



FCC RF Test Report

APPLICANT : Acer Incorporated
EQUIPMENT : Tablet Computer
BRAND NAME : Acer
MODEL NAME : A200
FCC ID : HLZTMDMA200
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Oct. 14, 2011 and completely tested on Oct. 28, 2011. 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:

Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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

SPORTON INTERNATIONAL INC.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

FCC ID : HLZTMDMA200

Page Number : 1 of 83

Report Issued Date : Nov. 07, 2011

Report Version : Rev. 02



TABLE OF CONTENTS

REVISION HISTORY.....3

SUMMARY OF TEST RESULT4

1 GENERAL DESCRIPTION5

 1.1 Applicant5

 1.2 Manufacturer.....5

 1.3 Feature of Equipment Under Test6

 1.4 Testing Site.....7

 1.5 Applied Standards7

 1.6 Ancillary Equipment List8

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST9

 2.1 RF Power.....9

 2.2 Test Mode.....10

 2.3 Connection Diagram of Test System.....11

 2.4 RF Utility11

3 TEST RESULT.....12

 3.1 6dB and 99% Bandwidth Measurement12

 3.2 Output Power Measurement.....25

 3.3 Band Edges Measurement27

 3.4 Spurious Emission Measurement.....36

 3.5 Power Spectral Density Measurement46

 3.6 AC Conducted Emission Measurement.....53

 3.7 Radiated Emission Measurement.....57

 3.8 Antenna Requirements80

4 LIST OF MEASURING EQUIPMENT81

5 UNCERTAINTY OF EVALUATION82

APPENDIX A. PHOTOGRAPHS OF EUT

APPENDIX B. SETUP PHOTOGRAPHS

**SUMMARY OF TEST RESULT**

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	Gen 4.6.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Power Output	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 12.5 dB at 0.182 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.4 dB at 2389.99 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Acer Incorporated

8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 22181, Taiwan (R.O.C)

1.2 Manufacturer

1. Compal Electronics, Inc.

No. 581, Ruiguang Rd., Neihu District, Taipei City 11492, Taiwan

2. Compal Electronics Technology (Kunshan) Co., Ltd.

No. 25, Third Avenue, A Zone, Kunshan Comprehensive Free Trade Zone, Kunshan, Jiangsu, China

3. Compal Information (Kunshan) Co., Ltd.

No. 15, Third Avenue, A Zone, Kunshan Comprehensive Free Trade Zone, Kunshan, Jiangsu, China

4. Compal Information Technology (Kunshan) Co., Ltd.

No. 58, First Avenue, A Zone, Kunshan Comprehensive Free Trade Zone, Kunshan, Jiangsu, China

5. Compalead Eletrônica Do Brasil Indústria E Comércio Ltda

Rua Kanebo 175, Galpões C1, C2, C3, C4, C5 C6 E C12, Bairro Distrito Industrial Jundiaí Business Park, Cep 13213-090, Jundiaí - São Paulo, Brasil

6. Compal (Vietnam) Co., Ltd.

Ba Thien Industrial Zone, Ba Hien Commune, Binh Xuyen County, Vinh Phuc Province, Vietnam

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Tablet Computer
Brand Name	Acer
Model Name	A200
FCC ID	HLZTMDMA200
Sample 1	EUT with eMMC 1 and LP DDR2
Sample 2	EUT with eMMC 2 and LP DDR2
Sample 3	EUT with eMMC 3 and LP DDR2
Sample 4	EUT with eMMC 4 and LP DDR2
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 : 17.55 dBm (0.0569 W) 802.11g : 22.43 dBm (0.1750 W) 802.11n (BW 20MHz) : 21.99 dBm (0.1581 W)
Antenna Type	PIFA Antenna with gain -0.03 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : 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).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH06-HY	722060/4086B-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 8
- ♦ IC RSS-Gen Issue 3

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, recorded in a separate test report.



1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
2.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
5.	USB 2.0 HD	WD	WDBAAR3200ABK-PESN	FCC DoC	N/A	Shielded, 1.8 m
6.	Bluetooth Earphone	Motorola	S705	IHDT6GH1	N/A	N/A
7.	iPod Earphone	Apple	N/A	FCC DoC	Unshielded, 1.2 m	N/A
8.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A

2 Test Configuration of Equipment Under Test

2.1 RF Power

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

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	17.55	17.54	17.38	17.50
CH 06	2437 MHz	17.37	-	-	-
CH 11	2462 MHz	16.89	-	-	-

Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	21.37	-	-	-	-	-	-	-
CH 06	2437 MHz	22.40	-	-	-	-	-	-	-
CH 11	2462 MHz	22.43	22.41	22.35	22.31	22.30	22.35	22.40	22.41

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
		OFDM Data Rate							
		MCS=0	MCS=1	MCS=2	MCS=3	MCS=4	MCS=5	MCS=6	MCS=7
		6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 01	2412 MHz	21.60	-	-	-	-	-	-	-
CH 06	2437 MHz	21.99	21.89	21.87	21.81	21.91	21.78	21.77	21.74
CH 11	2462 MHz	21.80	-	-	-	-	-	-	-

Remark:

1. The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b, 6Mbps for 802.11g, and 6.5Mbps for 802.11n (BW 20MHz) for all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signals continuously for all testing.
3. Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports.
4. The EUT have support 802.11n (BW 20 MHz) function only, not support 802.11n (BW 40 MHz) function.

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).

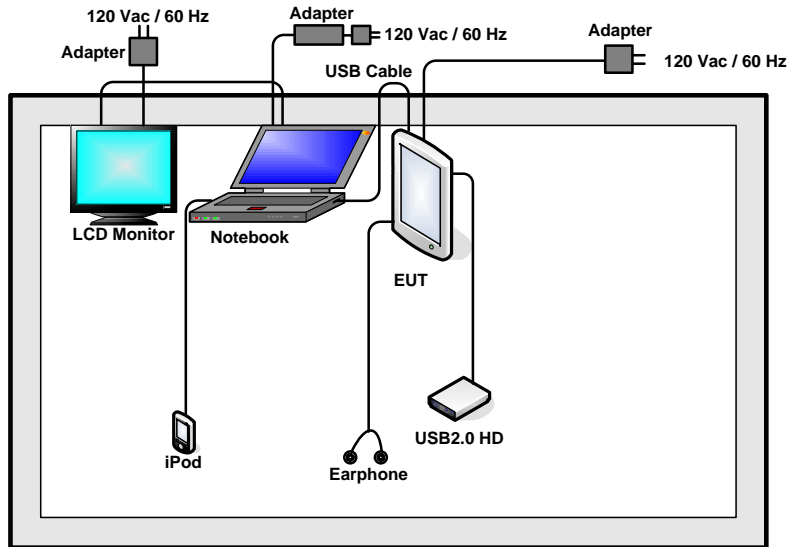
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations, laptop / tablet modes.

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

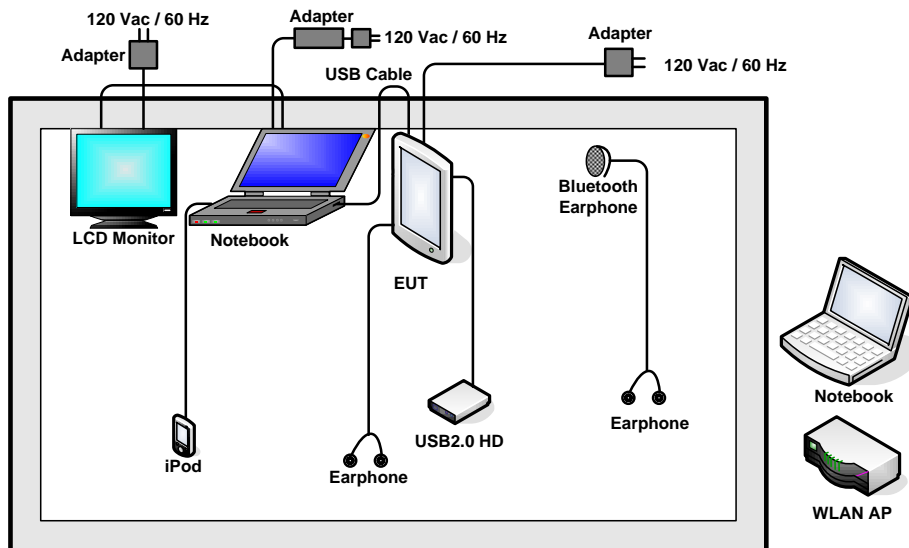
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz
Radiated TCs	Mode 1 : 802.11b CH01_2412 MHz for Sample 1 Mode 2 : 802.11b CH06_2437 MHz for Sample 1 Mode 3 : 802.11b CH11_2462 MHz for Sample 1	Mode 4: 802.11g_CH01_2412 MHz for Sample 1 Mode 5: 802.11g_CH06_2437 MHz for Sample 1 Mode 6: 802.11g_CH11_2462 MHz for Sample 1 Mode 7: 802.11g_CH01_2412 MHz for Sample 3 Mode 8: 802.11n (BW 20M)_CH01_2412 MHz for Sample 1 Mode 9: 802.11n (BW 20M)_CH06_2437 MHz for Sample 1 Mode 10: 802.11n (BW 20M)_CH11_2462 MHz for Sample 1
AC Conducted Emission	Mode 1 : WLAN Link + Bluetooth Link + Earphone + USB Cable 1 (Data Link with Notebook) + Camera + USB 2.0 HD + Adapter for Sample 1 Mode 2 : WLAN Link + Bluetooth Link + Earphone + USB Cable 2 (Data Link with Notebook) + MPEG4 + USB 2.0 HD + Adapter for Sample 3	
Remark:		
1. The worst case of conducted emission is mode 2; only the test data of it was reported.		
2. Link with Notebook means data application transferred mode between DUT and Notebook.		

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

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

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

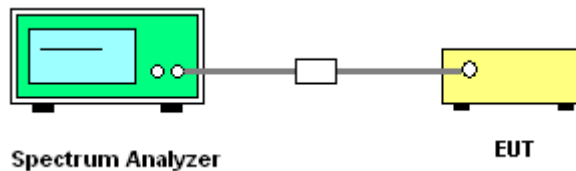
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

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

3.1.4 Test Setup



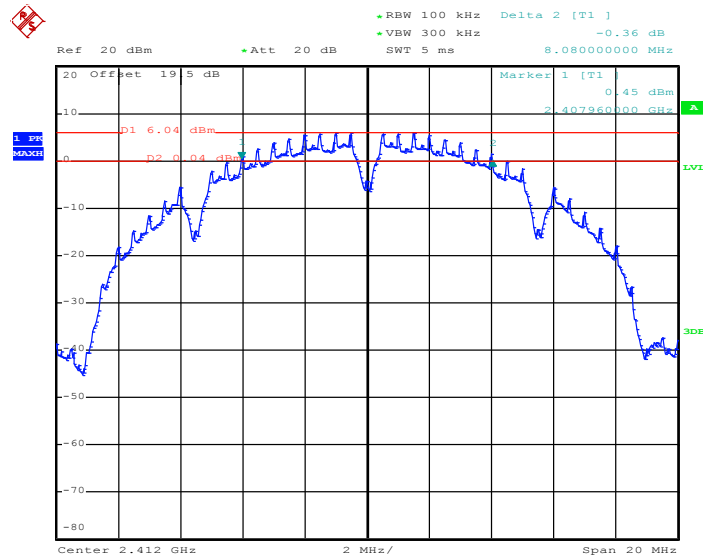


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	21~23°C
Test Engineer :	Pinkston Tu	Relative Humidity :	47~50%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	8.08	0.5	Pass
06	2437	8.04	0.5	Pass
11	2462	8.04	0.5	Pass

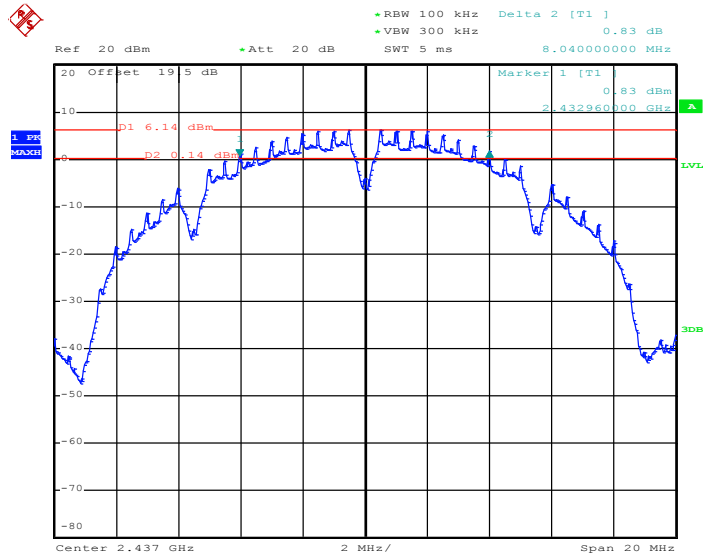
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 27.OCT.2011 10:18:49

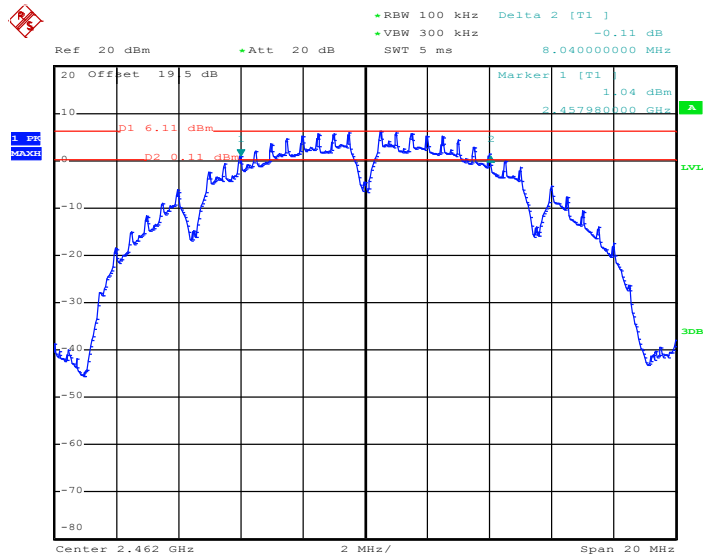


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 27.OCT.2011 10:33:10

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



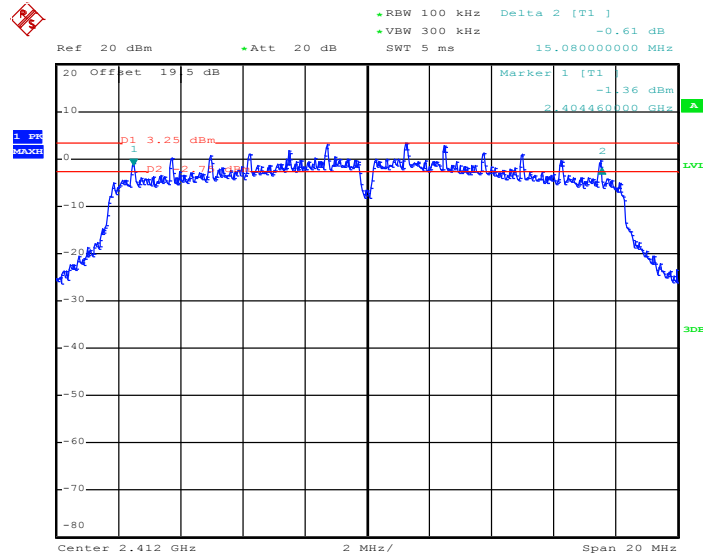
Date: 27.OCT.2011 10:52:02



Test Mode :	Mode 4, 5, 6	Temperature :	21~23°C
Test Engineer :	Pinkston Tu	Relative Humidity :	47~50%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.08	0.5	Pass
06	2437	15.08	0.5	Pass
11	2462	15.08	0.5	Pass

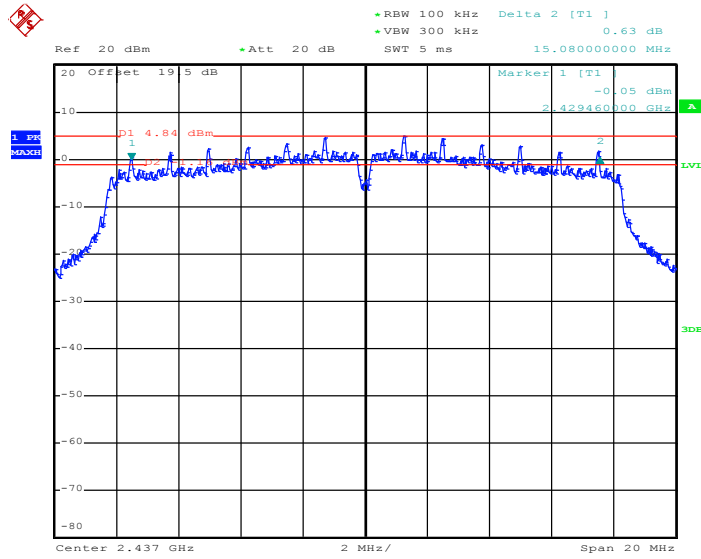
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 27.OCT.2011 11:06:20

