



FCC Test Report

According to

47 CFR Part 15 Subpart B, and

RSS-Gen Issue 2, June 2007

Equipment : GPS Navigation System

Trade Name : TomTom

Model Name : GO740LIVE

FCC ID : S4L4CF7

IC ID : 5767A-4CF7

Filing Type : CERTIFICATION

Applicant : TomTom International BV

Rembrandtplein 35 1017 CT Amsterdam The Netherlands

- 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.
- Report Version: Rev. 03

SPORTON International Inc.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

SPORTON International Inc.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

Report Version: Rev. 03

Table of Contents

CERTIFICATE OF COMPLIANCE	1
1. General Description of Equipment under Test.....	2
1.1 Applicant	2
1.2 Manufacturer	2
1.3 Feature of Equipment under Test	2
1.4 Basic Description of Accessories.....	3
2. Test Configuration of Equipment under Test.....	4
2.1 Test Manner	4
2.2 Description of Test System	4
2.3 Connection Diagram of Test System	5
3. Test Software	6
4. General Information of Test.....	7
4.1 Test Facility	7
4.2 Test Voltage.....	7
4.3 Standard for Methods of Measurement	7
4.4 Test Compliance	7
4.5 Frequency Range	7
4.6 Test Distance	7
5. Test of Conducted Powerline	8
5.1 Major Measuring Instruments	8
5.2 Test Procedures.....	8
5.3 Typical Test Setup Layout of Conducted Powerline	9
5.4 Test Result of AC Powerline Conducted Emission	10
5.5 Photographs of Conducted Powerline Test Configuration	16
6. Test of Radiated Emission.....	17
6.1 Major Measuring Instruments	17
6.2 Test Procedures.....	17
6.3 Typical Test Setup Layout of Radiated Emission	18
6.4 Test Result of Radiated Emission.....	19
6.5 Photographs of Radiated Emission Test Configuration	31
7. List of Measuring Equipment	32
8. Uncertainty of Evaluation	33
9. Certification of NVLAP Accreditation	35
Appendix A. Photographs of EUT	
Appendix B. Setup Photographs	

History of This Test Report

Report Issue Date: Nov. 06, 2008

Report No.	Description

CERTIFICATE OF COMPLIANCE

According to

47 CFR Part 15 Subpart B and

RSS-Gen Issue 2, June 2007

Equipment : GPS Navigation System

Trade Name : TomTom

Model Name : GO740LIVE

FCC ID : S4L4CF7

IC ID : 5767A-4CF7

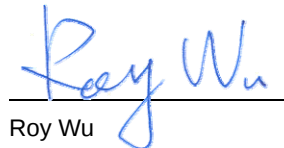
Filing Type : CERTIFICATION

Applicant : TomTom International BV

Rembrandtplein 35 1017 CT Amsterdam The Netherlands

I HEREBY CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in ANSI C63.4 - 2003 and the energy emitted by this equipment was *passed* FCC Part 15 B, radiated and conducted emission class B limits. Testing was carried out on Jul. 18, 2008 at SPORTON International Inc. LAB.



Roy Wu
Manager

SPORTON International Inc.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

1. General Description of Equipment under Test

1.1 Applicant

TomTom International BV
Rembrandtplein 35 1017 CT Amsterdam The Netherlands

1.2 Manufacturer

Tech-Giant (Shanghai) Computer Co., Ltd.
C#,No.1, South Rongteng Road, Songjiang Export Processing Zone, Shanghai, China

1.3 Feature of Equipment under Test

Product Feature & Specification	
DUT Type :	GPS Navigation System
Trade Name :	TomTom
Model Name :	GO740LIVE
FCC ID :	S4L4CF7
IC ID :	5767A-4CF7
Tx Frequency :	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz Bluetooth : 2400 MHz ~ 2483.5 MHz
Rx Frequency :	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz Bluetooth : 2400 MHz ~ 2483.5 MHz GPS: 1.575 GHz
Antenna Type :	GSM : Fixed Internal Bluetooth : Chip Antenna GPS : Patch Antenna
HW Version :	Rev 1.0
SW Version :	Rev.04
Type of Modulation :	GSM / GPRS : GMSK Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : $\pi/4$ -DQPSK Bluetooth EDR (3Mbps) : 8-DPSK GPS : BPSK
DUT Stage :	Identical Prototype

1.4 Basic Description of Accessories

AC Adapter 1	Brand Name	TomTom
	Manufacturer	AKII
	Model Name	A05T2-05MU
	Power Rating	I/P: 100-240Vac, 47-63Hz, 0.2A; O/P: 5Vdc, 1A
AC Adapter 2	Brand Name	TomTom
	Manufacturer	Phihong
	Model Name	PSB05R-050Q
	Power Rating	I/P: 100-240Vac, 50-60Hz, 200mA; O/P: 5Vdc, 1A
Battery	Brand Name	Welldone
	Manufacturer	Welldone
	Cell	Maxell ICP553450AR
	P/N	AHL03711001
	Power Rating	3.7Vdc, 1100mAh
	Type	Li-ion
Car Charger	Brand Name	TomTom
	Manufacturer	Supa
	Model Name	GO Car Charger 1.2A
	P/N	4CZ0.001.02
	Power Rating	I/P: 12V/24V; O/P: 5Vdc, 1.2A
	Power Cord Type	1.4 meter non-shielded cable without ferrite core
Dock 1	Brand Name	TomTom
	Manufacturer	Foxlink
	Model Name	GO x40 Desk Dock
	P/N	4CF0.000.00
Dock 2	Brand Name	TomTom
	Manufacturer	Quanta
	Model Name	GO x40 Windscreen Dock non iPod
	P/N	4CF0.000.01
Dock 3	Brand Name	TomTom
	Manufacturer	Quanta
	Model Name	GO x40 Windscreen Dock w. iPod
	P/N	4CF0.000.02
Cable	Brand Name	TomTom
	Manufacturer	Foxlink
	Model Name	iPod Connect and Audio cable
	P/N	9V00.001

Remark: Above EUT's information was declared by manufacturer. Please refer to the specifications of manufacturer or User's Manual for more detailed features description.

2. Test Configuration of Equipment under Test

2.1 Test Manner

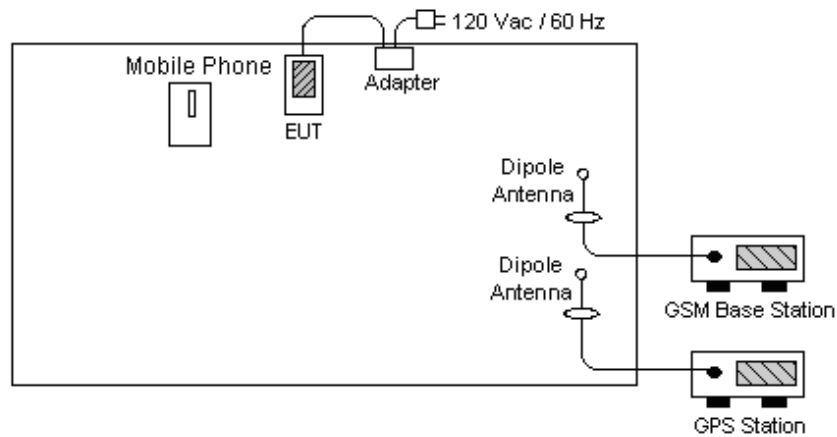
- a. The EUT has been setup pursuant to ANSI C63.4-2003 and configuration operated in a manner which tended to maximize its emission characteristics in a typical application.
- b. The complete test system refers to 2.2 for EMI test.
- c. The following test modes were tested for conduction test:
 - Mode 1 : GSM850 Idle + BT Idle + GPS Rx + Dock 1 + Adapter 1
 - Mode 2 : GSM1900 Idle + BT Idle + GPS Rx + Dock 1 + Adapter 2
 - Mode 3 : USB Link + Dock 1
- d. The following test modes were tested for radiation test:
 - Mode 1 : GSM850 Idle + BT Idle + GPS Rx + Dock 1 + Adapter 1
 - Mode 2 : GSM1900 Idle + BT Idle + GPS Rx + Dock 1 + Adapter 2
 - Mode 3 : GSM1900 Idle + BT Idle + GPS Rx + Dock 2 + Car Charger (12V) + i-Pod
 - Mode 4 : GSM1900 Idle + BT Idle + GPS Rx + Dock 2 + Car Charger (24V) + i-Pod
 - Mode 5 : USB Link + Dock 1
- e. Frequency range investigated: conduction 150 kHz to 30 MHz, radiation 30 MHz to 13 GHz.

