FCC Test Report

APPLICANT	:	**Hewlett Packard Company**
EQUIPMENT	:	**HP iPAQ KB1**
BRAND NAME	:	**HP**
MODEL NAME	:	**HSTNH-P21C**
FCC ID	:	**B94HHP21C**
STANDARD	:	**FCC Part 15 Subpart C §15.247**
CLASSIFICATION	:	**Digital Transmission System (DTS)**

The product sample received on Jun. 13, 2009 and completely tested on Jun. 29, 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

Testing Laboratory 1190

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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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR961307B	Rev. 01	Initial issue of report	Jul. 01, 2009

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	≥ 0.5 MHz	Pass	-
3.2	15.247(b)	A8.4	Power Output	≤ 30 dBm	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	≤ 20 dBc	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	< 20 dBc	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	≤ 8 dBm	Pass	-
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 5.4 dB at 0.63 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.03 dB at 31.08 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Hewlett Packard Company
3000 Hanover Street, Palo Alto, CA 94304

1.2 Manufacturer

Pegatron Corporation
5F., No. 76, Ligong St., Beitou Dist., Taipei City 112, Taiwan (R.O.C.)

1.3 Feature of Equipment under Test

Product Feature & Specification	
Equipment	HP iPAQ KB1
Brand Name	HP
Model Name	HSTNH-P21C
FCC ID	B94HHP21C
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 : 22.28 dBm / 169.04 mW 802.11g : 21.91 dBm / 155.24 mW
Antenna Type	PIFA Antenna with gain 1 dBi
Type of Antenna Connector	N/A
HW Version	EVT2
SW Version	Obsidian_0.21.58.03
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).

List of Accessory:

Specification of Accessory		
AC Adapter 1	**Manufacturer**	Flextronics
	Brand Name	HP
	Part Number	538745-001
	Power Rating	I/P:100-240Vac, 50-60Hz, 200mA; O/P: 5Vdc, 1A
AC Adapter 2	**Manufacturer**	Phihong
	Brand Name	HP
	Model Name	PSAA05A-050 (for US) PSAA05N-050 (for Argentina)
	Power Rating	I/P:100-240Vac, 50-60Hz, 200mA; O/P: 5Vdc, 1A
	AC Power Cord Type	1.8 meter shielded cable without ferrite core
Battery 1	**Brand Name**	HP
	Model Name	HSTNH-T21C-H
	Power Rating	3.7Vdc, 11.3Wh
	Type	Li-ion
Battery 2	**Brand Name**	HP
	Model Name	HSTNH-T21C-S
	Power Rating	3.7Vdc, 5.7Wh
	Type	Li-ion
Earphone	**Brand Name**	foster
	Model Name	492854
	Signal Line Type	1.3 meter non-shielded cable without ferrite core
USB Cable	**Brand Name**	Foxconn
	Model Name	486113-001
	Signal Line Type	1.2 meter shielded cable without ferrite core
LCD Panel	**Brand Name**	Samsung Mobile Display
	Model Name	AMS250CU01

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. For accessories equipped with this EUT, please refer to the appendix of the external photo.
3. PSAA05A-050 and PSAA05N-050 have the same circuit design. The difference between these models is plug, only PSAA05A-050 (for US) was used for the test.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / 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 Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	SMC	SMC-100	HEDWG4005 ACC	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-100	PYA1YH	N/A	N/A
5.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	i-Pod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
7.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m

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 Pre-Scanned RF Power (dBm)					
Channel	Frequency (MHz)	Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	16.89	16.92	16.92	16.94
CH 06	2437 MHz	16.69	16.60	16.69	16.74
CH 11	2462 MHz	16.97	16.99	16.89	**17.00**

802.11g

2.4GHz 802.11g Pre-Scanned 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	14.75	14.73	14.79	14.85	14.88	14.88	14.62	14.61
CH 06	2437 MHz	14.80	14.77	14.73	14.84	14.73	14.70	14.73	14.70
CH 11	2462 MHz	**15.14**	15.10	15.13	15.13	15.04	15.05	15.04	15.06

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 11 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

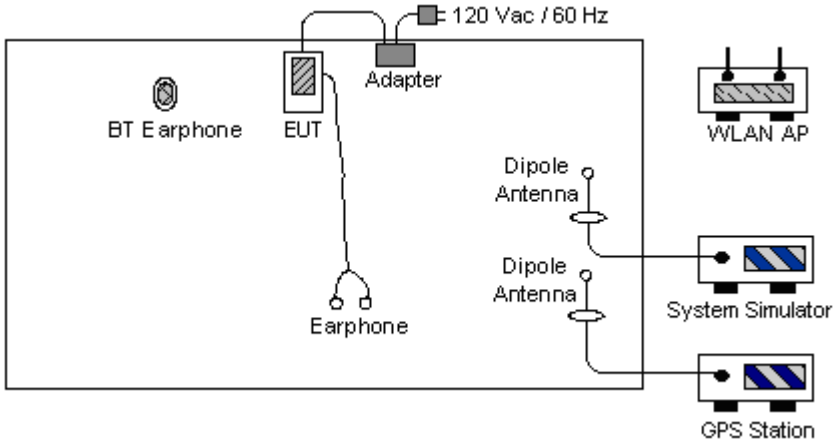
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic 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	Mode 1: CH01_2412 MHz Mode 2: CH06_2437 MHz Mode 3: CH11_2462 MHz	Mode 4: CH01_2412 MHz Mode 5: CH06_2437 MHz Mode 6: CH11_2462 MHz
Radiated TCs	Mode 1: CH01_2412 MHz Mode 2: CH06_2437 MHz Mode 3: CH11_2462 MHz	Mode 4: CH01_2412 MHz Mode 5: CH06_2437 MHz Mode 6: CH11_2462 MHz
AC Conducted Emission	Mode 1: GSM850 Idle + BT Link + WLAN Link + GPS Rx + Battery 1 + Earphone + Adapter 1 Mode 2: GSM850 Idle + BT Link + WLAN Link + GPS Rx + Battery 2 + Earphone + Adapter 2 Mode 3: WCDMA Band V Idle + BT Link + WLAN Link + GPS Rx + Earphone + USB Link + Battery 2	
Remark: The worst case of conducted emission is mode 3; only the test data of it was reported.		

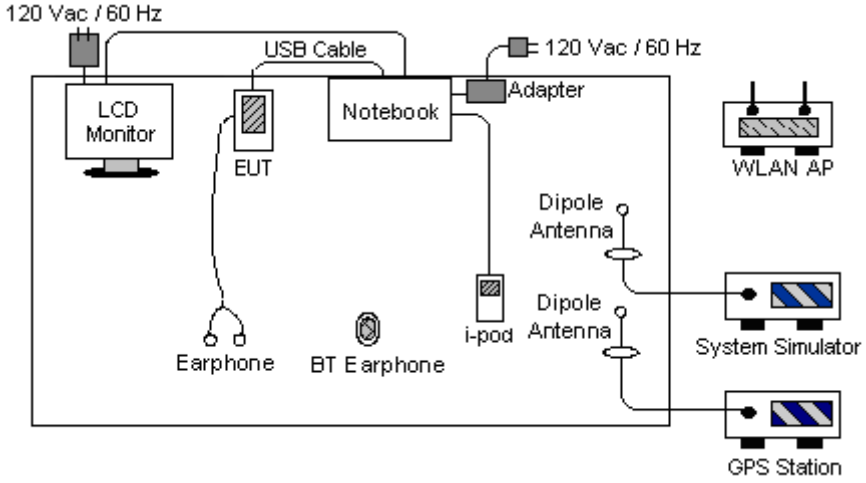
2.3 Connection Diagram of Test System

<Conducted Emission>

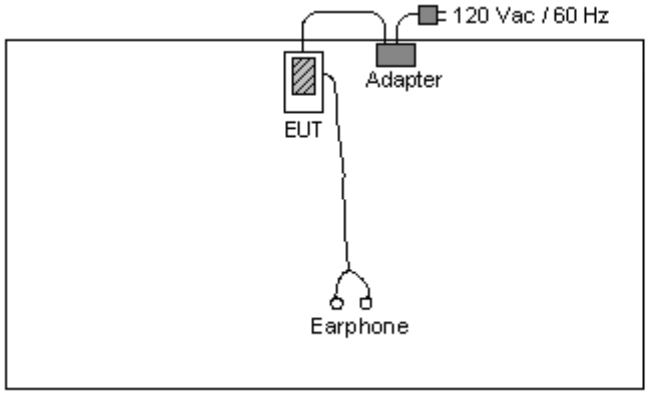
EUT with Adapter Mode



EUT with USB Link Mode



<Radiated Emission>



2.4 RF Utility

The programmed RF utility “FCCTest” 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.

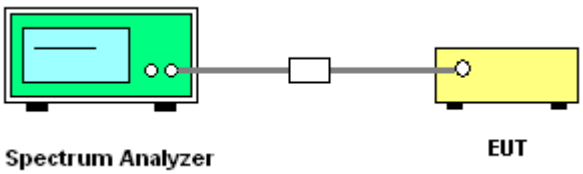
3.1.2 Measuring Instruments

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 :	23~24℃
Test Engineer :	Ken Hsu	Relative Humidity :	44~45%

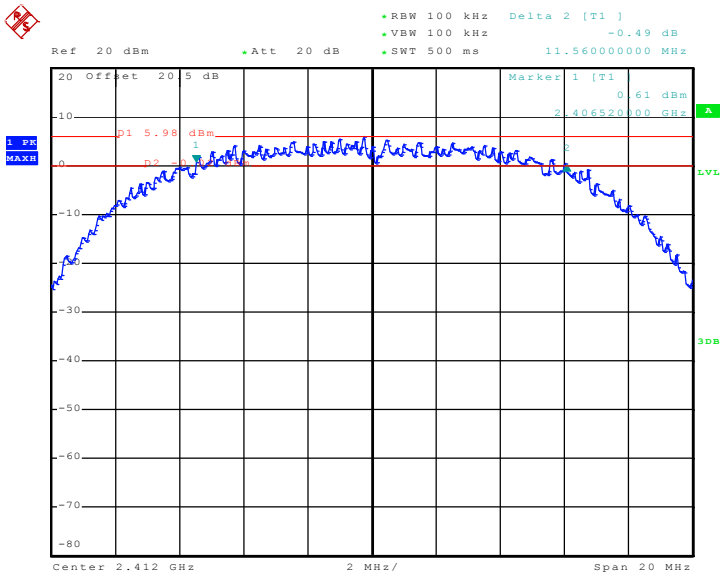
Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	11.56	0.5	Pass
06	2437	11.56	0.5	Pass
11	2462	11.56	0.5	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	23~24℃
Test Engineer :	Ken Hsu	Relative Humidity :	44~45%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.40	0.5	Pass
06	2437	16.40	0.5	Pass
11	2462	16.40	0.5	Pass

3.1.6 Test Plots of 6dB Bandwidth

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



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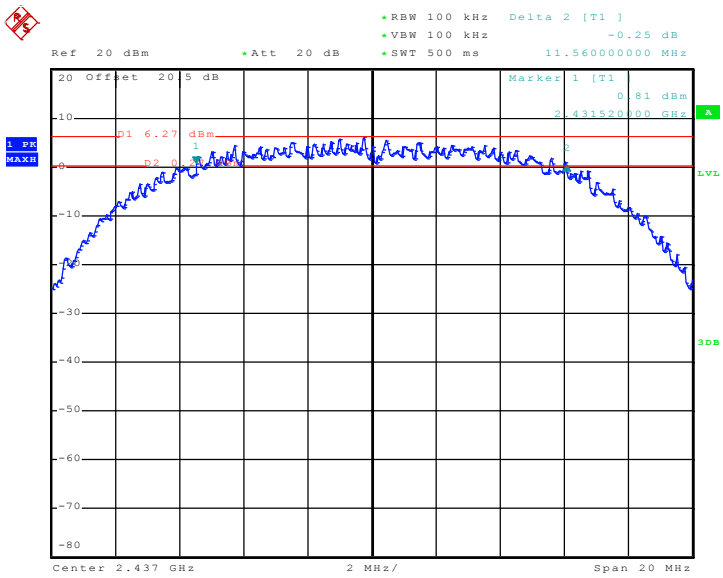
Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



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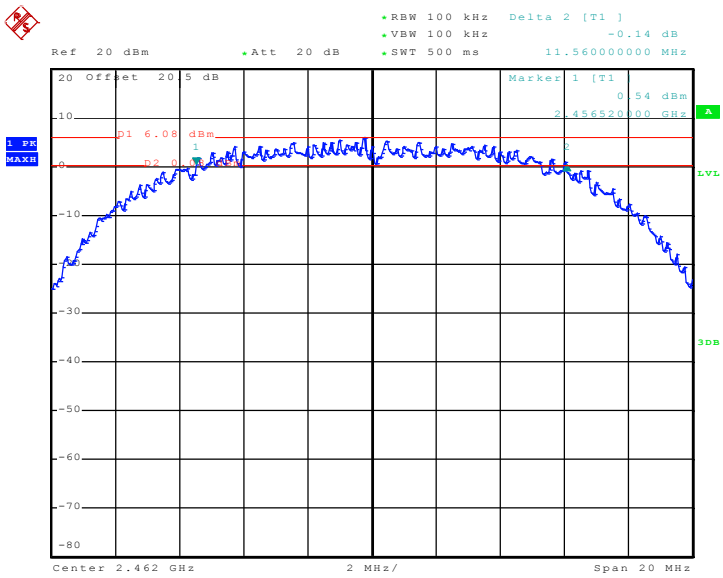
Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



