

FCC Test Report

EQUIPMENT : iPAQ Data Messenger
BRAND NAME : HP
MODEL NAME : HSTNH-C19C
FCC ID : B94HHC19C
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)
APPLICANT : Hewlett-Packard Company
10955 Tantau Ave., Cupertino, CA 95014-0770, USA

The product sample received on May 08, 2008 and completely tested on Sep. 12, 2008. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.



Reviewed by: 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.



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SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
4.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
4.2	15.247(b)	A8.4	Power Output	$\leq 30\text{dBm}$	Pass	-
4.3	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
4.4	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
4.5	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 16.0 dB at 2.086 MHz
4.6	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 1.86 dB at 31.08 MHz
4.7	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Hewlett-Packard Company
10955 Tantau Ave., Cupertino, CA 95014-0770, USA

1.2 Manufacturer

COMPAL COMMUNICATIONS, INC.
No. 385, YangGuang Street, Neihu, Taipei, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	IPAQ Data Messenger
Brand Name	HP
Model Name	HSTNH-C19C
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	11
Carrier Frequency of Each Channel	$2412+(n-1)*5$ MHz; n=1~11
Channel Spacing	5 MHz
Maximum Output Power to Antenna	802.11b : 15.95 dBm 802.11g : 18.04 dBm
Antenna Type	PCB Antenna with gain -5 dBi
Type of Antenna Connector	N/A
Type of Modulation	802.11b: DSSS 802.11g: OFDM
EUT Stage	Identical Prototype

2nd component Source List

Component Model		
AC Adapter 1	Brand Name	HP
	Model Name	PSAA05A-050 PSAA05K-050 PSAA05E-050
	Power Rating	I/P: 100-240Vac, 50-60Hz, 200mA, O/P: 5Vdc, 1A
	AC Power Cord Type	1.93 meter shielded cable without ferrite core
AC Adapter 2	Brand Name	HP
	Model Name	PSB05R-050Q
	Power Rating	I/P: 100-240Vac, 50-60Hz, 200mA, 12-17vA; O/P: 5Vdc, 1A
Battery 1	Brand Name	HP
	Model Name	HSTNH-W19B-S
	Part Number	490165-001
	Power Rating	3.7Vdc, 1140mAh
	Type	Li-ion
Battery 2	Brand Name	HP
	Model Name	HSTNH-W19B-H
	Part Number	504054-001
	Power Rating	3.7Vdc, 2280mAh
	Type	Li-ion
Earphone	Brand Name	HP
	Part Number	486112-001
	Signal Line Type	1.53 meter non-shielded cable without ferrite core
USB Cable 1	Brand Name	HP
	Part Number	486113-001
	Signal Line Type	1.1 meter shielded cable without ferrite core
USB Cable 2	Brand Name	HP
	Part Number	486113-001
	Signal Line Type	1.52 meter shielded cable without ferrite core
LCD Panel	Brand Name	EPSON
	Model Name	L5F30815TXX

Remark:

1. PSAA05A-050, PSAA05K-050, and PSAA05E-050 are almost the same; the differences among them are plugs and appearances.
2. Above EUT's information was declared by manufacturer. Please refer to the specifications of user's manual for more detailed features description.
3. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).
4. For accessories equipped with this EUT, please refer to the appendix of the external photo.
5. For other wireless features of this EUT, test report will be issued separately.



1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH06-HY	TW1022/4086B-1

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ANSI C63.4-2003
- IC RSS-210 Issue 7 Annex 8

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC) which recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Earphone	Cellink	BTHS-6025-F	PQY-4710874200357	N/A	N/A
2.	WLAN AP	SMC	SMC-100	HEDWG4005ACC	N/A	Unshielded, 1.8m



2 Test Configuration of Equipment Under Test

2.1 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and recorded the RF power output in the following table:

802.11b

Channel	Frequency (MHz)	RF Power (dBm)			
		2.4GHz 802.11b Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	11.87	12.02	13.31	13.42
CH 06	2437 MHz	10.83	11.81	11.87	11.91
CH 11	2462 MHz	14.30	14.46	15.95	15.87

802.11g

Channel	Frequency (MHz)	RF Power (dBm)							
		2.4GHz 802.11g Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	15.03	14.90	15.30	15.01	15.8	15.95	15.10	14.00
CH 06	2437 MHz	13.40	13.40	13.78	13.71	14.21	14.32	13.35	12.47
CH 11	2462 MHz	17.47	17.39	17.43	17.41	18.03	18.04	17.28	15.99

Remark:

1. The 802.11b data rates were set in 5.5 Mbps and 802.11g data rates were set in 36 Mbps for all the test cases, due to the highest RF output power.
2. The EUT is programmed to transmit signal continuously for all testing.

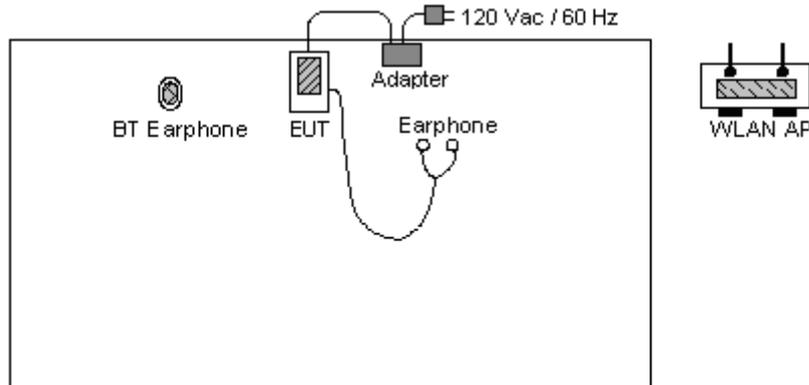
2.2 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). Pre-scanned tests were conducted to determine the final configuration from all possible combinations. The following tables are showing the test modes as the worst cases and recorded in this report.

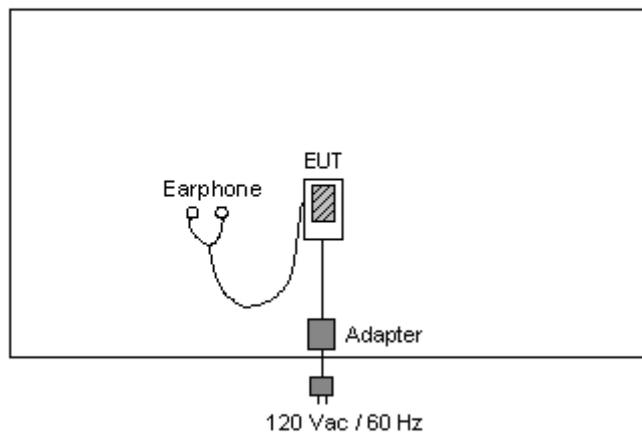
Test Cases		
Test Item	Modulation	
	802.11b	802.11g
Conducted TCs	<ul style="list-style-type: none"> ■ Mode 1: CH01_2412 MHz ■ Mode 2: CH06_2437 MHz ■ Mode 3: CH11_2462 MHz 	<ul style="list-style-type: none"> ■ Mode 4: CH01_2412 MHz ■ Mode 5: CH06_2437 MHz ■ Mode 6: CH11_2462 MHz
Radiated TCs	<ul style="list-style-type: none"> ■ Mode 1: CH01_2412 MHz ■ Mode 2: CH06_2437 MHz ■ Mode 3: CH11_2462 MHz 	<ul style="list-style-type: none"> ■ Mode 4: CH01_2412 MHz ■ Mode 5: CH06_2437 MHz ■ Mode 6: CH11_2462 MHz
AC Conducted Emission	Mode 1 : BT Link + WLAN Link + Earphone + Adapter	

2.3 Connection Diagram of Test System

<Conducted Emission>



<Radiated Emission>



2.4 RF Utility

The programmed RF Utility, "FCC Test.exe" is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

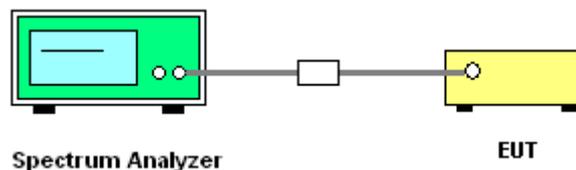
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz.
In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

3.1.4 Test Setup





3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	25~26
Test Engineer :	C.K.C. Cheng	Relative Humidity :	52~53%

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	12.40	0.5	Pass
06	2437	12.48	0.5	Pass
11	2462	12.44	0.5	Pass

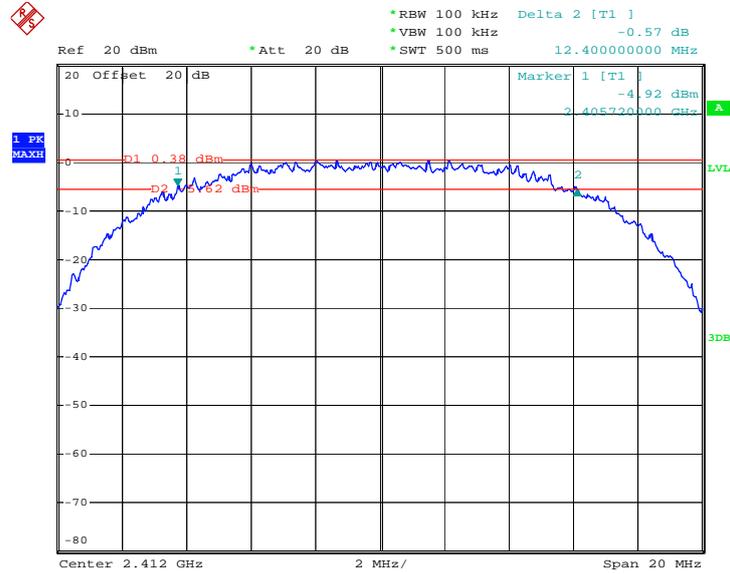
Test Mode :	Mode 4, 5, 6	Temperature :	25~26
Test Engineer :	C.K.C. Cheng	Relative Humidity :	52~53%

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.52	0.5	Pass
06	2437	16.56	0.5	Pass
11	2462	16.52	0.5	Pass



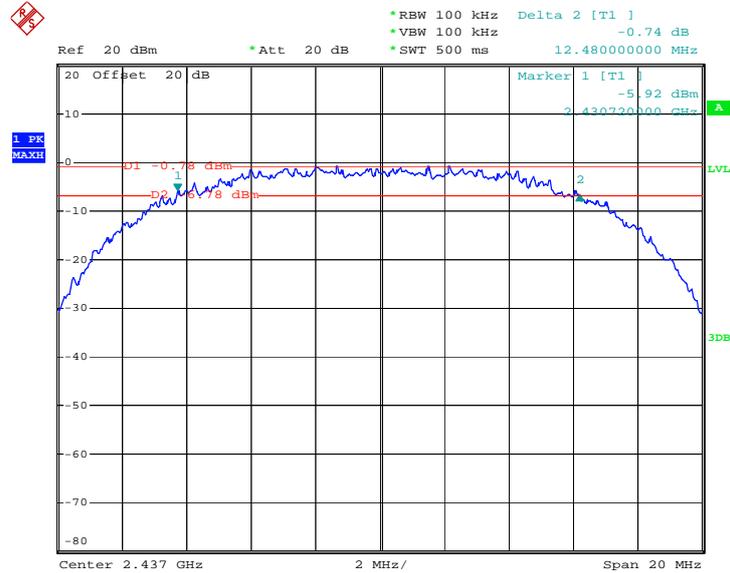
3.1.6 Test Result of 6dB Bandwidth Plots

Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 4.SEP.2008 01:18:36

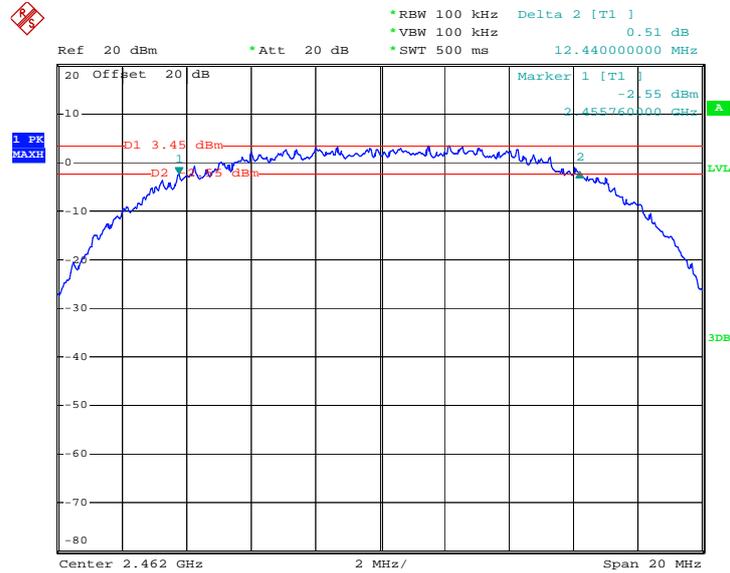
Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 4.SEP.2008 01:27:26