2.2 Description of Test System

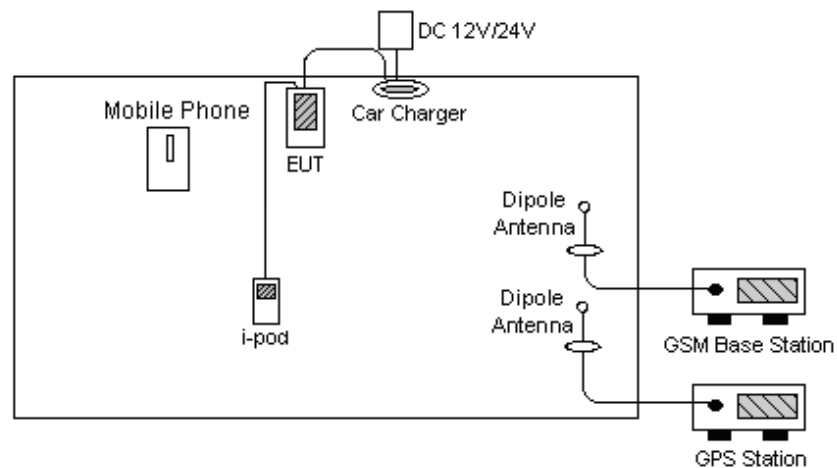
Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	GSM Base Station	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	Modem	ACEEX	DM1414	IFAXDM1414	Shielded, 1.15m	N/A
4.	Notebook	DELL	D400	E2K24GBRL	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Mobile Phone	Philips	CT9A9R	RXSCT9A9R	N/A	N/A
6.	Car Battery	YUASA	46B24R	N/A	Unshielded, 1.2 m	N/A
7.	i-pod	Apple	A1199	DoC	Shielded, 1.2 m	N/A

2.3 Connection Diagram of Test System

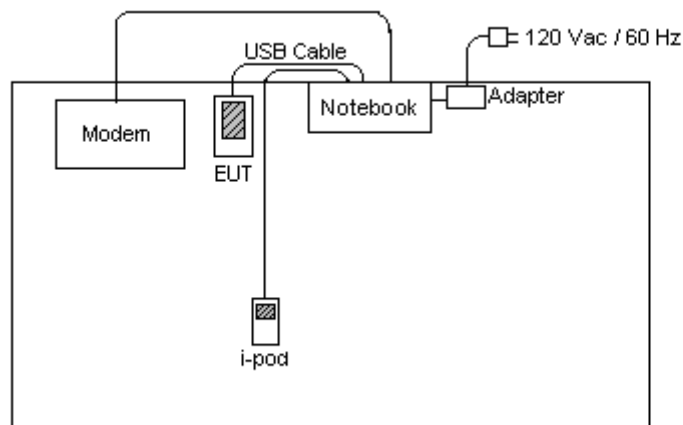
<EUT with Adapter Mode>



<EUT with Car Charger and i-Pod Mode>



<EUT with USB Link Mode>



3. Test Software

For associated equipment, the executive program, "EMCTEST.EXE" under WINXP installed in notebook 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 notebook reads the test program from the hard disk drive and runs it.
- c. The notebook sends "H" messages to the panel, and the panel displays "H" patterns on the screen.
- d. The notebook 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.

In GSM or PCS idle mode, the EUT is synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was linked with Bluetooth mobile phone in idle mode. For GPS function, the EUT receive signal from GPS station.

4. General Information of Test

4.1 Test Facility

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 : 886-3-328-4978
Test Site No. : CO05-HY, 03CH06-HY
FCC Designation No.: TW1022
IC Registration Number: 4086B-1

4.2 Test Voltage

AC 120V / 60Hz or DC 12/24V

4.3 Standard for Methods of Measurement

ANSI C63.4-2003

4.4 Test Compliance

FCC Part 15 Subpart B
RSS-Gen Issue 2, June 2007

4.5 Frequency Range

- a. Conduction: from 150 kHz to 30 MHz
- b. Radiation: from 30 MHz to 13000MHz

4.6 Test Distance

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

5. Test of Conducted Powerline

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 C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 5.3. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

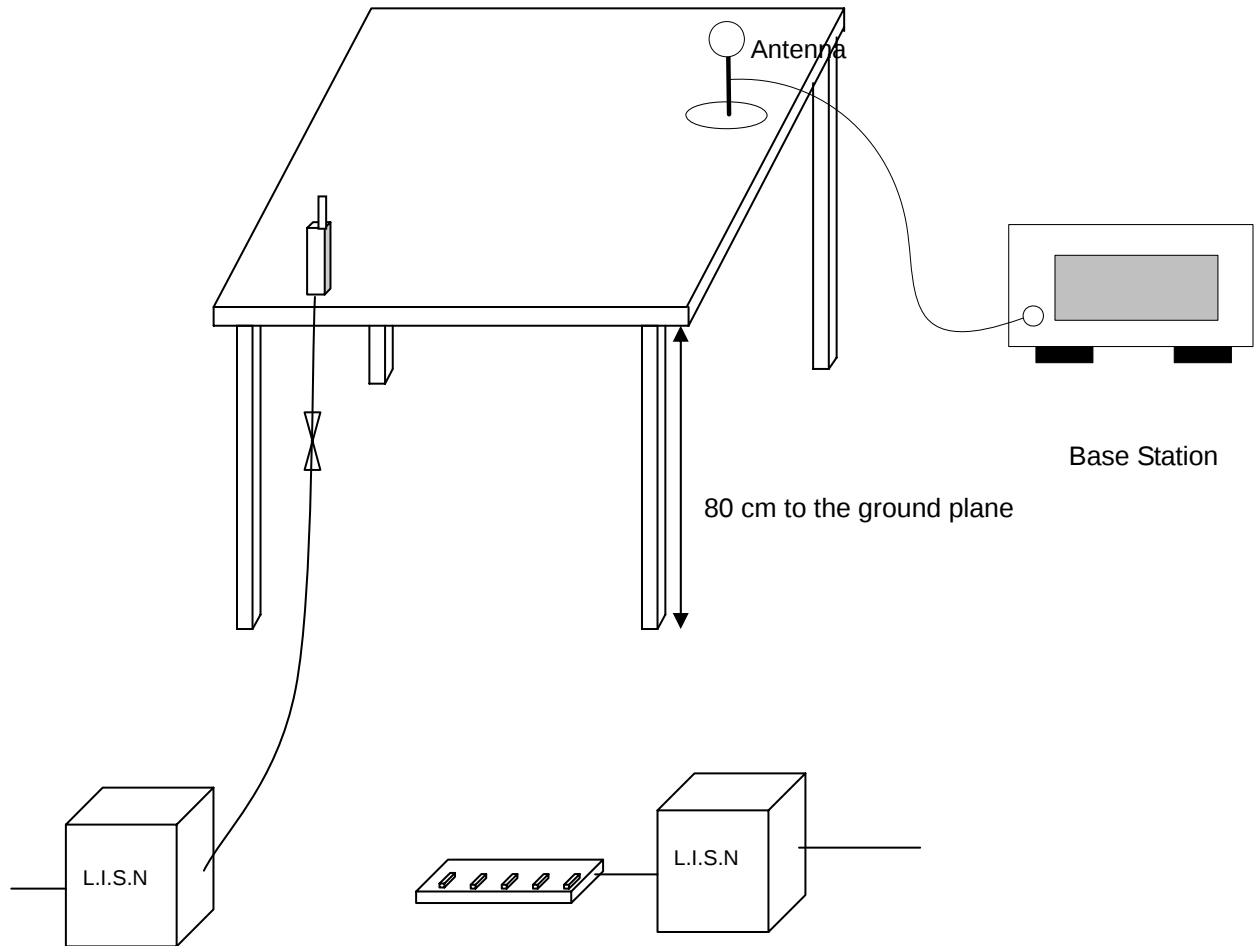
5.1 Major Measuring Instruments

As described in Chapter 7.

5.2 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 connecting 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.

5.3 Typical Test Setup Layout of Conducted Powerline

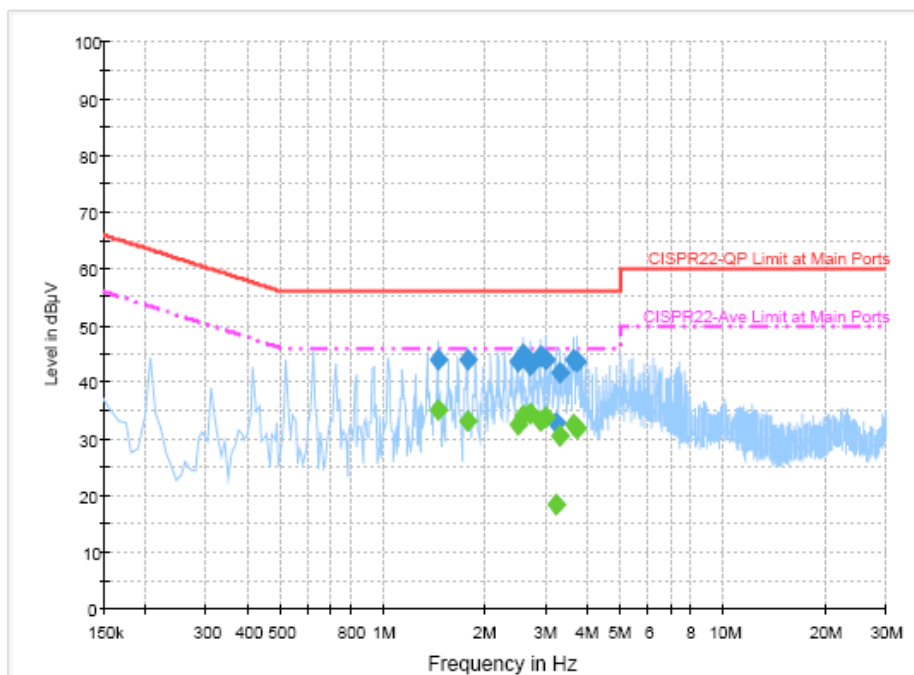


5.4 Test Result of AC Powerline Conducted Emission

5.4.1 Test Mode: Mode 1

- Frequency Range of Test: from 0.15 MHz to 30 MHz
- Temperature: 24~25°C
- Relative Humidity: 50~51%
- Test Engineer: Cona
- Test Condition : Line
- All emissions not reported here are more than 10 dB below the prescribed limit.

