FCC RF Test Report

APPLICANT	:	**HTC Corporation**
EQUIPMENT	:	**PDA Phone**
MODEL NAME	:	**TOPA210**
FCC ID	:	**NM8TPZ**
STANDARD	:	**FCC Part 15 Subpart C §15.247**
CLASSIFICATION	:	**Digital Transmission System (DTS)**

The product was received on Jun. 02, 2009 and completely tested on Jun. 24, 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
FR8D3104-08B	Rev. 01	Initial issue of report	Jul. 14, 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	≥ 0.5MHz	Pass	-
3.2	15.247(b)	A8.4	Power Output	≤ 30dBm	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	≤ 20dBc	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	< 20 dBc	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	≤ 8dBm	Pass	-
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 17.7 dB at 0.926 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 4.21 dB at 2389.61 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 330, Taiwan

1.2 Manufacturer

HTC Corporation
No. 23, Xinghua Rd., Taoyuan 330, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	PDA Phone
PDA Phone	EUT with Camera 1
PDA Phone	EUT with Camera 2
Model Name	TOPA210
FCC ID	NM8TPZ
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: 17.59 dBm (57.41 mW) 802.11g : 16.31 dBm (42.76 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	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).

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	D-Link	DIR-628	KA2DIR628A2	N/A	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 Pre-Scanned RF Power (dBm)					
Channel	Frequency (MHz)	Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	16.49	16.60	16.61	16.61
CH 06	2437 MHz	**16.87**	16.80	16.85	16.86
CH 11	2462 MHz	16.82	16.83	16.84	16.77

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	14.16	14.16	14.12	14.27	13.68	13.57	11.86	11.72
CH 06	2437 MHz	14.00	14.22	13.92	14.16	13.64	13.63	12.01	11.80
CH 11	2462 MHz	**14.40**	14.39	14.28	14.36	13.80	13.79	12.13	11.90

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.

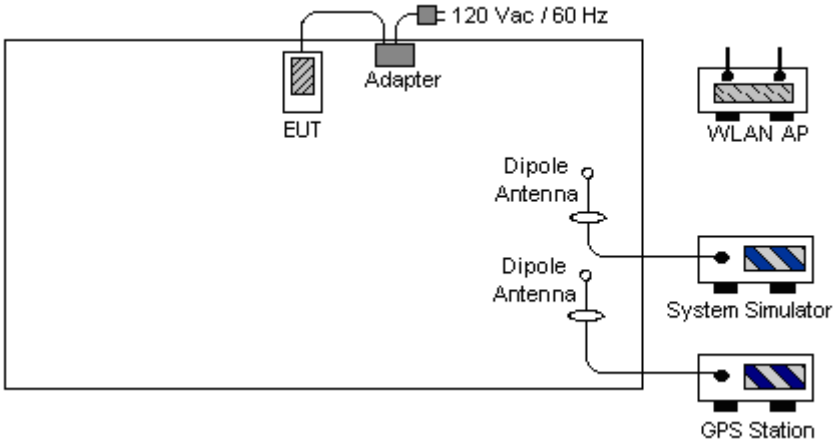
2.2 Test Mode

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). The following tables are showing the test modes as the worst cases and recorded in this report.

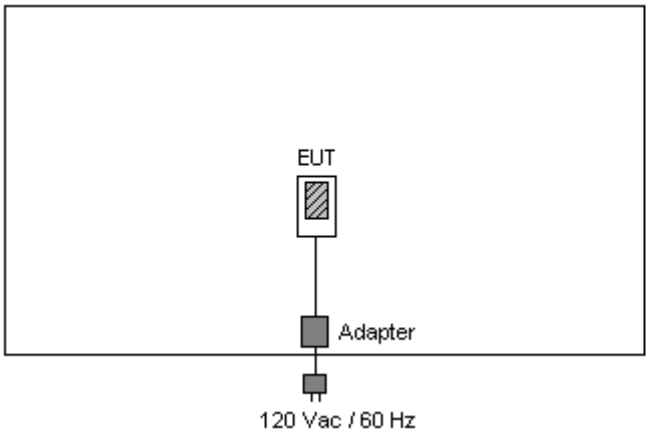
Test Cases		
Test Item	**802.11b**	**802.11g**
Conducted TCs	Mode 1 : CH01_2412 MHz Mode 2 : CH06_2437 MHz Mode 3 : CH11_2462 MHz	Mode 4 : CH01_2412 MHz Mode 5 : CH06_2437 MHz Mode 6 : CH11_2462 MHz
Radiated TCs	Mode 1 : CH01_2412 MHz + Adapter 1 + Battery 1 + USB Cable 1 for PDA Phone 1 Mode 2 : CH06_2437 MHz + Adapter 1 + Battery 1 + USB Cable 1 for PDA Phone 1 Mode 3 : CH11_2462 MHz + Adapter 1 + Battery 1 + USB Cable 1 for PDA Phone 1	Mode 4 : CH01_2412 MHz + Adapter 1 + Battery 1 + USB Cable 1 for PDA Phone 1 Mode 5 : CH06_2437 MHz + Adapter 1 + Battery 1 + USB Cable 1 for PDA Phone 1 Mode 6 : CH11_2462 MHz + Adapter 1 + Battery 1 + USB Cable 1 for PDA Phone 1 Mode 7: CH01_2412 MHz + Adapter 1 + Battery 1 + USB Cable 1 for PDA Phone 2
AC Conducted Emission	Mode 1 : PDA Phone 2 + GSM1900 Idle + WLAN Link + GPS Rx + MPEG4 + Battery 2 + USB Cable 2 + Adapter 2	

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 Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

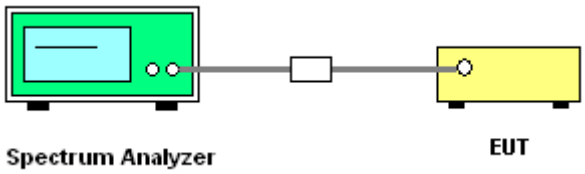
3.1.2 Measuring Instruments

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%

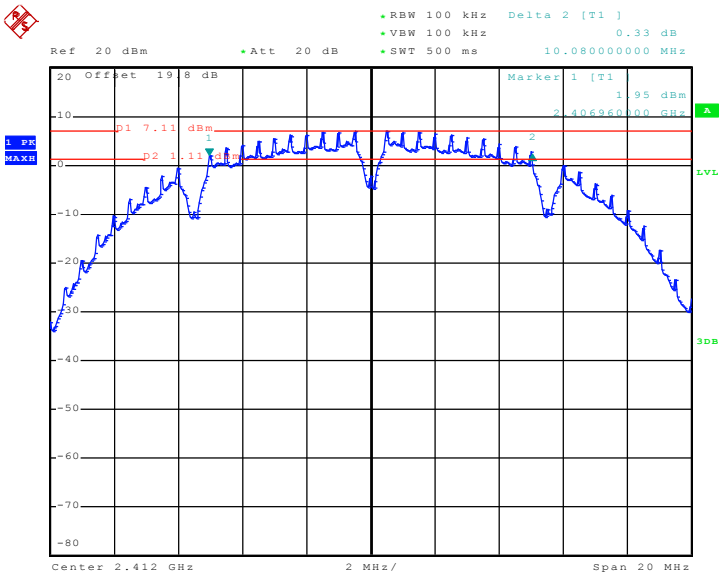
Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	10.08	0.5	Pass
06	2437	10.08	0.5	Pass
11	2462	10.08	0.5	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	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	16.36	0.5	Pass
06	2437	16.36	0.5	Pass
11	2462	16.36	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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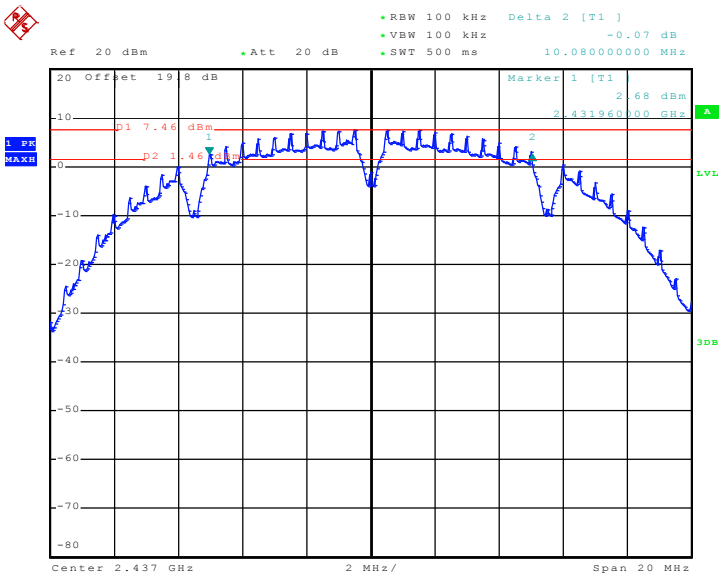
Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



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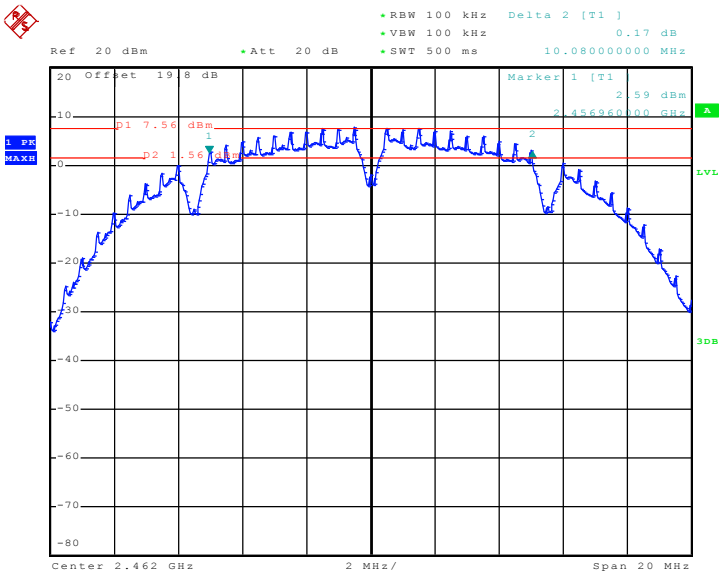
Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



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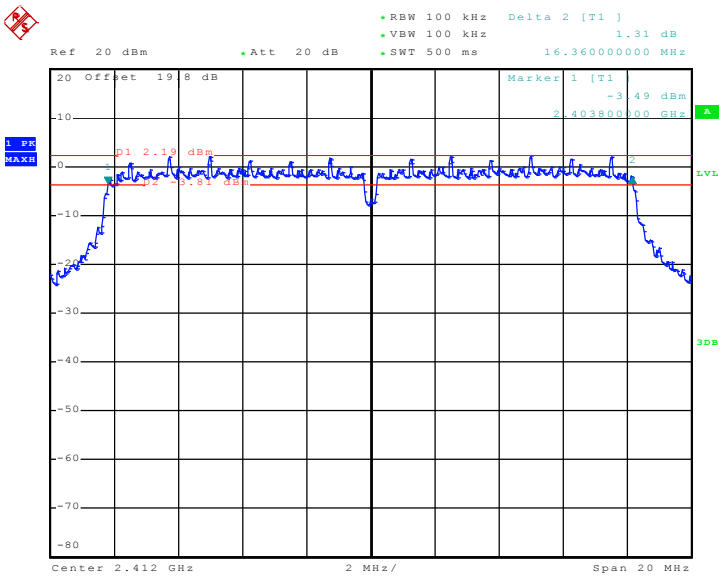
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



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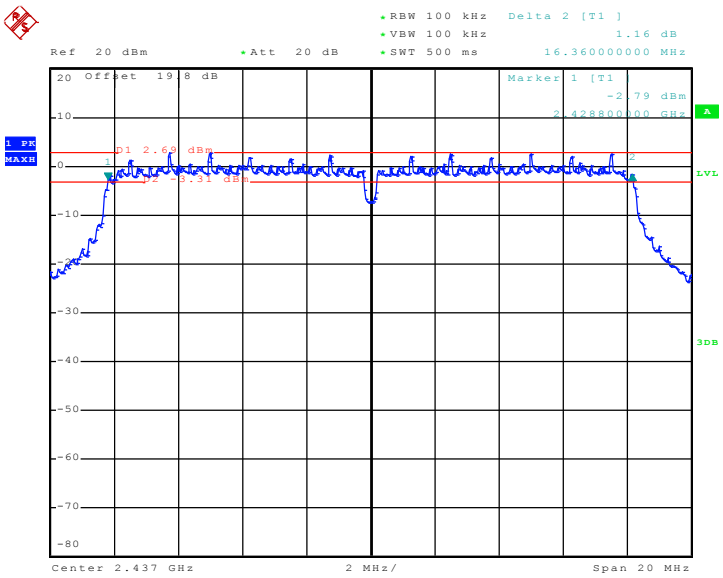
Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



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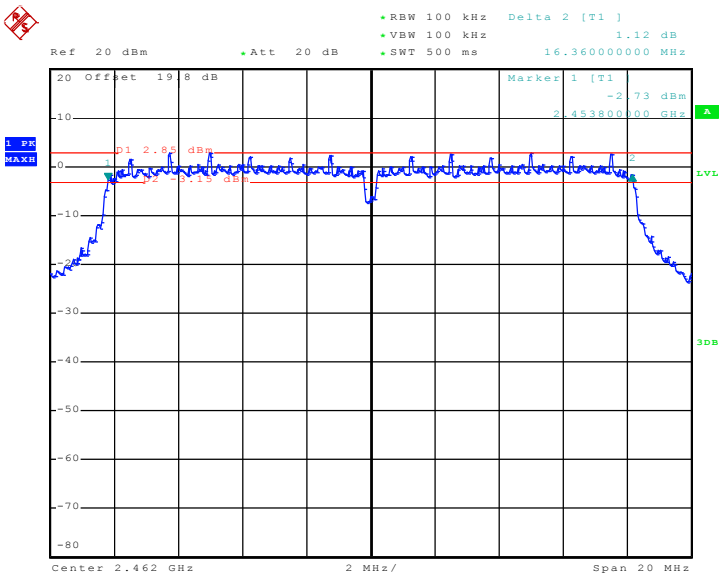
Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