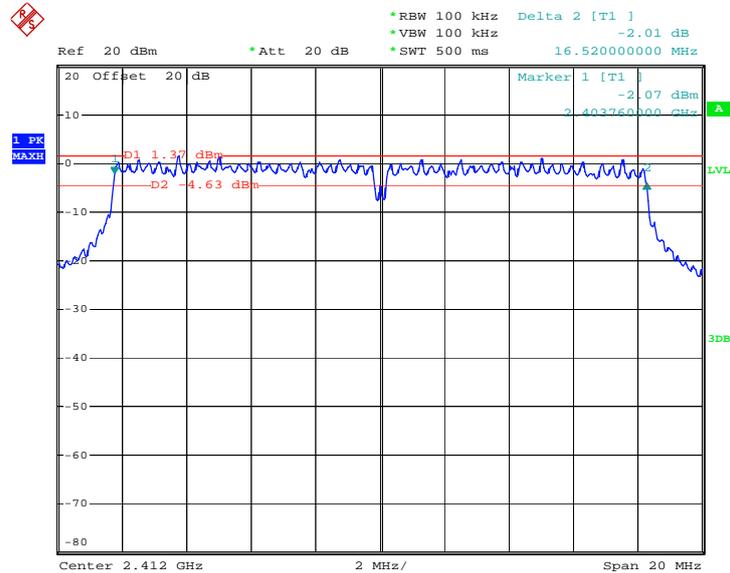


Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



Date: 4.SEP.2008 01:28:43

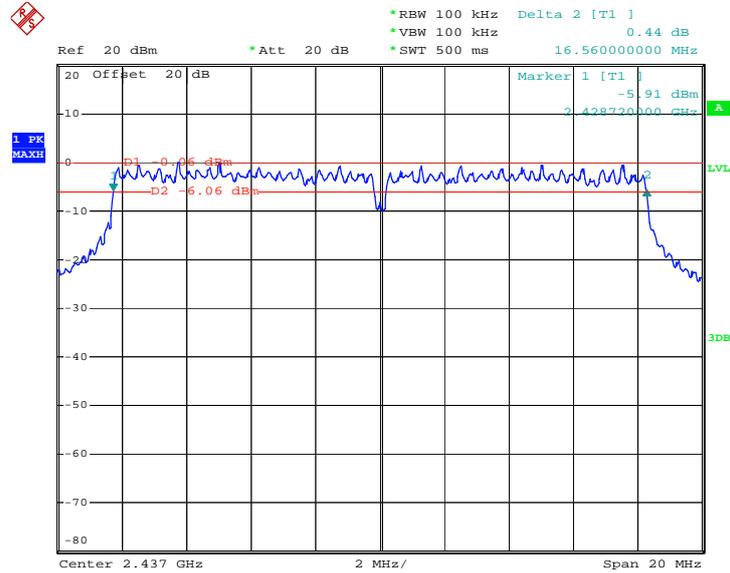
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 4.SEP.2008 02:40:36

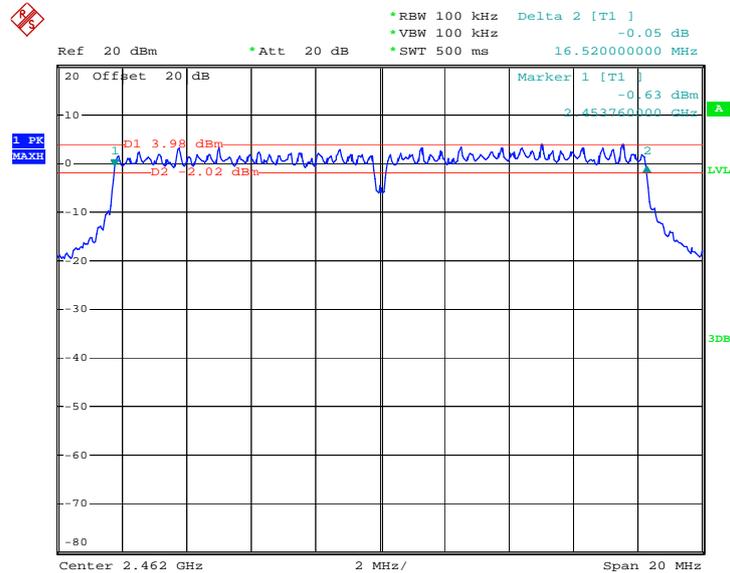


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 4.SEP.2008 02:41:25

Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



Date: 4.SEP.2008 02:42:05

3.2 Power Output Measurement

3.2.1 Limit of Power Output

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

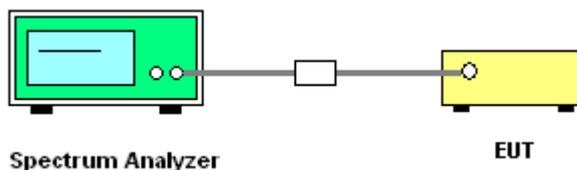
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Measure the power either by spectrum analyzer.

3.2.4 Test Setup





3.2.5 Test Result of Power Output

Test Mode :	Mode 1, 2, 3	Temperature :	25~26
Test Engineer :	C.K.C. Cheng	Relative Humidity :	52~53%

Channel	Frequency (MHz)	Measured Power Output (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	13.31	30	Pass
06	2437	11.87	30	Pass
11	2462	15.95	30	Pass

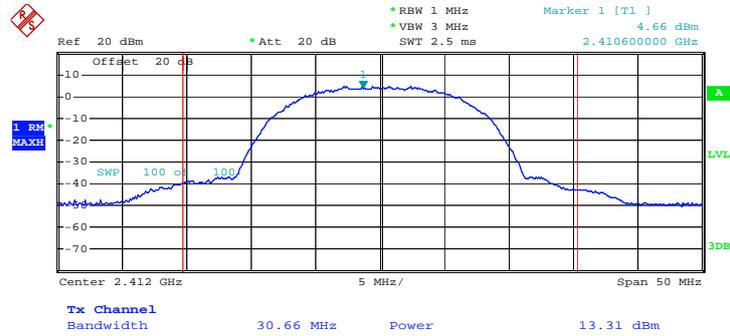
Test Mode :	Mode 4, 5, 6	Temperature :	25~26
Test Engineer :	C.K.C. Cheng	Relative Humidity :	52~53%

Channel	Frequency (MHz)	Measured Power Output (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	15.95	30	Pass
06	2437	14.32	30	Pass
11	2462	18.04	30	Pass



3.2.6 Test Result of Power Output Plots

Mode 1 : Channel Power Plot on 802.11b Channel 01



Date: 4.SEP.2008 00:44:50

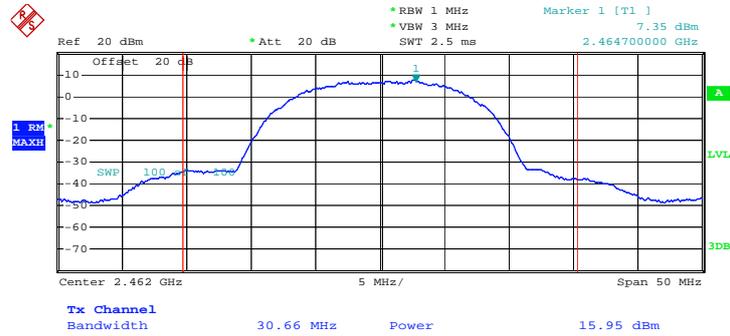
Mode 2 : Channel Power Plot on 802.11b Channel 06



Date: 4.SEP.2008 00:52:44



Mode 3 : Channel Power Plot on 802.11b Channel 11



Date: 4.SEP.2008 00:54:57

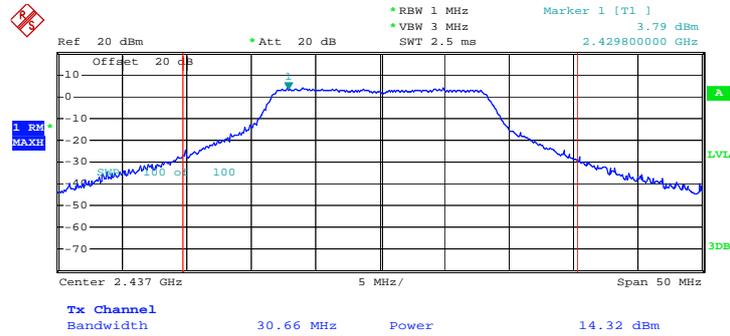
Mode 4 : Channel Power Plot on 802.11g Channel 01



Date: 4.SEP.2008 00:48:33

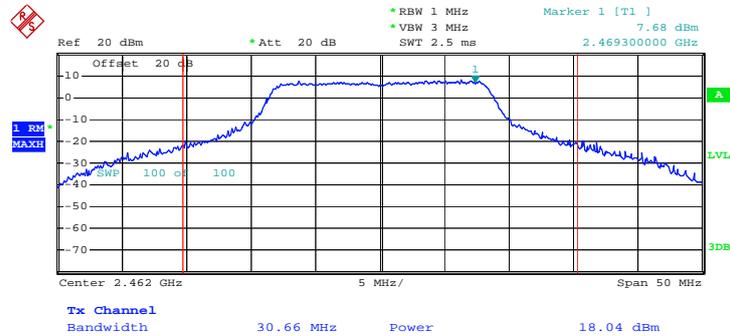


Mode 5 : Channel Power Plot on 802.11g Channel 06



Date: 4.SEP.2008 00:50:13

Mode 6 : Channel Power Plot on 802.11g Channel 11



Date: 4.SEP.2008 00:57:02

3.3 Band Edges Measurement

3.3.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB.

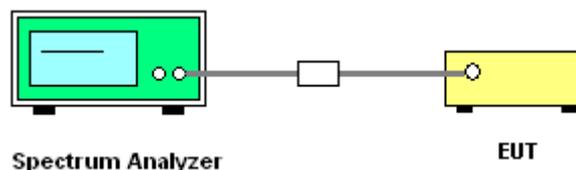
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) > RBW, scan up through 10th harmonic. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the output power of this device was measured by power meter, the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

3.3.4 Test Setup





3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Sun Wang		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2385.62	46.92	-27.08	74.00	46.70	31.98	3.92	35.68	100	0	Peak
2385.62	35.72	-18.28	54.00	35.50	31.98	3.92	35.68	106	338	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2360.54	44.67	-29.33	74.00	44.45	31.98	3.92	35.68	100	0	Peak
2360.54	31.30	-22.70	54.00	31.15	31.93	3.89	35.67	100	314	Average

Test Mode :	Mode 3	Temperature :	26~27°C
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Sun Wang		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	45.54	-28.46	74.00	45.11	32.08	4.05	35.70	100	0	Peak
2483.66	32.71	-21.29	54.00	32.28	32.08	4.05	35.70	103	325	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2493.54	43.82	-30.18	74.00	43.39	32.08	4.05	35.70	100	0	Peak
2493.54	30.47	-23.53	54.00	30.02	32.10	4.05	35.70	100	262	Average



Test Mode :	Mode 4	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Sun Wang		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	66.54	-7.46	74.00	66.32	31.98	3.92	35.68	100	0	Peak
2389.99	45.82	-8.18	54.00	45.60	31.98	3.92	35.68	105	337	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	62.63	-11.37	74.00	62.41	31.98	3.92	35.68	100	0	Peak
2389.99	40.71	-13.29	54.00	40.49	31.98	3.92	35.68	100	313	Average

Test Mode :	Mode 6	Temperature :	26~27°C
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Sun Wang		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	63.98	-10.02	74.00	63.55	32.08	4.05	35.70	100	0	Peak
2483.50	44.76	-9.24	54.00	44.33	32.08	4.05	35.70	102	340	Average

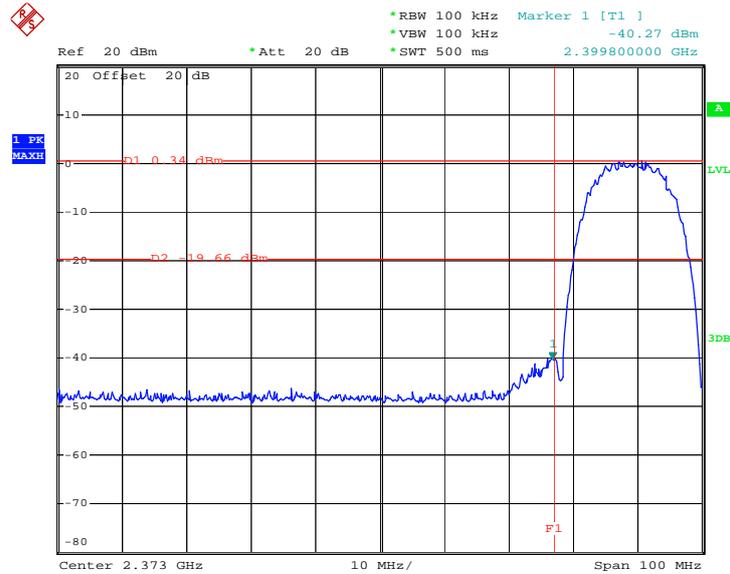
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	56.74	-17.26	74.00	56.31	32.08	4.05	35.70	100	0	Peak
2483.66	37.41	-16.59	54.00	36.98	32.08	4.05	35.70	100	259	Average



3.3.6 Test Result of Conducted Band Edges

Test Mode :	Mode 1	Temperature :	25~26
Test Channel :	01	Relative Humidity :	52~53%
Test Engineer :	C.K.C. Cheng		

Low Band Edge Plot on 802.11b Channel 01

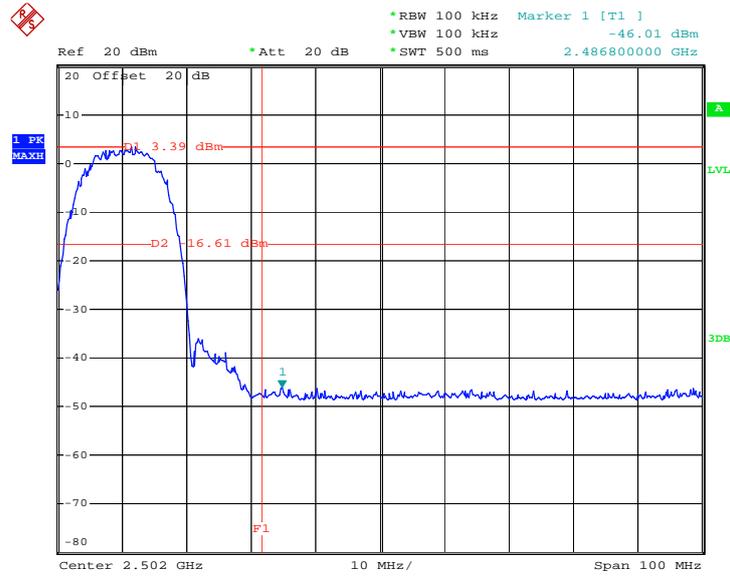


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Test Mode :	Mode 3	Temperature :	25~26
Test Channel :	11	Relative Humidity :	52~53%
Test Engineer :	C.K.C. Cheng		