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



Final Result 1

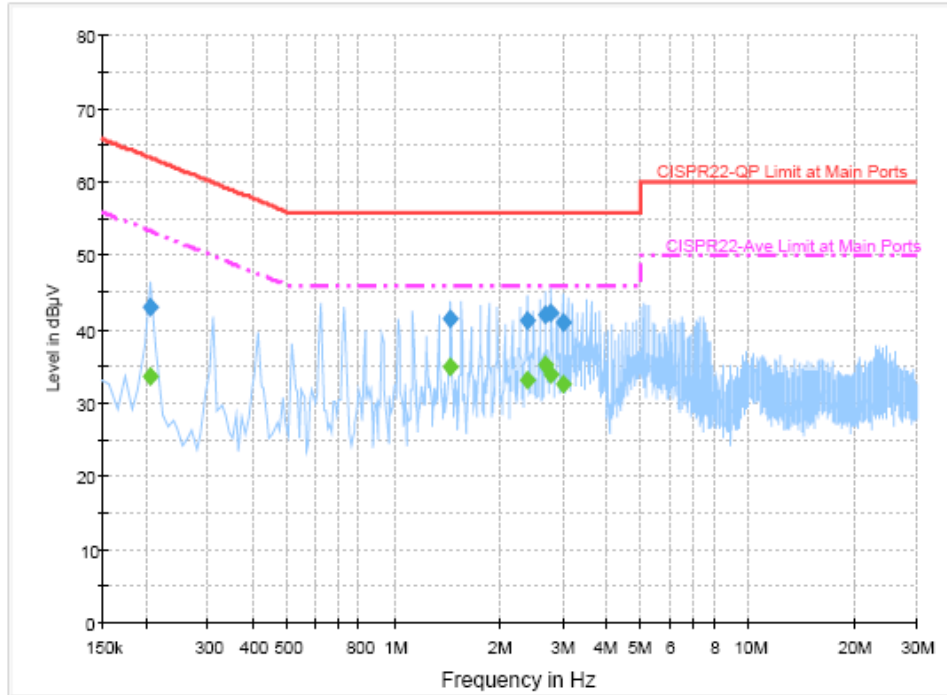
Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.446000	44.0	Off	L1	19.4	12.0	56.0
1.758000	44.1	Off	L1	19.4	11.9	56.0
2.478000	43.5	Off	L1	19.5	12.5	56.0
2.582000	45.0	Off	L1	19.5	11.0	56.0
2.686000	43.1	Off	L1	19.5	12.9	56.0
2.894000	44.4	Off	L1	19.5	11.6	56.0
2.998000	44.0	Off	L1	19.5	12.0	56.0
3.214000	32.7	Off	L1	19.5	23.3	56.0
3.310000	41.5	Off	L1	19.5	14.5	56.0
3.614000	44.0	Off	L1	19.5	12.0	56.0
3.718000	43.5	Off	L1	19.5	12.5	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.446000	35.1	Off	L1	19.4	10.9	46.0
1.758000	33.0	Off	L1	19.4	13.0	46.0
2.478000	32.4	Off	L1	19.5	13.6	46.0
2.582000	34.1	Off	L1	19.5	11.9	46.0
2.686000	34.5	Off	L1	19.5	11.5	46.0

- Test Condition: Neutral
- All emissions not reported here are more than 10 dB below the prescribed limit.

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



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.206000	43.1	Off	N	19.3	20.3	63.4
1.446000	41.6	Off	N	19.4	14.4	56.0
2.374000	41.3	Off	N	19.6	14.7	56.0
2.686000	42.0	Off	N	19.5	14.0	56.0
2.790000	42.3	Off	N	19.6	13.7	56.0
2.998000	40.8	Off	N	19.5	15.2	56.0

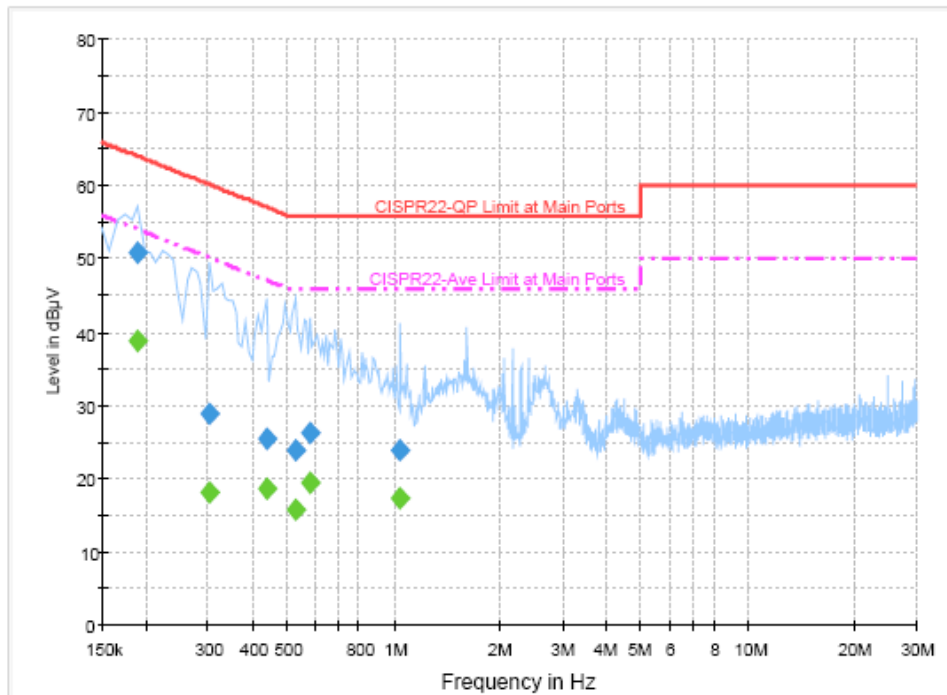
Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.206000	33.6	Off	N	19.3	19.8	53.4
1.446000	35.0	Off	N	19.4	11.0	46.0
2.374000	33.0	Off	N	19.6	13.0	46.0
2.686000	35.2	Off	N	19.5	10.8	46.0
2.790000	33.8	Off	N	19.6	12.2	46.0
2.998000	32.6	Off	N	19.5	13.4	46.0

5.4.2 Test Mode: Mode 2

- Frequency Range of Test: from 0.15 MHz to 30 MHz
- Temperature: 24~25°C
- Relative Humidity: 50~51%
- Test Engineer: Cona
- Test Condition : Line
- All emissions not reported here are more than 10 dB below the prescribed limit.

