

FCC Test Report

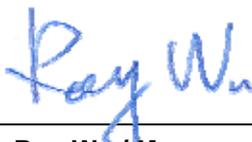
EQUIPMENT : Smart Phone
MODEL NAME : MAPL100
FCC ID : NM8MAPL100
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)
APPLICANT : HTC Corporation

No. 23, Xinghua Rd., Taoyuan City, Taiwan

The product sample received on Feb. 03, 2009 and completely tested on Mar. 06, 2009. 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.



TABLE OF CONTENTS

REVISION HISTORY..... 3

SUMMARY OF TEST RESULT 4

1 GENERAL DESCRIPTION 5

 1.1 Applicant 5

 1.2 Manufacturer..... 5

 1.3 Feature of Equipment Under Test 5

 1.4 Testing Site..... 6

 1.5 Applied Standards 6

 1.6 Ancillary Equipment List 6

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST 7

 2.1 Pre-Scanned RF Power..... 7

 2.2 Test Mode..... 8

 2.3 Connection Diagram of Test System..... 9

 2.4 RF Utility 9

3 TEST RESULT..... 10

 3.1 6dB and 99% Bandwidth Measurement 10

 3.2 Output Power Measurement..... 18

 3.3 Band Edges Measurement..... 23

 3.4 Spurious Emission Measurement..... 28

 3.5 Power Spectral Density Measurement 35

 3.6 AC Conducted Emission Measurement..... 40

 3.7 Radiated Emission Measurement..... 44

 3.8 Antenna Requirements..... 71

4 LIST OF MEASURING EQUIPMENT 72

5 UNCERTAINTY OF EVALUATION 73

6 CERTIFICATION OF TAF ACCREDITATION 75

APPENDIX A. PHOTOGRAPHS OF EUT

APPENDIX B. SETUP PHOTOGRAPHS

**SUMMARY OF TEST RESULT**

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	Gen 4.4.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Power Output	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 15.1 dB at 0.366 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.16 dB at 2389.99 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

HTC Corporation
No. 23, Xinghua Rd., Taoyuan City, Taiwan

1.2 Manufacturer

HTC Corporation
1F, No. 6-3, Baoqiang Rd, Xindian City, Taipei, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Smart Phone
PDA Phone 1	EUT with LCM 1
PDA Phone 2	EUT with LCM 2
Model Name	MAPL100
FCC ID	NM8MAPL100
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: 18.70 dBm / 74.13 mW 802.11g : 16.73 dBm / 47.10 mW
Antenna Type	PIFA Antenna with gain 0 dBi
Type of Antenna Connector	N/A
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

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

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), recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	GPS Base Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DWL-7100AP	KA22003040018-1	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Cellink	BTHS-6025-F	PQY-4710874200357	N/A	N/A



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

2.4GHz 802.11b RF Power (dBm)					
Channel	Frequency (MHz)	Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	17.51	17.97	18.06	17.97
CH 06	2437 MHz	18.35	18.36	18.41	18.33
CH 11	2462 MHz	18.62	18.50	18.58	18.48

802.11g

2.4GHz 802.11g RF Power (dBm)									
Channel	Frequency (MHz)	Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	14.94	14.84	13.96	13.90	13.40	13.48	12.82	12.86
CH 06	2437 MHz	15.22	15.15	14.20	14.25	13.56	13.72	13.10	13.12
CH 11	2462 MHz	15.35	15.28	14.43	14.40	13.73	13.56	13.39	13.23

Remark:

1. For WLAN RF power, the pre-scanned RF power was measured by power meter.
2. The 802.11b data rates were set in 1 Mbps and 802.11g data rates were set in 6 Mbps for all the test cases, due to the highest RF output power.
3. The EUT is programmed to transmit signal continuously for all testing.

2.2 Test Mode

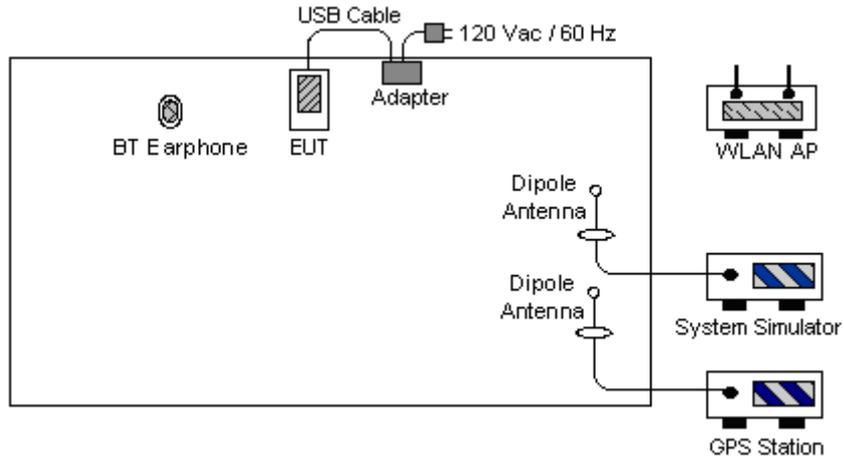
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic 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.

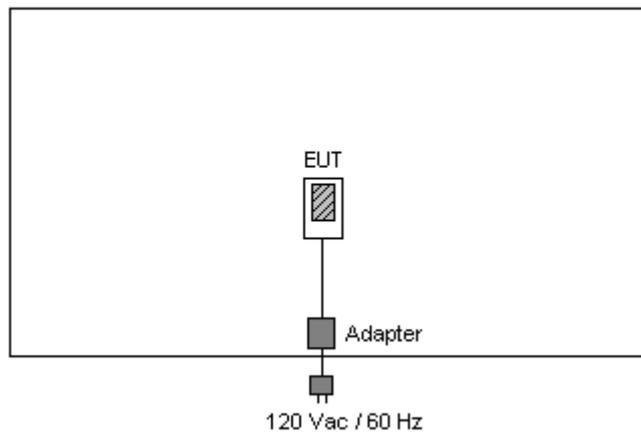
Test Cases		
Test Item	802.11b Modulation : DSSS	802.11g Modulation : OFDM
Conducted TCs	<ul style="list-style-type: none"> ■ Mode 1: CH01_2412 MHz ■ Mode 2: CH06_2437 MHz ■ Mode 3: CH11_2462 MHz 	<ul style="list-style-type: none"> ■ Mode 4: CH01_2412 MHz ■ Mode 5: CH06_2437 MHz ■ Mode 6: CH11_2462 MHz
Radiated TCs	<ul style="list-style-type: none"> ■ Mode 1: CH01_2412 MHz for PDA Phone1 ■ Mode 2: CH06_2437 MHz for PDA Phone 1 ■ Mode 3: CH11_2462 MHz for PDA Phone 1 ■ Mode 4: CH01_2412 MHz for PDA Phone 2 	<ul style="list-style-type: none"> ■ Mode 5: CH01_2412 MHz for PDA Phone 1 ■ Mode 6: CH06_2437 MHz for PDA Phone 1 ■ Mode 7: CH11_2462 MHz for PDA Phone1 ■ Mode 8: CH01_2412 MHz for PDA Phone 2
AC Conducted Emission	<p>Mode 1 : GSM850 Idle + BT Link + WLAN Link + GPS Rx + USB Cable 2 + Battery 3 + Adapter for PDA Phone 1</p> <p>Mode 2 : GSM850 Idle + BT Link + WLAN Link + GPS Rx + USB Cable 2 + Battery 3 + Adapter for PDA Phone 2</p> <p>Remark:</p> <ol style="list-style-type: none"> 1. The worst case of conducted emission is mode 1; only the test data of it was reported. 2. The worst case of radiated emission is mode 1~3, 5~7; only these test data were reported. 	

2.3 Connection Diagram of Test System

<Conducted Emission>



<Radiated Emission >



2.4 RF Utility

The programmed RF Utility, "WLAN_EMAPI", 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 and 99% Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

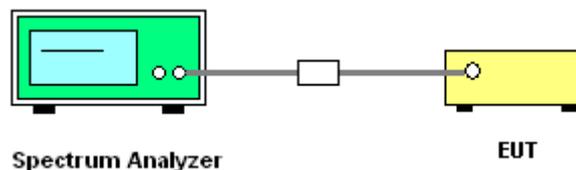
3.1.2 Measuring Instruments

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 :	27~28
Test Engineer :	James Huang	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	10.08	0.5	Pass
06	2437	10.08	0.5	Pass
11	2462	10.08	0.5	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	27~28
Test Engineer :	James Huang	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.36	0.5	Pass
06	2437	16.36	0.5	Pass
11	2462	16.36	0.5	Pass

3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	27~28
Test Engineer :	James Huang	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	14.64	Pass
06	2437	14.52	Pass
11	2462	14.52	Pass

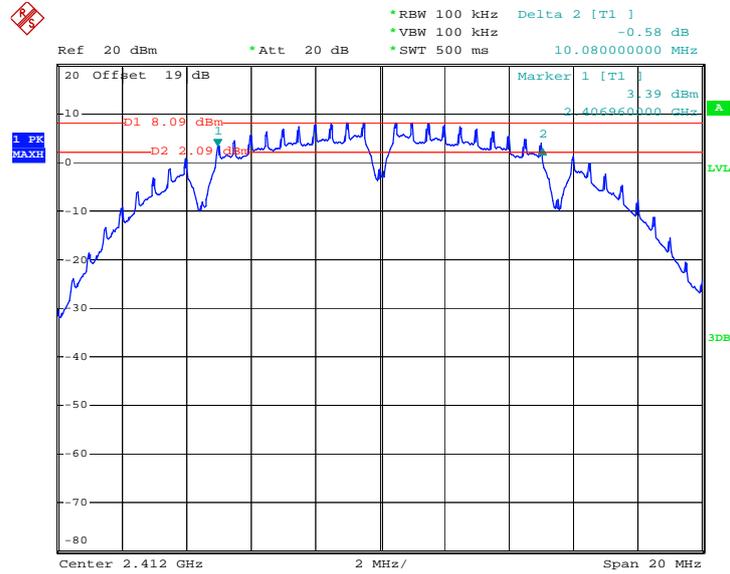
Test Mode :	Mode 4, 5, 6	Temperature :	27~28
Test Engineer :	James Huang	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	16.64	Pass
06	2437	16.64	Pass
11	2462	16.64	Pass



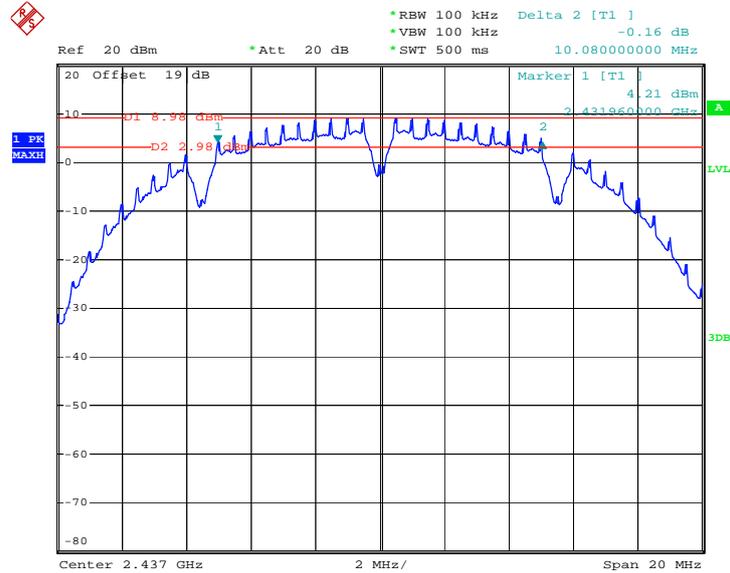
3.1.7 Test Result of 6dB Bandwidth Plots

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



Date: 23.FEB.2009 05:45:26

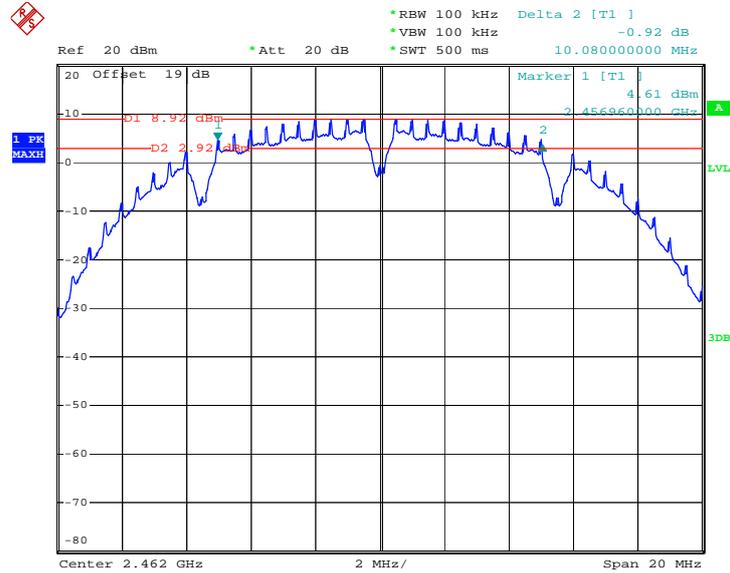
Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 23.FEB.2009 05:46:13

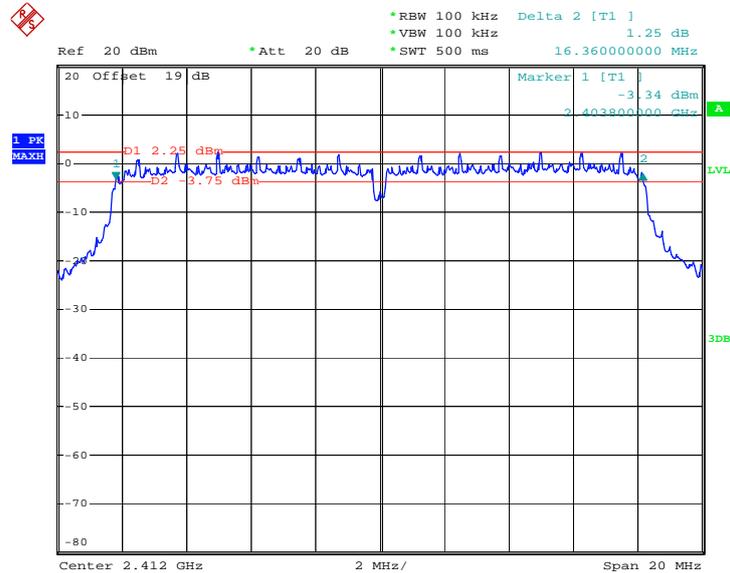


Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



Date: 23.FEB.2009 05:47:14

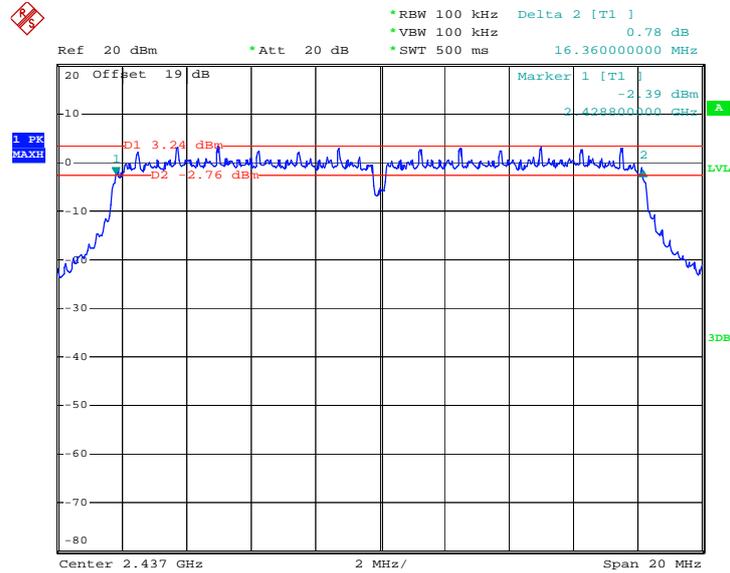
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 23.FEB.2009 05:37:44