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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%

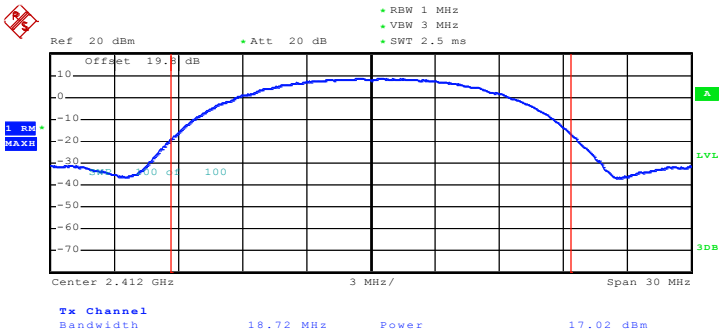
Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	17.02	30	Pass
06	2437	17.59	30	Pass
11	2462	17.17	30	Pass

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	15.85	30	Pass
06	2437	16.26	30	Pass
11	2462	16.31	30	Pass

3.2.6 Test Plots of Output Power

Mode 1 : Output Power Plot on 802.11b Channel 01



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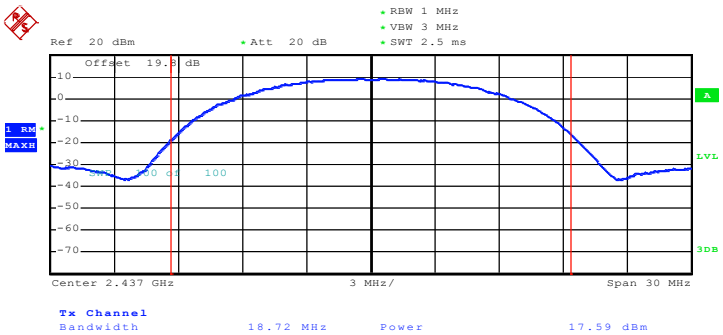
Mode 2 : Output Power Plot on 802.11b Channel 06



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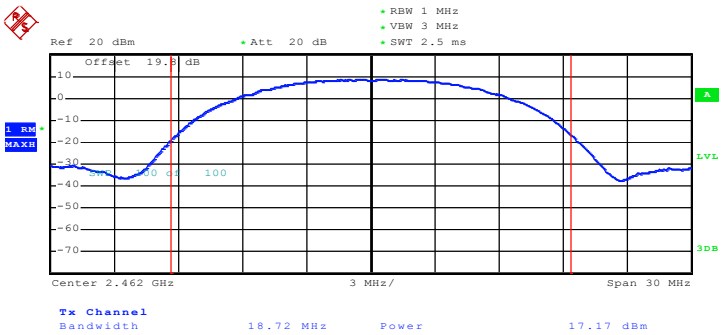
Mode 3 : Output Power Plot on 802.11b Channel 11



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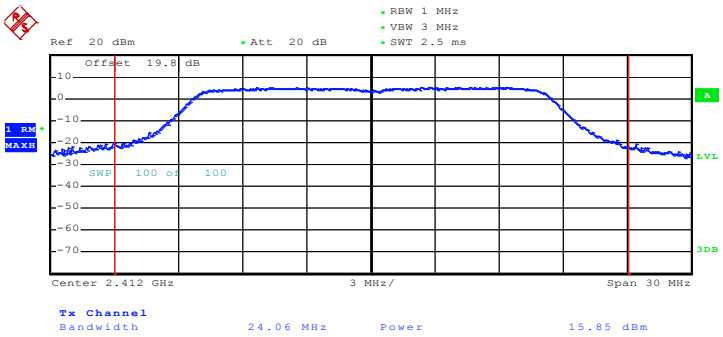
Mode 4 : Output Power Plot on 802.11g Channel 01



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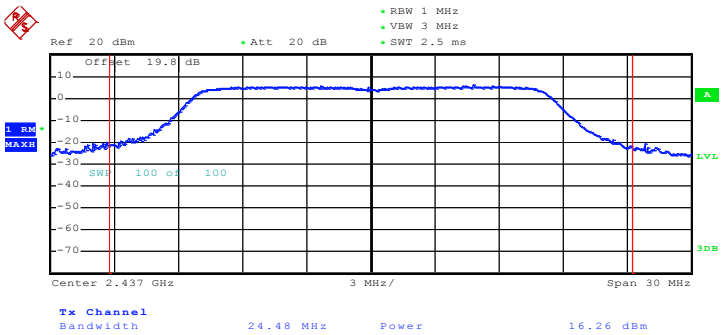
Mode 5 : Output Power Plot on 802.11g Channel 06



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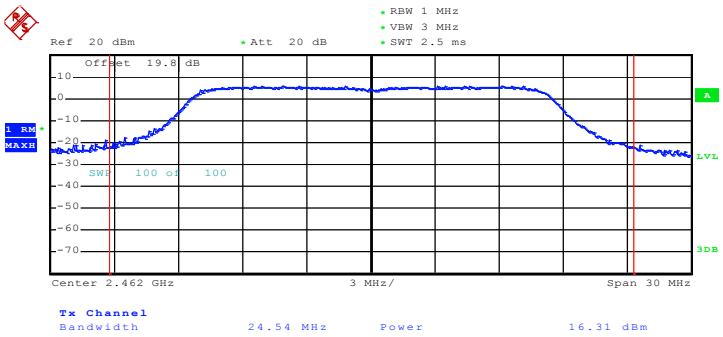
Mode 6 : Output Power Plot on 802.11g Channel 11



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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 :**	26~27°C
Test Band :	802.11b	**Relative Humidity :**	45~46%
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**
2389.61	56.89	-17.11	74.00	57.27	31.98	3.92	36.28	161	349	Peak
2389.61	40.08	-13.92	54.00	40.46	31.98	3.92	36.28	161	349	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	50.96	-23.04	74.00	51.34	31.98	3.92	36.28	117	32	Peak
2389.61	39.20	-14.80	54.00	39.58	31.98	3.92	36.28	117	32	Average

Test Mode :	Mode 3	**Temperature :**	26~27°C
Test Band :	802.11b	**Relative Humidity :**	45~46%
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**
2483.66	53.36	-20.64	74.00	53.52	32.08	4.05	36.30	192	353	Peak
2483.66	36.70	-17.30	54.00	36.87	32.08	4.05	36.30	192	353	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**
2486.89	48.00	-26.00	74.00	48.17	32.08	4.05	36.30	144	42	Peak
2486.89	34.65	-19.35	54.00	34.82	32.08	4.05	36.30	144	42	Average

Test Mode :	Mode 4	Temperature :	26~27°C
Test Band :	802.11g	Relative Humidity :	45~46%
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	68.38	-5.62	74.00	68.76	31.98	3.92	36.28	162	350	Peak
2389.99	45.77	-8.23	54.00	46.15	31.98	3.92	36.28	162	350	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	66.86	-7.14	74.00	67.24	31.98	3.92	36.28	118	32	Peak
2389.99	43.90	-10.10	54.00	44.28	31.98	3.92	36.28	118	32	Average

Test Mode :	Mode 6	Temperature :	26~27°C
Test Band :	802.11g	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Mac Lin

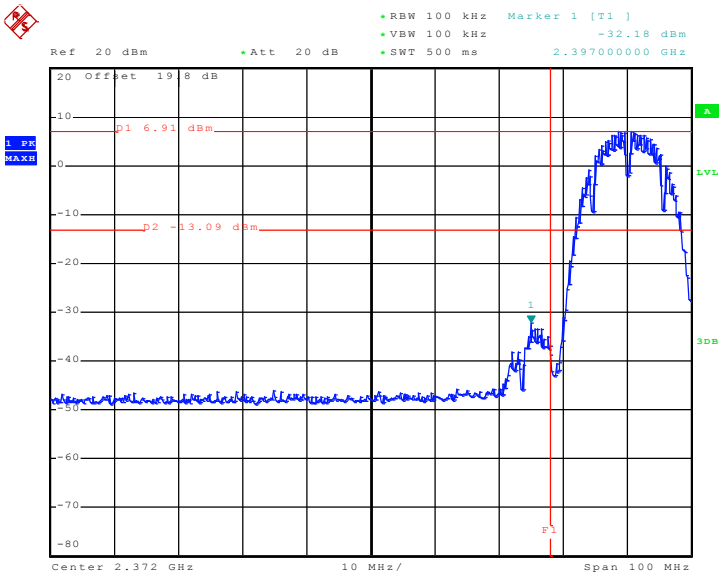
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	67.10	-6.90	74.00	67.27	32.08	4.05	36.30	104	339	Peak
2483.66	45.10	-8.90	54.00	45.27	32.08	4.05	36.30	104	339	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	63.87	-10.13	74.00	64.04	32.08	4.05	36.30	117	41	Peak
2483.66	42.35	-11.65	54.00	42.52	32.08	4.05	36.30	117	41	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



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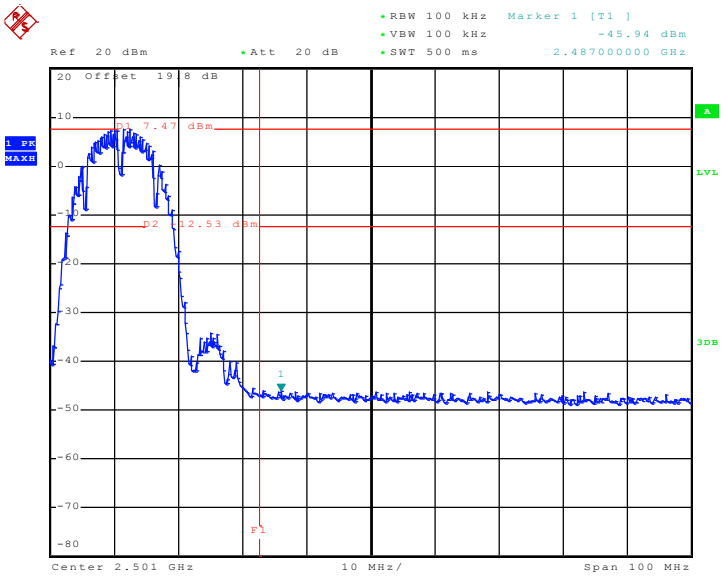
High Band Edge Plot on 802.11b Channel 11



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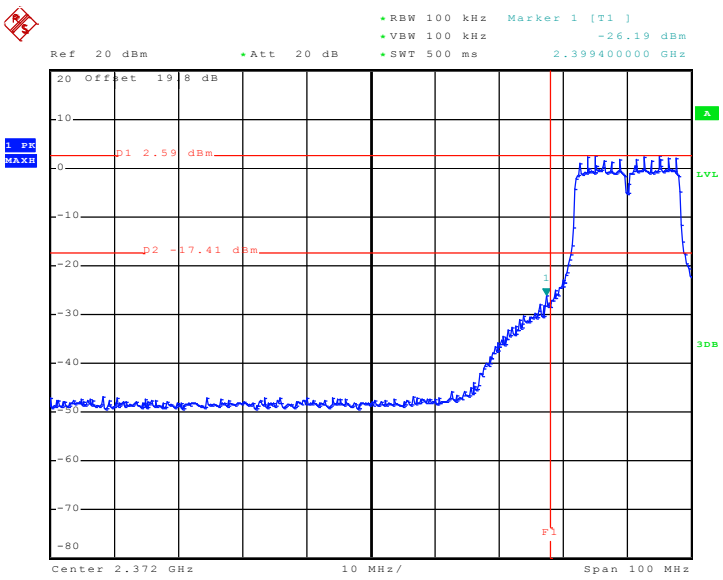
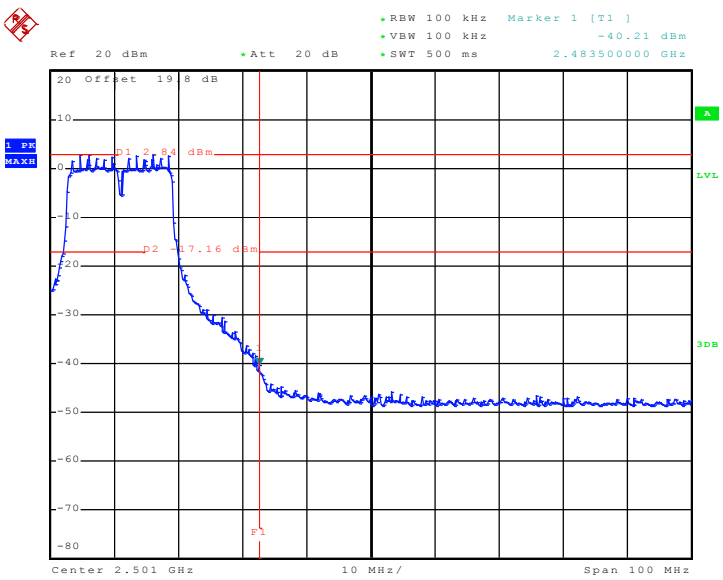
Test Mode :	Mode 4 and 6	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	44~45%
Test Channel :	01 and 11	Test Engineer :	Ken Hsu

Low Band Edge Plot on 802.11g Channel 01



Date: 3.JUL.2009 00:17:39

High Band Edge Plot on 802.11g Channel 11



Date: 3.JUL.2009 00:18:56

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.

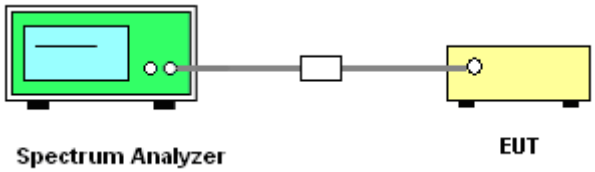
3.4.2 Measuring Instruments

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.