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



Final Result 1

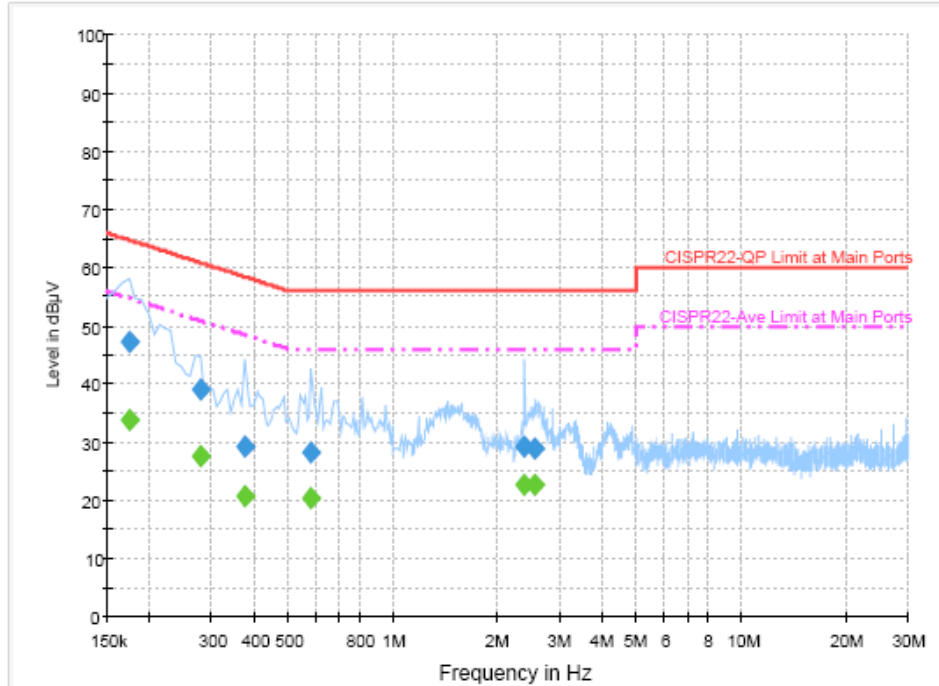
Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190000	50.8	Off	L1	19.4	13.2	64.0
0.302000	28.9	Off	L1	19.3	31.3	60.2
0.438000	25.5	Off	L1	19.4	31.6	57.1
0.526000	23.8	Off	L1	19.3	32.2	56.0
0.582000	26.1	Off	L1	19.3	29.9	56.0
1.046000	23.8	Off	L1	19.4	32.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190000	38.7	Off	L1	19.4	15.3	54.0
0.302000	18.1	Off	L1	19.3	32.1	50.2
0.438000	18.6	Off	L1	19.4	28.5	47.1
0.526000	15.9	Off	L1	19.3	30.1	46.0
0.582000	19.5	Off	L1	19.3	26.5	46.0
1.046000	17.2	Off	L1	19.4	28.8	46.0

- Test Condition: Neutral
- All emissions not reported here are more than 10 dB below the prescribed limit.

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



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.174000	47.3	Off	N	19.3	17.5	64.8
0.278000	38.9	Off	N	19.3	22.0	60.9
0.374000	29.1	Off	N	19.4	29.3	58.4
0.582000	28.3	Off	N	19.3	27.7	56.0
2.382000	29.1	Off	N	19.6	26.9	56.0
2.542000	28.7	Off	N	19.5	27.3	56.0

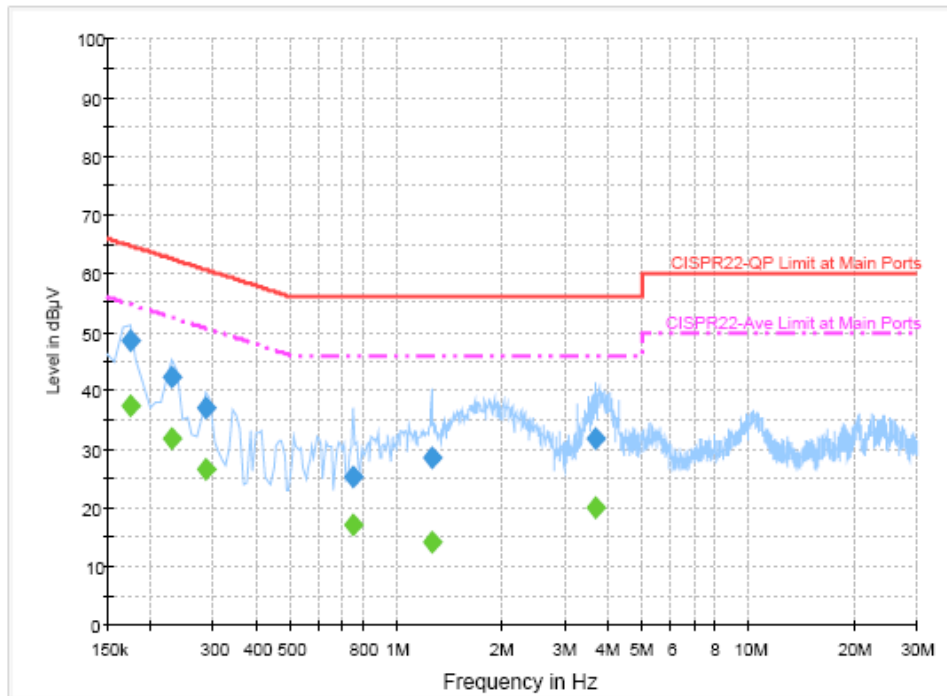
Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.174000	33.7	Off	N	19.3	21.1	54.8
0.278000	27.6	Off	N	19.3	23.3	50.9
0.374000	20.6	Off	N	19.4	27.8	48.4
0.582000	20.3	Off	N	19.3	25.7	46.0
2.382000	22.7	Off	N	19.6	23.3	46.0
2.542000	22.7	Off	N	19.5	23.3	46.0

5.4.3 Test Mode: Mode 3

- Frequency Range of Test: from 0.15 MHz to 30 MHz
- Temperature: 24~25°C
- Relative Humidity: 50~51%
- Test Engineer: Cona
- Test Condition : Line
- All emissions not reported here are more than 10 dB below the prescribed limit.

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


Final Result 1

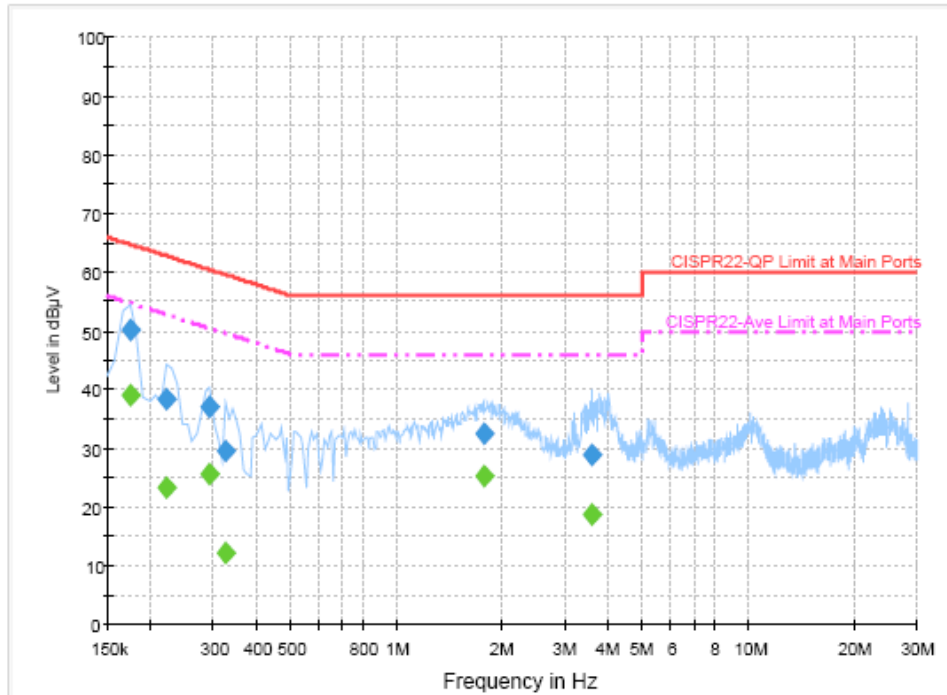
Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.174000	48.4	Off	L1	19.3	16.4	64.8
0.230000	42.1	Off	L1	19.4	20.3	62.4
0.286000	37.0	Off	L1	19.3	23.6	60.6
0.750000	25.1	Off	L1	19.4	30.9	56.0
1.254000	28.6	Off	L1	19.4	27.4	56.0
3.670000	31.8	Off	L1	19.5	24.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.174000	37.3	Off	L1	19.3	17.5	54.8
0.230000	31.8	Off	L1	19.4	20.6	52.4
0.286000	26.6	Off	L1	19.3	24.0	50.6
0.750000	17.0	Off	L1	19.4	29.0	46.0
1.254000	14.3	Off	L1	19.4	31.7	46.0
3.670000	19.8	Off	L1	19.5	26.2	46.0

- Test Condition: Neutral
- All emissions not reported here are more than 10 dB below the prescribed limit.

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



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.174000	50.3	Off	N	19.3	14.5	64.8
0.222000	38.3	Off	N	19.3	24.4	62.7
0.294000	36.9	Off	N	19.3	23.5	60.4
0.326000	29.4	Off	N	19.3	30.2	59.6
1.758000	32.5	Off	N	19.5	23.5	56.0
3.574000	28.8	Off	N	19.5	27.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.174000	39.1	Off	N	19.3	15.7	54.8
0.222000	23.2	Off	N	19.3	29.5	52.7
0.294000	25.7	Off	N	19.3	24.7	50.4
0.326000	12.1	Off	N	19.3	37.5	49.6
1.758000	25.2	Off	N	19.5	20.8	46.0
3.574000	18.5	Off	N	19.5	27.5	46.0

5.5 Photographs of Conducted Powerline Test Configuration

Refer to Appendix B.

