test of Radiated Emission

Radiated emissions from 30 MHz to 25 GHz were measured according to the methods defined in ANSI C63.4-2001. The EUT was placed, 0.8 meter above the ground plane, as shown in section 5.6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions

7.1. Major Measuring Instruments

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

- Amplifier (HP8447D)
 - RF Gain 30 dB
 - Signal Input 100 MHz to 1.3 GHz

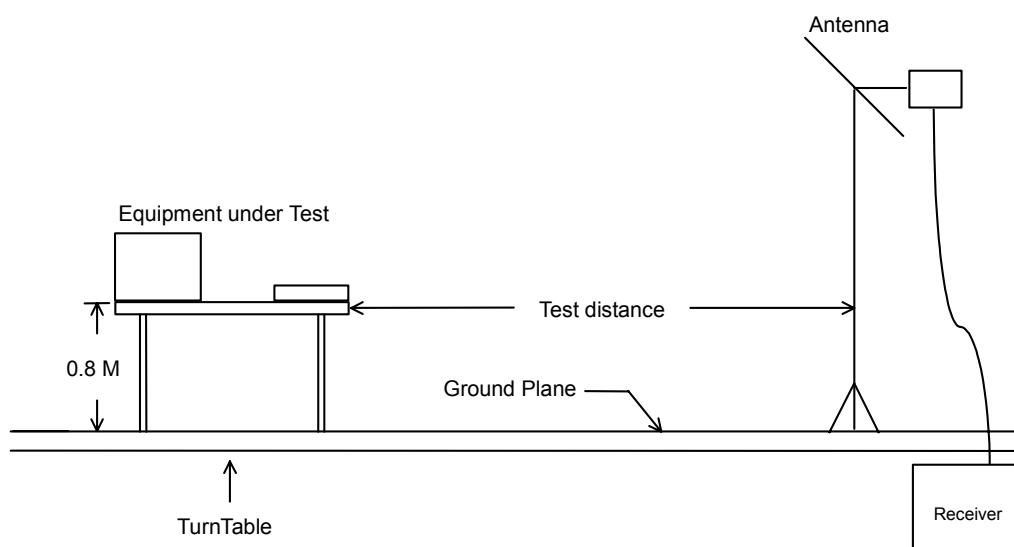
- Spectrum analyzer (R&S FSP40)
 - Attenuation 10 dB
 - Start Frequency 1 GHz
 - Stop Frequency 25 GHz
 - Resolution Bandwidth 1 MHz
 - Video Bandwidth 1 MHz
 - Signal Input 9 kHz to 40 GHz

- Spectrum analyzer (R&S FSP40)
 - Attenuation 10 dB
 - Start Frequency 30MHz
 - Stop Frequency 1 GHz
 - Resolution Bandwidth 120 KHz
 - Video Bandwidth 300KHz
 - Signal Input 9 kHz to 40 GHz

7.2. 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 for both horizontal polarization and vertical polarization of the antenna.
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 turntable (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. For testing below 1GHz, 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 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 average 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.

