FCC TEST REPORT

for

47 CFR Part 15 Subpart C

Equipment : Notebook

Trade Name : ECS

Model No. : Green553

FCC ID : SA6G553IBXX

Filing Type : Certification

Applicant : ELITEGROUP COMPUTER SYSTEMS CO., LTD.
3F, No. 240, Sec. 1, Nei Hu Road, Taipei, Taiwan 114, R.O.C.

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: Aug. 20, 2004

■ No additional attachment.

☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

Certificate No. : F470904

CERTIFICATE OF COMPLIANCE

for

47 CFR Part 15 Subpart C

Equipment : **Notebook**

Trade Name : **ECS**

Model No. : **Green553**

FCC ID : **SA6G553IBXX**

Filing Type : **Certification**

Applicant : **ELITEGROUP COMPUTER SYSTEMS CO., LTD.**
3F, No. 240, Sec. 1, Nei Hu Road, Taipei, Taiwan 114, 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 Aug. 12, 2004 at **SPORTON International Inc.** LAB.

Daniel Lee 8/23/2004

Daniel Lee

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

ELITEGROUP COMPUTER SYSTEMS CO., LTD.
3F, No. 240, Sec. 1, Nei Hu Road, Taipei, Taiwan 114, R.O.C.

1.2 Manufacturer

ELITEGROUP COMPUTER SYSTEMS CO., LTD.
3F, No. 240, Sec. 1, Nei Hu Road, Taipei, Taiwan 114, R.O.C.

1.3 Basic Description of Equipment under Test

Equipment	: Notebook
Trade Name	: ECS
Model No.	: Green553
FCC ID	: SA6G553IBXX
Power Supply Type	: AC 110V, Non-shielded ,1.2meter,2pin

1.4 Feature of Equipment under Test

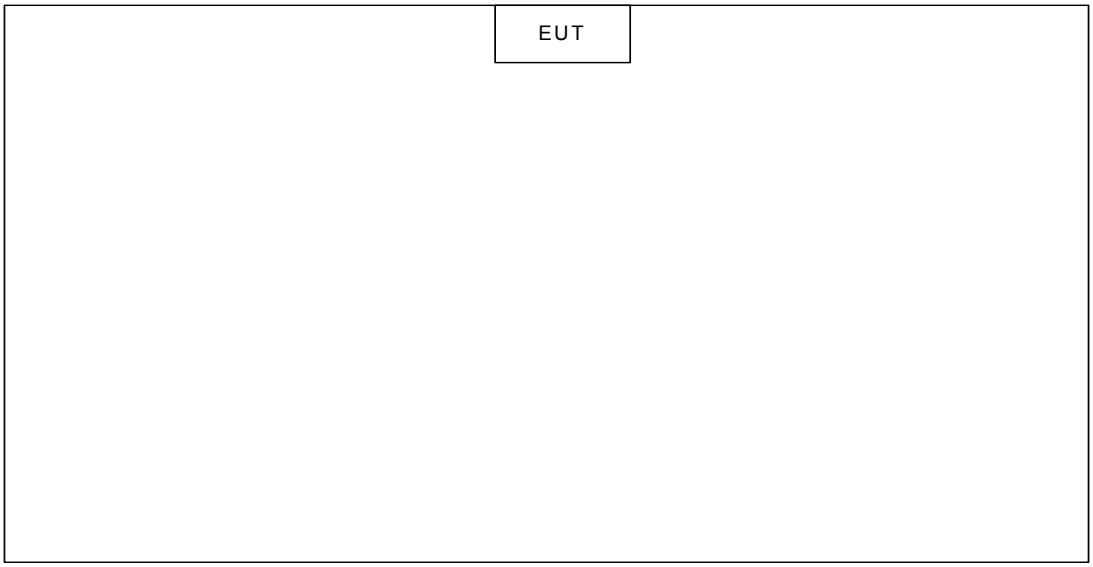
Product Feature & Specification						
1. Host/Radio Interface	Wireless LAN					
2. Modulation Type/Data Rate	802.11b: CCK, DQPSK, DBPSK					
3. Freq.Range/Carrier Freqs.	2400 MHz ~ 2483.5 MHz					
4. Number o f Channels	USA/Canada: 11	V	European: 13			
	Japan: 13, 14		Other:			
5. Carrier Frequency of each channel	2400 MHz~2483.5 MHz					
6. Channel Spacing	5 MHz					
7. Maximum Output Power to Antenna (Normal condition)	802.11b: 15.9 dBm					
8. Antenna Type	PIFA Antenna					
9. Antenna Gain	-3.25 dBi					
10. Function Type	Transmitter		Transceiver	V		
11. Power Rating (DC/AC , Voltage)	DC 3.3V					
12. Duty Cycle	100%					

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 tested for conduction test:
   Mode 1: Ping link mode
   The following test modes were pretested for radiation test:
   Mode 1: TX CH01 (2412MHz)
   Mode 2: TX CH06 (2437MHz)
   Mode 3: TX CH11 (2462MHz)
e. Frequency range investigated: conduction 150 kHz to 30 MHz, radiation 30 MHz to 25000MHz.

2.2 Connection Diagram of Test System



3 Operation of Equipment under Test

Two executive programs, EMC.exe under WIN XP, which generates a complete line of continuously repeating " H" pattern were used as the test software.

The programs were 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 internal hard disk, and the Hard Disk reads and writes the message.
e. Repeat the steps from b to d.

At the same time, the following programs were executed:

one self test program ”CRTU. exe” to keep transmitting signals.

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

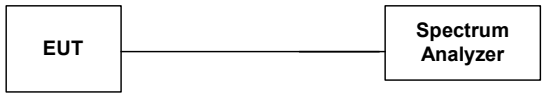
5.2.1 Measuring Instruments：

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：



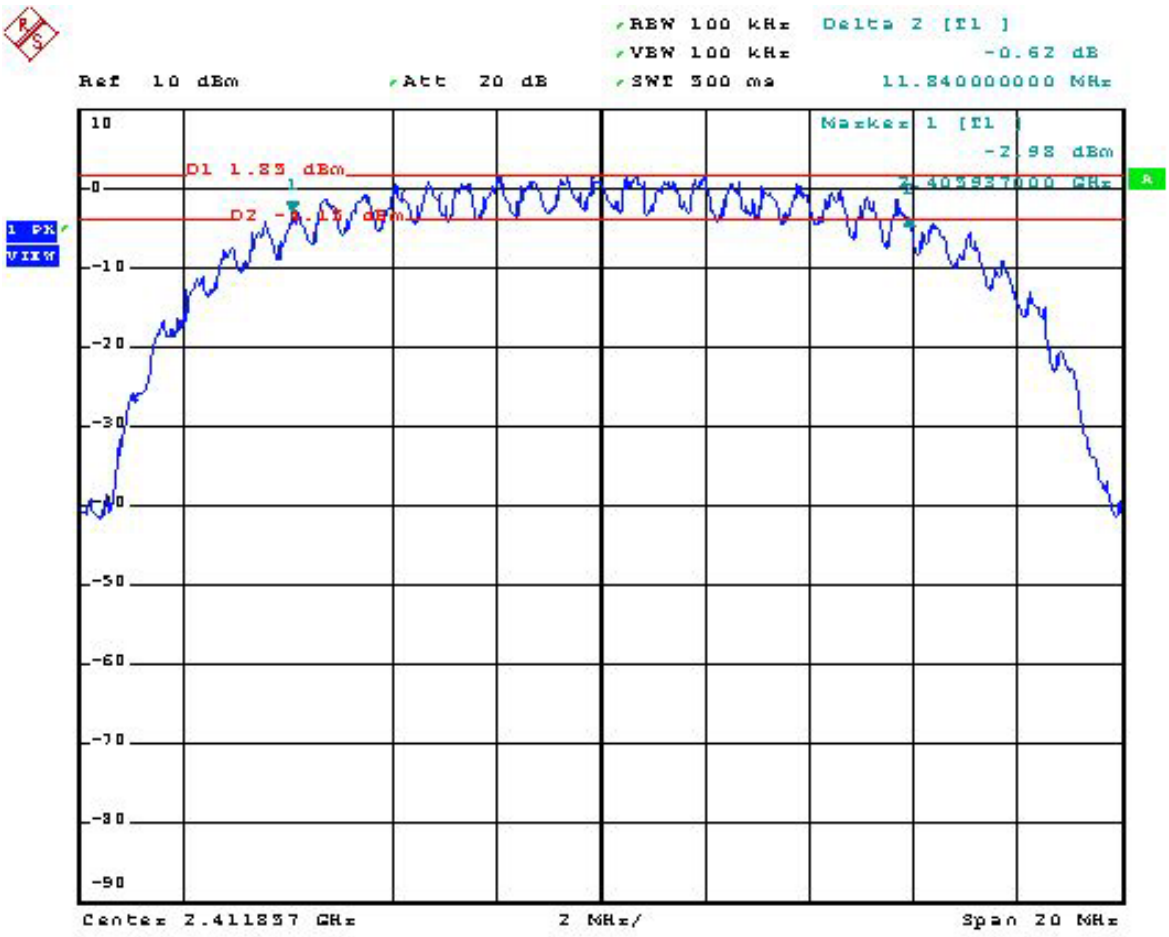
5.2.4 Test Result：

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

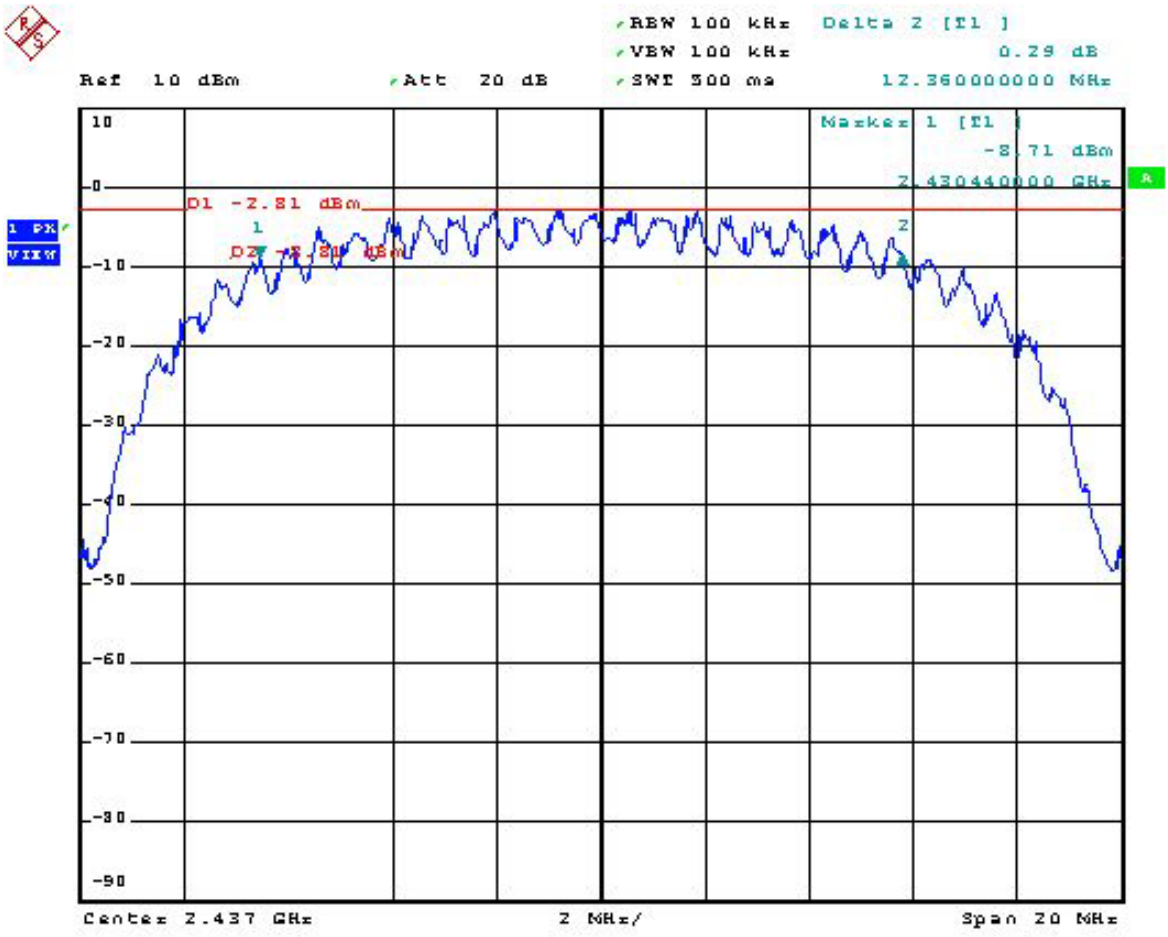
Channel	Frequency (MHz)	6dB Emission bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
01	2412	11.84	0.5	Mode 1
06	2437	12.36	0.5	Mode 2
11	2462	12.36	0.5	Mode 3