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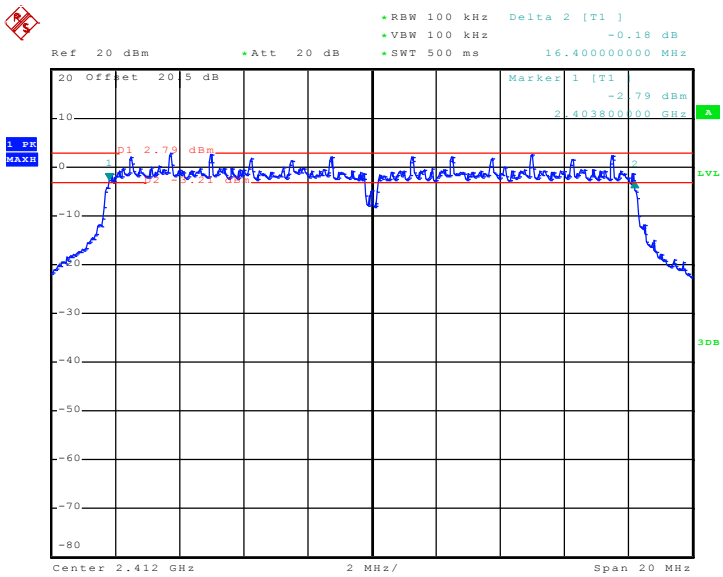
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



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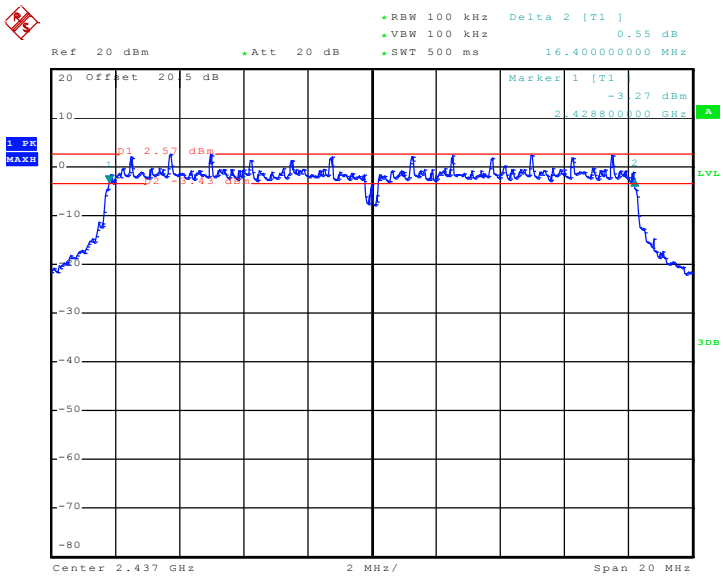
Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



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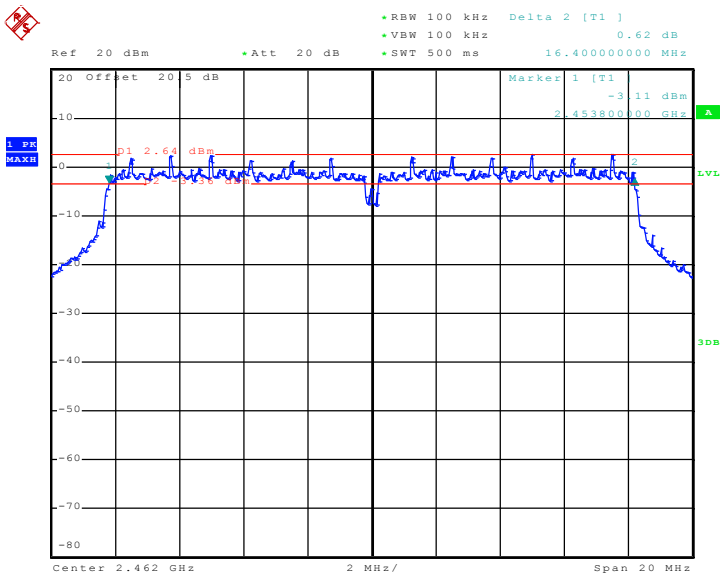
Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



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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.

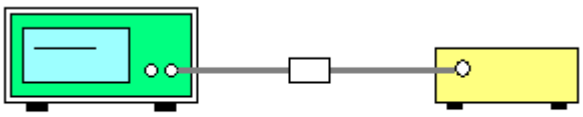
3.2.2 Measuring Instruments

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 :	23~24℃
Test Engineer :	Ken Hsu	Relative Humidity :	44~45%

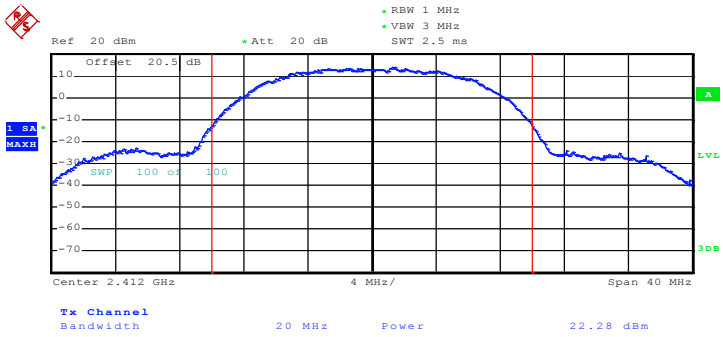
Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.28	30	Pass
06	2437	22.08	30	Pass
11	2462	22.20	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	23~24℃
Test Engineer :	Ken Hsu	Relative Humidity :	44~45%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.80	30	Pass
06	2437	21.64	30	Pass
11	2462	21.91	30	Pass

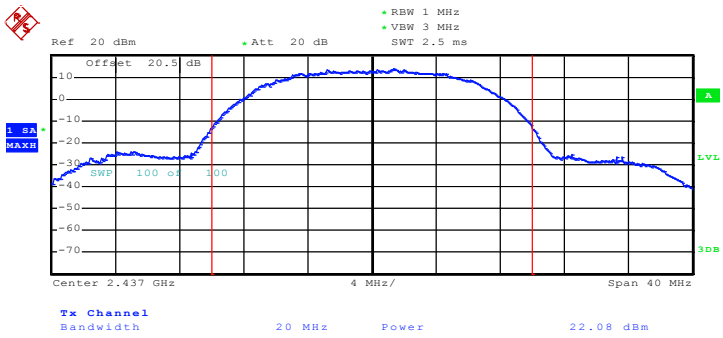
3.2.6 Test Plots of Output Power

Mode 1 : Output Power Plot on 802.11b Channel 01



Date: 22.JUN.2009 12:11:15

Mode 2 : Output Power Plot on 802.11b Channel 06



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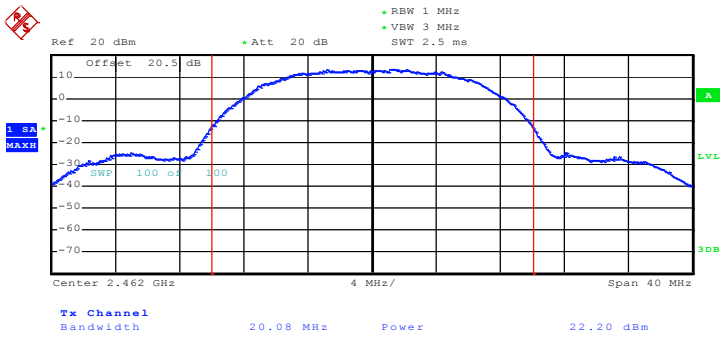
Mode 3 : Output Power Plot on 802.11b Channel 11



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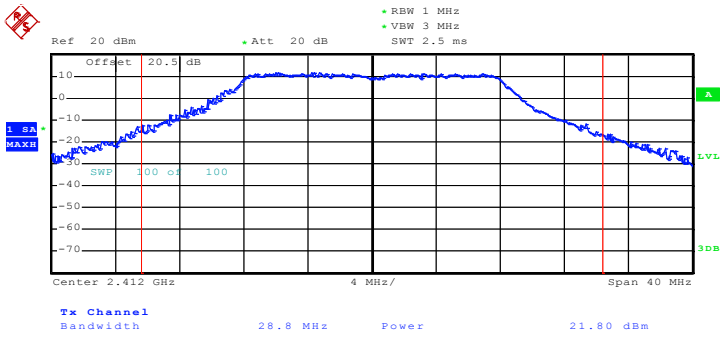
Mode 4 : Output Power Plot on 802.11g Channel 01



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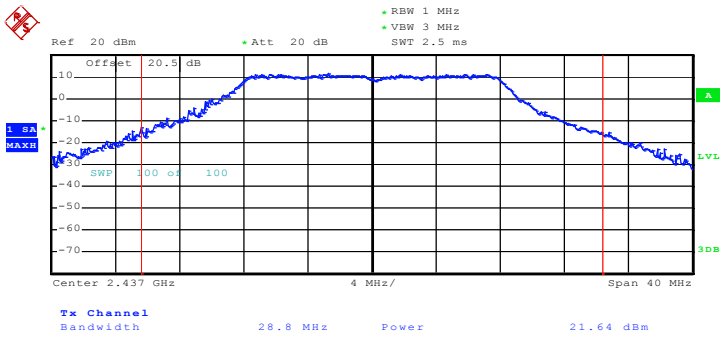
Mode 5 : Output Power Plot on 802.11g Channel 06



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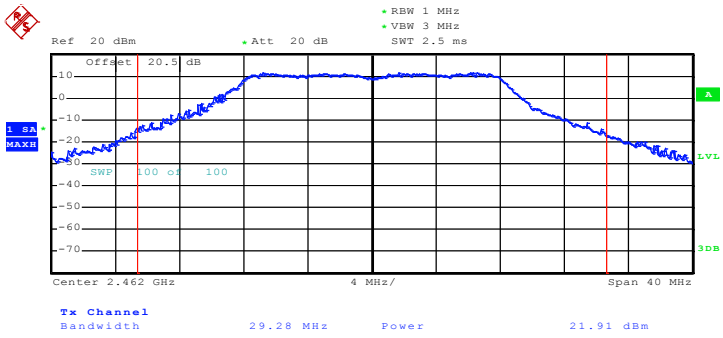
Mode 6 : Output Power Plot on 802.11g Channel 11



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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.

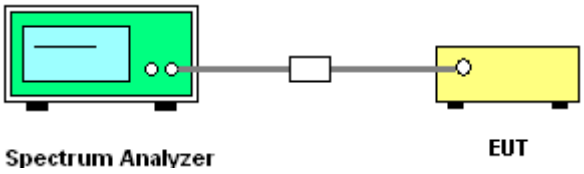
3.3.2 Measuring Instruments

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 :**	24~27°C
Test Band :	802.11b	**Relative Humidity :**	47~52%
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**
2386.38	55.02	-18.98	74.00	55.40	31.98	3.92	36.28	103	319	Peak
2386.38	43.73	-10.27	54.00	44.11	31.98	3.92	36.28	103	319	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**
2386.38	57.03	-16.97	74.00	57.41	31.98	3.92	36.28	100	295	Peak
2386.38	45.31	-8.69	54.00	45.69	31.98	3.92	36.28	100	295	Average

Test Mode :	Mode 3	**Temperature :**	24~27°C
Test Band :	802.11b	**Relative Humidity :**	47~52%
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**
2488.98	52.32	-21.69	74.00	52.46	32.10	4.05	36.30	100	321	Peak
2488.98	40.68	-13.33	54.00	40.82	32.10	4.05	36.30	100	321	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**
2488.41	53.09	-20.92	74.00	53.23	32.10	4.05	36.30	102	263	Peak
2488.41	41.52	-12.49	54.00	41.66	32.10	4.05	36.30	102	263	Average

Test Mode :	Mode 4	Temperature :	24~27°C
Test Band :	802.11g	Relative Humidity :	47~52%
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	67.26	-6.74	74.00	67.64	31.98	3.92	36.28	104	321	Peak
2389.99	49.00	-5.00	54.00	49.38	31.98	3.92	36.28	104	321	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
2389.61	69.15	-4.85	74.00	69.53	31.98	3.92	36.28	100	293	Peak
2389.61	50.07	-3.93	54.00	50.45	31.98	3.92	36.28	100	293	Average

Test Mode :	Mode 6	Temperature :	24~27°C
Test Band :	802.11g	Relative Humidity :	47~52%
Test Channel :	11	Test Engineer :	Mac Lin

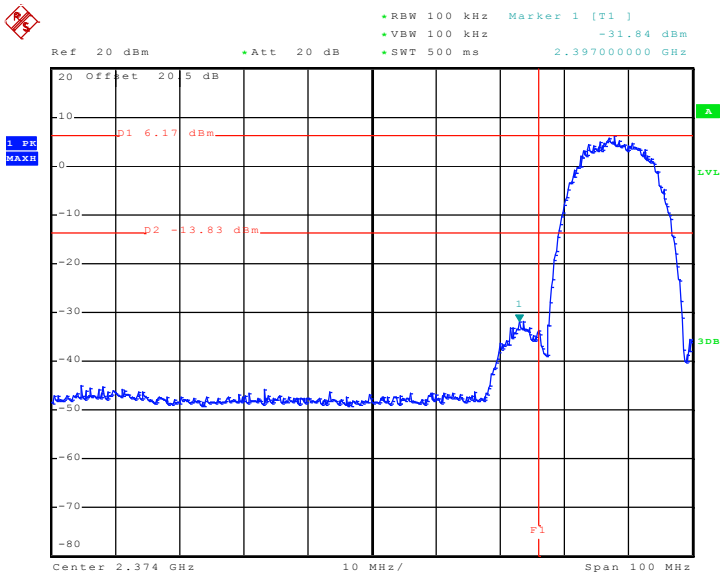
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.85	69.60	-4.40	74.00	69.77	32.08	4.05	36.30	100	320	Peak
2483.85	49.13	-4.87	54.00	49.30	32.08	4.05	36.30	100	320	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
2483.50	70.72	-3.28	74.00	70.89	32.08	4.05	36.30	101	262	Peak
2483.50	50.02	-3.98	54.00	50.19	32.08	4.05	36.30	101	262	Average