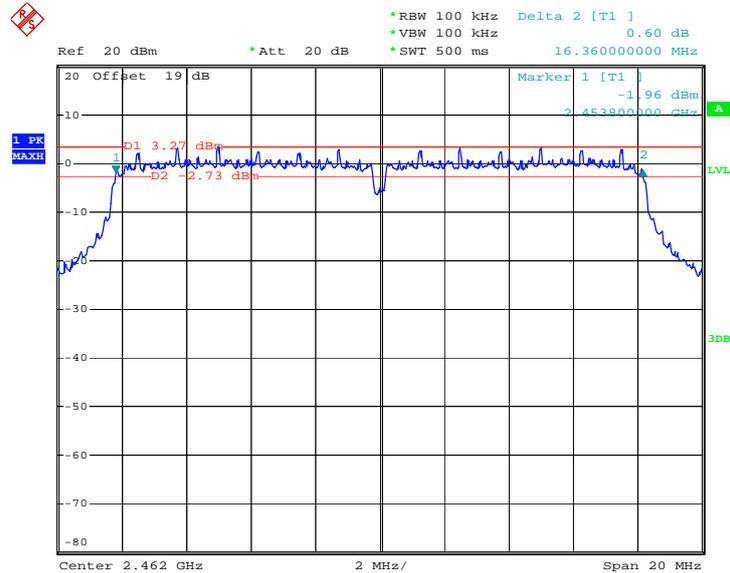


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 23.FEB.2009 05:36:47

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

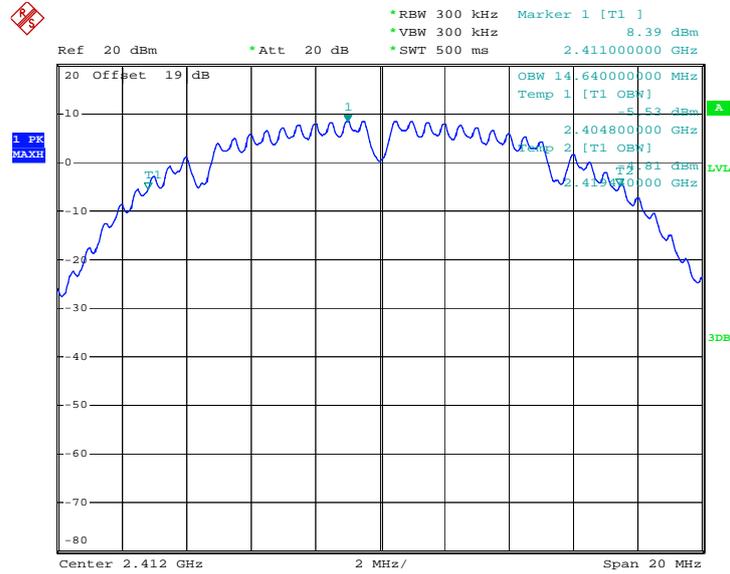


Date: 23.FEB.2009 05:35:47



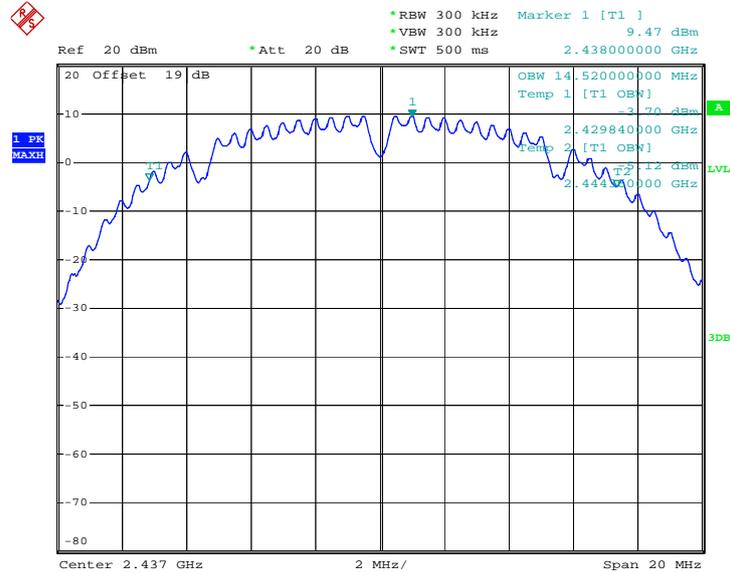
3.1.8 Test Result of 99% Bandwidth Plots

Mode 1 : 99% Occupied Bandwidth Plot on 802.11b Channel 01



Date: 23.FEB.2009 05:30:15

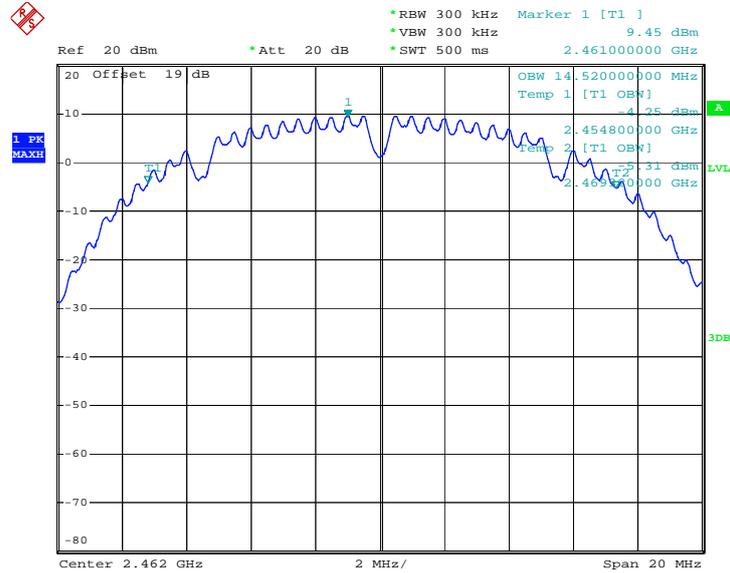
Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



Date: 23.FEB.2009 05:31:23

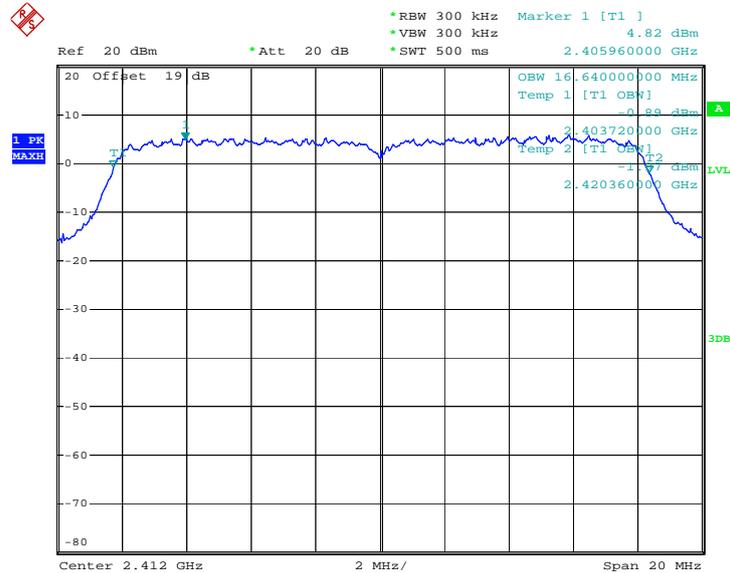


Mode 3 : 99% Occupied Bandwidth Plot on 802.11b Channel 11



Date: 23.FEB.2009 05:31:44

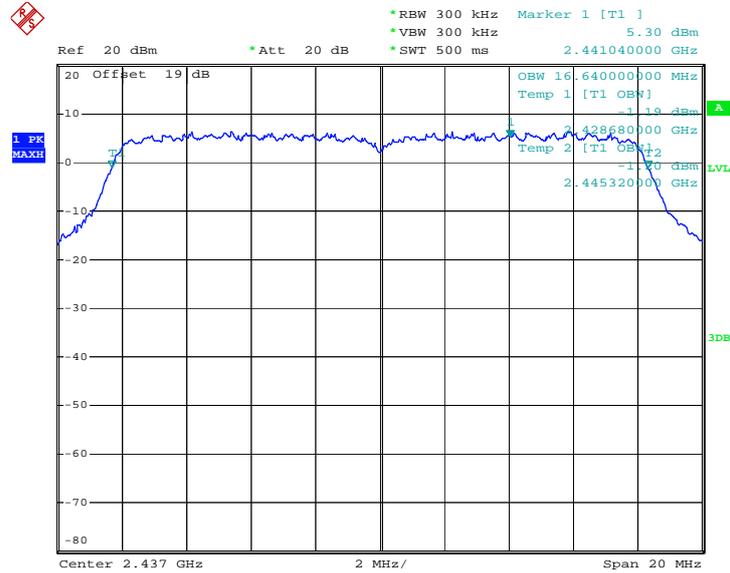
Mode 4 : 99% Occupied Bandwidth Plot on 802.11g Channel 01



Date: 23.FEB.2009 05:32:23

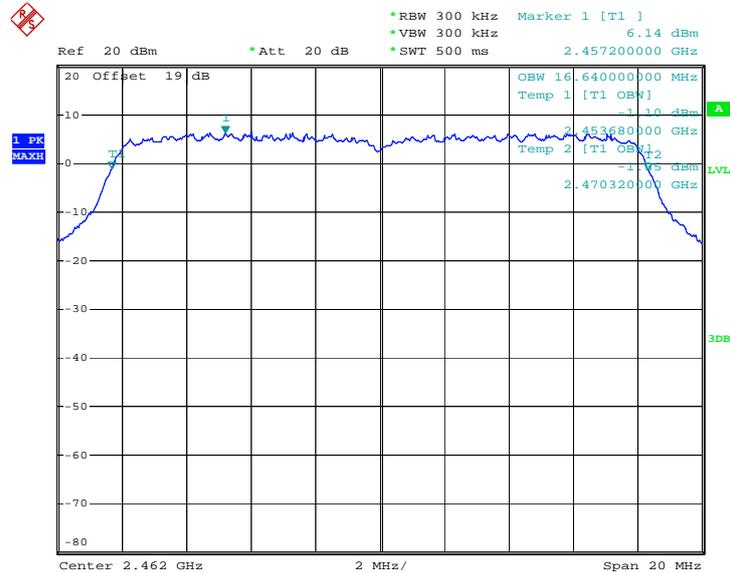


Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



Date: 23.FEB.2009 05:32:48

Mode 6 : 99% Occupied Bandwidth Plot on 802.11g Channel 11



Date: 23.FEB.2009 05:33:24

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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.

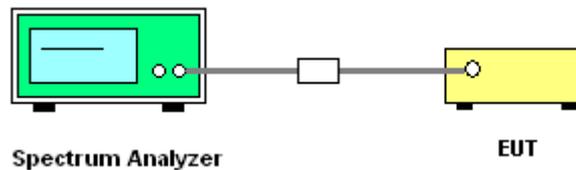
3.2.2 Measuring Instruments

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 by spectrum analyzer.

3.2.4 Test Setup





3.2.5 Test Result of Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	27~28°C
Test Engineer :	James Huang	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	17.57	30	Pass
06	2437	18.70	30	Pass
11	2462	18.34	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	27~28°C
Test Engineer :	James Huang	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	15.82	30	Pass
06	2437	16.65	30	Pass
11	2462	16.73	30	Pass



3.2.6 Test Result of Output Power Plots

Mode 1 : Output Power Plot on 802.11b Channel 01



Date: 23.FEB.2009 05:59:11

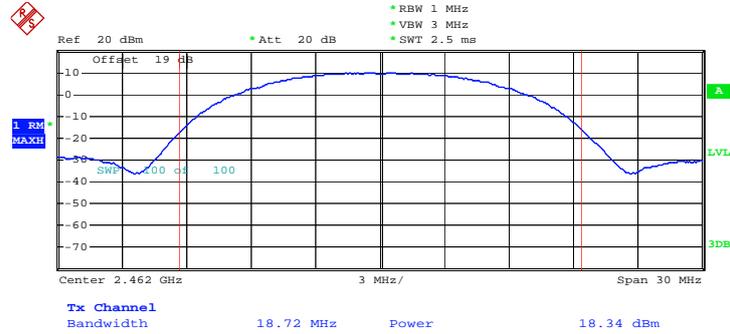
Mode 2 : Output Power Plot on 802.11b Channel 06



Date: 23.FEB.2009 05:59:53

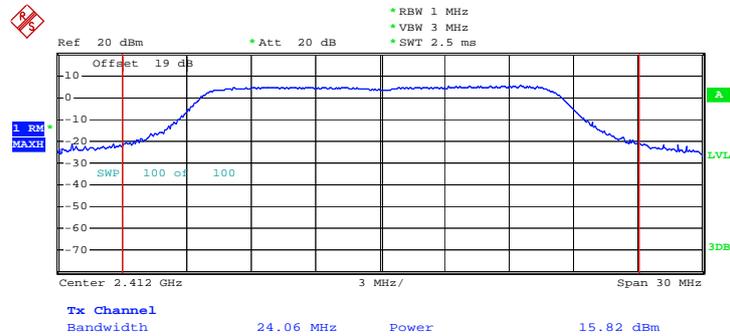


Mode 3 : Output Power Plot on 802.11b Channel 11



Date: 23.FEB.2009 06:01:07

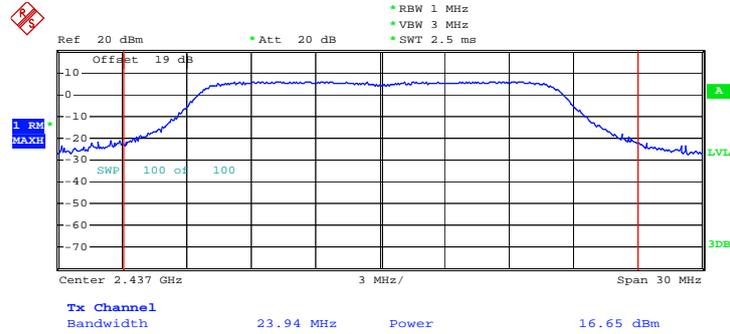
Mode 4 : Output Power Plot on 802.11g Channel 01



Date: 23.FEB.2009 06:03:43

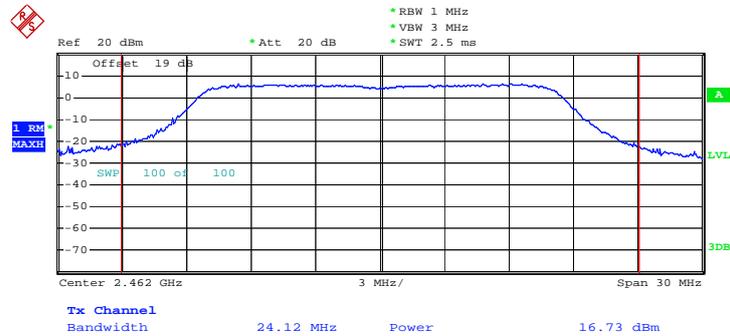


Mode 5 : Output Power Plot on 802.11g Channel 06



Date: 23.FEB.2009 06:02:39

Mode 6 : Output Power Plot on 802.11g Channel 11



Date: 23.FEB.2009 06:01:48

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.

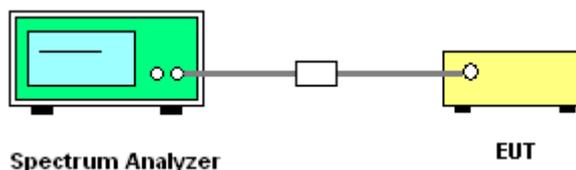
3.3.2 Measuring Instruments

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 :	27~28°C
Test Band :	802.11b	Relative Humidity :	48~49%
Test Channel :	01	Test Engineer :	Mac Lin

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
2389.42	55.81	-18.19	74	56.19	31.98	3.92	36.28	107	29	Peak
2389.42	43.33	-10.67	54	43.71	31.98	3.92	36.28	107	29	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
2389.42	49.64	-24.36	74	50.02	31.98	3.92	36.28	100	315	Peak
2389.42	37.64	-16.36	54	38.02	31.98	3.92	36.28	100	315	Average

Test Mode :	Mode 3	Temperature :	27~28°C
Test Band :	802.11b	Relative Humidity :	48~49%
Test Channel :	11	Test Engineer :	Mac Lin

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
2483.5	52.45	-21.55	74	52.61	32.08	4.05	36.29	105	31	Peak
2483.5	39.99	-14.01	54	40.15	32.08	4.05	36.29	105	31	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
2483.5	48.74	-25.26	74	48.9	32.08	4.05	36.29	119	312	Peak
2483.5	35.84	-18.16	54	36	32.08	4.05	36.29	119	312	Average



Test Mode :	Mode 5	Temperature :	27~28°C
Test Band :	802.11g	Relative Humidity :	48~49%
Test Channel :	01	Test Engineer :	Mac Lin

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	70.84	-3.16	74	71.22	31.98	3.92	36.28	109	44	Peak
2389.99	47.04	-6.96	54	47.42	31.98	3.92	36.28	109	44	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	66.73	-7.27	74	67.11	31.98	3.92	36.28	126	295	Peak
2389.99	43.34	-10.66	54	43.72	31.98	3.92	36.28	126	295	Average

Test Mode :	Mode 7	Temperature :	27~28°C
Test Band :	802.11g	Relative Humidity :	48~49%
Test Channel :	11	Test Engineer :	Mac Lin

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
2483.5	65.76	-8.24	74	65.92	32.08	4.05	36.29	105	29	Peak
2483.5	42.66	-11.34	54	42.82	32.08	4.05	36.29	105	29	Average

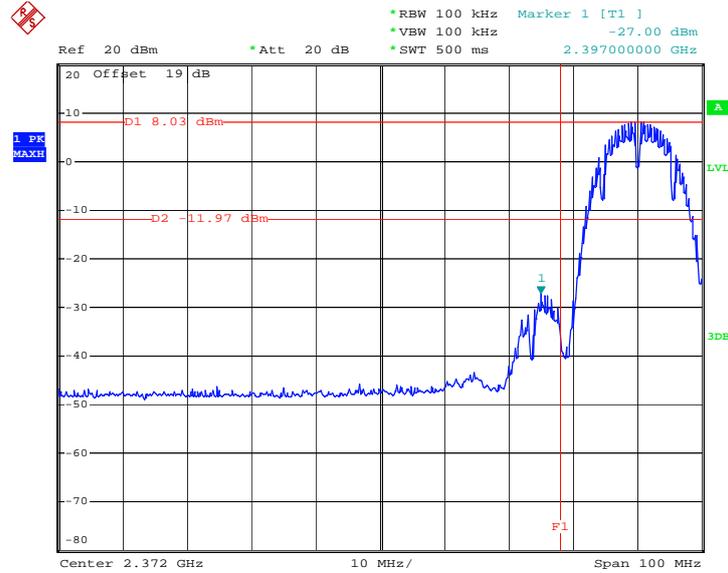
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	56.43	-17.57	74	56.59	32.08	4.05	36.29	127	293	Peak
2483.5	37.66	-16.34	54	37.82	32.08	4.05	36.29	127	293	Average