5.2.6 6dB Bandwidth

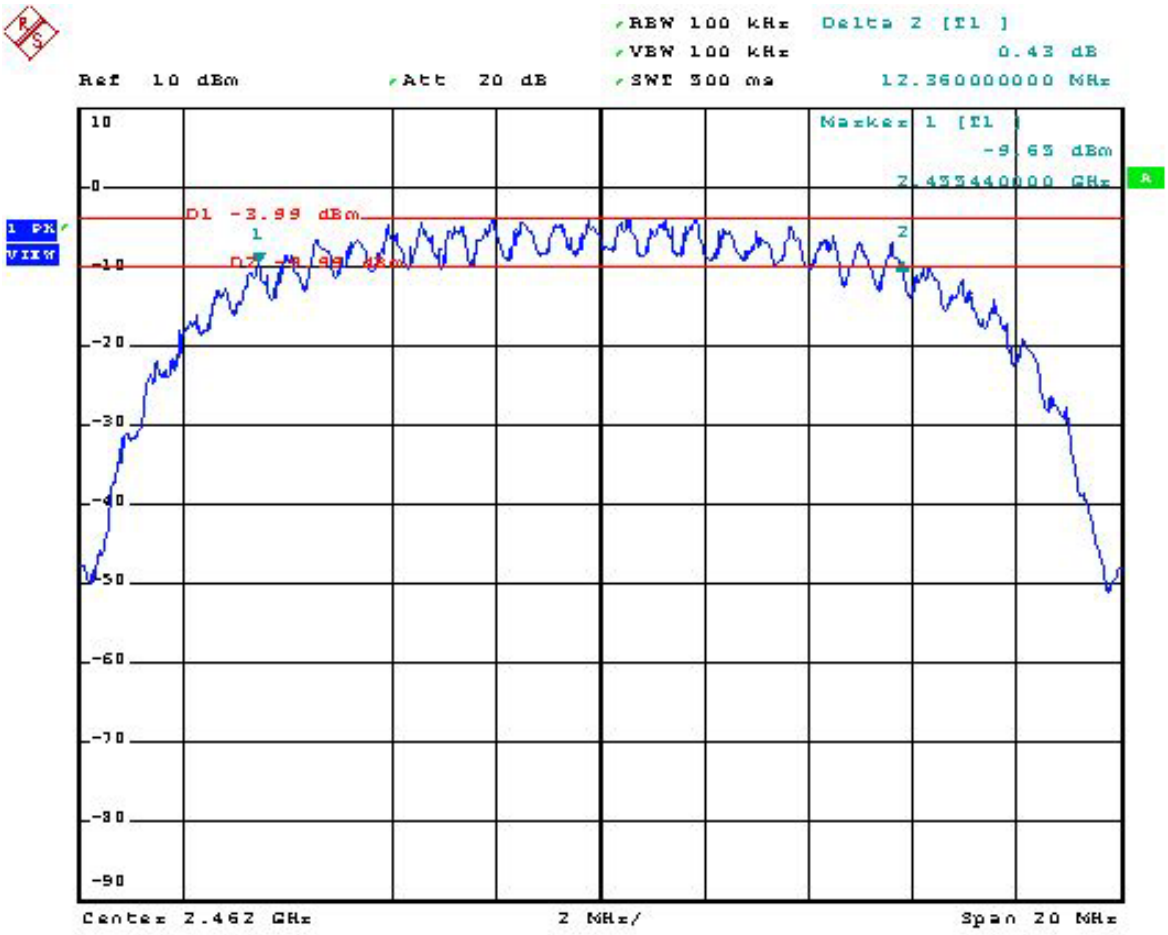
Mode 1 : 802.11b Tx CH01 (2412MHz)



Mode 2 : 802.11b Tx CH06 (2437MHz)



Mode 3 : 802.11b Tx CH11(2462MHz)



5.3 Power Spectral Density

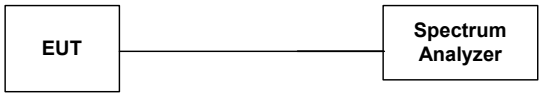
5.3.1 Measuring Instruments：

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：



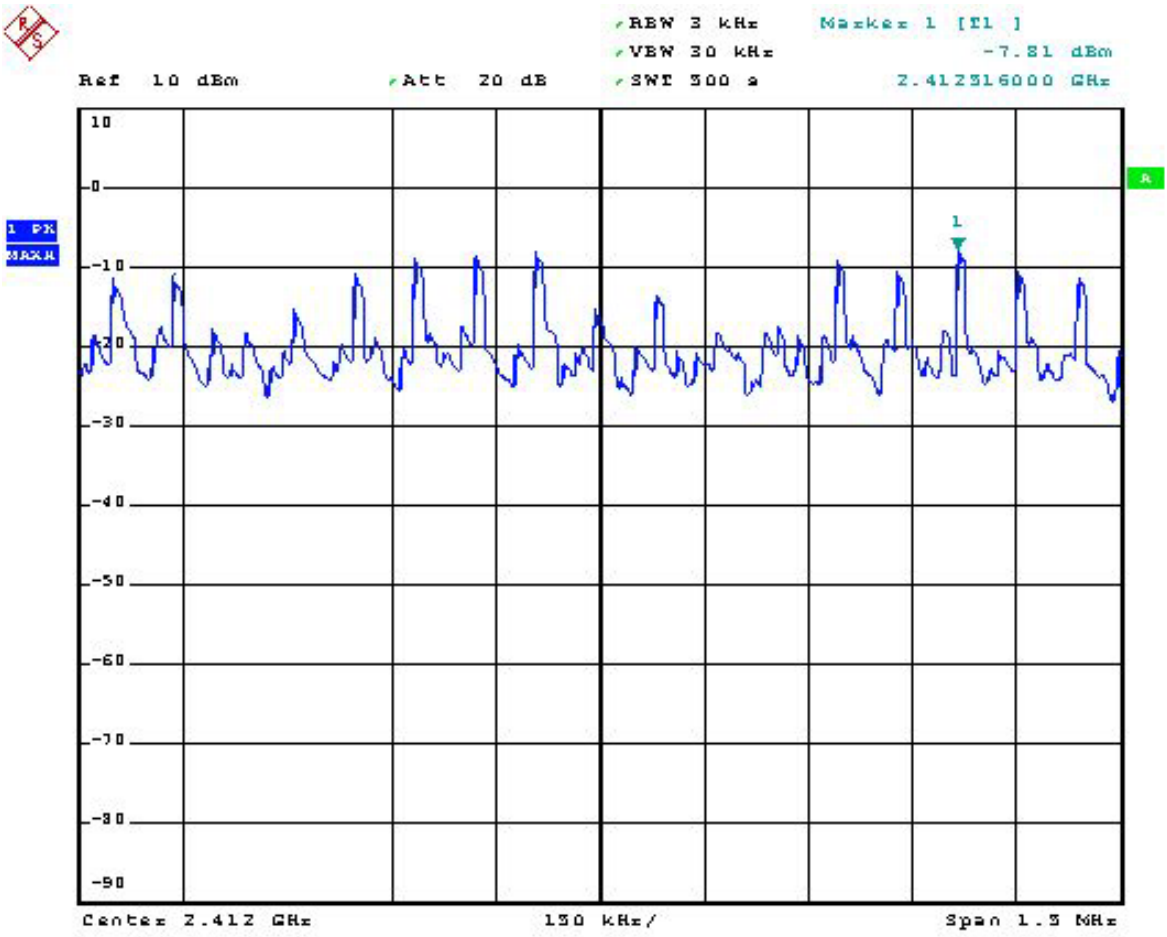
5.3.4 Test Result：

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

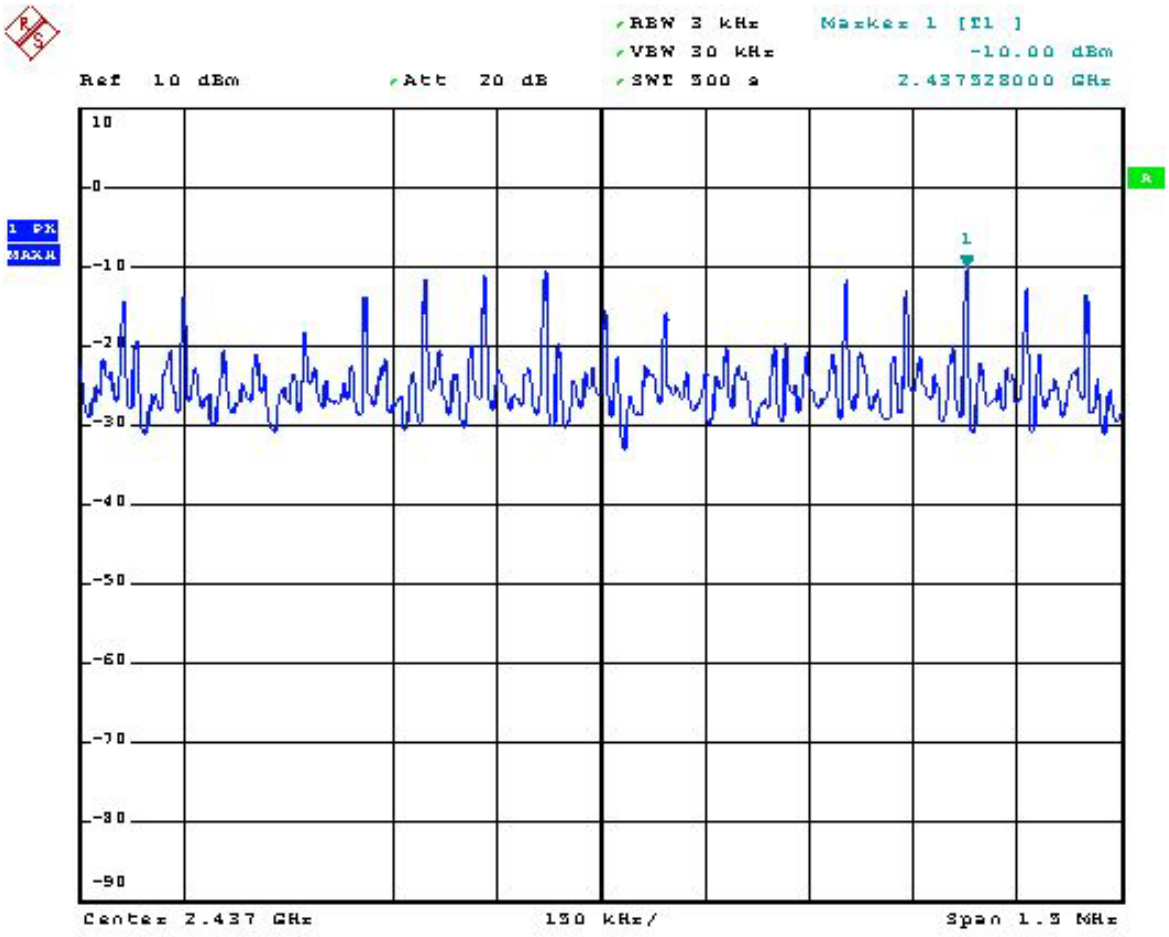
Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)	Plot Ref. No.
01	2412	-7.81	8	Mode 1
06	2437	-10.00	8	Mode 2
11	2462	-10.93	8	Mode 3