3.3.6 Test Plots of Conducted Band Edges

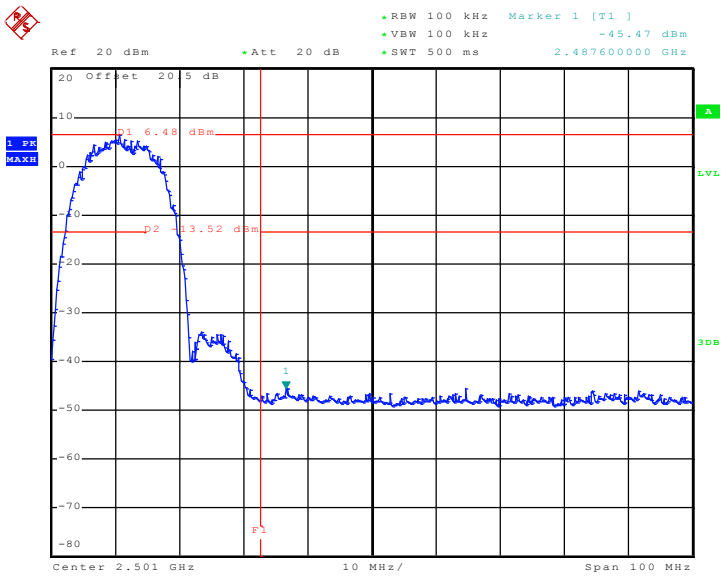
Test Mode :	Mode 1 and 3	**Temperature :**	23~24℃
Test Band :	802.11b	**Relative Humidity :**	44~45%
Test Channel :	01 and 11	**Test Engineer :**	Ken Hsu

Low Band Edge Plot on 802.11b Channel 01



Date: 22.JUN.2009 11:43:04

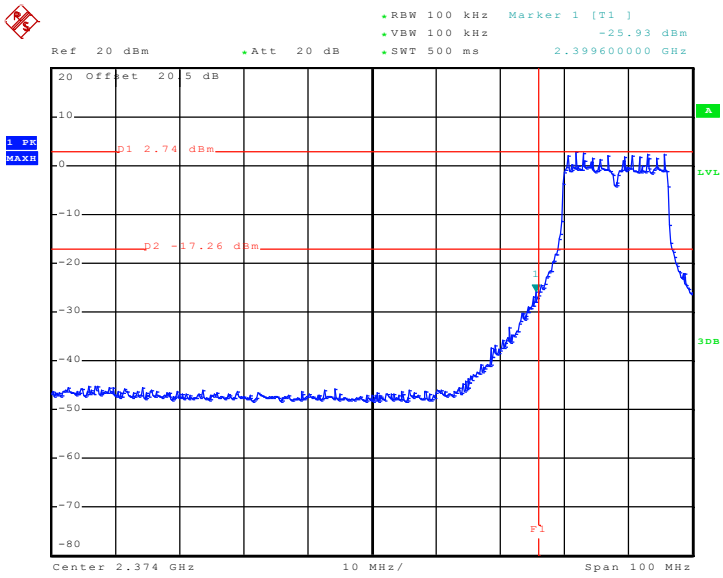
High Band Edge Plot on 802.11b Channel 11



Date: 22.JUN.2009 11:44:14

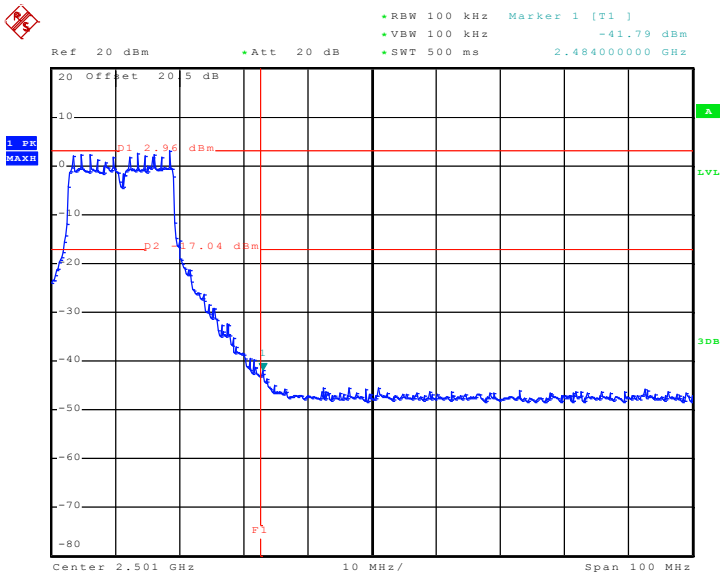
Test Mode :	Mode 4 and 6	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	44~45%
Test Channel :	01 and 11	Test Engineer :	Ken Hsu

Low Band Edge Plot on 802.11g Channel 01



Date: 22.JUN.2009 11:41:50

High Band Edge Plot on 802.11g Channel 11



Date: 22.JUN.2009 11:45:21

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.

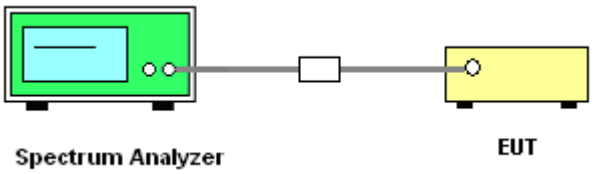
3.4.2 Measuring Instruments

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) ≥ 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.

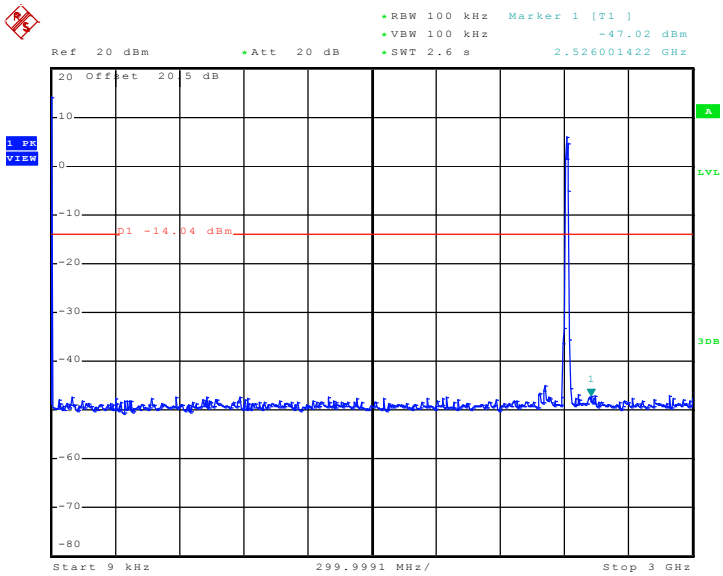
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

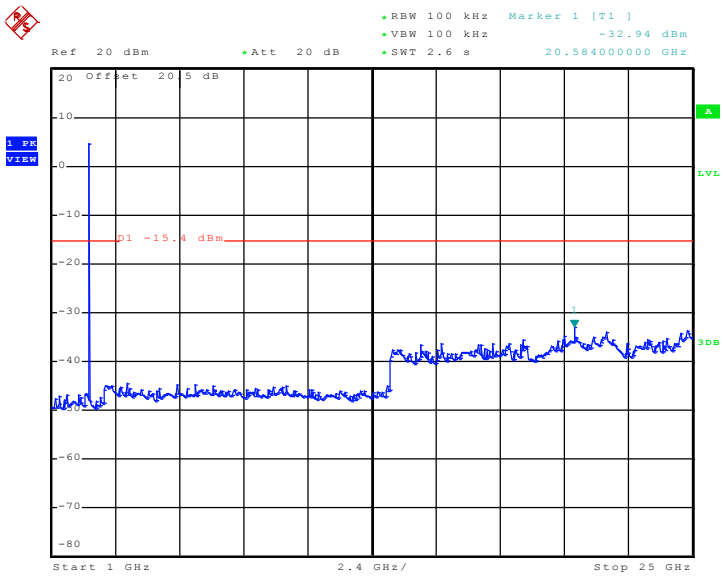
Test Mode :	Mode 1	**Temperature :**	23~24℃
Test Channel :	01	**Relative Humidity :**	44~45%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9K-3G



Date: 25.JUN.2009 21:38:22

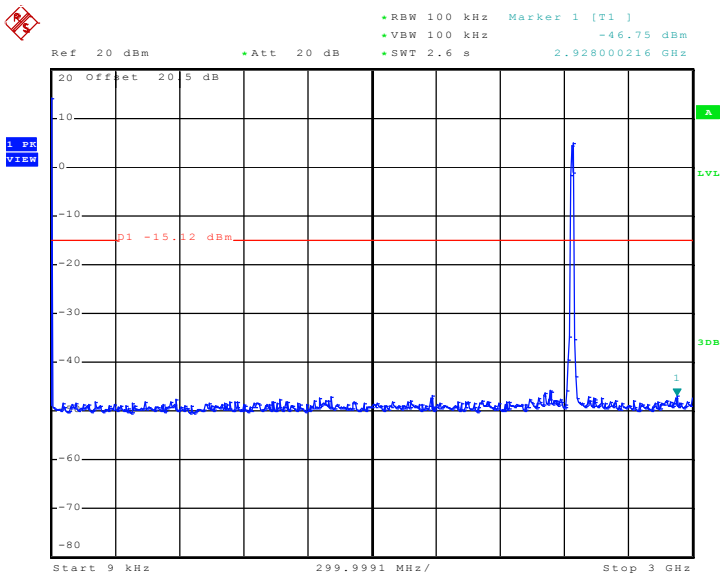
Conducted Spurious Emission Plot between 1G-25G



Date: 25.JUN.2009 21:38:37

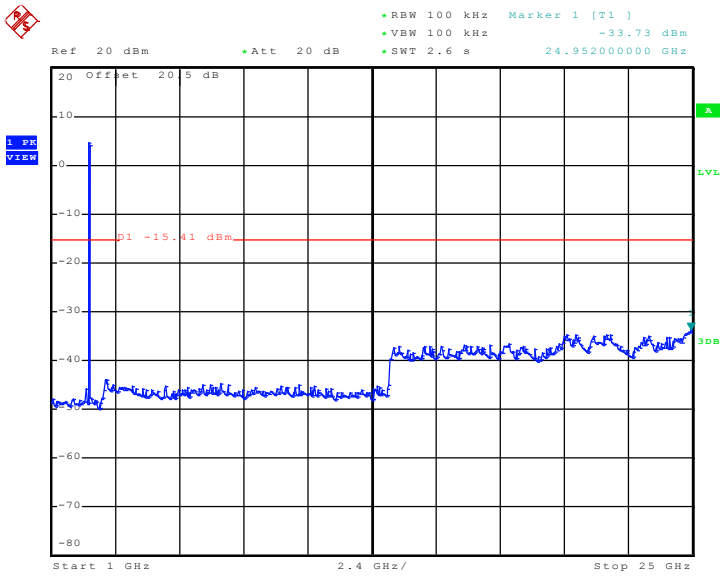
Test Mode :	Mode 2	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	44~45%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9K-3G



Date: 25.JUN.2009 21:39:00

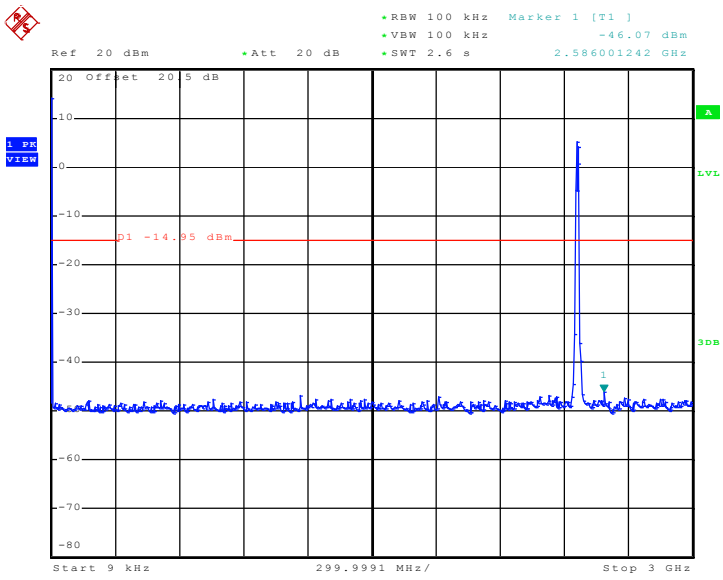
Conducted Spurious Emission Plot between 1G-25G



Date: 25.JUN.2009 21:39:15

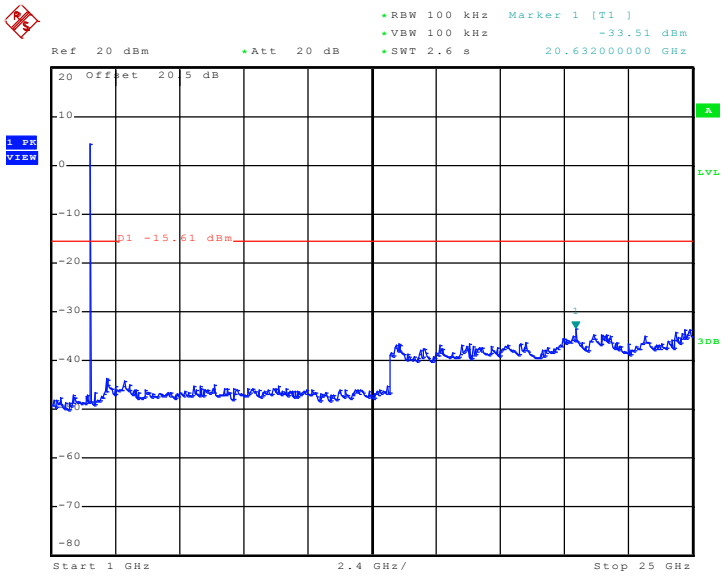
Test Mode :	Mode 3	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	44~45%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9K-3G