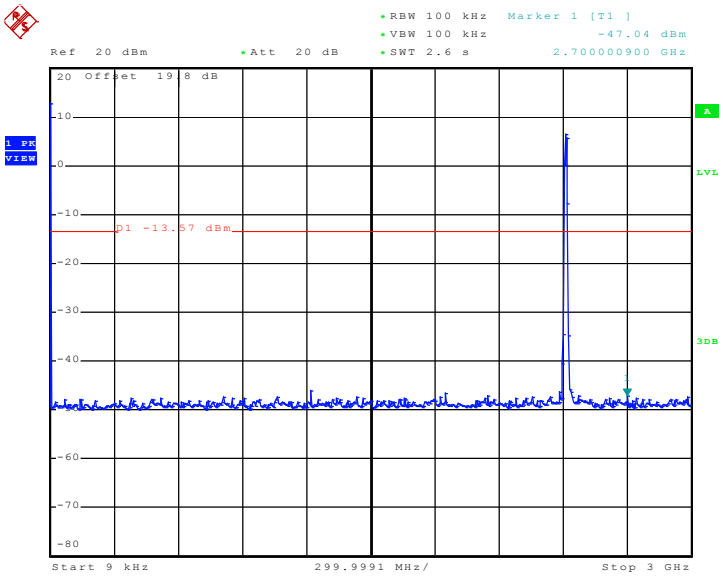
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

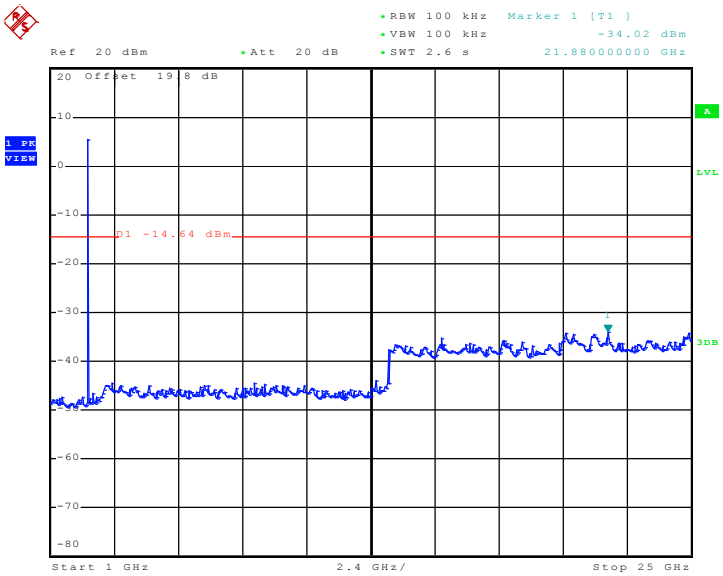
Test Mode :	Mode 1	**Temperature :**	23~24℃
Test Channel :	01	**Relative Humidity :**	44~45%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9k-3G



Date: 3.JUL.2009 10:29:23

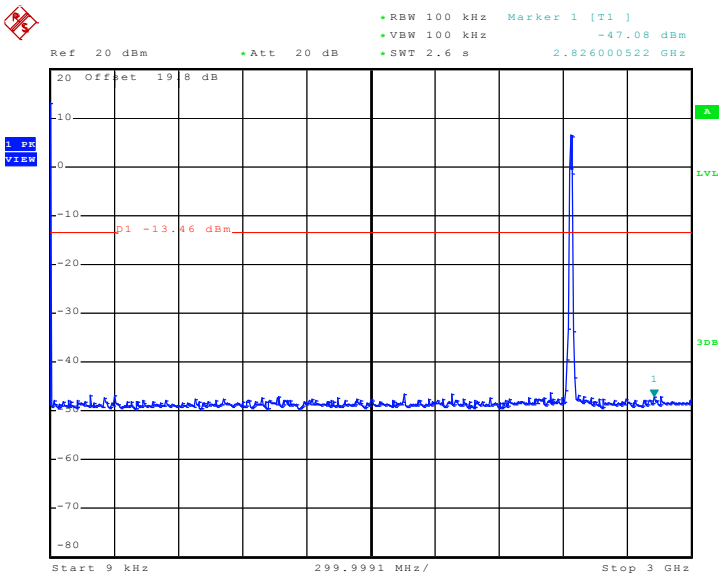
Conducted Spurious Emission Plot between 1G-25G



Date: 3.JUL.2009 10:29:48

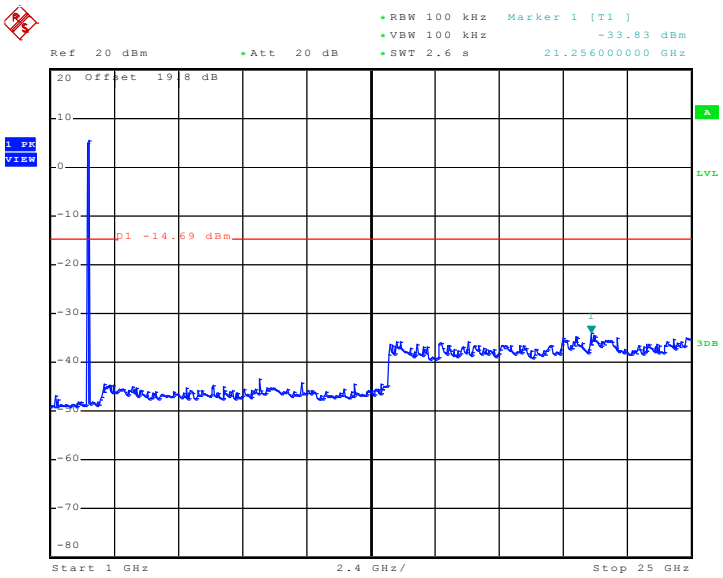
Test Mode :	Mode 2	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	44~45%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9k-3G



Date: 3.JUL.2009 10:30:30

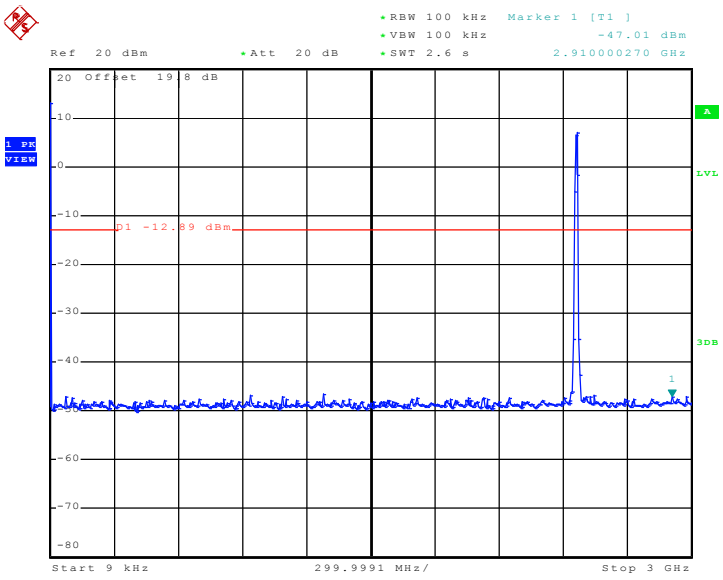
Conducted Spurious Emission Plot between 1G-25G



Date: 3.JUL.2009 10:30:51

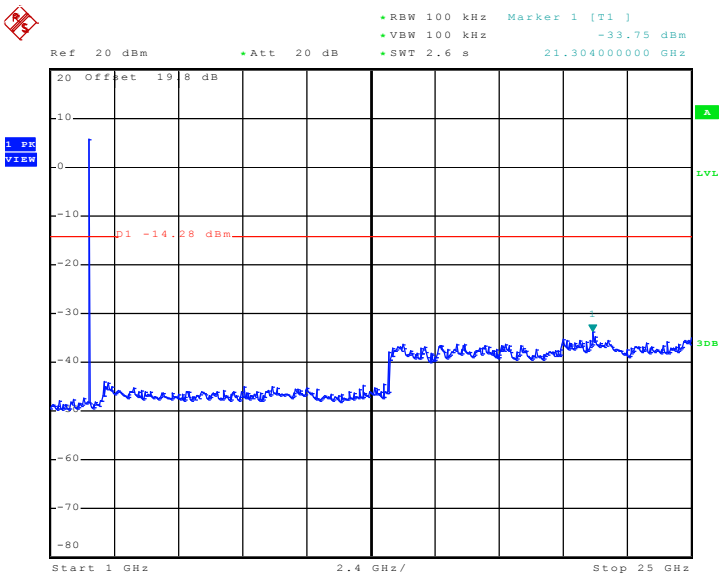
Test Mode :	Mode 3	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	44~45%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9k-3G



Date: 3.JUL.2009 10:31:33

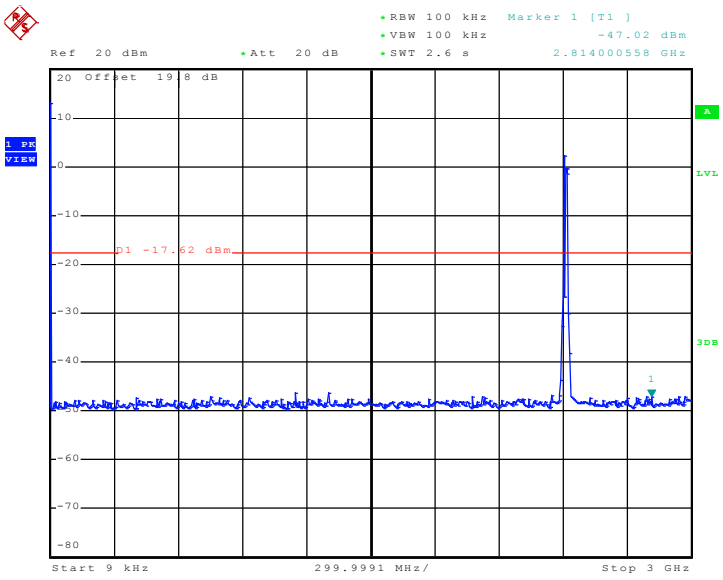
Conducted Spurious Emission Plot between 1G-25G



Date: 3.JUL.2009 10:31:46

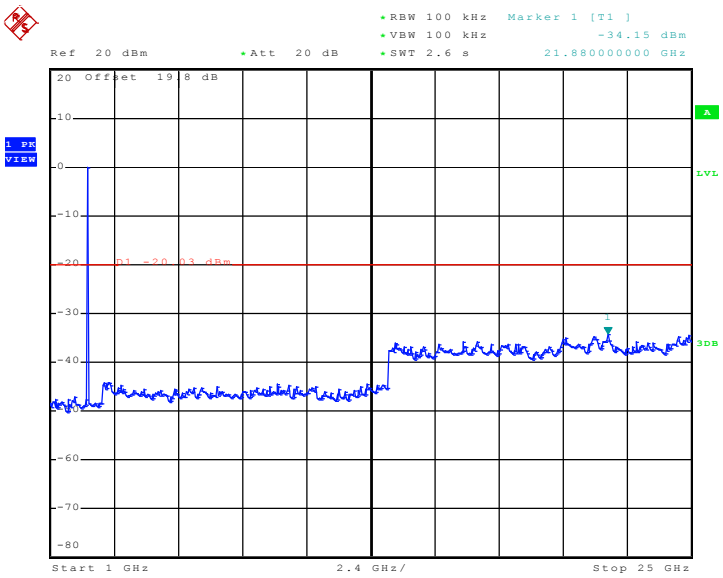
Test Mode :	Mode 4	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	44~45%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9k-3G



Date: 3.JUL.2009 10:32:30

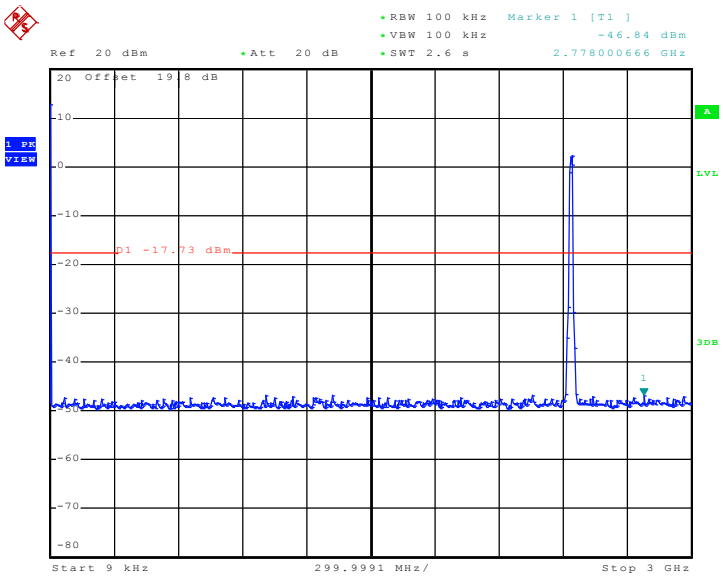
Conducted Spurious Emission Plot between 1G-25G



Date: 3.JUL.2009 10:32:52

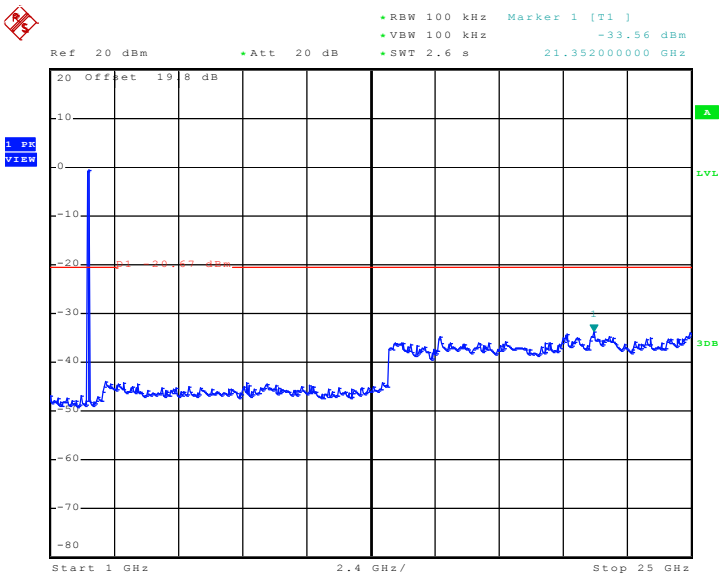
Test Mode :	Mode 5	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	44~45%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9k-3G