5.3.5 Power Spectral Density

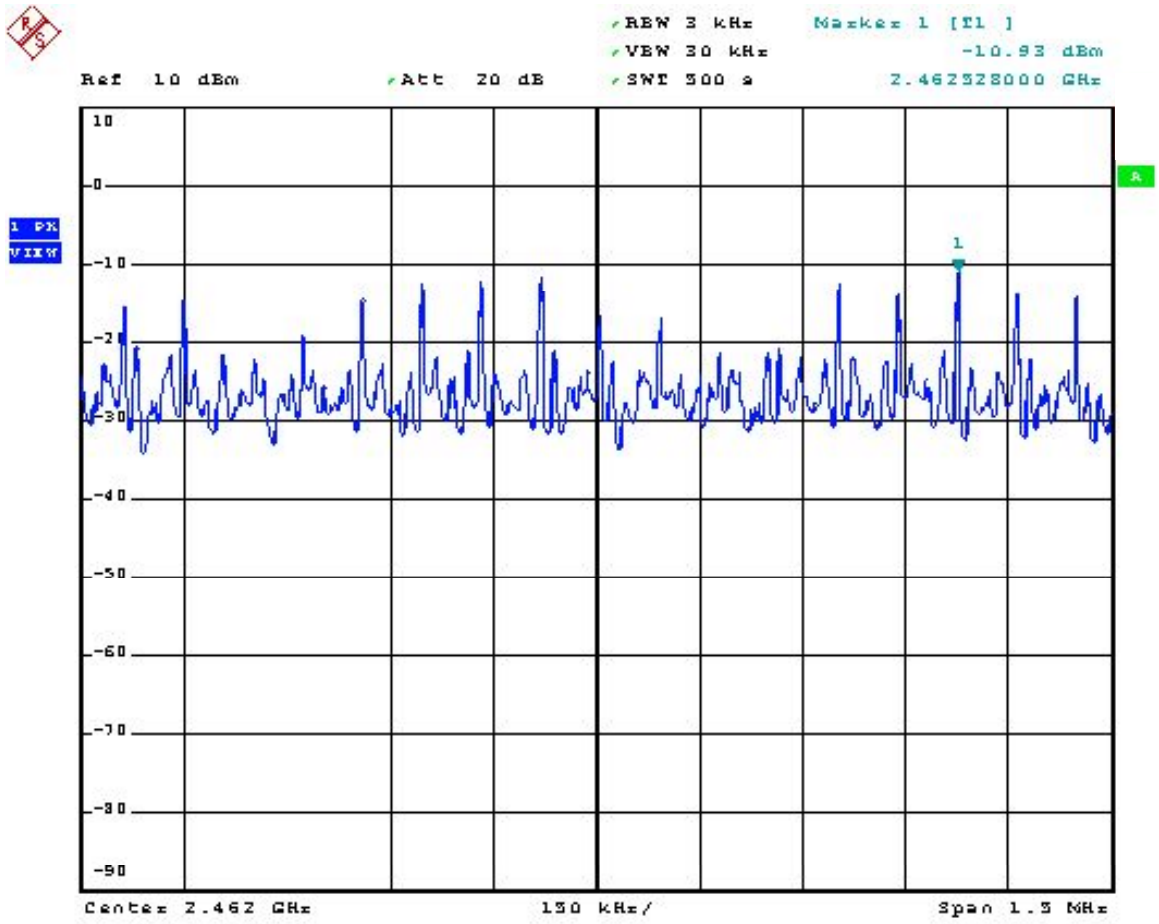
Mode 1 : 802.11b Tx CH01(2412MHz)



Mode 2 : 802.11b Tx CH06 (2437MHz)



Mode 3 : 802.11b Tx CH11 (2462MHz)



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：

- Mode 1 and 3 : 802.11b
- 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

802.11b

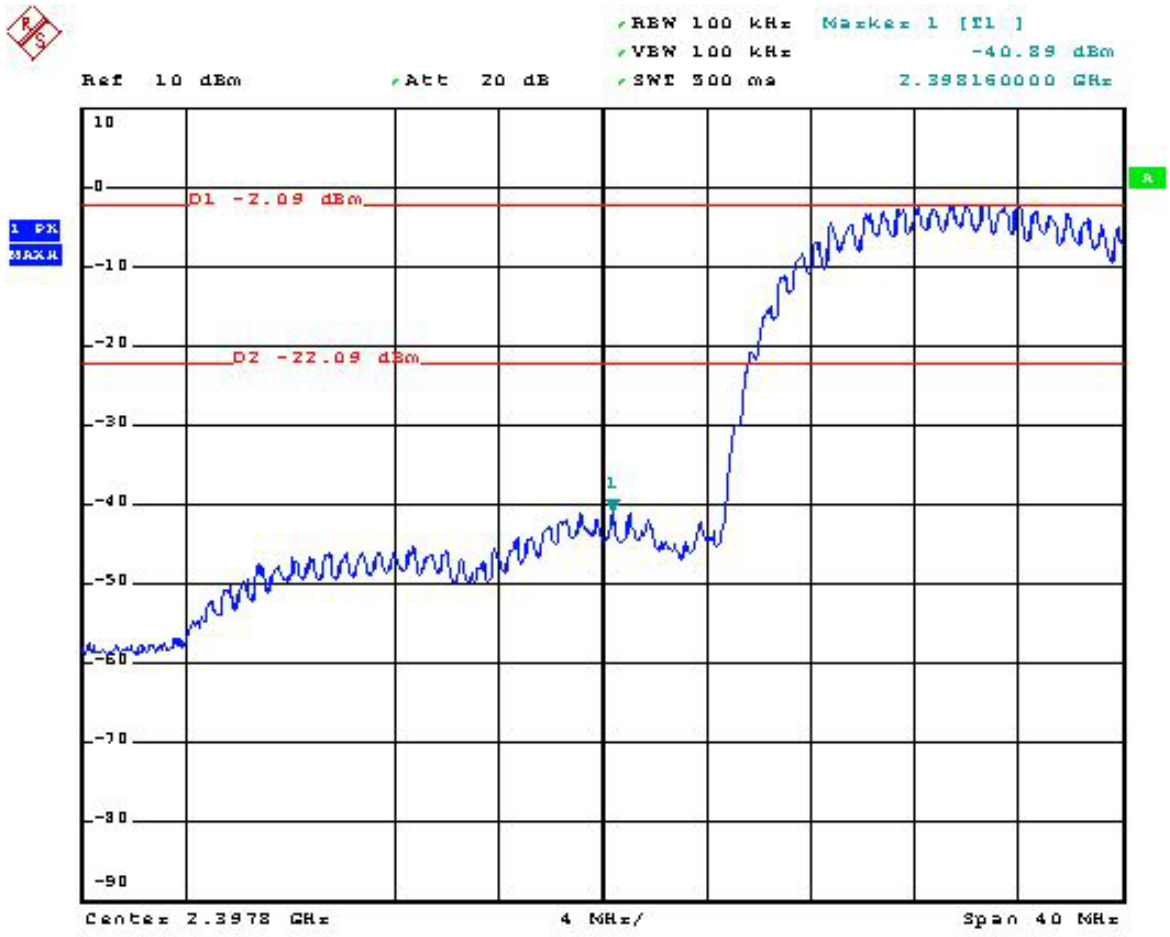
The band edge emission shows 38.79 dB delta between carrier maximum power and local maximum emission in the restricted band (2.390GHz).

The band edge emission shows 43.84 dB delta between carrier maximum power and local maximum emission in the restricted band (2.4835GHz)

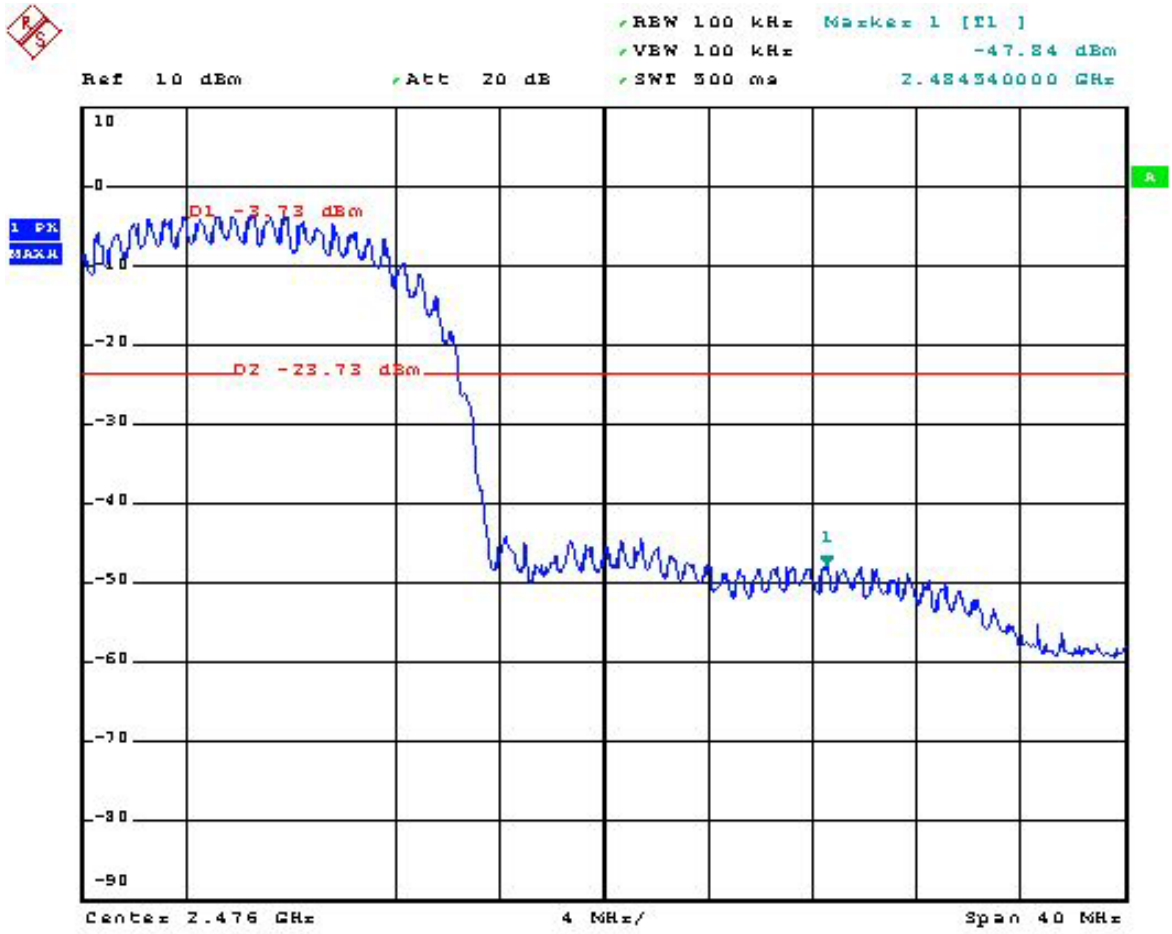
Channel	Polarity	The emission of carrier power strength	Frequency	The emission of band edge power strength	Limit	Margin	Remark	Result
		(dB μ V/m)	(MHz)	(dB μ V/m)	(dB μ V/m)	(dB)		
01	H	93.69	2398.16	54.9	74	-19.1	Peak	Pass
	H	84.95	2398.16	46.16	54	-7.84	Average	Pass
	V	95.8	2398.16	57.01	74	-16.99	Peak	Pass
	V	86.64	2398.16	47.85	54	-6.15	Average	Pass
11	H	98.65	2484.54	54.81	74	-19.19	Peak	Pass
	H	85.03	2484.54	41.19	54	-12.81	Average	Pass
	V	101.87	2484.54	58.03	74	-15.97	Peak	Pass
	V	93.64	2484.54	49.8	54	-4.2	Average	Pass