3.3.6 Test Result of Conducted Band Edges

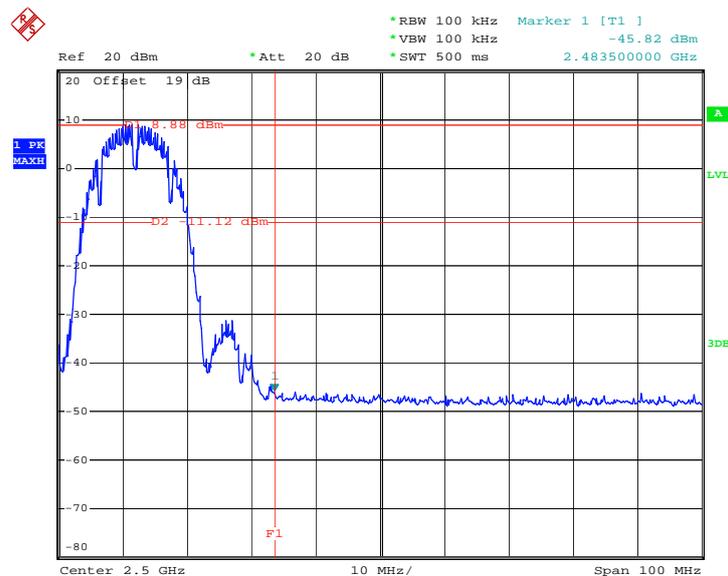
Test Mode :	Mode 1 and 3	Temperature :	27~28
Test Band :	802.11b	Relative Humidity :	48~49%
Test Channel :	01 and 11	Test Engineer :	James Huang

Low Band Edge Plot on 802.11b Channel 01



Date: 23.FEB.2009 05:43:54

High Band Edge Plot on 802.11b Channel 11

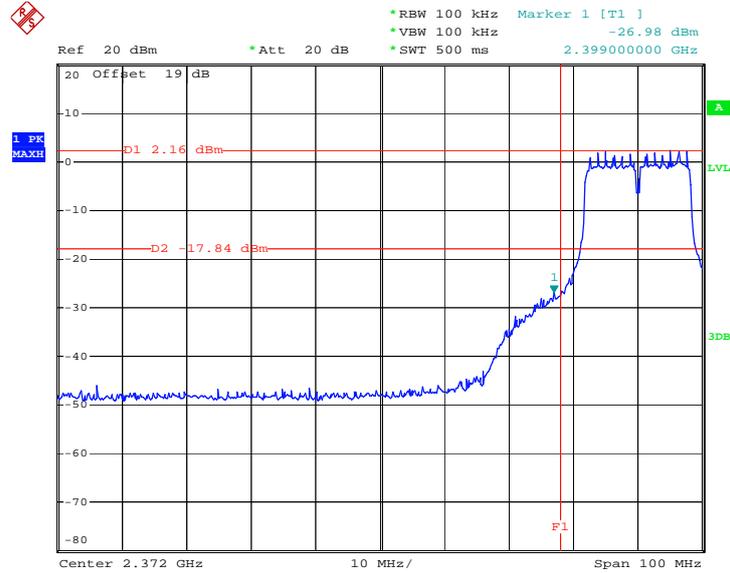


Date: 23.FEB.2009 05:41:56



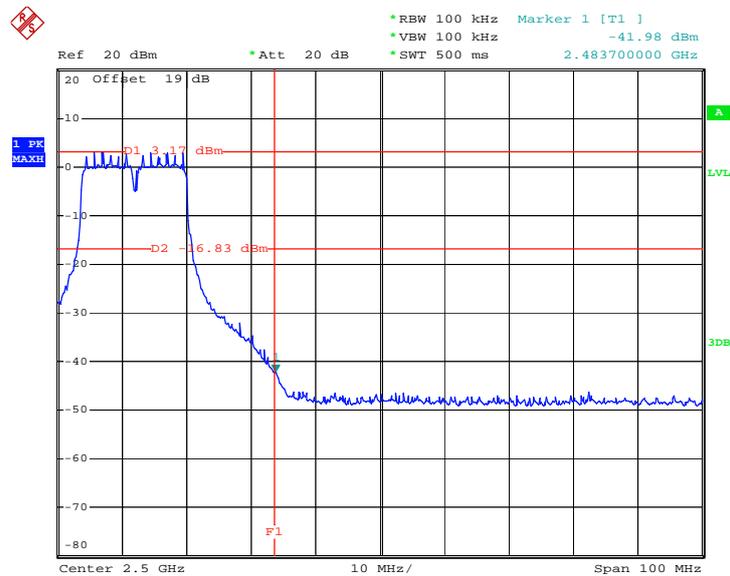
Test Mode :	Mode 4 and 6	Temperature :	27~28
Test Band :	802.11g	Relative Humidity :	48~49%
Test Channel :	01 and 11	Test Engineer :	James Huang

Low Band Edge Plot on 802.11g Channel 01



Date: 23.FEB.2009 05:39:05

High Band Edge Plot on 802.11g Channel 11



Date: 23.FEB.2009 05:40:15

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band.

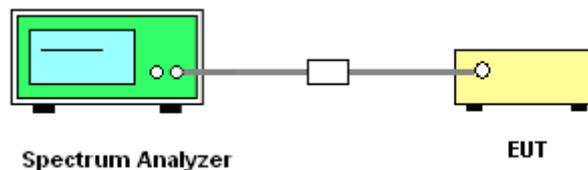
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) \geq RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

3.4.4 Test Setup

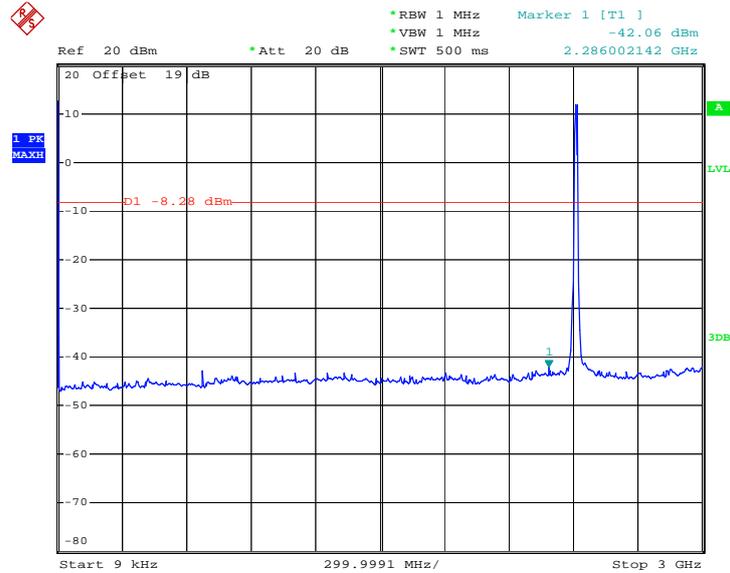




3.4.5 Test Result

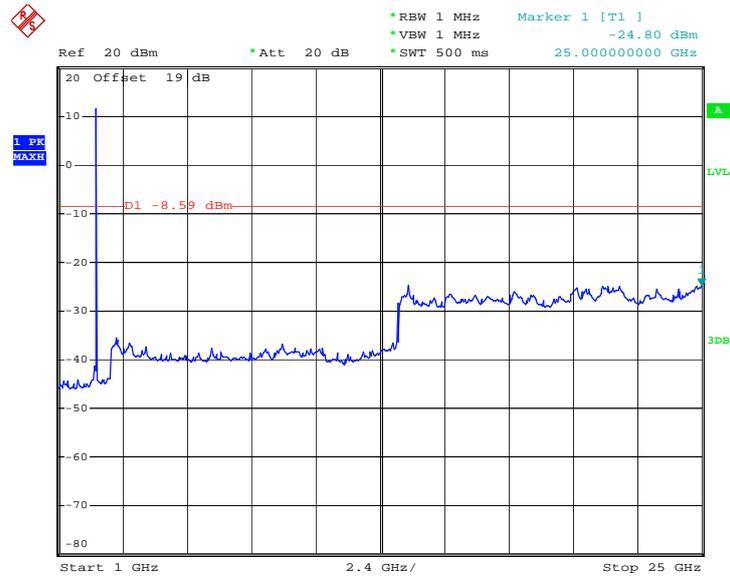
Test Mode :	Mode 1	Temperature :	27~28°C
Test Channel :	01	Relative Humidity :	48~49%
		Test Engineer :	James Huang

Conducted Spurious Emission Plot between 9k-3G



Date: 25.FEB.2009 17:24:59

Conducted Spurious Emission Plot between 1G-25G

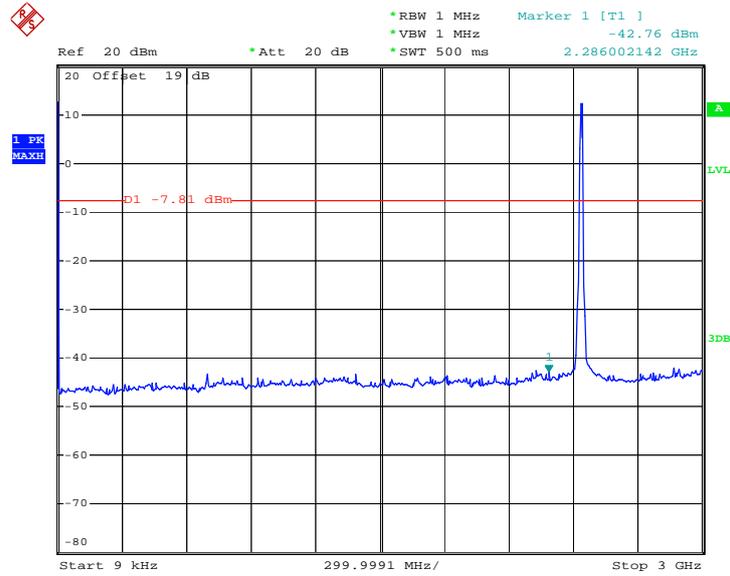


Date: 25.FEB.2009 17:42:58



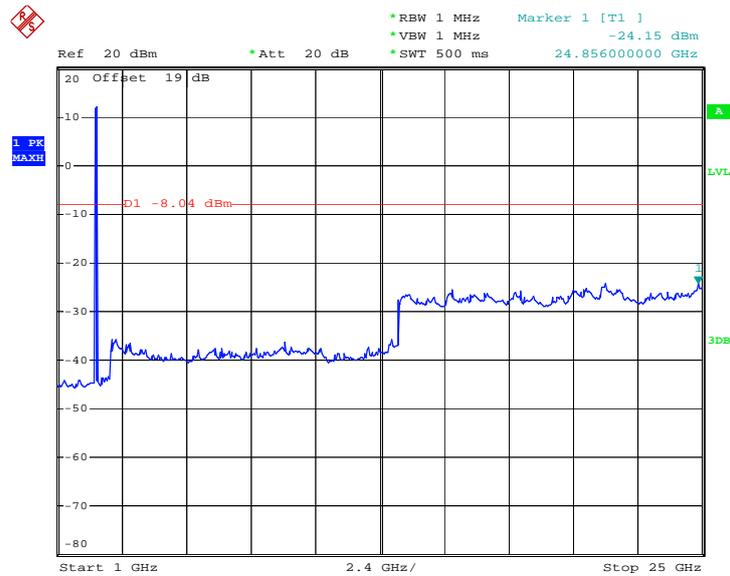
Test Mode :	Mode 2	Temperature :	27~28°C
Test Channel :	06	Relative Humidity :	48~49%
		Test Engineer :	James Huang

Conducted Spurious Emission Plot between 9k-3G



Date: 25.FEB.2009 17:26:01

Conducted Spurious Emission Plot between 1G-25G

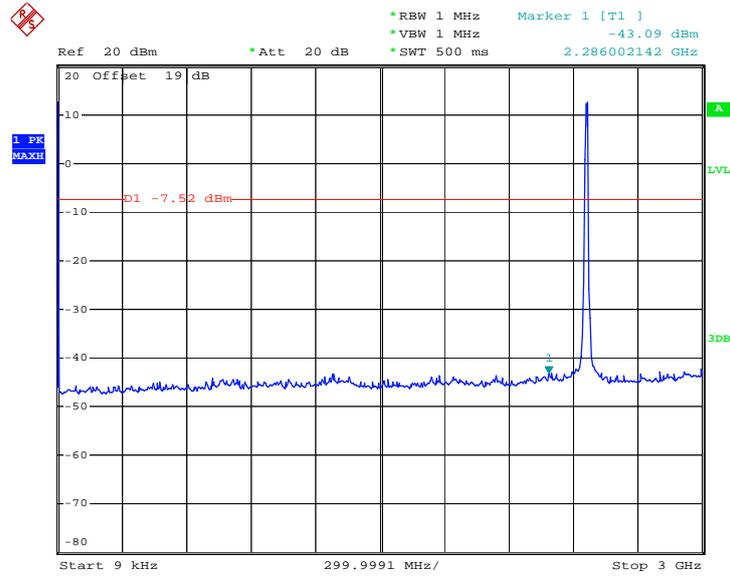


Date: 25.FEB.2009 17:44:50



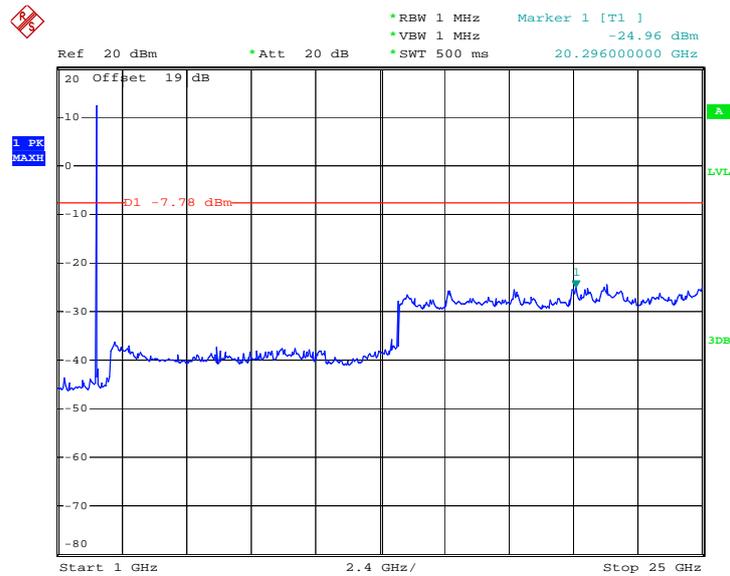
Test Mode :	Mode 3	Temperature :	27~28°C
Test Channel :	11	Relative Humidity :	48~49%
		Test Engineer :	James Huang

Conducted Spurious Emission Plot between 9k-3G



Date: 25.FEB.2009 17:27:58

Conducted Spurious Emission Plot between 1G-25G

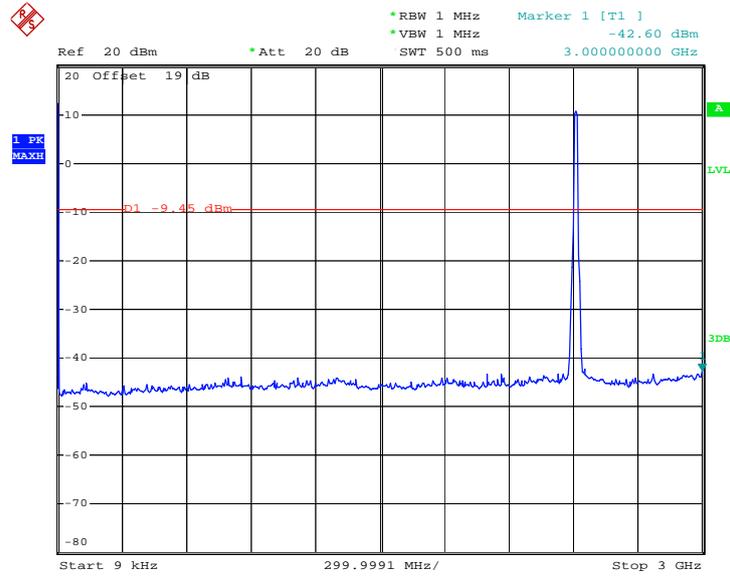


Date: 25.FEB.2009 17:45:35



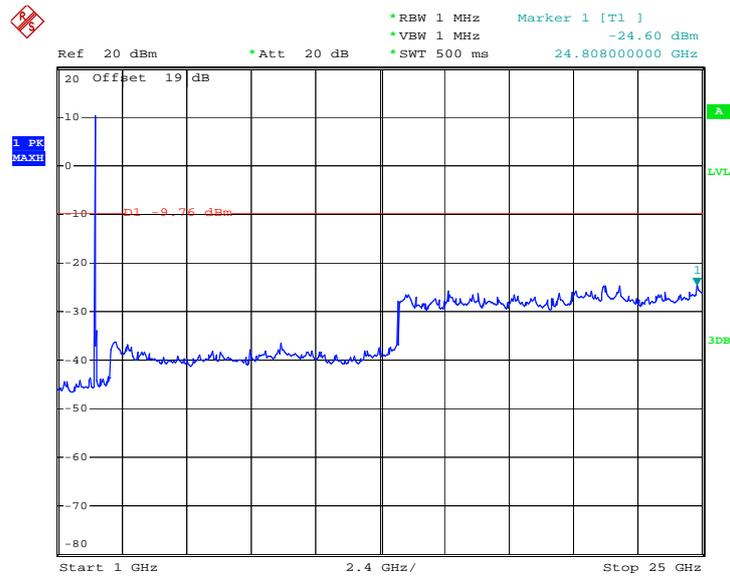
Test Mode :	Mode 4	Temperature :	27~28°C
Test Channel :	01	Relative Humidity :	48~49%
		Test Engineer :	James Huang