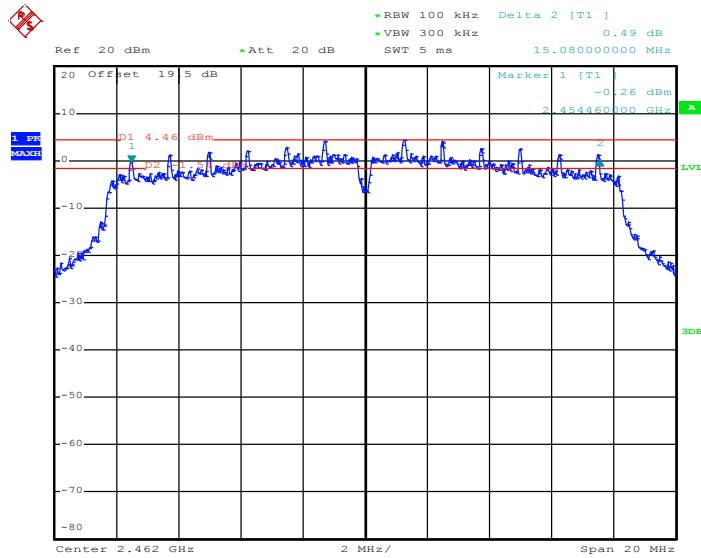


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 27.OCT.2011 11:22:04

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



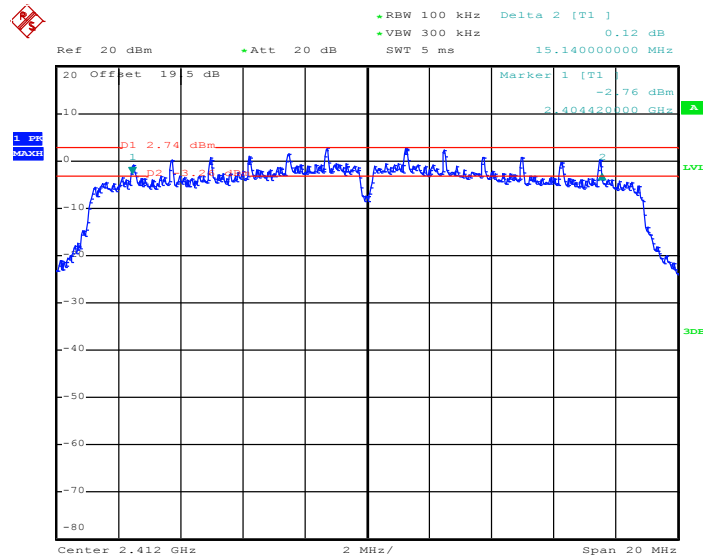
Date: 27.OCT.2011 11:38:38



Test Mode :	Mode 7, 8, 9	Temperature :	21~23°C
Test Engineer :	Pinkston Tu	Relative Humidity :	47~50%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.14	0.5	Pass
06	2437	15.12	0.5	Pass
11	2462	15.08	0.5	Pass

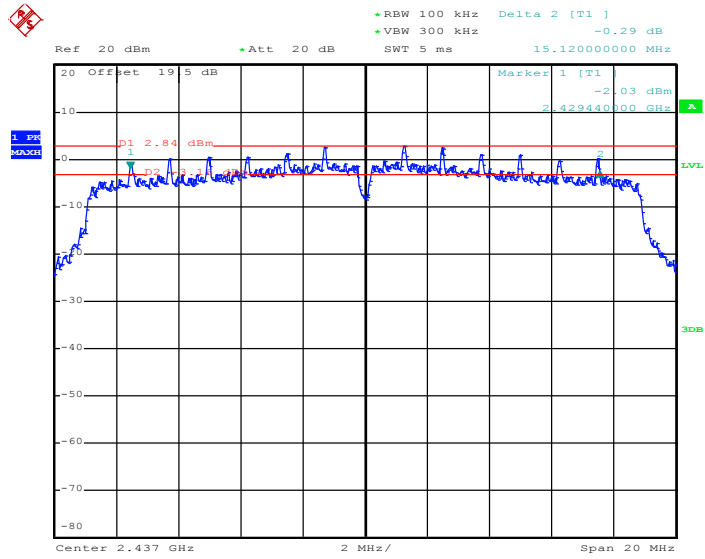
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 27.OCT.2011 11:58:04

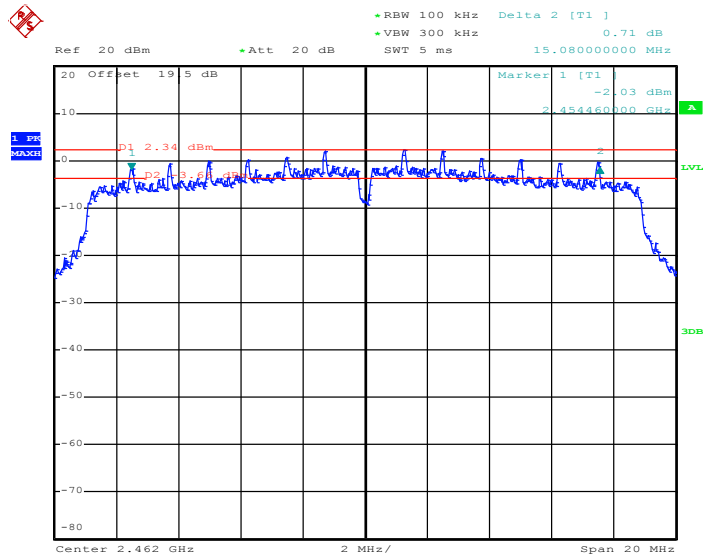


Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 27.OCT.2011 12:22:05

Mode 9 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 11



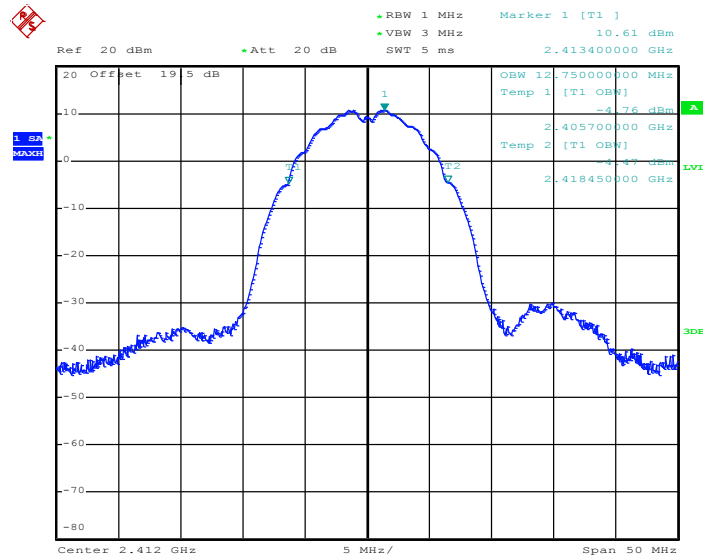
Date: 27.OCT.2011 12:40:06

3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	21~23°C
Test Engineer :	Pinkston Tu	Relative Humidity :	47~50%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	12.75	Pass
06	2437	12.75	Pass
11	2462	12.75	Pass

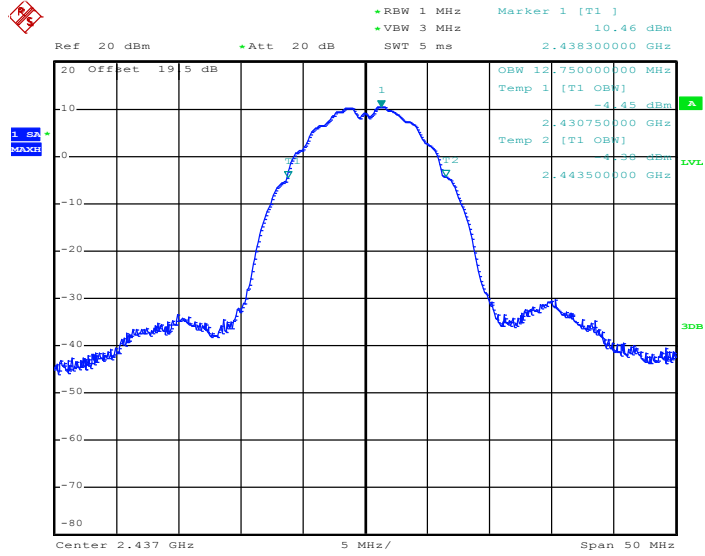
Mode 1 : 99% Occupied Bandwidth Plot on 802.11b Channel 01



Date: 27.OCT.2011 10:20:23

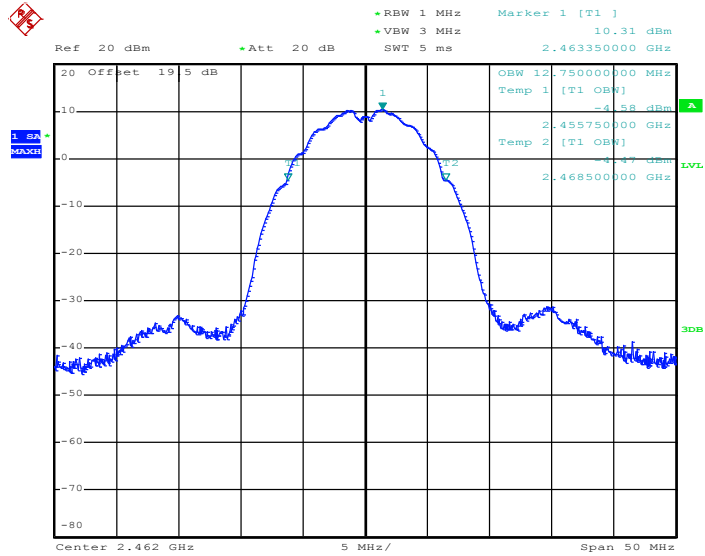


Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



Date: 27.OCT.2011 10:33:40

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



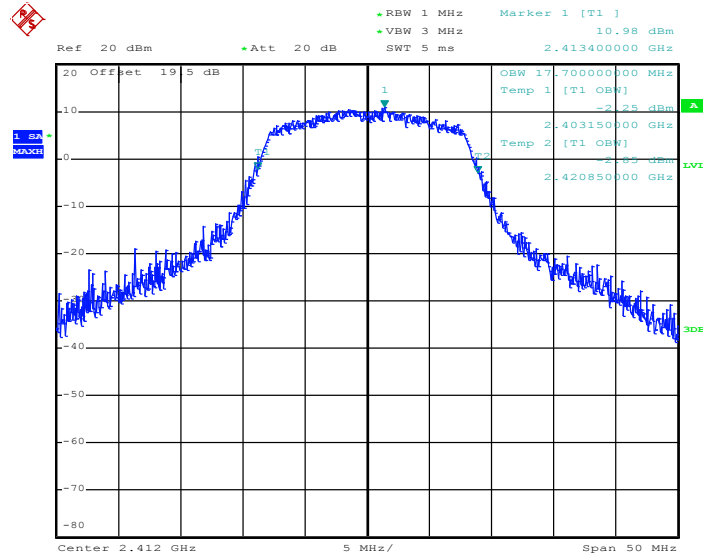
Date: 27.OCT.2011 10:53:14



Test Mode :	Mode 4, 5, 6	Temperature :	21~23°C
Test Engineer :	Pinkston Tu	Relative Humidity :	47~50%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	17.70	Pass
06	2437	17.75	Pass
11	2462	17.85	Pass

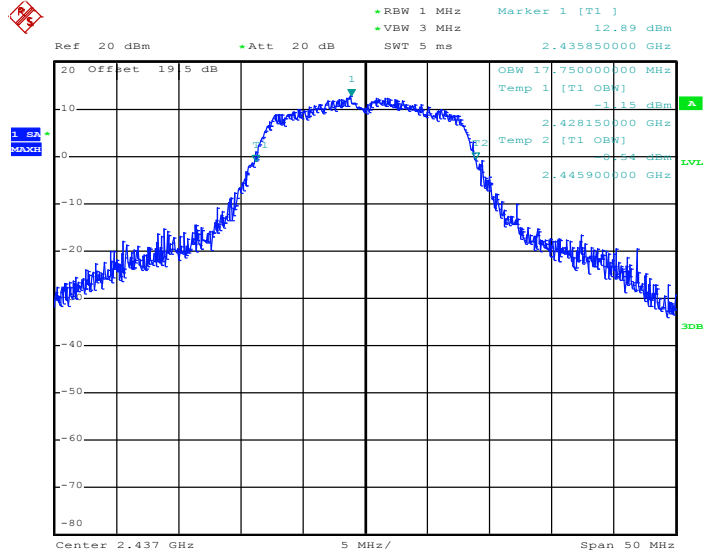
Mode 4 : 99% Occupied Bandwidth Plot on 802.11g Channel 01



Date: 27.OCT.2011 11:07:53

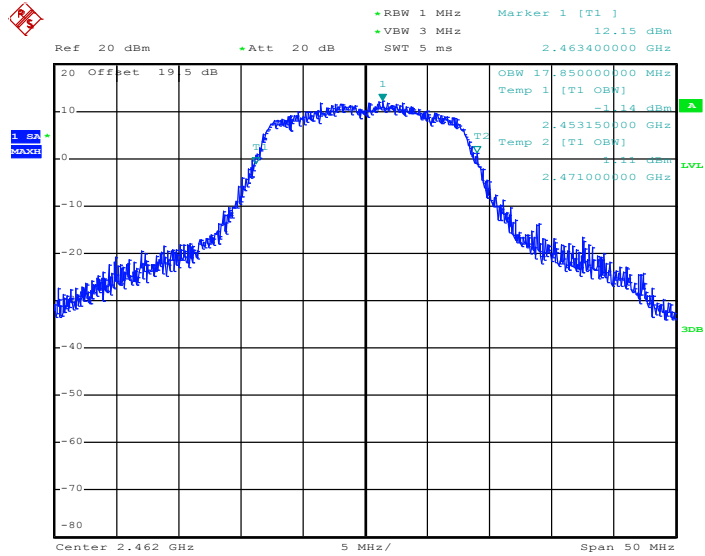


Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



Date: 27.OCT.2011 11:22:34

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



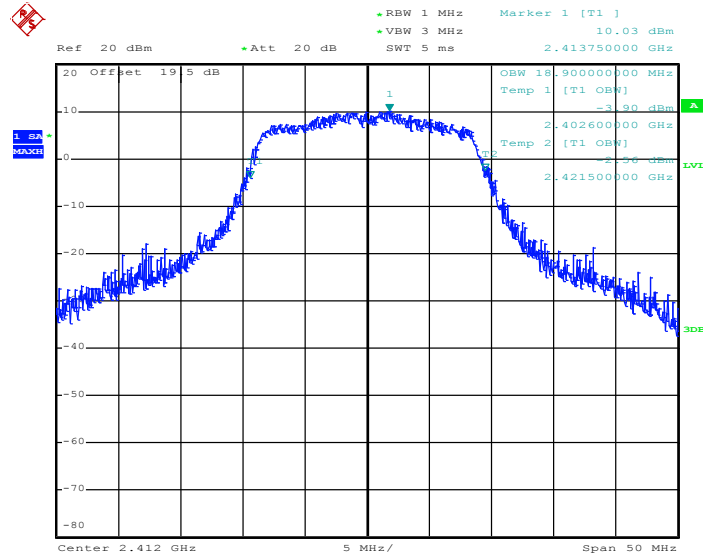
Date: 27.OCT.2011 11:39:50



Test Mode :	Mode 7, 8, 9	Temperature :	21~23°C
Test Engineer :	Pinkston Tu	Relative Humidity :	47~50%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.90	Pass
06	2437	18.90	Pass
11	2462	19.00	Pass