7.3. Typical Test Setup Layout of Radiated Emission

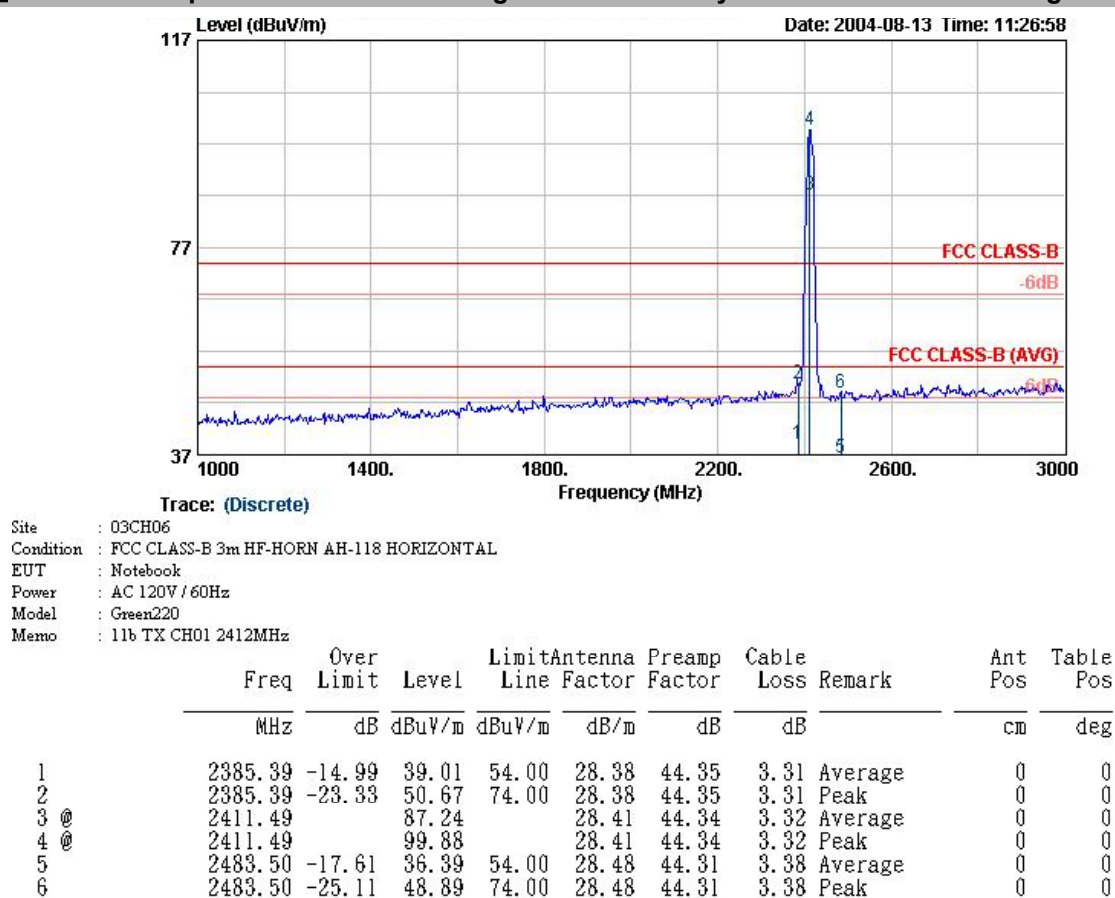


7.4. Test Result of Radiated Emission

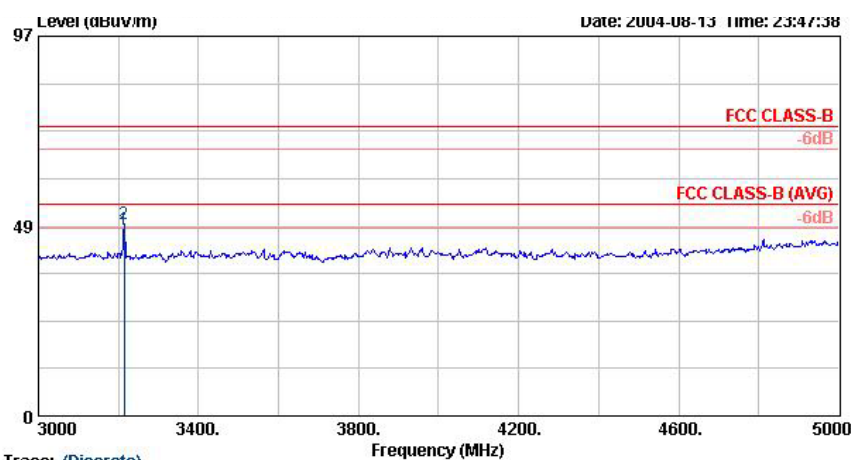
7.4.1 Test Mode: Mode 1 (802.11b TX CH01)

- Test Distance : 3 m
- Temperature : 26 °C
- Relative Humidity :53 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

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

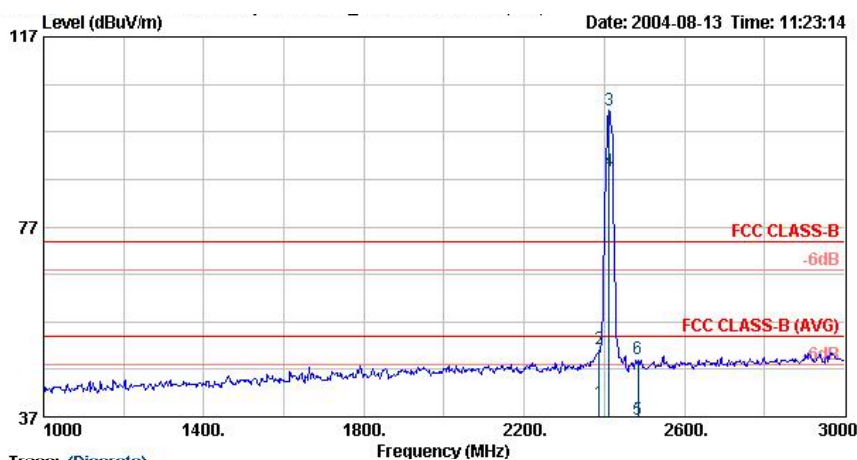


Remark: #3 and #4 represent a fundamental Signal



Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
 EUT : Notebook
 Power : AC 120V / 60Hz
 Model : Green220
 Memo : 11b TX CH01 2412MHz

	Freq	Over	Level	Limit	Antenna	Preamp	Cable	Remark	Ant	Table
	MHz	Limit	dBuV/m	dBuV/m	Line Factor	Factor	Loss		Pos	Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1 @	3214.00	-6.31	47.69	54.00	30.00	44.28	3.74	Average	---	---
2	3214.00	-25.00	49.00	74.00	30.00	44.28	3.74	Peak	---	---