Conducted Spurious Emission Plot between 9k-3G



Date: 25.FEB.2009 22:23:21

Conducted Spurious Emission Plot between 1G-25G

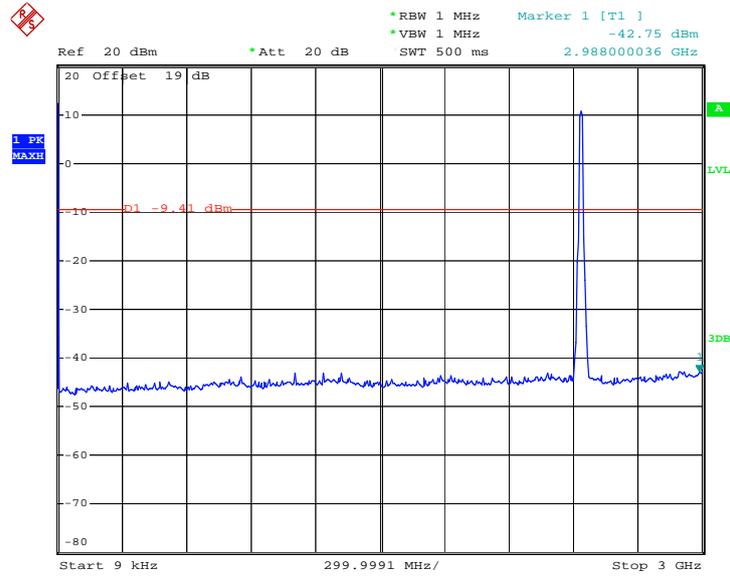


Date: 25.FEB.2009 17:47:58



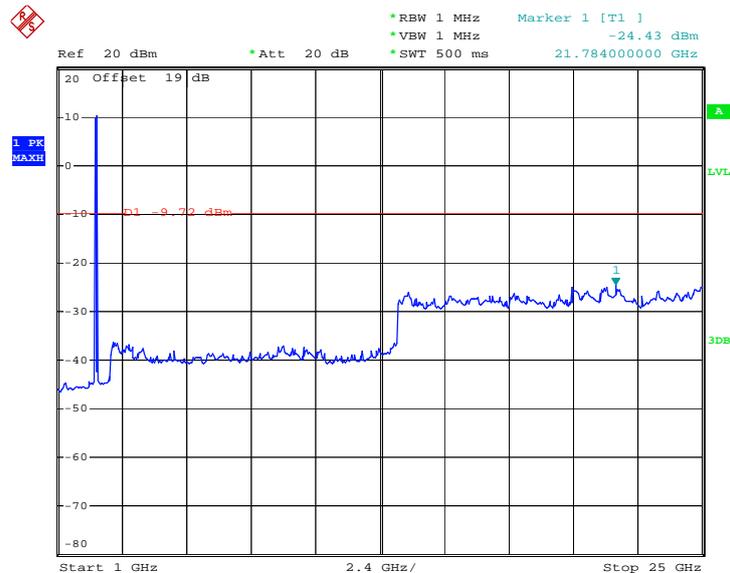
Test Mode :	Mode 5	Temperature :	27~28°C
Test Channel :	06	Relative Humidity :	48~49%
		Test Engineer :	James Huang

Conducted Spurious Emission Plot between 9k-3G



Date: 25.FEB.2009 22:21:40

Conducted Spurious Emission Plot between 1G-25G

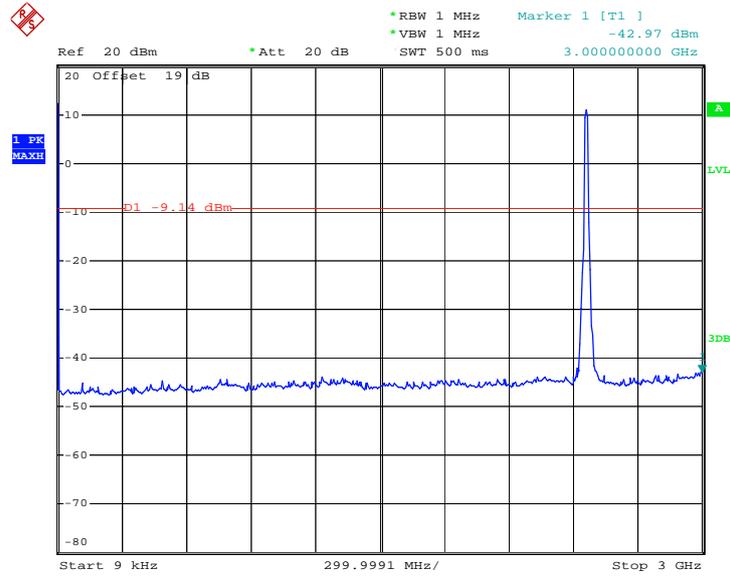


Date: 25.FEB.2009 17:47:24



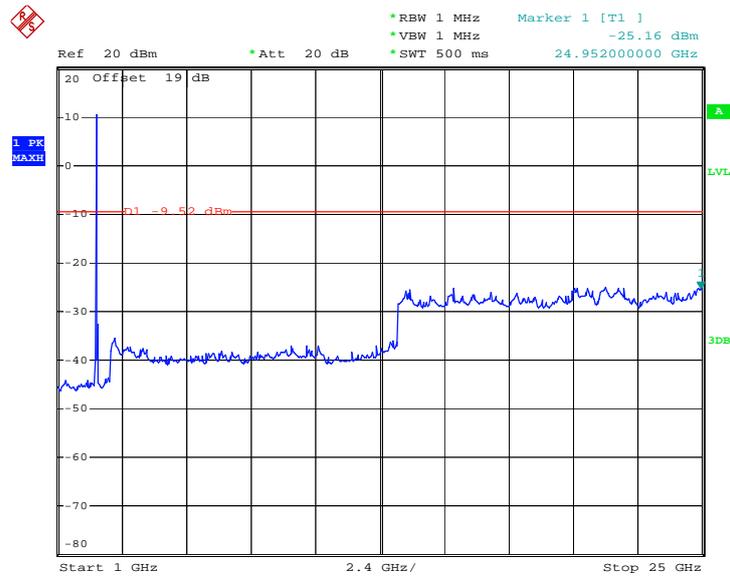
Test Mode :	Mode 6	Temperature :	27~28°C
Test Channel :	11	Relative Humidity :	48~49%
		Test Engineer :	James Huang

Conducted Spurious Emission Plot between 9k-3G



Date: 25.FEB.2009 22:22:35

Conducted Spurious Emission Plot between 1G-25G



Date: 25.FEB.2009 17:46:26

3.5 Power Spectral Density Measurement

3.5.1 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.

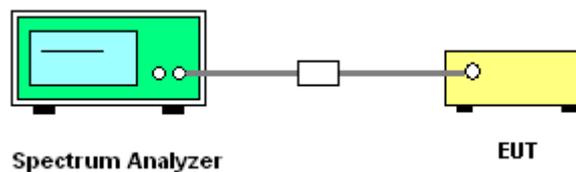
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 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.

3.5.4 Test Setup





3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	27~28°C
Test Engineer :	James Huang	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-4.77	8	Pass
06	2437	-3.70	8	Pass
11	2462	-3.76	8	Pass

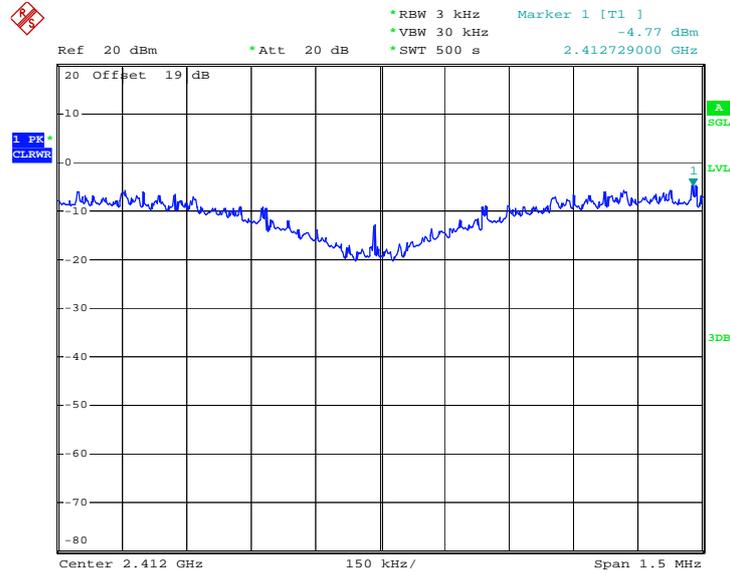
Test Mode :	Mode 4, 5, 6	Temperature :	27~28
Test Engineer :	James Huang	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-11.65	8	Pass
06	2437	-10.58	8	Pass
11	2462	-10.41	8	Pass



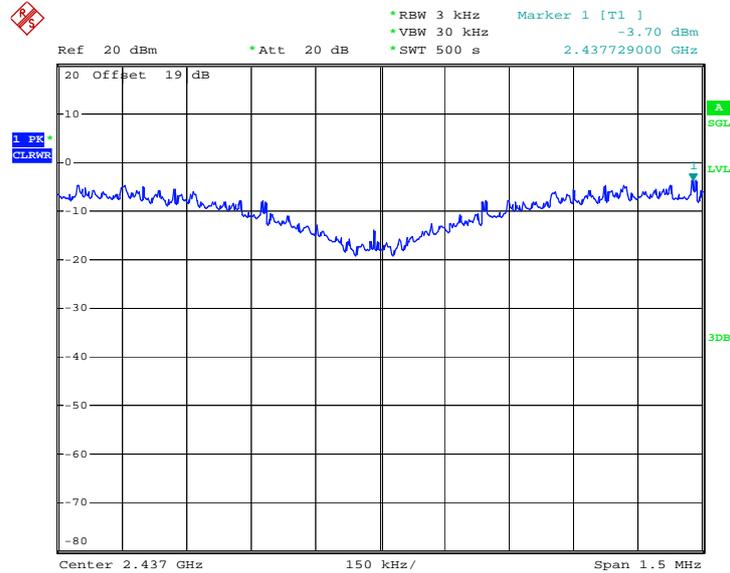
3.5.6 Test Result of Power Spectral Density Plots

Mode 1 : PSD Plot on 802.11b Channel 01



Date: 23.FEB.2009 04:30:25

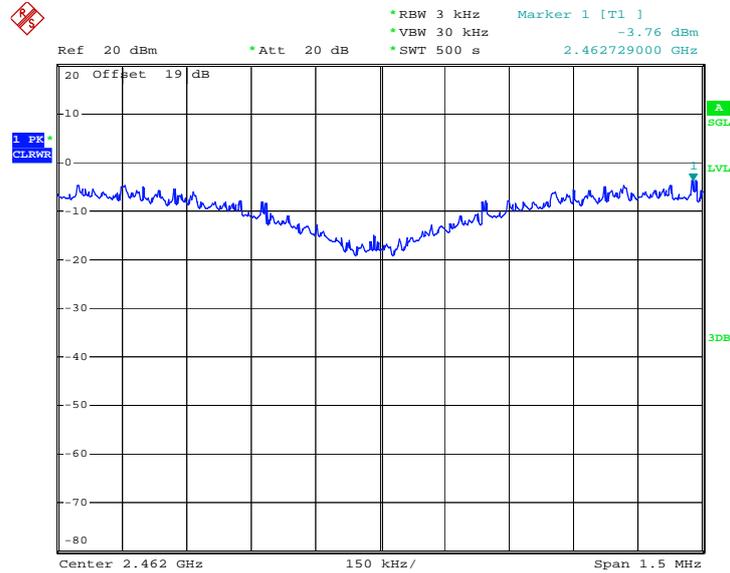
Mode 2 : PSD Plot on 802.11b Channel 06



Date: 23.FEB.2009 04:39:28

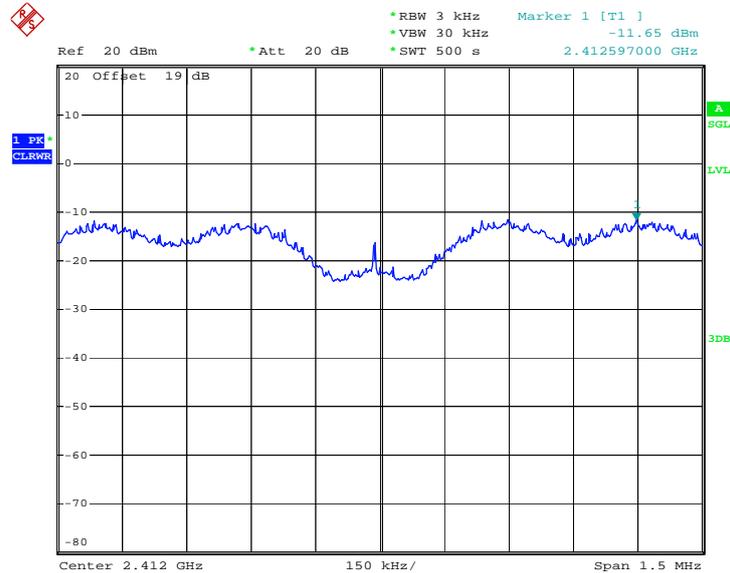


Mode 3 : PSD Plot on 802.11b Channel 11



Date: 23.FEB.2009 04:48:59

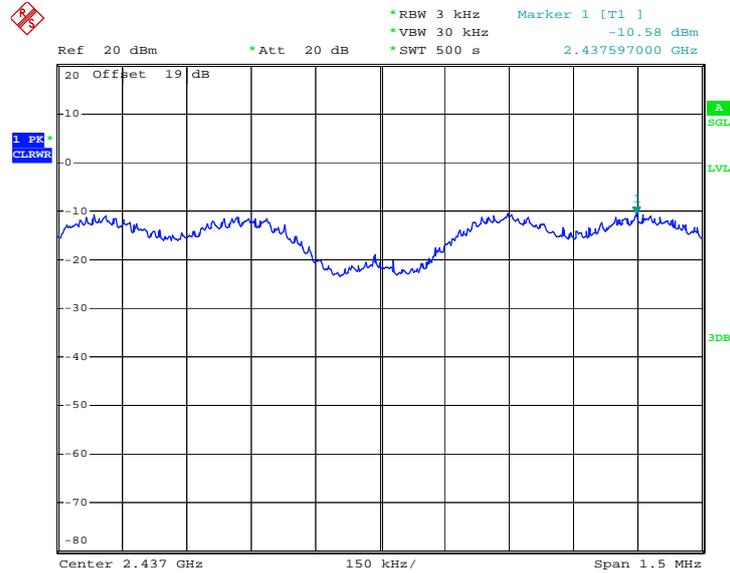
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 23.FEB.2009 05:18:49

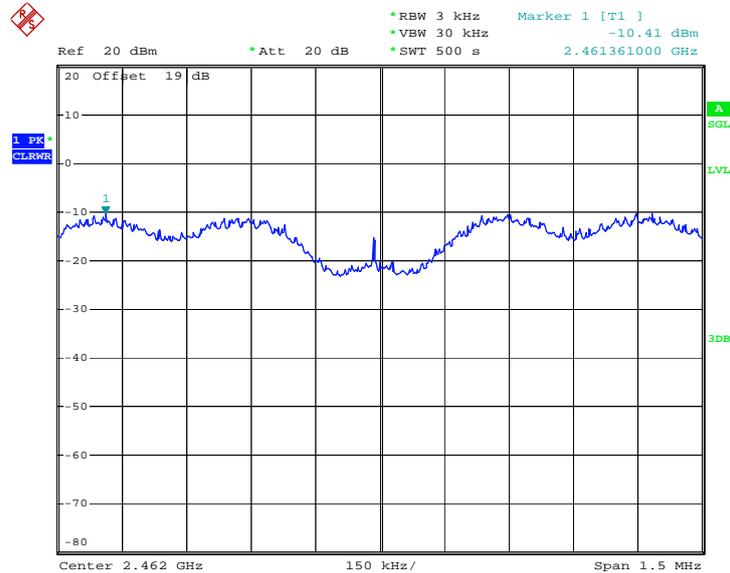


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 23.FEB.2009 05:09:37

Mode 6 : PSD Plot on 802.11g Channel 11



Date: 23.FEB.2009 04:58:25

3.6 AC Conducted Emission Measurement

3.6.1 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.