Date: 3.JUL.2009 10:33:26

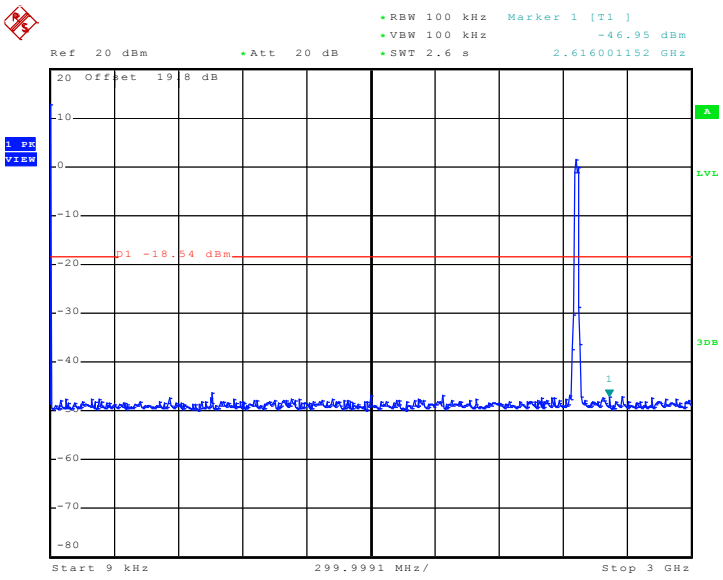
Conducted Spurious Emission Plot between 1G-25G



Date: 3.JUL.2009 10:34:14

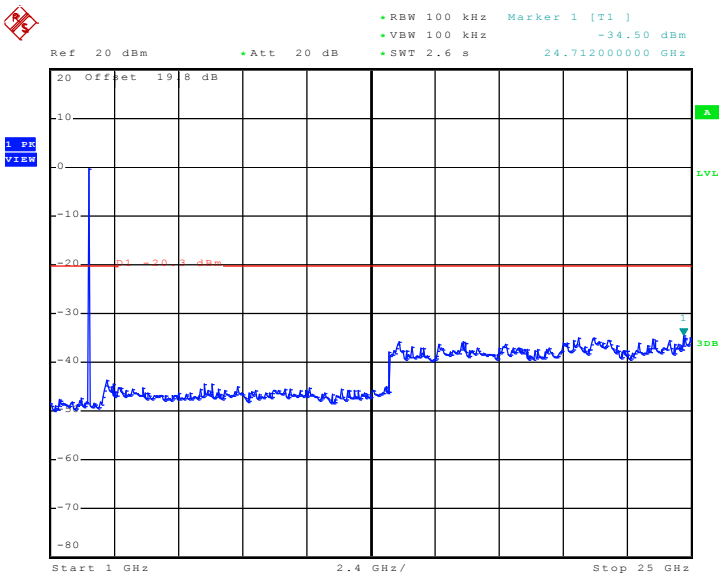
Test Mode :	Mode 6	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	44~45%
		Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9k-3G



Date: 3.JUL.2009 10:34:42

Conducted Spurious Emission Plot between 1G-25G



Date: 3.JUL.2009 10:34:57

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.

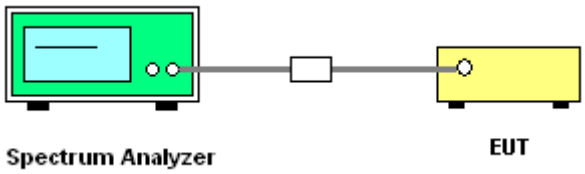
3.5.2 Measuring Instruments

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%

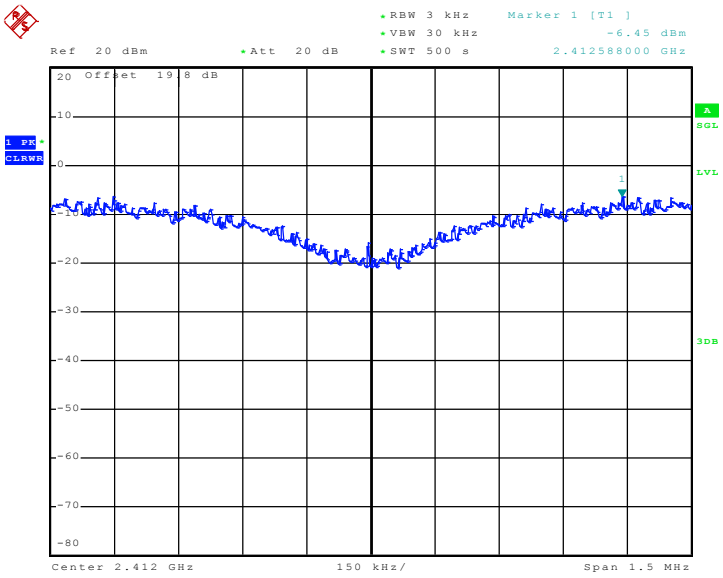
Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-6.45	8	Pass
06	2437	-6.28	8	Pass
11	2462	-6.29	8	Pass

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	-10.72	8	Pass
06	2437	-10.90	8	Pass
11	2462	-10.67	8	Pass

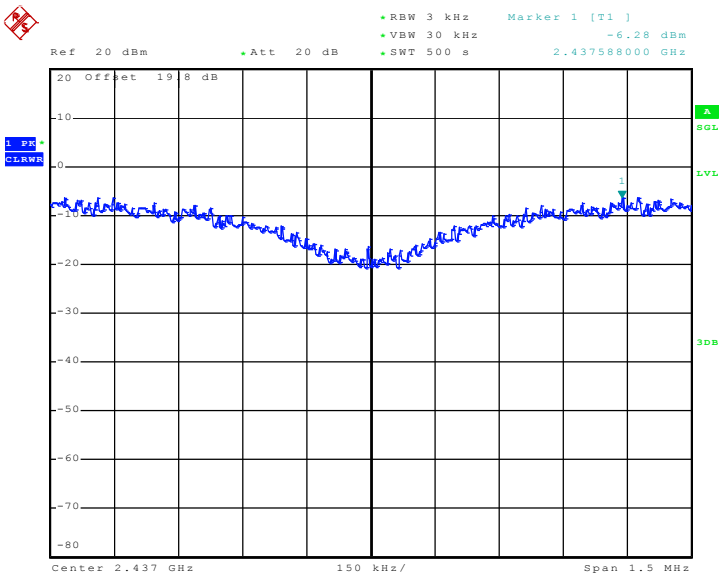
3.5.6 Test Plots of Power Spectral Density

Mode 1 : PSD Plot on 802.11b Channel 01



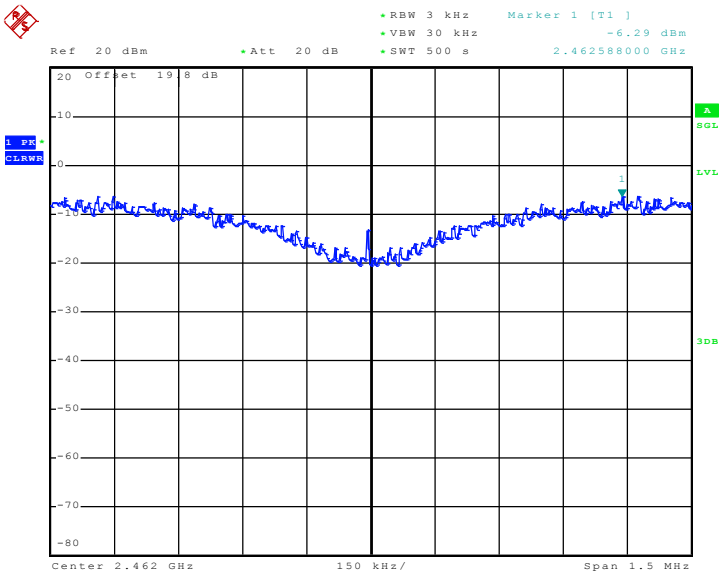
Date: 3.JUL.2009 09:11:10

Mode 2 : PSD Plot on 802.11b Channel 06



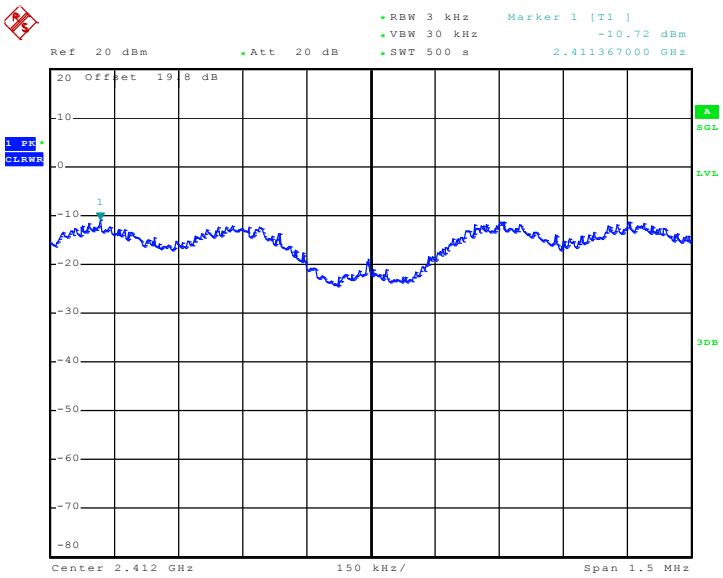
Date: 3.JUL.2009 09:19:57

Mode 3 : PSD Plot on 802.11b Channel 11



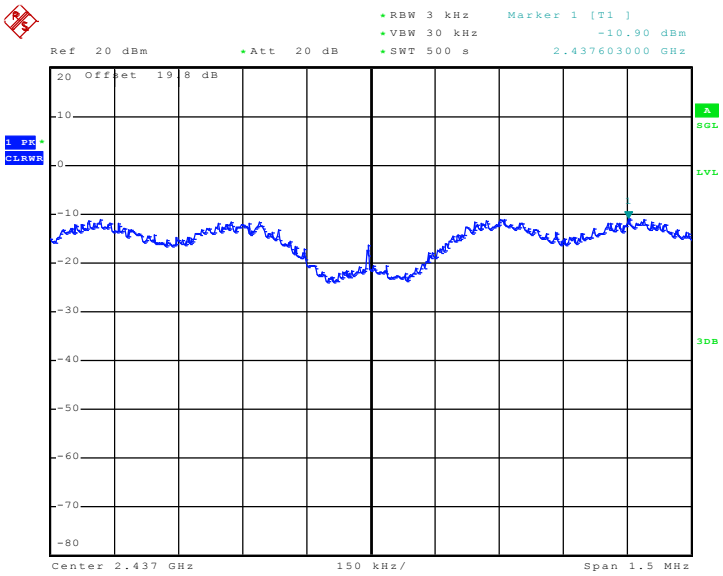
Date: 3.JUL.2009 09:29:08

Mode 4 : PSD Plot on 802.11g Channel 01



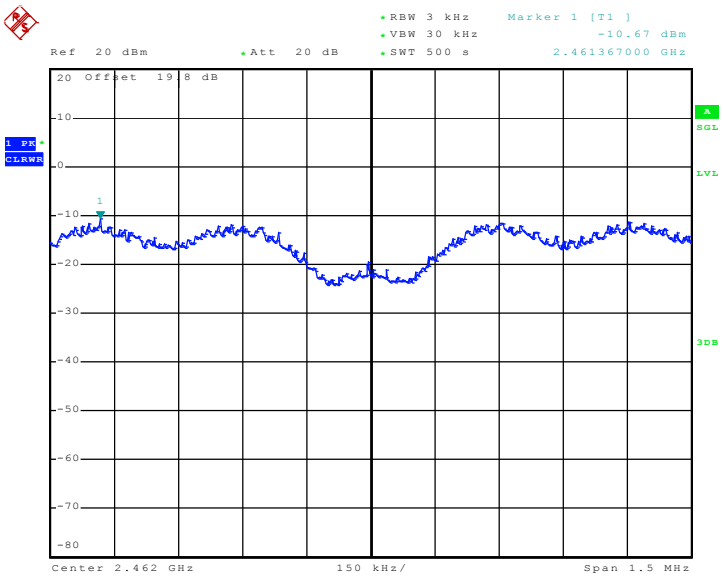
Date: 3.JUL.2009 09:38:17

Mode 5 : PSD Plot on 802.11g Channel 06



Date: 3.JUL.2009 09:47:07

Mode 6 : PSD Plot on 802.11g Channel 11



Date: 3.JUL.2009 09:56:16

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.