5.4.7 20dB Band Edge

Mode1 : 802.11b Tx CH01 (2412MHz)



Mode 2 : 802.11b Tx CH11 (2462MHz)



5.5 Peak Output Power

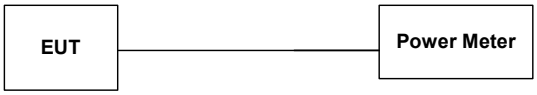
5.5.1 Measuring Instruments：

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 : 802.11b
- Temperature : 26°C
- Relative Humidity : 53 %

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
01	2412	15.92	1W/30 dBm
06	2437	15.48	1W/30 dBm
11	2462	15.03	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

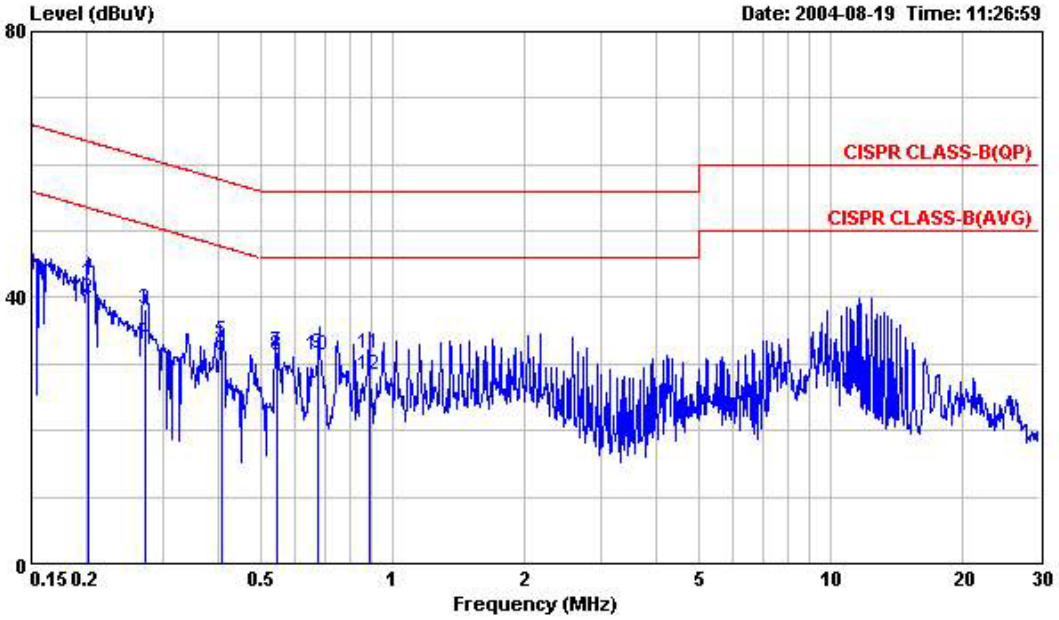
a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power port of the line impedance stabilization network (LISN).
c. All the support units are connect to the other LISN.
d. The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

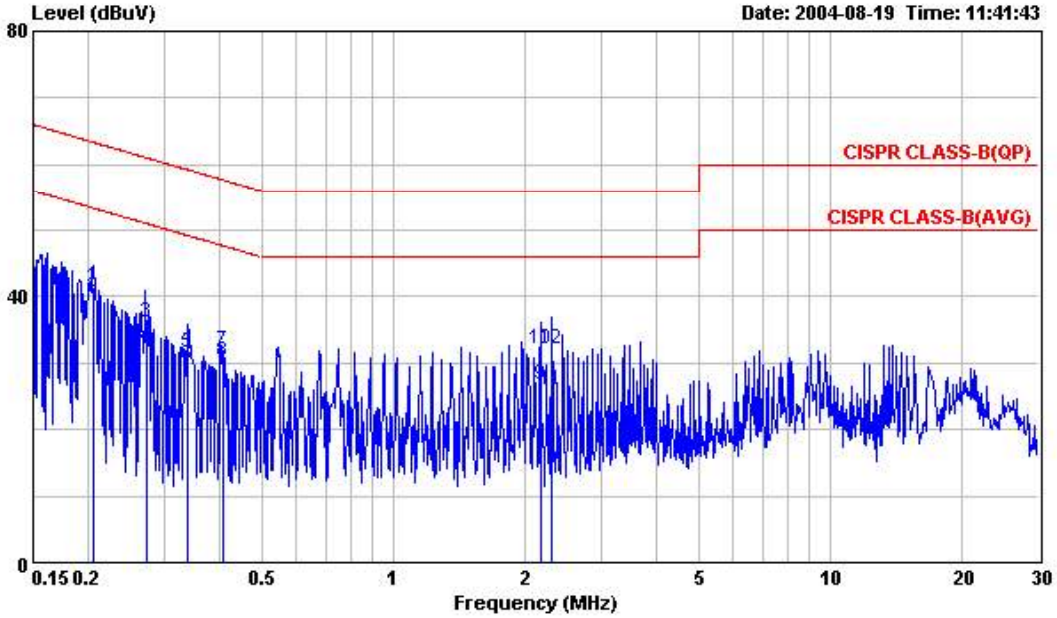
- Test Mode : Mode 1
- Temperature : 25°C
- Relative Humidity : 45 %

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: : GREEN553
POWER: : 110Vac60Hz
MEMO: : FULL SYSTEM
: D-SUB(15)+LCD 1024*768 75Hz
: DVD PLAY
: WIRELAN
: LAN 100Mbps

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Factor	Cable Loss	LISN Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1 @	0.203	42.38	-21.11	63.49	42.22	0.16	0.06	0.10	QP
2 @	0.203	39.75	-13.74	53.49	39.59	0.16	0.06	0.10	Average
3 @	0.272	38.26	-22.80	61.06	37.88	0.38	0.28	0.10	QP
4 @	0.272	33.50	-17.56	51.06	33.12	0.38	0.28	0.10	Average
5 @	0.408	33.51	-24.19	57.70	33.23	0.28	0.18	0.10	QP
6 @	0.408	31.27	-16.43	47.70	30.99	0.28	0.18	0.10	Average
7 @	0.544	31.90	-24.10	56.00	31.43	0.47	0.37	0.10	QP
8 @	0.544	31.37	-14.63	46.00	30.90	0.47	0.37	0.10	Average
9 @	0.680	31.69	-24.31	56.00	31.24	0.45	0.35	0.10	QP
10 @	0.680	31.26	-14.74	46.00	30.81	0.45	0.35	0.10	Average
11 @	0.885	31.62	-24.38	56.00	31.14	0.48	0.38	0.10	QP
12 @	0.885	28.44	-17.56	46.00	27.96	0.48	0.38	0.10	Average



Site : CO02-LK
Condition : CISPR CLASS-B(QP) LISN02/10070-920902 NEUTRAL
EUT: : NOTEBOOK
MODEL: : GREEN553
POWER: : 110Vac60Hz
MEMO: : FULL SYSTEM
: D-SUB(15) +LCD 1024*768 75Hz
: DVD PLAY
: WIRELAN
: LAN 100Mbps

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Cable Loss	LISN Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1 @	0.206	41.56	-21.81	63.37	41.39	0.17	0.07	0.10	QP
2 @	0.206	39.81	-13.56	53.37	39.64	0.17	0.07	0.10	Average
3 @	0.272	36.18	-24.88	61.06	35.80	0.38	0.28	0.10	QP
4 @	0.272	32.29	-18.77	51.06	31.91	0.38	0.28	0.10	Average
5 @	0.339	31.47	-27.76	59.23	31.23	0.24	0.14	0.10	QP
6 @	0.339	29.59	-19.64	49.23	29.35	0.24	0.14	0.10	Average
7 @	0.408	31.92	-25.77	57.69	31.64	0.28	0.18	0.10	QP
8 @	0.408	30.27	-17.42	47.69	29.99	0.28	0.18	0.10	Average
9 @	2.175	26.71	-19.29	46.00	26.52	0.19	0.08	0.11	Average
10 @	2.175	32.05	-23.95	56.00	31.86	0.19	0.08	0.11	QP
11 @	2.310	25.90	-20.10	46.00	25.70	0.20	0.08	0.12	Average
12 @	2.310	32.04	-23.96	56.00	31.84	0.20	0.08	0.12	QP

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

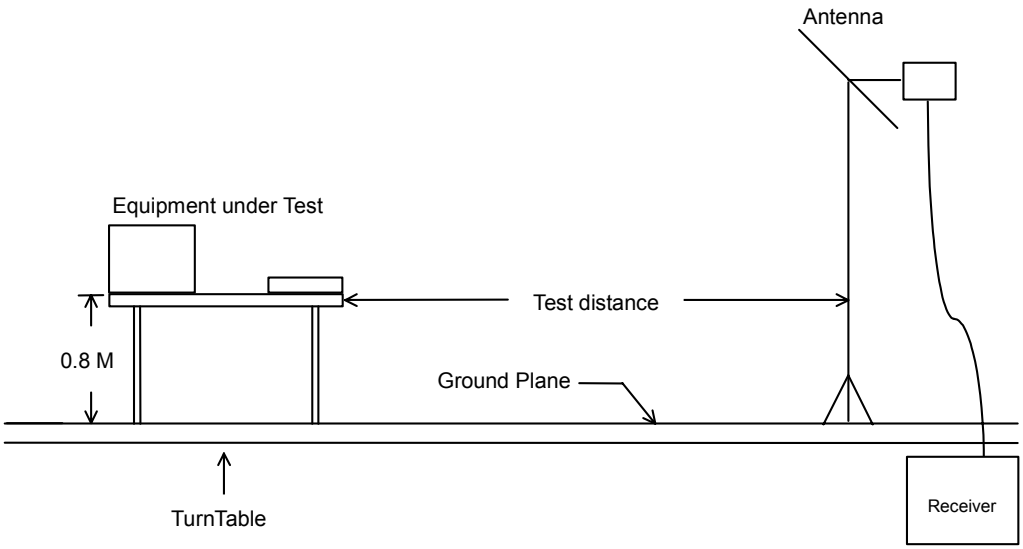
7.1. Major Measuring Instruments

● Amplifier	(MITEQ AFS44)
RF Gain	40 dB
Signal Input	100 MHz to 26.5 GHz
● Amplifier	(PA-103)
RF Gain	30 dB
Signal Input	100 MHz to 1 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