High Band Edge Plot on 802.11b Channel 11

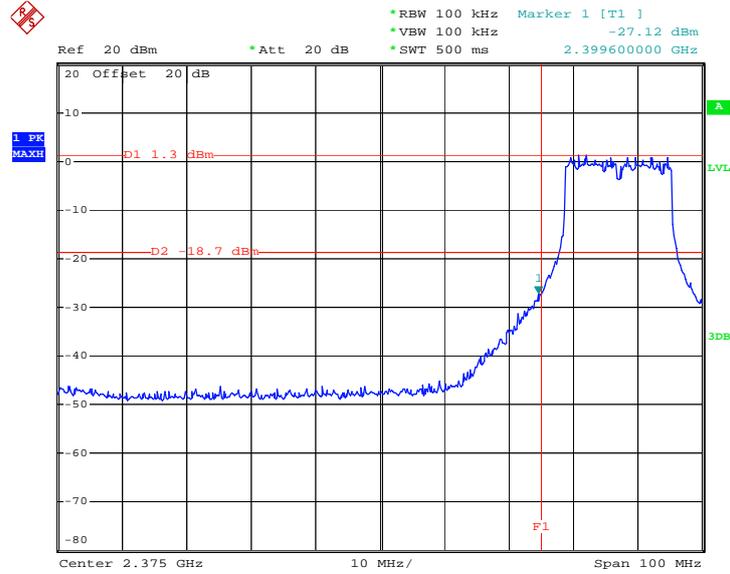


Date: 4.SEP.2008 01:30:13



Test Mode :	Mode 4	Temperature :	25~26
Test Channel :	01	Relative Humidity :	52~53%
Test Engineer :	C.K.C. Cheng		

Low Band Edge Plot on 802.11g Channel 01

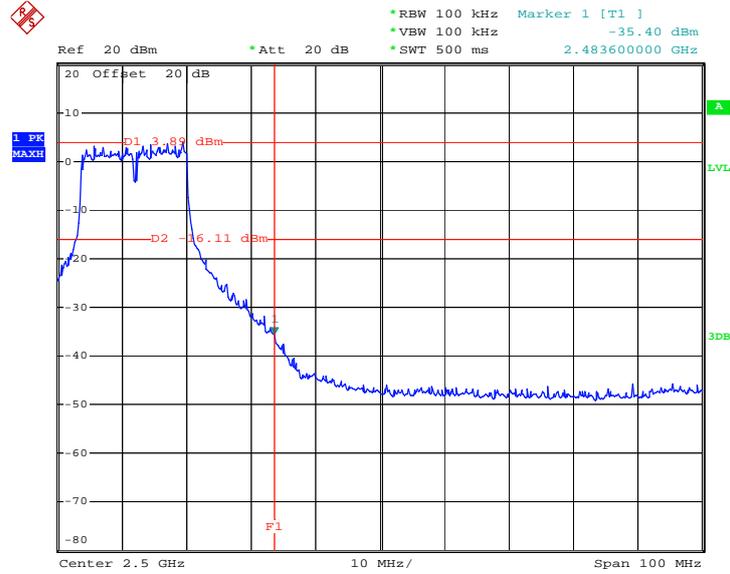


Date: 4.SEP.2008 02:43:46



Test Mode :	Mode 6	Temperature :	25~26
Test Channel :	11	Relative Humidity :	52~53%
Test Engineer :	C.K.C. Cheng		

High Band Edge Plot on 802.11g Channel 11



Date: 4.SEP.2008 02:42:57

3.4 Power Spectral Density Measurement

3.4.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

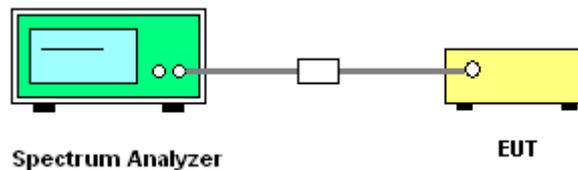
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. The test follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Take the measured data from spectrum analyzer.

3.4.4 Test Setup





3.4.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	25~26
Test Engineer :	C.K.C. Cheng	Relative Humidity :	52~53%

Channel	Frequency (MHz)	Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-13.23	8	Pass
06	2437	-14.93	8	Pass
11	2462	-10.90	8	Pass

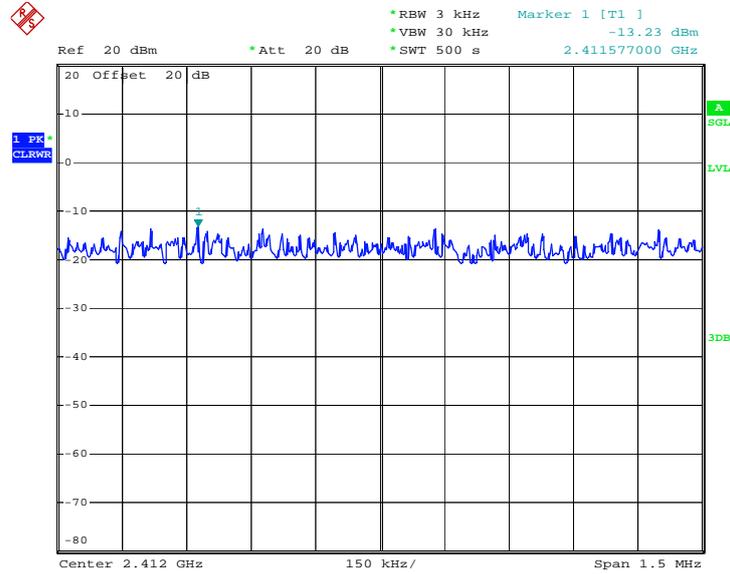
Test Mode :	Mode 4, 5, 6	Temperature :	25~26
Test Engineer :	C.K.C. Cheng	Relative Humidity :	52~53%

Channel	Frequency (MHz)	Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-11.24	8	Pass
06	2437	-12.97	8	Pass
11	2462	-9.17	8	Pass



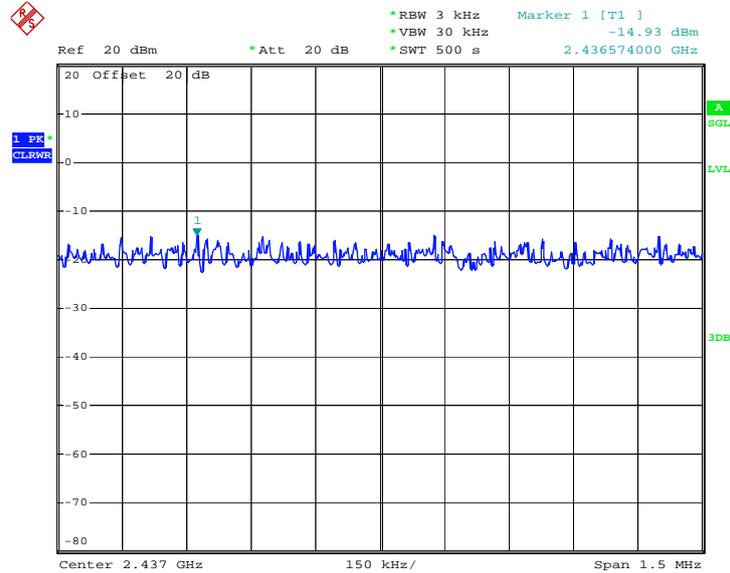
3.4.6 Test Result of Power Spectral Density Plots

Mode 1 : PSD Plot on 802.11b Channel 01



Date: 4.SEP.2008 01:40:42

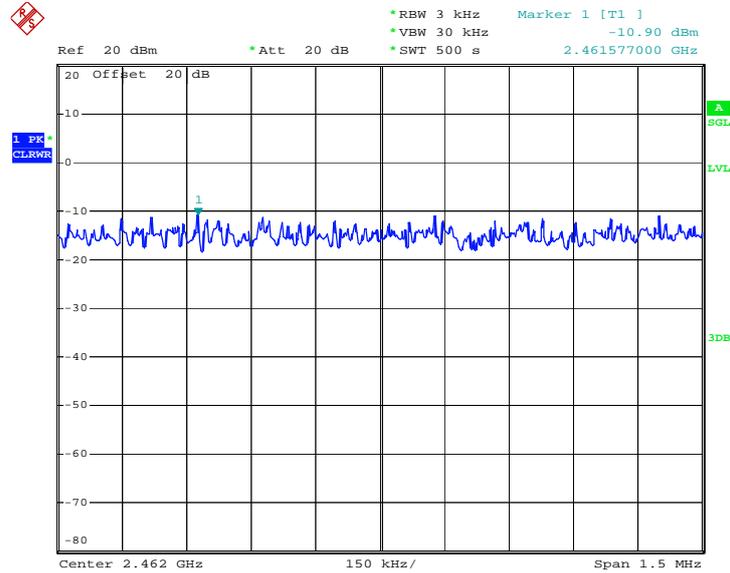
Mode 2 : PSD Plot on 802.11b Channel 06



Date: 4.SEP.2008 01:52:53

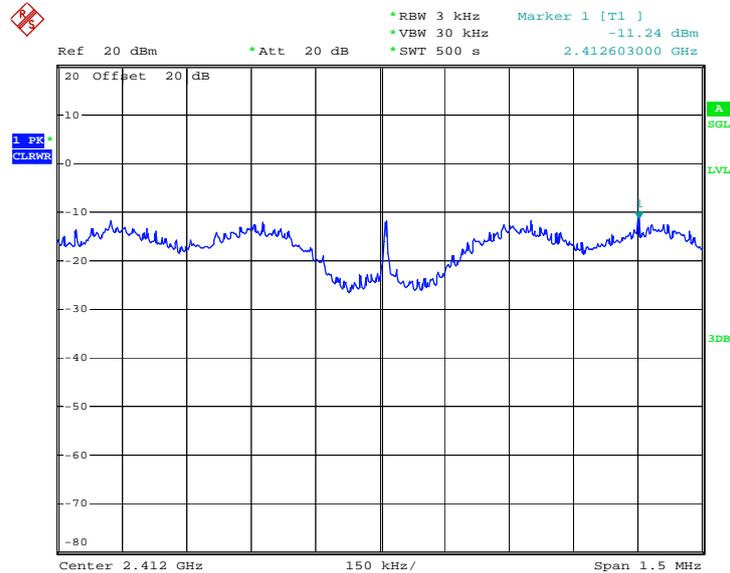


Mode 3 : PSD Plot on 802.11b Channel 11



Date: 4.SEP.2008 02:08:12

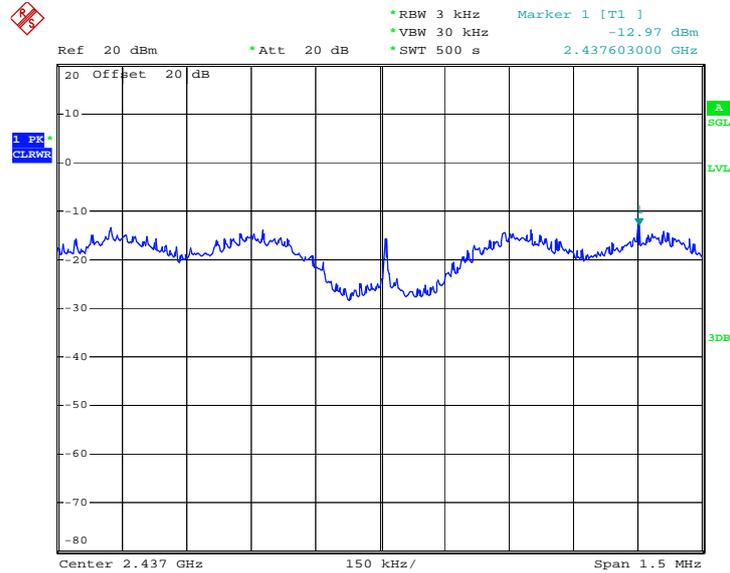
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 4.SEP.2008 02:39:32