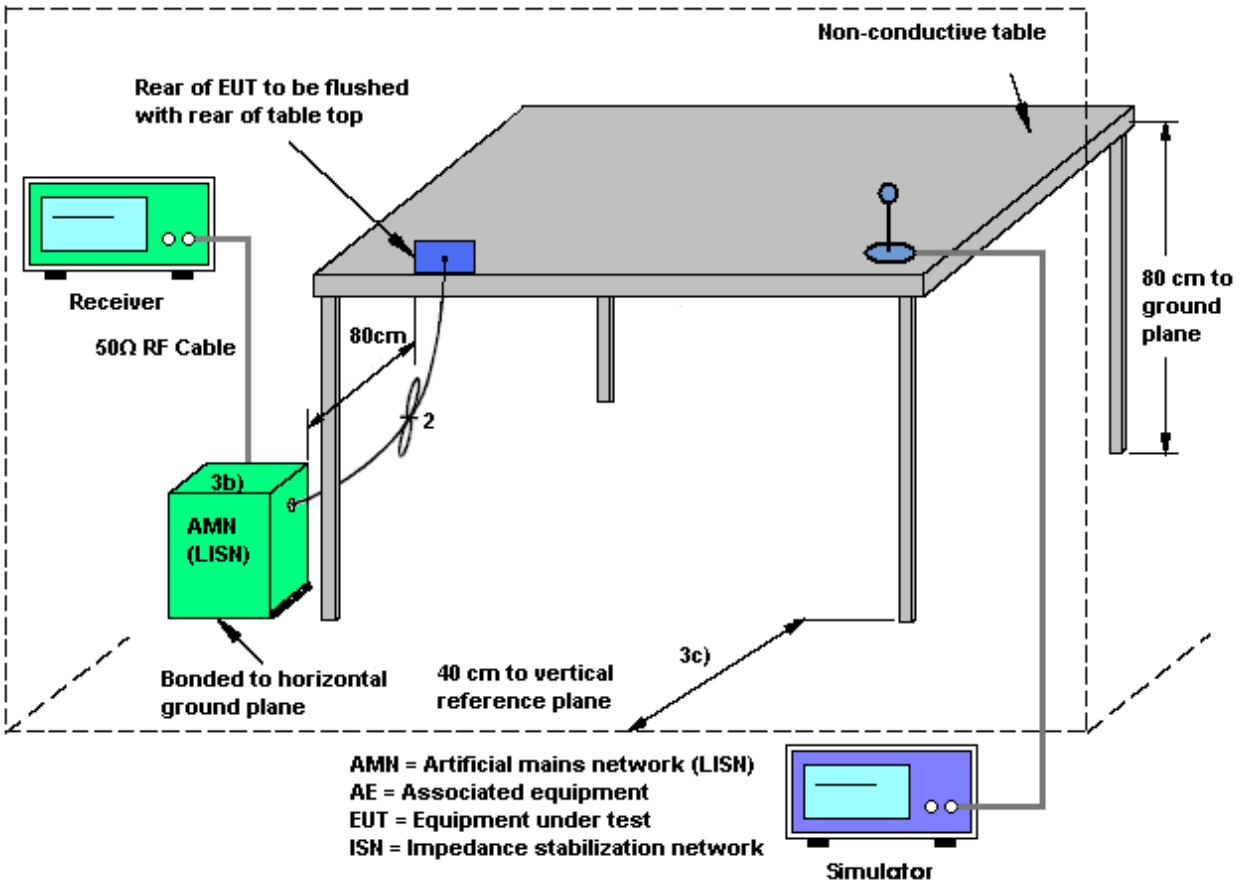
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

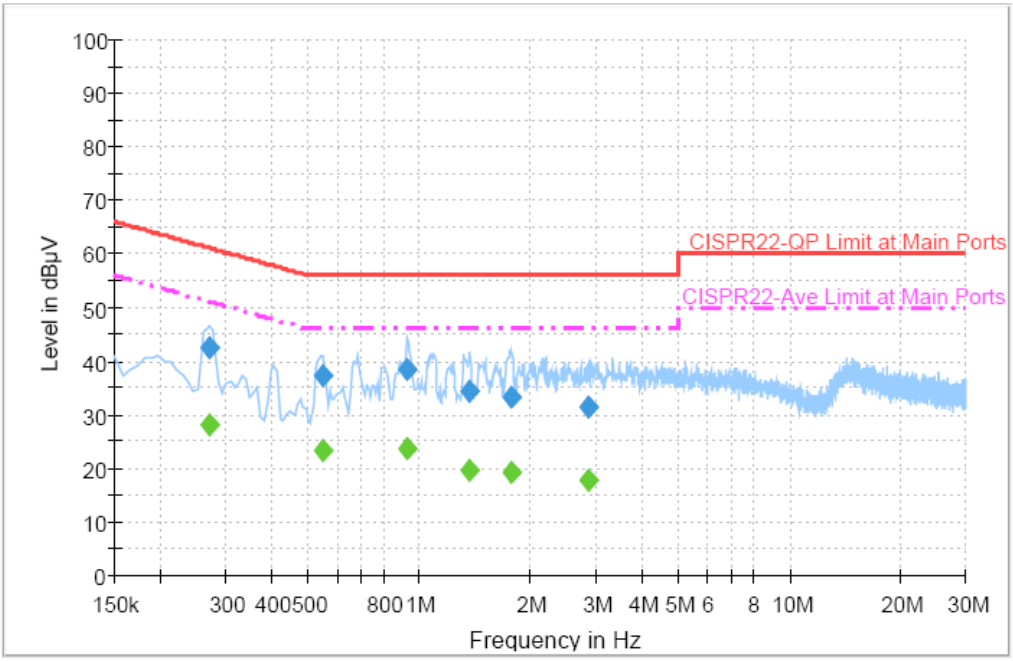
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 :	44~45%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	PDA Phone 2 + GSM1900 Idle + WLAN Link + GPS Rx + MPEG4 + Battery 2 + USB Cable 2 + Adapter 2		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



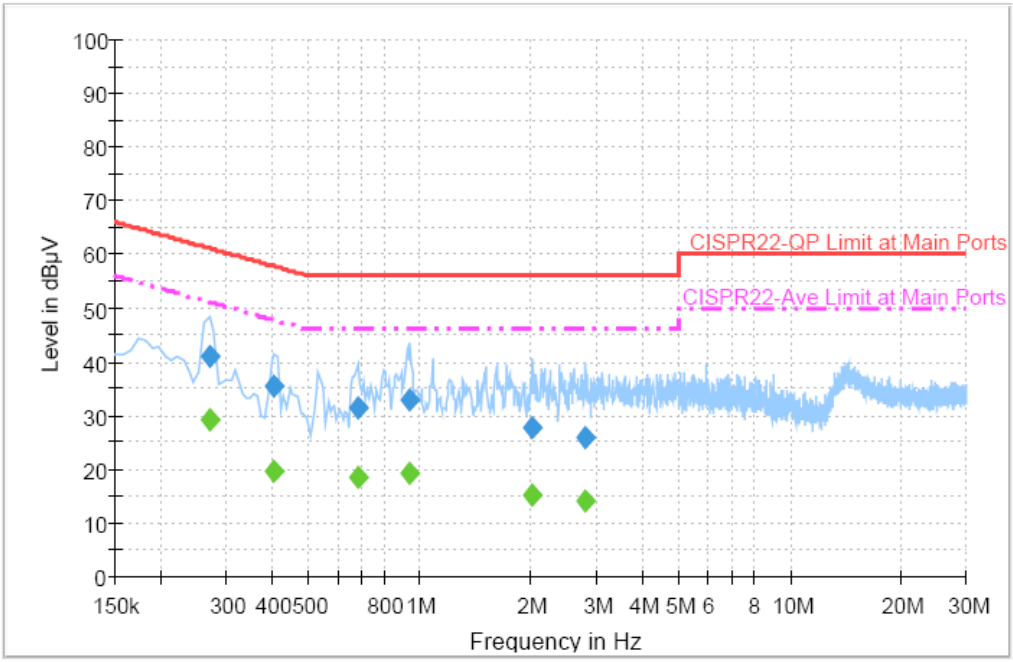
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.270000	42.6	Off	L1	19.3	18.5	61.1
0.550000	37.2	Off	L1	19.3	18.8	56.0
0.926000	38.3	Off	L1	19.4	17.7	56.0
1.374000	34.3	Off	L1	19.4	21.7	56.0
1.782000	33.4	Off	L1	19.4	22.6	56.0
2.854000	31.4	Off	L1	19.5	24.6	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.270000	27.9	Off	L1	19.3	23.2	51.1
0.550000	23.3	Off	L1	19.3	22.7	46.0
0.926000	23.8	Off	L1	19.4	22.2	46.0
1.374000	19.7	Off	L1	19.4	26.3	46.0
1.782000	19.0	Off	L1	19.4	27.0	46.0
2.854000	17.9	Off	L1	19.5	28.1	46.0

Test Mode :	Mode 1	**Temperature :**	23~24℃
Test Engineer :	Cona Huang	**Relative Humidity :**	44~45%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	PDA Phone 2 + GSM1900 Idle + WLAN Link + GPS Rx + MPEG4 + Battery 2 + USB Cable 2 + Adapter 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)
0.270000	40.8	Off	N	19.3	20.3	61.1
0.406000	35.4	Off	N	19.4	22.3	57.7
0.686000	31.5	Off	N	19.5	24.5	56.0
0.942000	32.9	Off	N	19.4	23.1	56.0
2.022000	27.5	Off	N	19.5	28.5	56.0
2.814000	25.7	Off	N	19.5	30.3	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.270000	29.3	Off	N	19.3	21.8	51.1
0.406000	19.7	Off	N	19.4	28.0	47.7
0.686000	18.5	Off	N	19.5	27.5	46.0
0.942000	19.1	Off	N	19.4	26.9	46.0
2.022000	15.1	Off	N	19.5	30.9	46.0
2.814000	14.2	Off	N	19.5	31.8	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

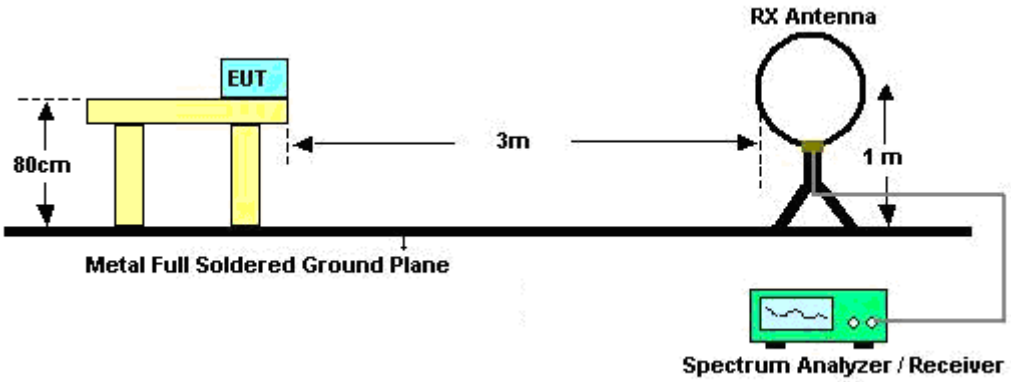
See list of measuring instruments of this test report.

3.7.3 Test Procedures

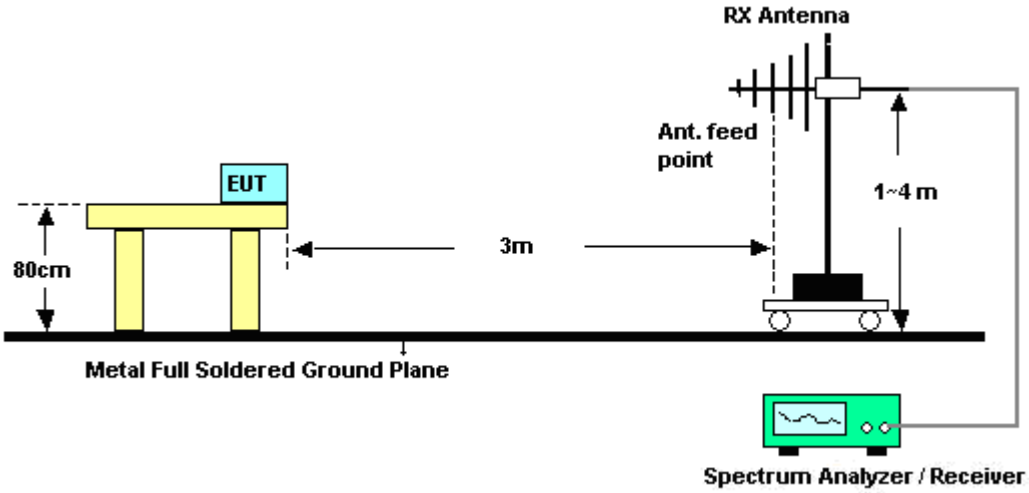
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
   Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector 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 :	26~27°C
		Relative Humidity :	45~46%

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

Note:

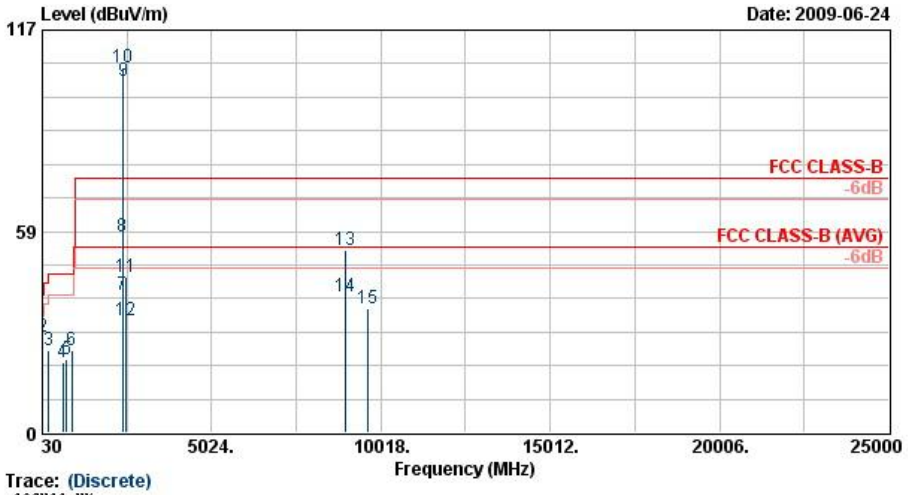
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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 ~ 25GHz)