6. Test of Radiated Emission

Radiated emissions from 30 MHz to 13 GHz were measured with a bandwidth of 120 kHz and 1MHz according to the methods defines in ANSI C63.4-2003. The EUT was placed on a nonmetallic stand, 0.8 meter above the ground plane, as shown in section 6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

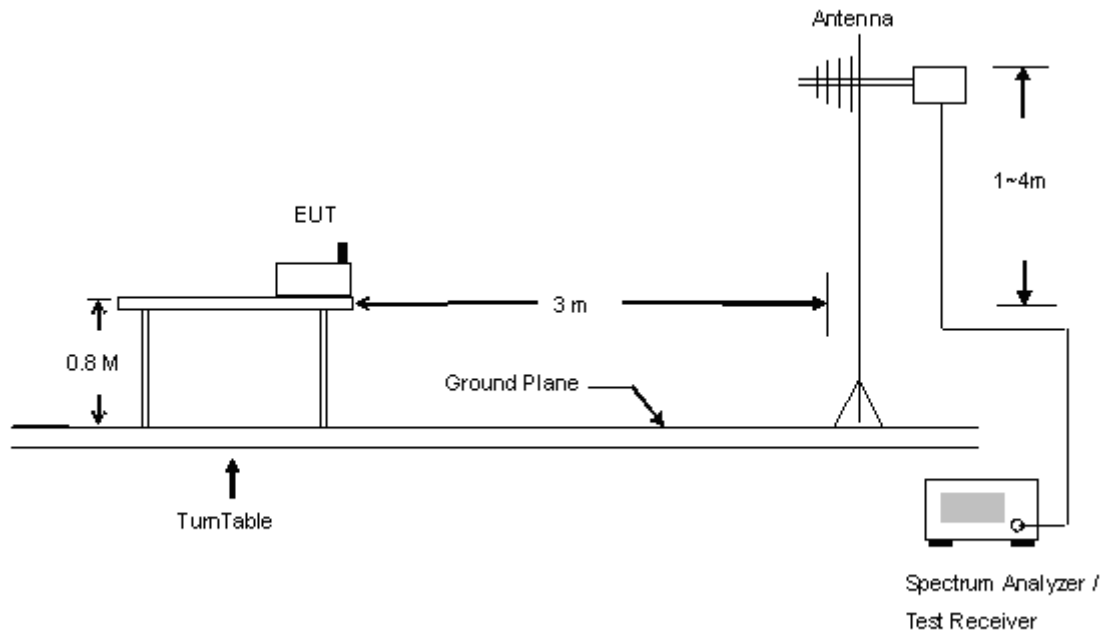
6.1 Major Measuring Instruments

As described in Chapter 7.

6.2 Test Procedures

- a. The EUT was placed on a turntable with 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a Bi-Log antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both for horizontal polarization and vertical polarization of the antenna.
- e. 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.
- f. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. 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.

6.3 Typical Test Setup Layout of Radiated Emission

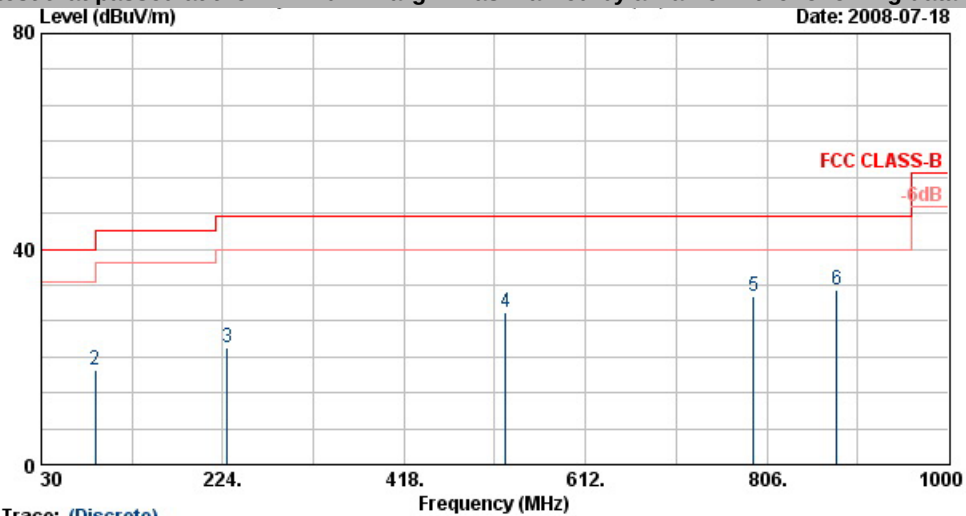


6.4 Test Result of Radiated Emission

6.4.1 Test Mode: Mode 1

- Test Distance: 3m
- Temperature: 21~26°C
- Relative Humidity: 49~57%
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Test Engineer: Sun
- Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

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

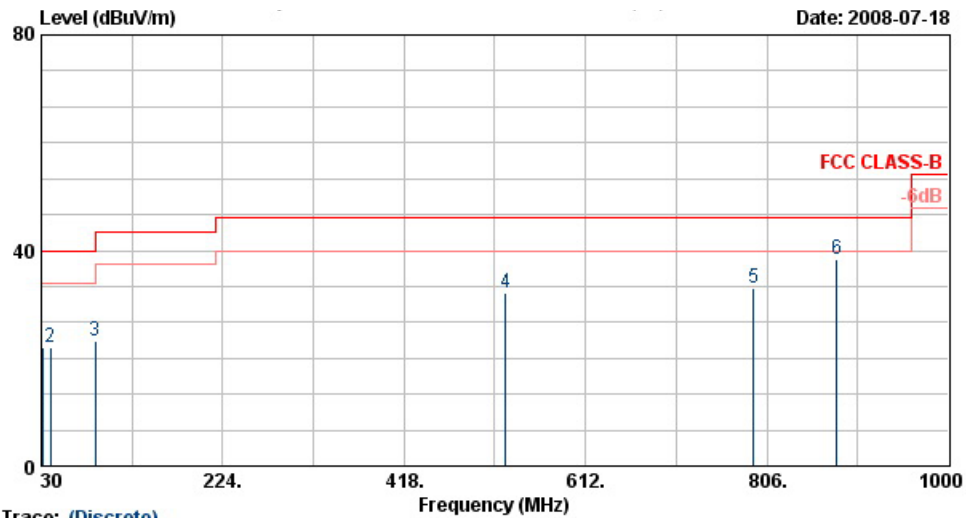


Trace: (Discrete)
Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(051121) HORIZONTAL
EUT : PND
Power : 120Vac/60Hz
Model : FD 870721
Name : Mode 1
S/N : WD3258C00064

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.54	18.72	-21.28	40.00	31.08	18.95	0.30	31.61	---	---	Peak
2	87.78	17.60	-22.40	40.00	40.52	8.73	0.46	32.11	---	---	Peak
3	228.99	21.63	-24.37	46.00	41.91	11.01	0.70	32.00	---	---	Peak
4	526.80	28.22	-17.78	46.00	41.69	17.70	0.93	32.10	---	---	Peak
5	791.40	31.13	-14.87	46.00	42.35	19.74	1.20	32.16	100	206	Peak
6	880.30	32.30			42.56	20.39	1.30	31.95	---	---	Peak

Remark:

1. #6: BS BCCH Signal.
2. The spurious emission above 1 GHz is too low to be taken.


Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL
 EUT : PND
 Power : 120Vac/60Hz
 Model : FD 870721
 Name : Mode 1
 S/N : WD3256C00064

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	31.08	21.95	-18.05	40.00	34.31	18.95	0.30	31.61	---	---	Peak
2	39.99	21.88	-18.12	40.00	39.76	13.51	0.30	31.69	---	---	Peak
3	87.78	23.13	-16.87	40.00	46.05	8.73	0.46	32.11	---	---	Peak
4	526.80	32.06	-13.94	46.00	45.52	17.70	0.93	32.10	---	---	Peak
5	791.40	33.11	-12.89	46.00	44.33	19.74	1.20	32.16	100	56	Peak
6 @	880.30	38.33			48.59	20.39	1.30	31.95	---	---	Peak

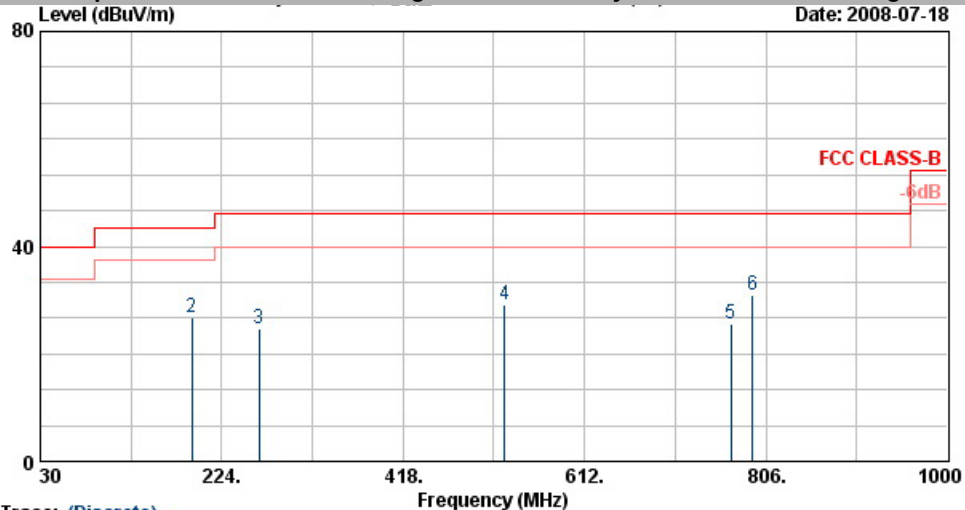
Remark:

- #6: BS BCCH Signal.
- The spurious emission above 1 GHz is too low to be taken.