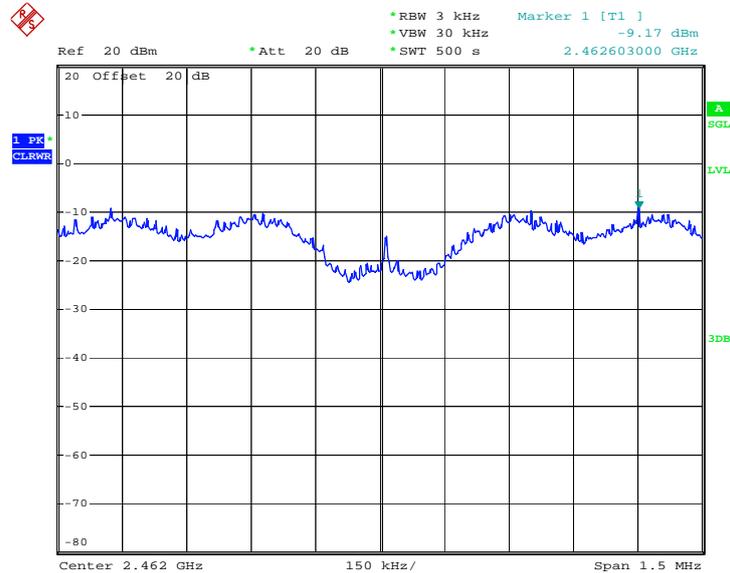


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 4.SEP.2008 02:30:40

Mode 6 : PSD Plot on 802.11g Channel 11



Date: 4.SEP.2008 02:20:18

3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

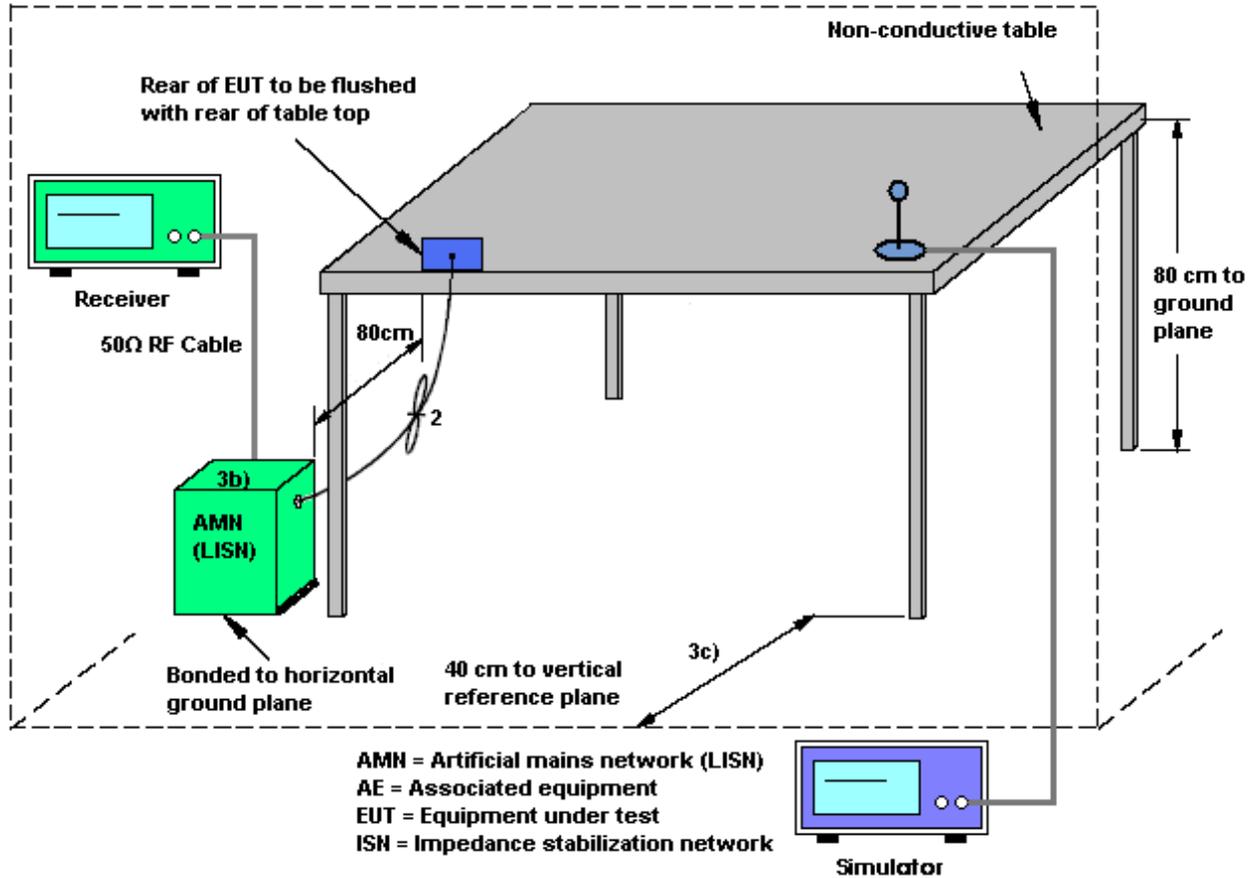
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

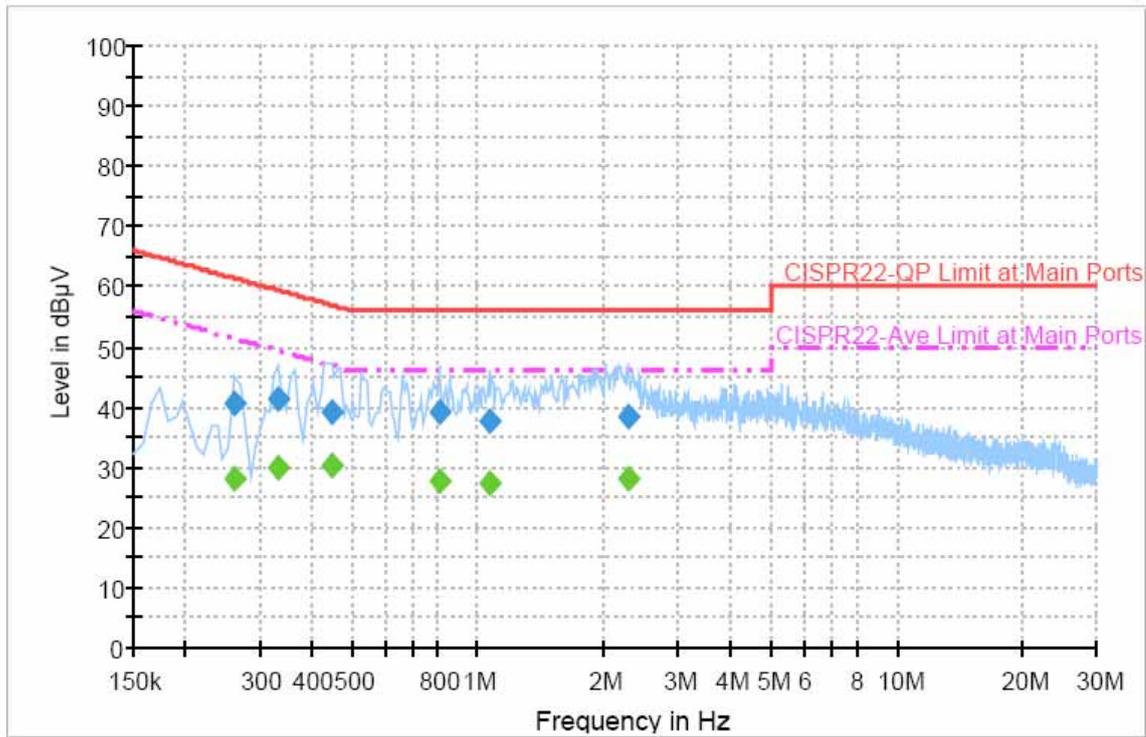
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.5.4 Test Setup



3.5.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	25~26
Test Engineer :	Cona Huang	Relative Humidity :	52~53%
		Phase :	Line
Function Type :	BT Link + WLAN Link + Earphone + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



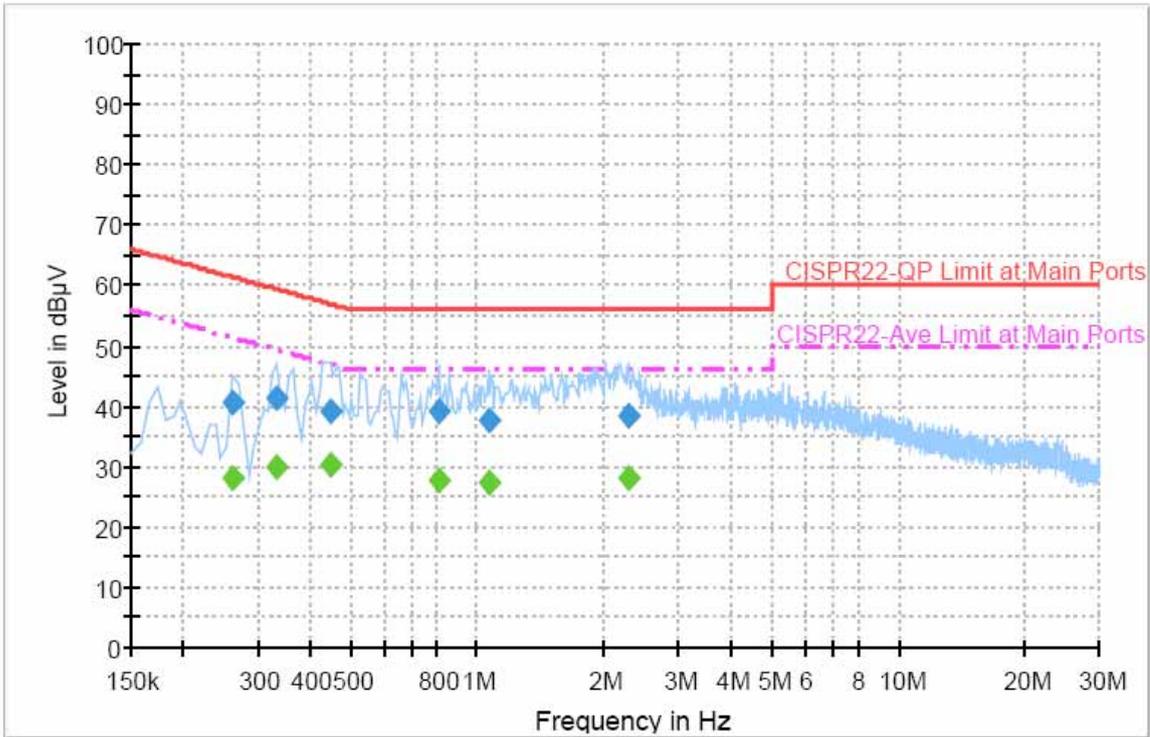
Final Result 1

Frequency	QuasiPeak	Filter	Line	Corr.	Margin	Limit
0.262000	40.4	Off	L1	19.3	21.0	61.4
0.334000	41.3	Off	L1	19.3	18.1	59.4
0.446000	39.0	Off	L1	19.3	17.9	56.9
0.806000	39.2	Off	L1	19.4	16.8	56.0
1.062000	37.6	Off	L1	19.4	18.4	56.0
2.286000	38.5	Off	L1	19.5	17.5	56.0

Final Result 2

Frequency	Average	Filter	Line	Corr.	Margin	Limit
0.262000	28.2	Off	L1	19.3	23.2	51.4
0.334000	29.8	Off	L1	19.3	19.6	49.4
0.446000	30.1	Off	L1	19.3	16.8	46.9
0.806000	27.7	Off	L1	19.4	18.3	46.0
1.062000	27.3	Off	L1	19.4	18.7	46.0
2.286000	28.2	Off	L1	19.5	17.8	46.0

Test Mode :	Mode 1	Temperature :	25~26
Test Engineer :	Cona Huang	Relative Humidity :	52~53%
		Phase :	Neutral
Function Type :	BT Link + WLAN Link + Earphone + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency	QuasiPeak	Filter	Line	Corr.	Margin	Limit
0.174000	41.8	Off	N	19.3	23.0	64.8
0.270000	41.6	Off	N	19.3	19.5	61.1
0.470000	39.9	Off	N	19.4	16.6	56.5
1.070000	37.8	Off	N	19.4	18.2	56.0
2.086000	40.0	Off	N	19.5	16.0	56.0
2.326000	38.8	Off	N	19.5	17.2	56.0

Final Result 2

Frequency	Average	Filter	Line	Corr.	Margin	Limit
0.174000	30.1	Off	N	19.3	24.7	54.8
0.270000	30.8	Off	N	19.3	20.3	51.1
0.470000	28.9	Off	N	19.4	17.6	46.5
1.070000	27.0	Off	N	19.4	19.0	46.0
2.086000	28.6	Off	N	19.5	17.4	46.0
2.326000	29.4	Off	N	19.5	16.6	46.0

3.6 Radiated Emission Measurement

3.6.1 Limit of Radiated Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

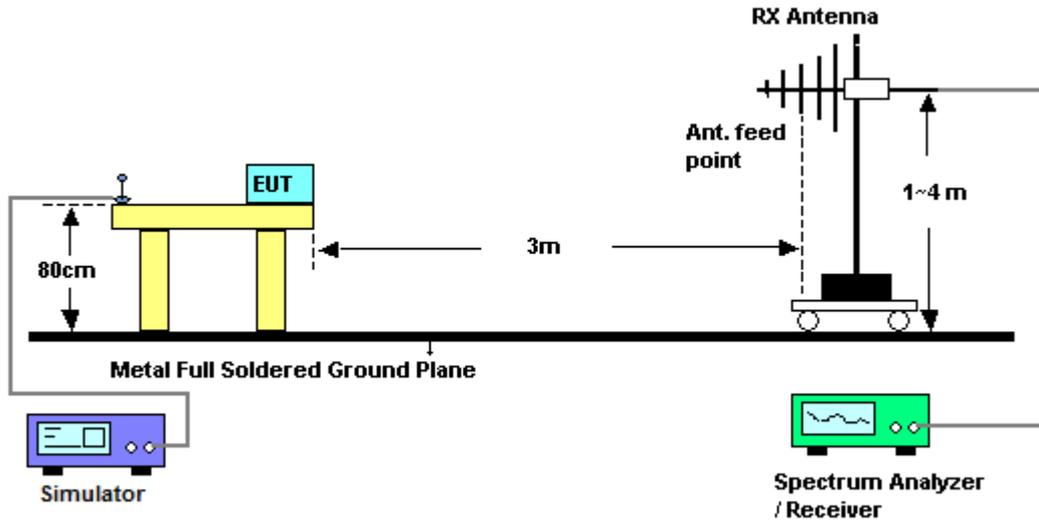
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold.
3. Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

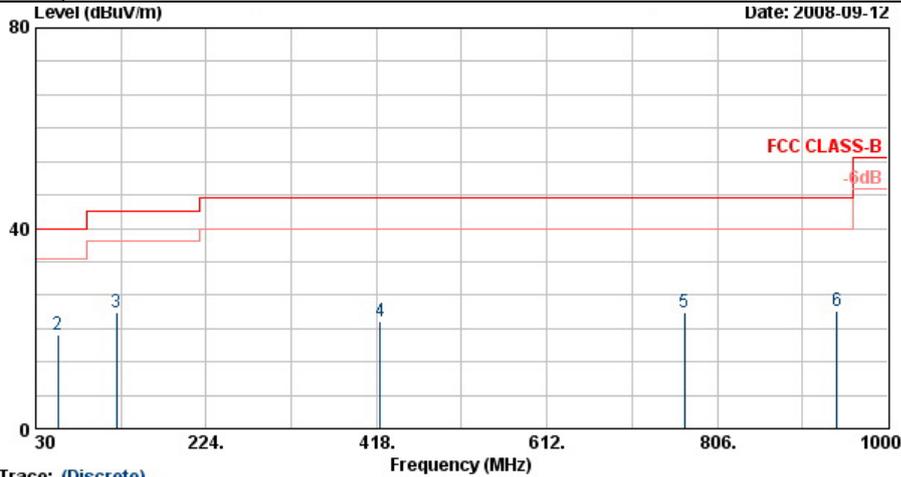
3.6.4 Test Setup





3.6.5 Test Result of Radiated Emission < 1GHz

Test Mode :	Mode 1	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Horizontal
Remark :			