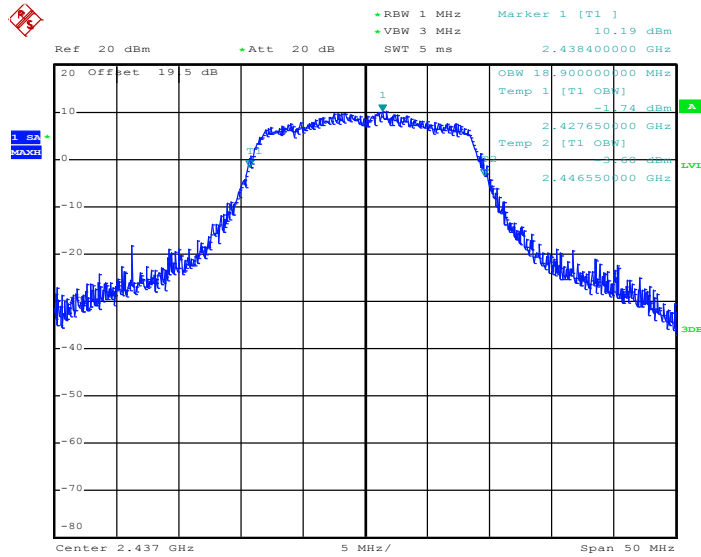
Mode 7 : 99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 27.OCT.2011 11:59:37

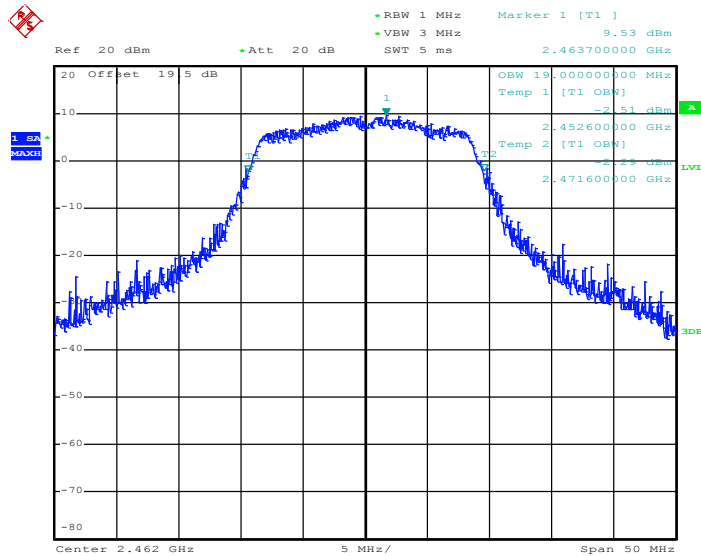


Mode 8 : 99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 27.OCT.2011 12:22:35

Mode 9 : 99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 11



Date: 27.OCT.2011 12:41:18

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.

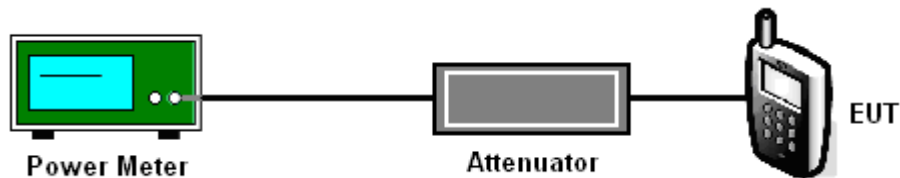
3.2.2 Measuring Instruments

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 power meter by a low loss cable.
3. Measure the power by power meter.

3.2.4 Test Setup





3.2.5 Test Result of Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	21~23°C
Test Engineer :	Pinkston Tu	Relative Humidity :	47~50%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	17.55	30	Pass
06	2437	17.37	30	Pass
11	2462	16.89	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	21~23°C
Test Engineer :	Pinkston Tu	Relative Humidity :	47~50%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.37	30	Pass
06	2437	22.40	30	Pass
11	2462	22.43	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	21~23°C
Test Engineer :	Pinkston Tu	Relative Humidity :	47~50%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.60	30	Pass
06	2437	21.99	30	Pass
11	2462	21.80	30	Pass

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

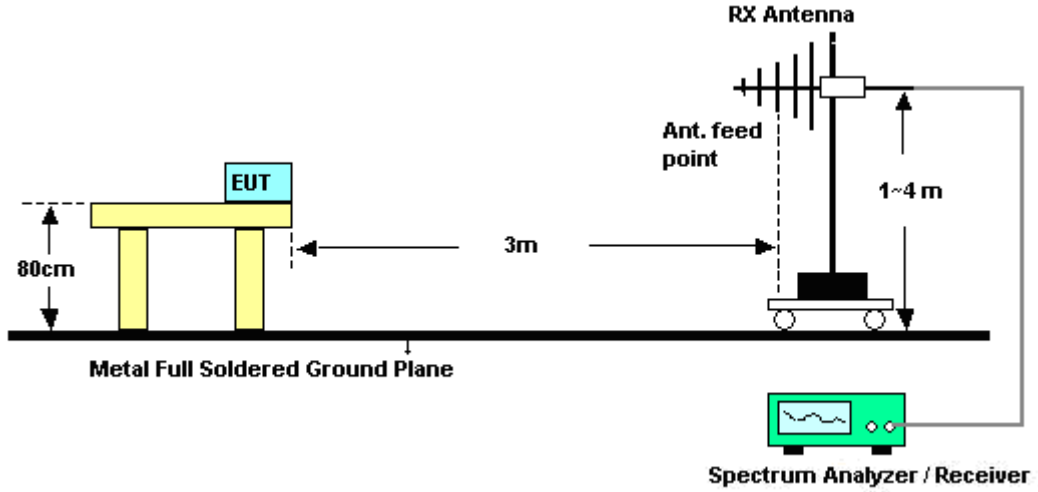
See list of measuring instruments of this test report.

3.3.3 Test Procedures

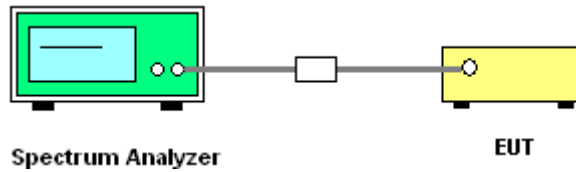
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) \geq RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the device complies with the use of power option 2 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

<Radiated Band Edges>



<Conducted Band Edges>





3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	23~25°C
Test Band :	802.11b	Relative Humidity :	41~43%
Test Channel :	01	Test Engineer :	Elvis Chen

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	52.63	-21.37	74	49.72	31.9	5.4	34.39	102	50	Peak
2389.61	39.93	-14.07	54	37.02	31.9	5.4	34.39	102	50	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	47.82	-26.18	74	44.91	31.9	5.4	34.39	100	341	Peak
2389.99	36.36	-17.64	54	33.45	31.9	5.4	34.39	100	341	Average

Test Mode :	Mode 3	Temperature :	23~25°C
Test Band :	802.11b	Relative Humidity :	41~43%
Test Channel :	11	Test Engineer :	Elvis Chen

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	50.69	-23.31	74	47.56	31.98	5.52	34.37	100	48	Peak
2483.5	38.49	-15.51	54	35.36	31.98	5.52	34.37	100	48	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	50.98	-23.02	74	47.85	31.98	5.52	34.37	100	315	Peak
2483.5	39.49	-14.51	54	36.36	31.98	5.52	34.37	100	315	Average



Test Mode :	Mode 4	Temperature :	23~25°C
Test Band :	802.11g	Relative Humidity :	41~43%
Test Channel :	01	Test Engineer :	Elvis Chen

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	70.6	-3.4	74	67.69	31.9	5.4	34.39	100	52	Peak
2389.99	48.53	-5.47	54	45.62	31.9	5.4	34.39	100	52	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.42	66.09	-7.91	74	63.18	31.9	5.4	34.39	100	341	Peak
2389.42	44.85	-9.15	54	41.94	31.9	5.4	34.39	100	341	Average

Test Mode :	Mode 6	Temperature :	23~25°C
Test Band :	802.11g	Relative Humidity :	41~43%
Test Channel :	11	Test Engineer :	Elvis Chen

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	69.11	-4.89	74	65.98	31.98	5.52	34.37	100	51	Peak
2483.5	48.23	-5.77	54	45.1	31.98	5.52	34.37	100	51	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	69.98	-4.02	74	66.85	31.98	5.52	34.37	100	316	Peak
2483.5	47.86	-6.14	54	44.73	31.98	5.52	34.37	100	316	Average



Test Mode :	Mode 7	Temperature :	23~25°C
Test Band :	802.11g	Relative Humidity :	41~43%
Test Channel :	01	Test Engineer :	Elvis Chen

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	70.23	-3.77	74	67.32	31.9	5.4	34.39	100	50	Peak
2389.99	45.13	-8.87	54	42.22	31.9	5.4	34.39	100	50	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	65.8	-8.2	74	62.89	31.9	5.4	34.39	100	22	Peak
2389.61	40.67	-13.33	54	37.76	31.9	5.4	34.39	100	22	Average

Test Mode :	Mode 8	Temperature :	23~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~43%
Test Channel :	01	Test Engineer :	Elvis Chen

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	70.31	-3.69	74	67.4	31.9	5.4	34.39	100	51	Peak
2389.99	46.84	-7.16	54	43.93	31.9	5.4	34.39	100	51	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	66.89	-7.11	74	63.98	31.9	5.4	34.39	100	339	Peak
2389.99	43.54	-10.46	54	40.63	31.9	5.4	34.39	100	339	Average



Test Mode :	Mode 10	Temperature :	23~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~43%
Test Channel :	11	Test Engineer :	Elvis Chen

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	67.24	-6.76	74	64.11	31.98	5.52	34.37	100	47	Peak
2483.5	45.45	-8.55	54	42.32	31.98	5.52	34.37	100	47	Average

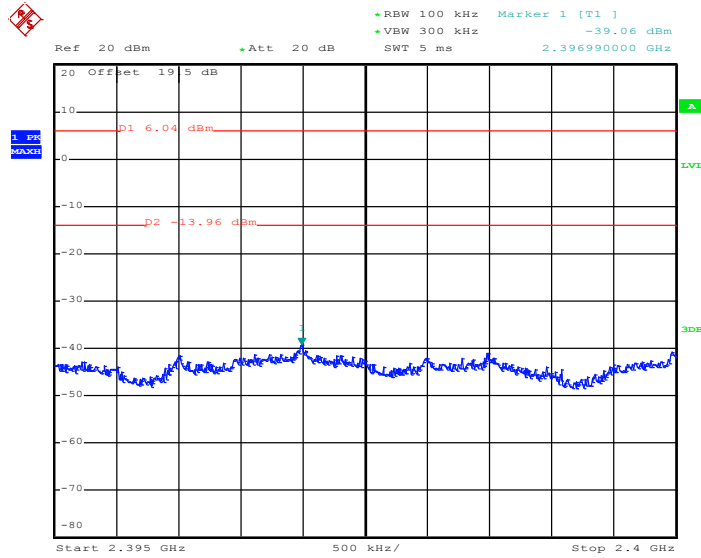
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	67.66	-6.34	74	64.53	31.98	5.52	34.37	100	314	Peak
2483.5	45.7	-8.3	54	42.57	31.98	5.52	34.37	100	314	Average



3.3.6 Test Plots of Conducted Band Edges

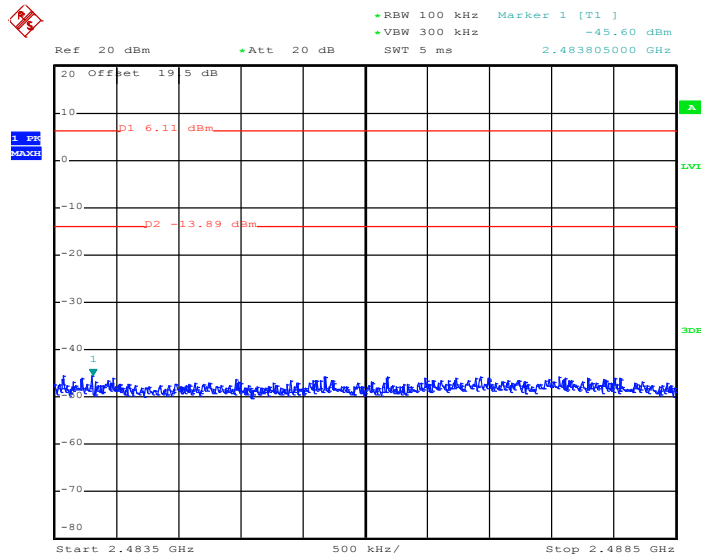
Test Mode :	Mode 1 and 3	Temperature :	21~23°C
Test Band :	802.11b	Relative Humidity :	47~50%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11b Channel 01



Date: 27.OCT.2011 10:19:57

High Band Edge Plot on 802.11b Channel 11

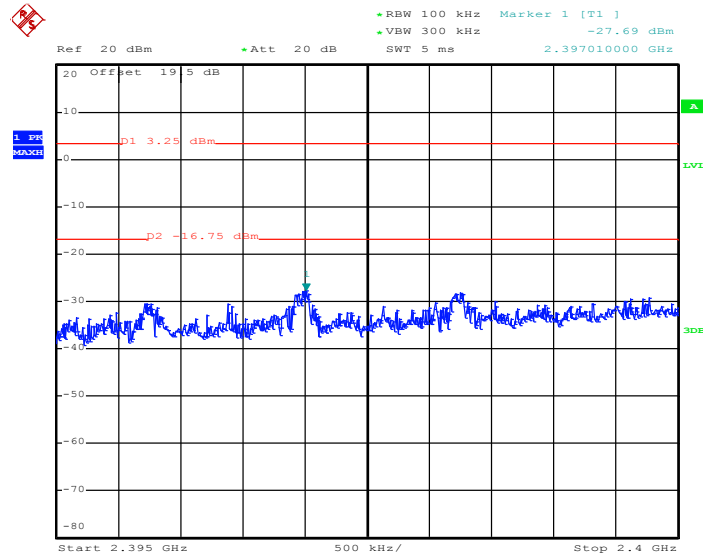


Date: 27.OCT.2011 10:52:49



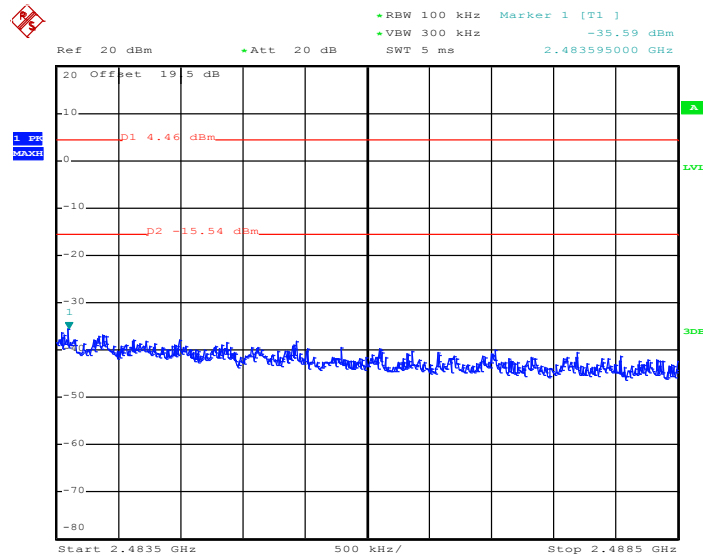
Test Mode :	Mode 4 and 6	Temperature :	21~23°C
Test Band :	802.11g	Relative Humidity :	47~50%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11g Channel 01