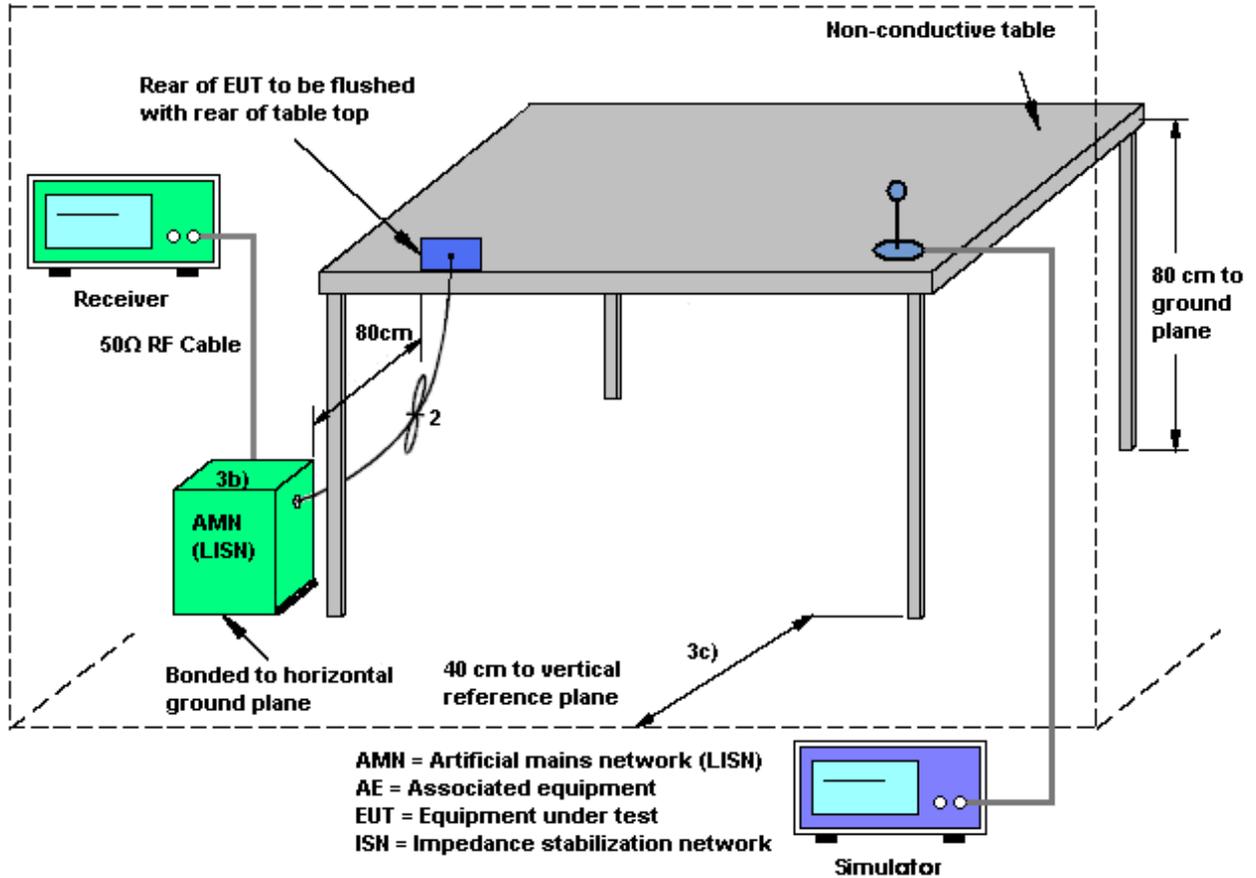
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

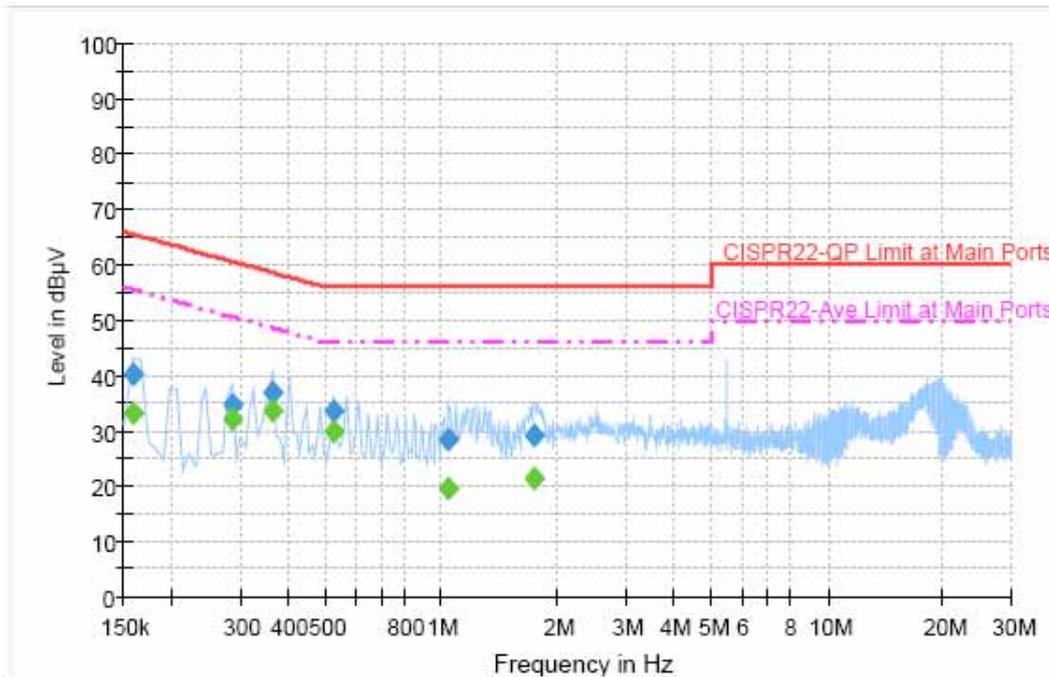
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	23~24
Test Engineer :	Cona Huang	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + BT Link + WLAN Link + GPS Rx + USB Cable 2 + Battery 3 + Adapter for PDA Phone 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



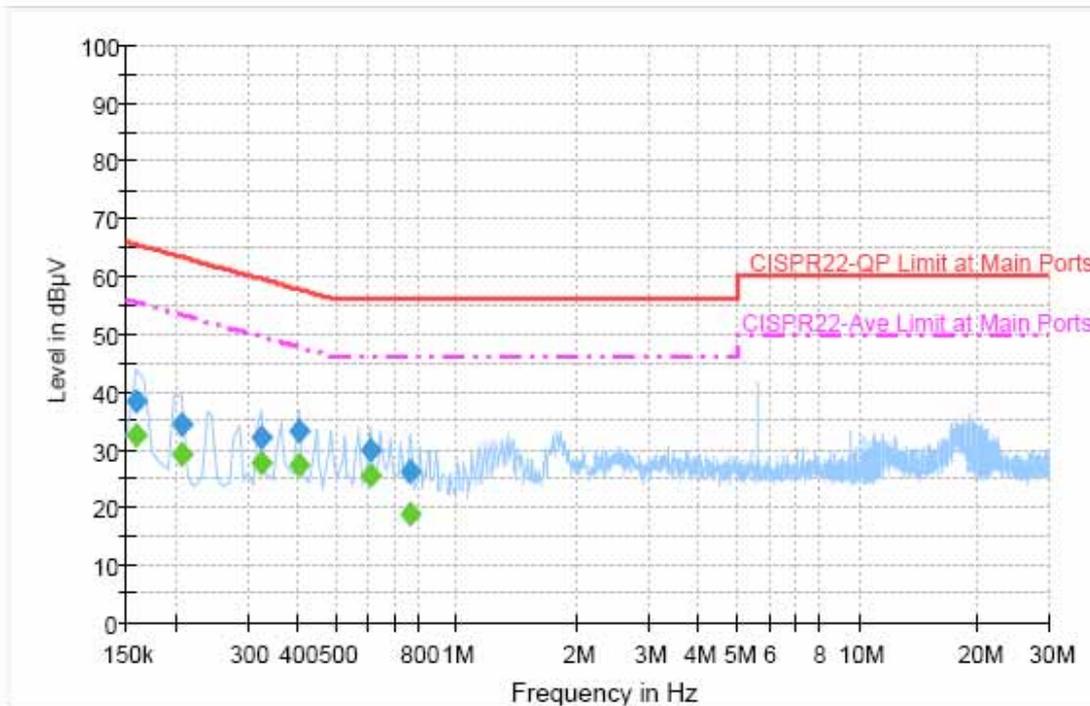
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	40.2	Off	L1	19.3	25.4	65.6
0.286000	34.6	Off	L1	19.3	26.0	60.6
0.366000	36.9	Off	L1	19.3	21.7	58.6
0.526000	33.5	Off	L1	19.3	22.5	56.0
1.046000	28.2	Off	L1	19.4	27.8	56.0
1.734000	29.3	Off	L1	19.4	26.7	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	33.3	Off	L1	19.3	22.3	55.6
0.286000	32.1	Off	L1	19.3	18.5	50.6
0.366000	33.5	Off	L1	19.3	15.1	48.6
0.526000	29.9	Off	L1	19.3	16.1	46.0
1.046000	19.5	Off	L1	19.4	26.5	46.0
1.734000	21.4	Off	L1	19.4	24.6	46.0

Test Mode :	Mode 1	Temperature :	23~24
Test Engineer :	Cona Huang	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + BT Link + WLAN Link + GPS Rx + USB Cable 2 + Battery 3 + Adapter for PDA Phone 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	38.5	Off	N	19.4	27.1	65.6
0.206000	34.4	Off	N	19.3	29.0	63.4
0.326000	32.2	Off	N	19.3	27.4	59.6
0.406000	33.3	Off	N	19.4	24.4	57.7
0.606000	29.9	Off	N	19.4	26.1	56.0
0.766000	26.1	Off	N	19.4	29.9	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	32.4	Off	N	19.4	23.2	55.6
0.206000	29.1	Off	N	19.3	24.3	53.4
0.326000	27.6	Off	N	19.3	22.0	49.6
0.406000	27.2	Off	N	19.4	20.5	47.7
0.606000	25.4	Off	N	19.4	20.6	46.0
0.766000	18.8	Off	N	19.4	27.2	46.0

3.7 Radiated Emission Measurement

3.7.1 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

3.7.2 Measuring Instruments

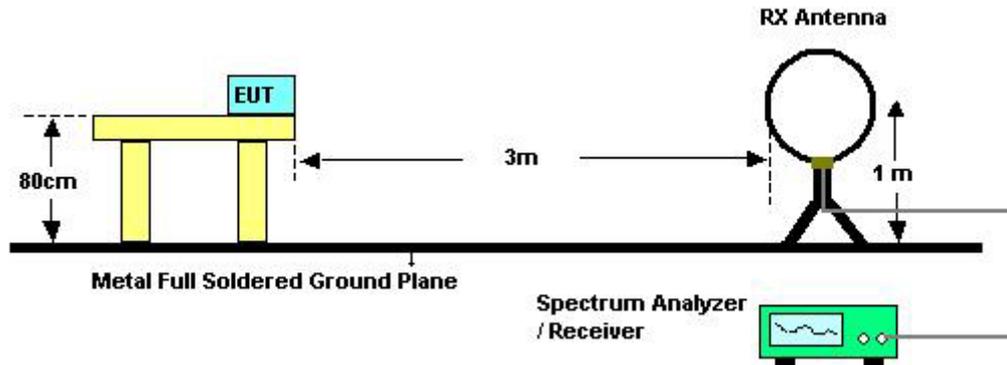
See list of measuring instruments of this test report.

3.7.3 Test Procedures

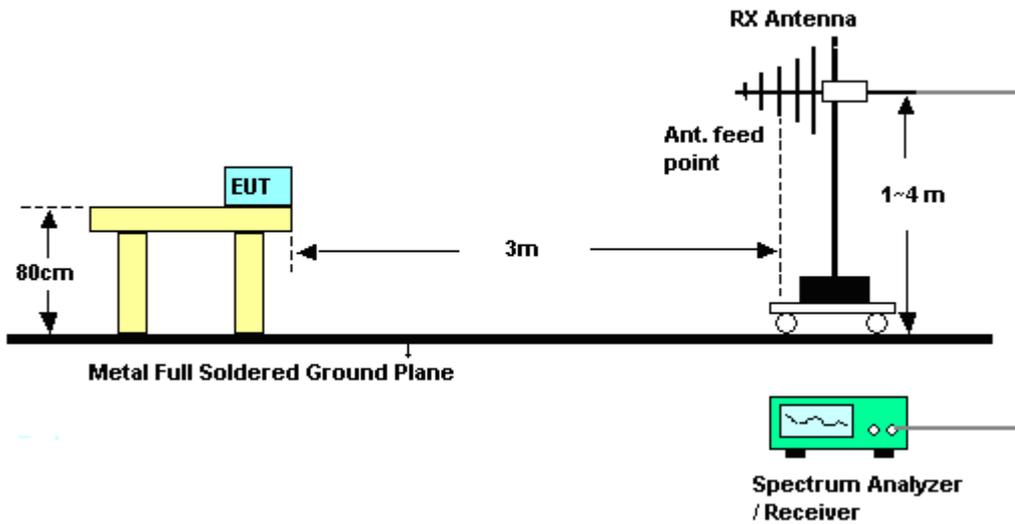
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; 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.

3.7.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz





3.7.5 Test Results of Radiated Emissions (9kHz ~ 30MHz)

Temperature	27~28°C	Humidity	48~49%
Test Engineer	Mac Lin		

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

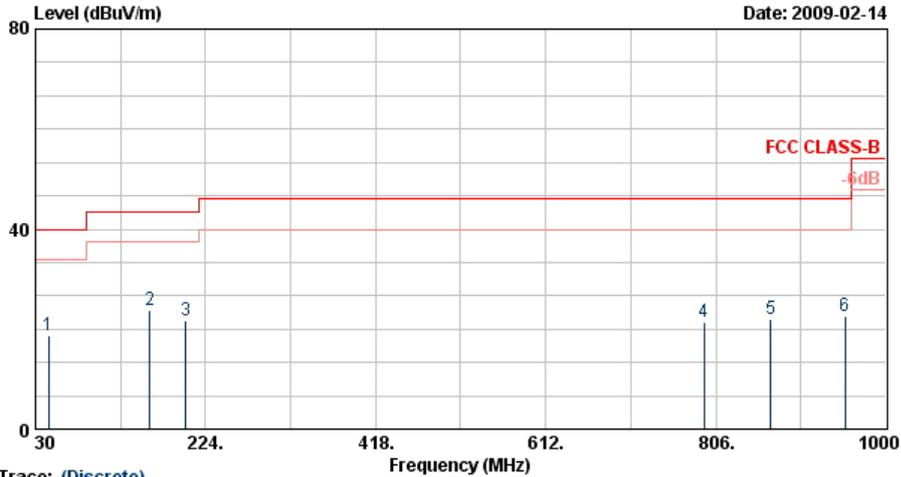
Distance extrapolation factor = $40 \log(\text{specific distance} / \text{test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.



3.7.6 Test Result of Radiated Emission < 1GHz

Test Mode :	Mode 1	Temperature :	27~28°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Horizontal



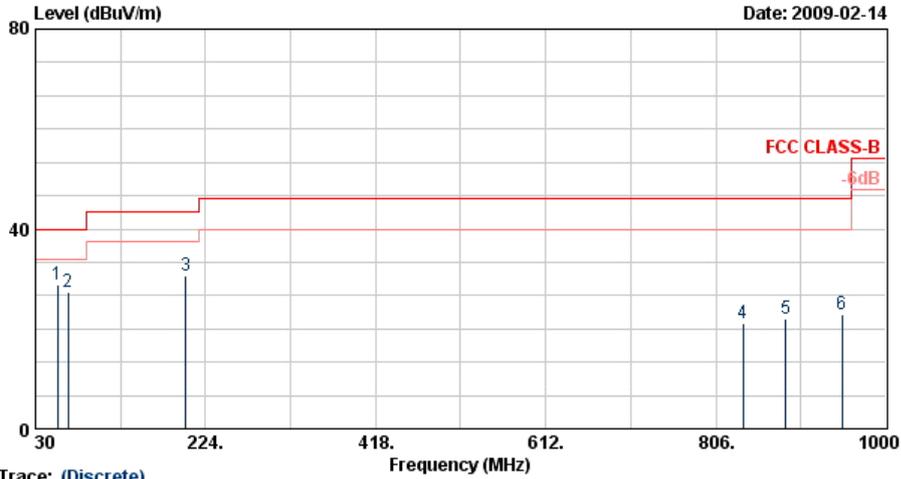
Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m BTLOG_081124 HORIZONTAL
 Project : FR 920318

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	45.39	18.68	-21.32	40.00	39.49	10.67	0.30	31.77	---	---	Peak
2	160.68	23.79	-19.71	43.50	44.46	10.66	0.60	31.93	100	133	Peak
3	201.18	21.80	-21.70	43.50	42.98	10.34	0.60	32.12	---	---	Peak
4	792.80	21.38	-24.62	46.00	31.62	20.72	1.20	32.16	---	---	Peak
5	868.40	22.06	-23.94	46.00	31.41	21.51	1.28	32.13	---	---	Peak
6	953.80	22.72	-23.28	46.00	30.75	22.11	1.24	31.38	---	---	Peak



Test Mode :	Mode 1	Temperature :	27~28°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Vertical



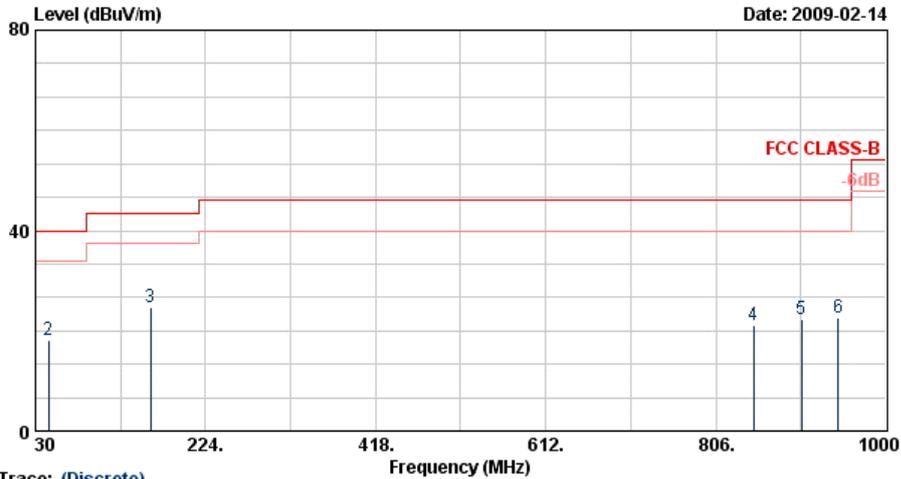
Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m B1LOG_081124 VERTICAL
 Project : FR 920318

	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	55.38	28.86	-11.14	40.00	52.51	7.85	0.40	31.90	100	166	Peak
2	66.99	27.49	-12.51	40.00	52.33	6.63	0.40	31.87	---	---	Peak
3	201.18	30.54	-12.96	43.50	51.72	10.34	0.60	32.12	---	---	Peak
4	836.90	21.20	-24.80	46.00	31.10	21.25	1.20	32.34	---	---	Peak
5	885.90	22.08	-23.92	46.00	31.05	21.61	1.30	31.88	---	---	Peak
6	950.30	23.03	-22.97	46.00	31.13	22.10	1.21	31.42	---	---	Peak