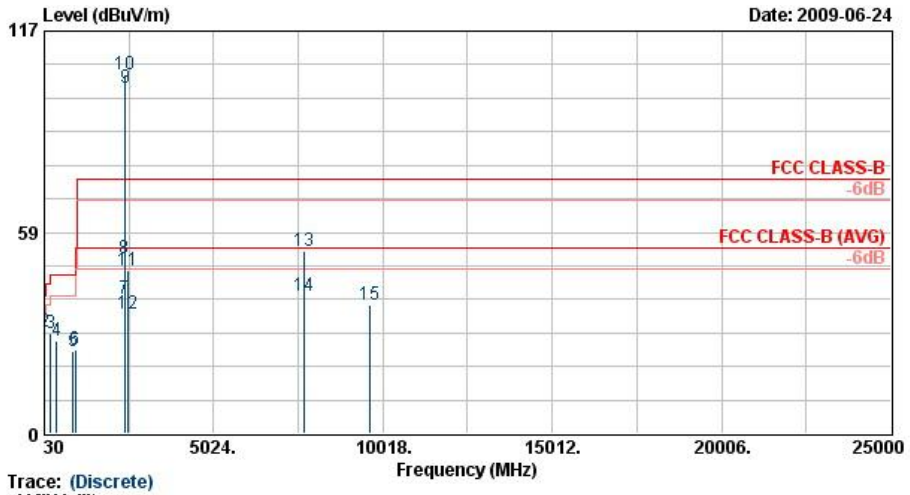
Test Mode :	Mode 1	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
Project : FR 8D3104-08

	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	24.44	-15.56	40.00	36.45	19.30	0.30	31.61	---	---	Peak
2	44.04	27.89	-12.11	40.00	47.72	11.58	0.30	31.71	100	298	Peak
3	211.98	24.09	-19.41	43.50	44.97	10.66	0.62	32.15	---	---	Peak
4	645.80	20.57	-25.43	46.00	31.90	19.47	1.10	31.90	---	---	Peak
5	756.40	21.42	-24.58	46.00	32.03	20.37	1.10	32.08	---	---	Peak
6	894.30	24.03	-21.97	46.00	32.81	21.67	1.30	31.75	---	---	Peak
7	2389.61	40.08	-13.92	54.00	40.46	31.98	3.92	36.28	161	349	Average
8	2389.61	56.89	-17.11	74.00	57.27	31.98	3.92	36.28	161	349	Peak
9 @	2412.00	102.08			102.41	32.00	3.95	36.28	161	349	Average
10 X	2412.00	106.04			106.37	32.00	3.95	36.28	161	349	Peak
11	2484.00	45.16	-28.84	74.00	45.33	32.08	4.05	36.30	161	349	Peak
12	2484.00	32.70	-21.30	54.00	32.87	32.08	4.05	36.30	161	349	Average
13	8976.00	52.96	-21.04	74.00	45.91	36.17	7.77	36.89	100	47	Peak
14	8976.00	39.49	-14.51	54.00	32.44	36.17	7.77	36.89	100	47	Average
15	9648.00	36.31	-37.69	74.00	75.72	-10.29	7.94	37.06	100	0	Peak

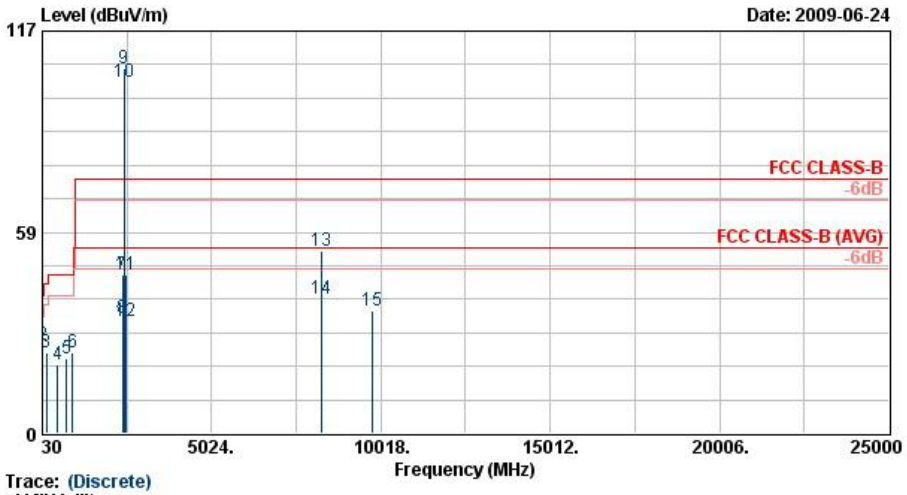
Test Mode :	Mode 1	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
Project : FR 8D3104-08

	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	30.54	27.51	-12.49	40.00	39.52	19.30	0.30	31.61	---	---	Peak
2	45.39	29.58	-10.42	40.00	50.38	10.67	0.30	31.77	100	335	Peak
3	210.63	29.29	-14.21	43.50	50.21	10.70	0.60	32.22	---	---	Peak
4	402.90	26.78	-19.22	46.00	41.24	16.54	0.90	31.90	---	---	Peak
5	876.80	23.98	-22.02	46.00	33.12	21.56	1.30	32.01	---	---	Peak
6	943.30	24.25	-21.75	46.00	32.45	22.05	1.20	31.46	---	---	Peak
7	2389.61	39.20	-14.80	54.00	39.58	31.98	3.92	36.28	117	32	Average
8	2389.61	50.96	-23.04	74.00	51.34	31.98	3.92	36.28	117	32	Peak
9 X	2412.00	100.67			101.00	32.00	3.95	36.28	117	32	Average
10 X	2412.00	104.28			104.61	32.00	3.95	36.28	117	32	Peak
11	2492.00	47.20	-26.80	74.00	47.35	32.10	4.05	36.30	117	42	Peak
12	2492.00	34.59	-19.41	54.00	34.74	32.10	4.05	36.30	117	32	Average
13	7671.00	53.24	-20.76	74.00	46.95	35.57	7.35	36.64	100	342	Peak
14	7671.00	40.10	-13.91	54.00	33.81	35.57	7.35	36.64	100	342	Average
15	9648.00	37.24	-36.76	74.00	76.65	-10.29	7.94	37.06	100	0	Peak

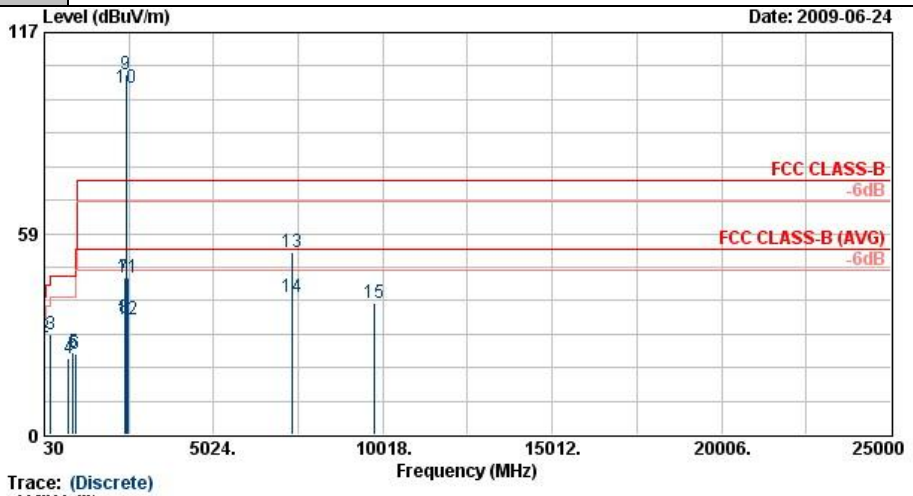
Test Mode :	Mode 2	Temperature :	26~27°C
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
Project : FR 8D3104-08

	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	30.54	25.53	-14.47	40.00	37.55	19.30	0.30	31.61	---	---	Peak
2	44.58	25.57	-14.43	40.00	45.99	11.00	0.30	31.72	100	227	Peak
3	156.09	23.64	-19.86	43.50	43.97	10.90	0.60	31.83	---	---	Peak
4	472.90	19.82	-26.18	46.00	33.42	17.52	0.93	32.05	---	---	Peak
5	747.30	21.90	-24.10	46.00	32.62	20.26	1.10	32.08	---	---	Peak
6	918.80	23.46	-22.54	46.00	31.98	21.85	1.22	31.58	---	---	Peak
7	2390.00	46.18	-27.82	74.00	46.56	31.98	3.92	36.28	159	354	Peak
8	2390.00	33.55	-20.45	54.00	33.93	31.98	3.92	36.28	159	354	Average
9 X	2437.00	106.26			106.52	32.04	3.99	36.29	159	354	Peak
10 @	2437.00	102.40			102.66	32.04	3.99	36.29	159	354	Average
11	2484.00	46.05	-27.95	74.00	46.21	32.08	4.05	36.30	159	354	Peak
12	2484.00	32.52	-21.48	54.00	32.69	32.08	4.05	36.30	159	354	Average
13	8286.00	52.89	-21.11	74.00	46.57	35.70	7.32	36.70	100	257	Peak
14	8286.00	39.34	-14.66	54.00	33.02	35.70	7.32	36.70	100	257	Average
15	9748.00	35.60	-38.40	74.00	74.73	-10.02	7.98	37.10	100	0	Peak

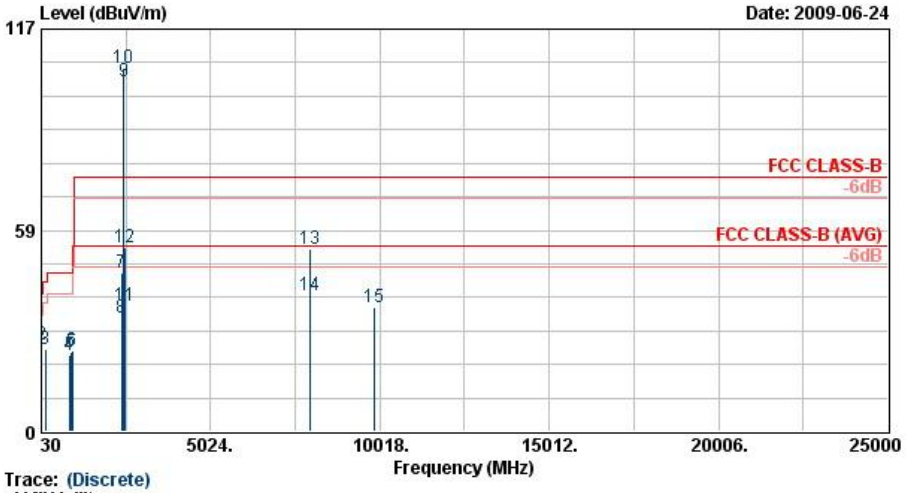
Test Mode :	Mode 2	Temperature :	26~27°C
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
Project : FR 8D3104-08
Memo : Mode 5

		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	30.19	-9.81	40.00	42.20	19.30	0.30	31.61	100	332	Peak
2		46.20	28.46	-11.54	40.00	49.65	10.33	0.30	31.82	---	---	Peak
3		208.74	29.19	-14.31	43.50	50.16	10.63	0.60	32.20	---	---	Peak
4		745.90	22.10	-23.90	46.00	32.84	20.25	1.10	32.09	---	---	Peak
5		883.80	24.05	-21.95	46.00	33.06	21.60	1.30	31.91	---	---	Peak
6		948.90	23.34	-22.66	46.00	31.48	22.09	1.20	31.43	---	---	Peak
7		2390.00	45.78	-28.22	74.00	46.16	31.98	3.92	36.28	120	24	Peak
8		2390.00	33.72	-20.28	54.00	34.10	31.98	3.92	36.28	120	24	Average
9	X	2437.00	104.83			105.11	32.02	3.99	36.29	120	24	Peak
10	X	2437.00	100.98			101.24	32.04	3.99	36.29	120	24	Average
11		2484.00	45.77	-28.23	74.00	45.93	32.08	4.05	36.30	120	24	Peak
12		2484.00	33.32	-20.68	54.00	33.49	32.08	4.05	36.30	120	24	Average
13		7347.00	53.11	-20.89	74.00	46.88	35.56	7.21	36.54	100	242	Peak
14		7347.00	39.98	-14.02	54.00	33.75	35.56	7.21	36.54	100	242	Average
15		9748.00	38.34	-35.66	74.00	77.47	-10.02	7.98	37.10	100	0	Peak

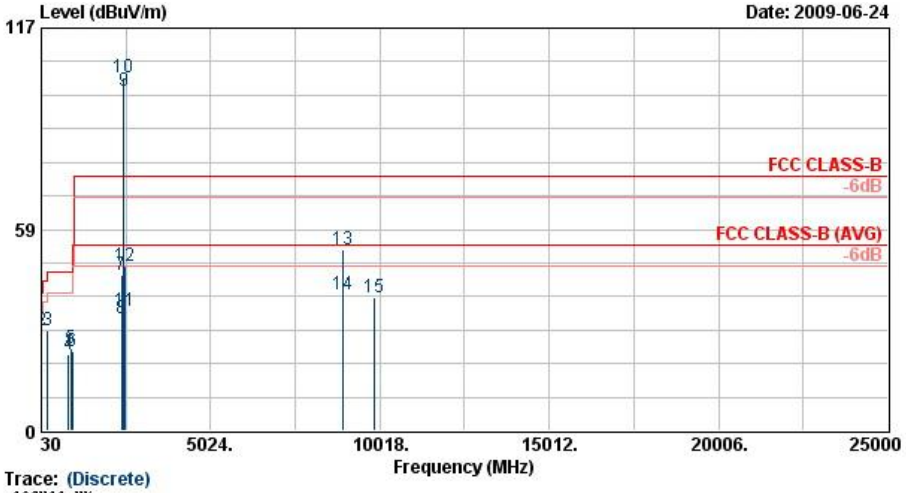
Test Mode :	Mode 3	Temperature :	26~27°C
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
Project : FR 8D3104-08