6.4.2 Test Mode: Mode 2

- Test Distance: 3m
- Temperature: 21~26°C
- Relative Humidity: 49~57%
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Test Engineer: Sun
- Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

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



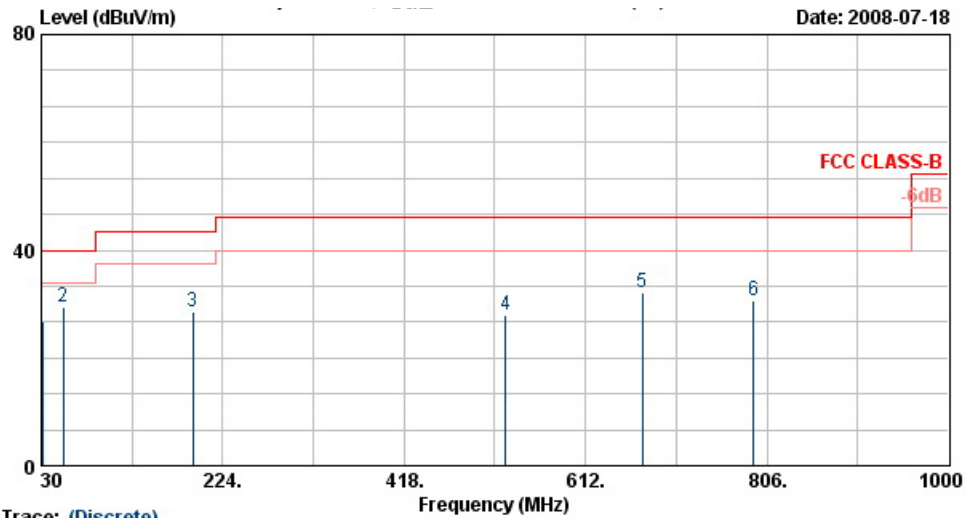
Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL
EUT : PND
Power : 120Vac/60Hz
Model : FD 870721
Mode : Mode 2
S/N : WD3256G00064

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.54	18.11	-21.89	40.00	30.47	18.95	0.30	31.61	---	---	Peak
2	191.73	26.68	-16.82	43.50	48.76	9.36	0.60	32.04	---	---	Peak
3	264.09	24.66	-21.34	46.00	43.32	12.53	0.70	31.89	---	---	Peak
4	526.80	29.25	-16.75	46.00	42.72	17.70	0.93	32.10	---	---	Peak
5	768.30	25.55	-20.45	46.00	37.03	19.52	1.10	32.10	---	---	Peak
6	791.40	30.96	-15.04	46.00	42.18	19.74	1.20	32.16	100	216	Peak

Remark:

1. The spurious emission above 1 GHz is too low to be taken.


Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL
 EUT : PND
 Power : 120Vac/60Hz
 Model : FD 870721
 Name : Mode 2
 S/N : WD3258G00064

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	31.08	26.83	-13.17	40.00	39.19	18.95	0.30	31.61	---	---	Peak
2	53.49	29.32	-10.68	40.00	53.26	7.64	0.36	31.94	100	231	Peak
3	191.73	28.60	-14.90	43.50	50.68	9.36	0.60	32.04	---	---	Peak
4	526.80	28.06	-17.94	46.00	41.52	17.70	0.93	32.10	---	---	Peak
5	672.40	32.01	-13.99	46.00	44.36	18.77	1.02	32.15	---	---	Peak
6	791.40	30.69	-15.31	46.00	41.91	19.74	1.20	32.16	---	---	Peak

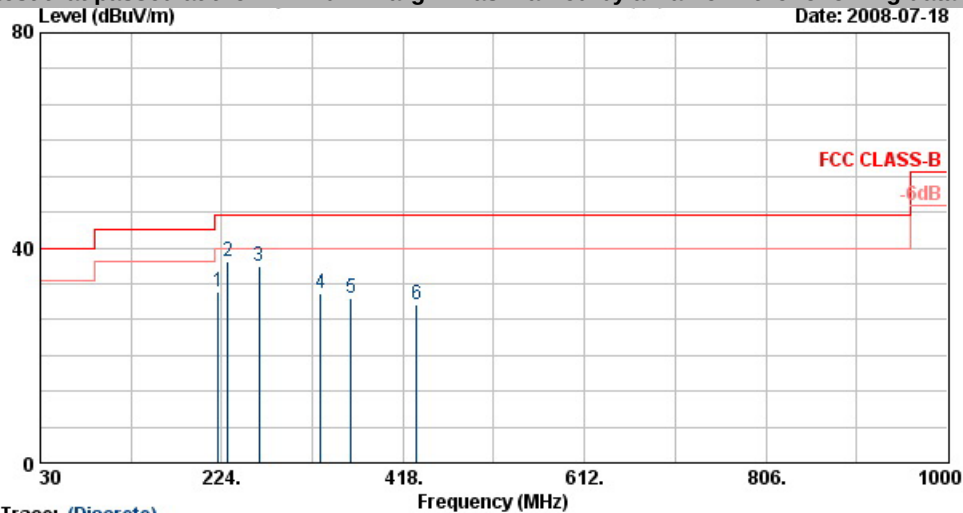
Remark:

- The spurious emission above 1 GHz is too low to be taken.

6.4.3 Test Mode: Mode 3

- Test Distance: 3m
- Temperature: 21~26°C
- Relative Humidity: 49~57%
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Test Engineer: Sun
- Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

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



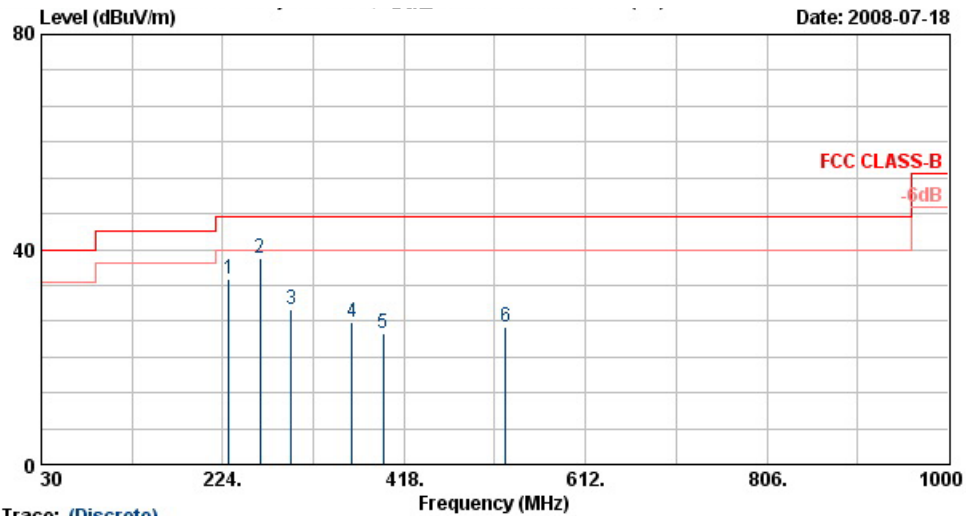
Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL
EUT : PND
Power : 12Vdc
Model : FD 870721
Mode : Mode 3
S/N : WD3256G00064

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	220.08	31.91	-14.09	46.00	52.60	10.50	0.70	31.89	---	---
2	230.88	37.35	-8.65	46.00	57.51	11.13	0.70	32.00	100	30
3	264.09	36.52	-9.48	46.00	55.18	12.53	0.70	31.89	---	---
4	329.40	31.50	-14.50	46.00	48.59	13.98	0.80	31.88	---	---
5	362.30	30.64	-15.36	46.00	46.83	14.82	0.73	31.74	---	---
6	432.30	29.40	-16.60	46.00	44.26	16.31	0.83	31.99	---	---

Remark:

1. The spurious emission above 1 GHz is too low to be taken.


Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL
EUT : PND
Power : 12Vdc
Model : FD 870721
Name : Mode 3
S/N : WD3256C00064