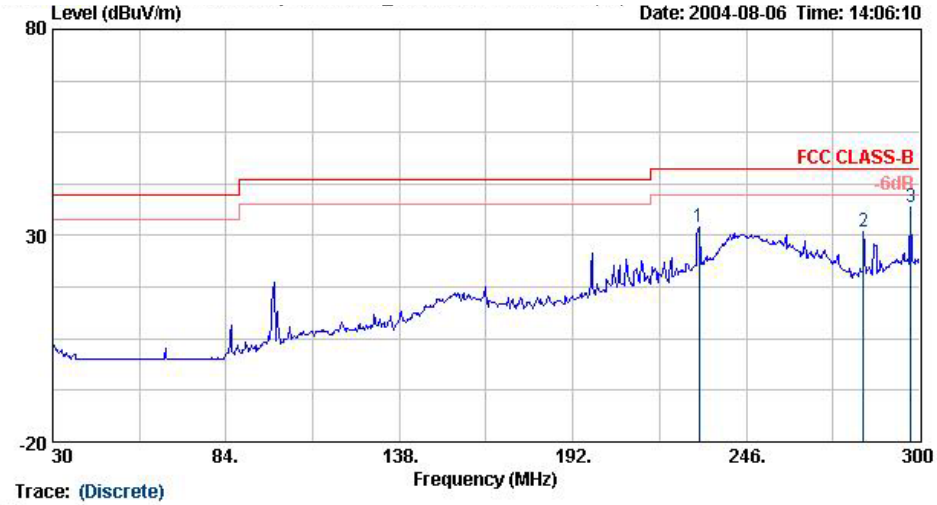


7.4. Test Result of Radiated Emission

7.4.1 Test Mode: Mode 1

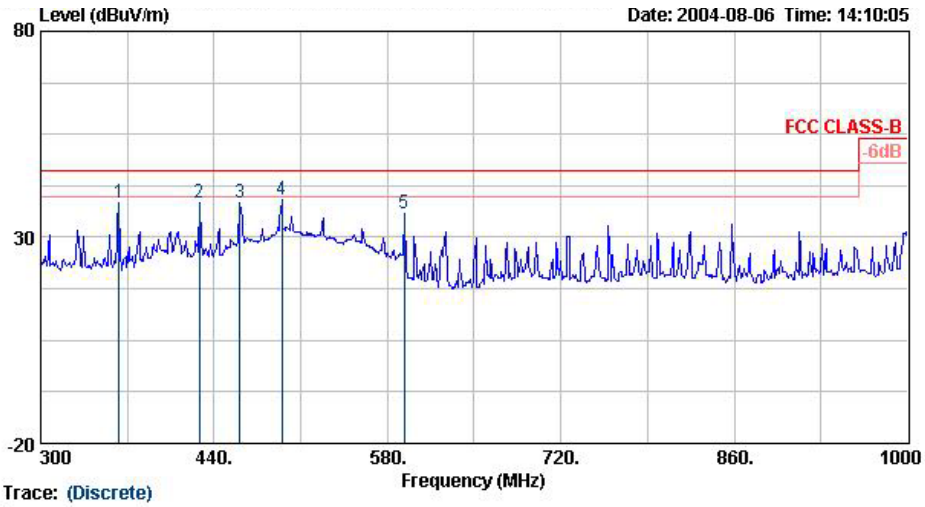
- Test Distance : 3 m
- Temperature : 26 °C
- Relative Humidity :53 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

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



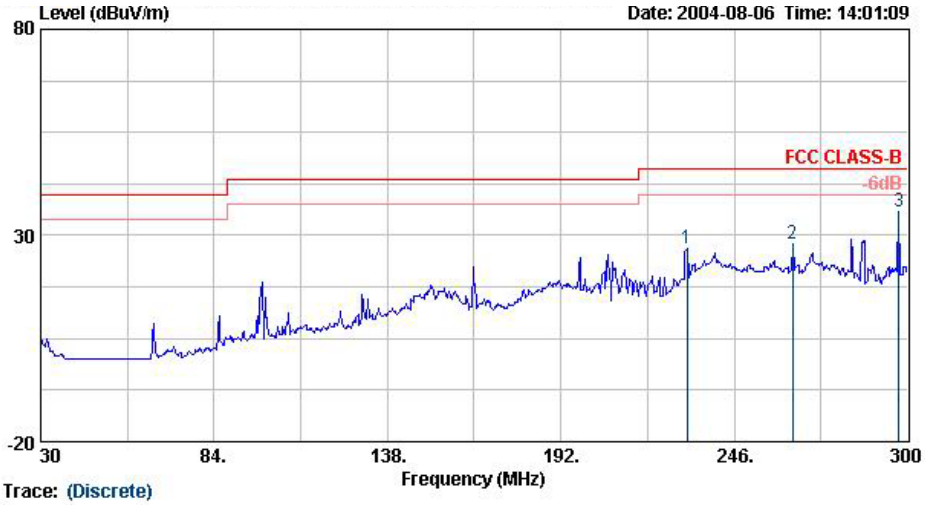
Site : 03CH06
Condition : FCC CLASS-B 3m BI LOG 2004 0629 HORIZONTAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH01_2412MHz

	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1 @	231.42	-13.88	32.12	46.00	9.84	31.78	1.34	Peak	---	---
2 @	282.45	-15.06	30.94	46.00	12.58	31.98	1.46	Peak	---	---
3 @	297.30	-9.16	36.84	46.00	12.94	31.93	1.49	Peak	---	---



Site : 03CH06
Condition : FCC CLASS-B 3m BI LOG 2004 0629 HORIZONTAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH01_2412MHz

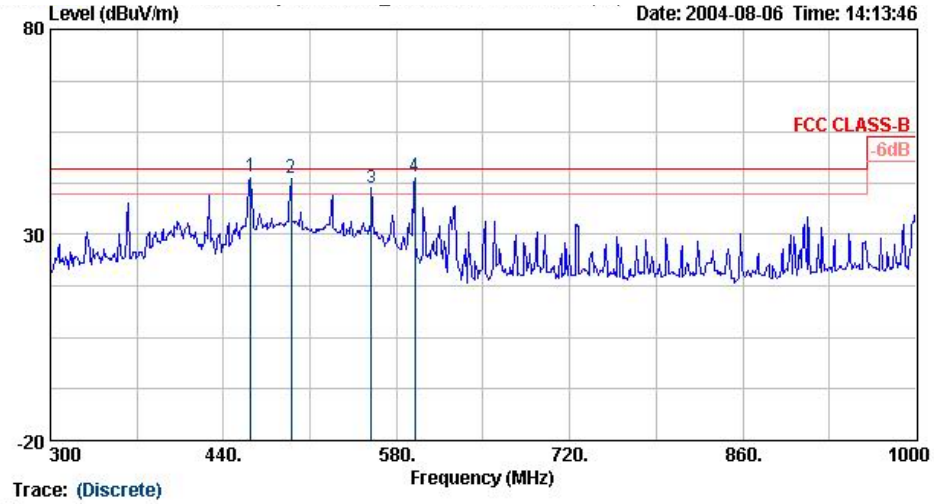
	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1 @	363.00	-7.70	38.30	46.00	14.75	31.46	1.70	Peak	---	---
2 @	428.10	-7.57	38.43	46.00	16.44	32.17	1.88	Peak	---	---
3 @	461.00	-7.69	38.31	46.00	16.63	31.46	1.96	Peak	---	---
4 @	494.60	-6.82	39.18	46.00	17.30	31.50	2.07	Peak	---	---
5 @	593.30	-10.07	35.93	46.00	18.70	31.24	2.28	Peak	---	---



Trace: (Discrete)

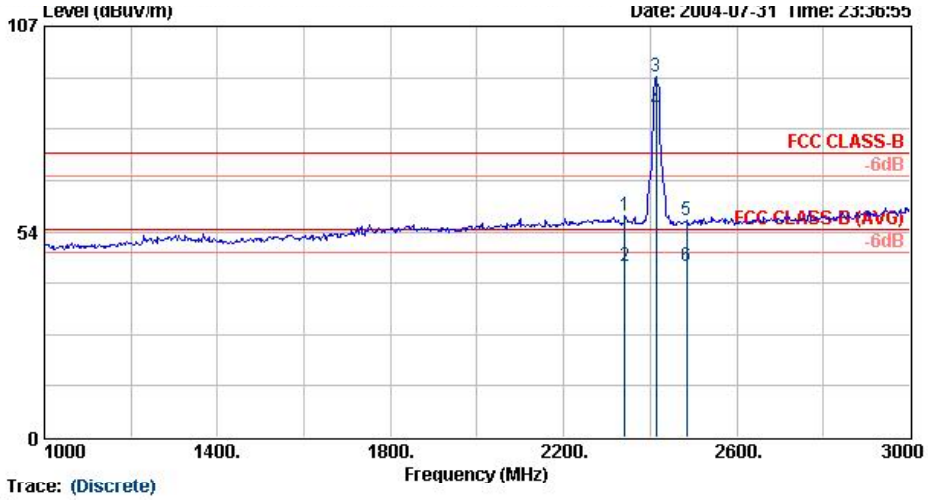
Site : 03CH06
Condition : FCC CLASS-B 3m BI LOG 2004 0629 VERTICAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH01_2412MHz

	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1 @	231.42	-19.15	26.85	46.00	9.84	31.78	1.34	Peak	---	---
2 @	264.09	-18.05	27.95	46.00	12.74	31.91	1.43	Peak	---	---
3 @	297.30	-10.34	35.66	46.00	12.94	31.93	1.49	Peak	---	---



Site : 03CH06
Condition : FCC CLASS-B 3m BI LOG 2004 0629 VERTICAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH01_2412MHz

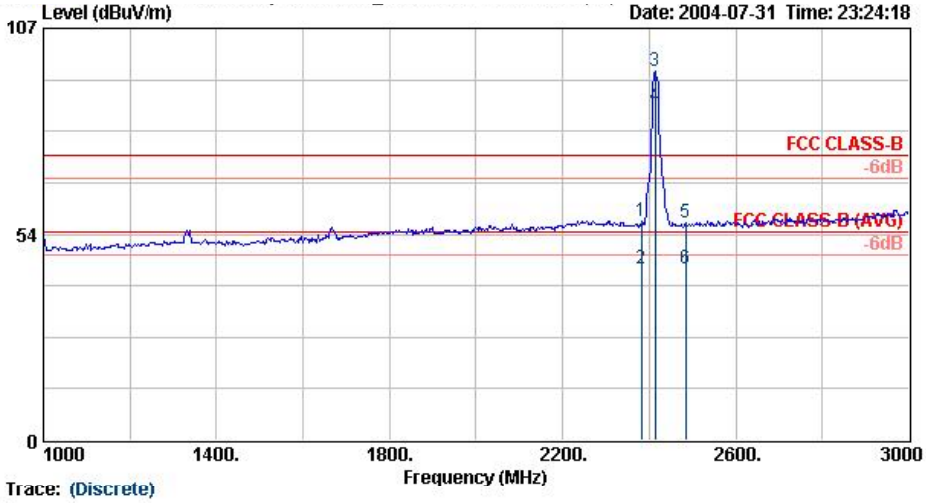
		Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
		MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	!	462.05	-1.85	44.15	46.00	16.63	31.46	1.96	QP	---	---
2	!	495.00	-1.92	44.08	46.00	17.30	31.50	2.07	QP	---	---
3	!	559.70	-4.60	41.40	46.00	18.69	31.55	2.22	Peak	---	---
4	@	594.60	-1.64	44.36	46.00	18.70	31.24	2.28	QP	151	334



Site : 03CH06
Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH01_2412MHz

	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1 @	2342.00	-16.21	57.79	74.00	28.34	0.00	3.29	Peak	---	---
2 @	2342.00	-9.50	44.50	54.00	28.34	0.00	3.29	Average	---	---
3 @	2414.00		93.69		28.41	0.00	3.35	Peak	---	---
4 @	2414.00		84.95		28.41	0.00	3.35	Average	---	---
5 @	2484.00	-17.61	56.39	74.00	28.48	0.00	3.40	Peak	---	---
6 @	2484.00	-9.43	44.57	54.00	28.48	0.00	3.40	Average	---	---

Remark: #3 and 4 represent a fundamental frequency.