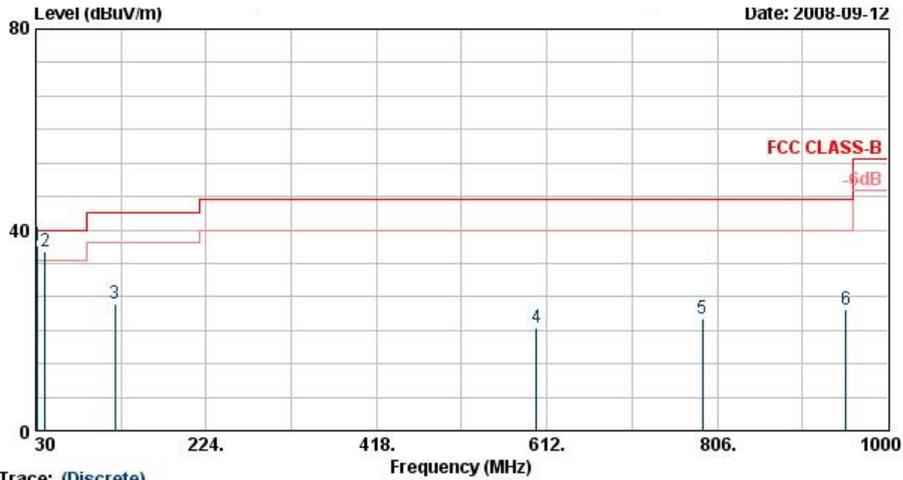


Trace: (Discrete)
 Site : 03CH06-RY
 Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL
 Model : FR 850821

	Freq	Level	Over Limit	Limit Line	Read 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	30.00	22.09	-17.91	40.00	33.69	19.66	0.30	31.56	100	291	Peak
2	54.84	18.68	-21.32	40.00	42.83	7.35	0.40	31.90	---	---	Peak
3	121.53	23.32	-20.18	43.50	41.95	12.60	0.50	31.73	---	---	Peak
4	421.80	21.29	-24.71	46.00	36.31	16.13	0.80	31.96	---	---	Peak
5	768.30	23.14	-22.86	46.00	34.62	19.52	1.10	32.10	---	---	Peak
6	941.90	23.47	-22.53	46.00	32.91	20.83	1.20	31.47	---	---	Peak



Test Mode :	Mode 1	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Vertical
Remark :			

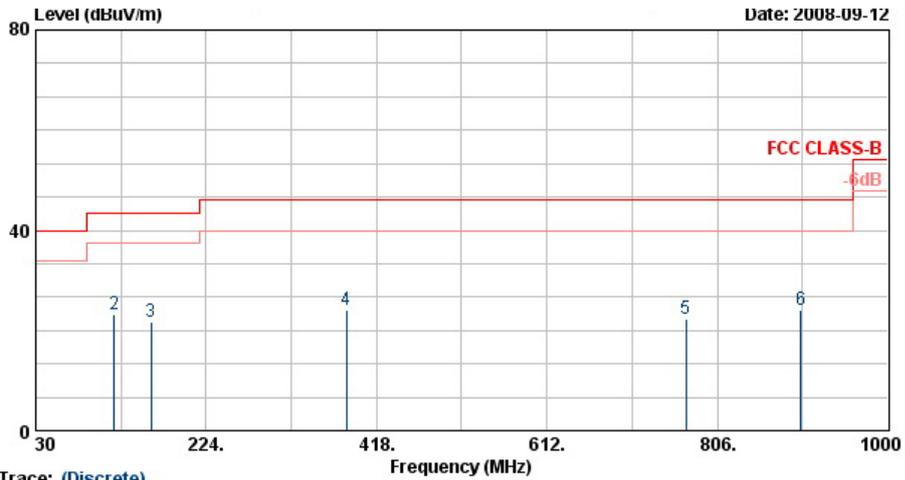


Trace: (Discrete)
 Site : 03CH06-RY
 Condition : FCC CLASS-B 3m LF-ANT(051121) VERTICAL
 Model : FR 850821

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 !	32.43	36.85	-3.15	40.00	50.73	17.54	0.30	31.72	100	148 Peak
2 !	40.53	35.72	-4.28	40.00	54.10	13.01	0.30	31.70	---	---
3	120.18	25.18	-18.32	43.50	43.83	12.58	0.50	31.73	---	---
4	600.30	20.46	-25.54	46.00	33.17	18.47	1.00	32.18	---	---
5	789.30	22.33	-23.67	46.00	33.56	19.72	1.20	32.15	---	---
6	952.40	24.09	-21.91	46.00	33.35	20.90	1.23	31.39	---	---



Test Mode :	Mode 2	Temperature :	26~27°C
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Horizontal
Remark :			

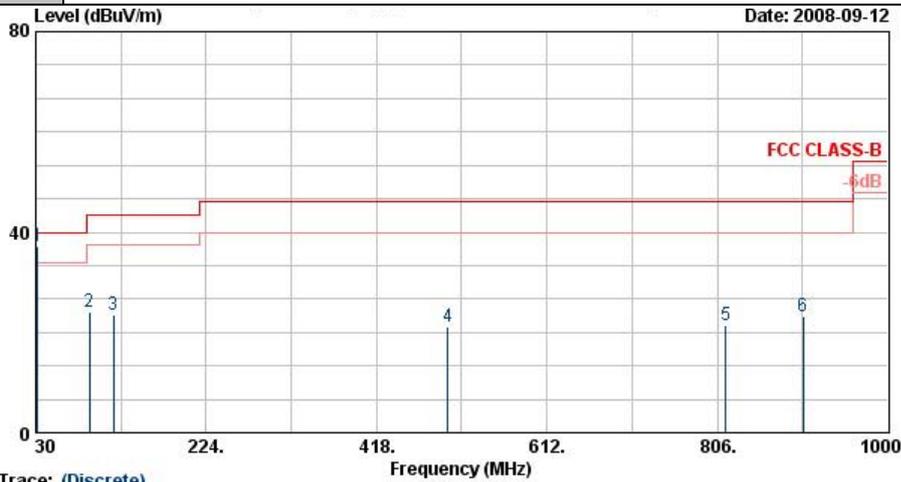


Trace: (Discrete)
 Site : 03CH06-RY
 Condition : FCC CLASS-B 3m LF-ANT(051121) HORIZONTAL
 Model : FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	23.36	-16.64	40.00	34.96	19.66	0.30	31.56	100	132	Peak
2	119.64	23.11	-20.39	43.50	41.85	12.50	0.50	31.74	---	---	Peak
3	161.49	21.68	-21.82	43.50	42.91	10.09	0.60	31.92	---	---	Peak
4	383.30	24.03	-21.97	46.00	39.65	15.34	0.87	31.82	---	---	Peak
5	770.40	22.18	-23.82	46.00	33.65	19.54	1.10	32.11	---	---	Peak
6	901.30	23.96	-22.04	46.00	33.79	20.54	1.30	31.67	---	---	Peak



Test Mode :	Mode 2	Temperature :	26~27°C
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Vertical
Remark :			

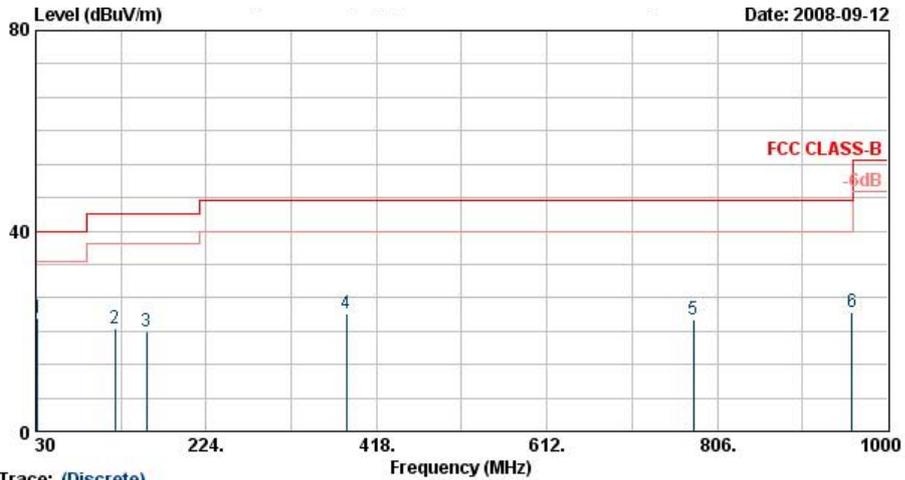


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL
 Model : FR 850821

	Freq	Level	Over Limit	Limit Line	Read 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 !	31.89	37.28	-2.72	40.00	50.40	18.25	0.30	31.67	100	124	QP
2	91.29	24.03	-19.47	43.50	46.42	9.23	0.50	32.12	---	---	Peak
3	118.29	23.56	-19.94	43.50	42.38	12.43	0.50	31.75	---	---	Peak
4	498.80	20.97	-25.03	46.00	34.66	17.40	0.98	32.07	---	---	Peak
5	815.90	21.54	-24.46	46.00	32.66	19.93	1.20	32.25	---	---	Peak
6	903.40	23.31	-22.69	46.00	33.12	20.55	1.30	31.66	---	---	Peak



Test Mode :	Mode 3	Temperature :	26~27°C
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Horizontal
Remark :			



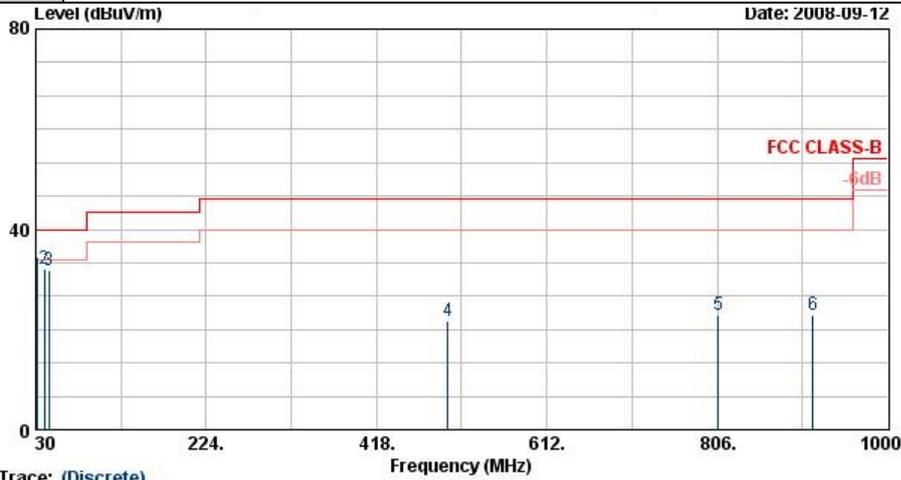
Trace: (Discrete)

Site : 03CH06-RV
 Condition : FCC CLASS-B 3m LF-ANT(051121) HORIZONTAL
 Model : FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	31.89	22.61	-17.39	40.00	35.73	18.25	0.30	31.67	100	152	Peak
2	120.18	20.44	-23.06	43.50	39.09	12.58	0.50	31.73	---	---	Peak
3	156.09	19.91	-23.59	43.50	40.90	10.24	0.60	31.83	---	---	Peak
4	383.30	23.42	-22.58	46.00	39.04	15.34	0.87	31.82	---	---	Peak
5	778.80	22.16	-23.84	46.00	33.47	19.62	1.19	32.13	---	---	Peak
6	959.40	23.94	-22.06	46.00	33.00	20.95	1.29	31.30	---	---	Peak



Test Mode :	Mode 3	Temperature :	26~27°C
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Vertical
Remark :			



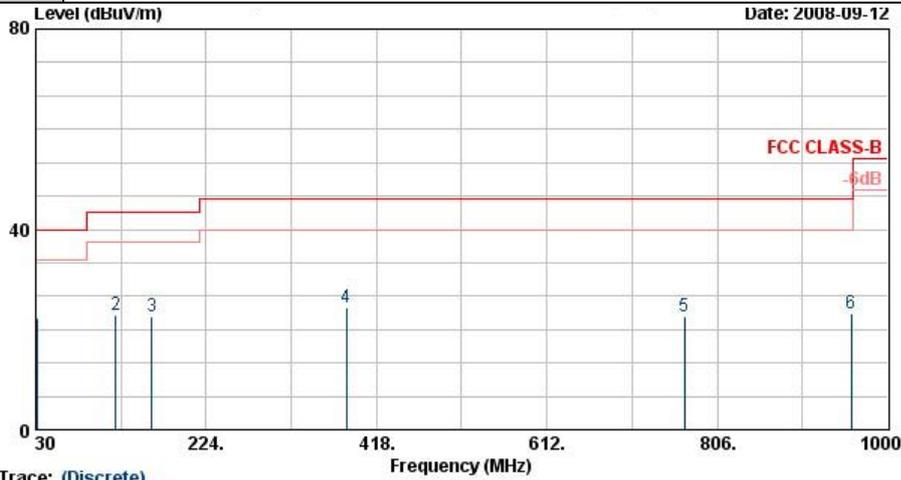
Site :
Condition :
Model :

Trace: (Discrete)
: 03CH06-RY
: FCC CLASS-B 3m LF-ANT(951121) VERTICAL
: FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	31.08	34.47	-5.53	40.00	46.83	18.95	0.30	31.61	100	182	Peak
2	39.99	32.22	-7.78	40.00	50.10	13.51	0.30	31.69	100	92	QP
3	44.58	31.85	-8.15	40.00	52.25	11.02	0.30	31.72	---	---	Peak
4	498.80	21.65	-24.35	46.00	35.34	17.40	0.98	32.07	---	---	Peak
5	806.80	22.85	-23.15	46.00	33.99	19.87	1.20	32.21	---	---	Peak
6	915.30	22.93	-23.07	46.00	32.63	20.64	1.25	31.59	---	---	Peak



Test Mode :	Mode 4	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Horizontal
Remark :			



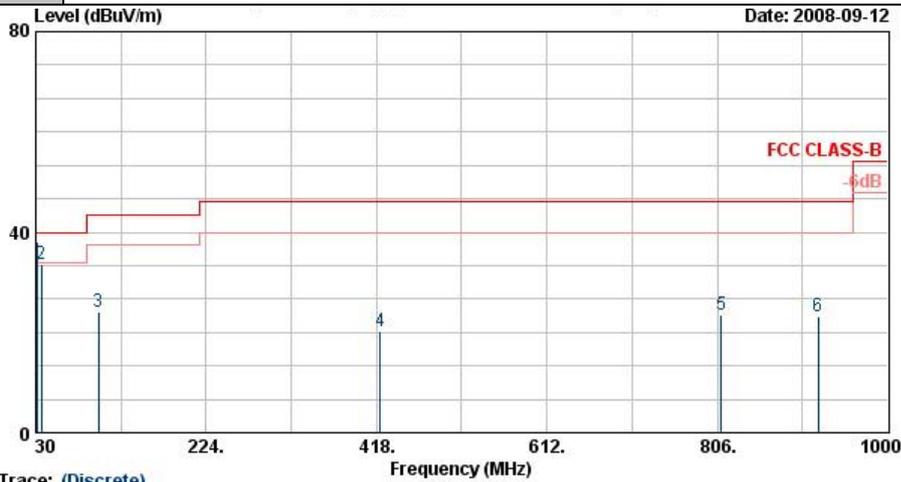
Site :
Condition :
Model :