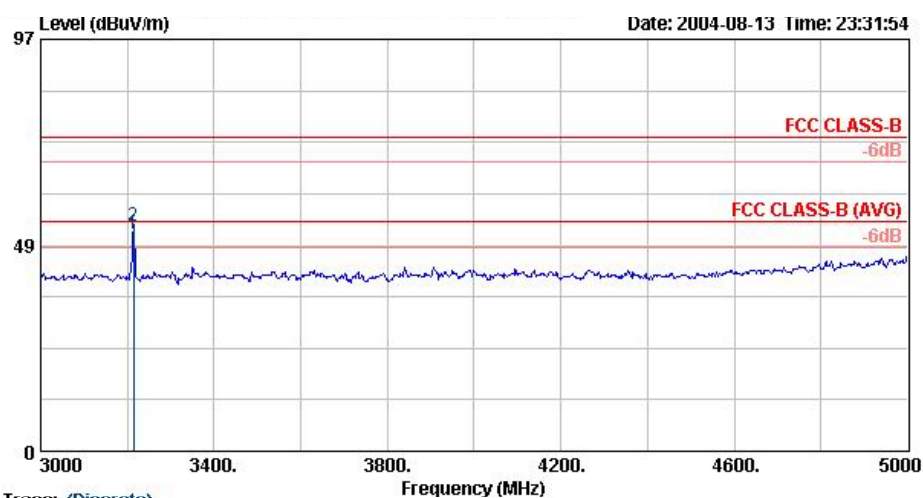
Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
 EUT : Notebook
 Power : AC 120V / 60Hz
 Model : Green220
 Memo : 11b TX CH01 2412MHz

	Freq	Over	Level	Limit	Antenna	Preamp	Cable	Remark	Ant	Table
	MHz	Limit	dBuV/m	dBuV/m	Line Factor	Factor	Loss		Pos	Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	2386.74	-14.08	39.92	54.00	28.40	44.35	3.31	Average	0	0
2	2386.74	-22.78	51.22	74.00	28.40	44.35	3.31	Peak	0	0
3 @	2411.40		101.64		28.41	44.34	3.32	Peak	0	0
4 @	2411.40		88.67		28.41	44.34	3.32	Average	0	0
5	2483.50	-17.51	36.49	54.00	28.48	44.31	3.38	Average	0	0
6	2483.50	-24.72	49.28	74.00	28.48	44.31	3.38	Peak	0	0

Remark: #3 and #4 represent a fundamental Signal

FCC TEST REPORT

Report No. :F473023



Trace: (Discrete)

Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL 114cm 0deg
 EUT : Notebook
 Power : AC 120V / 60Hz
 Model : Green220
 Memo : 11b TX CH01 2412MHz

	Freq	Over	Limit	Antenna	Preamp	Cable		Ant	Table
	MHz	Limit	Level	Line	Factor	Loss	Remark	Pos	Pos
		dB	dBuV/m	dBuV/m	dB/m	dB		cm	deg
1 @	3214.00	-2.65	51.35	54.00	30.00	44.28	3.74 Average	---	---
2	3214.00	-21.09	52.91	74.00	30.00	44.28	3.74 Peak	---	---

Remark:

Frequency from 5GHz to 25GHz, the emission emitted by the EUT is too low to be measured.

■ Field strength of fundamental and harmonics

Frequency	Antenna	Cable	Reading	Preamp	Limits	Emission	Margin	Detect	
Polarity	Factor	Loss		Factor					
(MHz)	(dB/m)	(dB)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Mode	
2411.490	H	28.41	3.32	68.15	44.34	74.00	99.88	25.88	Peak
2411.490	H	28.41	3.32	55.51	44.34	54.00	87.24	33.24	AV
2411.400	V	28.41	3.32	69.91	44.34	74.00	101.64	27.64	Peak
2411.400	V	28.41	3.32	56.94	44.34	54.00	88.67	34.67	AV
4824.000	V/H	-	-	-	-	-	-	-	AV/Peak
7236.000	V/H	-	-	-	-	-	-	-	AV/Peak
9648.000	V/H	-	-	-	-	-	-	-	AV/Peak
12060.000	V/H	-	-	-	-	-	-	-	AV/Peak
14472.000	V/H	-	-	-	-	-	-	-	AV/Peak
16884.000	V/H	-	-	-	-	-	-	-	AV/Peak
19296.000	V/H	-	-	-	-	-	-	-	AV/Peak
21708.000	V/H	-	-	-	-	-	-	-	AV/Peak
24120.000	V/H	-	-	-	-	-	-	-	AV/Peak

Remark:

1. The emission emitted by the EUT is too low to be measured except the emission listed above,
2. Reading = Reading on SA-Preamp Factor