Test Mode :	Mode 2	Temperature :	27~28°C
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Horizontal



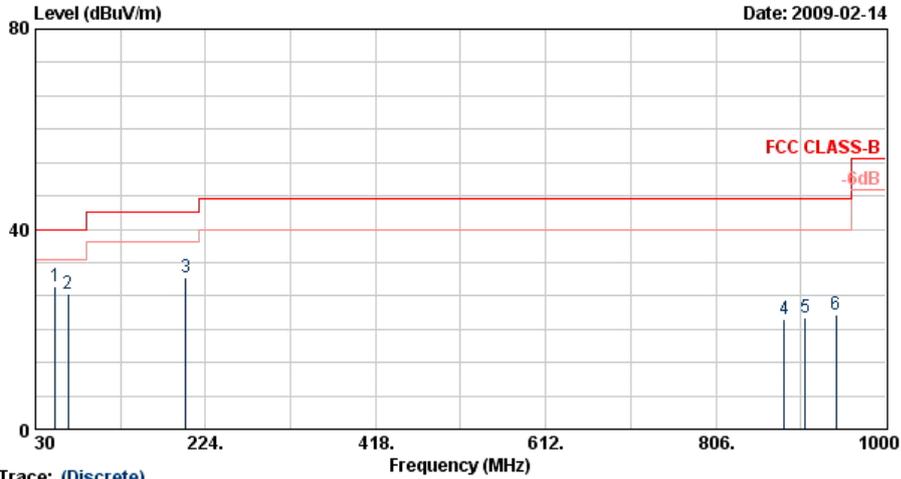
Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m BTLOG_081124 HORIZONTAL
 Project : FR 920318

	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	18.56	-21.44	40.00	29.92	19.90	0.30	31.56	---	---	Peak
2	44.58	18.22	-21.78	40.00	38.64	11.00	0.30	31.72	---	---	Peak
3	161.49	24.65	-18.85	43.50	45.35	10.62	0.60	31.92	100	119	Peak
4	848.80	21.12	-24.88	46.00	30.93	21.39	1.20	32.40	---	---	Peak
5	903.40	22.33	-23.67	46.00	30.97	21.72	1.30	31.66	---	---	Peak
6	945.40	22.75	-23.25	46.00	30.93	22.07	1.20	31.45	---	---	Peak



Test Mode :	Mode 2	Temperature :	27~28°C
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Vertical



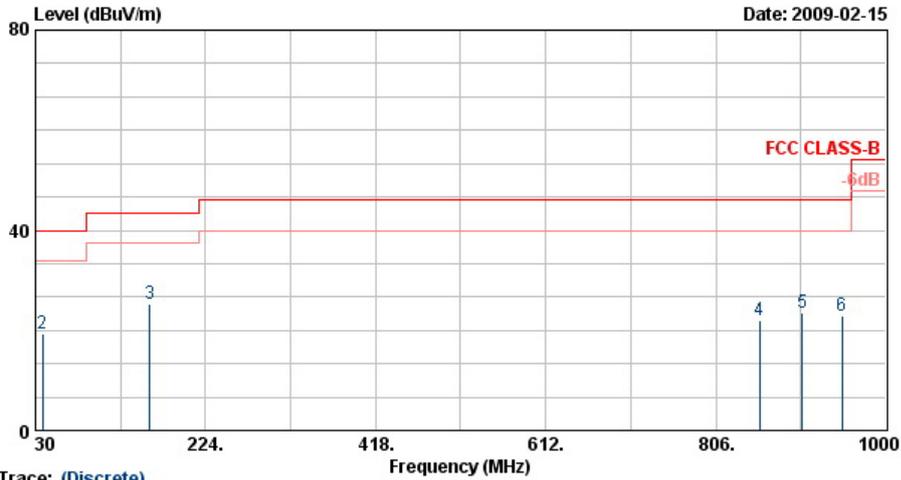
Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m BTLOG_081124 VERTICAL
 Project : FR 920318

	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	52.68	28.68	-11.32	40.00	51.76	8.54	0.34	31.97	100	177	Peak
2	67.53	27.16	-12.84	40.00	51.97	6.62	0.40	31.83	---	---	Peak
3	201.18	30.24	-13.26	43.50	51.42	10.34	0.60	32.12	---	---	Peak
4	883.80	22.02	-23.98	46.00	31.03	21.60	1.30	31.91	---	---	Peak
5	908.30	22.36	-23.64	46.00	30.93	21.76	1.30	31.63	---	---	Peak
6	943.30	22.81	-23.19	46.00	31.02	22.05	1.20	31.46	---	---	Peak



Test Mode :	Mode 3	Temperature :	27~28°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Horizontal



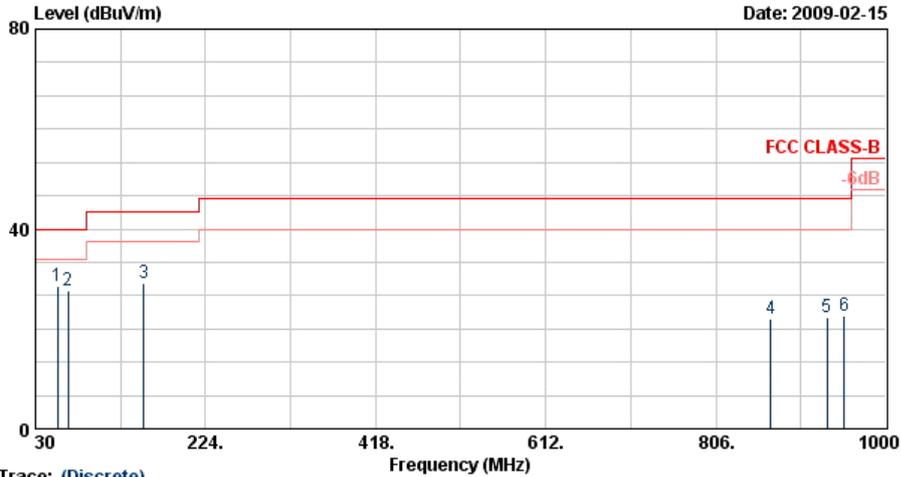
Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m BTLOC_081124 HORIZONTAL
 Project : FR 920318

	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	18.80	-21.20	40.00	30.81	19.30	0.30	31.61	---	---	Peak
2	37.83	19.25	-20.75	40.00	35.60	15.10	0.30	31.75	---	---	Peak
3	160.68	25.25	-18.25	43.50	45.91	10.66	0.60	31.93	100	300	Peak
4	855.80	22.14	-23.86	46.00	31.82	21.43	1.20	32.32	---	---	Peak
5	904.80	23.49	-22.51	46.00	32.10	21.74	1.30	31.65	---	---	Peak
6	950.30	22.88	-23.12	46.00	30.99	22.10	1.21	31.42	---	---	Peak



Test Mode :	Mode 3	Temperature :	27~28°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Vertical



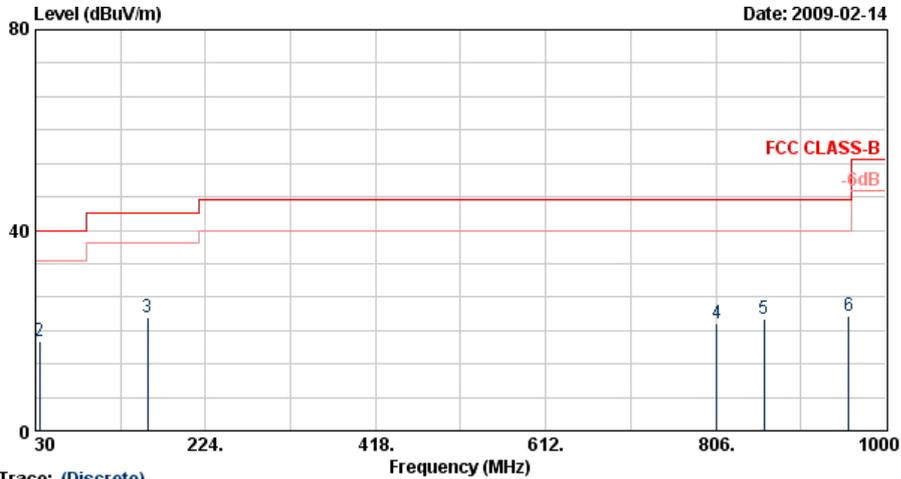
Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m B1LOG_081124 VERTICAL
 Project : FR 920318

	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	54.84	28.59	-11.41	40.00	52.24	7.85	0.40	31.90	100	181	Peak
2	66.99	27.72	-12.28	40.00	52.56	6.63	0.40	31.87	---	---	Peak
3	153.39	29.20	-14.30	43.50	49.30	11.05	0.60	31.76	---	---	Peak
4	868.40	21.95	-24.05	46.00	31.30	21.51	1.28	32.13	---	---	Peak
5	932.80	22.42	-23.58	46.00	30.76	21.97	1.20	31.51	---	---	Peak
6	952.40	22.54	-23.46	46.00	30.60	22.11	1.23	31.39	---	---	Peak



Test Mode :	Mode 5	Temperature :	27~28°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Horizontal



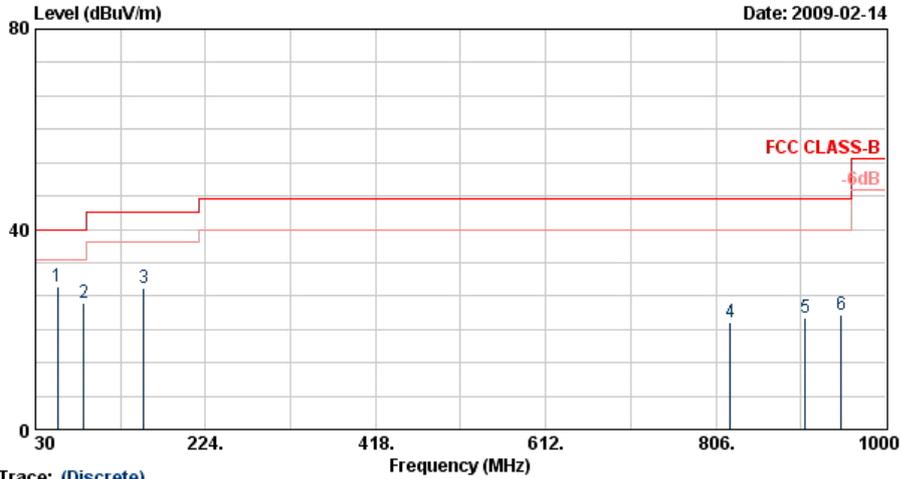
Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m BTLOC_081124 HORIZONTAL
 Project : FR 920318

	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	18.29	-21.71	40.00	30.31	19.30	0.30	31.61	---	---	Peak
2	34.59	17.96	-22.04	40.00	32.59	16.90	0.30	31.83	---	---	Peak
3	157.98	22.63	-20.87	43.50	43.11	10.80	0.60	31.88	100	144	Peak
4	806.80	21.40	-24.60	46.00	31.53	20.88	1.20	32.21	---	---	Peak
5	861.40	22.35	-23.65	46.00	31.90	21.47	1.21	32.23	---	---	Peak
6	957.30	22.75	-23.25	46.00	30.69	22.12	1.27	31.32	---	---	Peak



Test Mode :	Mode 5	Temperature :	27~28°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Vertical



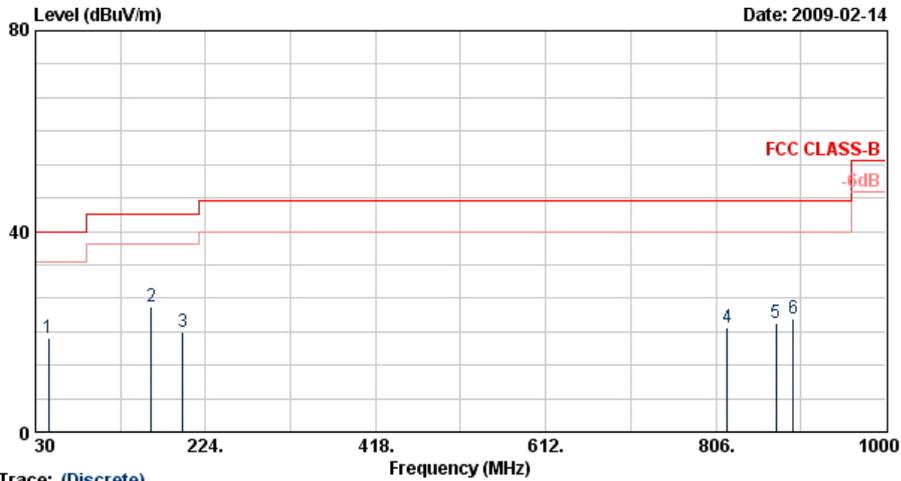
Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m BTLOC_081124 VERTICAL
 Project : FR 920318

	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	55.38	28.63	-11.37	40.00	52.28	7.85	0.40	31.90	100	178	Peak
2	85.08	25.35	-14.65	40.00	48.57	8.45	0.40	32.07	---	---	Peak
3	153.39	28.40	-15.10	43.50	48.50	11.05	0.60	31.76	---	---	Peak
4	822.90	21.35	-24.65	46.00	31.36	21.07	1.20	32.28	---	---	Peak
5	908.30	22.32	-23.68	46.00	30.89	21.76	1.30	31.63	---	---	Peak
6	948.90	22.90	-23.10	46.00	31.04	22.09	1.20	31.43	---	---	Peak



Test Mode :	Mode 6	Temperature :	27~28°C
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Horizontal



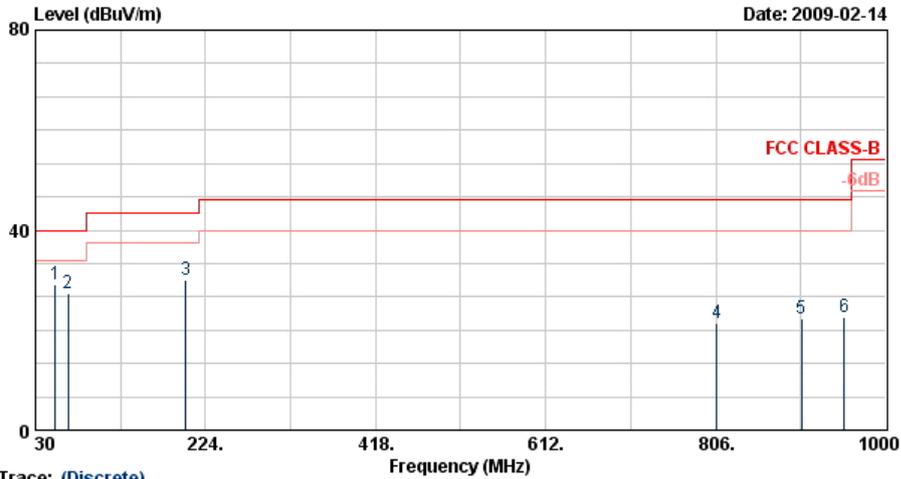
Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m BTLOC_081124 HORIZONTAL
 Project : FR 920318

	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	45.39	18.78	-21.22	40.00	39.58	10.67	0.30	31.77	---	---	Peak
2	162.03	24.97	-18.53	43.50	45.67	10.62	0.60	31.92	100	142	Peak
3	198.48	19.88	-23.62	43.50	41.15	10.23	0.60	32.10	---	---	Peak
4	819.40	20.75	-25.25	46.00	30.78	21.04	1.20	32.27	---	---	Peak
5	874.70	21.57	-24.43	46.00	30.75	21.55	1.30	32.04	---	---	Peak
6	894.30	22.63	-23.37	46.00	31.42	21.67	1.30	31.75	---	---	Peak



Test Mode :	Mode 6	Temperature :	27~28°C
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Vertical

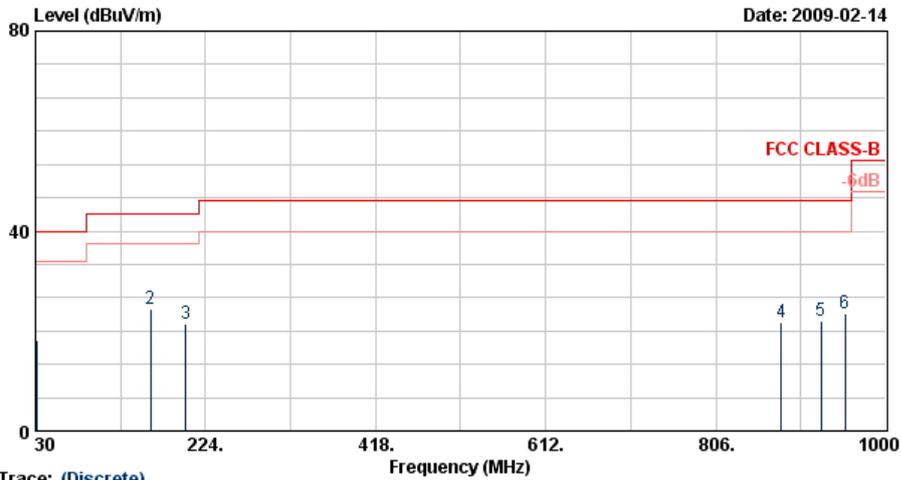


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m BILOC_081124 VERTICAL
 Project : FR 920318

	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	52.68	29.09	-10.91	40.00	52.18	8.54	0.34	31.97	100	183	Peak
2	67.53	27.35	-12.65	40.00	52.16	6.62	0.40	31.83	---	---	Peak
3	201.18	29.96	-13.54	43.50	51.14	10.34	0.60	32.12	---	---	Peak
4	806.80	21.28	-24.72	46.00	31.40	20.88	1.20	32.21	---	---	Peak
5	903.40	22.25	-23.75	46.00	30.88	21.72	1.30	31.66	---	---	Peak
6	952.40	22.62	-23.38	46.00	30.68	22.11	1.23	31.39	---	---	Peak