Date: 25.JUN.2009 21:39:37

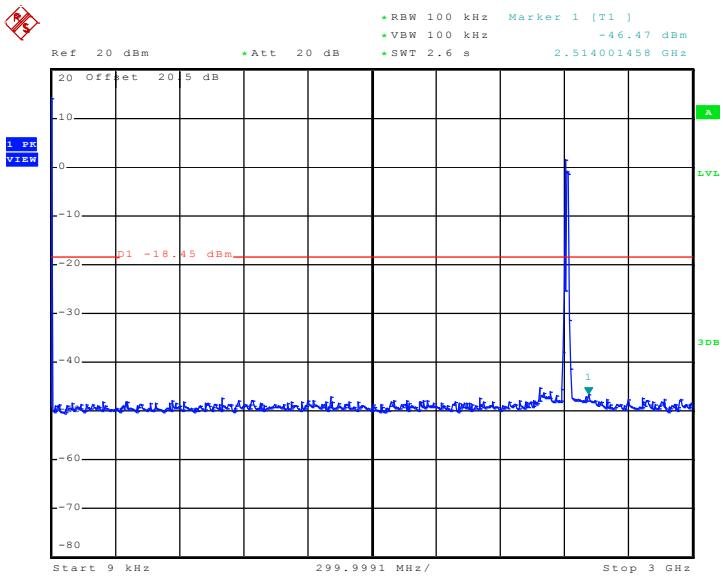
Conducted Spurious Emission Plot between 1G-25G



Date: 25.JUN.2009 21:39:52

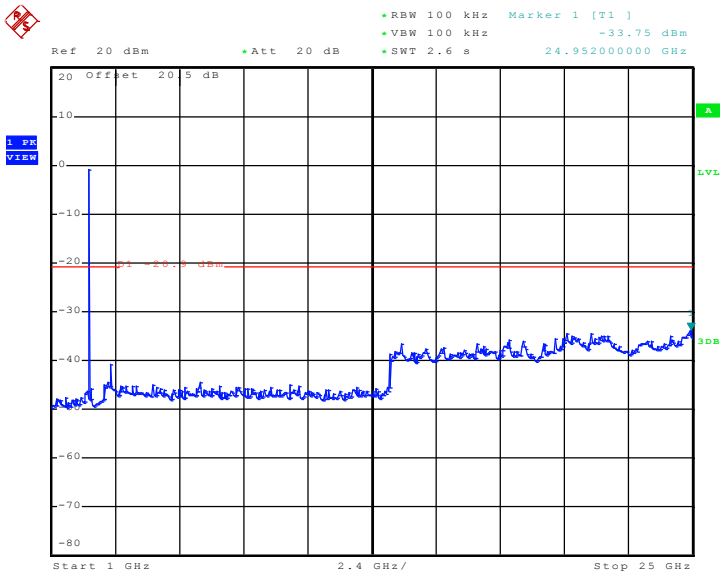
Test Mode :	Mode 4	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	44~45%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9K-3G



Date: 25.JUN.2009 21:44:47

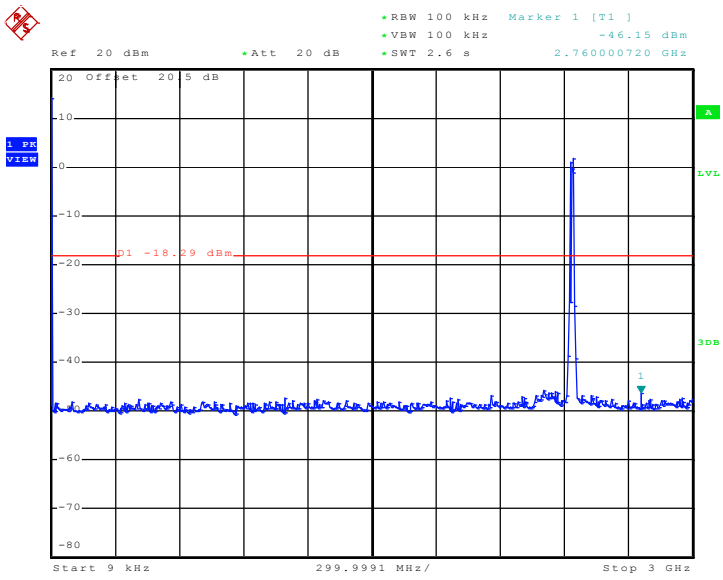
Conducted Spurious Emission Plot between 1G-25G



Date: 25.JUN.2009 21:45:00

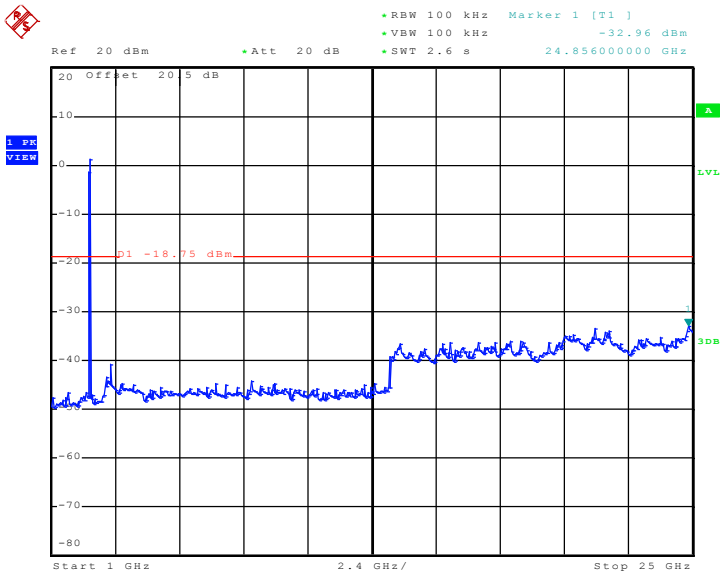
Test Mode :	Mode 5	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	44~45%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9K-3G



Date: 25.JUN.2009 21:45:22

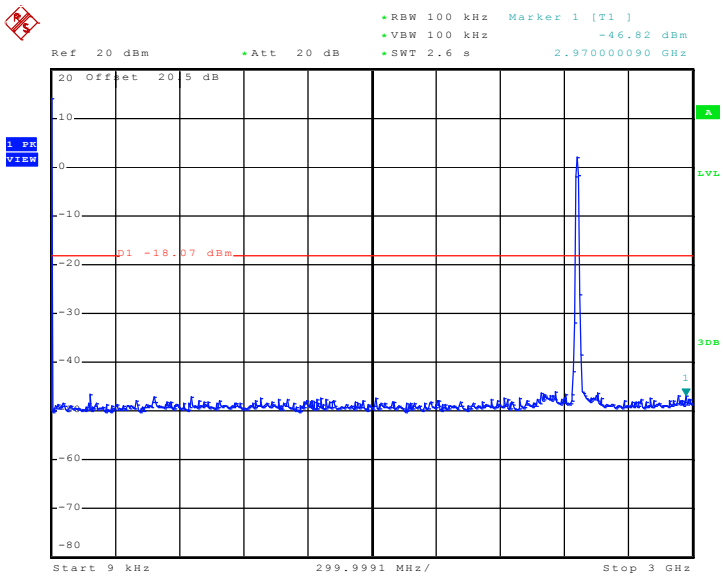
Conducted Spurious Emission Plot between 1G-25G



Date: 25.JUN.2009 21:45:38

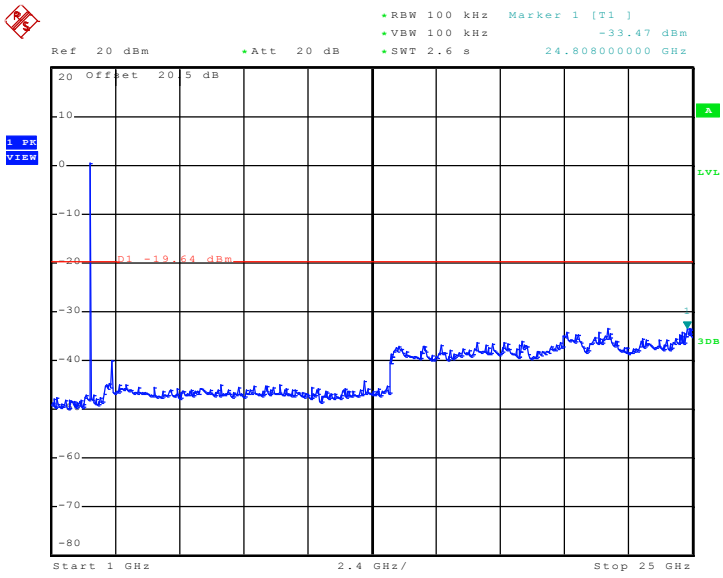
Test Mode :	Mode 6	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	44~45%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9K-3G



Date: 25.JUN.2009 21:46:11

Conducted Spurious Emission Plot between 1G-25G



Date: 25.JUN.2009 21:46:26

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.

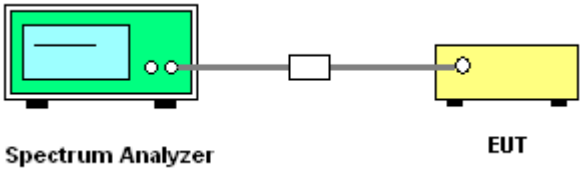
3.5.2 Measuring Instruments

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 :	23~24℃
Test Engineer :	Ken Hsu	Relative Humidity :	44~45%

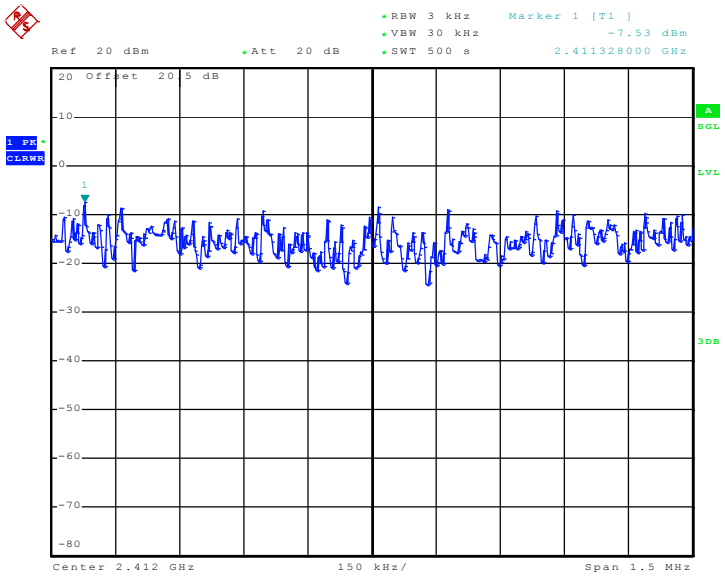
Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-7.53	8	Pass
06	2437	-7.40	8	Pass
11	2462	-7.64	8	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	23~24℃
Test Engineer :	Ken Hsu	Relative Humidity :	44~45%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-8.47	8	Pass
06	2437	-8.77	8	Pass
11	2462	-8.47	8	Pass

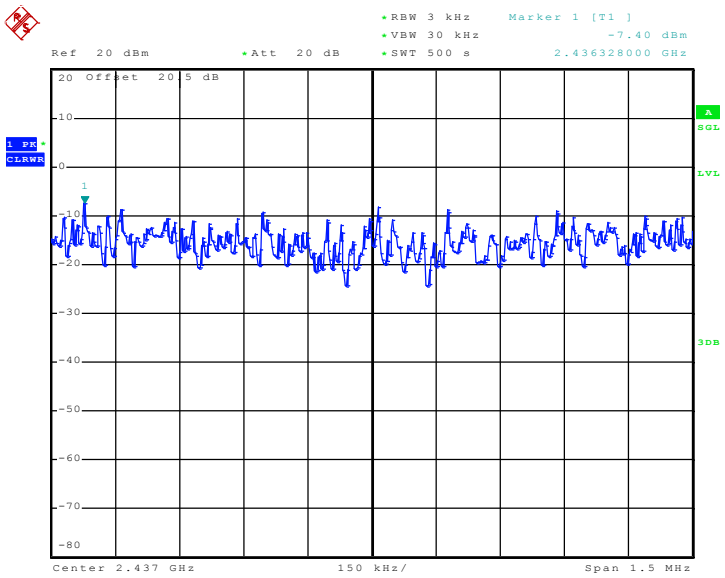
3.5.6 Test Plots of Power Spectral Density