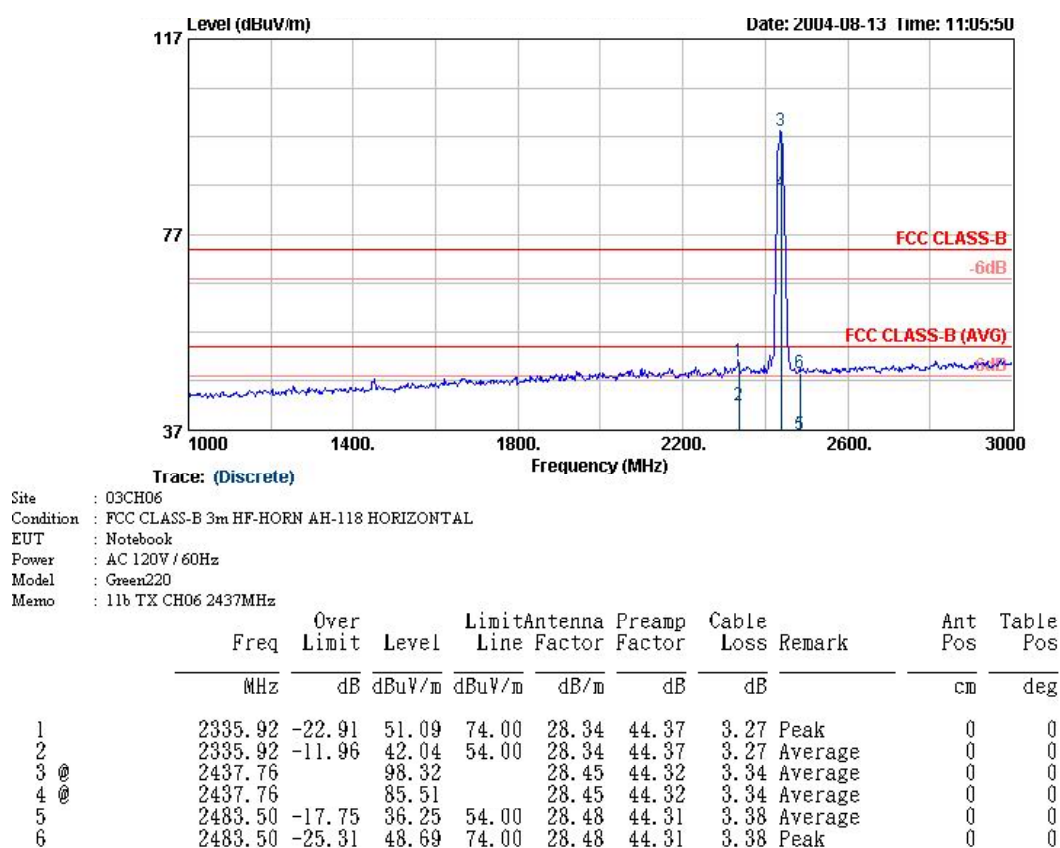
Test Engineer : 

Jay

7.4.2 Test Mode: Mode 2 (802.11b TX CH06)

- Test Distance : 3 m
- Temperature : 26 °C
- Relative Humidity :53 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

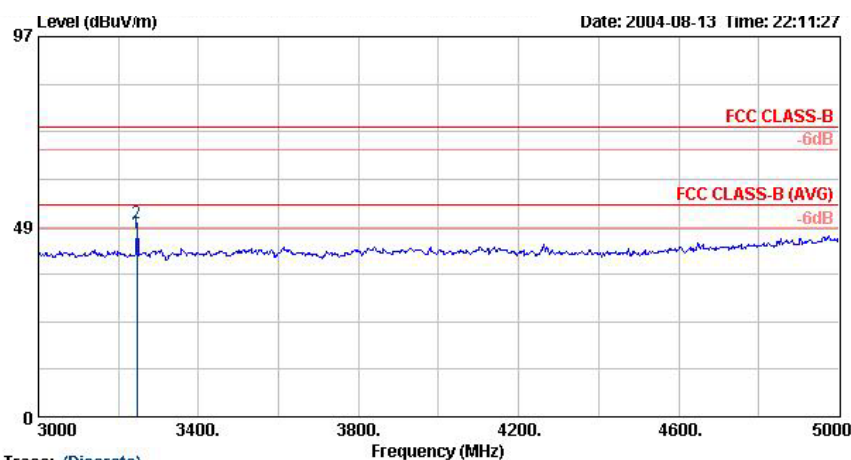
■ The test that passed at minimum margin was marked by the frame in the following table.



Remark: #3 and #4 represent a fundamental Signal

FCC TEST REPORT

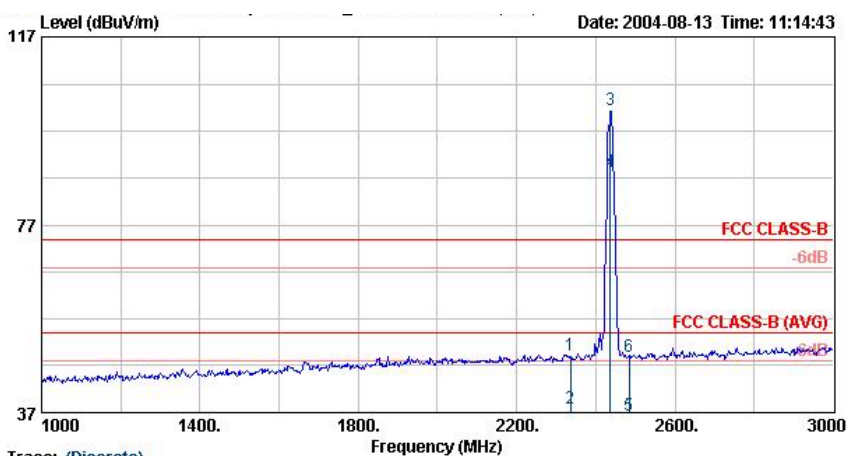
Report No. :F473023



Trace: (Discrete)

Site : 03CH06
Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL 114cm 0deg
EUT : Notebook
Power : AC 120V / 60Hz
Model : Green220
Memo : 11b TX CH06 2437MHz

	Freq	Over Limit	Level	Limit	Antenna Line Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1 @	3246.00	-7.30	46.70	54.00	30.00	44.30	3.78	Average	---	---
2	3246.00	-24.78	49.22	74.00	30.00	44.30	3.78	Peak	---	---



Trace: (Discrete)

Site : 03CH06
Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
EUT : Notebook
Power : AC 120V / 60Hz
Model : Green220
Memo : 11b TX CH06 2437MHz

	Freq	Over Limit	Level	Limit	Antenna Line Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	2335.92	-24.84	49.16	74.00	28.34	44.37	3.27	Peak	0	0
2	2335.92	-16.12	37.88	54.00	28.34	44.37	3.27	Average	0	0
3 @	2436.48		101.48		28.43	44.33	3.34	Peak	0	0
4 @	2436.48		88.45		28.43	44.33	3.34	Average	0	0
5	2483.50	-17.68	36.32	54.00	28.48	44.31	3.38	Average	0	0
6	2483.50	-25.20	48.80	74.00	28.48	44.31	3.38	Peak	0	0

Remark: #3 and #4 represent a fundamental Signal

SPORTON International Inc.