	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	28.94	-11.06	40.00	40.95	19.30	0.30	31.61	100	218	Peak
2	43.23	25.17	-14.83	40.00	45.01	11.58	0.30	31.71	---	---	Peak
3	156.63	24.01	-19.49	43.50	44.42	10.85	0.60	31.86	---	---	Peak
4	850.90	22.16	-23.84	46.00	31.94	21.41	1.20	32.39	---	---	Peak
5	890.80	22.86	-23.14	46.00	31.73	21.64	1.30	31.81	---	---	Peak
6	952.40	23.45	-22.55	46.00	31.51	22.11	1.23	31.39	---	---	Peak
7	2390.00	46.23	-27.77	74.00	46.61	31.98	3.92	36.28	192	353	Peak
8	2390.00	33.23	-20.77	54.00	33.61	31.98	3.92	36.28	192	353	Average
9 @	2462.00	101.75			101.96	32.06	4.02	36.29	192	353	Average
10 X	2462.00	105.48			105.69	32.06	4.02	36.29	192	353	Peak
11	2483.66	36.70	-17.30	54.00	36.87	32.08	4.05	36.30	192	353	Average
12	2483.66	53.36	-20.64	74.00	53.53	32.08	4.05	36.30	192	353	Peak
13	7971.00	53.02	-20.98	74.00	46.53	35.69	7.50	36.69	100	42	Peak
14	7971.00	39.57	-14.43	54.00	33.08	35.69	7.50	36.69	100	42	Average
15	9848.00	36.01	-37.99	74.00	74.88	-9.77	8.04	37.14	100	0	Peak

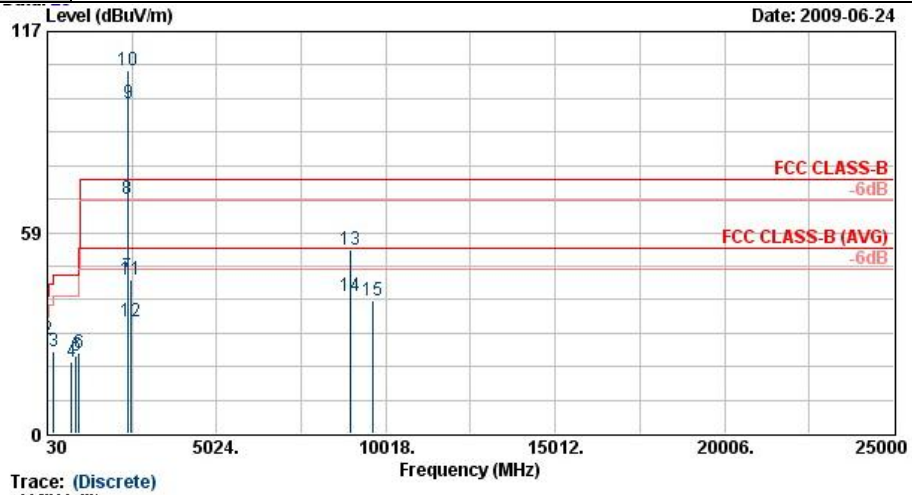
Test Mode :	Mode 3	Temperature :	26~27°C
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
Project : FR 8D3104-08

	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	30.54	26.76	-13.24	40.00	38.78	19.30	0.30	31.61	---	---	Peak
2	45.93	29.35	-10.65	40.00	50.15	10.67	0.30	31.77	100	245	Peak
3	211.98	29.16	-14.34	43.50	50.04	10.66	0.62	32.15	---	---	Peak
4	838.30	22.33	-23.67	46.00	32.22	21.26	1.20	32.35	---	---	Peak
5	896.40	23.74	-22.26	46.00	32.49	21.68	1.30	31.73	---	---	Peak
6	941.90	23.18	-22.82	46.00	31.41	22.04	1.20	31.47	---	---	Peak
7	2390.00	45.23	-28.77	74.00	45.62	31.98	3.92	36.28	144	42	Peak
8	2390.00	32.80	-21.20	54.00	33.18	31.98	3.92	36.28	144	42	Average
9 @	2462.00	98.82			99.03	32.06	4.02	36.29	144	42	Average
10 X	2462.00	102.48			102.69	32.06	4.02	36.29	144	42	Peak
11	2486.89	34.65	-19.35	54.00	34.82	32.08	4.05	36.30	144	42	Average
12	2486.89	48.00	-26.00	74.00	48.17	32.08	4.05	36.30	144	42	Peak
13	8916.00	52.49	-21.51	74.00	45.53	36.12	7.71	36.86	100	243	Peak
14	8916.00	39.37	-14.63	54.00	32.40	36.12	7.71	36.86	100	243	Average
15	9848.00	38.53	-35.47	74.00	77.40	-9.77	8.04	37.14	100	0	Peak

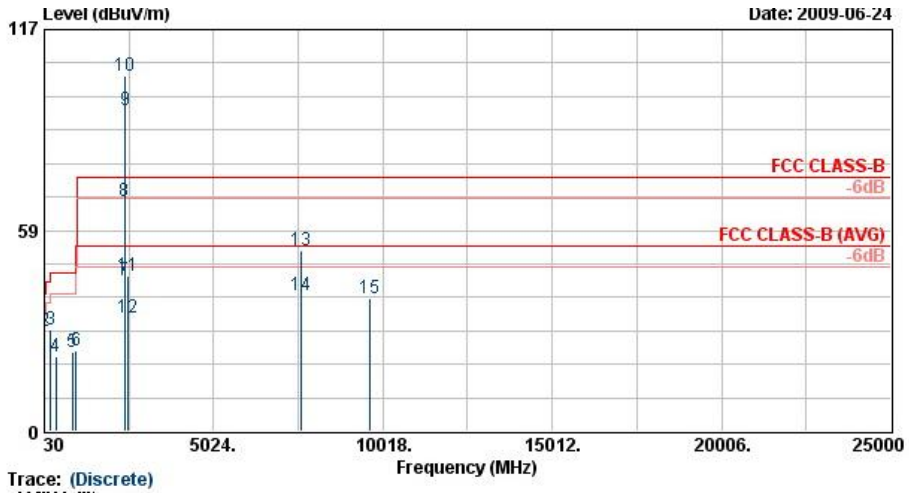
Test Mode :	Mode 4	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
Project : FR 8D3104-08

		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	29.43	-10.57	40.00	42.10	18.70	0.30	31.67	100	285	Peak
2		44.04	27.22	-12.78	40.00	47.05	11.58	0.30	31.71	---	---	Peak
3		211.98	24.02	-19.48	43.50	44.90	10.66	0.62	32.15	---	---	Peak
4		749.40	20.84	-25.16	46.00	31.50	20.30	1.10	32.06	---	---	Peak
5		878.90	22.72	-23.28	46.00	31.83	21.57	1.30	31.98	---	---	Peak
6		959.40	23.51	-22.49	46.00	31.39	22.12	1.29	31.30	---	---	Peak
7		2389.99	45.77	-8.23	54.00	46.15	31.98	3.92	36.28	162	350	Average
8	!	2389.99	68.38	-5.62	74.00	68.76	31.98	3.92	36.28	162	350	Peak
9	@	2412.00	96.12			96.45	32.00	3.95	36.28	162	350	Average
10	X	2412.00	105.86			106.17	32.02	3.95	36.29	162	350	Peak
11		2492.00	45.01	-28.99	74.00	45.16	32.10	4.05	36.30	162	350	Peak
12		2492.00	32.44	-21.56	54.00	32.59	32.10	4.05	36.30	162	350	Average
13		8961.00	53.40	-20.60	74.00	46.36	36.15	7.77	36.88	100	73	Peak
14		8961.00	39.91	-14.09	54.00	32.87	36.15	7.77	36.88	100	73	Average
15		9648.00	38.91	-35.09	74.00	78.31	-10.29	7.94	37.06	100	0	Peak

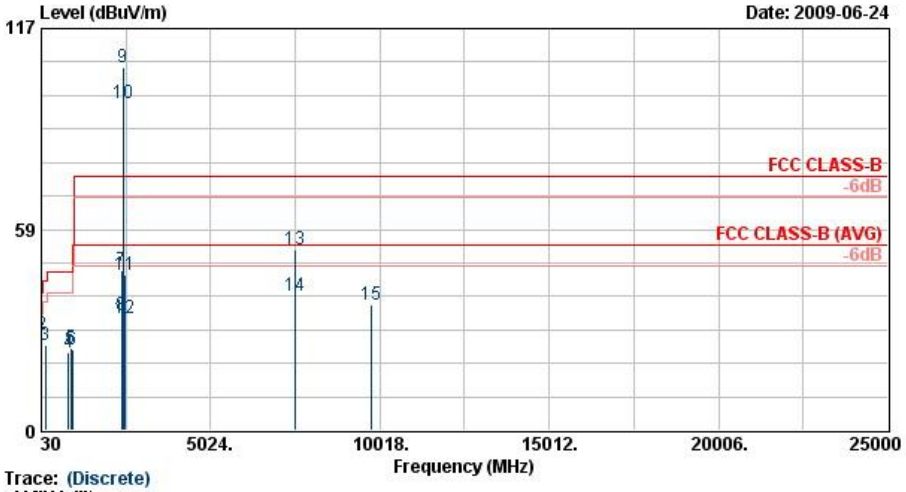
Test Mode :	Mode 4	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
Project : FR 8D3104-08

	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	30.71	-9.29	40.00	43.38	18.70	0.30	31.67	100	342	Peak
2	46.20	29.18	-10.82	40.00	50.36	10.33	0.30	31.82	---	---	Peak
3	210.63	29.68	-13.82	43.50	50.60	10.70	0.60	32.22	---	---	Peak
4	376.30	21.65	-24.35	46.00	36.65	15.94	0.86	31.80	---	---	Peak
5	859.30	22.85	-23.15	46.00	32.45	21.46	1.20	32.26	---	---	Peak
6	958.70	23.40	-22.60	46.00	31.32	22.12	1.28	31.31	---	---	Peak
7	2389.99	43.90	-10.10	54.00	44.28	31.98	3.92	36.28	118	32	Average
8	2389.99	66.86	-7.14	74.00	67.24	31.98	3.92	36.28	118	32	Peak
9 X	2412.00	93.42			93.75	32.00	3.95	36.28	118	32	Average
10 X	2412.00	103.60			103.93	32.00	3.95	36.28	118	32	Peak
11	2484.00	45.45	-28.55	74.00	45.61	32.08	4.05	36.30	118	32	Peak
12	2484.00	32.91	-21.09	54.00	33.08	32.08	4.05	36.30	118	32	Average
13	7596.00	52.68	-21.32	74.00	46.44	35.54	7.32	36.62	100	141	Peak
14	7596.00	39.57	-14.43	54.00	33.33	35.54	7.32	36.62	100	141	Average
15	9648.00	38.59	-35.41	74.00	78.00	-10.29	7.94	37.06	100	0	Peak

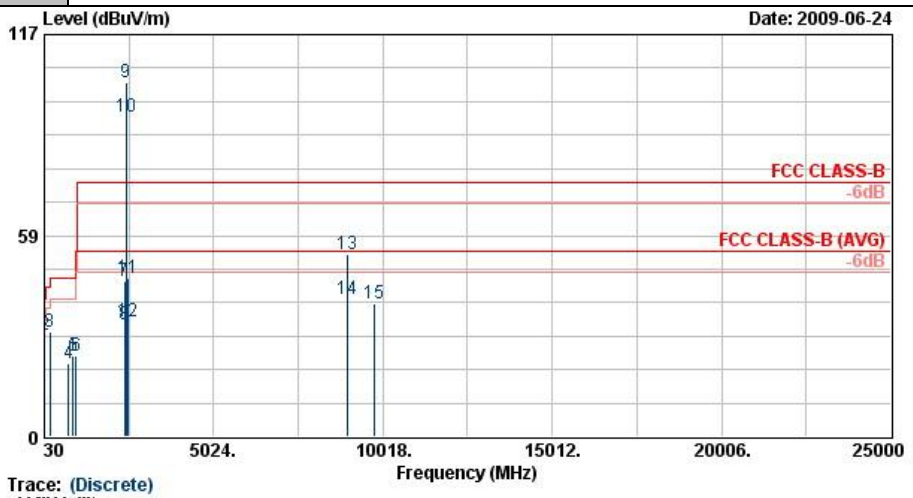
Test Mode :	Mode 5	Temperature :	26~27°C
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
Project : FR 8D3104-08

	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	30.54	24.86	-15.14	40.00	36.87	19.30	0.30	31.61	---	---	Peak
2	44.04	28.03	-11.97	40.00	47.86	11.58	0.30	31.71	100	241	Peak
3	156.09	24.59	-18.91	43.50	44.92	10.90	0.60	31.83	---	---	Peak
4	836.90	22.74	-23.26	46.00	32.64	21.25	1.20	32.34	---	---	Peak
5	901.30	24.04	-21.96	46.00	32.69	21.71	1.30	31.67	---	---	Peak
6	952.40	23.43	-22.57	46.00	31.48	22.11	1.23	31.39	---	---	Peak
7	2390.00	46.44	-27.56	74.00	46.83	31.98	3.92	36.28	159	353	Peak
8	2390.00	33.40	-20.60	54.00	33.78	31.98	3.92	36.28	159	353	Average
9 X	2437.00	105.68			105.94	32.04	3.99	36.29	159	353	Peak
10 @	2437.00	95.29			95.55	32.04	3.99	36.29	159	353	Average
11	2500.00	45.23	-28.77	74.00	45.38	32.10	4.05	36.30	159	353	Peak
12	2500.00	32.55	-21.45	54.00	32.70	32.10	4.05	36.30	159	353	Average
13	7527.00	52.80	-21.20	74.00	46.61	35.51	7.28	36.61	100	251	Peak
14	7527.00	39.35	-14.65	54.00	33.16	35.51	7.28	36.61	100	251	Average
15	9748.00	36.42	-37.58	74.00	75.55	-10.02	7.98	37.10	100	0	Peak