Mode 1 : PSD Plot on 802.11b Channel 01



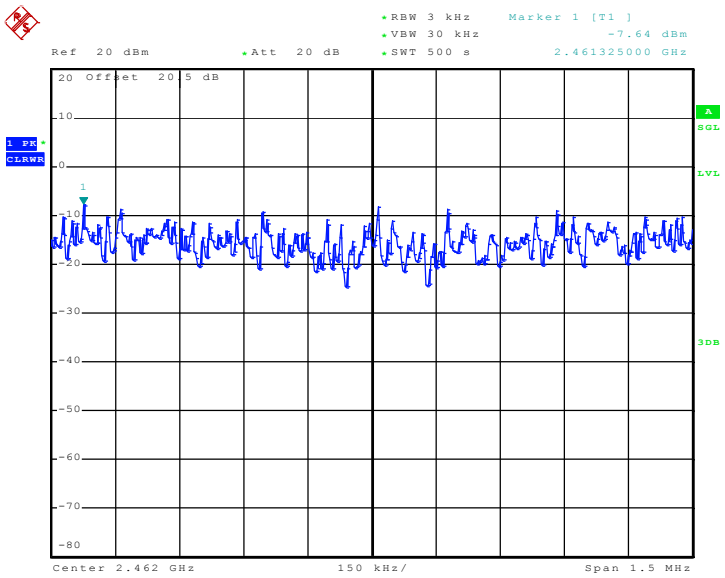
Date: 22.JUN.2009 12:07:08

Mode 2 : PSD Plot on 802.11b Channel 06



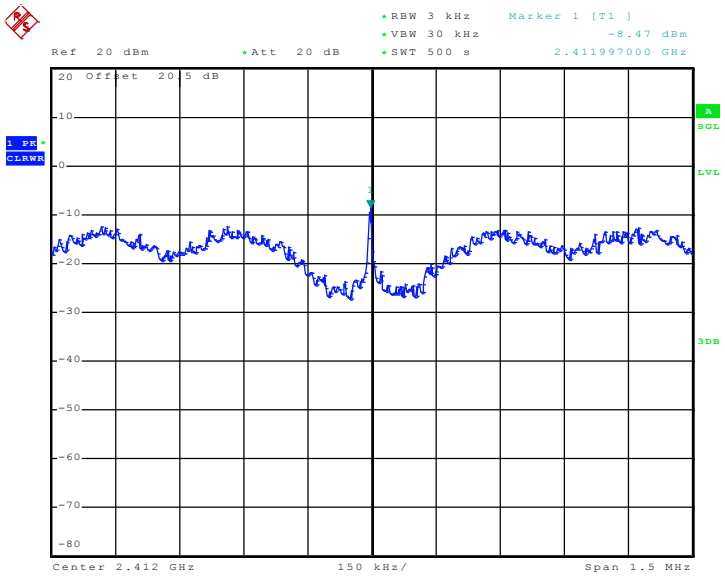
Date: 22.JUN.2009 12:41:24

Mode 3 : PSD Plot on 802.11b Channel 11



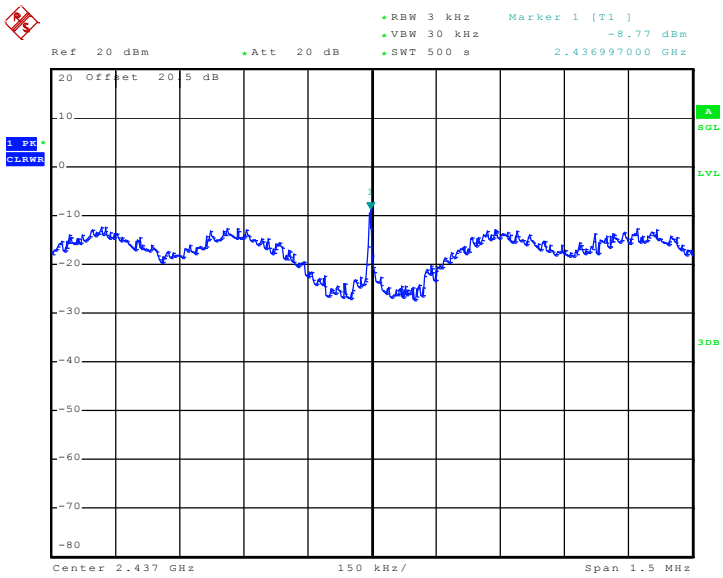
Date: 22.JUN.2009 12:50:11

Mode 4 : PSD Plot on 802.11g Channel 01



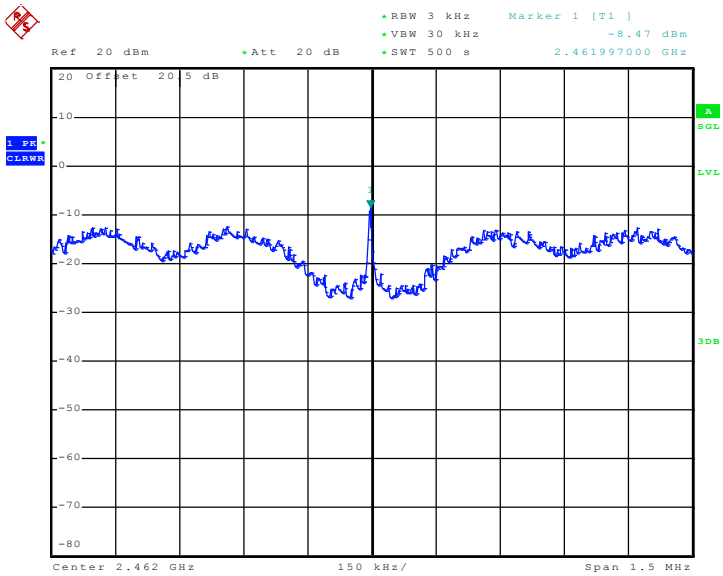
Date: 22.JUN.2009 13:43:41

Mode 5 : PSD Plot on 802.11g Channel 06



Date: 22.JUN.2009 13:09:27

Mode 6 : PSD Plot on 802.11g Channel 11



Date: 22.JUN.2009 12:59:21

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.

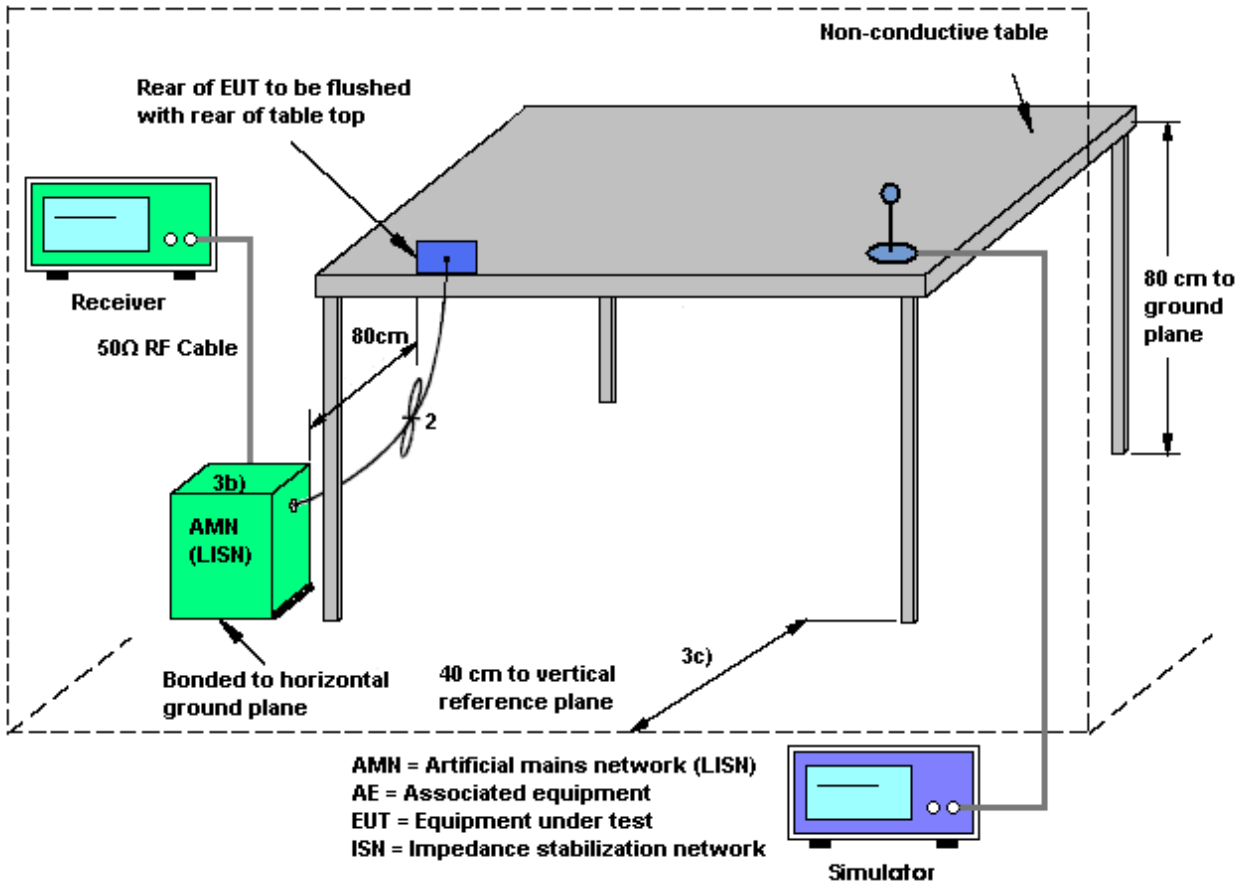
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

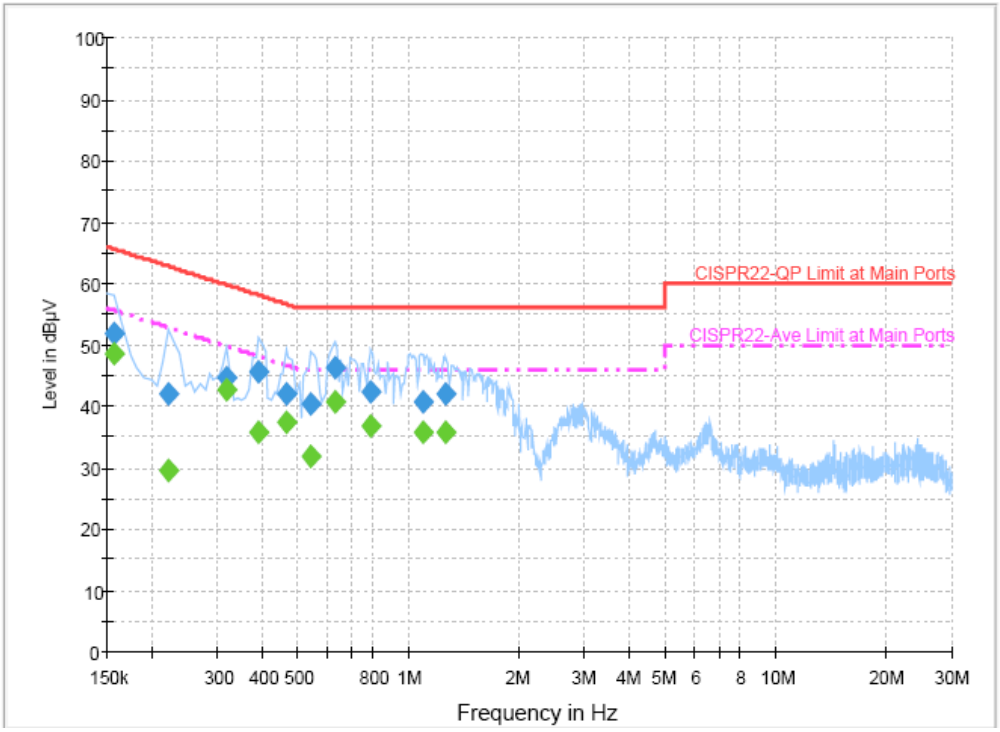
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 3	**Temperature :**	23~24℃
Test Engineer :	Cona Huang	**Relative Humidity :**	44~45%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	WCDMA Band V Idle + BT Link + WLAN Link + GPS Rx + Earphone + USB Link + Battery 2		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



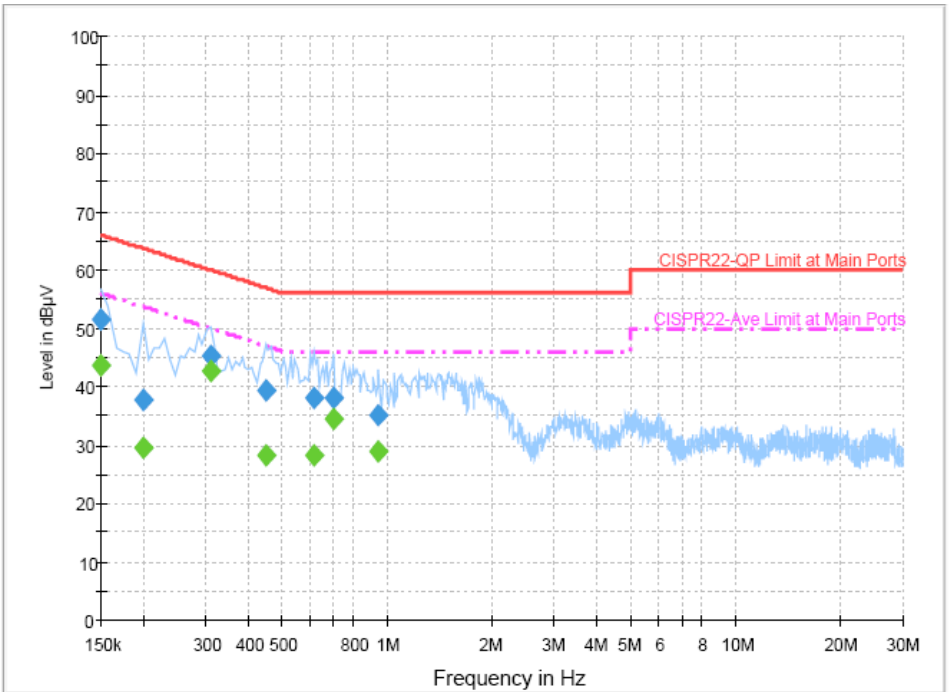
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	51.9	Off	L1	19.5	13.7	65.6
0.222000	41.9	Off	L1	19.5	20.8	62.7
0.318000	44.7	Off	L1	19.4	15.1	59.8
0.390000	45.4	Off	L1	19.5	12.7	58.1
0.462000	41.9	Off	L1	19.4	14.8	56.7
0.542000	40.2	Off	L1	19.5	15.8	56.0
0.630000	46.1	Off	L1	19.4	9.9	56.0
0.790000	42.4	Off	L1	19.5	13.6	56.0
1.094000	40.8	Off	L1	19.5	15.2	56.0
1.262000	41.8	Off	L1	19.5	14.2	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	48.4	Off	L1	19.5	7.2	55.6
0.222000	29.4	Off	L1	19.5	23.3	52.7
0.318000	42.6	Off	L1	19.4	7.2	49.8
0.390000	35.8	Off	L1	19.5	12.3	48.1
0.462000	37.4	Off	L1	19.4	9.3	46.7
0.542000	31.7	Off	L1	19.5	14.3	46.0
0.630000	40.6	Off	L1	19.4	5.4	46.0
0.790000	36.6	Off	L1	19.5	9.4	46.0
1.094000	35.9	Off	L1	19.5	10.1	46.0
1.262000	35.8	Off	L1	19.5	10.2	46.0

Test Mode :	Mode 3	**Temperature :**	23~24℃
Test Engineer :	Cona Huang	**Relative Humidity :**	44~45%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	WCDMA Band V Idle + BT Link + WLAN Link + GPS Rx + Earphone + USB Link + Battery 2		
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)
0.150000	51.5	Off	N	19.5	14.5	66.0
0.198000	37.9	Off	N	19.5	25.8	63.7
0.310000	45.2	Off	N	19.4	14.8	60.0
0.446000	39.3	Off	N	19.4	17.6	56.9
0.614000	37.9	Off	N	19.5	18.1	56.0
0.702000	38.2	Off	N	19.5	17.8	56.0
0.942000	35.1	Off	N	19.5	20.9	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	43.5	Off	N	19.5	12.5	56.0
0.198000	29.4	Off	N	19.5	24.3	53.7
0.310000	42.7	Off	N	19.4	7.3	50.0
0.446000	28.3	Off	N	19.4	18.6	46.9
0.614000	28.3	Off	N	19.5	17.7	46.0
0.702000	34.3	Off	N	19.5	11.7	46.0
0.942000	28.8	Off	N	19.5	17.2	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

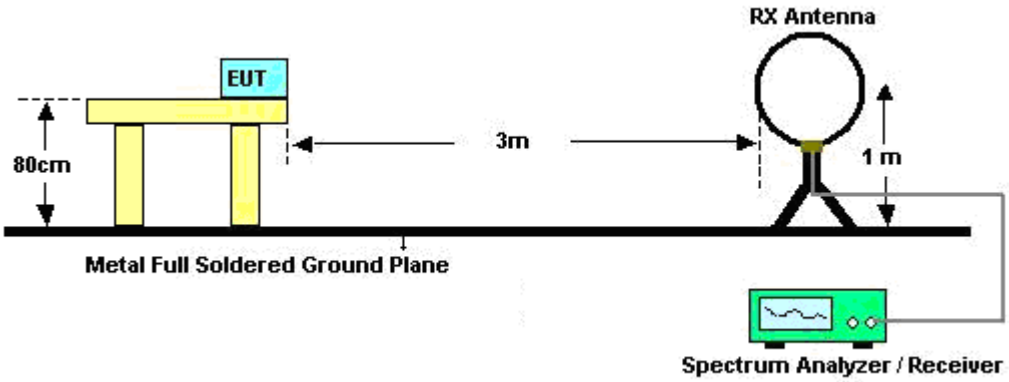
See list of measuring instruments of this test report.