Test Mode :	Mode 7	Temperature :	27~28°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Horizontal



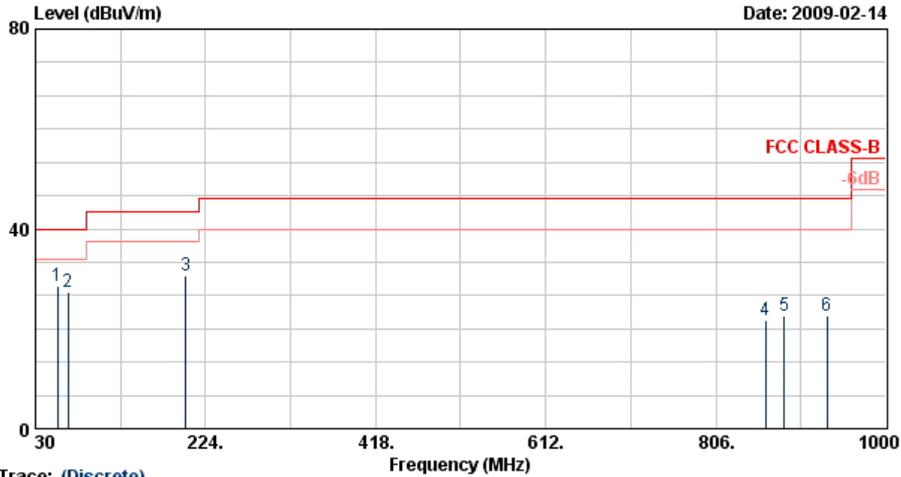
Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m BTLOC_081124 HORIZONTAL
 Project : FR 920318

	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	18.28	-21.72	40.00	30.30	19.30	0.30	31.61	---	---	Peak
2	161.49	24.47	-19.03	43.50	45.17	10.62	0.60	31.92	100	124	Peak
3	201.18	21.38	-22.12	43.50	42.57	10.34	0.60	32.12	---	---	Peak
4	880.30	21.76	-24.24	46.00	30.82	21.58	1.30	31.95	---	---	Peak
5	925.80	22.13	-23.87	46.00	30.56	21.91	1.20	31.54	---	---	Peak
6	953.80	23.41	-22.59	46.00	31.44	22.11	1.24	31.38	---	---	Peak



Test Mode :	Mode 7	Temperature :	27~28°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Vertical



Trace: (Discrete)

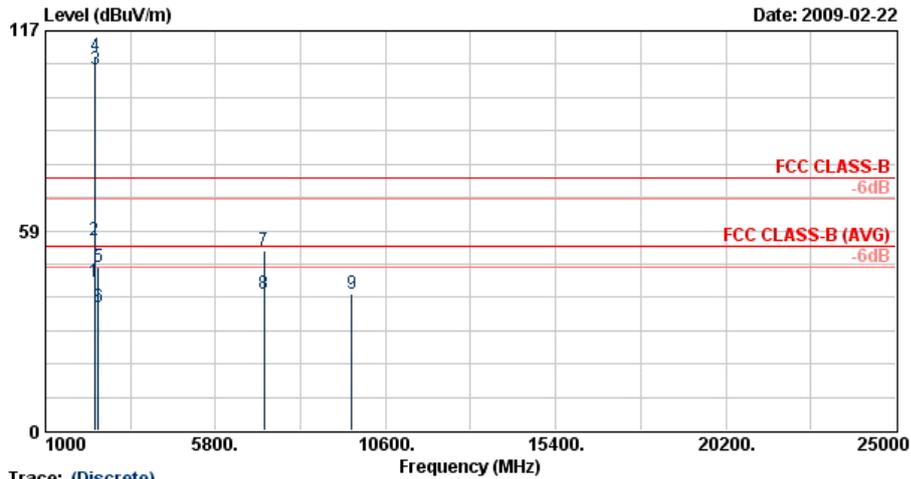
Site : 03CH06-HY
 Condition : FCC CLASS-B 3m BTLOC_081124 VERTICAL
 Project : FR 920318

	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	55.38	28.58	-11.42	40.00	52.23	7.85	0.40	31.90	100	190	Peak
2	67.53	27.37	-12.63	40.00	52.18	6.62	0.40	31.83	---	---	Peak
3	201.18	30.57	-12.93	43.50	51.75	10.34	0.60	32.12	---	---	Peak
4	862.80	21.61	-24.39	46.00	31.10	21.48	1.23	32.20	---	---	Peak
5	883.80	22.65	-23.35	46.00	31.66	21.60	1.30	31.91	---	---	Peak
6	932.80	22.54	-23.46	46.00	30.88	21.97	1.20	31.51	---	---	Peak



3.7.7 Test Result of Radiated Emission ≥ 1 GHz

Test Mode :	Mode 1	Temperature :	27~28°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

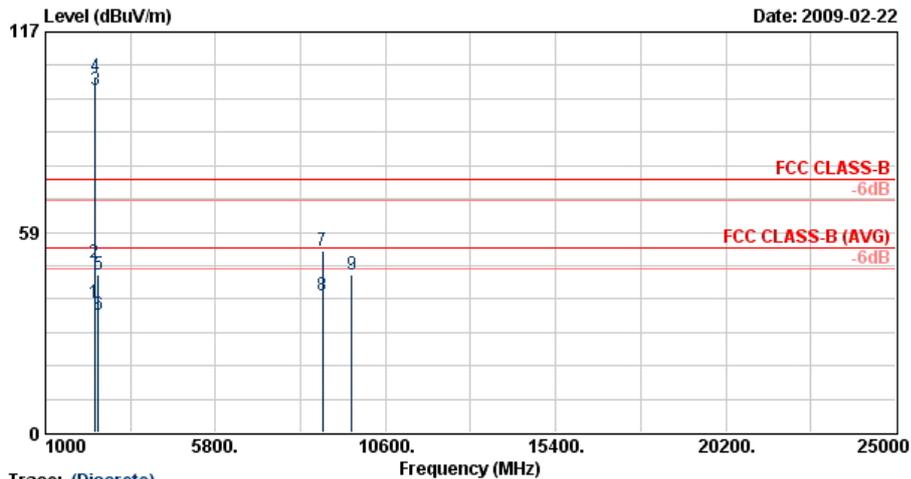


Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Project : FR 920318

	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	2389.42	43.33	-10.67	54.00	43.71	31.98	3.92	36.28	107	29	Average
2	2389.42	55.81	-18.19	74.00	56.19	31.98	3.92	36.28	107	29	Peak
3 @	2412.00	105.81			106.14	32.00	3.95	36.28	107	29	Average
4 X	2412.00	109.77			110.10	32.00	3.95	36.28	107	29	Peak
5	2494.00	47.96	-26.04	74.00	48.11	32.10	4.05	36.30	107	29	Peak
6	2494.00	36.21	-17.79	54.00	36.36	32.10	4.05	36.30	107	29	Average
7	7161.00	52.65	-21.35	74.00	46.33	35.64	7.15	36.47	100	333	Peak
8	7161.00	40.03	-13.97	54.00	33.71	35.64	7.15	36.47	100	333	Average
9	9648.00	39.82	-34.18	74.00	79.22	-10.29	7.94	37.06	100	0	Peak



Test Mode :	Mode 1	Temperature :	27~28°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

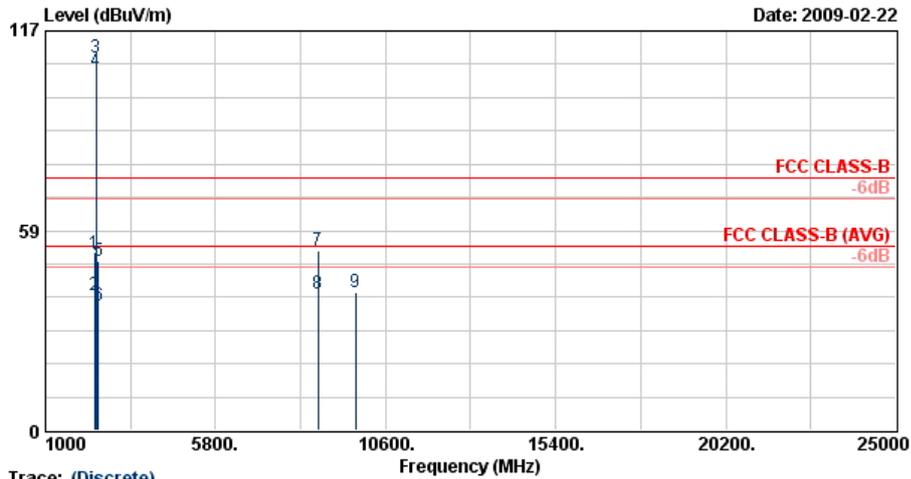


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Project : FR 920318

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	Remark
1	2389.42	37.64	-16.36	54.00	38.02	31.98	3.92	36.28	100	315	Average
2	2389.42	49.64	-24.36	74.00	50.02	31.98	3.92	36.28	100	315	Peak
3 @	2412.00	100.10			100.43	32.00	3.95	36.28	100	315	Average
4 X	2412.00	103.98			104.31	32.00	3.95	36.28	100	315	Peak
5	2484.00	45.94	-28.06	74.00	46.11	32.08	4.05	36.30	100	315	Peak
6	2484.00	34.34	-19.66	54.00	34.51	32.08	4.05	36.30	100	315	Average
7	8826.00	53.21	-20.79	74.00	46.43	36.02	7.59	36.83	100	16	Peak
8	8826.00	39.96	-14.04	54.00	33.18	36.02	7.59	36.83	100	16	Average
9	9648.00	46.09	-27.91	74.00	85.47	-10.27	7.94	37.06	100	0	Peak



Test Mode :	Mode 2	Temperature :	27~28°C
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

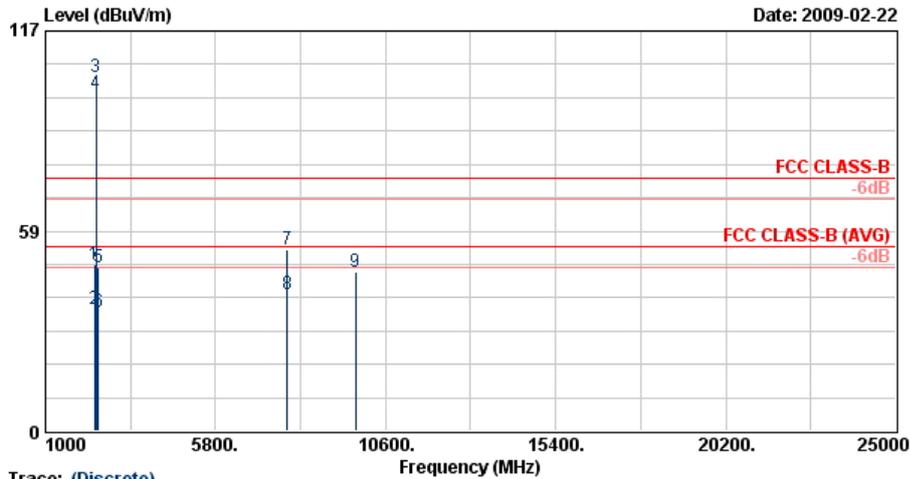


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Project : FR 920318

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	cm	deg	
1	2388.00	51.60	-22.40	74.00	51.98	31.98	3.92	36.28	107	30 Peak
2	2388.00	39.50	-14.50	54.00	39.88	31.98	3.92	36.28	107	30 Average
3 X	2437.00	109.29			109.57	32.02	3.99	36.29	107	30 Peak
4 @	2437.00	105.41			105.67	32.04	3.99	36.29	107	30 Average
5	2486.00	49.38	-24.62	74.00	49.55	32.08	4.05	36.30	107	30 Peak
6	2486.00	36.72	-17.28	54.00	36.89	32.08	4.05	36.30	107	30 Average
7	8691.00	52.75	-21.25	74.00	46.23	35.88	7.42	36.78	100	169 Peak
8	8691.00	40.03	-13.97	54.00	33.51	35.88	7.42	36.78	100	169 Average
9	9748.00	40.47	-33.53	74.00	79.60	-10.02	7.98	37.10	100	0 Peak



Test Mode :	Mode 2	Temperature :	27~28°C
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

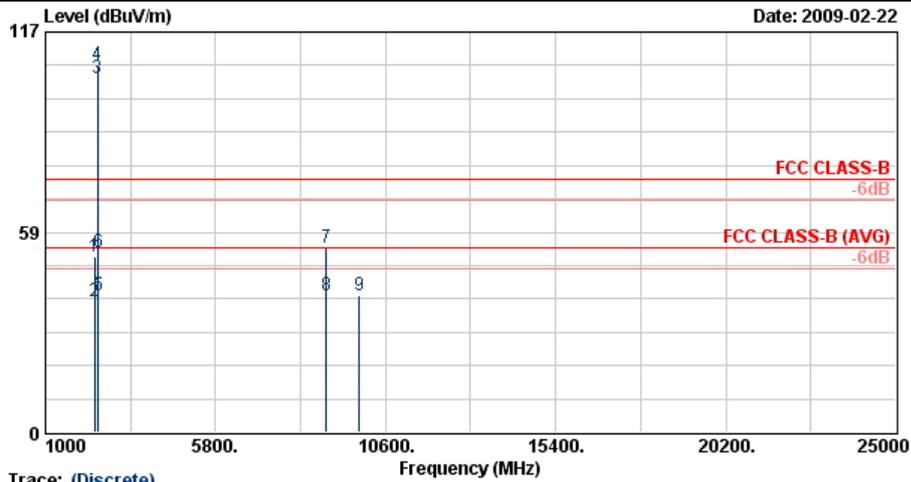


Trace: (Discrete)
 Site : 03CH06-RY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Project : FR 920318

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	cm	deg	
1	2390.00	48.57	-25.43	74.00	48.95	31.98	3.92	36.28	100	314 Peak
2	2390.00	35.55	-18.45	54.00	35.93	31.98	3.92	36.28	100	314 Average
3 X	2437.00	103.50			103.78	32.02	3.99	36.29	100	314 Peak
4 @	2437.00	98.80			99.06	32.04	3.99	36.29	100	314 Average
5	2484.00	47.72	-26.28	74.00	47.88	32.08	4.05	36.30	100	314 Peak
6	2484.00	34.69	-19.31	54.00	34.86	32.08	4.05	36.30	100	314 Average
7	7821.00	53.01	-20.99	74.00	46.62	35.63	7.42	36.66	100	206 Peak
8	7821.00	39.95	-14.05	54.00	33.56	35.63	7.42	36.66	100	206 Average
9	9748.00	46.43	-27.57	74.00	85.56	-10.02	7.98	37.10	100	0 Peak



Test Mode :	Mode 3	Temperature :	27~28°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

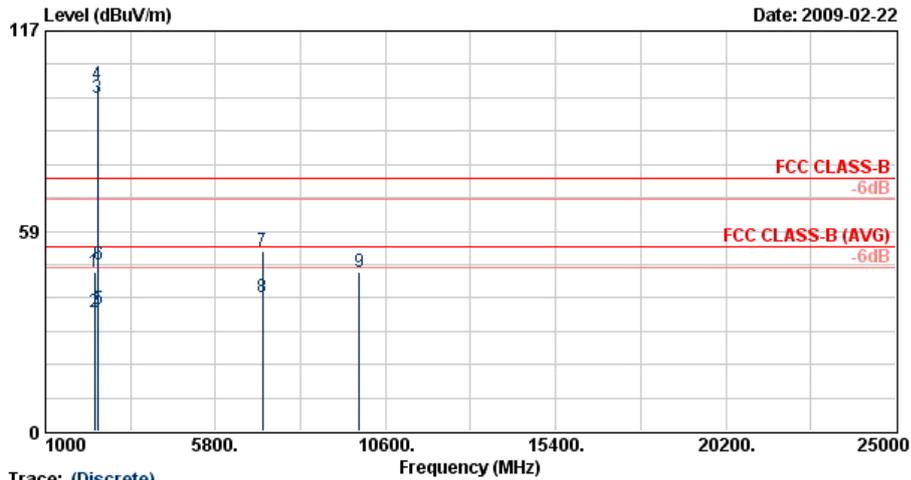


Trace: (Discrete)
 Site : 03CH06-HV
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Project : FR 920318

	Freq	Level	Over Limit	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	2388.00	51.36	-22.64	74.00	51.74	31.98	3.92	36.28	105	31 Peak
2	2388.00	38.13	-15.87	54.00	38.51	31.98	3.92	36.28	105	31 Average
3 @	2462.00	103.73			103.94	32.06	4.02	36.29	105	31 Average
4 X	2462.00	107.56			107.77	32.06	4.02	36.29	105	31 Peak
5	2483.50	39.99	-14.01	54.00	40.16	32.08	4.05	36.30	105	31 Average
6	2483.50	52.45	-21.55	74.00	52.62	32.08	4.05	36.30	105	31 Peak
7	8916.00	53.79	-20.21	74.00	46.82	36.12	7.71	36.86	100	301 Peak
8	8916.00	40.18	-13.82	54.00	33.21	36.12	7.71	36.86	100	301 Average
9	9848.00	40.02	-33.98	74.00	78.89	-9.77	8.04	37.14	100	0 Peak



Test Mode :	Mode 3	Temperature :	27~28°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