Site : 03CH06
Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH01_2412MHz

	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1 @	2382.00	-17.14	56.86	74.00	28.38	0.00	3.32	Peak	---	---
2 @	2382.00	-9.46	44.54	54.00	28.38	0.00	3.32	Average	---	---
3 @	2414.00		95.80		28.41	0.00	3.35	Peak	---	---
4 @	2414.00		86.64		28.41	0.00	3.35	Average	---	---
5 @	2484.00	-17.49	56.51	74.00	28.48	0.00	3.40	Peak	---	---
6 @	2484.00	-9.34	44.66	54.00	28.48	0.00	3.40	Average	---	---

Remark:

1. #3 and 4 represent a fundamental frequency.
2. Frequency from 3GHz to 25GHz, the emission emitted by the EUT is too low to be measured.

■ Field strength of fundamental and harmonics

Frequency (MHz)	Polarity	Antenna Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Limits (dBuV/m)	Emission (dBuV/m)	Margin (dB)	Detect Mode
2414.000	H	28.41	3.35	61.93	0.00	-	93.69	-	Peak
2414.000	H	28.41	3.35	53.19	0.00	-	84.95	-	AV
2414.000	V	28.41	3.35	64.04	0.00	-	95.80	-	Peak
2414.000	V	28.41	3.35	54.88	0.00	-	86.64	-	AV
4828.000	V/H	-	-	-	-	-	-	-	AV/Peak
7242.000	V/H	-	-	-	-	-	-	-	AV/Peak
9656.000	V/H	-	-	-	-	-	-	-	AV/Peak
12070.000	V/H	-	-	-	-	-	-	-	AV/Peak
14484.000	V/H	-	-	-	-	-	-	-	AV/Peak
16898.000	V/H	-	-	-	-	-	-	-	AV/Peak
19312.000	V/H	-	-	-	-	-	-	-	AV/Peak
21726.000	V/H	-	-	-	-	-	-	-	AV/Peak
24140.000	V/H	-	-	-	-	-	-	-	AV/Peak

Remark:

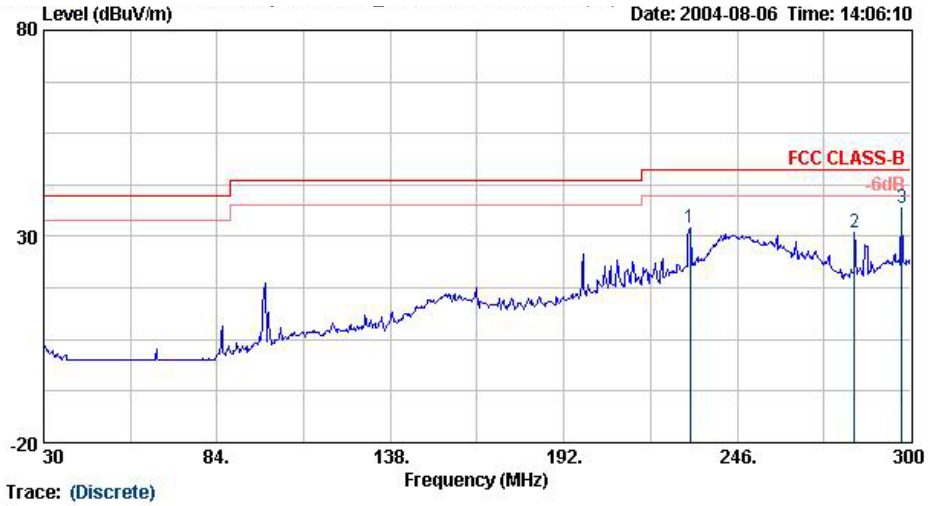
1. The emission emitted by the EUT is too low to be measured except the emission listed above,
2. Reading = Reading on SA-Preamp Factor

Test Engineer : Jay

7.4.2 Test Mode: Mode 2

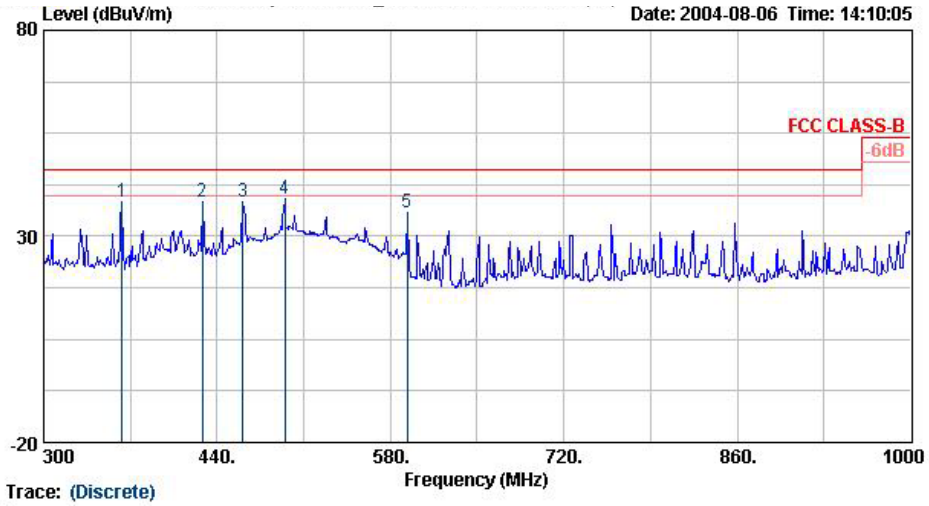
- Test Distance : 3 m
- Temperature : 26 °C
- Relative Humidity :53 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

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



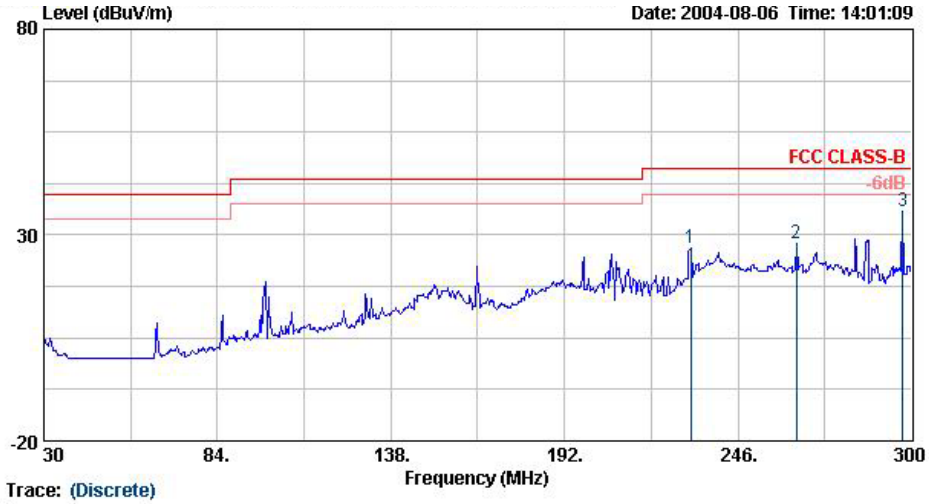
Site : 03CH06
Condition : FCC CLASS-B 3m BI LOG 2004 0629 HORIZONTAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH06_2437MHz

	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	231.42	-13.88	32.12	46.00	9.84	31.78	1.34	Peak	---	---
2	282.45	-15.06	30.94	46.00	12.58	31.98	1.46	Peak	---	---
3	297.30	-9.16	36.84	46.00	12.94	31.93	1.49	Peak	---	---



Site : 03CH06
Condition : FCC CLASS-B 3m BI LOG 2004 0629 HORIZONTAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH06_2437MHz

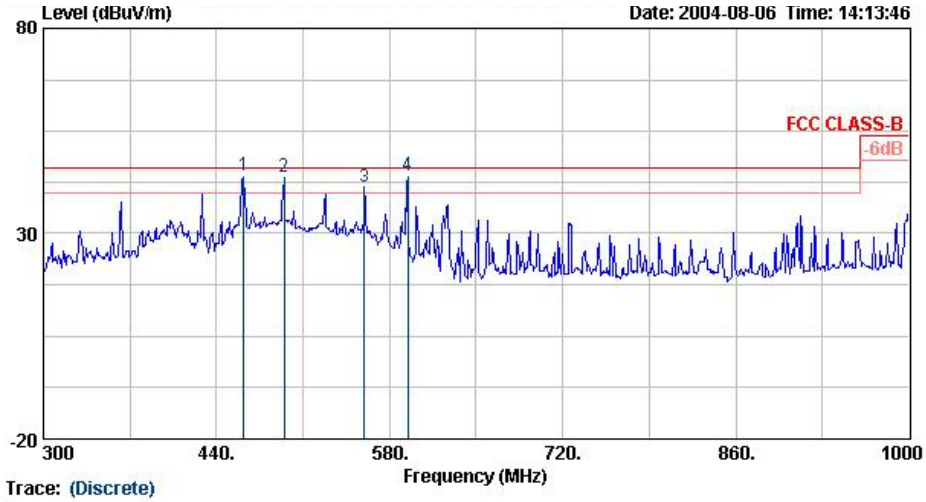
	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	363.00	-7.70	38.30	46.00	14.75	31.46	1.70	Peak	---	---
2	428.10	-7.57	38.43	46.00	16.44	32.17	1.88	Peak	---	---
3	461.00	-7.69	38.31	46.00	16.63	31.46	1.96	Peak	---	---
4	494.60	-6.82	39.18	46.00	17.30	31.50	2.07	Peak	---	---
5	593.30	-10.07	35.93	46.00	18.70	31.24	2.28	Peak	---	---



Trace: (Discrete)