3.7.3 Test Procedures

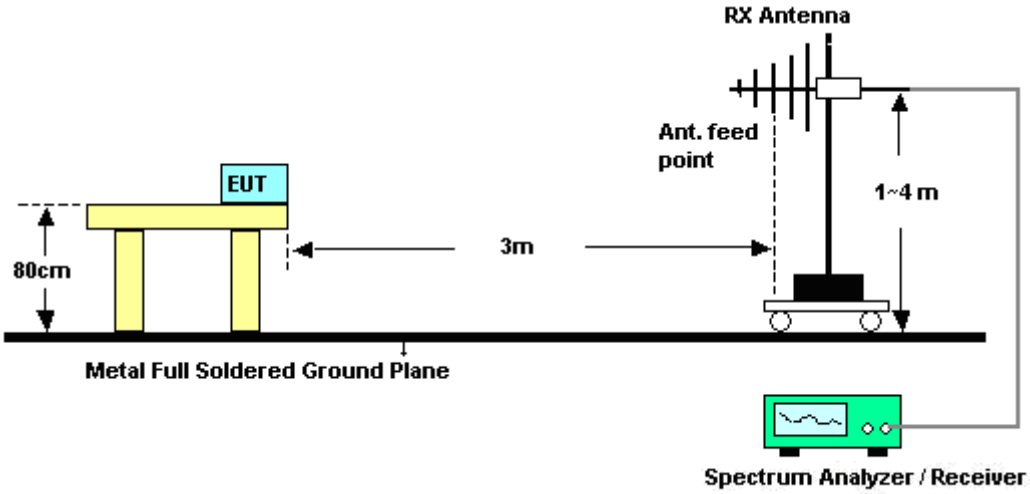
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
   Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector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

Test Engineer :	Mac Lin	Temperature :	24~27°C
		Relative Humidity :	47~52%

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

Note:

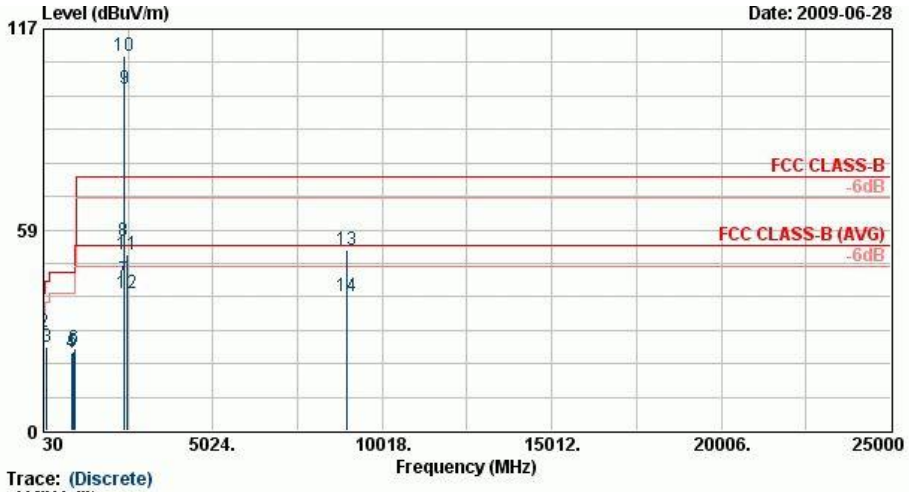
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

3.7.6 Test Result of Radiated Emission (30MHz ~ 10th Harmonic)

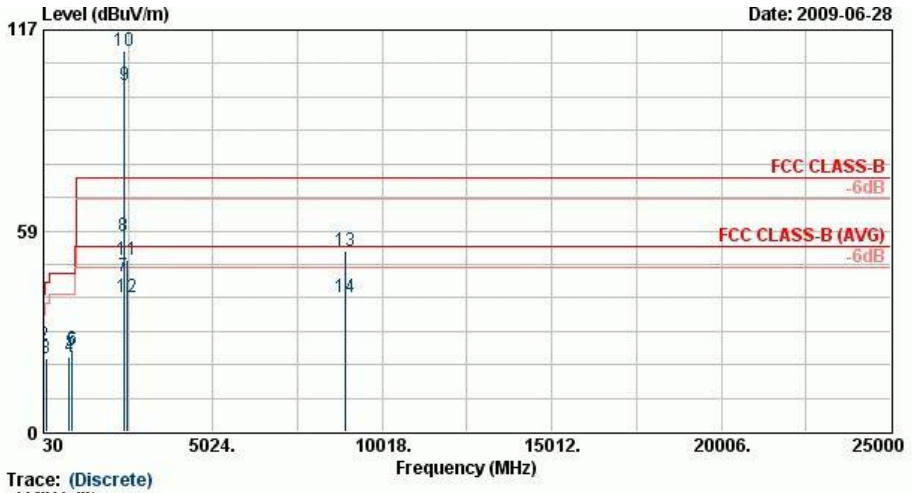
Test Mode :	Mode 1	Temperature :	24~27°C
Test Channel :	01	Relative Humidity :	47~52%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#9 and #10 are fundamental signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
Project : FR 961307

	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	34.18	-5.82	40.00	46.85	18.70	0.30	31.67	100	178	Peak
2	40.53	28.63	-11.37	40.00	46.71	13.32	0.30	31.70	---	---	Peak
3	120.18	24.50	-19.00	43.50	43.03	12.70	0.50	31.73	---	---	Peak
4	850.90	22.49	-23.51	46.00	32.27	21.41	1.20	32.39	---	---	Peak
5	903.40	23.04	-22.96	46.00	31.67	21.72	1.30	31.66	---	---	Peak
6	939.80	23.77	-22.23	46.00	32.03	22.02	1.20	31.48	---	---	Peak
7	2386.38	43.73	-10.27	54.00	44.11	31.98	3.92	36.28	103	319	Average
8	2386.38	55.02	-18.98	74.00	55.40	31.98	3.92	36.28	103	319	Peak
9 X	2412.00	99.47			99.80	32.00	3.95	36.28	103	319	Average
10 X	2412.00	109.33			109.66	32.00	3.95	36.28	103	319	Peak
11	2494.00	51.15	-22.85	74.00	51.30	32.10	4.05	36.30	103	319	Peak
12	2494.00	40.13	-13.87	54.00	40.28	32.10	4.05	36.30	103	319	Average
13	8982.00	52.74	-21.26	74.00	45.64	36.18	7.80	36.89	100	259	Peak
14	8982.00	39.27	-14.73	54.00	32.18	36.18	7.80	36.89	100	259	Average

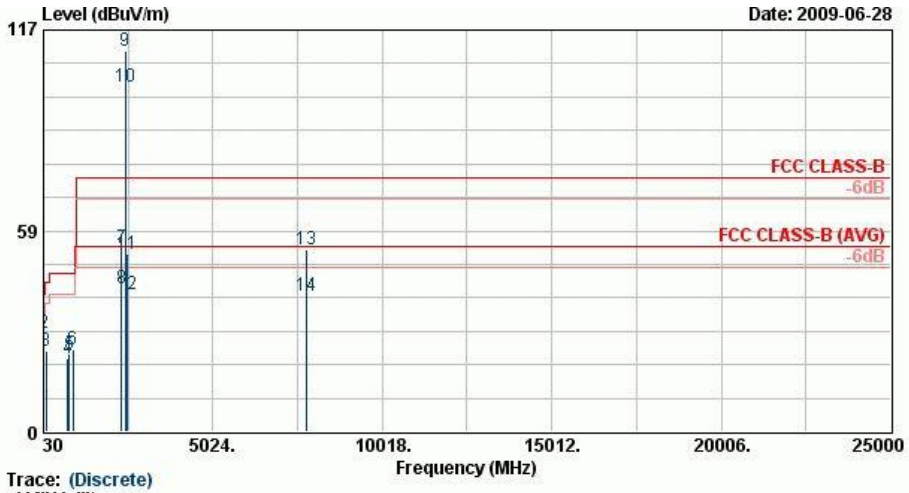
Test Mode :	Mode 1	Temperature :	24~27°C
Test Channel :	01	Relative Humidity :	47~52%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#9 and #10 are fundamental signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
Project : FR 961307

	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 !	32.16	36.44	-3.56	40.00	49.11	18.70	0.30	31.67	400	22	QP
2	41.34	25.39	-14.61	40.00	44.06	12.74	0.30	31.70	---	---	Peak
3	100.74	21.22	-22.28	43.50	41.21	11.53	0.50	32.02	---	---	Peak
4	785.80	21.75	-24.25	46.00	32.04	20.66	1.20	32.15	---	---	Peak
5	861.40	23.58	-22.42	46.00	33.13	21.47	1.21	32.23	---	---	Peak
6	885.90	23.96	-22.04	46.00	32.93	21.61	1.30	31.88	---	---	Peak
7	2386.38	45.31	-8.69	54.00	45.69	31.98	3.92	36.28	100	295	Average
8	2386.38	57.03	-16.97	74.00	57.41	31.98	3.92	36.28	100	295	Peak
9 @	2412.00	100.78			101.11	32.00	3.95	36.28	100	295	Average
10 X	2412.00	110.75			111.08	32.00	3.95	36.28	100	295	Peak
11	2492.00	49.98	-24.02	74.00	50.13	32.10	4.05	36.30	100	295	Peak
12	2492.00	39.23	-14.77	54.00	39.38	32.10	4.05	36.30	100	295	Average
13	8946.00	52.80	-21.20	74.00	45.81	36.13	7.74	36.88	100	35	Peak
14	8946.00	39.08	-14.92	54.00	32.09	36.13	7.74	36.88	100	35	Average

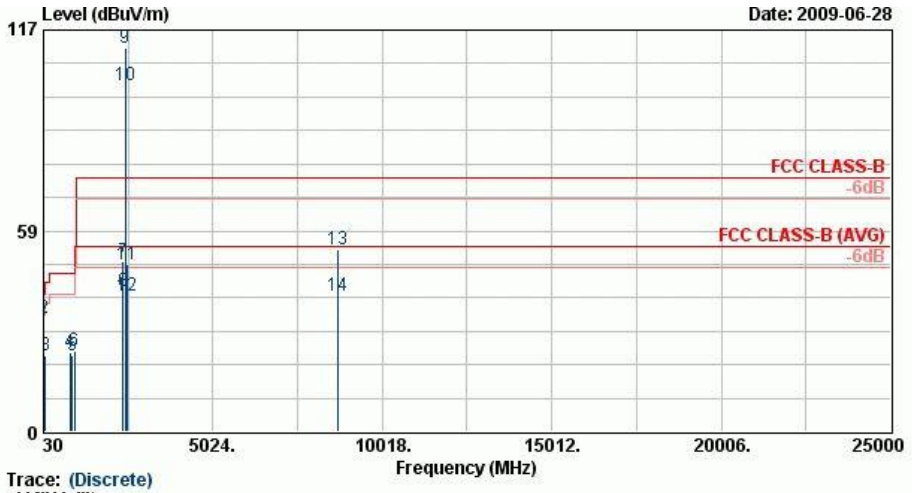
Test Mode :	Mode 2	Temperature :	24~27°C
Test Channel :	06	Relative Humidity :	47~52%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#9 and #10 are fundamental signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
Project : FR 961307

	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 !	32.43	35.68	-4.32	40.00	49.00	18.10	0.30	31.72	100	128	Peak
2	40.53	28.65	-11.35	40.00	46.73	13.32	0.30	31.70	---	---	Peak
3	115.59	23.53	-19.97	43.50	42.12	12.70	0.50	31.79	---	---	Peak
4	742.40	21.24	-24.76	46.00	32.06	20.21	1.10	32.13	---	---	Peak
5	798.40	22.73	-23.27	46.00	32.93	20.78	1.20	32.18	---	---	Peak
6	894.30	23.92	-22.08	46.00	32.71	21.67	1.30	31.75	---	---	Peak
7	2332.00	53.35	-20.65	74.00	53.87	31.89	3.86	36.27	100	320	Peak
8	2332.00	41.78	-12.22	54.00	42.30	31.89	3.86	36.27	100	320	Average
9 X	2437.00	110.99			111.25	32.04	3.99	36.29	100	320	Peak
10 X	2437.00	100.57			100.83	32.04	3.99	36.29	100	320	Average
11	2486.00	51.88	-22.12	74.00	52.04	32.08	4.05	36.30	100	320	Peak
12	2486.00	39.81	-14.19	54.00	39.98	32.08	4.05	36.30	100	320	Average
13	7791.00	53.03	-20.97	74.00	46.65	35.61	7.41	36.66	100	216	Peak
14	7791.00	39.51	-14.49	54.00	33.14	35.61	7.41	36.66	100	216	Average