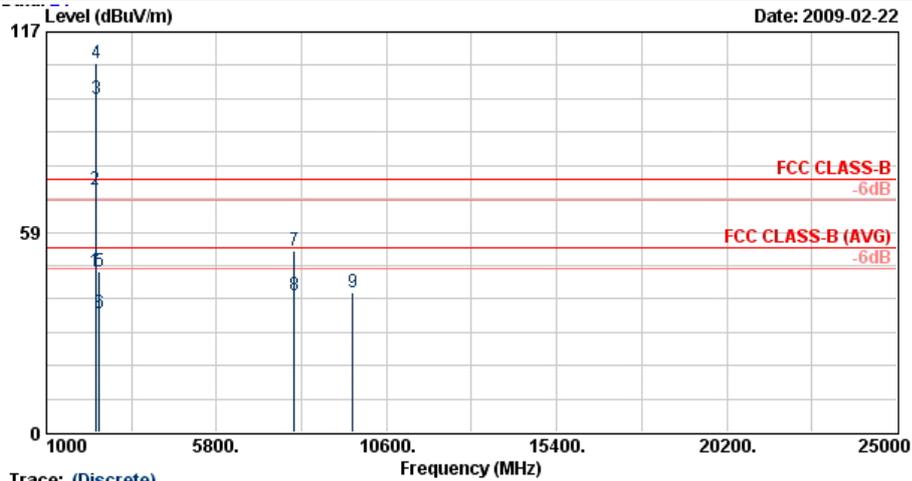


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Project : FR 920318

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	dB	dBuV/m	Level	Factor	Loss	Factor	Pos	Pos	Remark
					dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	46.47	-27.53	74.00	46.85	31.98	3.92	36.28	119	312	Peak
2	2390.00	34.60	-19.40	54.00	34.98	31.98	3.92	36.28	119	312	Average
3 @	2462.00	97.35			97.56	32.06	4.02	36.29	119	312	Average
4 X	2462.00	101.22			101.44	32.06	4.02	36.29	119	312	Peak
5	2483.50	35.84	-18.16	54.00	36.01	32.08	4.05	36.30	119	312	Average
6	2483.50	48.74	-25.26	74.00	48.91	32.08	4.05	36.30	119	312	Peak
7	7122.00	52.53	-21.47	74.00	46.20	35.65	7.13	36.45	100	299	Peak
8	7122.00	39.22	-14.78	54.00	32.89	35.65	7.13	36.45	100	299	Average
9	9848.00	46.61	-27.39	74.00	85.48	-9.77	8.04	37.14	100	0	Peak



Test Mode :	Mode 5	Temperature :	27~28°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

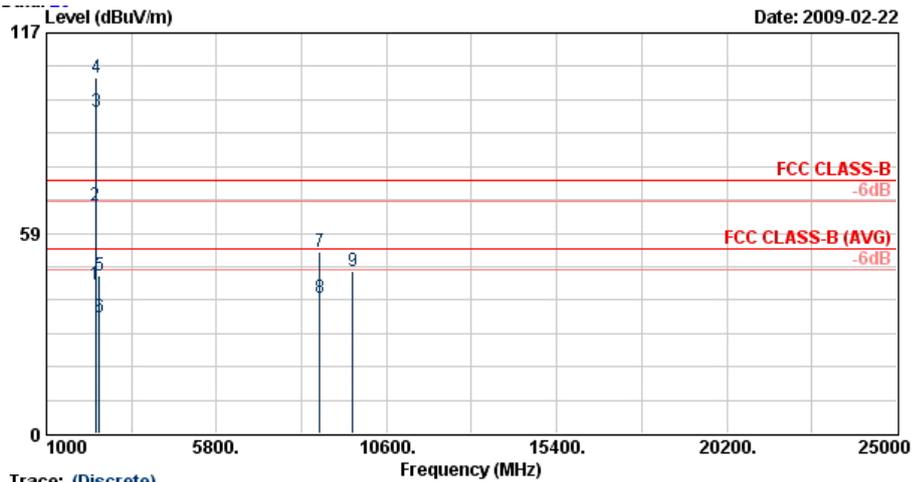


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Project : FR 920318

	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	2389.99	47.04	-6.96	54.00	47.42	31.98	3.92	36.28	109	44 Average
2 !	2389.99	70.84	-3.16	74.00	71.22	31.98	3.92	36.28	109	44 Peak
3 @	2412.00	97.60			97.93	32.00	3.95	36.28	109	44 Average
4 X	2412.00	107.97			108.30	32.00	3.95	36.28	109	44 Peak
5	2494.00	46.96	-27.04	74.00	47.11	32.10	4.05	36.30	109	44 Peak
6	2494.00	34.82	-19.18	54.00	34.97	32.10	4.05	36.30	109	44 Average
7	8001.00	53.14	-20.86	74.00	46.62	35.70	7.52	36.70	100	224 Peak
8	8001.00	39.94	-14.06	54.00	33.42	35.70	7.52	36.70	100	224 Average
9	9648.00	41.05	-32.95	74.00	80.46	-10.29	7.94	37.06	100	0 Peak



Test Mode :	Mode 5	Temperature :	27~28°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		



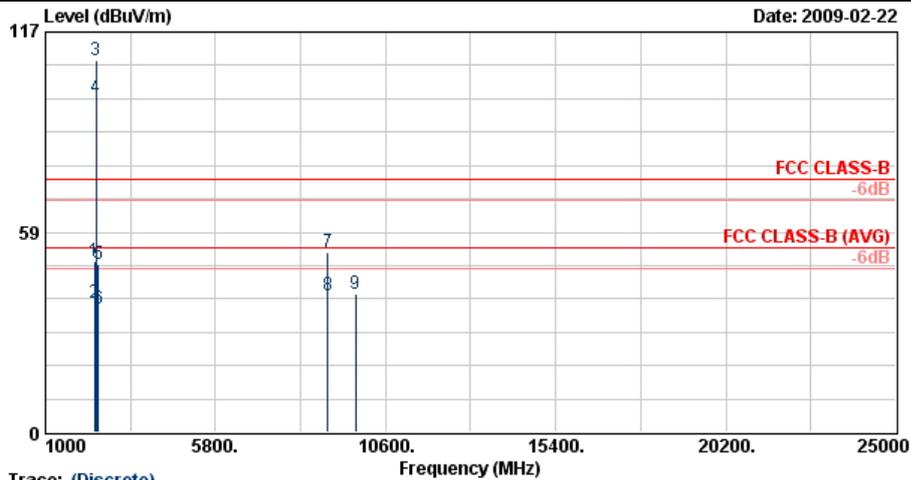
Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Project : FR 920318

	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	43.34	-10.66	54.00	43.72	31.98	3.92	36.28	126	295	Average
2	2389.99	66.73	-7.27	74.00	67.11	31.98	3.92	36.28	126	295	Peak
3 @	2412.00	94.08			94.41	32.00	3.95	36.28	126	295	Average
4 X	2412.00	103.81			104.14	32.00	3.95	36.28	126	295	Peak
5	2500.00	46.02	-27.98	74.00	46.17	32.10	4.05	36.30	126	295	Peak
6	2500.00	34.01	-19.99	54.00	34.16	32.10	4.05	36.30	126	295	Average
7	8721.00	52.89	-21.11	74.00	46.29	35.92	7.48	36.79	100	294	Peak
8	8721.00	39.59	-14.41	54.00	32.99	35.92	7.48	36.79	100	294	Average
9	9648.00	47.21	-26.79	74.00	86.62	-10.29	7.94	37.06	100	0	Peak



Test Mode :	Mode 6	Temperature :	27~28°C
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

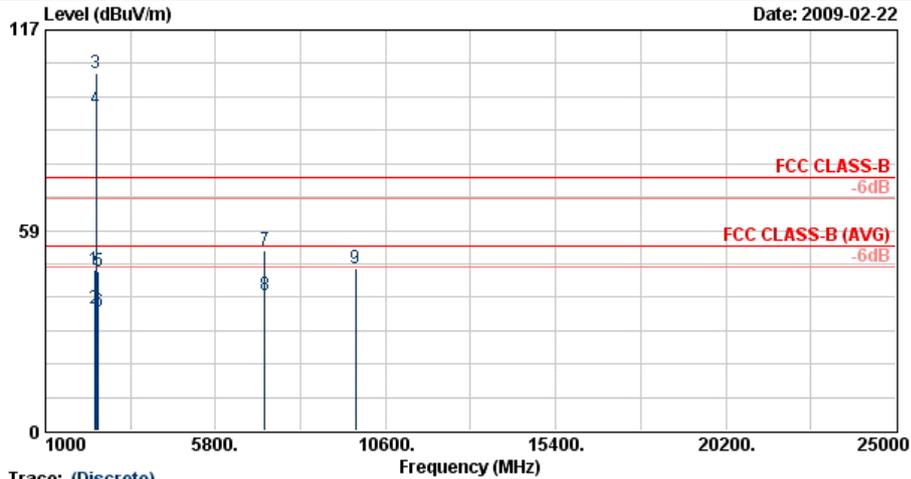


Site : 03CH06-HV
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Project : FR 920318

	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	2390.00	50.22	-23.78	74.00	50.60	31.98	3.92	36.28	106	29	Peak
2	2390.00	37.78	-16.22	54.00	38.16	31.98	3.92	36.28	106	29	Average
3 X	2437.00	108.53			108.81	32.02	3.99	36.29	106	29	Peak
4 @	2437.00	97.68			97.94	32.04	3.99	36.29	106	29	Average
5	2484.00	49.21	-24.79	74.00	49.37	32.08	4.05	36.30	106	29	Peak
6	2484.00	35.94	-18.06	54.00	36.11	32.08	4.05	36.30	106	29	Average
7	8967.00	52.75	-21.25	74.00	45.69	36.17	7.77	36.88	100	41	Peak
8	8967.00	39.94	-14.06	54.00	32.88	36.17	7.77	36.88	100	41	Average
9	9748.00	40.52	-33.48	74.00	79.65	-10.02	7.98	37.10	100	0	Peak



Test Mode :	Mode 6	Temperature :	27~28°C
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

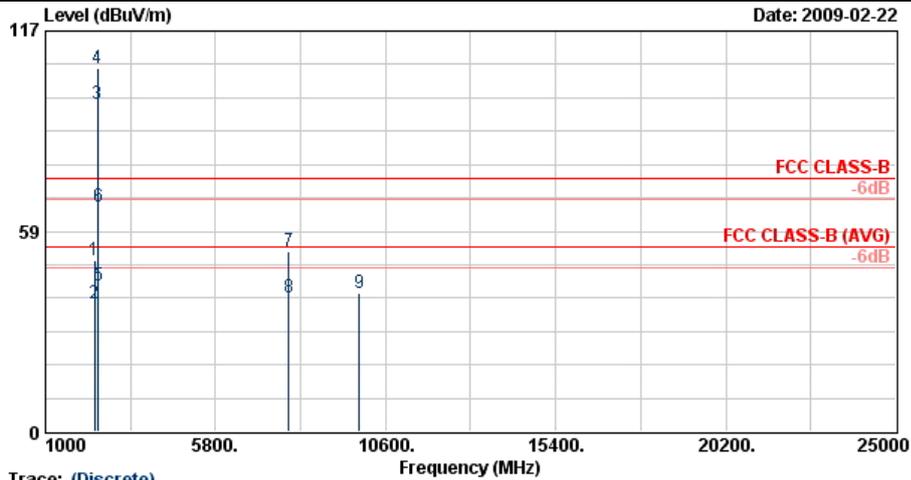


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Project : FR 920318

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	2388.00	47.09	-26.91	74.00	47.47	31.98	3.92	36.28	124	292 Peak
2	2388.00	35.52	-18.48	54.00	35.90	31.98	3.92	36.28	124	292 Average
3 X	2437.00	104.59			104.85	32.04	3.99	36.29	124	292 Peak
4 @	2437.00	94.09			94.35	32.04	3.99	36.29	124	292 Average
5	2484.00	46.67	-27.33	74.00	46.84	32.08	4.05	36.30	124	292 Peak
6	2484.00	34.83	-19.17	54.00	35.00	32.08	4.05	36.30	124	292 Average
7	7191.00	52.65	-21.35	74.00	46.34	35.62	7.16	36.48	100	111 Peak
8	7191.00	39.49	-14.51	54.00	33.19	35.62	7.16	36.48	100	111 Average
9	9748.00	47.48	-26.52	74.00	86.61	-10.02	7.98	37.10	100	0 Peak



Test Mode :	Mode 7	Temperature :	27~28°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

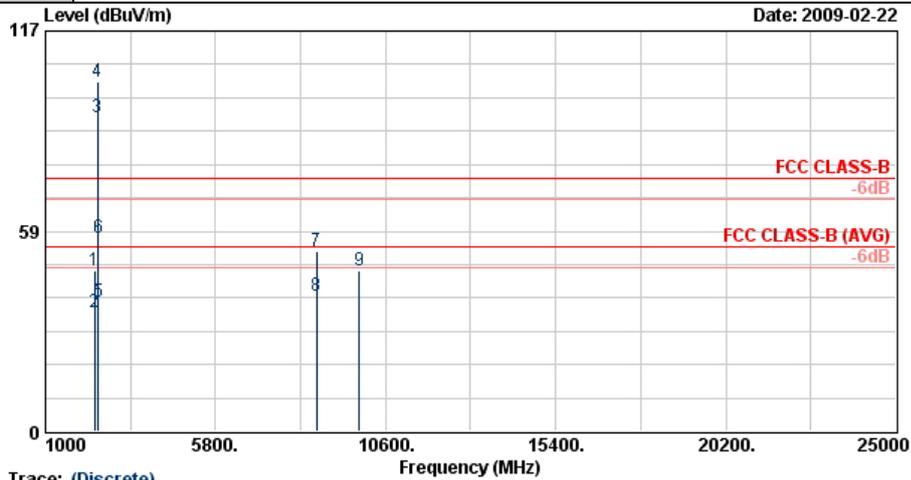


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 Project : FR 920318

	Freq	Level	Over	Limit	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2390.00	49.83	-24.17	74.00	50.22	31.98	3.92	36.28	105	29	Peak	
2	2390.00	37.28	-16.72	54.00	37.66	31.98	3.92	36.28	105	29	Average	
3 @	2462.00	95.67			95.88	32.06	4.02	36.29	105	29	Average	
4 X	2462.00	106.19			106.40	32.06	4.02	36.29	105	29	Peak	
5	2483.50	42.66	-11.34	54.00	42.83	32.08	4.05	36.30	105	29	Average	
6	2483.50	65.76	-8.24	74.00	65.93	32.08	4.05	36.30	105	29	Peak	
7	7866.00	52.43	-21.57	74.00	46.01	35.65	7.45	36.67	100	167	Peak	
8	7866.00	39.32	-14.68	54.00	32.89	35.65	7.45	36.67	100	167	Average	
9	9848.00	40.40	-33.60	74.00	79.27	-9.77	8.04	37.14	100	0	Peak	



Test Mode :	Mode 7	Temperature :	27~28°C
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		



Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 Project : FR 920318

	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	46.86	-27.14	74.00	47.24	31.98	3.92	36.28	127	293	Peak
2	2388.00	35.01	-18.99	54.00	35.39	31.98	3.92	36.28	127	293	Average
3 @	2462.00	91.58			91.79	32.06	4.02	36.29	127	293	Average
4 X	2462.00	102.38			102.59	32.06	4.02	36.29	127	293	Peak
5	2483.50	37.66	-16.34	54.00	37.83	32.08	4.05	36.30	127	293	Average
6	2483.50	56.43	-17.57	74.00	56.60	32.08	4.05	36.30	127	293	Peak
7	8652.00	52.55	-21.45	74.00	46.07	35.85	7.39	36.76	100	78	Peak
8	8652.00	39.69	-14.31	54.00	33.21	35.85	7.39	36.76	100	78	Average
9	9848.00	46.93	-27.07	74.00	85.80	-9.77	8.04	37.14	100	0	Peak



3.8 Antenna Requirements

3.8.1 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.

3.8.2 Antenna Connected Construction

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

3.8.3 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 Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
System Simulator	R&S	CMU200	105934	N/A	Nov. 08, 2008	Nov. 07, 2009	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 26, 2008	Jun. 25, 2009	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 19, 2009	Feb. 18, 2010	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 19, 2009	Feb. 18, 2010	Conducted (TH02-HY)
Thermal Chamber	TEN BILLION	TTH-D35P	TBN-930701	N/A	Aug. 01, 2008	Jul. 31, 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	Nov. 26, 2008	Nov. 25, 2009	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz~30MHz	Nov. 26, 2008	Nov. 25, 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	MY44211030	9kHz~26.5GHz	Oct. 24, 2008	Oct. 23, 2009	Radiation (03CH06-HY)
Spectrum Analyzer	R&S	FSP40	100057	9kHz~40GHz	Oct. 16, 2008	Oct. 15, 2009	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz~1000M Hz	Apr. 24, 2008	Apr. 23, 2009	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz~2GHz	Nov. 12, 2008	Nov. 11, 2009	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~18G	Oct. 28, 2008	Oct. 27, 2009	Radiation (03CH06-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	BBHA9170251	15G - 40GHz	Oct. 16, 2008	Oct. 15, 2009	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G~26.5GHz	Nov. 11, 2008	Nov. 10, 2009	Radiation (03CH06-HY)
Pre Amplifier	Agilent	310N	186713	9kHz~1GHz	Apr. 21, 2008	Apr. 20, 2009	Radiation (03CH06-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	May 22, 2008	May 21, 2010	Radiation (03CH06-HY)

5 Uncertainty of Evaluation

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

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 (30 MHz ~ 1000 MHz)

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 (1 GHz ~ 40 GHz)

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. : L1190-081212

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
Specific Accreditation Program	: Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangement with Foreign Authorities


Jay-San Chen
President, Taiwan Accreditation Foundation
Date : December 12, 2008

PI, total 18 pages

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



Appendix A. Photographs of EUT

Please refer to Sporton report number EP920318 as below.