Date: 27.OCT.2011 11:07:28

High Band Edge Plot on 802.11g Channel 11

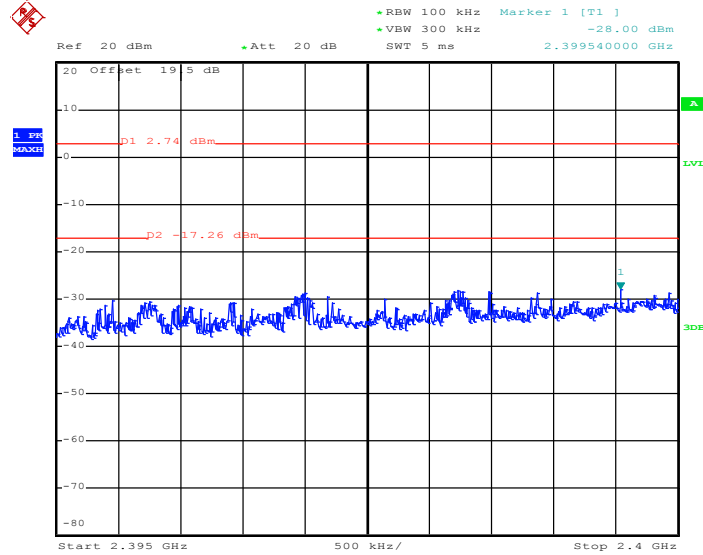


Date: 27.OCT.2011 11:39:24



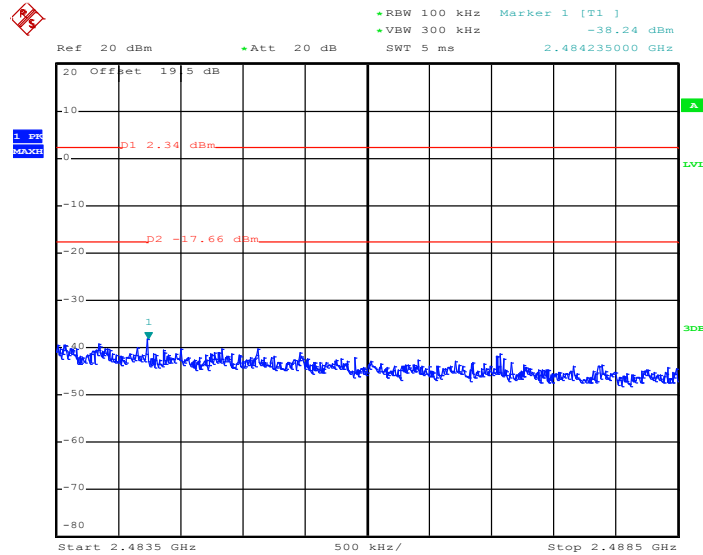
Test Mode :	Mode 7 and 9	Temperature :	21~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~50%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11n (BW 20MHz) Channel 01



Date: 27.OCT.2011 11:59:12

High Band Edge Plot on 802.11n (BW 20MHz) Channel 11



Date: 27.OCT.2011 12:40:53

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

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

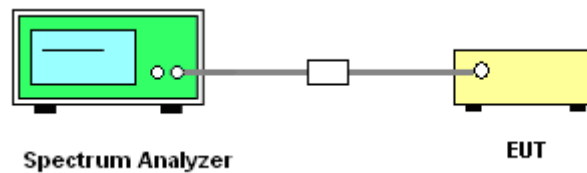
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

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

3.4.4 Test Setup

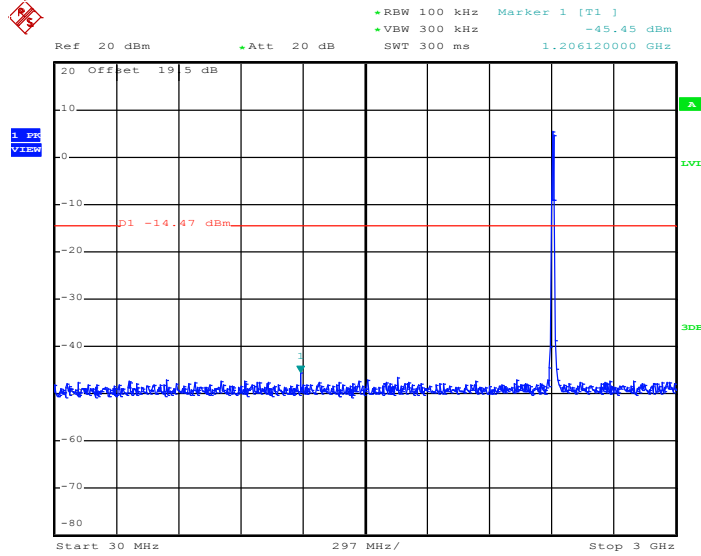




3.4.5 Test Plots of Spurious Emission

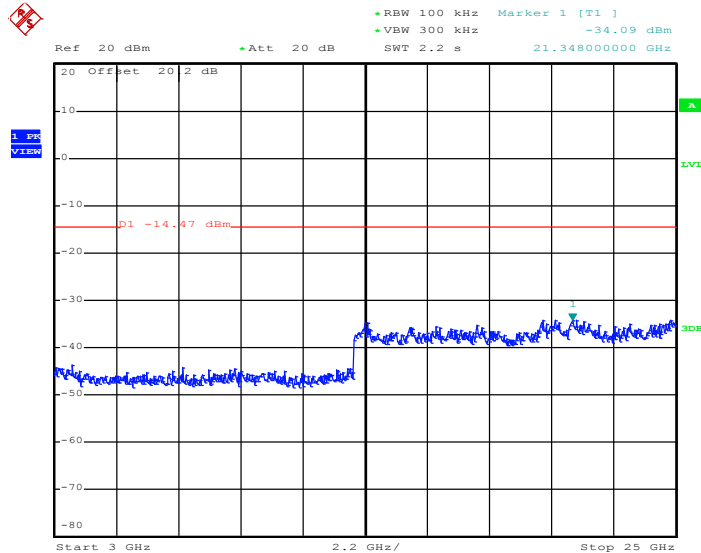
Test Mode :	Mode 1	Temperature :	21~23°C
Test Band :	802.11b	Relative Humidity :	47~50%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.OCT.2011 10:48:38

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

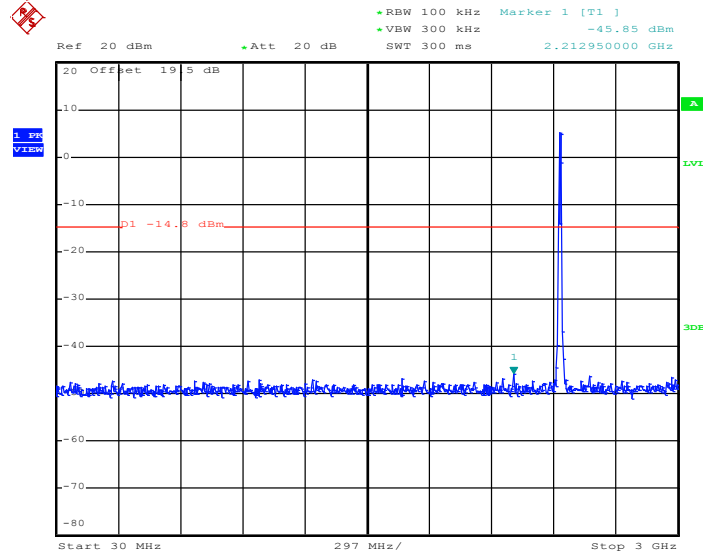


Date: 27.OCT.2011 10:48:55



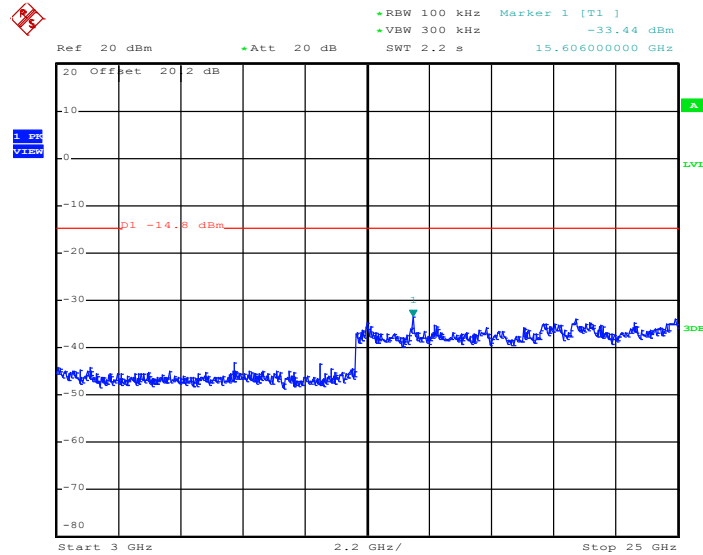
Test Mode :	Mode 2	Temperature :	21~23°C
Test Band :	802.11b	Relative Humidity :	47~50%
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.OCT.2011 10:49:46

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

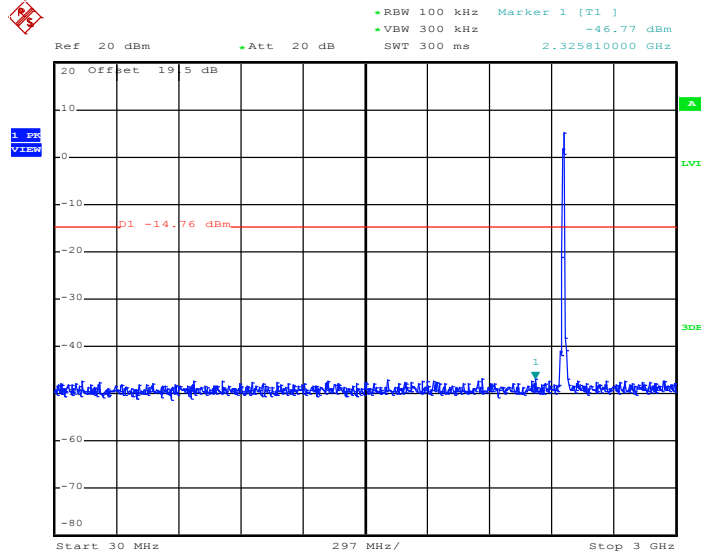


Date: 27.OCT.2011 10:50:03



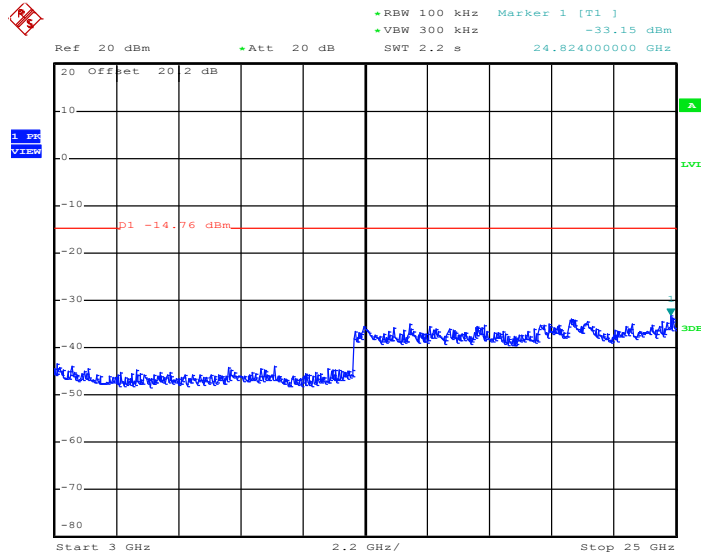
Test Mode :	Mode 3	Temperature :	21~23°C
Test Band :	802.11b	Relative Humidity :	47~50%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.OCT.2011 11:04:28

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

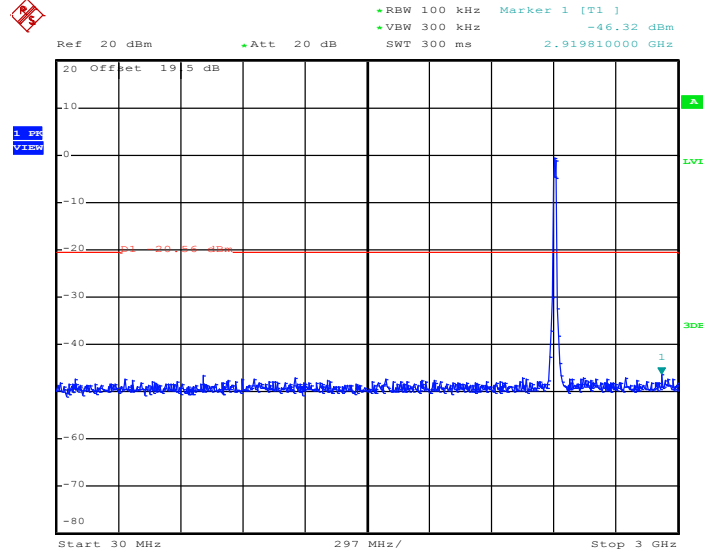


Date: 27.OCT.2011 11:04:45



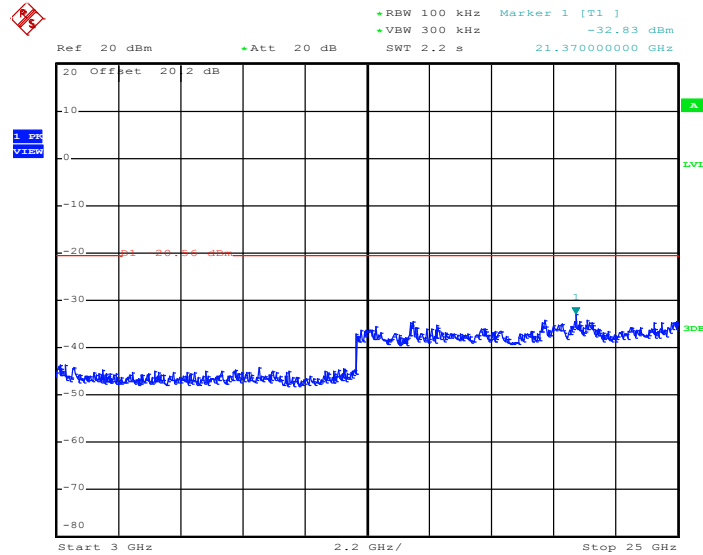
Test Mode :	Mode 4	Temperature :	21~23°C
Test Band :	802.11g	Relative Humidity :	47~50%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.OCT.2011 11:18:24

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

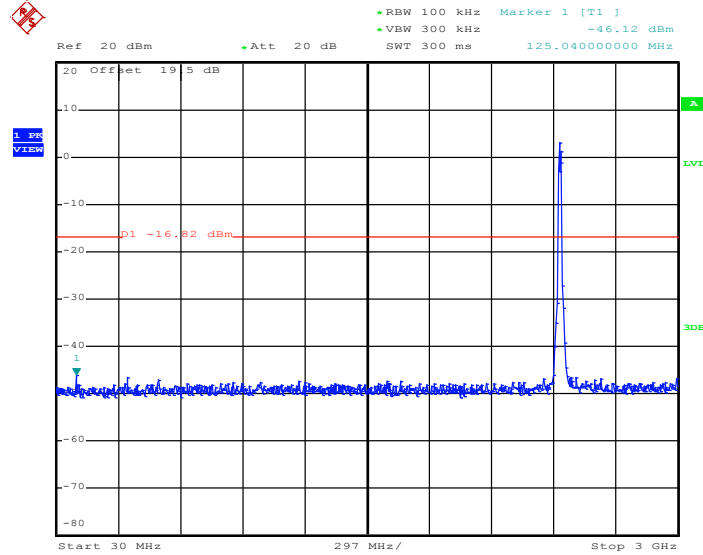


Date: 27.OCT.2011 11:18:41



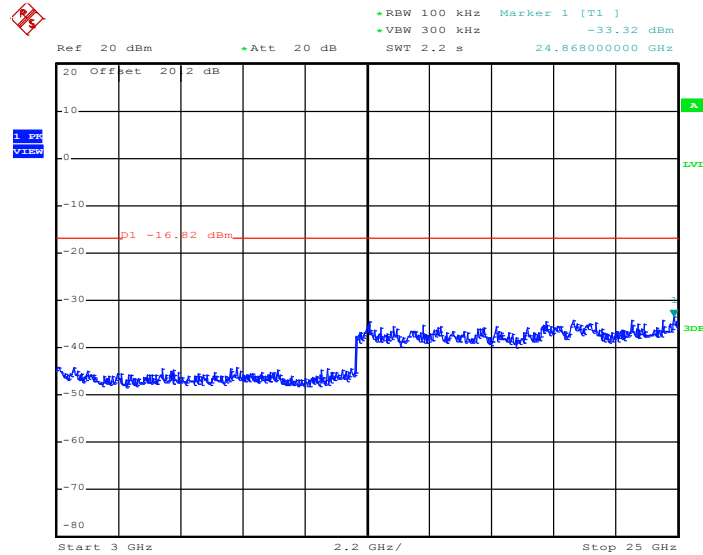
Test Mode :	Mode 5	Temperature :	21~23
Test Band :	802.11g	Relative Humidity :	47~50
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.OCT.2011 11:33:31