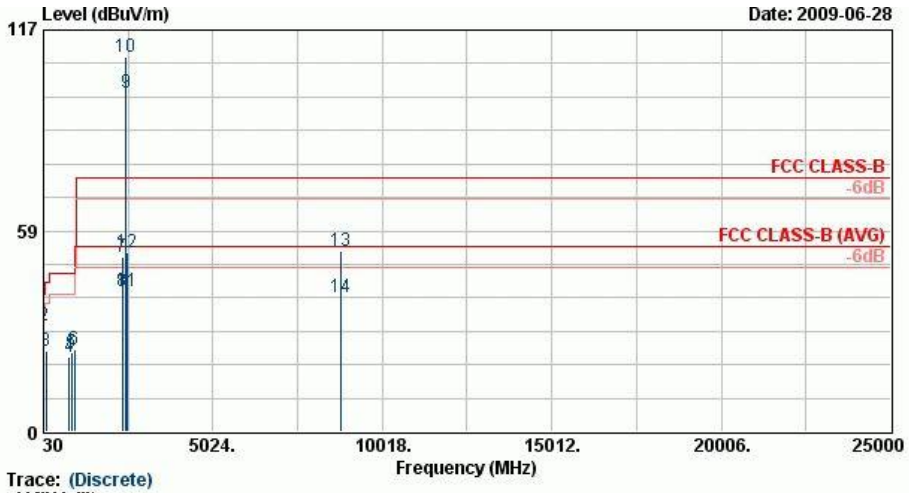
Test Mode :	Mode 2	Temperature :	24~27°C
Test Channel :	06	Relative Humidity :	47~52%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#9 and #10 are fundamental signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
Project : FR 961307

	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 !	30.27	36.59	-3.41	40.00	47.95	19.90	0.30	31.56	400	36	QP
2	40.53	33.18	-6.82	40.00	51.25	13.32	0.30	31.70	---	---	Peak
3	94.53	22.22	-21.28	43.50	43.38	10.40	0.50	32.06	---	---	Peak
4	815.90	23.02	-22.98	46.00	33.08	20.99	1.20	32.25	---	---	Peak
5	876.80	22.39	-23.61	46.00	31.54	21.56	1.30	32.01	---	---	Peak
6	932.80	23.70	-22.30	46.00	32.04	21.97	1.20	31.51	---	---	Peak
7	2382.00	49.59	-24.41	74.00	49.99	31.96	3.92	36.28	100	316	Peak
8	2382.00	40.90	-13.10	54.00	41.30	31.96	3.92	36.28	100	316	Average
9 X	2437.00	111.59			111.85	32.04	3.99	36.29	100	316	Peak
10 @	2437.00	100.76			101.02	32.04	3.99	36.29	100	316	Average
11	2486.00	48.90	-25.10	74.00	49.07	32.08	4.05	36.30	100	316	Peak
12	2486.00	39.38	-14.62	54.00	39.55	32.08	4.05	36.30	100	316	Average
13	8691.00	53.22	-20.78	74.00	46.70	35.88	7.42	36.78	100	42	Peak
14	8691.00	39.59	-14.41	54.00	33.07	35.88	7.42	36.78	100	42	Average

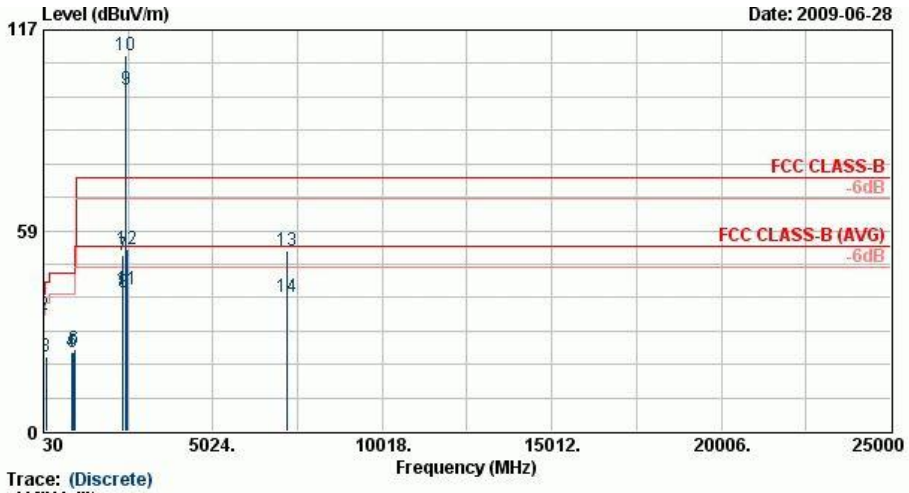
Test Mode :	Mode 3	Temperature :	24~27°C
Test Channel :	11	Relative Humidity :	47~52%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#9 and #10 are fundamental signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
Project : FR 961307

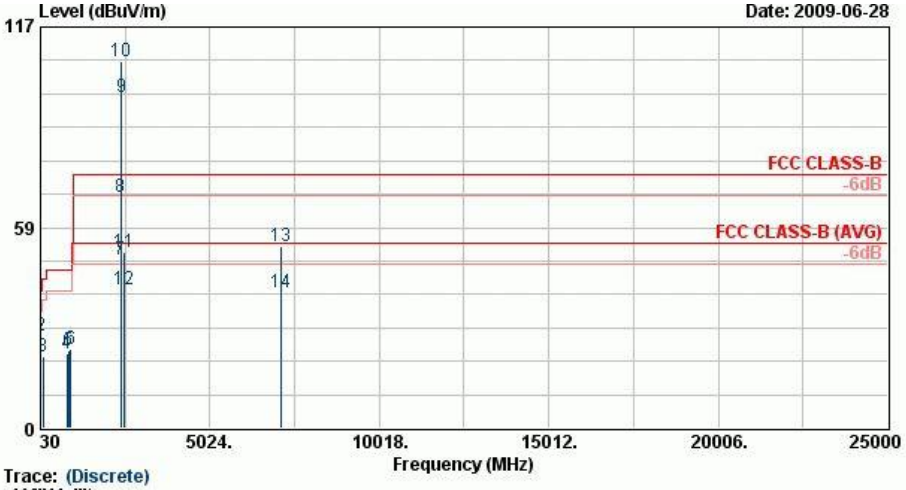
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	33.24	35.00	-5.00	40.00	48.32	18.10	0.30	31.72	100	144	Peak
2	38.91	30.90	-9.10	40.00	47.82	14.50	0.30	31.72	---	---	Peak
3	115.59	23.38	-20.12	43.50	41.97	12.70	0.50	31.79	---	---	Peak
4	780.90	21.72	-24.28	46.00	32.05	20.61	1.20	32.13	---	---	Peak
5	859.30	23.01	-22.99	46.00	32.61	21.46	1.20	32.26	---	---	Peak
6	948.90	23.85	-22.15	46.00	31.99	22.09	1.20	31.43	---	---	Peak
7	2358.00	51.10	-22.90	74.00	51.55	31.93	3.89	36.27	100	321	Peak
8	2358.00	40.84	-13.16	54.00	41.29	31.93	3.89	36.27	100	321	Average
9 X	2462.00	98.91			99.12	32.06	4.02	36.29	100	321	Average
10 X	2462.00	109.11			109.33	32.06	4.02	36.29	100	321	Peak
11	2488.98	40.68	-13.33	54.00	40.82	32.10	4.05	36.30	100	321	Average
12	2488.98	52.32	-21.69	74.00	52.46	32.10	4.05	36.30	100	321	Peak
13	8811.00	52.79	-21.21	74.00	46.04	36.00	7.56	36.82	100	192	Peak
14	8811.00	39.26	-14.74	54.00	32.52	36.00	7.56	36.82	100	192	Average

Test Mode :	Mode 3	Temperature :	24~27°C
Test Channel :	11	Relative Humidity :	47~52%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#9 and #10 are fundamental signals which can be ignored.		



	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 !	33.24	36.66	-3.34	40.00	49.98	18.10	0.30	31.72	400	61	QP
2	40.53	33.75	-6.25	40.00	51.82	13.32	0.30	31.70	---	---	Peak
3	100.74	21.64	-21.86	43.50	41.63	11.53	0.50	32.02	---	---	Peak
4	855.80	22.85	-23.15	46.00	32.53	21.43	1.20	32.32	---	---	Peak
5	903.40	23.17	-22.83	46.00	31.81	21.72	1.30	31.66	---	---	Peak
6	953.80	24.07	-21.93	46.00	32.10	22.11	1.24	31.38	---	---	Peak
7	2382.00	51.36	-22.64	74.00	51.76	31.96	3.92	36.28	102	263	Peak
8	2382.00	40.49	-13.51	54.00	40.89	31.96	3.92	36.28	102	263	Average
9 @	2462.00	99.67			99.88	32.06	4.02	36.29	102	263	Average
10 X	2462.00	109.64			109.86	32.06	4.02	36.29	102	263	Peak
11	2488.41	41.52	-12.49	54.00	41.66	32.10	4.05	36.30	102	263	Average
12	2488.41	53.09	-20.92	74.00	53.23	32.10	4.05	36.30	102	263	Peak
13	7197.00	52.78	-21.22	74.00	46.48	35.62	7.16	36.48	100	43	Peak
14	7197.00	39.07	-14.93	54.00	32.77	35.62	7.16	36.48	100	43	Average

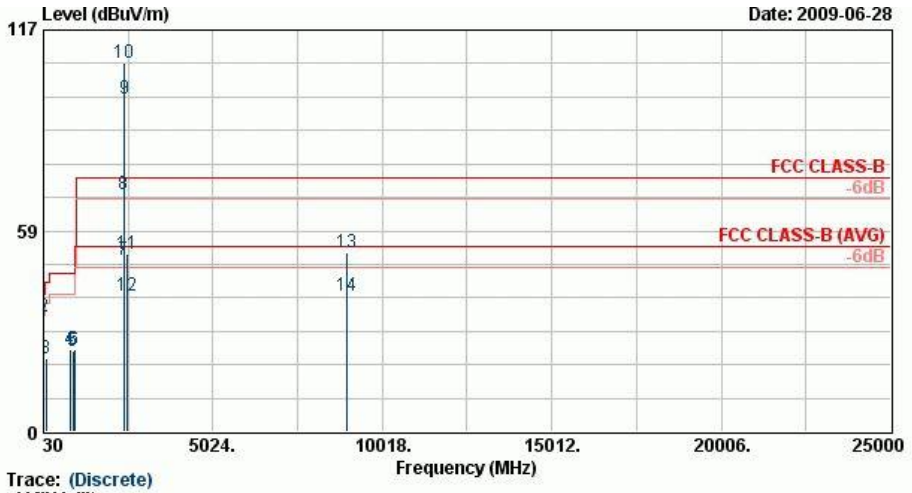
Test Mode :	Mode 4	Temperature :	24~27°C
Test Channel :	01	Relative Humidity :	47~52%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#9 and #10 are fundamental signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
Project : FR 961307

	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 !	30.27	35.46	-4.54	40.00	46.82	19.90	0.30	31.56	100	201	Peak
2	39.99	26.76	-13.24	40.00	44.25	13.90	0.30	31.69	---	---	Peak
3	114.24	20.91	-22.59	43.50	39.51	12.70	0.50	31.80	---	---	Peak
4	801.90	21.77	-24.23	46.00	31.93	20.82	1.20	32.19	---	---	Peak
5	859.30	22.58	-23.42	46.00	32.19	21.46	1.20	32.26	---	---	Peak
6	917.40	23.25	-22.75	46.00	31.77	21.84	1.23	31.59	---	---	Peak
7 !	2389.99	49.00	-5.00	54.00	49.38	31.98	3.92	36.28	104	321	Average
8	2389.99	67.26	-6.74	74.00	67.64	31.98	3.92	36.28	104	321	Peak
9 X	2412.00	96.49			96.82	32.00	3.95	36.28	104	321	Average
10 X	2412.00	107.20			107.53	32.00	3.95	36.28	104	321	Peak
11	2494.00	51.26	-22.74	74.00	51.41	32.10	4.05	36.30	104	321	Peak
12	2494.00	40.32	-13.68	54.00	40.47	32.10	4.05	36.30	104	321	Average
13	7107.00	53.03	-20.97	74.00	46.69	35.66	7.12	36.44	100	72	Peak
14	7107.00	39.54	-14.46	54.00	33.20	35.66	7.12	36.44	100	72	Average

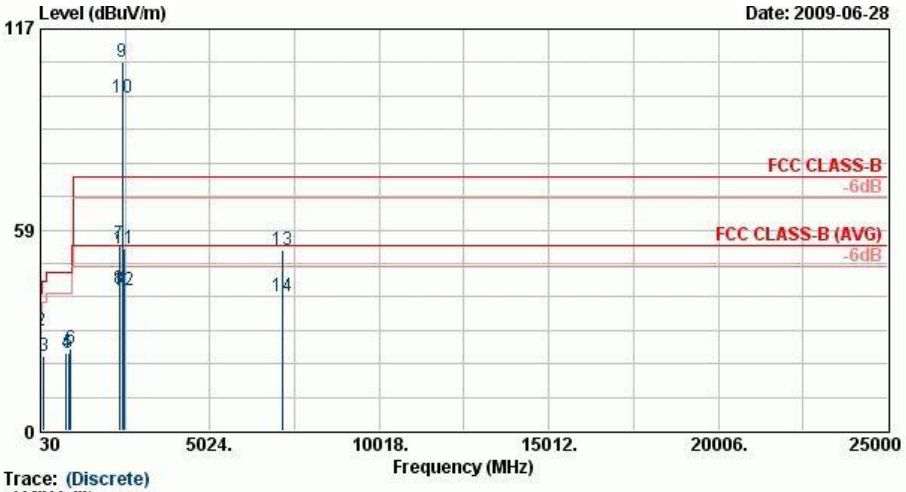
Test Mode :	Mode 4	Temperature :	24~27°C
Test Channel :	01	Relative Humidity :	47~52%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#9 and #10 are fundamental signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
Project : FR 961307