Trace: (Discrete)
: 03CH06-RY
: FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL
: FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	31.08	22.36	-17.64	40.00	34.72	18.95	0.30	31.61	100	152	Peak
2	120.99	22.80	-20.70	43.50	41.43	12.60	0.50	31.73	---	---	Peak
3	162.03	22.62	-20.88	43.50	43.85	10.09	0.60	31.92	---	---	Peak
4	383.30	24.27	-21.73	46.00	39.88	15.34	0.87	31.82	---	---	Peak
5	768.30	22.66	-23.34	46.00	34.14	19.52	1.10	32.10	---	---	Peak
6	958.70	23.14	-22.86	46.00	32.23	20.94	1.28	31.31	---	---	Peak



Test Mode :	Mode 4	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Vertical
Remark :			

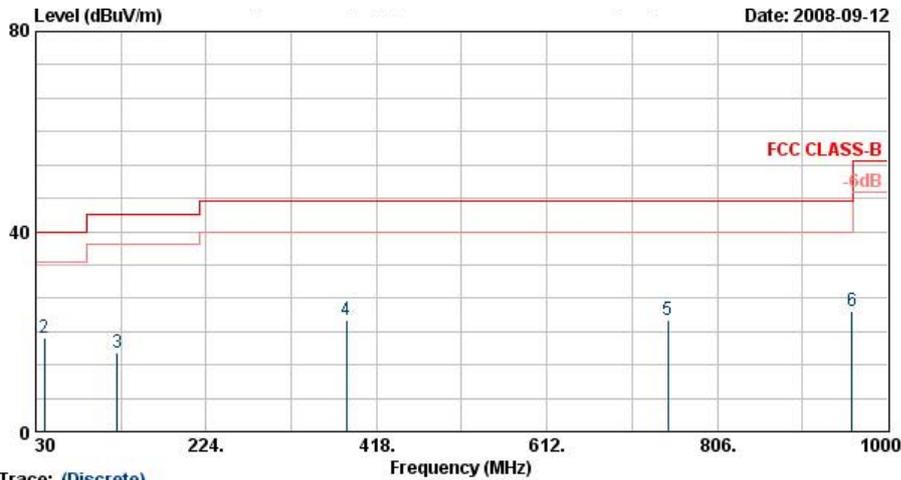


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL
 Model : FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	31.08	38.14	-1.86	40.00	50.50	18.95	0.30	31.61	100	147	QP
2	36.48	33.71	-6.29	40.00	50.10	15.08	0.30	31.77	100	82	QP
3	101.28	24.03	-19.47	43.50	44.49	11.07	0.50	32.02	---	---	Peak
4	421.80	20.22	-25.78	46.00	35.25	16.13	0.80	31.96	---	---	Peak
5	810.30	23.42	-22.58	46.00	34.55	19.89	1.20	32.22	---	---	Peak
6	920.90	23.12	-22.88	46.00	32.82	20.67	1.20	31.57	---	---	Peak



Test Mode :	Mode 5	Temperature :	26~27°C
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Horizontal
Remark :			



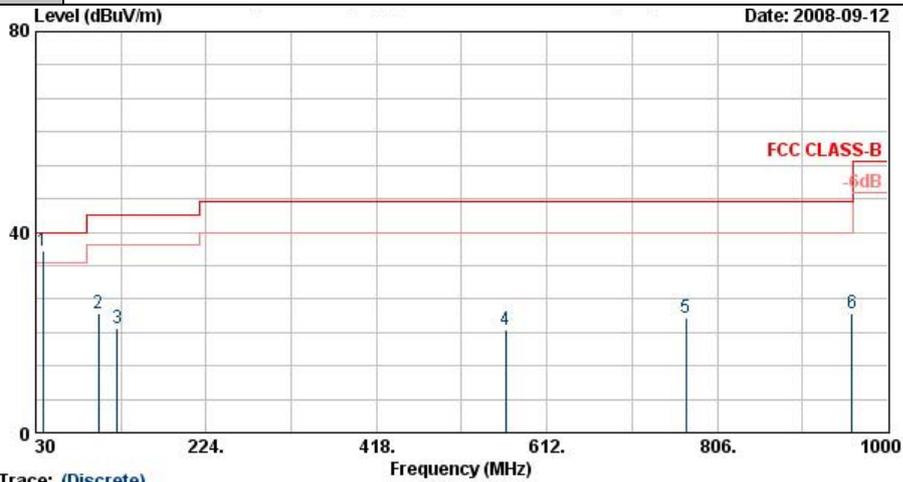
Trace: (Discrete)

Site : 03CH06-RV
 Condition : FCC CLASS-B 3m LF-ANT(051121) HORIZONTAL
 Model : FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	20.76	-19.24	40.00	32.36	19.66	0.30	31.56	100	245	Peak
2	39.99	18.68	-21.32	40.00	36.56	13.51	0.30	31.69	---	---	Peak
3	122.88	15.91	-27.59	43.50	34.50	12.63	0.50	31.72	---	---	Peak
4	383.30	22.35	-23.65	46.00	37.96	15.34	0.87	31.82	---	---	Peak
5	749.40	22.44	-23.56	46.00	34.05	19.35	1.10	32.06	---	---	Peak
6	959.40	23.95	-22.05	46.00	33.00	20.95	1.29	31.30	---	---	Peak



Test Mode :	Mode 5	Temperature :	26~27°C
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Vertical
Remark :			

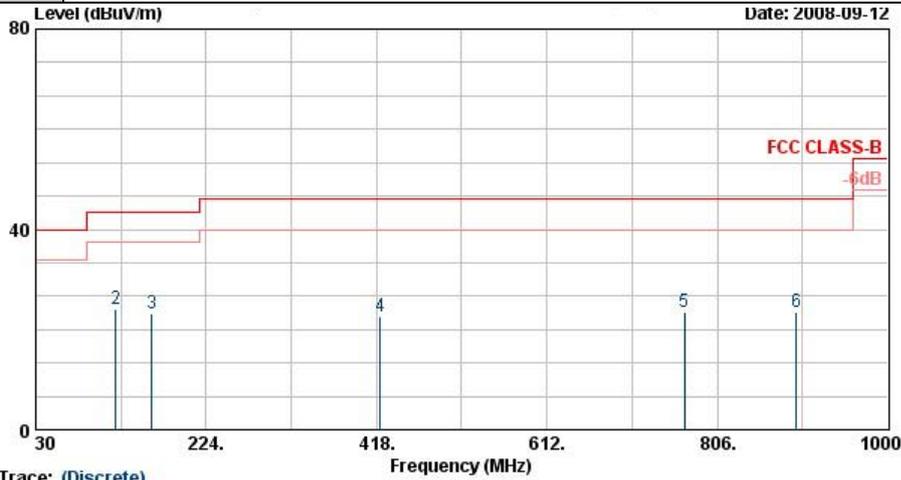


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL
 Model : FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	37.83	36.34	-3.66	40.00	53.22	14.56	0.30	31.75	100	178	Peak
2	101.28	23.85	-19.65	43.50	44.31	11.07	0.50	32.02	---	---	Peak
3	122.88	20.90	-22.60	43.50	39.49	12.63	0.50	31.72	---	---	Peak
4	565.30	20.62	-25.38	46.00	33.66	18.11	1.00	32.14	---	---	Peak
5	770.40	22.82	-23.18	46.00	34.29	19.54	1.10	32.11	---	---	Peak
6	959.40	23.65	-22.35	46.00	32.70	20.95	1.29	31.30	---	---	Peak



Test Mode :	Mode 6	Temperature :	26~27°C
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Horizontal
Remark :			



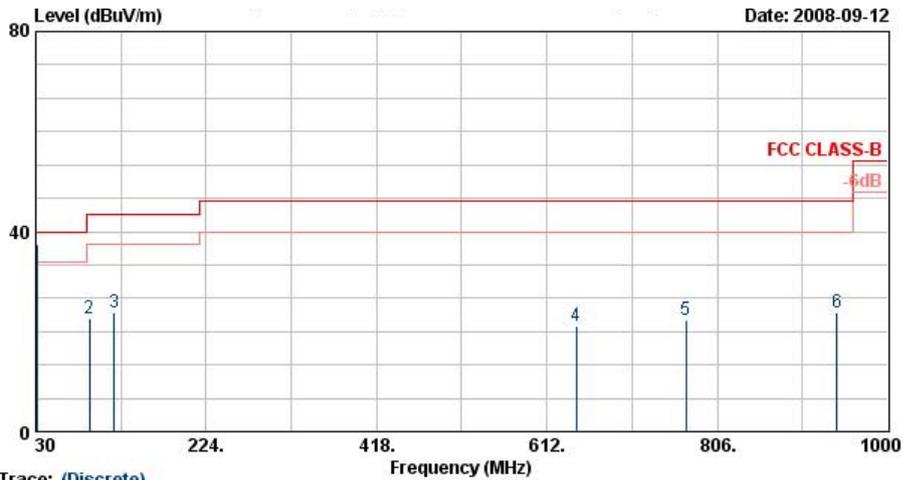
Site :
Condition :
Model :

Trace: (Discrete)
: 03CH06-RY
: FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL
: FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.54	22.50	-17.50	40.00	34.86	18.95	0.30	31.61	100	126	Peak
2	120.99	24.12	-19.38	43.50	42.75	12.60	0.50	31.73	---	---	Peak
3	162.03	23.27	-20.23	43.50	44.50	10.09	0.60	31.92	---	---	Peak
4	421.80	22.63	-23.37	46.00	37.66	16.13	0.80	31.96	---	---	Peak
5	768.30	23.41	-22.59	46.00	34.89	19.52	1.10	32.10	---	---	Peak
6	896.40	23.39	-22.61	46.00	33.31	20.50	1.30	31.73	---	---	Peak



Test Mode :	Mode 6	Temperature :	26~27°C
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Vertical
Remark :			



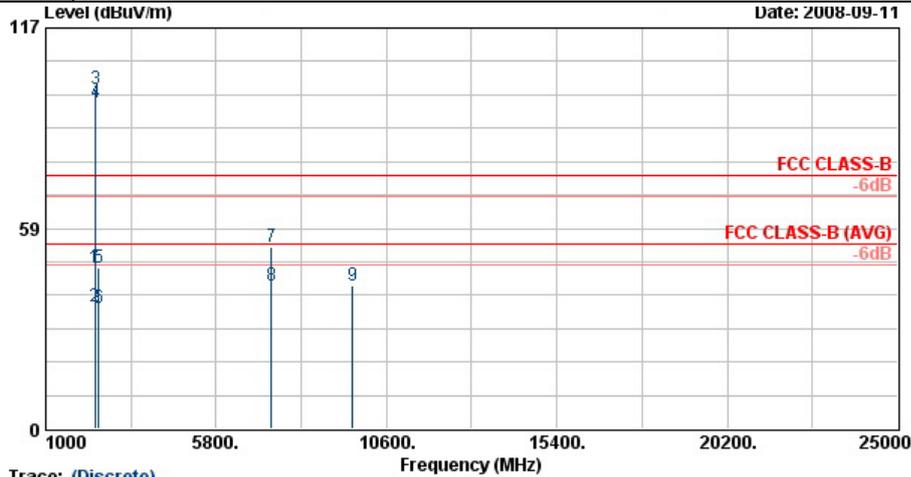
Trace: (Discrete)
 Site : 03CH06-RV
 Condition : FCC CLASS-B 3m LF-ANT(051121) VERTICAL
 Model : FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	31.08	37.34	-2.66	40.00	49.70	18.95	0.30	31.61	100	134	QP
2	91.29	22.74	-20.76	43.50	45.13	9.23	0.50	32.12	---	---	Peak
3	119.64	23.84	-19.66	43.50	42.57	12.50	0.50	31.74	---	---	Peak
4	645.80	21.11	-24.89	46.00	33.25	18.66	1.10	31.90	---	---	Peak
5	770.40	22.17	-23.83	46.00	33.64	19.54	1.10	32.11	---	---	Peak
6	941.90	23.88	-22.12	46.00	33.32	20.83	1.20	31.47	---	---	Peak



3.6.6 Test Result of Radiated Emission $\geq 1\text{GHz}$

Test Mode :	Mode 1	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals		



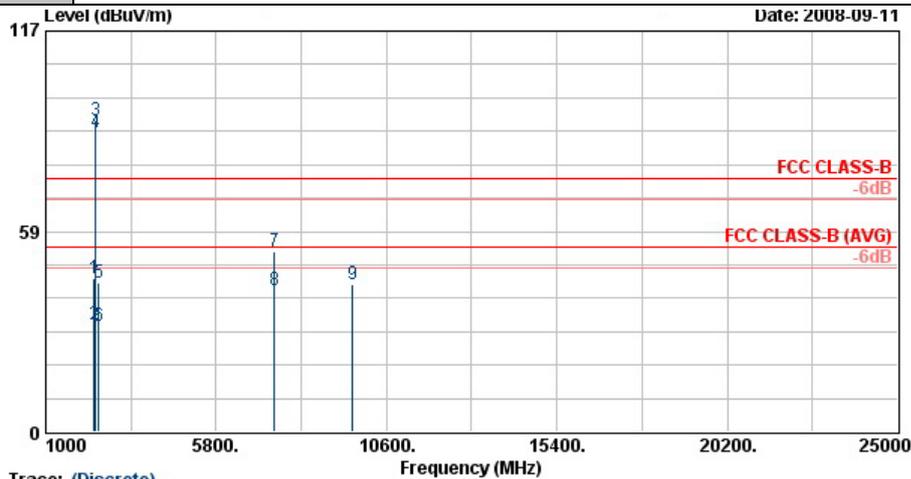
Trace: (Discrete)

Site : 03CH06-RY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Model : FR 850821