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

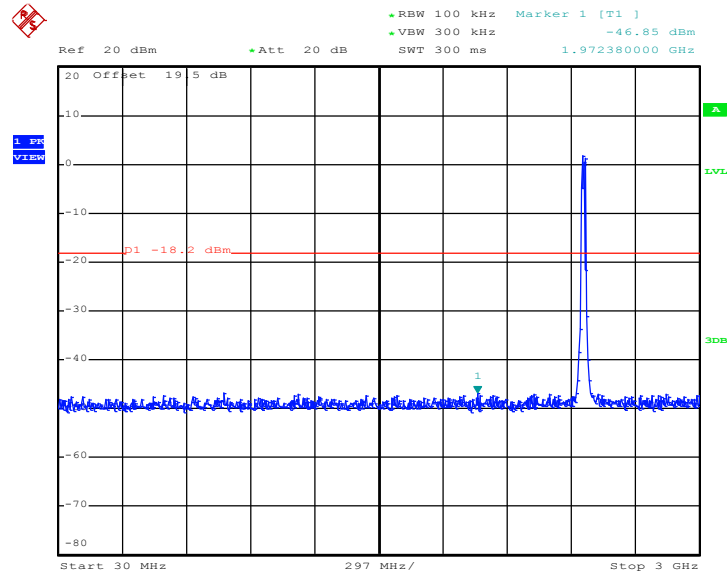


Date: 27.OCT.2011 11:33:48



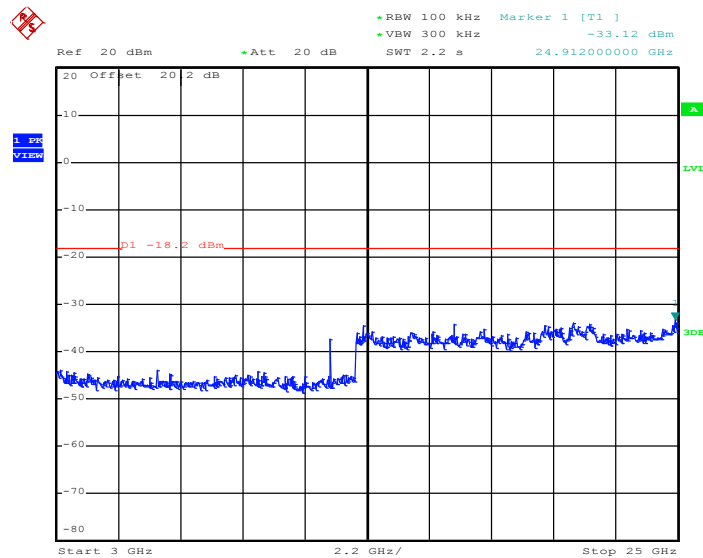
Test Mode :	Mode 6	Temperature :	21~23°C
Test Band :	802.11g	Relative Humidity :	47~50%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.OCT.2011 11:50:25

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

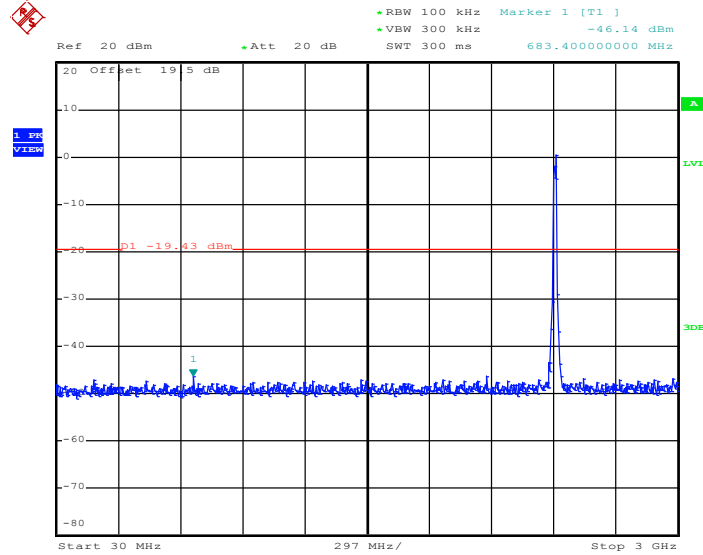


Date: 27.OCT.2011 11:50:42



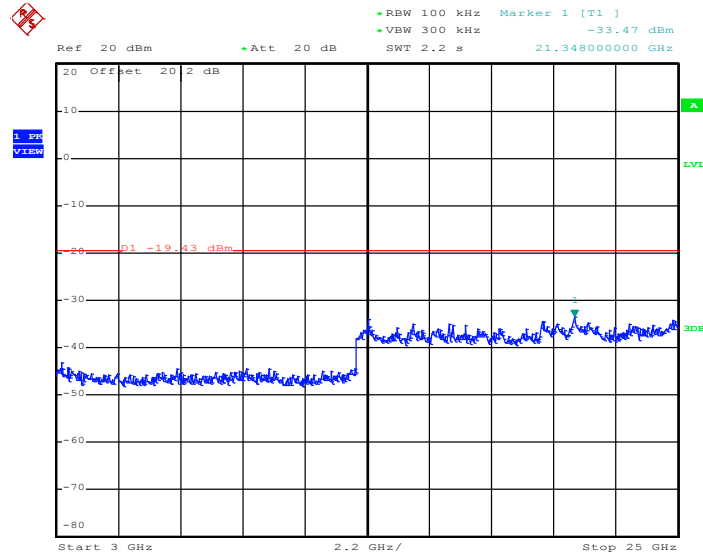
Test Mode :	Mode 7	Temperature :	21~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~50%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.OCT.2011 12:16:11

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

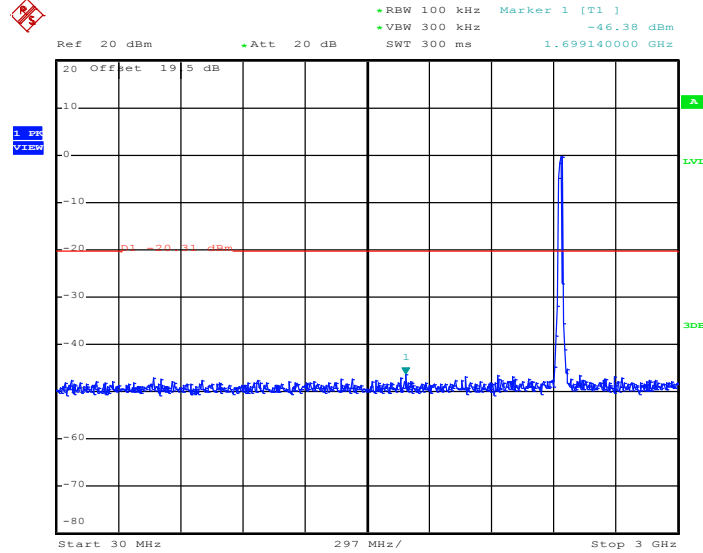


Date: 27.OCT.2011 12:16:28



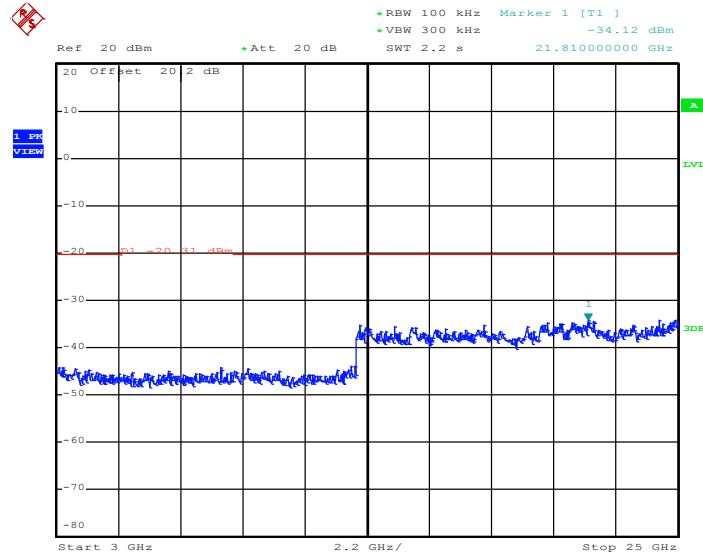
Test Mode :	Mode 8	Temperature :	21~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~50%
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.OCT.2011 12:34:26

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

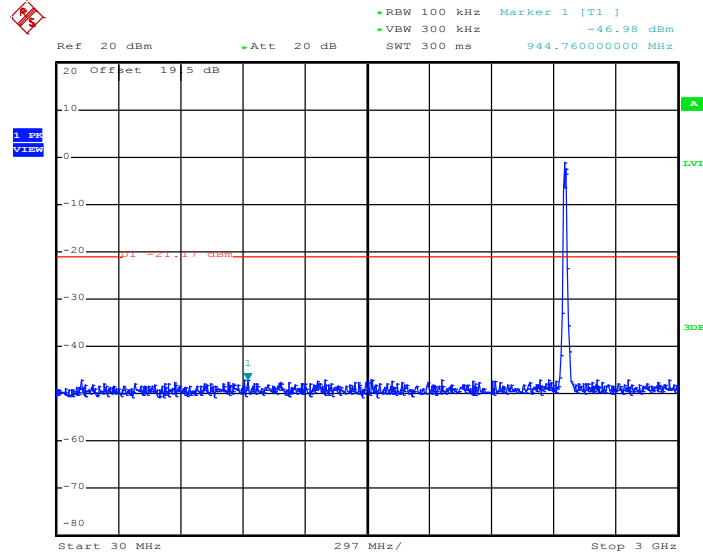


Date: 27.OCT.2011 12:34:43



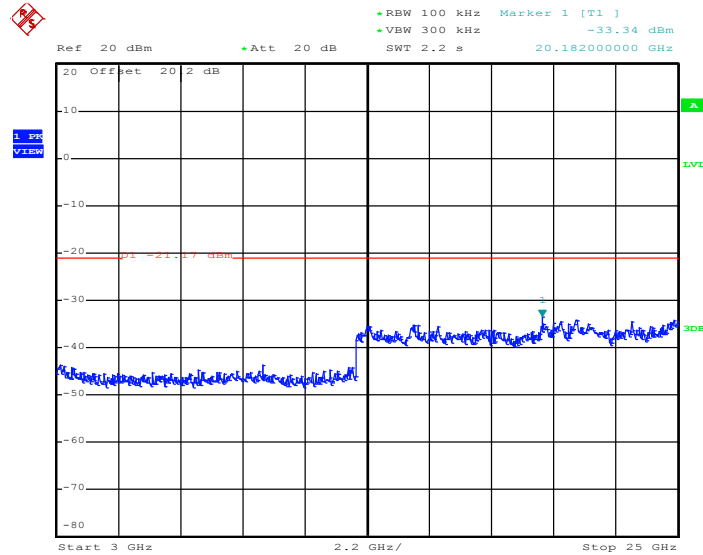
Test Mode :	Mode 9	Temperature :	21~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~50%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.OCT.2011 12:50:14

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 27.OCT.2011 12:50:31

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.

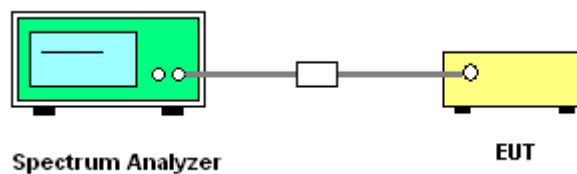
3.5.2 Measuring Instruments

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



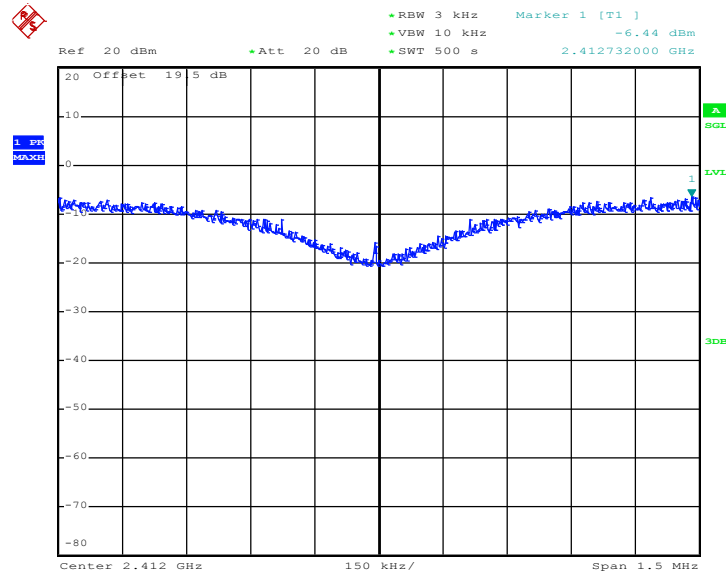


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	21~23°C
Test Engineer :	Pinkston Tu	Relative Humidity :	47~50%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-6.44	8	Pass
06	2437	-6.49	8	Pass
11	2462	-7.03	8	Pass

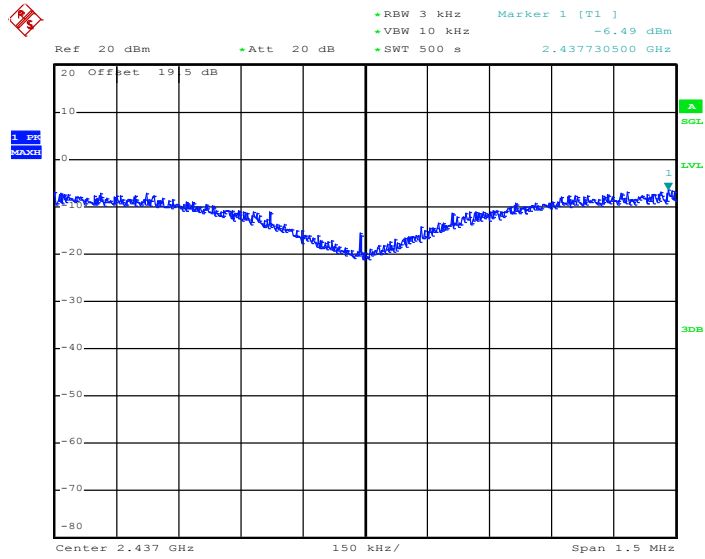
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 27.OCT.2011 10:29:33

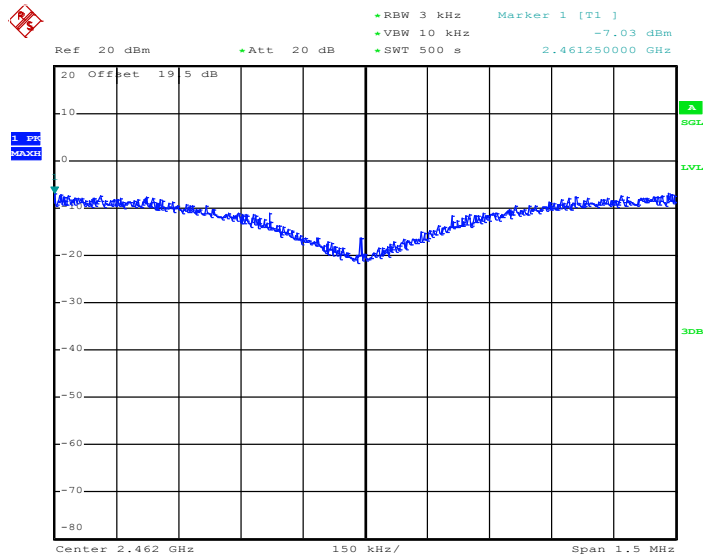


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 27.OCT.2011 10:45:52

Mode 3 : PSD Plot on 802.11b Channel 11



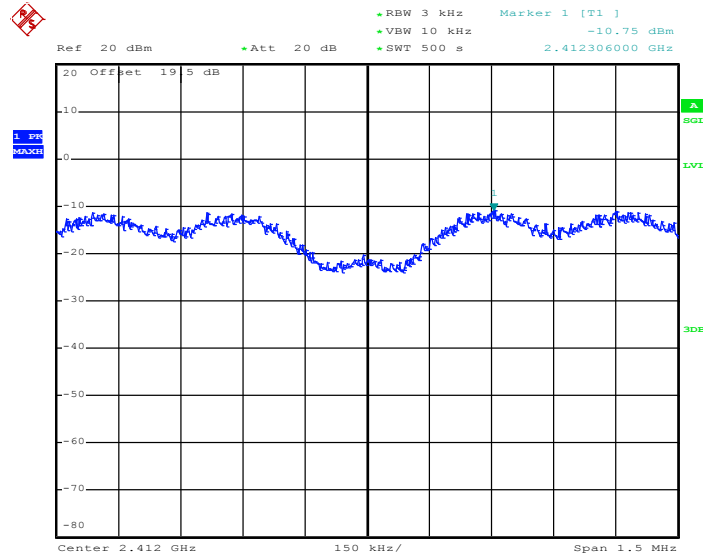
Date: 27.OCT.2011 11:02:39



Test Mode :	Mode 4, 5, 6	Temperature :	21~23°C
Test Engineer :	Pinkston Tu	Relative Humidity :	47~50%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.75	8	Pass
06	2437	-8.96	8	Pass
11	2462	-9.49	8	Pass