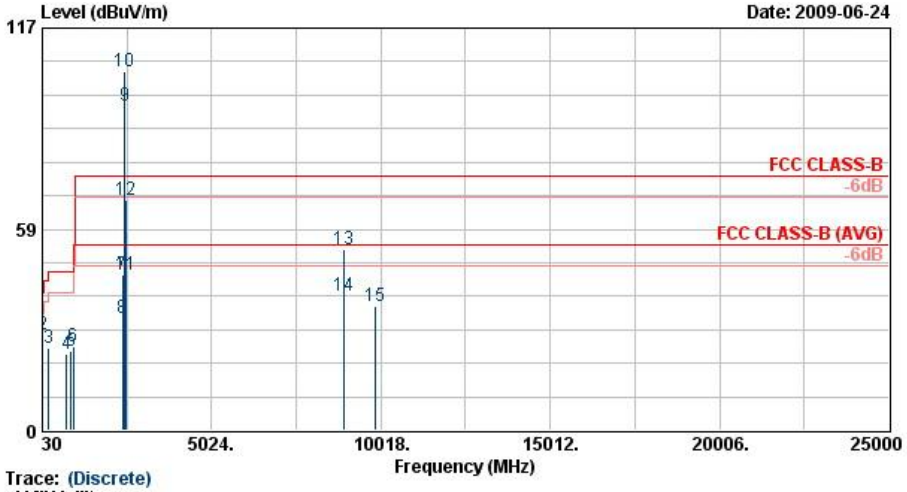
Test Mode :	Mode 5	Temperature :	26~27°C
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
Project : FR 8D3104-08

	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	27.73	-12.27	40.00	40.40	18.70	0.30	31.67	---	---	Peak
2	45.93	29.61	-10.39	40.00	50.41	10.67	0.30	31.77	100	236	Peak
3	203.34	30.64	-12.86	43.50	51.74	10.45	0.60	32.15	---	---	Peak
4	745.90	21.53	-24.47	46.00	32.27	20.25	1.10	32.09	---	---	Peak
5	885.90	23.28	-22.72	46.00	32.24	21.61	1.30	31.88	---	---	Peak
6	957.30	23.44	-22.56	46.00	31.37	22.12	1.27	31.32	---	---	Peak
7	2390.00	45.18	-28.82	74.00	45.56	31.98	3.92	36.28	119	40	Peak
8	2390.00	32.83	-21.17	54.00	33.21	31.98	3.92	36.28	119	40	Average
9 X	2437.00	102.87			103.16	32.02	3.99	36.29	119	40	Peak
10 X	2437.00	92.96			93.22	32.04	3.99	36.29	119	40	Average
11	2494.00	46.05	-27.95	74.00	46.20	32.10	4.05	36.30	119	40	Peak
12	2494.00	33.33	-20.67	54.00	33.48	32.10	4.05	36.30	119	40	Average
13	8952.00	52.97	-21.03	74.00	45.96	36.15	7.74	36.88	100	12	Peak
14	8952.00	39.85	-14.15	54.00	32.84	36.15	7.74	36.88	100	12	Average
15	9748.00	38.68	-35.32	74.00	77.81	-10.02	7.98	37.10	100	0	Peak

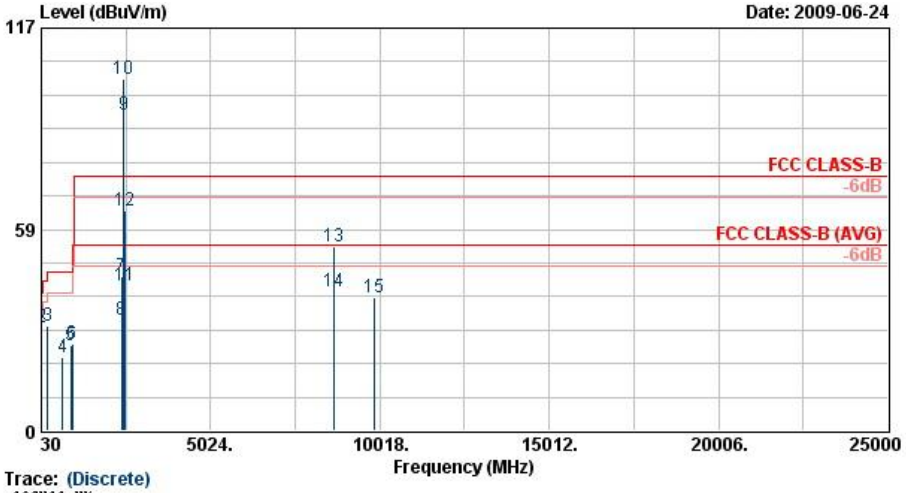
Test Mode :	Mode 6	Temperature :	26~27°C
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
Project : FR 8D3104-08

	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	25.83	-14.17	40.00	37.84	19.30	0.30	31.61	---	---	Peak
2	44.04	28.02	-11.98	40.00	47.86	11.58	0.30	31.71	100	226	Peak
3	211.44	24.02	-19.48	43.50	44.91	10.68	0.61	32.19	---	---	Peak
4	745.90	22.22	-23.78	46.00	32.96	20.25	1.10	32.09	---	---	Peak
5	882.40	22.95	-23.05	46.00	31.98	21.60	1.30	31.92	---	---	Peak
6	952.40	24.18	-21.82	46.00	32.24	22.11	1.23	31.39	---	---	Peak
7	2390.00	45.11	-28.89	74.00	45.49	31.98	3.92	36.28	104	339	Peak
8	2390.00	32.51	-21.49	54.00	32.89	31.98	3.92	36.28	104	339	Average
9 @	2462.00	94.34			94.55	32.06	4.02	36.29	104	339	Average
10 X	2462.00	104.28			104.50	32.06	4.02	36.30	104	339	Peak
11	2483.66	45.10	-8.90	54.00	45.27	32.08	4.05	36.30	104	339	Average
12	2483.66	67.10	-6.90	74.00	67.27	32.08	4.05	36.30	104	339	Peak
13	8907.00	52.72	-21.28	74.00	45.80	36.10	7.68	36.86	100	199	Peak
14	8907.00	39.17	-14.83	54.00	32.25	36.10	7.68	36.86	100	199	Average
15	9848.00	36.09	-37.91	74.00	74.96	-9.77	8.04	37.14	100	0	Peak

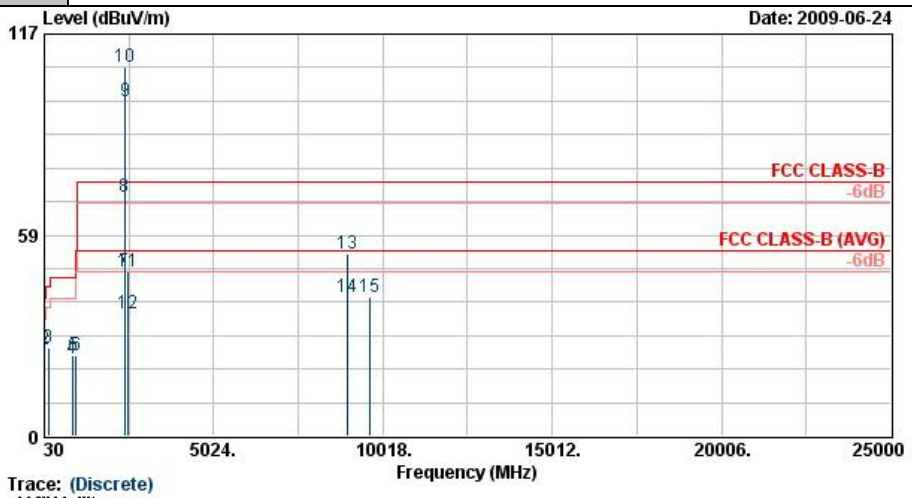
Test Mode :	Mode 6	Temperature :	26~27°C
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
Project : FR 8D3104-08

	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	27.57	-12.43	40.00	39.58	19.30	0.30	31.61	---	---	Peak
2	45.93	30.12	-9.88	40.00	50.93	10.67	0.30	31.77	100	320	Peak
3	210.63	30.49	-13.01	43.50	51.41	10.70	0.60	32.22	---	---	Peak
4	649.30	21.10	-24.90	46.00	32.39	19.49	1.10	31.89	---	---	Peak
5	894.30	24.77	-21.23	46.00	33.56	21.67	1.30	31.75	---	---	Peak
6	945.40	25.18	-20.82	46.00	33.36	22.07	1.20	31.45	---	---	Peak
7	2390.00	44.64	-29.36	74.00	45.02	31.98	3.92	36.28	117	41	Peak
8	2390.00	32.37	-21.63	54.00	32.75	31.98	3.92	36.28	117	41	Average
9 X	2462.00	91.94			92.15	32.06	4.02	36.29	117	41	Average
10 X	2462.00	102.04			102.25	32.06	4.02	36.29	117	41	Peak
11	2483.66	42.35	-11.65	54.00	42.52	32.08	4.05	36.30	117	41	Average
12	2483.66	63.87	-10.13	74.00	64.04	32.08	4.05	36.30	117	41	Peak
13	8682.00	53.54	-20.46	74.00	47.01	35.88	7.42	36.77	100	288	Peak
14	8682.00	40.34	-13.66	54.00	33.81	35.88	7.42	36.77	100	288	Average
15	9848.00	38.88	-35.12	74.00	77.75	-9.77	8.04	37.14	100	0	Peak

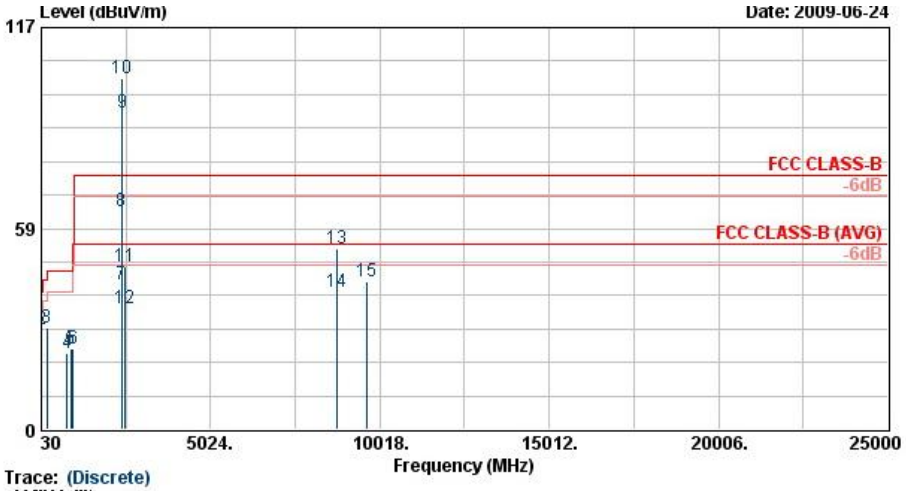
Test Mode :	Mode 7	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Mac Lin	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
Project : FR 8D3104-08

		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	30.45	-9.55	40.00	42.46	19.30	0.30	31.61	100	207	Peak
2		44.58	25.11	-14.89	40.00	45.53	11.00	0.30	31.72	---	---	Peak
3		153.93	25.83	-17.67	43.50	46.01	11.00	0.60	31.78	---	---	Peak
4		847.40	22.63	-23.37	46.00	32.44	21.38	1.20	32.39	---	---	Peak
5		882.40	23.45	-22.55	46.00	32.48	21.60	1.30	31.92	---	---	Peak
6		955.90	23.59	-22.41	46.00	31.55	22.11	1.26	31.34	---	---	Peak
7		2389.61	47.83	-6.17	54.00	48.21	31.98	3.92	36.28	164	355	Average
8	!	2389.61	69.79	-4.21	74.00	70.17	31.98	3.92	36.28	164	355	Peak
9	@	2412.00	97.52			97.85	32.00	3.95	36.28	164	355	Average
10	X	2412.00	107.36			107.68	32.02	3.95	36.29	164	355	Peak
11		2492.00	47.69	-26.31	74.00	47.84	32.10	4.05	36.30	164	355	Peak
12		2492.00	35.51	-18.49	54.00	35.66	32.10	4.05	36.30	164	355	Average
13		8967.00	52.88	-21.12	74.00	45.83	36.17	7.77	36.88	100	216	Peak
14		8967.00	40.42	-13.58	54.00	33.36	36.17	7.77	36.88	100	216	Average
15		9648.00	40.31	-33.69	74.00	79.72	-10.29	7.94	37.06	100	0	Peak

Test Mode :	Mode 7	Temperature :	26~27°C
Test Channel :	01	Relative Humidity :	45~46%
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 8D3104-08

	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	28.05	-11.95	40.00	39.41	19.90	0.30	31.56	---	---	Peak
2	45.39	29.02	-10.98	40.00	49.82	10.67	0.30	31.77	100	128	Peak
3	205.23	29.41	-14.09	43.50	50.47	10.52	0.60	32.17	---	---	Peak
4	794.90	22.35	-23.65	46.00	32.57	20.75	1.20	32.17	---	---	Peak
5	892.90	23.28	-22.72	46.00	32.09	21.66	1.30	31.77	---	---	Peak
6	955.90	23.52	-22.48	46.00	31.48	22.11	1.26	31.34	---	---	Peak
7	2389.99	42.20	-11.80	54.00	42.58	31.98	3.92	36.28	124	64	Average
8	2389.99	63.49	-10.51	74.00	63.87	31.98	3.92	36.28	124	64	Peak
9 @	2412.00	92.37			92.70	32.00	3.95	36.28	124	64	Average
10 X	2412.00	102.33			102.66	32.00	3.95	36.28	124	64	Peak
11	2494.00	47.33	-26.67	74.00	47.48	32.10	4.05	36.30	124	64	Peak
12	2494.00	35.19	-18.81	54.00	35.34	32.10	4.05	36.30	124	64	Average
13	8751.00	52.73	-21.27	74.00	46.08	35.95	7.50	36.80	100	334	Peak
14	8751.00	40.12	-13.88	54.00	33.47	35.95	7.50	36.80	100	334	Average
15	9648.00	43.09	-30.91	74.00	82.49	-10.29	7.94	37.06	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
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)
System Simulator	R&S	CMU200	116456	N/A	Jun. 05, 2008	Jun. 04, 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 EP8D3104-08 as below.