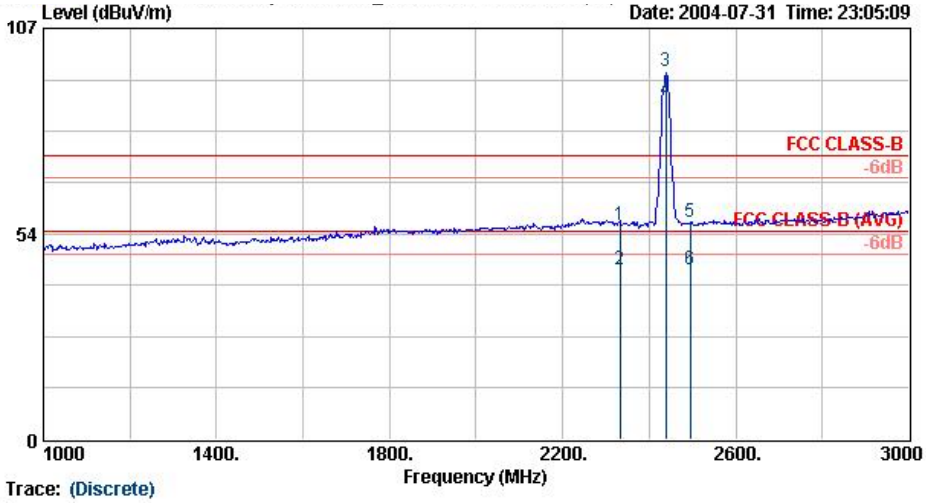
Site : 03CH06
Condition : FCC CLASS-B 3m BI LOG 2004 0629 VERTICAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH06_2437MHz

	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	231.42	-19.15	26.85	46.00	9.84	31.78	1.34	Peak	---	---
2	264.09	-18.05	27.95	46.00	12.74	31.91	1.43	Peak	---	---
3	297.30	-10.34	35.66	46.00	12.94	31.93	1.49	Peak	---	---



Site : 03CH06
Condition : FCC CLASS-B 3m BI LOG 2004 0629 VERTICAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH06_2437MHz

		Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
		MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	!	462.05	-1.85	44.15	46.00	16.63	31.46	1.96	QP	---	---
2	!	495.00	-1.92	44.08	46.00	17.30	31.50	2.07	QP	---	---
3	!	559.70	-4.60	41.40	46.00	18.69	31.55	2.22	Peak	---	---
4	@	594.60	-1.64	44.36	46.00	18.70	31.24	2.28	QP	151	334

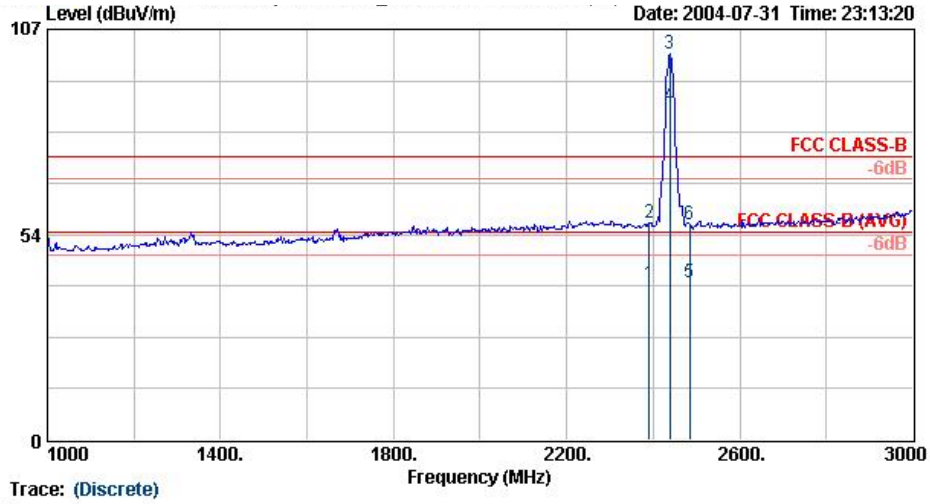


Trace: (Discrete)

Site : 03CH06
Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH06_2437MHz

	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1 @	2332.00	-18.36	55.64	74.00	28.33	44.37	3.28	Peak	---	---
2 @	2332.00	-9.76	44.24	54.00	28.33	44.37	3.28	Average	---	---
3 @	2438.00		95.82		28.45	44.32	3.37	Peak	---	---
4 @	2438.00		88.37		28.45	44.32	3.37	Average	---	---
5 @	2494.00	-17.52	56.48	74.00	28.50	44.30	3.39	Peak	---	---
6 @	2494.00	-9.66	44.34	54.00	28.50	44.30	3.39	Average	---	---

Remark: #3 and 4 represent a fundamental frequency.



Site : 03CH06
Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH06_2437MHz

	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	2390.00	-13.29	40.71	54.00	28.40	44.34	0.00	Average	---	---
2	2390.00	-17.38	56.62	74.00	28.40	44.34	0.00	Peak	---	---
3 X	2438.00		100.49		28.45	44.32	0.00	Peak	---	---
4 @	2438.00		87.27		28.45	44.32	0.00	Average	---	---
5	2484.00	-13.12	40.88	54.00	28.48	44.31	0.00	Average	---	---
6	2484.00	-17.79	56.21	74.00	28.48	44.31	0.00	Peak	---	---

Remark:

1. #3 and 4 represent a fundamental frequency.
2. Frequency from 3GHz to 25GHz, the emission emitted by the EUT is too low to be measured.

■ Field strength of fundamental and harmonics

Frequency (MHz)	Polarity	Antenna Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Limits (dBuV/m)	Emission (dBuV/m)	Margin (dB)	Detect Mode
2438.000	H	28.45	3.37	64.00	44.32	-	95.82	-	Peak
2438.000	H	28.45	3.37	56.55	44.32	-	88.37	-	AV
2438.000	V	28.45	3.37	68.35	44.32	-	100.17	-	Peak
2438.000	V	28.45	3.37	58.82	44.32	-	90.64	-	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

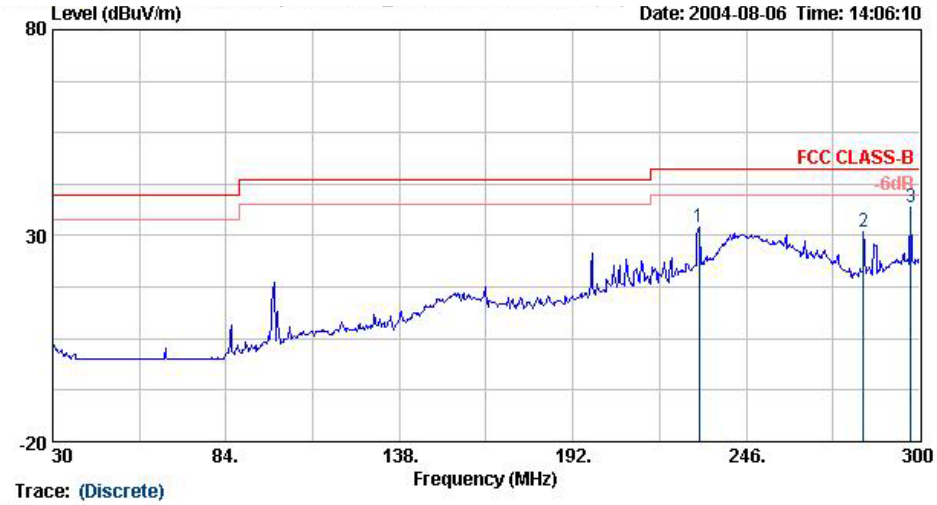
Test Engineer : Jay

Jay

7.4.3 Test Mode: Mode 3

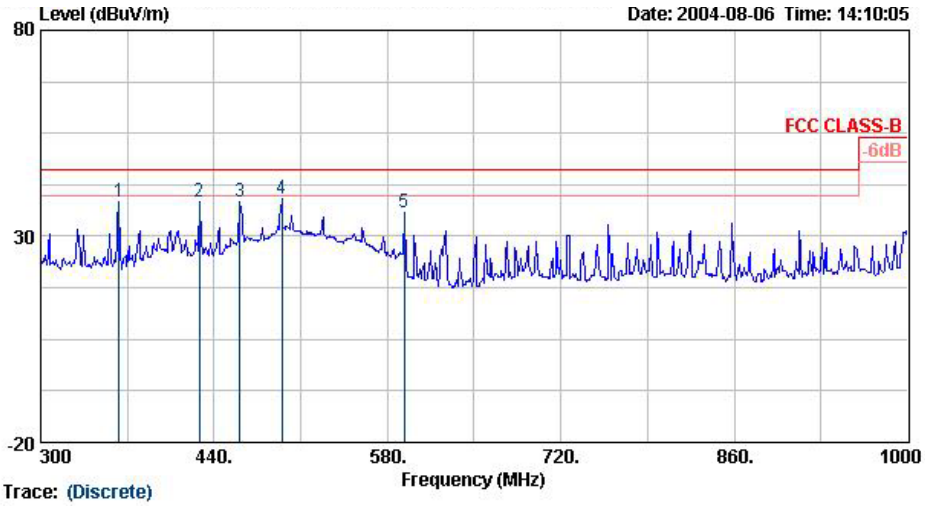
- Test Distance : 3 m
- Temperature : 26°C
- Relative Humidity :53 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading : Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

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



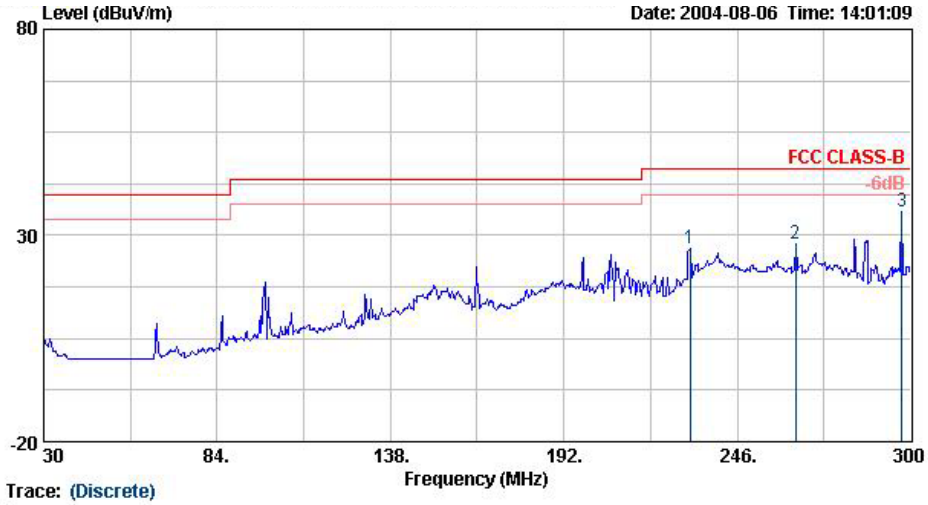
Site : 03CH06
Condition : FCC CLASS-B 3m BI LOG 2004 0629 HORIZONTAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH11_2462MHz

	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	231.42	-13.88	32.12	46.00	9.84	31.78	1.34	Peak	---	---
2	282.45	-15.06	30.94	46.00	12.58	31.98	1.46	Peak	---	---
3	297.30	-9.16	36.84	46.00	12.94	31.93	1.49	Peak	---	---



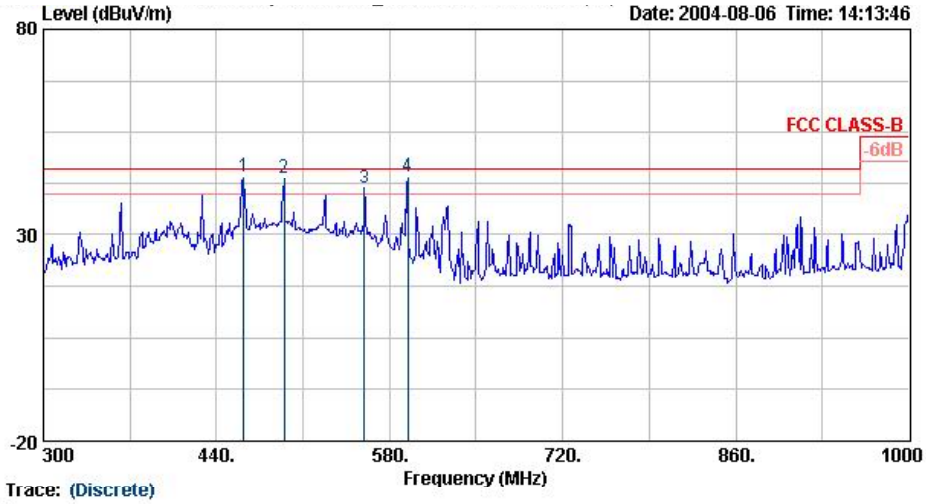
Site : 03CH06
Condition : FCC CLASS-B 3m BI LOG 2004 0629 HORIZONTAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH11_2462MHz