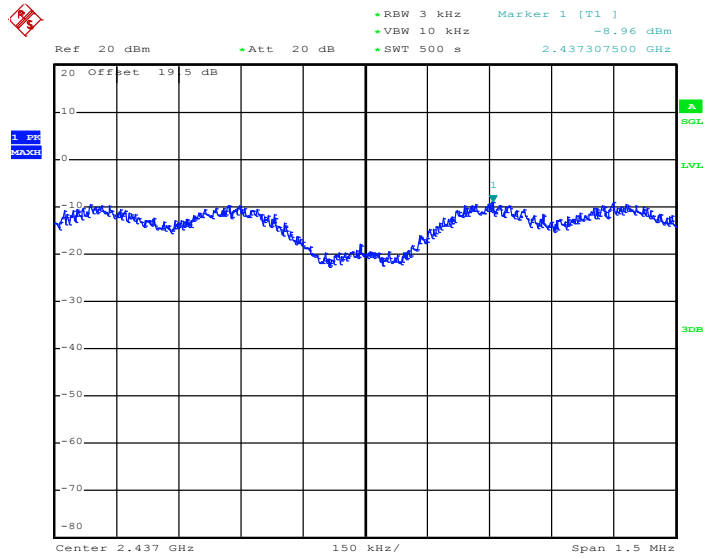
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 27.OCT.2011 11:16:42

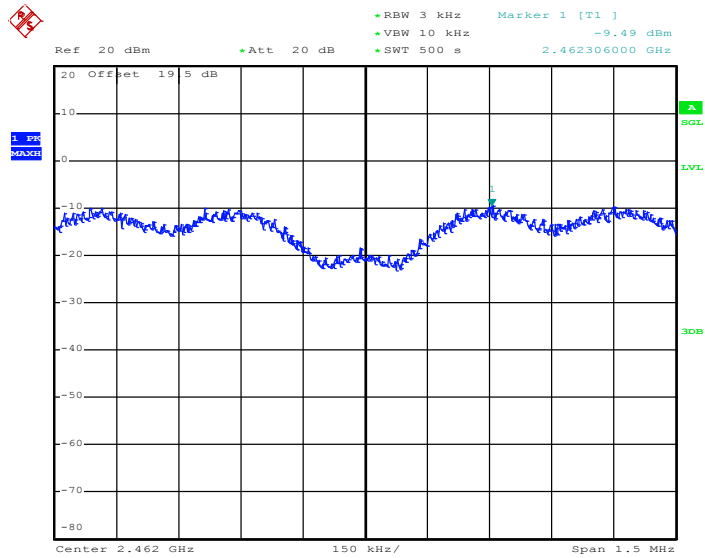


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 27.OCT.2011 11:31:44

Mode 6 : PSD Plot on 802.11g Channel 11



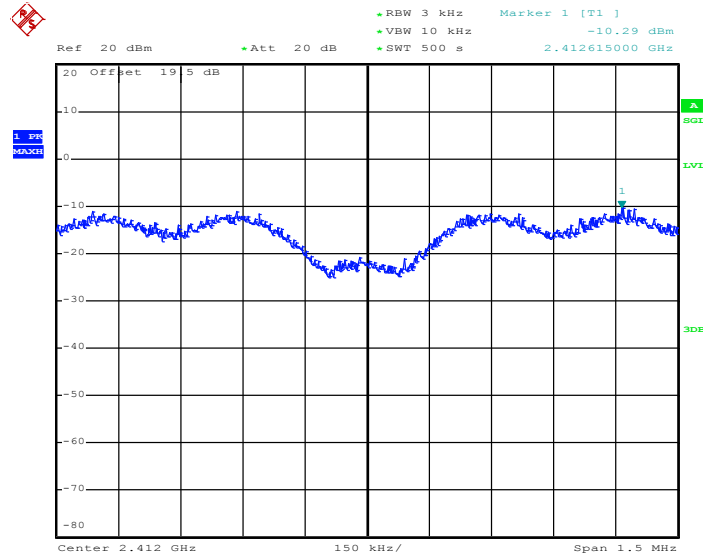
Date: 27.OCT.2011 11:49:13



Test Mode :	Mode 7, 8, 9	Temperature :	21~23°C
Test Engineer :	Pinkston Tu	Relative Humidity :	47~50%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.29	8	Pass
06	2437	-10.60	8	Pass
11	2462	-11.39	8	Pass

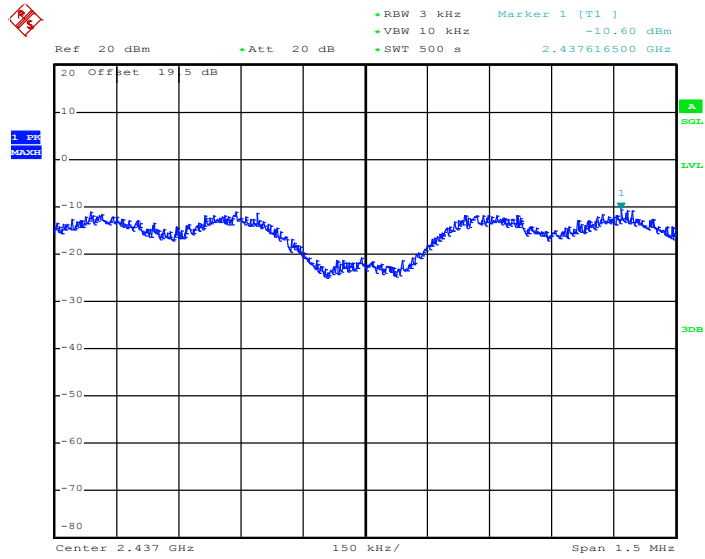
Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01



Date: 27.OCT.2011 12:15:51

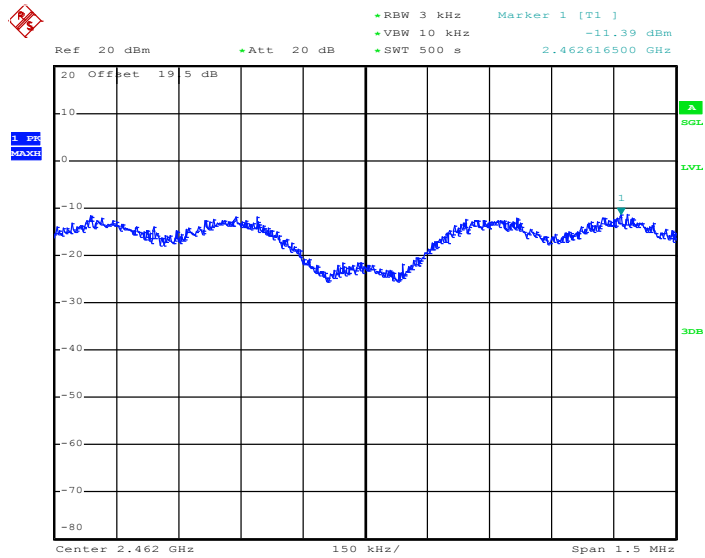


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 27.OCT.2011 12:34:05

Mode 9 : PSD Plot on 802.11n (BW 20MHz) Channel 11



Date: 27.OCT.2011 12:49:53

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.

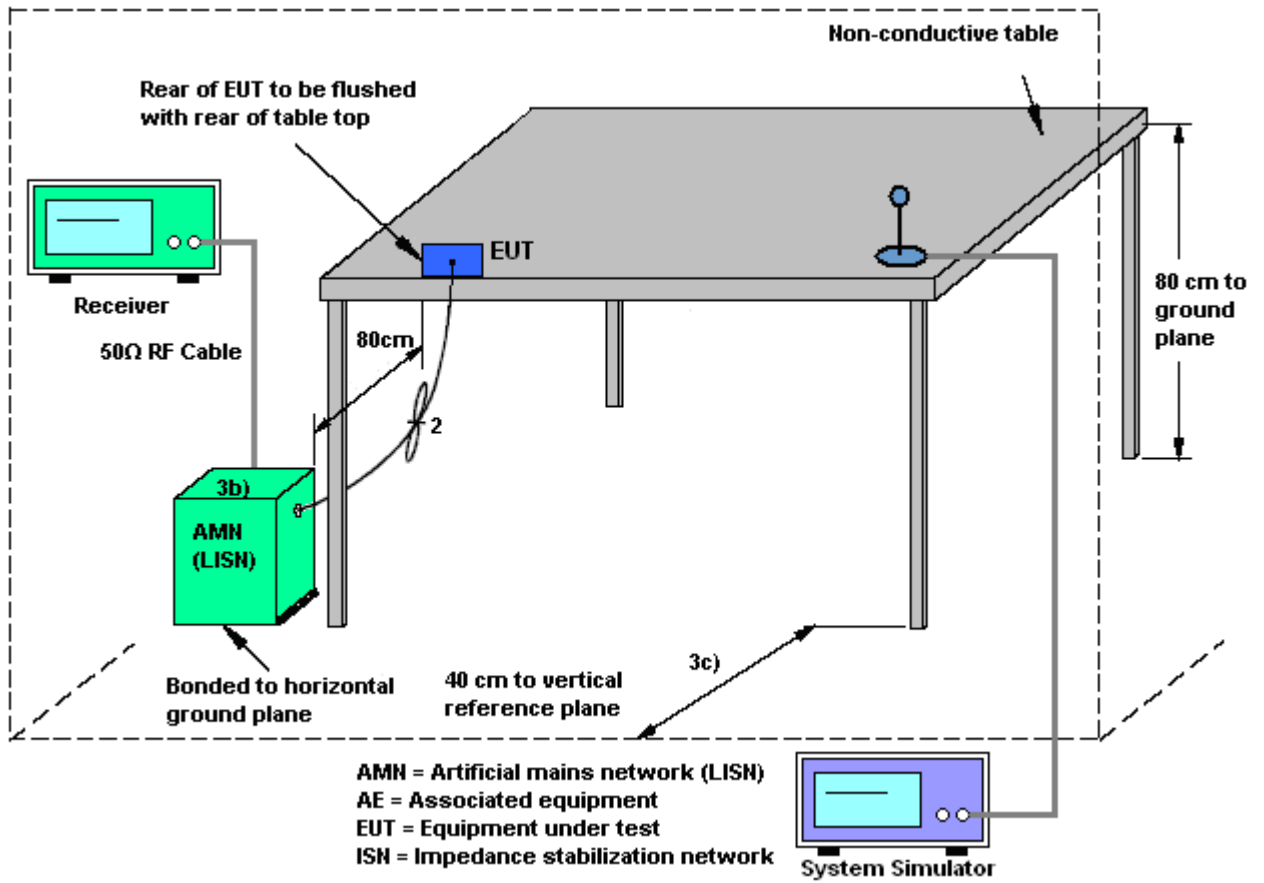
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

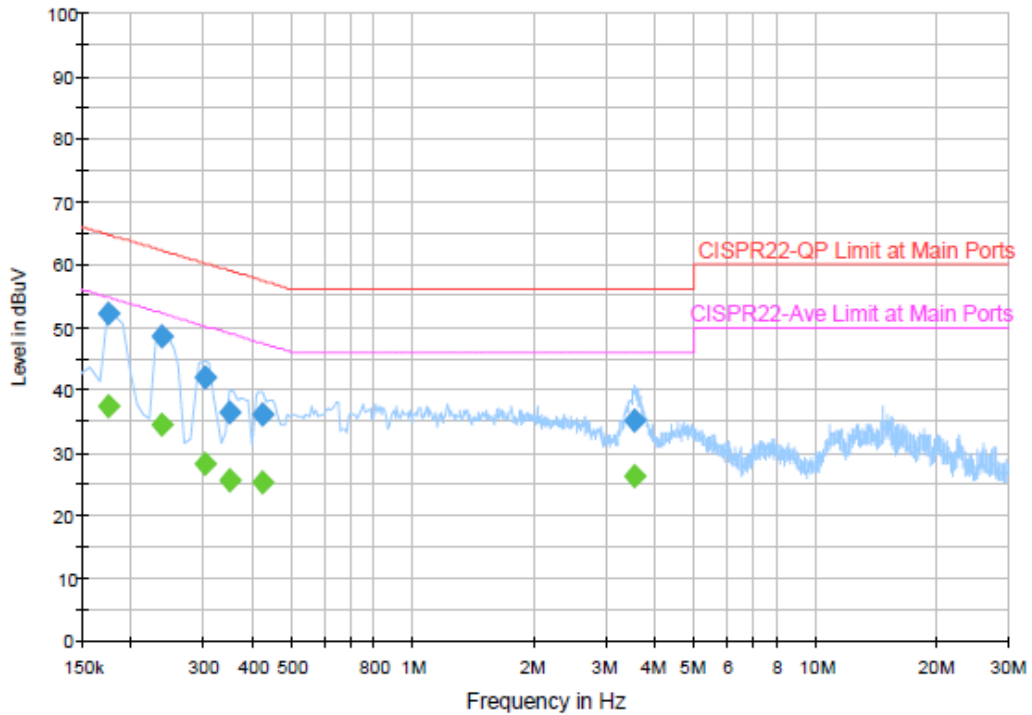
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 2	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + Bluetooth Link + Earphone + USB Cable 2 (Data Link with Notebook) + MPEG4 + USB 2.0 HD + Adapter for Sample 3		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

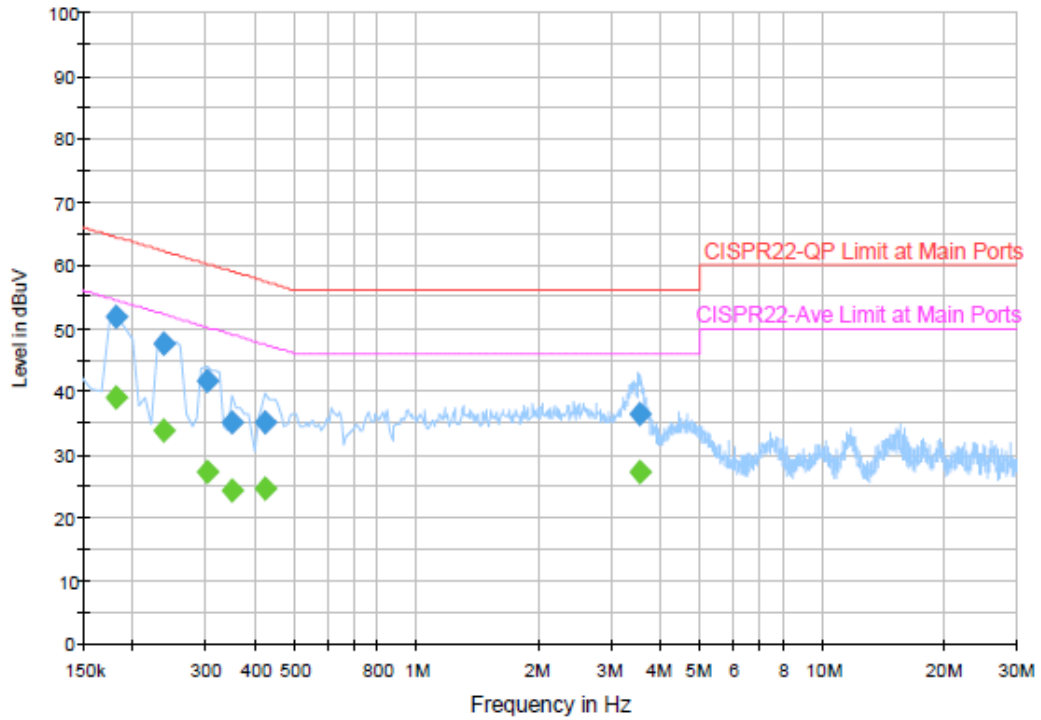
Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.174000	52.0	Off	L1	19.4	12.8	64.8
0.238000	48.4	Off	L1	19.4	13.8	62.2
0.302000	42.1	Off	L1	19.4	18.1	60.2
0.350000	36.5	Off	L1	19.4	22.5	59.0
0.422000	36.0	Off	L1	19.5	21.4	57.4
3.534000	35.2	Off	L1	19.5	20.8	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.174000	37.4	Off	L1	19.4	17.4	54.8
0.238000	34.4	Off	L1	19.4	17.8	52.2
0.302000	28.3	Off	L1	19.4	21.9	50.2
0.350000	25.7	Off	L1	19.4	23.3	49.0
0.422000	25.1	Off	L1	19.5	22.3	47.4
3.534000	26.1	Off	L1	19.5	19.9	46.0



Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + Bluetooth Link + Earphone + USB Cable 2 (Data Link with Notebook) + MPEG4 + USB 2.0 HD + Adapter for Sample 3		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.182000	51.9	Off	N	19.4	12.5	64.4
0.238000	47.6	Off	N	19.4	14.6	62.2
0.302000	41.6	Off	N	19.4	18.6	60.2
0.350000	35.1	Off	N	19.4	23.9	59.0
0.422000	35.2	Off	N	19.5	22.2	57.4
3.550000	36.5	Off	N	19.5	19.5	56.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.182000	39.0	Off	N	19.4	15.4	54.4
0.238000	33.9	Off	N	19.4	18.3	52.2
0.302000	27.1	Off	N	19.4	23.1	50.2
0.350000	24.3	Off	N	19.4	24.7	49.0
0.422000	24.6	Off	N	19.5	22.8	47.4
3.550000	27.1	Off	N	19.5	18.9	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

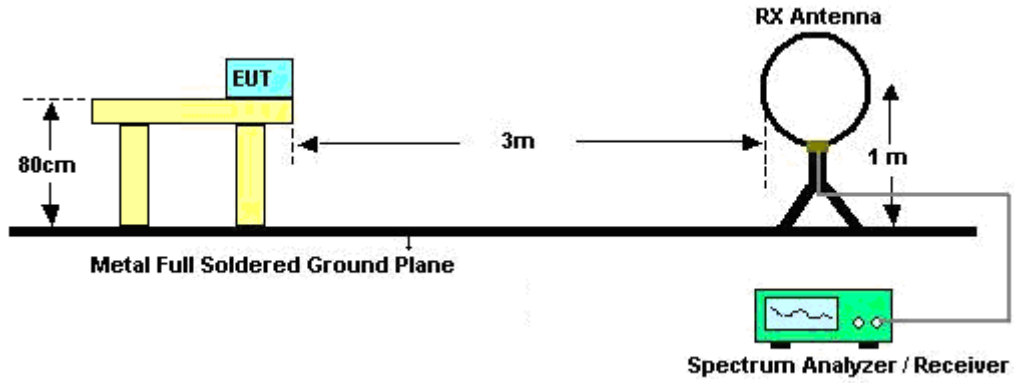
See list of measuring instruments of this test report.