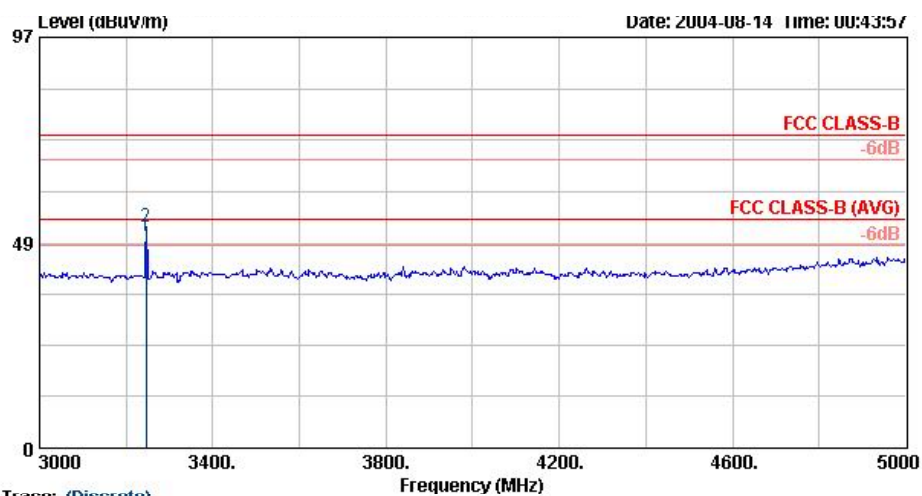
TEL : 886-2-2696-2468

FAX : 886-2-2696-2255

FCC ID : SA6G220IBGX

Page No. : 40 of 69

Issued Date : Sep. 02, 2004



Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
 EUT : Notebook
 Power : AC 120V / 60Hz
 Model : Green220
 Memo : 11b TX CH06 2437MHz

	Freq	Over Limit	Level	Limit	Antenna Line Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1 @	3246.00	-3.87	50.13	54.00	30.00	44.30	3.78	Average	---	---
2	3246.00	-21.60	52.40	74.00	30.00	44.30	3.78	Peak	---	---

Remark:

Frequency from 5GHz to 25GHz, the emission emitted by the EUT is too low to be measured.

■ Field strength of fundamental and harmonics

Frequency	Antenna	Cable	Reading	Preamp	Limits	Emission	Margin	Detect	
Polarity	Factor	Loss		Factor					
(MHz)	(dB/m)	(dB)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Mode	
2437.760	H	28.45	3.34	66.53	44.32	74.00	98.32	24.32	Peak
2437.760	H	28.45	3.34	53.72	44.32	54.00	85.51	31.51	AV
2436.480	V	28.43	3.34	69.71	44.33	74.00	101.48	27.48	Peak
2436.480	V	28.43	3.34	56.68	44.33	54.00	88.45	34.45	AV
4874.000	V/H	-	-	-	-	-	-	-	AV/Peak
7311.000	V/H	-	-	-	-	-	-	-	AV/Peak
9748.000	V/H	-	-	-	-	-	-	-	AV/Peak
12185.000	V/H	-	-	-	-	-	-	-	AV/Peak
14622.000	V/H	-	-	-	-	-	-	-	AV/Peak
17059.000	V/H	-	-	-	-	-	-	-	AV/Peak
19496.000	V/H	-	-	-	-	-	-	-	AV/Peak
21933.000	V/H	-	-	-	-	-	-	-	AV/Peak
24370.000	V/H	-	-	-	-	-	-	-	AV/Peak

Remark:

1. The emission emitted by the EUT is too low to be measured except the emission listed above,
2. Reading = Reading on SA-Preamp Factor

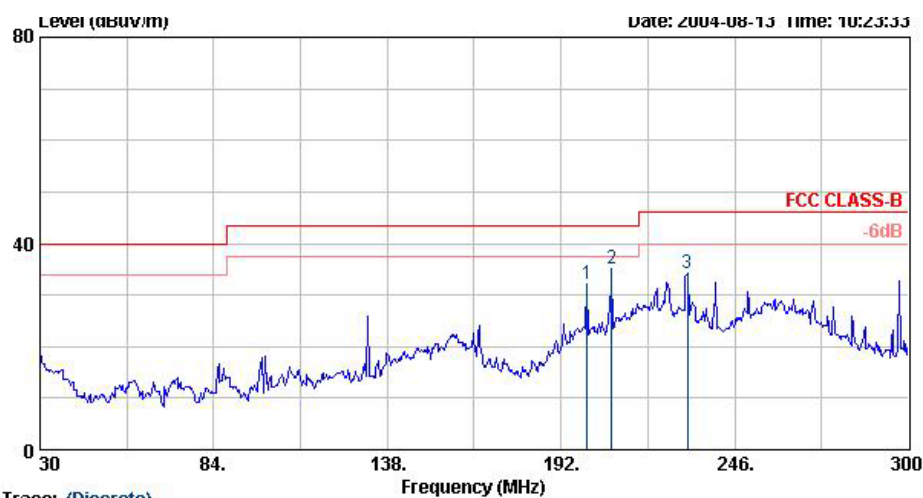
Test Engineer : 