	Freq	Level	Over Limit	Limit Line	Read 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	2385.62	46.92	-27.08	74.00	46.70	31.98	3.92	35.68	100	0	Peak
2	2385.62	35.72	-18.28	54.00	35.50	31.98	3.92	35.68	106	338	Average
3 X	2412.00	99.07			98.80	32.00	3.95	35.68	100	0	Peak
4 @	2412.00	95.26			94.99	32.00	3.95	35.68	106	338	Average
5	2500.00	46.77	-27.23	74.00	46.32	32.10	4.05	35.70	100	0	Peak
6	2500.00	35.07	-18.93	54.00	34.62	32.10	4.05	35.70	106	338	Average
7	7356.00	52.87	-21.13	74.00	46.24	35.56	7.22	36.14	100	0	Peak
8	7356.00	41.75	-12.25	54.00	35.12	35.56	7.22	36.14	100	195	Average
9	9648.00	41.69	-32.31	74.00	80.57	-10.09	7.94	36.73	100	0	Peak



Test Mode :	Mode 1	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals		

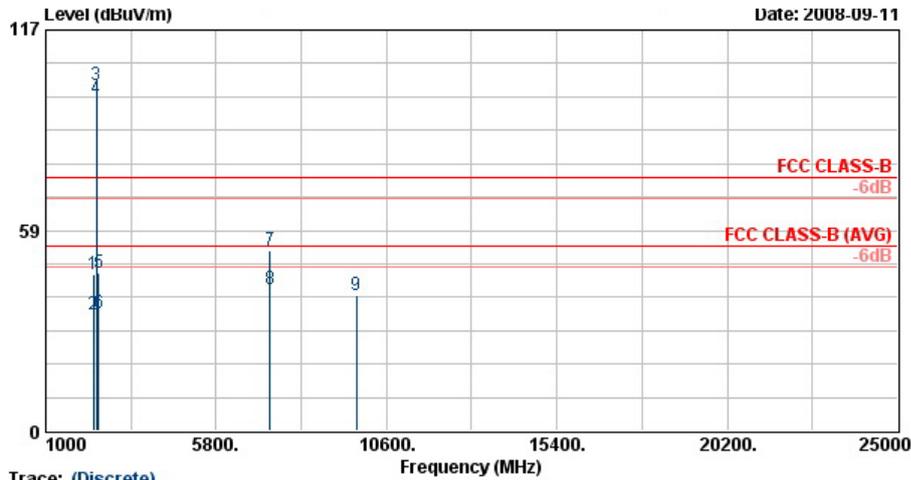


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Model : FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2360.54	44.67	-29.33	74.00	44.45	31.98	3.92	35.68	100	0	Peak
2	2360.54	31.30	-22.70	54.00	31.15	31.93	3.89	35.67	100	314	Average
3 X	2412.00	90.99			90.72	32.00	3.95	35.68	100	0	Peak
4 @	2412.00	87.26			86.99	32.00	3.95	35.68	100	314	Average
5	2484.00	43.52	-30.48	74.00	43.09	32.08	4.05	35.70	100	0	Peak
6	2484.00	30.74	-23.26	54.00	30.31	32.08	4.05	35.70	100	314	Average
7	7446.00	52.49	-21.51	74.00	45.90	35.52	7.25	36.18	100	0	Peak
8	7446.00	41.41	-12.59	54.00	34.82	35.52	7.25	36.18	100	132	Average
9	9648.00	43.04	-30.96	74.00	81.89	-10.07	7.94	36.73	100	0	Peak



Test Mode :	Mode 2	Temperature :	26~27°C
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals		

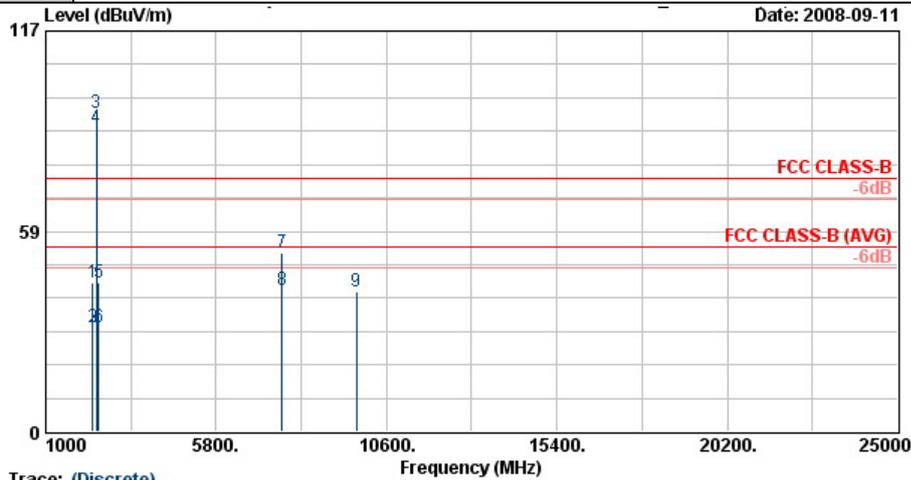


Trace: (Discrete)
 Site : 03CH06-RY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Model : FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2350.00	45.56	-28.44	74.00	45.46	31.91	3.86	35.67	100	0	Peak
2	2350.00	33.90	-20.10	54.00	33.80	31.91	3.86	35.67	103	334	Average
3 X	2437.00	101.06			100.73	32.04	3.99	35.69	100	0	Peak
4 @	2437.00	96.98			96.64	32.04	3.99	35.69	103	334	Average
5	2486.00	46.02	-27.98	74.00	45.58	32.08	4.05	35.70	100	0	Peak
6	2486.00	34.56	-19.44	54.00	34.13	32.08	4.05	35.70	103	334	Average
7	7326.00	52.64	-21.36	74.00	46.00	35.57	7.21	36.13	100	0	Peak
8	7326.00	41.46	-12.54	54.00	34.81	35.57	7.21	36.13	100	201	Average
9	9748.00	39.41	-34.59	74.00	78.03	-9.85	7.98	36.75	100	0	Peak



Test Mode :	Mode 2	Temperature :	26~27°C
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals		

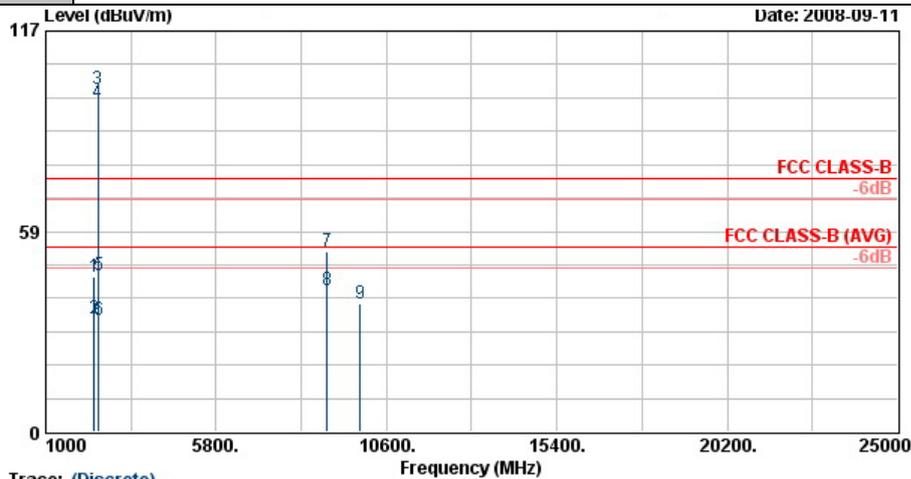


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Model : FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2318.00	43.60	-30.40	74.00	43.55	31.89	3.82	35.67	100	0	Peak
2	2318.00	30.47	-23.53	54.00	30.42	31.89	3.82	35.67	102	261	Average
3 X	2437.00	92.97			92.63	32.04	3.99	35.69	100	0	Peak
4 @	2437.00	88.74			88.40	32.04	3.99	35.69	102	261	Average
5	2500.00	43.32	-30.68	74.00	42.87	32.10	4.05	35.70	100	0	Peak
6	2500.00	30.48	-23.52	54.00	30.03	32.10	4.05	35.70	102	261	Average
7	7656.00	52.38	-21.62	74.00	45.70	35.57	7.34	36.23	100	0	Peak
8	7656.00	41.20	-12.80	54.00	34.52	35.57	7.34	36.23	100	291	Average
9	9748.00	40.88	-33.12	74.00	79.50	-9.85	7.98	36.75	100	0	Peak



Test Mode :	Mode 3	Temperature :	26~27°C
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals		

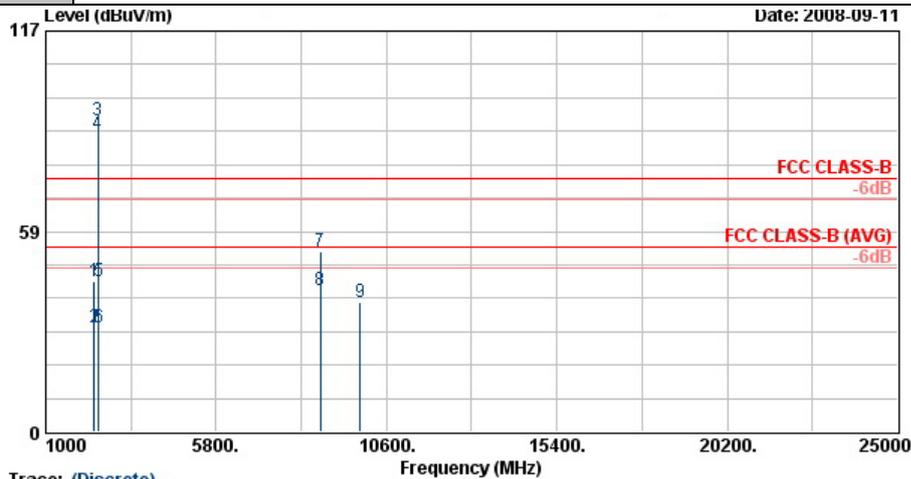


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Model : FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2358.00	45.18	-28.82	74.00	45.02	31.93	3.89	35.67	100	0	Peak
2	2358.00	32.98	-21.02	54.00	32.83	31.93	3.89	35.67	103	325	Average
3 X	2462.00	100.07			99.68	32.06	4.02	35.69	100	0	Peak
4 @	2462.00	96.10			95.71	32.06	4.02	35.69	103	325	Average
5	2483.66	45.54	-28.46	74.00	45.11	32.08	4.05	35.70	100	0	Peak
6	2483.66	32.71	-21.29	54.00	32.28	32.08	4.05	35.70	103	325	Average
7	8931.00	52.73	-21.27	74.00	45.44	36.13	7.71	36.56	100	0	Peak
8	8931.00	41.50	-12.50	54.00	34.21	36.13	7.71	36.56	100	271	Average
9	9848.00	37.31	-36.69	74.00	75.67	-9.63	8.04	36.77	100	0	Peak



Test Mode :	Mode 3	Temperature :	26~27°C
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals		

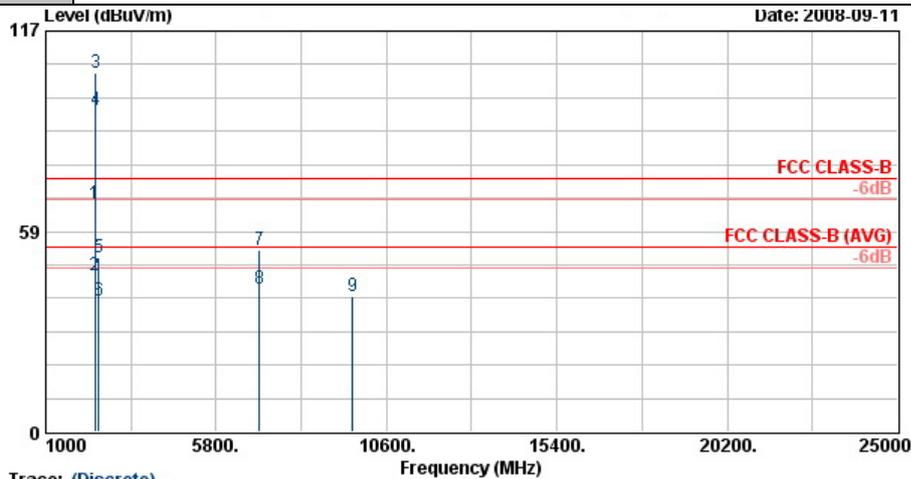


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Model : FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2358.00	43.77	-30.23	74.00	43.62	31.93	3.89	35.67	100	0	Peak
2	2358.00	30.27	-23.73	54.00	30.12	31.93	3.89	35.67	100	262	Average
3 X	2462.00	91.11			90.72	32.06	4.02	35.69	100	0	Peak
4 @	2462.00	87.20			86.81	32.06	4.02	35.69	100	262	Average
5	2493.54	43.82	-30.18	74.00	43.39	32.08	4.05	35.70	100	0	Peak
6	2493.54	30.47	-23.53	54.00	30.02	32.10	4.05	35.70	100	262	Average
7	8736.00	52.50	-21.50	74.00	45.53	35.93	7.48	36.44	100	0	Peak
8	8736.00	41.12	-12.88	54.00	34.15	35.93	7.48	36.44	100	121	Average
9	9848.00	37.65	-36.35	74.00	76.01	-9.63	8.04	36.77	100	0	Peak



Test Mode :	Mode 4	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals		



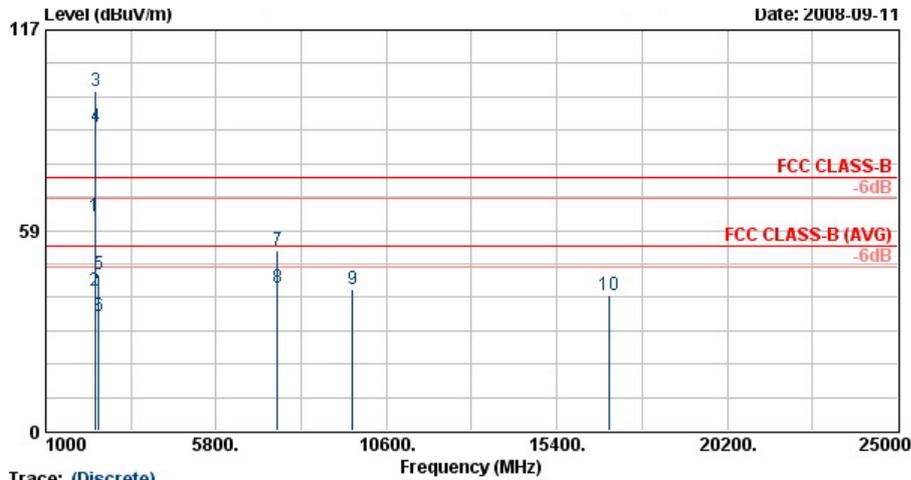
Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Model : FR 850821