3.7.3 Test Procedures

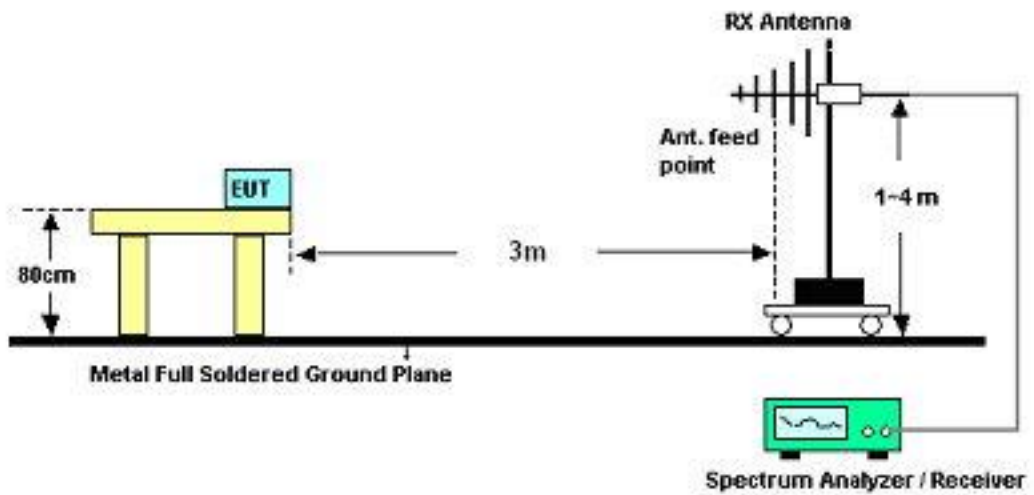
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
 - (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold.
 - (2) Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
 Distance extrapolation factor = $20 \log(\text{specific distance [3m]} / \text{test distance [1m]})$ (dB)
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

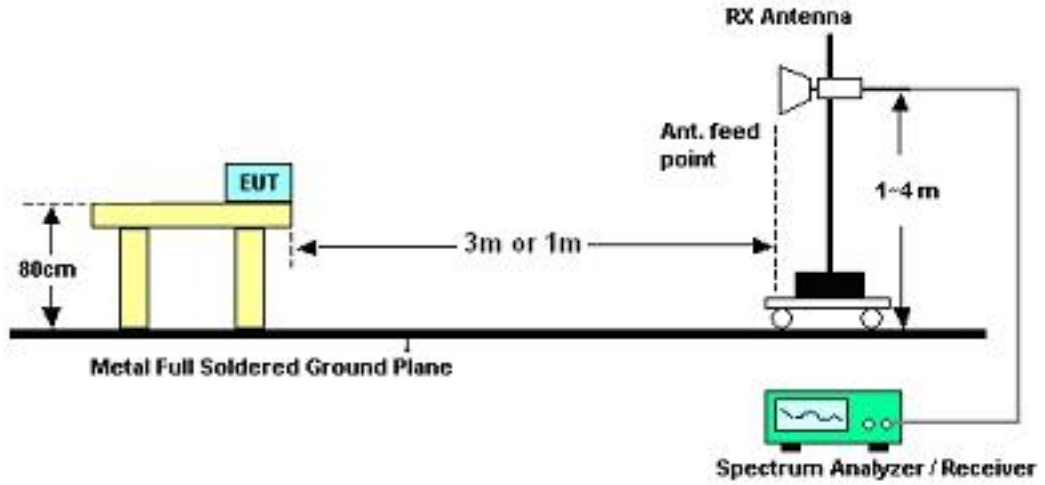
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	Elvis Chen	Temperature :	23~25°C	
		Relative Humidity :	41~43%	
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 (30 MHz ~ 10th Harmonic)

Test Mode :	Mode 1	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

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
43.23	20.19	-19.81	40	40.37	10.71	0.81	31.7	-	-	Peak
86.43	22.22	-17.78	40	44.55	8.26	1.12	31.71	-	-	Peak
255.18	28.98	-17.02	46	46.04	12.75	1.87	31.68	100	44	Peak
421.8	27.67	-18.33	46	40.83	16.22	2.45	31.83	-	-	Peak
812.4	24.28	-21.72	46	31.94	20.88	3.41	31.95	-	-	Peak
957.3	25.17	-20.83	46	30.57	21.89	3.79	31.08	-	-	Peak
2389.61	39.93	-14.07	54	37.02	31.9	5.4	34.39	102	50	Average
2389.61	52.63	-21.37	74	49.72	31.9	5.4	34.39	102	50	Peak
2412	100.09	-	-	97.14	31.91	5.43	34.39	102	50	Average
2412	105.01	-	-	102.06	31.91	5.43	34.39	102	50	Peak
2494	44.53	-29.47	74	41.38	32	5.52	34.37	102	50	Peak
2494	32.66	-21.34	54	29.51	32	5.52	34.37	102	50	Average
4824	48.46	-25.54	74	61.95	34.4	7.96	55.85	100	0	Peak



Test Mode :	Mode 1	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 7236 MHz is not within a restricted band.		

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
39.18	25.09	-14.91	40	42.72	13.27	0.8	31.7	-	-	Peak
54.84	28.08	-11.92	40	51.58	7.27	0.9	31.67	100	147	Peak
83.73	22.78	-17.22	40	45.75	7.64	1.1	31.71	-	-	Peak
421.8	25.13	-20.87	46	38.29	16.22	2.45	31.83	-	-	Peak
822.9	24.04	-21.96	46	31.58	20.96	3.44	31.94	-	-	Peak
903.4	25.46	-20.54	46	31.62	21.64	3.76	31.56	-	-	Peak
2389.99	47.82	-26.18	74	44.91	31.9	5.4	34.39	100	341	Peak
2389.99	36.36	-17.64	54	33.45	31.9	5.4	34.39	100	341	Average
2412	101.52	-	-	98.57	31.91	5.43	34.39	100	341	Peak
2412	96.88	-	-	93.93	31.91	5.43	34.39	100	341	Average
2494	45.09	-28.91	74	41.94	32	5.52	34.37	100	341	Peak
2494	27.07	-26.93	54	23.92	32	5.52	34.37	100	341	Average
7236	51.53	-29.99	81.52	61.2	35.66	11.02	56.35	100	0	Peak



Test Mode :	Mode 2	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

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
43.23	20.53	-19.47	40	40.71	10.71	0.81	31.7	-	-	Peak
85.89	22.36	-17.64	40	44.69	8.26	1.12	31.71	100	7	Peak
255.18	27.99	-18.01	46	45.05	12.75	1.87	31.68	-	-	Peak
421.8	25.43	-20.57	46	38.59	16.22	2.45	31.83	-	-	Peak
801.9	24.14	-21.86	46	31.95	20.79	3.37	31.97	-	-	Peak
910.4	25.45	-20.55	46	31.5	21.68	3.77	31.5	-	-	Peak
2356	49	-25	74	46.21	31.86	5.34	34.41	100	50	Peak
2356	40.93	-13.07	54	38.14	31.86	5.34	34.41	100	50	Average
2437	104.73	-	-	101.72	31.93	5.46	34.38	100	50	Peak
2437	99.81	-	-	96.78	31.95	5.46	34.38	100	50	Average
2492	45.12	-28.88	74	41.97	32	5.52	34.37	100	50	Peak
2492	33.33	-20.67	54	30.18	32	5.52	34.37	100	50	Average
4874	47.67	-26.33	74	61.17	34.37	8	55.87	100	0	Peak



Test Mode :	Mode 2	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

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
54.03	30.19	-9.81	40	53.54	7.44	0.89	31.68	100	57	Peak
85.08	23.97	-16.03	40	46.52	8.05	1.11	31.71	-	-	Peak
121.53	23.09	-20.41	43.5	41.28	12.18	1.34	31.71	-	-	Peak
421.8	23.14	-22.86	46	36.3	16.22	2.45	31.83	-	-	Peak
803.3	24.61	-21.39	46	32.41	20.8	3.37	31.97	-	-	Peak
936.3	25.2	-20.8	46	30.87	21.8	3.78	31.25	-	-	Peak
2356	46.56	-27.44	74	43.77	31.86	5.34	34.41	100	311	Peak
2356	36.51	-17.49	54	33.72	31.86	5.34	34.41	100	311	Average
2437	102.96	-	-	99.93	31.95	5.46	34.38	100	311	Peak
2437	97.81	-	-	94.78	31.95	5.46	34.38	100	311	Average
2484	45.14	-28.86	74	42.01	31.98	5.52	34.37	100	311	Peak
2484	33.11	-20.89	54	29.98	31.98	5.52	34.37	100	311	Average
7311	49.41	-24.59	74	59	35.61	11.12	56.32	100	0	Peak



Test Mode :	Mode 3	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

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
43.23	22.16	-17.84	40	42.34	10.71	0.81	31.7	-	-	Peak
85.89	22.43	-17.57	40	44.76	8.26	1.12	31.71	-	-	Peak
254.64	27.26	-18.74	46	44.32	12.75	1.87	31.68	-	-	Peak
421.8	28.56	-17.44	46	41.72	16.22	2.45	31.83	100	97	Peak
845.3	24.2	-21.8	46	31.43	21.16	3.53	31.92	-	-	Peak
957.3	25.76	-20.24	46	31.16	21.89	3.79	31.08	-	-	Peak
2380	47.54	-26.46	74	44.65	31.88	5.4	34.39	100	48	Peak
2380	39.15	-14.85	54	36.26	31.88	5.4	34.39	100	48	Average
2462	103.02	-	-	99.94	31.97	5.49	34.38	100	48	Peak
2462	97.95	-	-	94.87	31.97	5.49	34.38	100	48	Average
2483.5	38.49	-15.51	54	35.36	31.98	5.52	34.37	100	48	Average
2483.5	50.69	-23.31	74	47.56	31.98	5.52	34.37	100	48	Peak
4924	48.39	-25.61	74	61.91	34.34	8.04	55.9	100	0	Peak



Test Mode :	Mode 3	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

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
41.88	26.25	-13.75	40	45.36	11.78	0.81	31.7	-	-	Peak
54.84	28.49	-11.51	40	51.99	7.27	0.9	31.67	100	47	Peak
84.54	23.68	-16.32	40	46.45	7.84	1.1	31.71	-	-	Peak
421.8	25.76	-20.24	46	38.92	16.22	2.45	31.83	-	-	Peak
493.9	24.73	-21.27	46	36.17	17.69	2.65	31.78	-	-	Peak
899.9	25.51	-20.49	46	31.72	21.63	3.76	31.6	-	-	Peak
2380	45.4	-28.6	74	42.51	31.88	5.4	34.39	100	315	Peak
2380	36.01	-17.99	54	33.12	31.88	5.4	34.39	100	315	Average
2462	102.93	-	-	99.85	31.97	5.49	34.38	100	315	Peak
2462	98.06	-	-	94.98	31.97	5.49	34.38	100	315	Average
2483.5	39.49	-14.51	54	36.36	31.98	5.52	34.37	100	315	Average
2483.5	50.98	-23.02	74	47.85	31.98	5.52	34.37	100	315	Peak
7386	49.79	-24.21	74	59.3	35.56	11.22	56.29	100	0	Peak



Test Mode :	Mode 4	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 7236 MHz is not within a restricted band.		

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
44.04	21.77	-18.23	40	41.95	10.71	0.81	31.7	-	-	Peak
85.89	21.84	-18.16	40	44.17	8.26	1.12	31.71	100	87	Peak
255.99	27.52	-18.48	46	44.58	12.76	1.87	31.69	-	-	Peak
421.8	27.75	-18.25	46	40.91	16.22	2.45	31.83	-	-	Peak
794.9	24.23	-21.77	46	32.15	20.7	3.36	31.98	-	-	Peak
946.8	24.97	-21.03	46	30.5	21.84	3.79	31.16	-	-	Peak
2389.99	48.53	-5.47	54	45.62	31.9	5.4	34.39	100	52	Average
2389.99	70.6	-3.4	74	67.69	31.9	5.4	34.39	100	52	Peak
2412	107.09	-	-	104.14	31.91	5.43	34.39	100	52	Peak
2412	89.08	-	-	86.13	31.91	5.43	34.39	100	52	Average
2484	36.16	-17.84	54	33.03	31.98	5.52	34.37	100	52	Average
2484	49.82	-24.18	74	46.69	31.98	5.52	34.37	100	52	Peak
7236	64	-23.09	87.09	73.67	35.66	11.02	56.35	100	0	Peak



Test Mode :	Mode 4	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 7236 MHz is not within a restricted band.		