Jay

7.4.3 Test Mode: Mode 3 (802.11b TX CH11)

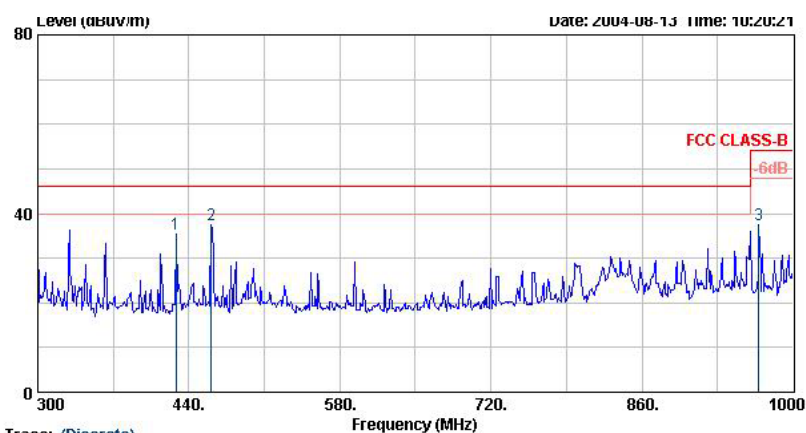
- Test Distance : 3 m
- Temperature : 23 °C
- Relative Humidity :51 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

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



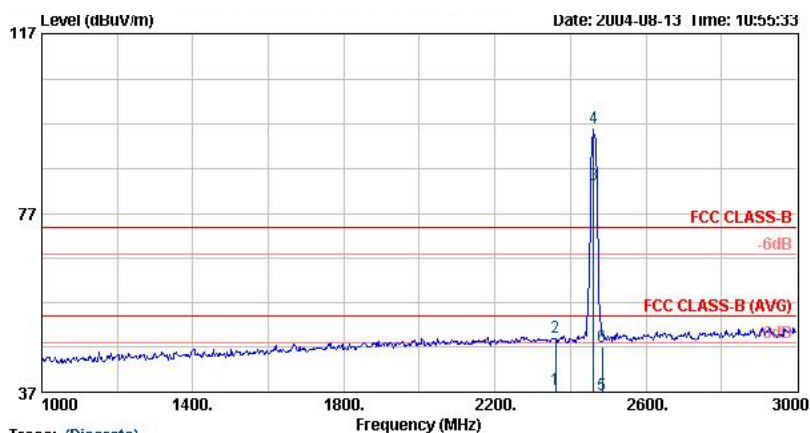
Site : 03CH06
 Condition : FCC CLASS-B 3m BI LOG 2004 0629 HORIZONTAL
 EUT : Notebook
 Power : AC 120V / 60Hz
 Model : Green220
 Memo : 11b TX CH11 2462MHz

	Freq	Over Limit	Level	Limit	Antenna Line	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	200.10	-11.32	32.18	43.50	8.70	32.05	1.24	Peak	---	---
2	207.66	-8.51	35.00	43.50	8.70	31.97	1.26	Peak	---	---
3	231.42	-11.94	34.06	46.00	9.84	31.78	1.34	Peak	---	---



Site : 03CH06
 Condition : FCC CLASS-B 3m BI LOG 2004 0629 HORIZONTAL
 EUT : Notebook
 Power : AC 120V / 60Hz
 Model : Green220
 Memo : 11b TX CH11 2462MHz

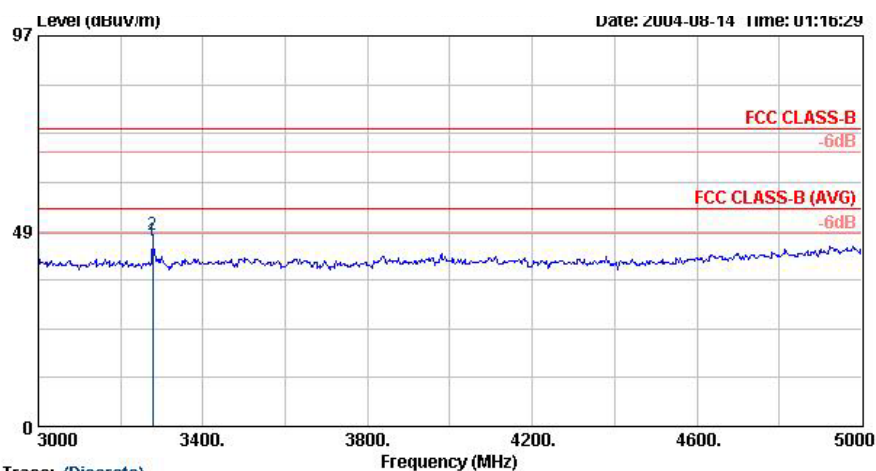
	Freq	Over	Level	Limit	Antenna	Preamp	Cable	Remark	Ant	Table
	MHz	Limit	dBuV/m	dBuV/m	Factor	Factor	Loss		Pos	Pos
		dB			dB/m	dB	dB		cm	deg
1	428.10	-10.69	35.31	46.00	16.44	32.17	1.88	Peak	---	---
2	461.00	-8.43	37.57	46.00	16.63	31.46	1.96	Peak	---	---
3	968.50	-16.40	37.60	54.00	20.93	30.97	3.16	Peak	---	---



Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
 EUT : Notebook
 Power : AC 120V / 60Hz
 Model : Green220
 Memo : 11b TX CH11 2462MHz

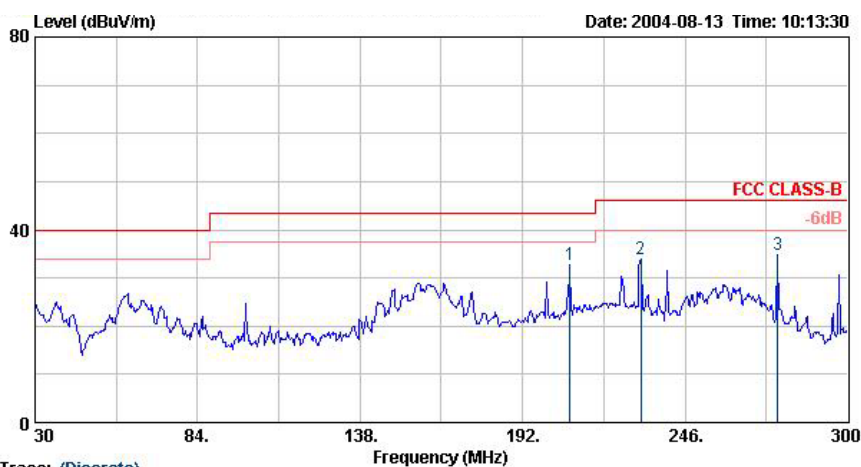
	Freq	Over	Level	Limit	Antenna	Preamp	Cable	Remark	Ant	Table
	MHz	Limit	dBuV/m	dBuV/m	Factor	Factor	Loss		Pos	Pos
		dB			dB/m	dB	dB		cm	deg
1	2360.08	-16.44	37.56	54.00	28.36	44.36	3.29	Average	0	0
2	2360.08	-24.81	49.19	74.00	28.36	44.36	3.29	Peak	0	0
3 @	2461.09		83.50		28.47	44.32	3.36	Average	0	0
4 @	2461.09		96.28		28.47	44.32	3.36	Peak	0	0
5	2483.50	-17.56	36.44	54.00	28.48	44.31	3.38	Average	0	0
6	2483.50	-26.79	47.21	74.00	28.48	44.31	3.38	Peak	0	0

Remark: #3 and #4 represent a fundamental Signal



Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
 EUT : Notebook
 Power : AC 120V / 60Hz
 Model : Green220
 Memo : 11b TX CH11 2462MHz

	Freq	Over Limit	Level	Limit	Antenna Line Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	3278.00	-7.88	46.12	54.00	30.00	44.32	3.81	Average	---	---
2	3278.00	-26.47	47.53	74.00	30.00	44.32	3.81	Peak	---	---

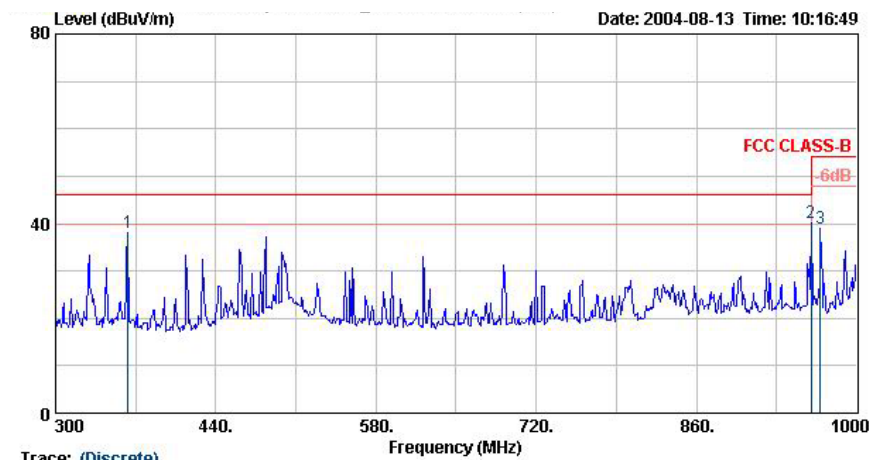


Site : 03CH06
 Condition : FCC CLASS-B 3m BI LOG 2004 0629 VERTICAL
 EUT : Notebook
 Power : AC 120V / 60Hz
 Model : Green220
 Memo : 11b TX CH11 2462MHz

	Freq	Over Limit	Level	Limit	Antenna Line Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	207.66	-10.74	32.76	43.50	8.70	31.97	1.26	Peak	---	---
2	231.42	-12.15	33.85	46.00	9.84	31.78	1.34	Peak	---	---
3	276.78	-11.16	34.84	46.00	12.50	31.97	1.45	Peak	---	---