	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	363.00	-7.70	38.30	46.00	14.75	31.46	1.70	Peak	---	---
2	428.10	-7.57	38.43	46.00	16.44	32.17	1.88	Peak	---	---
3	461.00	-7.69	38.31	46.00	16.63	31.46	1.96	Peak	---	---
4	494.60	-6.82	39.18	46.00	17.30	31.50	2.07	Peak	---	---
5	593.30	-10.07	35.93	46.00	18.70	31.24	2.28	Peak	---	---



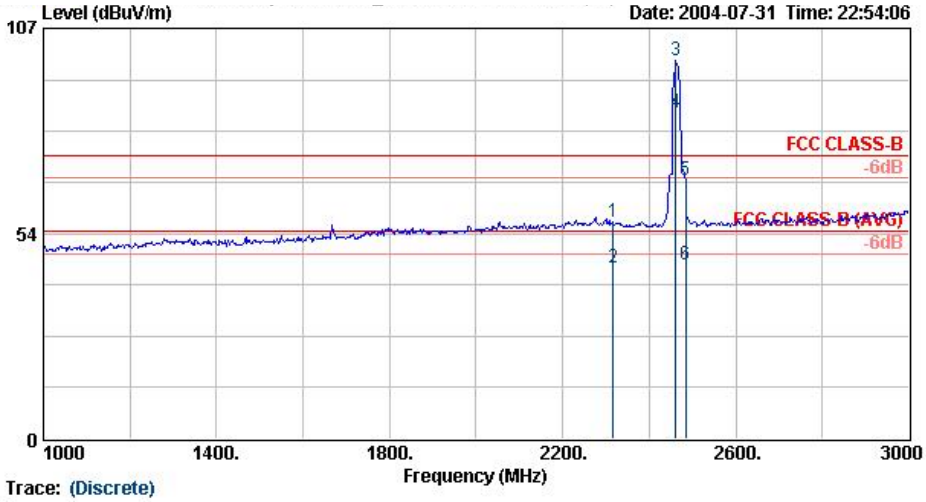
Site : 03CH06
Condition : FCC CLASS-B 3m BI LOG 2004 0629 VERTICAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH11_2462MHz

	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	231.42	-19.15	26.85	46.00	9.84	31.78	1.34	Peak	---	---
2	264.09	-18.05	27.95	46.00	12.74	31.91	1.43	Peak	---	---
3	297.30	-10.34	35.66	46.00	12.94	31.93	1.49	Peak	---	---



Site : 03CH06
Condition : FCC CLASS-B 3m BI LOG 2004 0629 VERTICAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH11_2462MHz

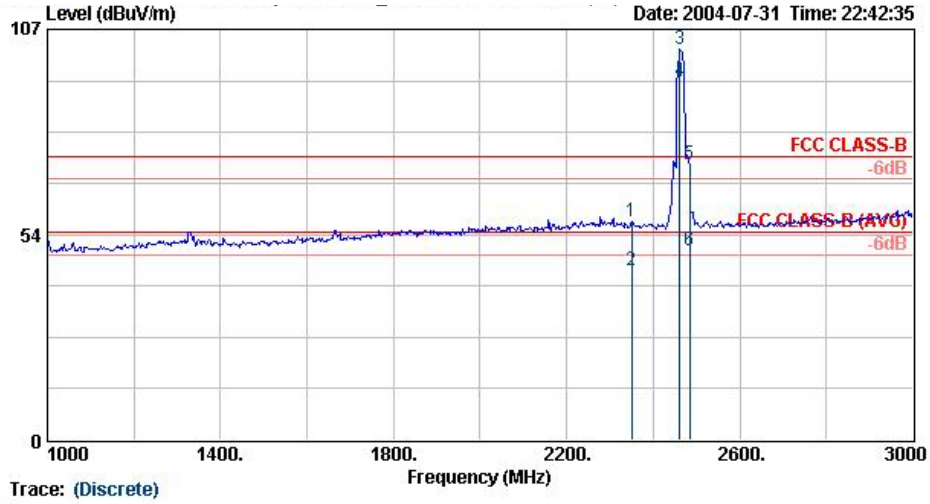
		Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
		MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1	!	462.05	-1.85	44.15	46.00	16.63	31.46	1.96	QP	---	---
2	!	495.00	-1.92	44.08	46.00	17.30	31.50	2.07	QP	---	---
3	!	559.70	-4.60	41.40	46.00	18.69	31.55	2.22	Peak	---	---
4	@	594.60	-1.64	44.36	46.00	18.70	31.24	2.28	QP	151	334



Site : 03CH06
Condition : FCC CLASS-B 3m HF-HORN AH-118 HORIZONTAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH11_2462MHz

	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1 @	2316.00	-17.47	56.53	74.00	28.31	44.37	3.27	Peak	---	---
2 @	2316.00	-9.40	44.60	54.00	28.31	44.37	3.27	Average	---	---
3 @	2462.00		98.65		28.47	44.32	3.36	Peak	---	---
4 @	2462.00		85.03		28.47	44.32	3.36	Average	---	---
5 @	2483.50	-6.48	67.52	74.00	28.48	44.31	3.38	Peak	---	---
6 @	2483.50	-8.84	45.16	54.00	28.48	44.31	3.38	Average	---	---

Remark: #3 and 4 represent a fundamental frequency.



Site : 03CH06
Condition : FCC CLASS-B 3m HF-HORN AH-118 VERTICAL
EUT : NOTEBOOK
Power : 120Vac/60Hz
Model : Green553
Memo : Tx CH11_2462MHz

	Freq	Over Limit	Level	Limit Line	Antenna Factor	Preamp Factor	Cable Loss	Remark	Ant Pos	Table Pos
	MHz	dB	dBuV/m	dBuV/m	dB/m	dB	dB		cm	deg
1 @	2350.00	-17.23	56.77	74.00	28.34	44.36	3.29	Peak	---	---
2 @	2350.00	-9.67	44.33	54.00	28.34	44.36	3.29	Average	---	---
3 @	2462.00		101.87		28.47	44.32	3.36	Peak	---	---
4 @	2462.00		93.64		28.47	44.32	3.36	Average	---	---
5 @	2484.00	-1.84	72.16	74.00	28.48	44.31	3.38	Peak	---	---
6 @	2484.00	-4.74	49.26	54.00	28.48	44.31	3.38	Average	---	---

Remark:

1. #3 and 4 represent a fundamental frequency.
2. Frequency from 3GHz to 25GHz, the emission emitted by the EUT is too low to be measured.

■ Field strength of fundamental and harmonics

Frequency (MHz)	Polarity	Antenna Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Limits (dBuV/m)	Emission (dBuV/m)	Margin (dB)	Detect Mode
2462.000	H	28.47	3.36	66.82	44.32	-	98.65	-	Peak
2462.000	H	28.47	3.36	53.20	44.32	-	85.03	-	AV
2462.000	V	28.47	3.36	70.04	44.32	-	101.87	-	Peak
2462.000	V	28.47	3.36	61.81	44.32	-	93.64	-	AV
4924.000	V/H	-	-	-	-	-	-	-	AV/Peak
7386.000	V/H	-	-	-	-	-	-	-	AV/Peak
9848.000	V/H	-	-	-	-	-	-	-	AV/Peak
12310.000	V/H	-	-	-	-	-	-	-	AV/Peak
14772.000	V/H	-	-	-	-	-	-	-	AV/Peak
17234.000	V/H	-	-	-	-	-	-	-	AV/Peak
19696.000	V/H	-	-	-	-	-	-	-	AV/Peak
22158.000	V/H	-	-	-	-	-	-	-	AV/Peak
24620.000	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

8. Antenna Requirements

The EUT use a -3.25dBi PIFA antenna with I-PEX connector. It is considered to meet antenna requirement of FCC.

8.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no other antenna except assembled by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi.

8.2. Antenna Connected Construction

The antenna used in this product is a PIFA antenna with I-PEX connector.

9. List of Measuring Equipments Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Receiver	R&S	ESCS 30	100168	9 KHz - 2.75 GHz	Dec. 09, 2003	Conduction (CO02-LK)
LISN	Rolf Heine	NNB-2/16Z	02/10070	9KHz ~ 30MHz	Sep. 02, 2003	Conduction (CO02-LK)
LISN	Rolf Heine	NNB-2/16Z	02/10084	9KHz ~ 30MHz	Sep. 02, 2003	Conduction (CO02-LK)
RF Cable-CON	Suhner Switzerland	RG223/U	CB018	9KHz~30MHz	Feb. 09, 2004	Conduction (CO02-LK)
Spectrum analyzer	R&S	FSP40	100057	9KHz-40GHz	Feb. 26, 2004	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Dec. 18, 2003	Radiation (03CH06-HY)
Horn Antenna	Com-Power	AH118	071025	1G-18G	Feb. 11, 2004	Radiation (03CH06-HY)
PreAmplifier	Com-Power	PA-103	161055	1MHz - 1000MHz	Apr. 26, 2004	Radiation (03CH06-HY)
HF Amplifier	MITEQ	AFS44	973248	0.1G - 26.5G	May. 20, 2004	Radiation (03CH06-HY)

※ Calibration Interval of instruments listed above is one year.

10. Uncertainty Measurement

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.15	Normal(k=2)	0.08
Cable loss	0.19	Normal(k=2)	0.10
AMN insertion loss	2.50	Rectangular	0.63
Receiver Spec	1.50	Rectangular	0.43
Site imperfection	1.67	Rectangular	0.96
Mismatch **Receiver VSWR Γ1=** **LISN VSWR Γ2=** **Uncertainty=20log(1-Γ1*Γ2)**	+0.34/-0.35	U-shape	0.24
combined standard uncertainty Uc(y)	**1.26**		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	**2.52**		

Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.41	Normal(k=2)	0.21
Antenna factor calibration	0.83	Normal(k=2)	0.42
Cable loss calibration	0.25	Normal(k=2)	0.13
Pre Amplifier Gain calibration	0.27	Normal(k=2)	0.14
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.43	Rectangular	0.83
Mismatch Receiver VSWR Γ1= 0.20 Antenna VSWR Γ2= 0.23 Uncertainty=20log(1-Γ1*Γ2)	+0.39/-0.41	U-shaped	0.28
combined standard uncertainty Uc(y)	**1.27**		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	**2.54**		

Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Contribution	Uncertainty of x_i		$u(x_i)$	Ci	$Ci * u(x_i)$
	dB	Probability Distribution			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1= 0.197 Antenna VSWR Γ2= 0.194 Uncertainty=20log(1-Γ1*Γ2*Γ3)	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	**2.36**				
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	**4.72**				

U=$\sqrt{}${(0.3/2)² +(2²+1.5²+0.2²)/3+(0.2)²/2}=1.66