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB	dB	cm	deg	
1	230.88	34.38	-11.62	46.00	54.55	11.13	0.70	32.00	---	Peak
2 @	264.09	38.37	-7.63	46.00	57.03	12.53	0.70	31.89	100	126 Peak
3	297.03	28.80	-17.20	46.00	47.07	13.15	0.70	32.13	---	Peak
4	362.30	26.37	-19.63	46.00	42.56	14.82	0.73	31.74	---	Peak
5	395.90	24.24	-21.76	46.00	39.60	15.66	0.86	31.87	---	Peak
6	526.80	25.53	-20.47	46.00	38.99	17.70	0.93	32.10	---	Peak

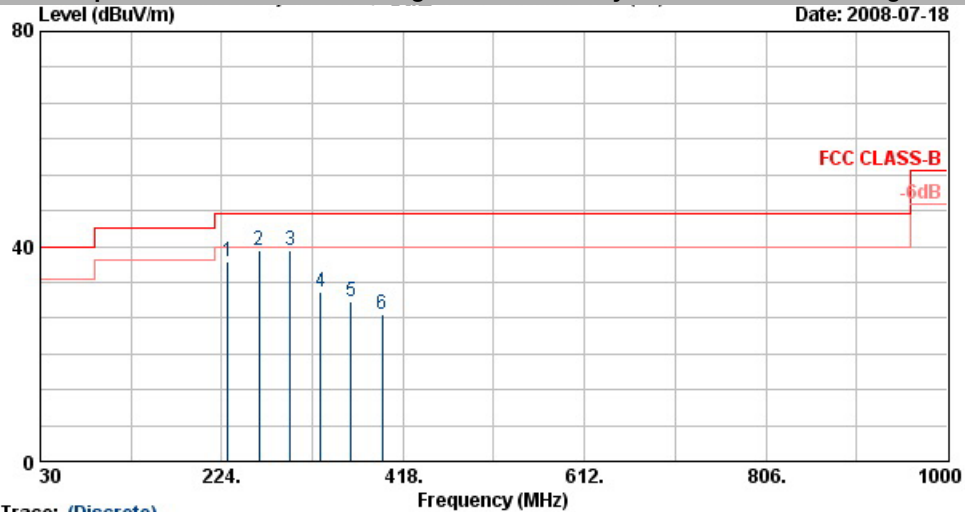
Remark:

- The spurious emission above 1 GHz is too low to be taken.

6.4.4 Test Mode: Mode 4

- Test Distance: 3m
- Temperature: 21~26°C
- Relative Humidity: 49~57%
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Test Engineer: Sun
- Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

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



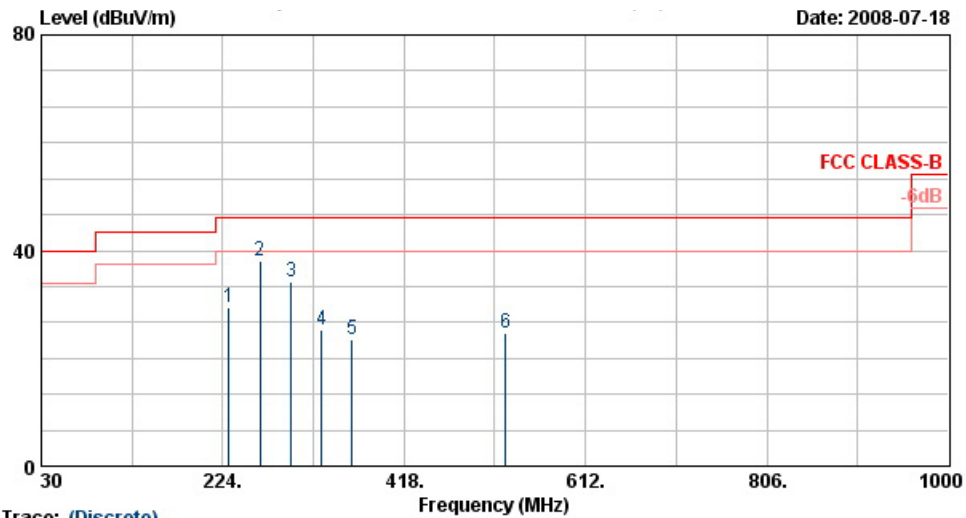
Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL
EUT : PND
Power : 24Vdc
Model : FD 870721
Mode : Mode 4
S/N : WD3256G00064

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	230.88	37.30	-8.70	46.00	57.46	11.13	0.70	32.00	---	---	Peak
2 @	264.09	39.26	-6.74	46.00	57.92	12.53	0.70	31.89	100	282	Peak
3 @	297.03	39.22	-6.78	46.00	57.50	13.15	0.70	32.13	---	---	Peak
4	329.40	31.48	-14.52	46.00	48.57	13.98	0.80	31.88	---	---	Peak
5	362.30	29.60	-16.40	46.00	45.80	14.82	0.73	31.74	---	---	Peak
6	395.90	27.26	-18.74	46.00	42.61	15.66	0.86	31.87	---	---	Peak

Remark:

1. The spurious emission above 1 GHz is too low to be taken.


Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL
 EUT : PND
 Power : 24Vdc
 Model : FD 870721
 Name : Mode 4
 S/N : WD3256C00064

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB	dB	cm	deg	
1	230.88	29.44	-16.56	46.00	49.61	11.13	0.70	32.00	---	Peak
2 @	264.09	38.17	-7.83	46.00	56.83	12.53	0.70	31.89	100	Peak
3	297.03	34.24	-11.76	46.00	52.51	13.15	0.70	32.13	---	Peak
4	329.40	25.26	-20.74	46.00	42.36	13.98	0.80	31.88	---	Peak
5	362.30	23.50	-22.50	46.00	39.69	14.82	0.73	31.74	---	Peak
6	526.80	24.56	-21.44	46.00	38.02	17.70	0.93	32.10	---	Peak

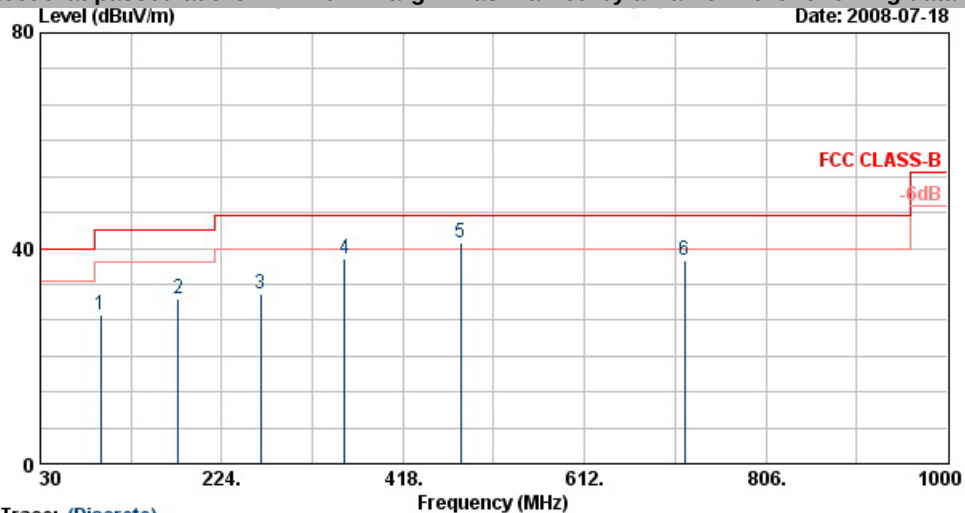
Remark:

- The spurious emission above 1 GHz is too low to be taken.

6.4.5 Test Mode: Mode 5

- Test Distance: 3m
- Temperature: 21~26°C
- Relative Humidity: 49~57%
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Test Engineer: Sun
- Corrected Reading: Probe Factor + Cable Loss + Read Level - Preamp Factor = Level

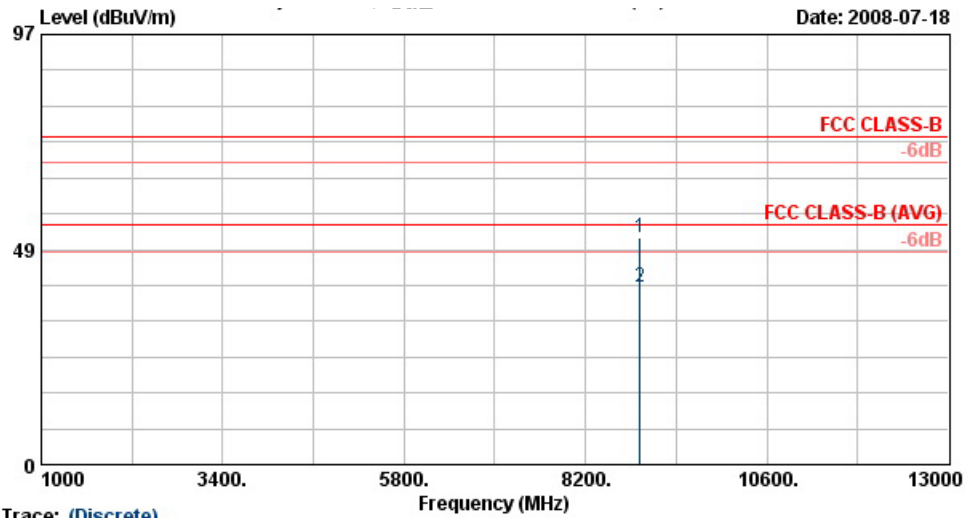
The test that passed at the minimum margin was marked by a frame in the following data