FCC TEST REPORT

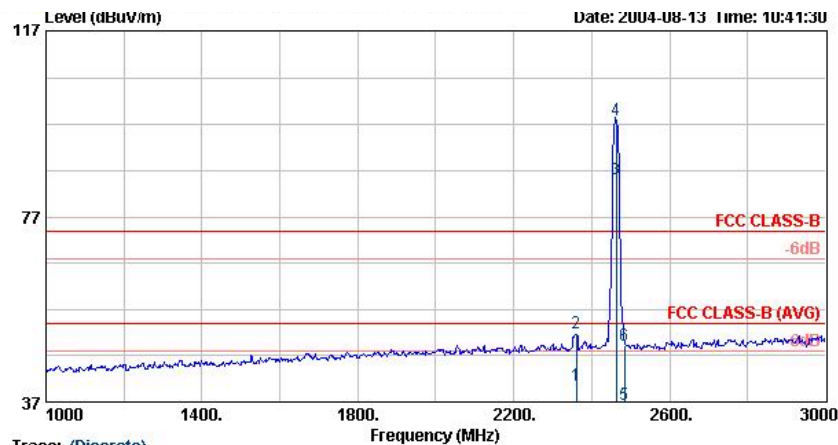
Report No. :F473023



Trace: (Discrete)

Site : 03CH06
Condition : FCC CLASS-B 3m BI LOG 2004 0629 VERTICAL
EUT : Notebook
Power : AC 120V / 60Hz
Model : Green220
Memo : 11b TX CH11 2462MHz

	Freq	Over	Level	Limit	Antenna	Preamp	Cable	Remark	Ant	Table
	MHz	Limit	dBuV/m	dBuV/m	Line Factor	Factor	Loss		Pos	Pos
		dB			dB/m	dB	dB		cm	deg
1	363.00	-7.93	38.07	46.00	14.75	31.46	1.70	Peak	---	---
2	960.10	-13.78	40.22	54.00	20.88	30.88	3.15	Peak	---	---
3	968.50	-15.12	38.88	54.00	20.93	30.97	3.16	Peak	---	---



Trace: (Discrete)

Site : 03CH06
Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
EUT : Notebook
Power : AC 120V / 60Hz
Model : Green220
Memo : 11b TX CH11 2462MHz

	Freq	Over	Level	Limit	Antenna	Preamp	Cable	Remark	Ant	Table
	MHz	Limit	dBuV/m	dBuV/m	Line Factor	Factor	Loss		Pos	Pos
		dB			dB/m	dB	dB		cm	deg
1	2359.92	-13.36	40.64	54.00	28.36	44.36	3.29	Average	0	0
2	2359.92	-22.18	51.82	74.00	28.36	44.36	3.29	Peak	0	0
3 @	2462.77		85.20		28.47	44.31	3.36	Average	0	0
4 @	2462.77		97.99		28.47	44.31	3.36	Peak	0	0
5	2483.50	-17.52	36.48	54.00	28.48	44.31	3.38	Average	0	0
6	2483.50	-24.73	49.27	74.00	28.48	44.31	3.38	Peak	0	0

Remark: #3 and #4 represent a fundamental Signal

SPORTON International Inc.

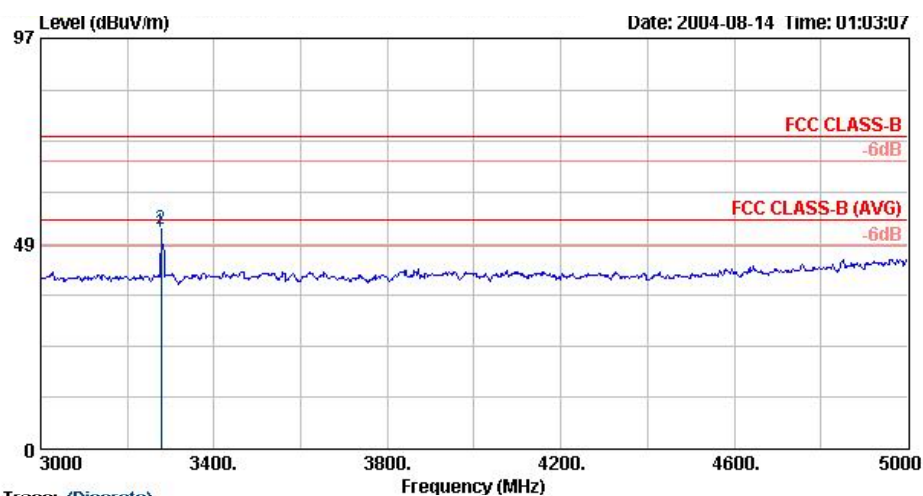
TEL : 886-2-2696-2468

FAX : 886-2-2696-2255

FCC ID : SA6G220IBGX

Page No. : 46 of 69

Issued Date : Sep. 02, 2004



Site : 03CH06
 Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
 EUT : Notebook
 Power : AC 120V / 60Hz
 Model : Green220
 Memo : 11b TX CH11 2462MHz

	Freq	Over Limit	Level	Limit	Antenna Line Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1 @	3278.00	-2.72	51.28	54.00	30.00	44.32	3.81	Average	---	---
2	3278.00	-22.10	51.90	74.00	30.00	44.32	3.81	Peak	---	---

Remark:

Frequency from 5GHz to 25GHz, the emission emitted by the EUT is too low to be measured.