		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	!	31.08	36.97	-3.03	40.00	48.98	19.30	0.30	31.61	400	41	QP
2		40.53	33.49	-6.51	40.00	51.56	13.32	0.30	31.70	---	---	Peak
3		100.74	21.11	-22.39	43.50	41.11	11.53	0.50	32.02	---	---	Peak
4		813.80	23.79	-22.21	46.00	33.87	20.96	1.20	32.24	---	---	Peak
5		901.30	23.40	-22.60	46.00	32.06	21.71	1.30	31.67	---	---	Peak
6		943.30	23.94	-22.06	46.00	32.15	22.05	1.20	31.46	---	---	Peak
7	!	2389.61	50.07	-3.93	54.00	50.45	31.98	3.92	36.28	100	293	Average
8	!	2389.61	69.15	-4.85	74.00	69.53	31.98	3.92	36.28	100	293	Peak
9	@	2412.00	96.80			97.13	32.00	3.95	36.28	100	293	Average
10	X	2412.00	107.35			107.68	32.00	3.95	36.28	100	293	Peak
11		2494.00	51.59	-22.41	74.00	51.74	32.10	4.05	36.30	100	293	Peak
12		2494.00	39.57	-14.43	54.00	39.72	32.10	4.05	36.30	100	293	Average
13		8967.00	52.39	-21.61	74.00	45.34	36.17	7.77	36.88	100	302	Peak
14		8967.00	39.72	-14.28	54.00	32.66	36.17	7.77	36.88	100	302	Average

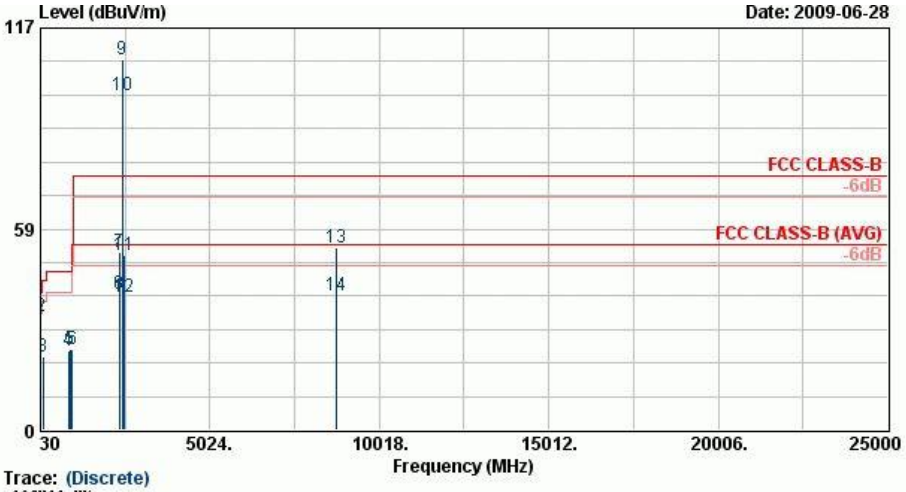
Test Mode :	Mode 5	Temperature :	24~27°C
Test Channel :	06	Relative Humidity :	47~52%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#9 and #10 are fundamental signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
Project : FR 961307

	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 !	34.86	35.85	-4.15	40.00	50.48	16.90	0.30	31.83	100	203	Peak
2	39.99	29.02	-10.98	40.00	46.51	13.90	0.30	31.69	---	---	Peak
3	118.83	21.79	-21.71	43.50	40.33	12.70	0.50	31.74	---	---	Peak
4	798.40	22.48	-23.52	46.00	32.67	20.78	1.20	32.18	---	---	Peak
5	847.40	22.59	-23.41	46.00	32.40	21.38	1.20	32.39	---	---	Peak
6	917.40	23.82	-22.18	46.00	32.34	21.84	1.23	31.59	---	---	Peak
7	2350.00	54.27	-19.73	74.00	54.78	31.91	3.86	36.27	116	328	Peak
8	2350.00	41.25	-12.75	54.00	41.75	31.91	3.86	36.27	116	328	Average
9 X	2437.00	107.57			107.84	32.04	3.99	36.29	116	328	Peak
10 X	2437.00	96.87			97.13	32.04	3.99	36.29	116	328	Average
11	2484.00	53.14	-20.86	74.00	53.31	32.08	4.05	36.30	116	328	Peak
12	2484.00	41.09	-12.91	54.00	41.26	32.08	4.05	36.30	116	328	Average
13	7152.00	52.81	-21.19	74.00	46.49	35.64	7.14	36.46	100	116	Peak
14	7152.00	39.26	-14.74	54.00	32.94	35.64	7.14	36.46	100	116	Average

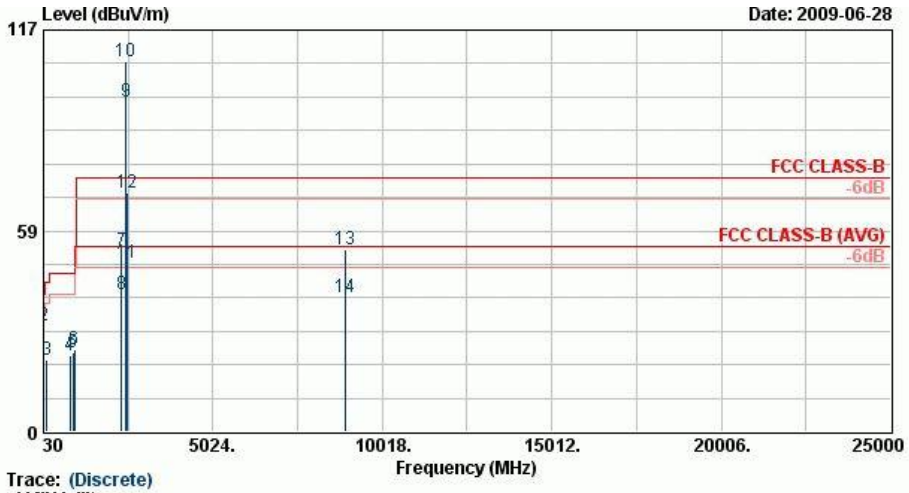
Test Mode :	Mode 5	Temperature :	24~27°C
Test Channel :	06	Relative Humidity :	47~52%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#9 and #10 are fundamental signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
Project : FR 961307

	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 !	31.62	36.81	-3.19	40.00	49.48	18.70	0.30	31.67	400	40	QP
2	40.53	33.07	-6.93	40.00	51.15	13.32	0.30	31.70	---	---	Peak
3	100.74	21.16	-22.34	43.50	41.15	11.53	0.50	32.02	---	---	Peak
4	861.40	23.08	-22.92	46.00	32.64	21.47	1.21	32.23	---	---	Peak
5	908.30	23.70	-22.30	46.00	32.27	21.76	1.30	31.63	---	---	Peak
6	955.90	23.51	-22.49	46.00	31.47	22.11	1.26	31.34	---	---	Peak
7	2356.00	51.92	-22.08	74.00	52.40	31.93	3.86	36.27	100	308	Peak
8	2356.00	39.65	-14.35	54.00	40.13	31.93	3.86	36.27	100	308	Average
9 X	2437.00	107.83			108.09	32.04	3.99	36.29	100	308	Peak
10 @	2437.00	97.30			97.56	32.04	3.99	36.29	100	308	Average
11	2484.00	51.02	-22.98	74.00	51.19	32.08	4.05	36.30	100	308	Peak
12	2484.00	38.90	-15.10	54.00	39.07	32.08	4.05	36.30	100	308	Average
13	8736.00	52.95	-21.05	74.00	46.33	35.93	7.48	36.79	100	139	Peak
14	8736.00	39.29	-14.71	54.00	32.67	35.93	7.48	36.79	100	139	Average

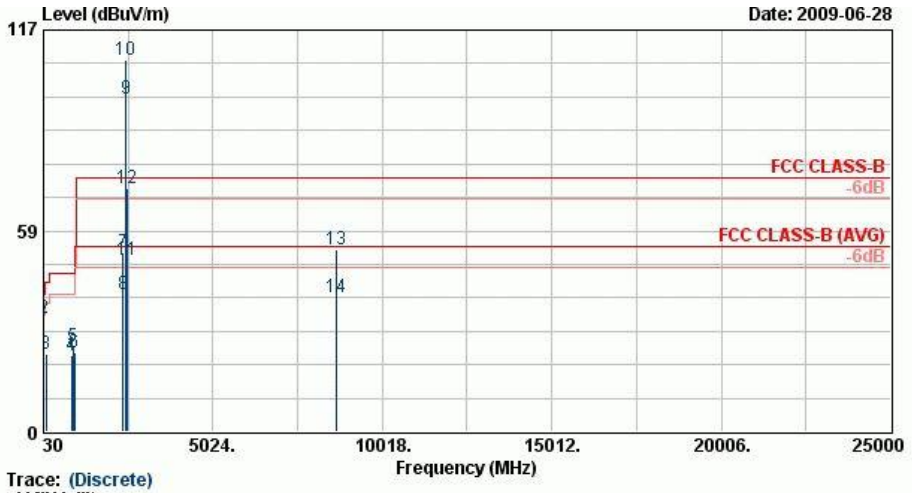
Test Mode :	Mode 6	Temperature :	24~27°C
Test Channel :	11	Relative Humidity :	47~52%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#9 and #10 are fundamental signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
Project : FR 961307

	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 !	32.43	35.76	-4.24	40.00	49.08	18.10	0.30	31.72	100	214	Peak
2	38.10	30.68	-9.32	40.00	47.03	15.10	0.30	31.75	---	---	Peak
3	122.88	20.70	-22.80	43.50	39.34	12.58	0.50	31.72	---	---	Peak
4	812.40	22.38	-23.62	46.00	32.47	20.95	1.20	32.24	---	---	Peak
5	908.30	23.14	-22.86	46.00	31.71	21.76	1.30	31.63	---	---	Peak
6	943.30	24.00	-22.00	46.00	32.20	22.05	1.20	31.46	---	---	Peak
7	2334.00	52.69	-21.31	74.00	53.21	31.89	3.86	36.27	100	320	Peak
8	2334.00	39.95	-14.05	54.00	40.47	31.89	3.86	36.27	100	320	Average
9 X	2462.00	95.96			96.17	32.06	4.02	36.29	100	320	Average
10 X	2462.00	107.80			108.01	32.06	4.02	36.29	100	320	Peak
11 !	2483.85	49.13	-4.87	54.00	49.30	32.08	4.05	36.30	100	320	Average
12 !	2483.85	69.60	-4.40	74.00	69.77	32.08	4.05	36.30	100	320	Peak
13	8937.00	52.85	-21.15	74.00	45.85	36.13	7.74	36.87	100	256	Peak
14	8937.00	39.34	-14.66	54.00	32.34	36.13	7.74	36.87	100	256	Average

Test Mode :	Mode 6	Temperature :	24~27°C
Test Channel :	11	Relative Humidity :	47~52%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#9 and #10 are fundamental signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
Project : FR 961307

	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 !	32.70	36.71	-3.29	40.00	50.03	18.10	0.30	31.72	400	35	QP
2	40.53	33.06	-6.94	40.00	51.14	13.32	0.30	31.70	---	---	Peak
3	100.74	22.48	-21.02	43.50	42.47	11.53	0.50	32.02	---	---	Peak
4	847.40	22.31	-23.69	46.00	32.12	21.38	1.20	32.39	---	---	Peak
5	897.80	24.80	-21.20	46.00	33.51	21.69	1.30	31.70	---	---	Peak
6	934.90	23.16	-22.84	46.00	31.48	21.98	1.20	31.50	---	---	Peak
7	2380.00	52.21	-21.79	74.00	52.61	31.96	3.92	36.28	101	262	Peak
8	2380.00	40.23	-13.77	54.00	40.63	31.96	3.92	36.28	101	262	Average
9 @	2462.00	97.09			97.30	32.06	4.02	36.29	101	262	Average
10 X	2462.00	108.22			108.43	32.06	4.02	36.30	101	262	Peak
11 !	2483.50	50.02	-3.98	54.00	50.19	32.08	4.05	36.30	101	262	Average
12 !	2483.50	70.72	-3.28	74.00	70.89	32.08	4.05	36.30	101	262	Peak
13	8652.00	52.86	-21.14	74.00	46.38	35.85	7.39	36.76	100	108	Peak
14	8652.00	39.10	-14.90	54.00	32.62	35.85	7.39	36.76	100	108	Average

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
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 23, 2009	Jun. 22, 2010	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)
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)
System Simulator	R&S	CMU200	105934	N/A	Nov. 11, 2008	Nov. 10, 2010	Conduction (CO05-HY)
GPS Base Station	T&E	GS-50	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~1000MHz	Apr. 28, 2009	Apr. 27, 2010	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. 20, 2009	Apr. 19, 2010	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		$u(x_i)$	Ci	$Ci*u(x_i)$
	dB	Probability Distribution			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1= 0.197 Antenna VSWR Γ2= 0.194 Uncertainty=20log(1-Γ1*Γ2)	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	**2.36**				
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	**4.72**				

6 Certification of TAF Accreditation

Certificate No. : L1190-090417

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 Arrangment with Foreign Authorities

Jay-San Chen
President, Taiwan Accreditation Foundation
Date : April 17, 2009

P1, total 20 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 EP961307 as below.