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
35.13	24.55	-15.45	40	40.58	14.93	0.74	31.7	-	-	Peak
56.73	24.83	-15.17	40	48.64	6.95	0.92	31.68	100	57	Peak
84.54	18.76	-21.24	40	41.53	7.84	1.1	31.71	-	-	Peak
421.8	23.37	-22.63	46	36.53	16.22	2.45	31.83	-	-	Peak
836.9	24.38	-21.62	46	31.73	21.09	3.49	31.93	-	-	Peak
901.3	26.01	-19.99	46	32.2	21.63	3.76	31.58	-	-	Peak
2389.42	66.09	-7.91	74	63.18	31.9	5.4	34.39	100	341	Peak
2389.42	44.85	-9.15	54	41.94	31.9	5.4	34.39	100	341	Average
2412	85.97	-	-	83.02	31.91	5.43	34.39	100	341	Average
2412	104.13	-	-	101.18	31.91	5.43	34.39	100	341	Peak
2492	34.12	-19.88	54	30.97	32	5.52	34.37	100	341	Average
2492	47.06	-26.94	74	43.91	32	5.52	34.37	100	341	Peak
7236	64.75	-19.38	84.13	74.42	35.66	11.02	56.35	100	0	Peak



Test Mode :	Mode 5	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

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
44.04	20.58	-19.42	40	40.76	10.71	0.81	31.7	-	-	Peak
85.89	21.25	-18.75	40	43.58	8.26	1.12	31.71	-	-	Peak
254.64	27.47	-18.53	46	44.53	12.75	1.87	31.68	100	37	Peak
421.8	26.68	-19.32	46	39.84	16.22	2.45	31.83	-	-	Peak
754.3	23.05	-22.95	46	31.66	20.14	3.35	32.1	-	-	Peak
864.9	25.73	-20.27	46	32.61	21.33	3.61	31.82	-	-	Peak
2388	55.23	-18.77	74	52.32	31.9	5.4	34.39	100	50	Peak
2388	40.12	-13.88	54	37.21	31.9	5.4	34.39	100	50	Average
2437	107.94	-	-	104.93	31.93	5.46	34.38	100	50	Peak
2437	89.44	-	-	86.41	31.95	5.46	34.38	100	50	Average
2484	56.94	-17.06	74	53.81	31.98	5.52	34.37	100	50	Peak
2484	36.29	-17.71	54	33.16	31.98	5.52	34.37	100	50	Average
4874	47.47	-26.53	74	60.97	34.37	8	55.87	100	0	Peak
7311	56.96	-17.04	74	66.55	35.61	11.12	56.32	100	44	Peak
7311	35.96	-18.04	54	45.55	35.61	11.12	56.32	100	44	Average



Test Mode :	Mode 5	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

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
37.83	25.61	-14.39	40	42.84	13.69	0.78	31.7	100	17	Peak
56.73	24.53	-15.47	40	48.34	6.95	0.92	31.68	-	-	Peak
85.08	19.05	-20.95	40	41.6	8.05	1.11	31.71	-	-	Peak
421.8	23.46	-22.54	46	36.62	16.22	2.45	31.83	-	-	Peak
493.9	23.92	-22.08	46	35.36	17.69	2.65	31.78	-	-	Peak
918.8	25.24	-20.76	46	31.18	21.71	3.77	31.42	-	-	Peak
2390	53.72	-20.28	74	50.81	31.9	5.4	34.39	100	312	Peak
2390	36.16	-17.84	54	33.25	31.9	5.4	34.39	100	312	Average
2437	106.92	-	-	103.91	31.93	5.46	34.38	100	312	Peak
2437	88.61	-	-	85.58	31.95	5.46	34.38	100	312	Average
2484	56.28	-17.72	74	53.15	31.98	5.52	34.37	100	312	Peak
2484	36.65	-17.35	54	33.52	31.98	5.52	34.37	100	312	Average
7311	66.06	-7.94	74	75.65	35.61	11.12	56.32	106	356	Peak
7311	39.47	-14.53	54	49.06	35.61	11.12	56.32	106	356	Average



Test Mode :	Mode 6	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

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
43.23	21.63	-18.37	40	41.81	10.71	0.81	31.7	100	157	Peak
85.89	20.73	-19.27	40	43.06	8.26	1.12	31.71	-	-	Peak
257.34	26.74	-19.26	46	43.78	12.78	1.88	31.7	-	-	Peak
421.8	26.23	-19.77	46	39.39	16.22	2.45	31.83	-	-	Peak
871.9	25.29	-20.71	46	32.03	21.39	3.64	31.77	-	-	Peak
952.4	25.68	-20.32	46	31.13	21.87	3.79	31.11	-	-	Peak
2382	50.57	-23.43	74	47.68	31.88	5.4	34.39	100	51	Peak
2382	38.82	-15.18	54	35.93	31.88	5.4	34.39	100	51	Average
2462	106.34	-	-	103.26	31.97	5.49	34.38	100	51	Peak
2462	88.29	-	-	85.21	31.97	5.49	34.38	100	51	Average
2483.5	48.23	-5.77	54	45.1	31.98	5.52	34.37	100	51	Average
2483.5	69.11	-4.89	74	65.98	31.98	5.52	34.37	100	51	Peak
4924	47.33	-26.67	74	60.85	34.34	8.04	55.9	100	0	Peak
7386	56.49	-17.51	74	66	35.56	11.22	56.29	100	53	Peak
7386	35.75	-18.25	54	45.26	35.56	11.22	56.29	100	53	Average



Test Mode :	Mode 6	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

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
41.88	26.7	-13.3	40	45.81	11.78	0.81	31.7	-	-	Peak
55.38	29.37	-10.63	40	52.87	7.27	0.9	31.67	100	32	Peak
84.54	24.06	-15.94	40	46.83	7.84	1.1	31.71	-	-	Peak
421.8	27.28	-18.72	46	40.44	16.22	2.45	31.83	-	-	Peak
493.9	26.01	-19.99	46	37.45	17.69	2.65	31.78	-	-	Peak
875.4	26.53	-19.47	46	33.21	21.42	3.65	31.75	-	-	Peak
2382	47.73	-26.27	74	44.84	31.88	5.4	34.39	100	316	Peak
2382	35.33	-18.67	54	32.44	31.88	5.4	34.39	100	316	Average
2462	105.35	-	-	102.27	31.97	5.49	34.38	100	316	Peak
2462	87.48	-	-	84.4	31.97	5.49	34.38	100	316	Average
2483.5	47.86	-6.14	54	44.73	31.98	5.52	34.37	100	316	Average
2483.5	69.98	-4.02	74	66.85	31.98	5.52	34.37	100	316	Peak
7386	63.75	-10.25	74	73.26	35.56	11.22	56.29	100	329	Peak
7386	37.02	-16.98	54	46.53	35.56	11.22	56.29	100	329	Average



Test Mode :	Mode 7	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 7236 MHz is not within a restricted band.		

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
41.34	21.29	-18.71	40	40.4	11.78	0.81	31.7	-	-	Peak
84.54	21.4	-18.6	40	44.17	7.84	1.1	31.71	100	32	Peak
255.18	25.84	-20.16	46	42.9	12.75	1.87	31.68	-	-	Peak
421.8	25.16	-20.84	46	38.32	16.22	2.45	31.83	-	-	Peak
875.4	25.02	-20.98	46	31.7	21.42	3.65	31.75	-	-	Peak
948.9	25.31	-20.69	46	30.8	21.85	3.79	31.13	-	-	Peak
2389.99	45.13	-8.87	54	42.22	31.9	5.4	34.39	100	50	Average
2389.99	70.23	-3.77	74	67.32	31.9	5.4	34.39	100	50	Peak
2412	106.14	-	-	103.19	31.91	5.43	34.39	100	50	Peak
2412	88.45	-	-	85.5	31.91	5.43	34.39	100	50	Average
2484	35.81	-18.19	54	32.68	31.98	5.52	34.37	100	50	Average
2484	49.41	-24.59	74	46.28	31.98	5.52	34.37	100	50	Peak
7236	52.67	-33.47	86.14	62.34	35.66	11.02	56.35	100	0	Peak



Test Mode :	Mode 7	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 7236 MHz is not within a restricted band.		

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
35.94	26.43	-13.57	40	42.86	14.52	0.75	31.7	-	-	Peak
53.49	31.46	-8.54	40	54.67	7.6	0.88	31.69	100	12	Peak
83.19	25.11	-14.89	40	48.08	7.64	1.1	31.71	-	-	Peak
493.9	23.6	-22.4	46	35.04	17.69	2.65	31.78	-	-	Peak
633.9	23.86	-22.14	46	33.63	19.24	3.01	32.02	-	-	Peak
873.3	25.99	-20.01	46	32.71	21.4	3.64	31.76	-	-	Peak
2389.61	65.8	-8.2	74	62.89	31.9	5.4	34.39	100	22	Peak
2389.61	40.67	-13.33	54	37.76	31.9	5.4	34.39	100	22	Average
2412	84.29	-	-	81.34	31.91	5.43	34.39	100	22	Average
2412	101.28	-	-	98.33	31.91	5.43	34.39	100	22	Peak
2492	34.69	-19.31	54	31.54	32	5.52	34.37	100	22	Average
2492	47.95	-26.05	74	44.8	32	5.52	34.37	100	22	Peak
7236	61.11	-20.17	81.28	70.78	35.66	11.02	56.35	100	0	Peak



Test Mode :	Mode 8	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 7236 MHz is not within a restricted band.		

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
41.34	19.48	-20.52	40	38.59	11.78	0.81	31.7	-	-	Peak
85.08	18.31	-21.69	40	40.86	8.05	1.11	31.71	-	-	Peak
255.99	24.77	-21.23	46	41.83	12.76	1.87	31.69	-	-	Peak
421.8	25.61	-20.39	46	38.77	16.22	2.45	31.83	100	7	Peak
817.3	24.67	-21.33	46	32.28	20.92	3.42	31.95	-	-	Peak
941.9	25.43	-20.57	46	31.02	21.82	3.79	31.2	-	-	Peak
2389.99	70.31	-3.69	74	67.4	31.9	5.4	34.39	100	51	Peak
2389.99	46.84	-7.16	54	43.93	31.9	5.4	34.39	100	51	Average
2412	104.33	-	-	101.38	31.91	5.43	34.39	100	51	Peak
2412	85.19	-	-	82.24	31.91	5.43	34.39	100	51	Average
2492	47.37	-26.63	74	44.22	32	5.52	34.37	100	51	Peak
2492	35.32	-18.68	54	32.17	32	5.52	34.37	100	51	Average
7236	54.75	-29.58	84.33	64.42	35.66	11.02	56.35	100	0	Peak



Test Mode :	Mode 8	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 7236 MHz is not within a restricted band.		

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
39.18	25.36	-14.64	40	42.99	13.27	0.8	31.7	-	-	Peak
54.03	27.25	-12.75	40	50.6	7.44	0.89	31.68	100	77	Peak
85.08	22.53	-17.47	40	45.08	8.05	1.11	31.71	-	-	Peak
421.8	25.76	-20.24	46	38.92	16.22	2.45	31.83	-	-	Peak
838.3	25.42	-20.58	46	32.74	21.1	3.5	31.92	-	-	Peak
950.3	26.33	-19.67	46	31.8	21.86	3.79	31.12	-	-	Peak
2389.99	66.89	-7.11	74	63.98	31.9	5.4	34.39	100	339	Peak
2389.99	43.54	-10.46	54	40.63	31.9	5.4	34.39	100	339	Average
2412	100.55	-	-	97.6	31.91	5.43	34.39	100	339	Peak
2412	91.87	-	-	88.92	31.91	5.43	34.39	100	339	Average
2492	45.16	-28.84	74	42.01	32	5.52	34.37	100	339	Peak
2492	33.2	-20.8	54	30.05	32	5.52	34.37	100	339	Average
7236	62.54	-18.01	80.55	72.21	35.66	11.02	56.35	100	0	7236



Test Mode :	Mode 9	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

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
43.23	20.12	-19.88	40	40.3	10.71	0.81	31.7	-	-	Peak
84.54	17.7	-22.3	40	40.47	7.84	1.1	31.71	-	-	Peak
251.94	26.16	-19.84	46	43.26	12.7	1.86	31.66	-	-	Peak
421.8	26.17	-19.83	46	39.33	16.22	2.45	31.83	100	67	Peak
831.3	24.64	-21.36	46	32.06	21.04	3.47	31.93	-	-	Peak
936.3	25.57	-20.43	46	31.24	21.8	3.78	31.25	-	-	Peak
2390	56.75	-17.25	74	53.84	31.9	5.4	34.39	100	50	Peak
2390	38.55	-15.45	54	35.64	31.9	5.4	34.39	100	50	Average
2437	104.46	-	-	101.45	31.93	5.46	34.38	100	50	Peak
2437	86.4	-	-	83.37	31.95	5.46	34.38	100	50	Average
2492	53.1	-20.9	74	49.95	32	5.52	34.37	100	50	Peak
2492	34.91	-19.09	54	31.76	32	5.52	34.37	100	50	Average
4874	45.98	-28.02	74	59.47	34.37	8.01	55.87	100	0	Peak
7311	56.1	-17.9	74	65.69	35.61	11.12	56.32	100	46	Peak
7311	35.15	-18.85	54	44.74	35.61	11.12	56.32	100	46	Average



Test Mode :	Mode 9	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

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
39.99	25.06	-14.94	40	43.09	12.86	0.81	31.7	-	-	Peak
56.19	27.17	-12.83	40	50.82	7.11	0.91	31.67	100	47	Peak
83.73	20.65	-19.35	40	43.62	7.64	1.1	31.71	-	-	Peak
421.8	23.99	-22.01	46	37.15	16.22	2.45	31.83	-	-	Peak
880.3	25.27	-20.73	46	31.85	21.46	3.68	31.72	-	-	Peak
952.4	25.45	-20.55	46	30.9	21.87	3.79	31.11	-	-	Peak
2390	52.77	-21.23	74	49.86	31.9	5.4	34.39	100	313	Peak
2390	34.83	-19.17	54	31.92	31.9	5.4	34.39	100	313	Average
2437	103.05	-	-	100.04	31.93	5.46	34.38	100	313	Peak
2437	86.4	-	-	83.37	31.95	5.46	34.38	100	313	Average
2484	51.3	-22.7	74	48.17	31.98	5.52	34.37	100	313	Peak
2484	34.81	-19.19	54	31.68	31.98	5.52	34.37	100	313	Average
4874	43.98	-30.02	74	57.48	34.37	8	55.87	100	0	Peak
7311	61.76	-12.24	74	71.35	35.61	11.12	56.32	100	334	Peak
7311	35.8	-18.2	54	45.39	35.61	11.12	56.32	100	334	Average



Test Mode :	Mode 10	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

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
34.59	17.35	-22.65	40	33.38	14.93	0.74	31.7	-	-	Peak
84.54	16.25	-23.75	40	39.02	7.84	1.1	31.71	-	-	Peak
253.83	24.37	-21.63	46	41.45	12.73	1.87	31.68	-	-	Peak
421.8	25.07	-20.93	46	38.23	16.22	2.45	31.83	-	-	Peak
871.9	24.84	-21.16	46	31.58	21.39	3.64	31.77	-	-	Peak
927.9	25.52	-20.48	46	31.31	21.76	3.78	31.33	100	57	Peak
2382	50.37	-23.63	74	47.48	31.88	5.4	34.39	100	47	Peak
2382	36.62	-17.38	54	33.73	31.88	5.4	34.39	100	47	Average
2462	103	-	-	99.92	31.97	5.49	34.38	100	47	Peak
2462	84.55	-	-	81.47	31.97	5.49	34.38	100	47	Average
2483.5	45.45	-8.55	54	42.32	31.98	5.52	34.37	100	47	Average
2483.5	67.24	-6.76	74	64.11	31.98	5.52	34.37	100	47	Peak
7386	54.34	-19.66	74	63.85	35.56	11.22	56.29	100	58	Peak
7386	35.37	-18.63	54	44.88	35.56	11.22	56.29	100	58	Average



Test Mode :	Mode 10	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	41~43%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

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
41.34	25.96	-14.04	40	45.07	11.78	0.81	31.7	-	-	Peak
56.19	27.88	-12.12	40	51.53	7.11	0.91	31.67	100	77	Peak
84.54	22.85	-17.15	40	45.62	7.84	1.1	31.71	-	-	Peak
421.8	25.09	-20.91	46	38.25	16.22	2.45	31.83	-	-	Peak
852.3	25.08	-20.92	46	32.2	21.22	3.55	31.89	-	-	Peak
955.9	25.4	-20.6	46	30.8	21.89	3.79	31.08	-	-	Peak
2380	46.59	-27.41	74	43.7	31.88	5.4	34.39	100	314	Peak
2380	34.33	-19.67	54	31.44	31.88	5.4	34.39	100	314	Average
2462	103.05	-	-	99.97	31.97	5.49	34.38	100	314	Peak
2462	84.58	-	-	81.5	31.97	5.49	34.38	100	314	Average
2483.5	45.7	-8.3	54	42.57	31.98	5.52	34.37	100	314	Average
2483.5	67.66	-6.34	74	64.53	31.98	5.52	34.37	100	314	Peak
7386	64.06	-9.94	74	73.57	35.56	11.22	56.29	100	333	Peak
7386	35.75	-18.25	54	45.26	35.56	11.22	56.29	100	333	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. 13, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Aug. 21, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000 W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211028	9kHz~26.5GHz	Jul. 12, 2011	Jul. 11, 2012	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz-1000MHz	May 10, 2011	May 09, 2012	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Oct. 31, 2010	Oct. 30, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz~18GHz	Aug. 01, 2011	Jul. 31, 2012	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 21, 2011	Oct. 20, 2012	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Apr. 14, 2011	Apr. 13, 2012	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz~1GHz	Apr. 14, 2011	Apr. 13, 2012	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 Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty $U_c(y)$	1.13		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	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-Shape	0.28
Combined Standard Uncertainty $U_c(y)$	1.27		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.54		



Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty $U_c(y)$	2.36				
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.72				



Appendix A. Photographs of EUT

Please refer to Sporton report number EP1O1401 as below.