Trace: (Discrete)

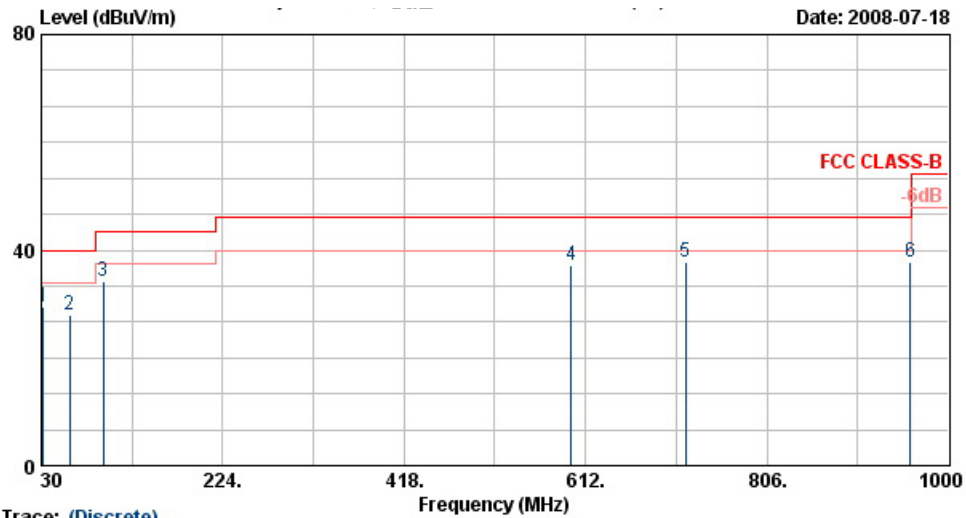
Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL
EUT : PND
Power : From System
Model : FD 870721
Mode : Mode 5
S/N : WD3258G00064

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	94.53	27.61	-15.89	43.50	49.16	10.01	0.50	32.06	---	---	Peak
2	177.69	30.71	-12.79	43.50	52.51	9.63	0.60	32.04	---	---	Peak
3	265.98	31.66	-14.34	46.00	50.29	12.56	0.70	31.90	---	---	Peak
4	355.30	37.95	-8.05	46.00	54.29	14.62	0.75	31.71	---	---	Peak
5 @	479.90	40.94	-5.06	46.00	54.90	17.09	1.00	32.06	100	126	Peak
6	719.30	37.75	-8.25	46.00	49.79	19.07	1.20	32.32	---	---	Peak


Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m HF-ANT(8-18)-060918 HORIZONTAL
 EUT : PND
 Power : From System
 Model : FD 870721
 Name : Mode 5
 S/N : WD3258G00064

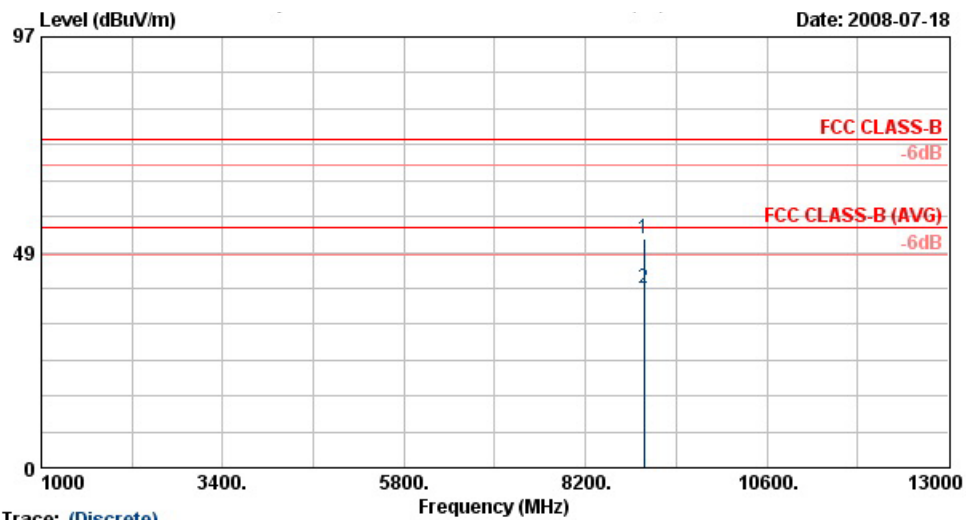
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	8918.00	51.24	-22.76	74.00	43.70	36.38	7.71	36.56	100	0 Peak
2	8918.00	40.05	-13.95	54.00	32.51	36.38	7.71	36.56	100	105 Average



Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL
EUT : PND
Power : From System
Model : FD 870721
Name : Mode 5
S/N : WD3258G00064

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	32.43	29.43	-10.57	40.00	43.31	17.54	0.30	31.72	---	---	Peak
2	60.24	28.03	-11.97	40.00	53.06	6.62	0.40	32.05	---	---	Peak
3	95.88	34.22	-9.28	43.50	55.57	10.21	0.50	32.06	---	---	Peak
4	596.80	37.15	-8.85	46.00	49.90	18.43	1.00	32.18	---	---	Peak
5	719.30	37.84	-8.16	46.00	49.89	19.07	1.20	32.32	---	---	Peak
6	959.40	37.92	-8.08	46.00	46.97	20.95	1.29	31.30	100	291	Peak



Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m HF-ANT(6-18)-060918 VERTICAL
 EUT : PND
 Power : From System
 Model : FD 870721
 Mode : Mode 5
 S/N : WD3258G00064

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	8974.00	51.59	-22.41	74.00	43.95	36.45	7.77	36.59	100	0 Peak
2	8974.00	40.48	-13.52	54.00	32.84	36.45	7.77	36.59	100	292 Average

6.5 Photographs of Radiated Emission Test Configuration

Refer to Appendix B.

7. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMI Receiver	R&S	ESCS 30	100356	9kHz – 2.75GHz	Aug. 01, 2008	Jul. 31, 2009	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9kHz – 30MHz	Dec. 06, 2007	Dec. 05, 2008	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz – 30MHz	Dec. 06, 2007	Dec. 05, 2008	Conduction (CO05-HY)
DC- LISN	R&S	ESH3-26	1000485	0.1MHz-200MHz	Feb. 04, 2008	Feb. 03, 2009	Conduction (CO05-HY)
DC- LISN	R&S	ESH3-26	1000484	0.1MHz-200MHz	Feb. 04, 2008	Feb. 03, 2009	Conduction (CO05-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211028	9KHz-26.5GHz	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Dec. 01, 2007	Nov. 30, 2008	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00075962	1G~18G	Aug. 29, 2007	Aug. 28, 2008	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Training Research	AF-0801	95119	8G~18G	Oct. 17, 2007	Oct. 16, 2008	Radiation (05CH02-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-251	14G - 40G	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G - 26.5G	Nov. 22, 2007	Nov. 21, 2008	Radiation (03CH06-HY)
Pre Amplifier	Agilent	310N	186713	9KHz~1GHz	Apr. 21, 2008	Apr. 20, 2009	Radiation (03CH06-HY)

8. Uncertainty of Evaluation

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

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.10	Normal(k=2)	0.05
Cable loss	0.10	Normal(k=2)	0.05
AMN insertion loss	2.50	Rectangular	0.63
Receiver Spec	1.50	Rectangular	0.43
Site imperfection	1.39	Rectangular	0.80
Mismatch	+0.34/-0.35	U-shape	0.24
Combined standard uncertainty Uc(y)	1.13		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	2.26		

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	+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		$u(x_i)$	C_i	$C_i * u(x_i)$
	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 $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20 \log(1 - \Gamma_1 * \Gamma_2 * \Gamma_3)$	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty $U_c(y)$	2.36				
Measuring uncertainty for a level of confidence of 95% $U = 2U_c(y)$	4.72				

9. Certification of NVLAP Accreditation

United States Department of Commerce
National Institute of Standards and Technology

NVLAP[®]

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200079-0

Sporton International, Inc. Hwa Ya EMC Laboratory
Tao Yuan Hsien 333
TAIWAN

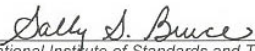
*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated 18 June 2005).*

2008-01-01 through 2008-12-31
Effective dates




For the National Institute of Standards and Technology

NVLAP-01C (REV. 2006-09-13)

Appendix A. Photographs of EUT

Please refer to Sporton report number EP870721 as below.