Trace: (Discrete)

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	2389.99	66.54	-7.46	74.00	66.32	31.98	3.92	35.68	100	0 Peak
2	2389.99	45.82	-8.18	54.00	45.60	31.98	3.92	35.68	105	337 Average
3 X	2412.00	104.97			104.70	32.00	3.95	35.68	100	0 Peak
4 @	2412.00	94.16			93.89	32.00	3.95	35.68	105	337 Average
5	2494.00	50.72	-23.28	74.00	50.27	32.10	4.05	35.70	100	0 Peak
6	2494.00	38.13	-15.87	54.00	37.68	32.10	4.05	35.70	105	337 Average
7	7017.00	52.85	-21.15	74.00	46.07	35.69	7.10	36.01	100	0 Peak
8	7017.00	41.90	-12.10	54.00	35.12	35.69	7.10	36.01	100	193 Average
9	9642.00	39.65	-34.35	74.00	78.53	-10.09	7.94	36.73	---	--- Peak



Test Mode :	Mode 4	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals		

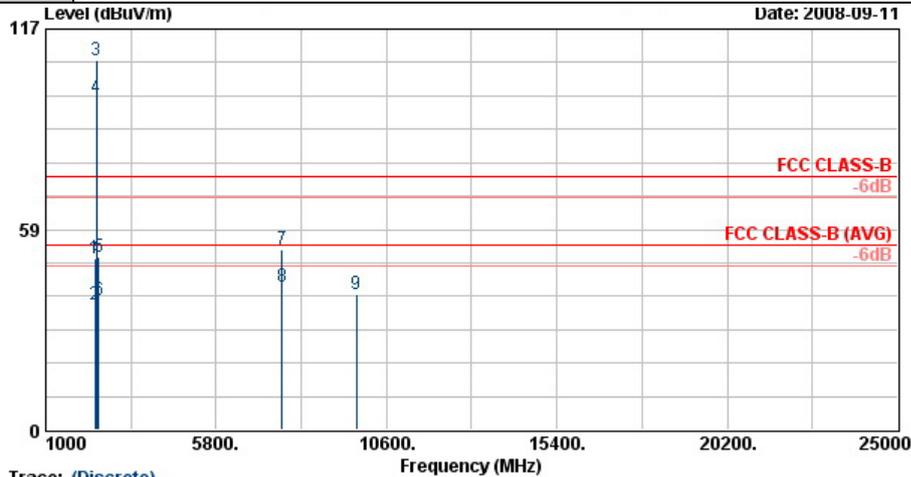


Trace: (Discrete)
 Site : 03CH06-RY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Model : FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2389.99	62.63	-11.37	74.00	62.41	31.98	3.92	35.68	100	0	Peak
2	2389.99	40.71	-13.29	54.00	40.49	31.98	3.92	35.68	100	313	Average
3 X	2412.00	99.03			98.76	32.00	3.95	35.68	100	0	Peak
4 @	2412.00	88.71			88.44	32.00	3.95	35.68	100	313	Average
5	2492.00	45.71	-28.29	74.00	45.26	32.10	4.05	35.70	100	0	Peak
6	2492.00	33.60	-20.40	54.00	33.15	32.10	4.05	35.70	100	313	Average
7	7527.00	52.83	-21.17	74.00	46.24	35.51	7.28	36.21	100	0	Peak
8	7527.00	41.73	-12.27	54.00	35.14	35.51	7.28	36.21	100	75	Average
9	9642.00	41.48	-32.52	74.00	80.36	-10.09	7.94	36.73	---	---	Peak
10	16884.00	39.58	-34.42	74.00	74.94	-10.10	10.66	35.93	100	0	Peak



Test Mode :	Mode 5	Temperature :	26~27°C
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals		

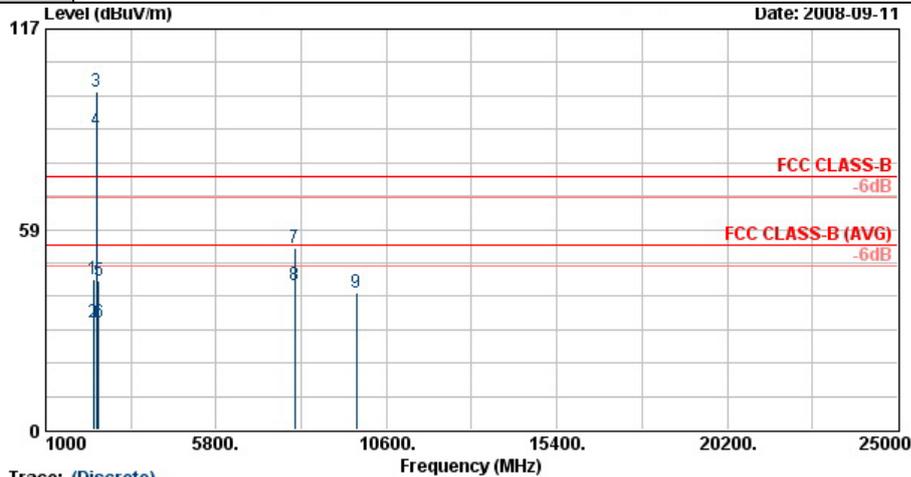


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Model : FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2388.00	49.99	-24.01	74.00	49.77	31.98	3.92	35.68	100	0	Peak
2	2388.00	36.73	-17.27	54.00	36.51	31.98	3.92	35.68	103	334	Average
3 @	2437.00	107.67			107.34	32.04	3.99	35.69	100	0	Peak
4 @	2437.00	96.89			96.55	32.04	3.99	35.69	103	334	Average
5	2484.00	50.62	-23.38	74.00	50.19	32.08	4.05	35.70	100	0	Peak
6	2484.00	37.76	-16.24	54.00	37.33	32.08	4.05	35.70	103	334	Average
7	7656.00	52.69	-21.31	74.00	46.02	35.57	7.34	36.23	100	0	Peak
8	7656.00	41.83	-12.17	54.00	35.15	35.57	7.34	36.23	100	201	Average
9	9748.00	39.60	-34.40	74.00	78.25	-9.89	7.98	36.75	100	0	Peak



Test Mode :	Mode 5	Temperature :	26~27°C
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals		

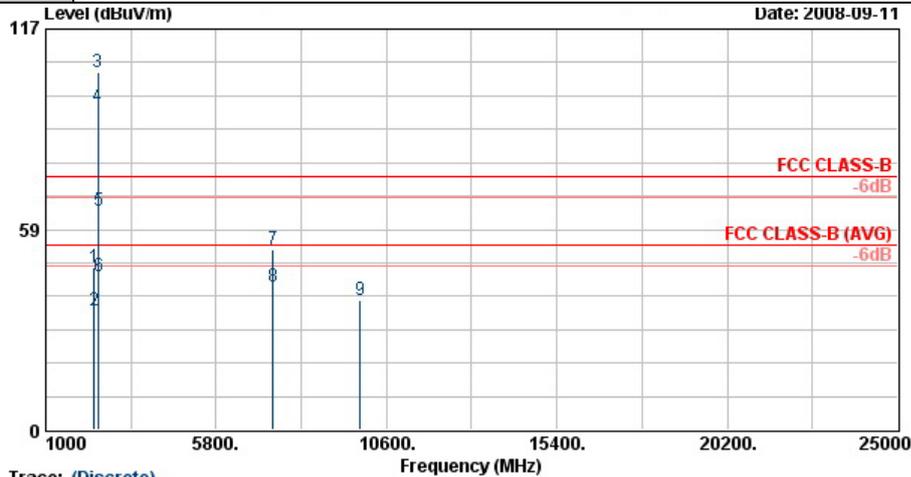


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Model : FR 850821

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2348.00	43.81	-30.19	74.00	43.71	31.91	3.86	35.67	100	0	Peak
2	2348.00	31.51	-22.49	54.00	31.41	31.91	3.86	35.67	100	262	Average
3 X	2437.00	98.80			98.46	32.04	3.99	35.69	100	0	Peak
4 @	2437.00	87.43			87.09	32.04	3.99	35.69	100	262	Average
5	2484.00	43.38	-30.62	74.00	42.94	32.08	4.05	35.70	100	0	Peak
6	2484.00	31.20	-22.80	54.00	30.77	32.08	4.05	35.70	100	262	Average
7	8007.00	53.12	-20.88	74.00	46.20	35.70	7.52	36.30	100	0	Peak
8	8007.00	42.10	-31.90	74.00	35.18	35.70	7.52	36.30	100	248	Average
9	9748.00	39.97	-34.03	74.00	78.59	-9.85	7.98	36.75	100	0	Peak



Test Mode :	Mode 6	Temperature :	26~27°C
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals		



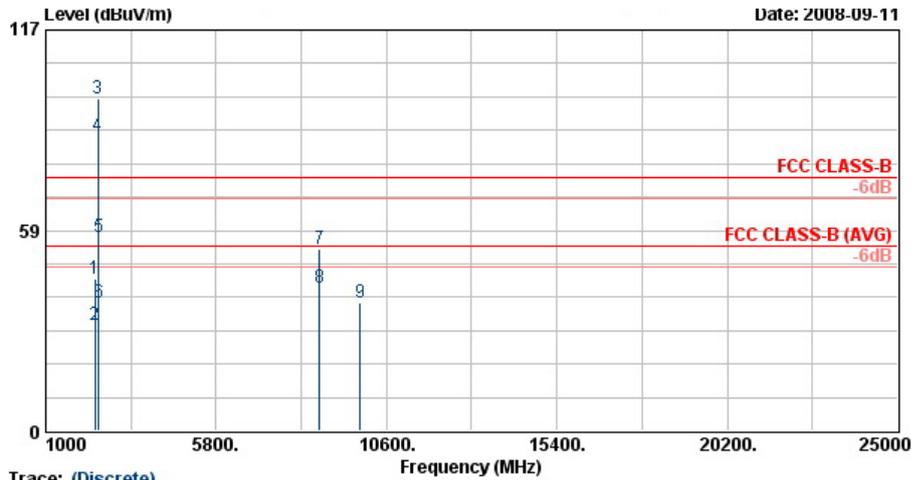
Site :
Condition :
Model :
Memo :

Trace: (Discrete)
: 03CH06-HY
: FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
: FR 850821
: Mode 6

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2366.00	47.44	-26.56	74.00	47.29	31.93	3.89	35.68	100	0	Peak
2	2366.00	34.98	-19.02	54.00	34.83	31.93	3.89	35.68	102	340	Average
3 X	2462.00	104.60			104.21	32.06	4.02	35.69	100	0	Peak
4 @	2462.00	94.17			93.78	32.06	4.02	35.69	102	340	Average
5	2483.50	63.98	-10.02	74.00	63.55	32.08	4.05	35.70	100	0	Peak
6	2483.50	44.76	-9.24	54.00	44.33	32.08	4.05	35.70	102	340	Average
7	7392.00	52.66	-21.34	74.00	46.06	35.54	7.23	36.16	100	0	Peak
8	7392.00	41.73	-12.27	54.00	35.12	35.54	7.23	36.16	100	107	Average
9	9848.00	37.94	-36.06	74.00	76.31	-9.63	8.04	36.77	100	0	Peak



Test Mode :	Mode 6	Temperature :	26~27°C
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Sun Wang	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals		



Trace: (Discrete)

Site : 03CH06-RY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Model : FR 850821

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg	
1	2380.00	44.23	-29.77	74.00	44.03	31.96	3.92	35.68	100	0 Peak
2	2380.00	31.08	-22.92	54.00	30.88	31.96	3.92	35.68	100	259 Average
3 X	2462.00	96.83			96.45	32.06	4.02	35.70	100	0 Peak
4 @	2462.00	86.28			85.89	32.06	4.02	35.69	100	259 Average
5	2483.66	56.74	-17.26	74.00	56.31	32.08	4.05	35.70	100	0 Peak
6	2483.66	37.41	-16.59	54.00	36.98	32.08	4.05	35.70	100	259 Average
7	8712.00	52.89	-21.11	74.00	45.95	35.92	7.45	36.42	100	0 Peak
8	8712.00	41.76	-12.24	54.00	34.82	35.92	7.45	36.42	100	291 Average
9	9848.00	37.25	-36.75	74.00	75.61	-9.63	8.04	36.77	100	0 Peak



3.7 Antenna Requirements

3.7.1 Standard Applicable

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. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.7.2 Antenna Connected Construction

The antennas type used in this product is PCB antenna without connector and it is considered to meet antenna requirement.

3.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum	R&S	FSP40	100055	9KHz~40GHz	Jun. 26, 2008	Jun. 25, 2009	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 21, 2008	Feb. 20, 2009	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 21, 2008	Feb. 20, 2009	Conducted (TH02-HY)
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)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	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	00066583	1G~18GHz	Aug. 18, 2008	Aug. 17, 2009	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Training Research	AF-0801	95119	8G~18GHz	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH06-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-251	14G - 40GHz	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G - 26.5GHz	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)

5 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= $20\log(1-\Gamma_1*\Gamma_2)$	+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				

6 Certification of TAF Accreditation



Certificate No. : L1180-070110

財團法人全國認證基金會
Taiwan Accreditation Foundation

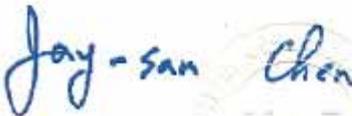
Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	: ISO/IEC 17025:2005
Accreditation Number	: 1190
Originally Accredited	: December 15, 2003
Effective Period	: January 10, 2007 to January 09, 2010
Accredited Scope	: Testing Field, see described in the Appendix Accreditation Program for Designated Testing Laboratory
Specific Accreditation Program	: for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory


Jay-San Chen
President, Taiwan Accreditation Foundation
Date : January 10, 2007

PI, total 9 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when used without the Appendix.



Appendix A. Photographs of EUT

Please refer to Sporton report number EP850821 as below.